for Preparation Click here

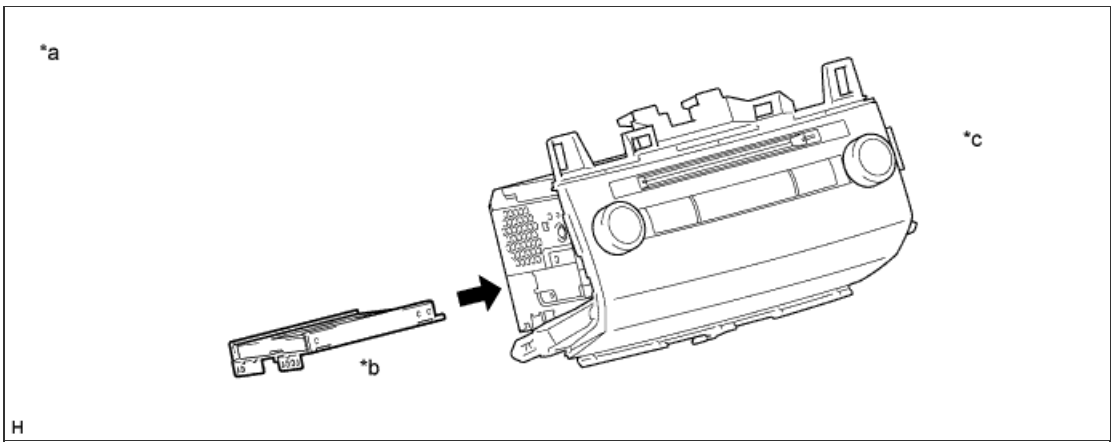
1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

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.

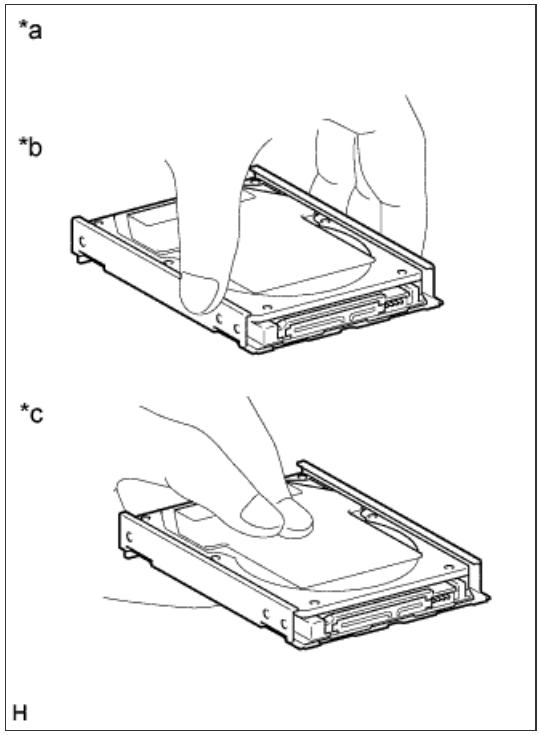
ii. Do not touch the HDD cover.

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:

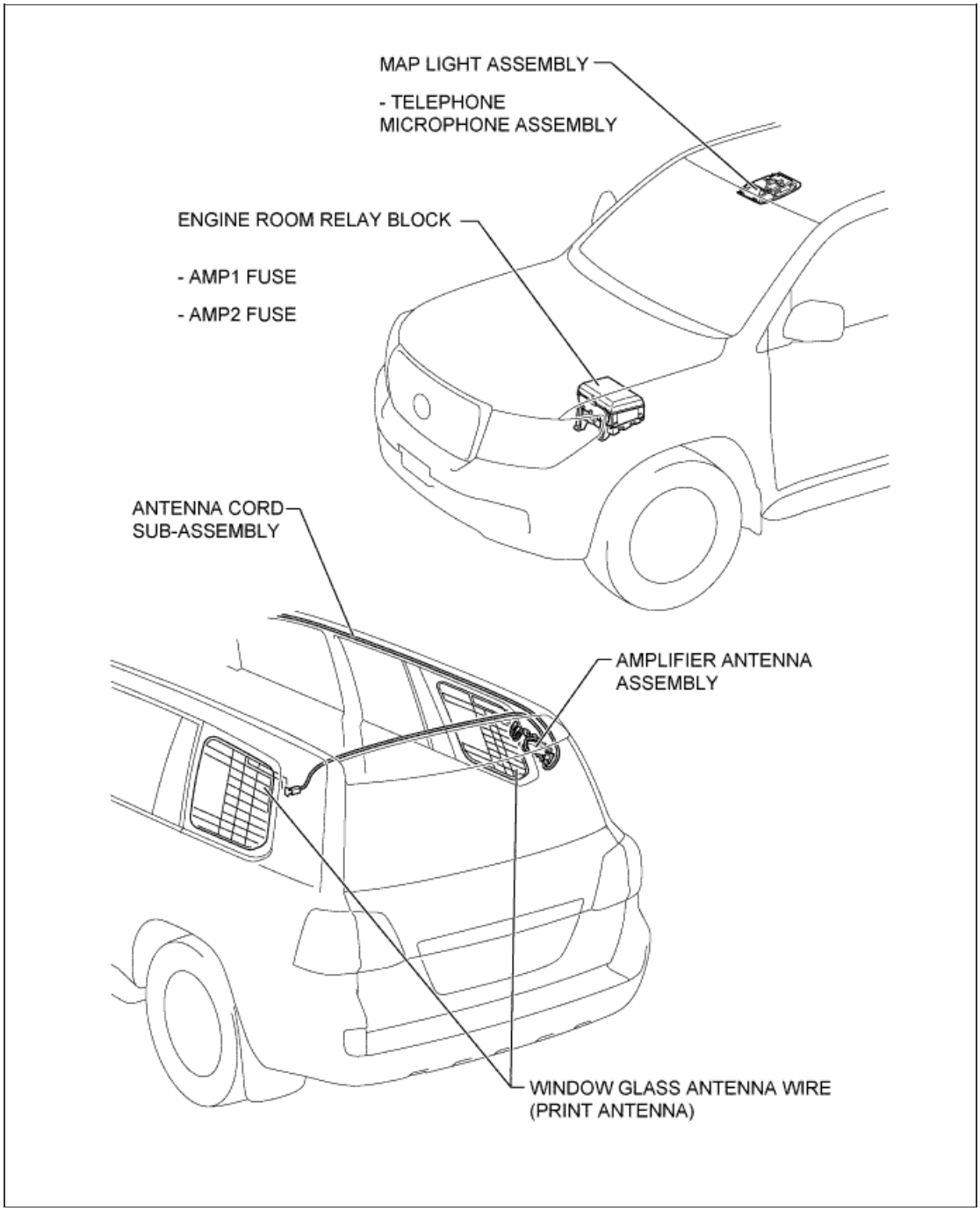
Keep the HDD away from speakers, motors, magnetized tools and other magnetic items.

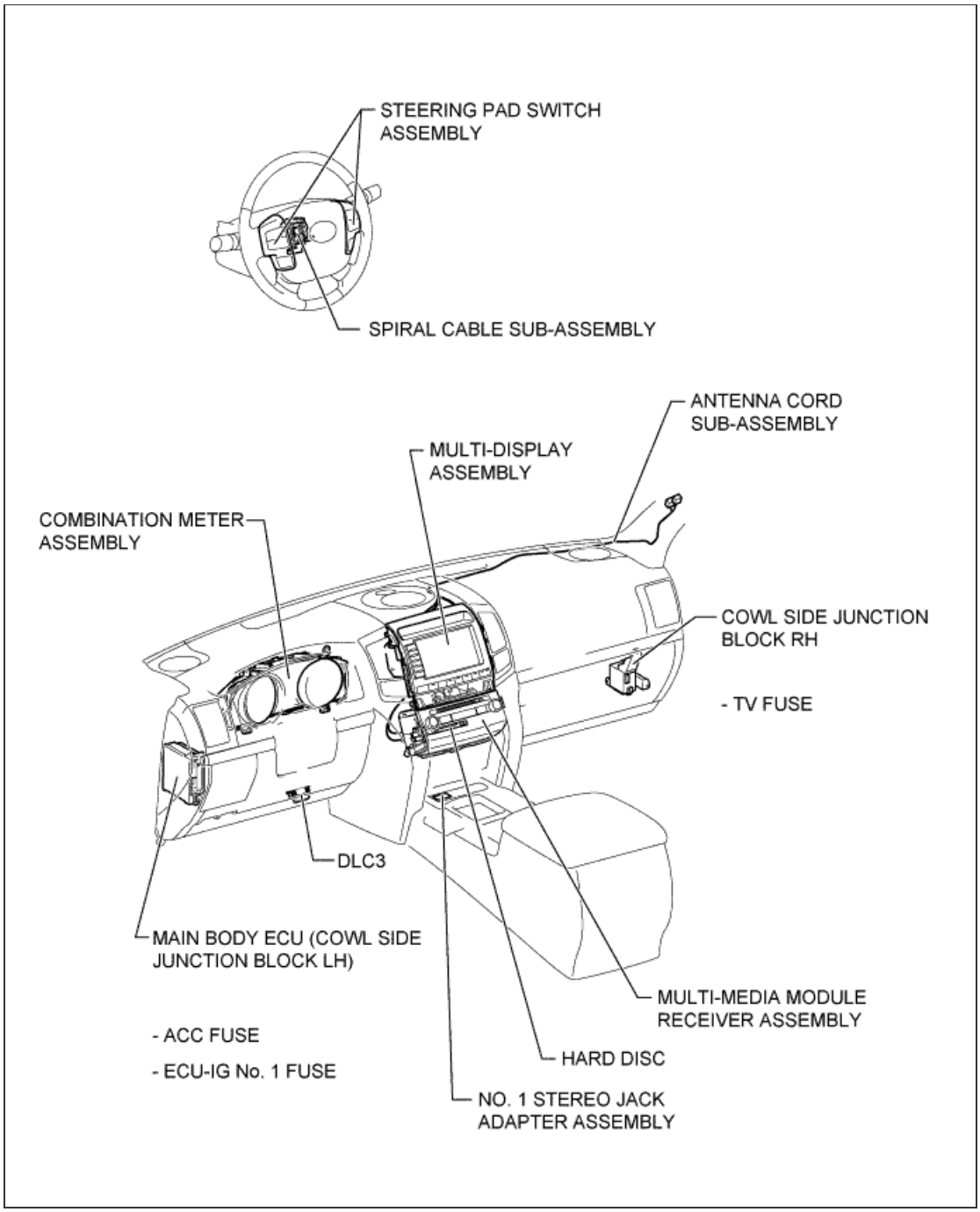
vii. Inspect after HDD replacement.

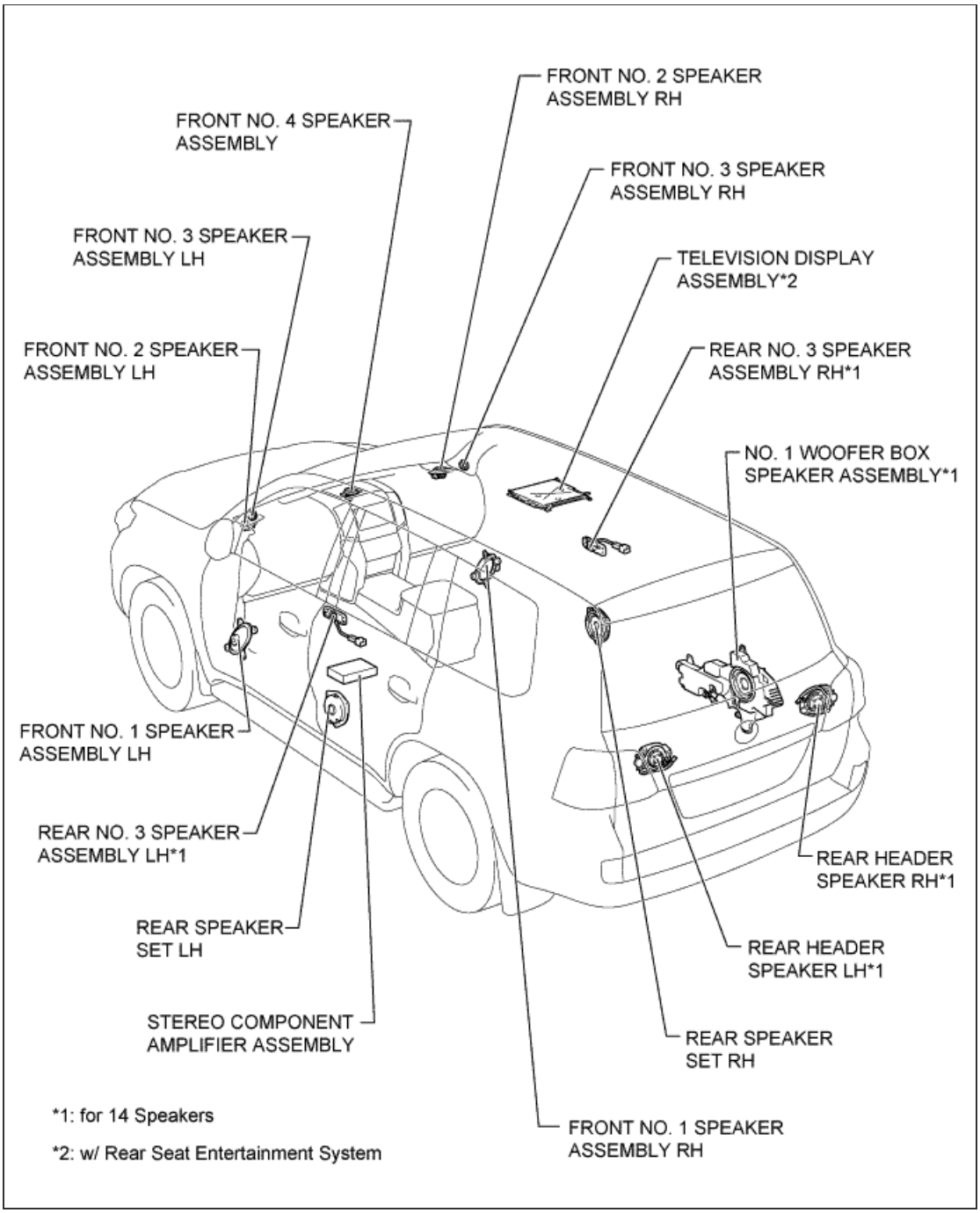
NOTICE:

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).

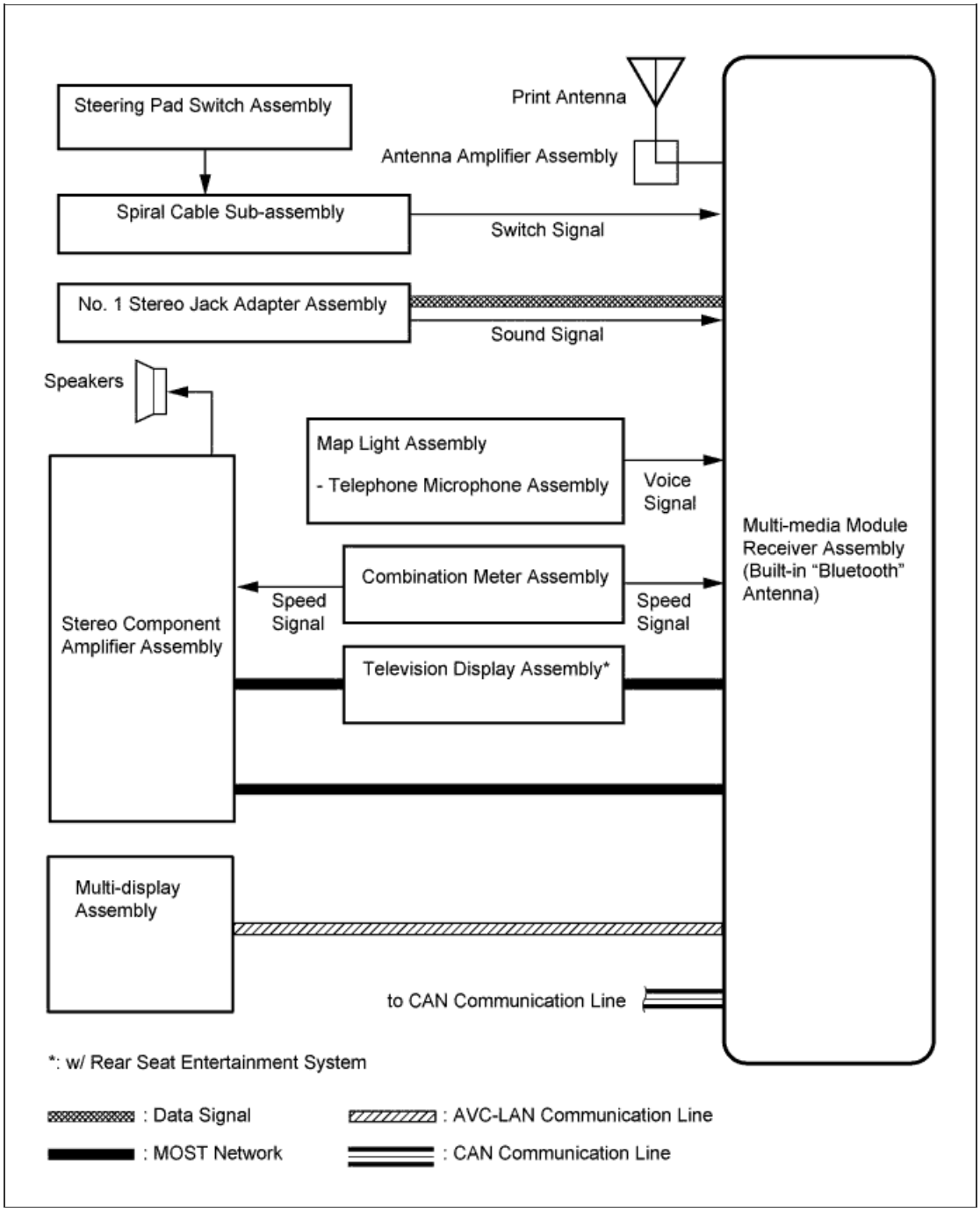
for Preparation Click here




STEERING PAD SWITCH ASSEMBLY
SPIRAL CABLE SUB-ASSEMBLY
ANTENNA CORD SUB-ASSEMBLY
MULTI-DISPLAY ASSEMBLY
COMBINATION METER ASSEMBLY
COWL SIDE JUNCTION BLOCK RH
- TV FUSE
DLC3
MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)
- ACC FUSE
- ECU-IG No. 1 FUSE
MULTI-MEDIA MODULE RECEIVER ASSEMBLY
HARD DISC
NO. 1 STEREO JACK ADAPTER ASSEMBLY


FRONT NO. 2 SPEAKER ASSEMBLY RH
FRONT NO. 4 SPEAKER ASSEMBLY
FRONT NO. 3 SPEAKER ASSEMBLY RH
FRONT NO. 3 SPEAKER ASSEMBLY LH
TELEVISION DISPLAY ASSEMBLY*2
FRONT NO. 2 SPEAKER ASSEMBLY LH
REAR NO. 3 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 HEADER SPEAKER RH*1
REAR SPEAKER SET LH
REAR HEADER SPEAKER LH*1
STEREO COMPONENT AMPLIFIER ASSEMBLY
REAR SPEAKER SET RH
*1: for 14 Speakers
*2: w/ Rear Seat Entertainment System
FRONT NO. 1 SPEAKER ASSEMBLY RH

for Preparation Click here



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:

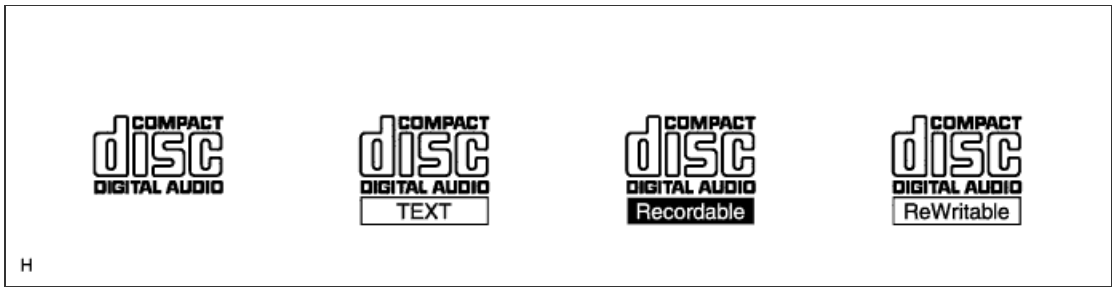
Do not look directly at the laser pickup because the CD player uses an invisible laser beam. Be sure to operate the player only as instructed.

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

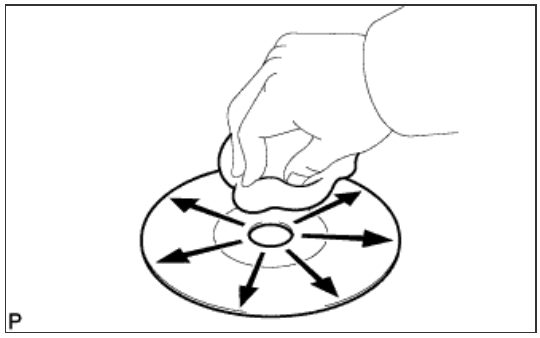
NOTICE:

- **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) • MPEG2 LSF LAYER3: 16, 22.05, 24 (kHz)
Compatible bit rate	• MPEG1 LAYER3: 32 to 320 (kbps) • MPEG2 LSF LAYER3: 8 to 160 (kbps) • 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) • 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.

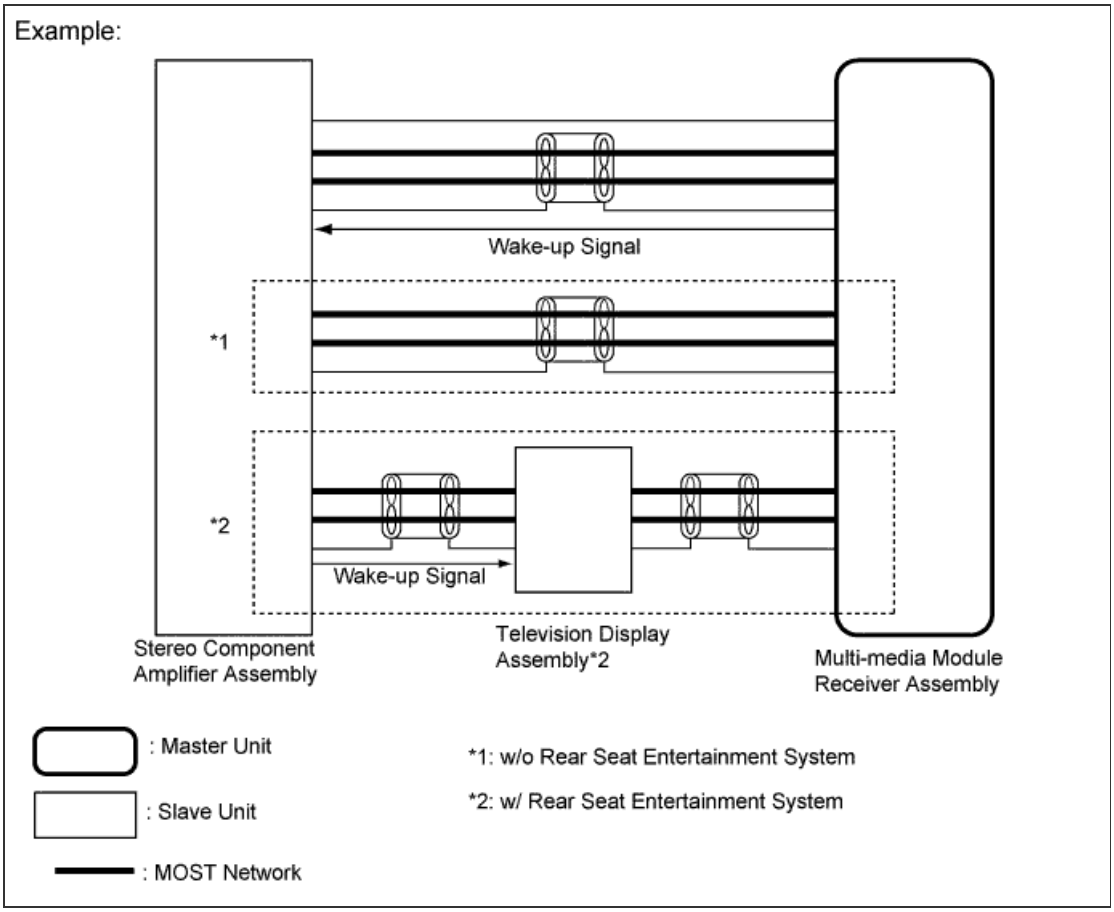
ii. Save MP3 or WMA files with an extension of ".mp3" or ".wma".

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.

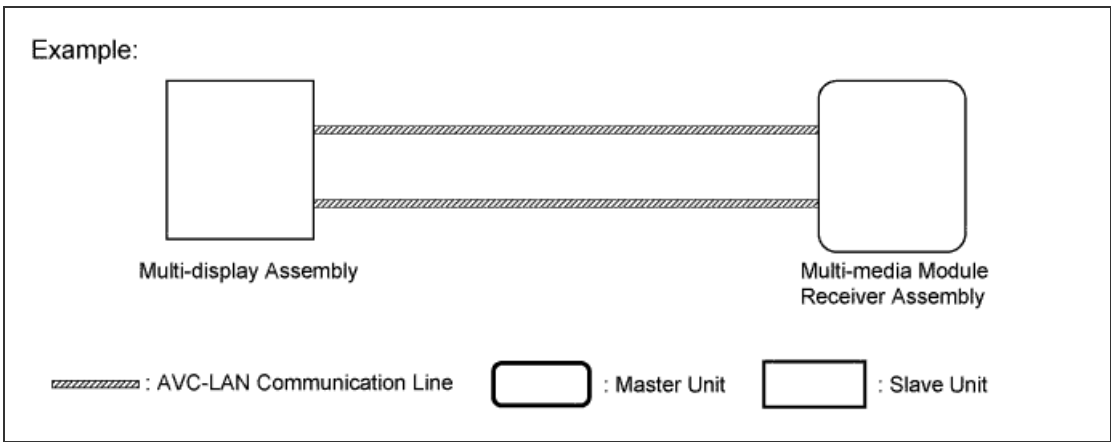
iv. MOST communication lines connect each slave unit centering around the master unit to form a MOST network ring.

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).

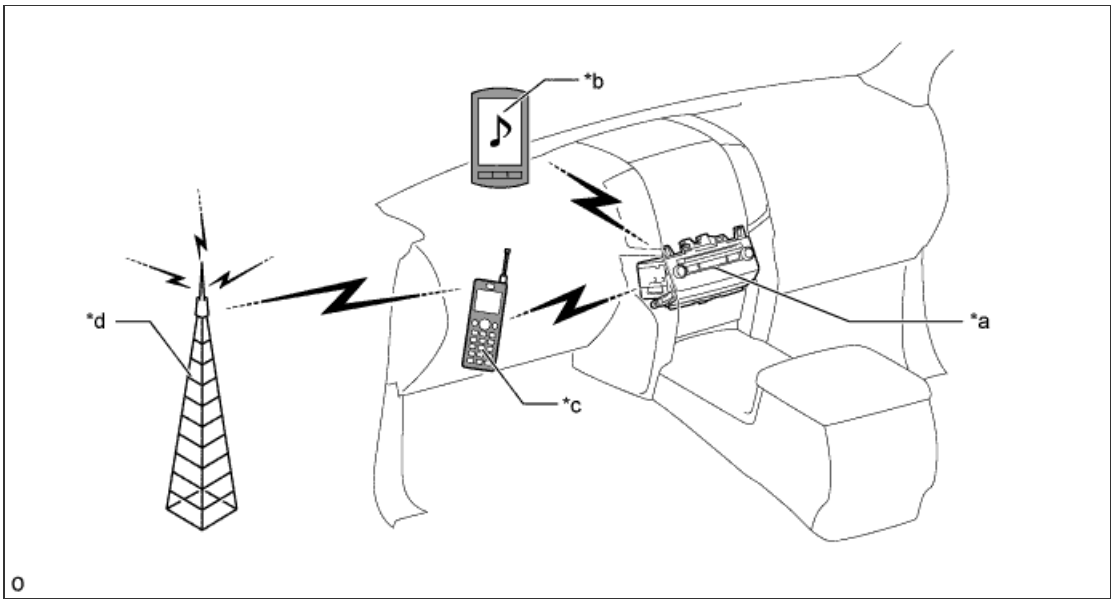
"Bluetooth" OUTLINE

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 (Built-in "Bluetooth" receiver antenna)	*b	Portable Audio Player ("Bluetooth" compatible type)
*c	Cellular Phone ("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 • OPP (Object Push Profile) Ver.1.1 or higher*1 • PBAP (Phone Book Access Profile) Ver.1.0 or higher*1 • 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) • 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) • File format: FAT16/32 (Windows) • 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"

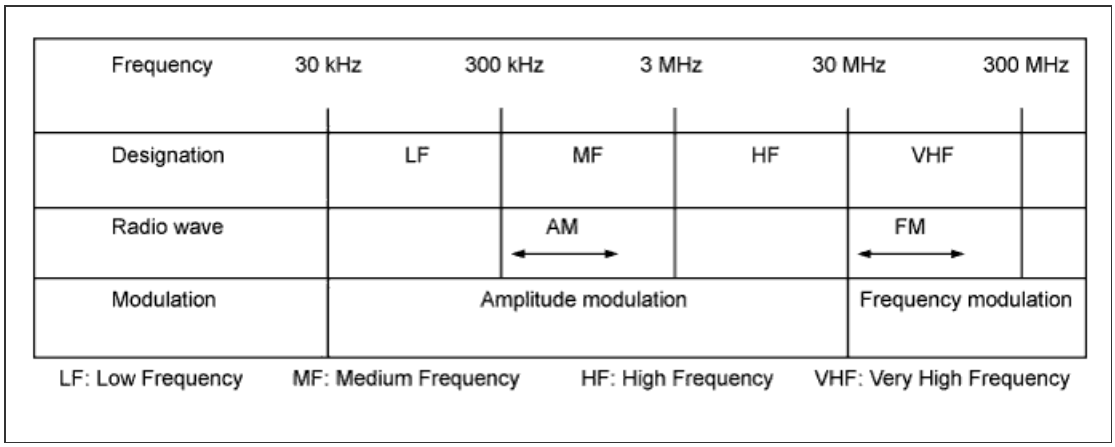
HINT:

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.

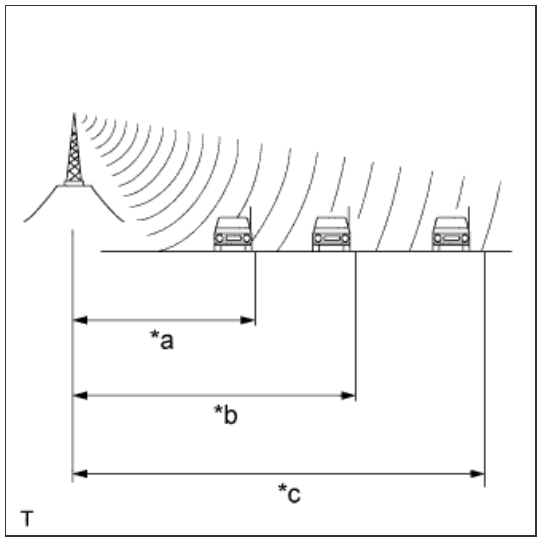


b. Service area

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:

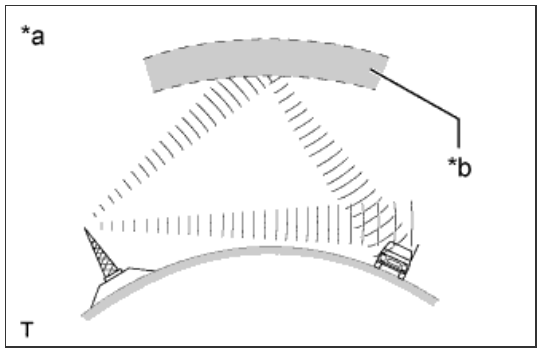
In addition to static, other problems such as "phasing", "multipath" and "fade out" exist. These problems are not caused by electrical noise, but by the radio signal propagation method itself.

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

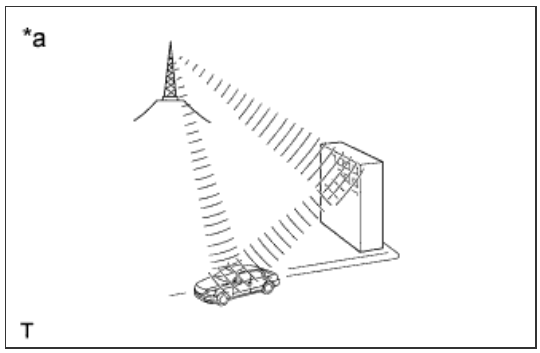


ii. Multipath

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

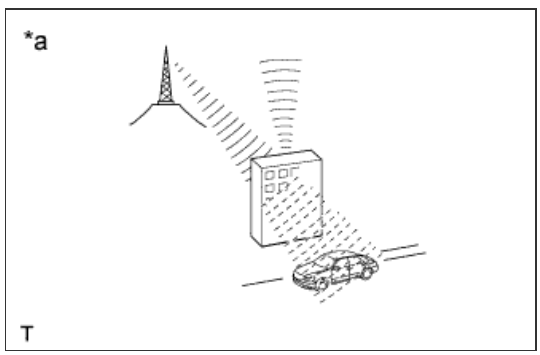


iii. Fade out

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 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. (The multi-display assembly displays content.)	B
DTCs are not output. (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 (w/ Navigation System) outputs DTCs for the following system.**
- **When DTCs other than those in Diagnostic Trouble Code Chart for the audio and visual system (w/ Navigation 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 (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 are output.	C

A.	**Go to step 13**
B.	**GO TO NAVIGATION SYSTEM (Click here)**
C.	**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

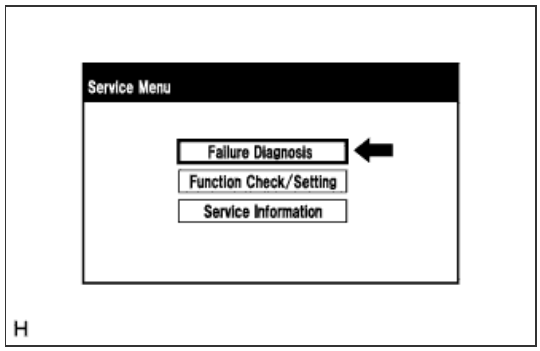
CHECK HARD DISK DRIVE

HINT:

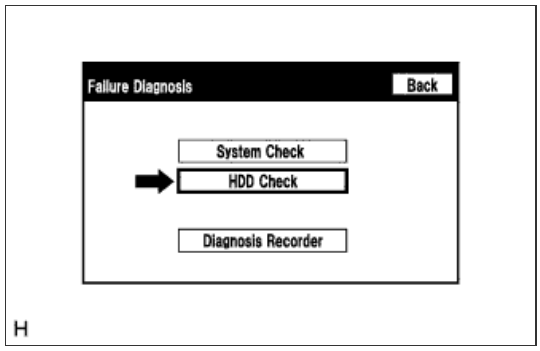
- **Check the hard disk drive (HDD) built into the multi-media module receiver assembly.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

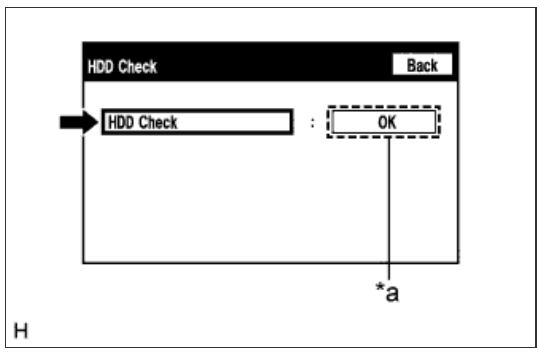
b. Select "Failure Diagnosis" from the "Service Menu" screen.



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.**

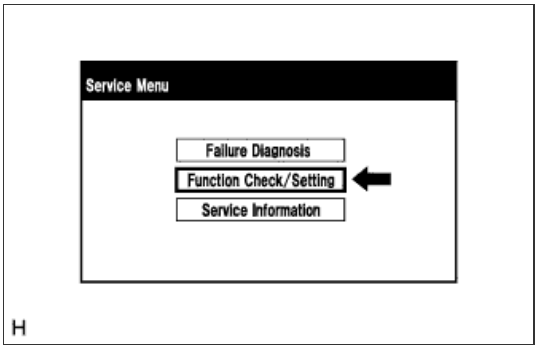
CHECK PANEL & STEERING SWITCH

HINT:

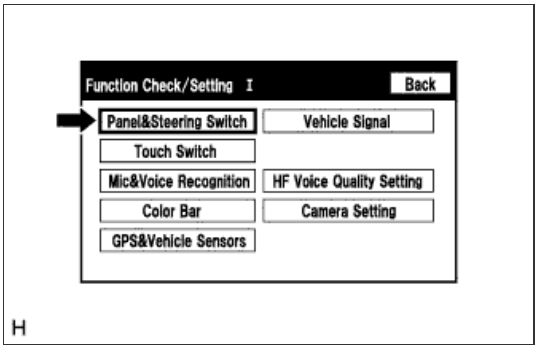
- **The multi-media module receiver assembly panel switches and steering switches are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on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

a. Enter diagnostic mode (Click here).

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

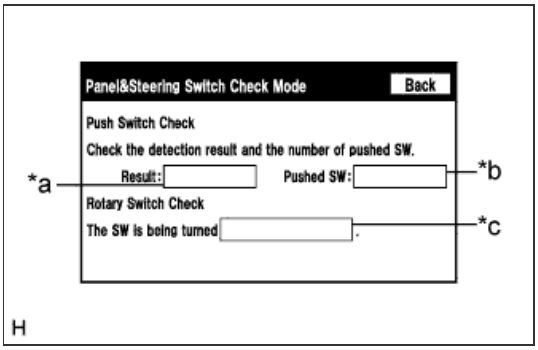


c. Select "Panel&Steering Switch" from the "Function Check/Setting I" screen.



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 • 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.

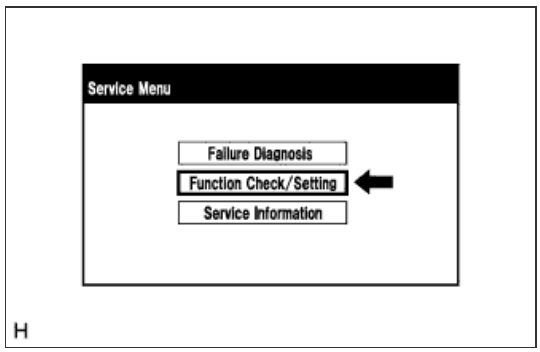
CHECK TOUCH SWITCH

HINT:

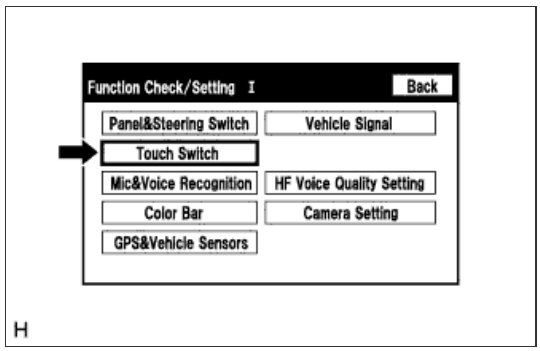
- **The touch switches on the screen are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

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.

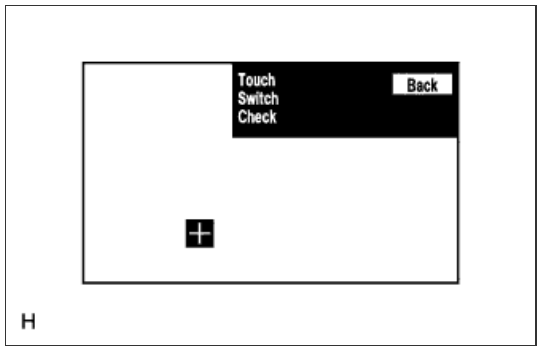


d. Touch Switch Check

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.**



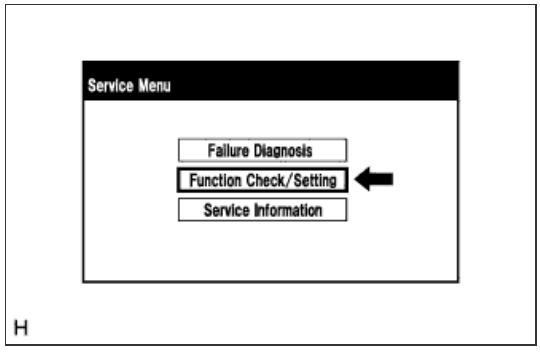
CHECK MIC & VOICE RECOGNITION

HINT:

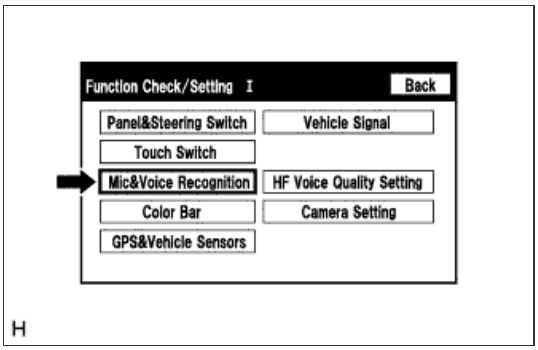
- **The microphone and microphone input level are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

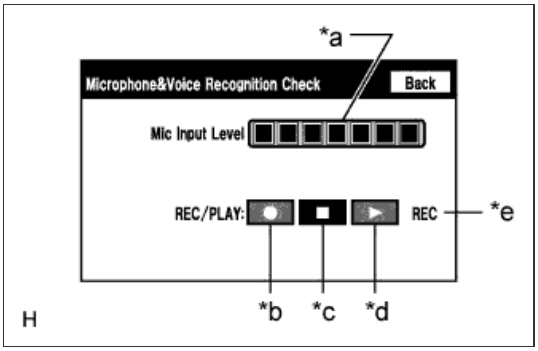
b. Select "Function Check/Setting" from the "Service Menu" screen.



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.

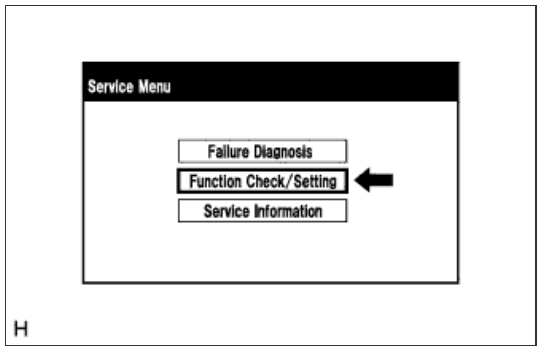
CHECK COLOR BAR

HINT:

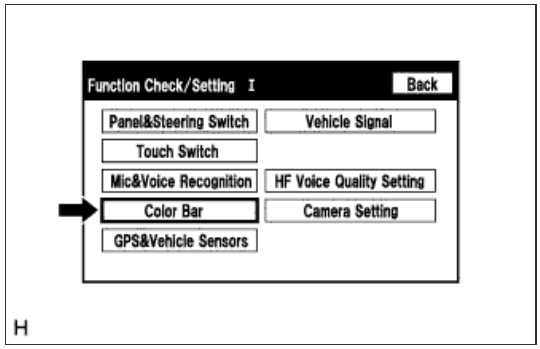
- **The display color on the screen is checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

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.



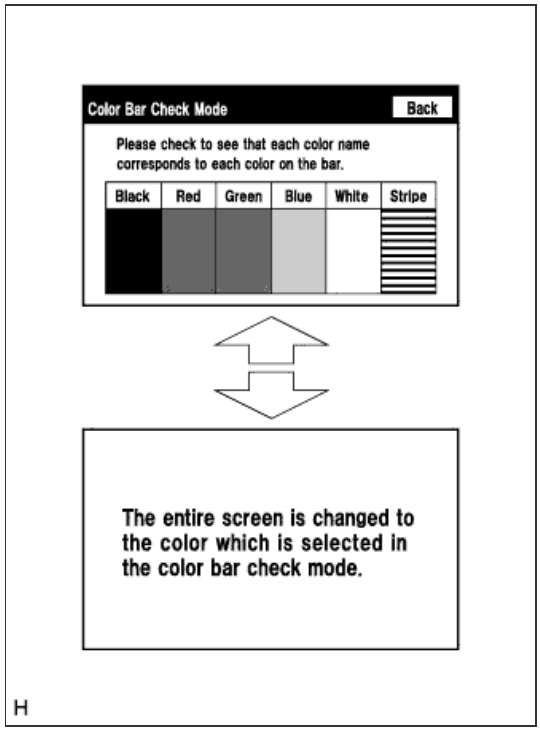
d. Color Bar Check Mode

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.**



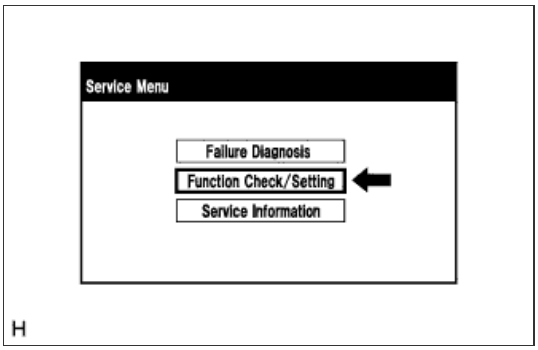
CHECK GPS & VEHICLE SENSORS

HINT:

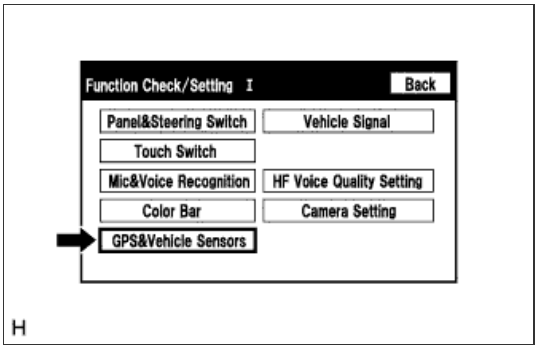
- **GPS information, vehicle signals and sensor signals are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

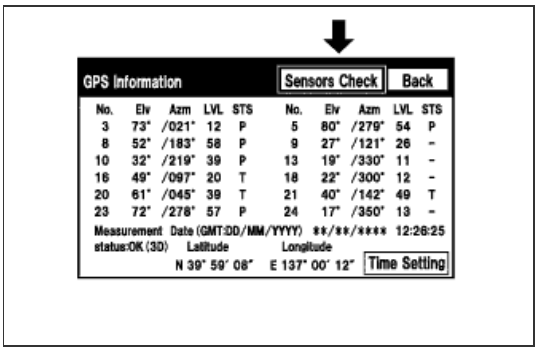
b. Select "Function Check/Setting" from the "Service Menu" screen.



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



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



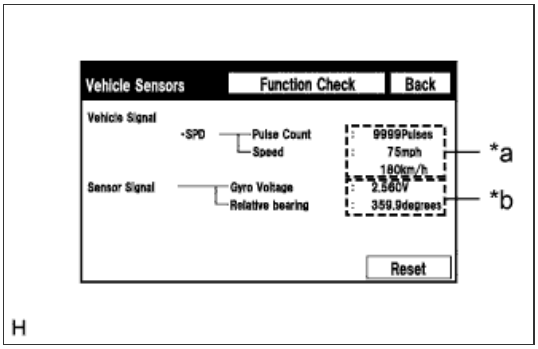
e. Vehicle Sensors

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.

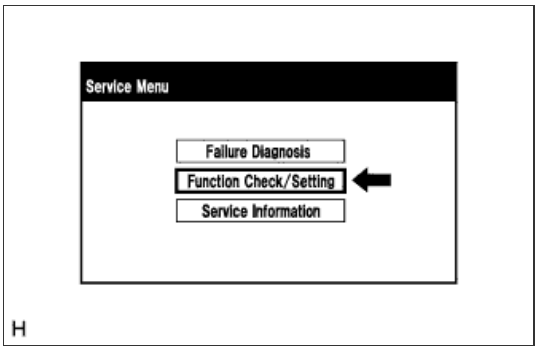
CHECK VEHICLE SIGNAL

HINT:

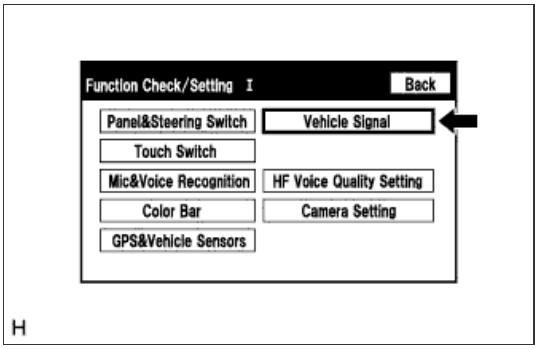
- **Vehicle signals received by the multi-media module receiver assembly are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual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

a. Enter diagnostic mode (Click here).

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

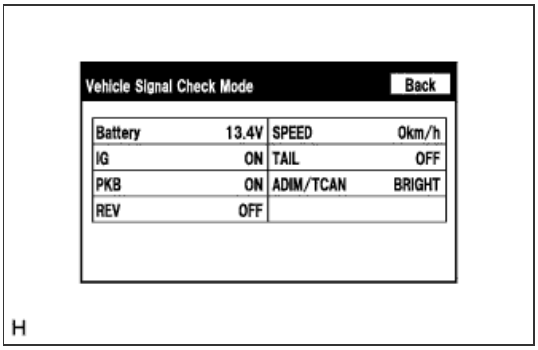


c. Select "Vehicle Signal" from the "Function Check/Setting I" screen.



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.**

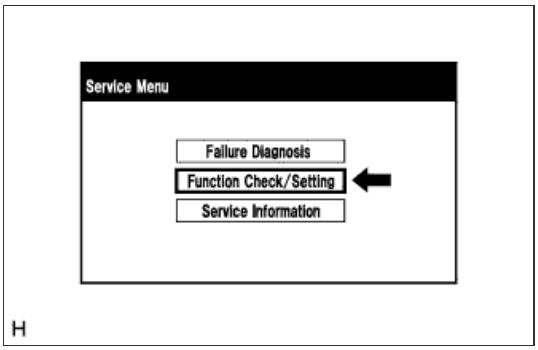
CHECK HANDS-FREE VOICE QUALITY AND VOLUME SETTING

HINT:

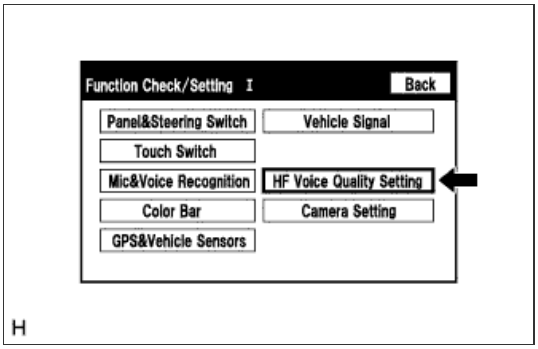
- **The hands-free volume of a "Bluetooth" compatible phone can be adjusted using the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle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

a. Enter diagnostic mode (Click here).

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



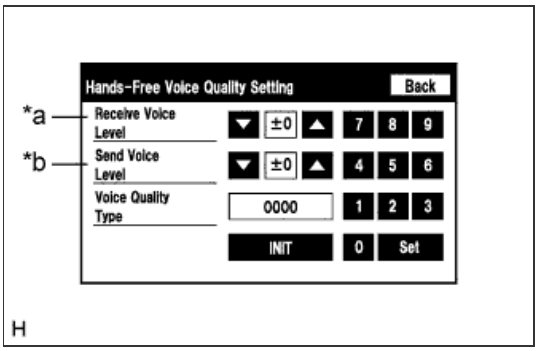
c. Select "HF Voice Quality Setting" from the "Function Check/Setting I" screen.



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.

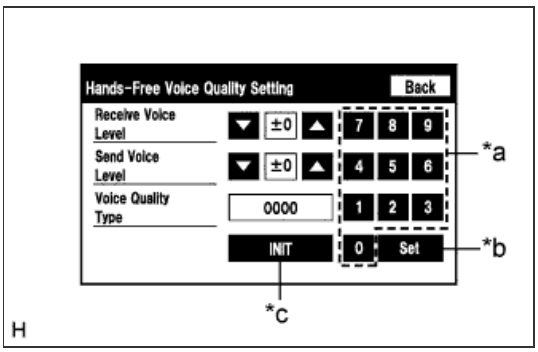
HINT:

- **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. • The amount of echo is reduced (low level).	• Background noise when not talking becomes large. • 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. • The amount of echo is reduced (high level).	• Background noise when not talking becomes large. • 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. • The amount of echo is reduced (low level).	• The volume of voice may drop temporarily. • 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. • The amount of echo is reduced (high level).	• The volume of voice may drop temporarily. • 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). • Sound the other party hears becomes	• Sound quality of the other party deteriorates (low level). • 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). • Sound you hear becomes soft.	• Sound quality of the other party deteriorates (low level). • 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.**

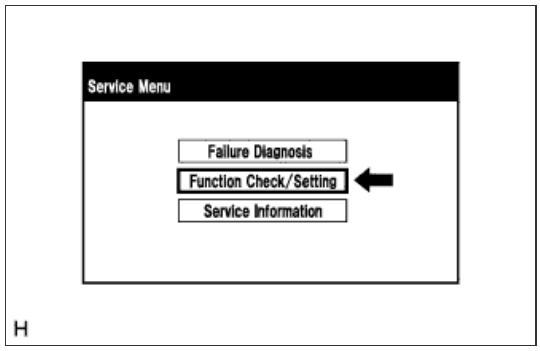
CHECK DAB RECEPTION (w/ DAB Function)

HINT:

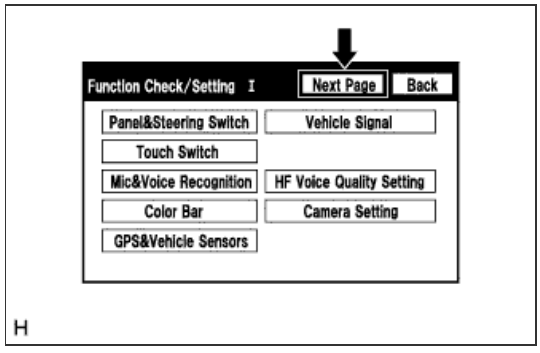
- **The reception condition of DAB (Digital Audio Broadcast) can be checked.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

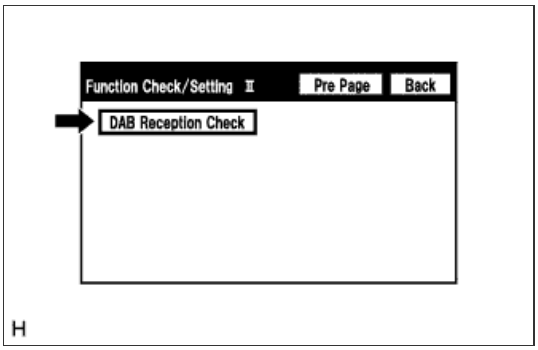
b. Select "Function Check/Setting" from the "Service Menu" screen.



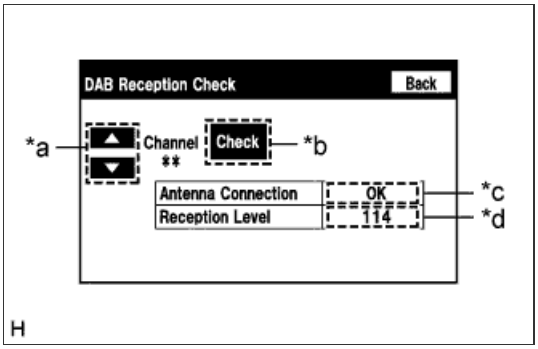
c. Select "Next Page" from the "Function Check/Setting I" screen.



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.

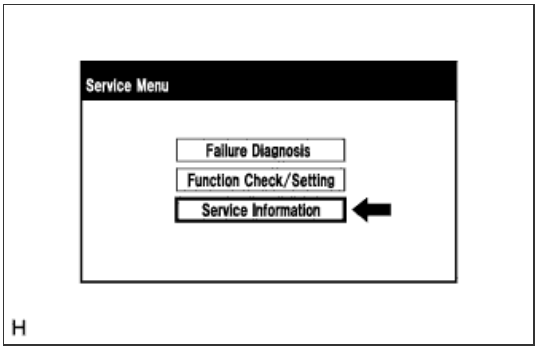
CHECK UNIT VERSION INFORMATION

HINT:

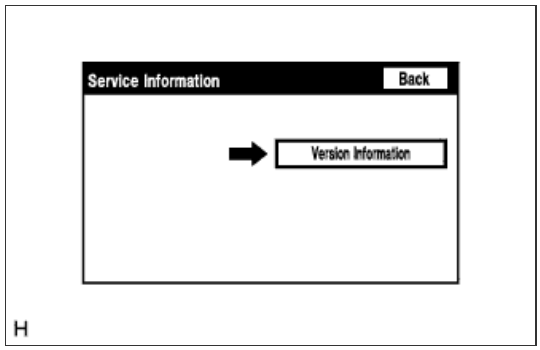
Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.

a. Enter diagnostic mode (Click here).

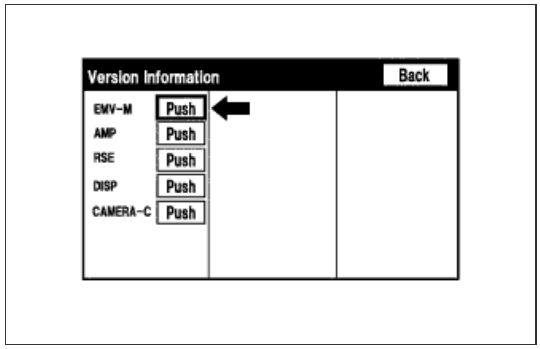
b. Select "Service Information" from the "Service Menu" screen.



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



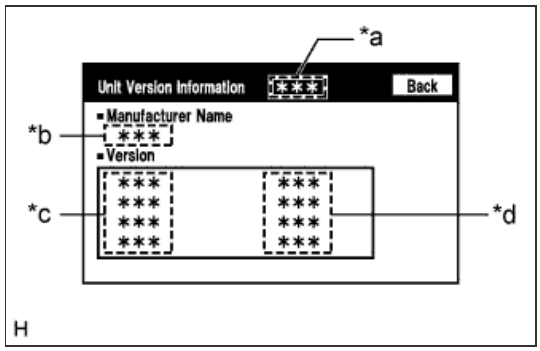
d. Press the "Push" switch.



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 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 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 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.	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: • The disc cannot be read. • The disc cannot be read because of dirt or scratches. • 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. • 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. • 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.**
- **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
	Stereo component amplifier assembly	Click here
	Multi-media module receiver assembly	Click here
Abnormal noise occurs.	Proceed to "Noise Occurs"	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
	Stereo component amplifier assembly	Click here
	Multi-media module receiver assembly	Click here
	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	Click

ASL does not function.	Component Amplifier and Combination Meter"	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
	Proceed to "CD/DVD Sound Skips"	Click 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	Proceed to "Check Optical Disc Error History" in Operation Check	Click here

low.)	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)	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)	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
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
	Check the automatic download contract setting	-
	When transferring phonebook data, OBEX authentication may be required. Enter "1234" into the "Bluetooth" phone.	-

Phonebook data cannot be transferred manually or automatically.	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
Portable player does not play.	Proceed to "Does not Play even after Bluetooth Audio Mode is Selected"	Click 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.	-
"iPod" battery cannot be charged.	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

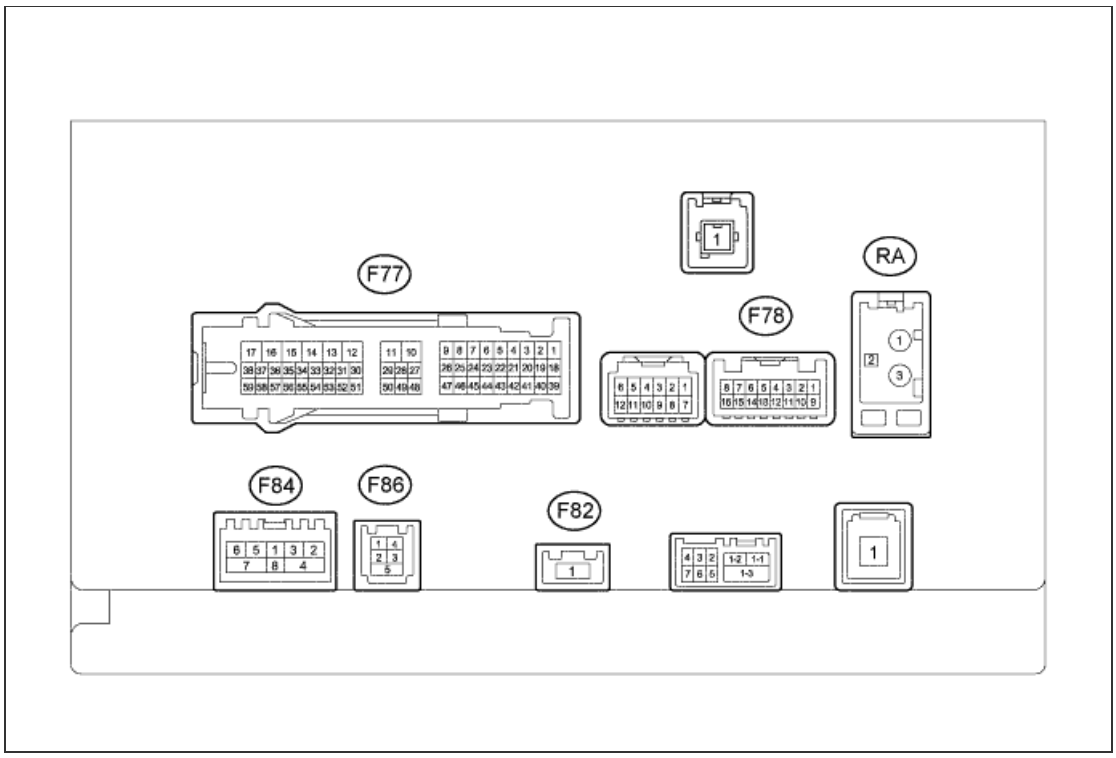
Fuel Consumption Function

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

MULTI-MEDIA MODULE RECEIVER ASSEMBLY



Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
F77-1 (CANH)	P	CAN communication signal	-	-
F77-2 (CANL)	B	CAN communication signal	-	-
F77-7 (TX1+)	W	AVC-LAN communication signal	-	-
F77-8 (TX1-)	L	AVC-LAN communication signal	-	-
F77-10 (VMTF) - F77-12 (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
F77-12 (GND1) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
F77-13 (ILL-) - F77-12 (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
F77-14 (ILL+) - F77-12 (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
F77-15 (IG) - F77-12 (GND1)	G - W-B	Power source (IG)	Engine switch on (IG)	11 to 14 V
			Engine switch off	Below 1 V
F77-16 (ACC1) - F77-12 (GND1)	GR - W-B	Power source (ACC)	Engine switch on (ACC)	11 to 14 V
			Engine switch off	Below 1 V
F77-17 (+B1) - F77-12 (GND1)	R - W-B	Power source	Always	11 to 14 V
F77-27 (MIN+) - F77-12 (GND1)	B - W-B	Microphone voice signal	See "Microphone & Voice Recognition Check" in Operation Check (Click here)	-
F77-28 (SGND) - F77-12 (GND1)	Shielded - W-B	Shield ground	Always	Below 1 V
F77-29 (MACC) - F77-12 (GND1)	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	

F77-30 (SW1) - F77-32 (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
F77-31 (SW2) - F77-32 (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
F77-32 (SWG) - Body ground	W - Body ground	Steering pad switch signal	Always	Below 1 V
F77-35 (UIND)	R	UART communication signal	-	-
F77-36 (UPSW)	P	UART communication signal	-	-
F77-45 (TX3+)	B	AVC-LAN communication signal	-	-
F77-46 (TX3-)	W	AVC-LAN communication signal	-	-
F77-48 (MIN-) - F77-12 (GND1)	R - W-B	Microphone voice signal	See "Microphone & Voice Recognition Check" in Operation Check (Click here)	-
F77-49 (SNS2) - F77-12 (GND1)	GR - W-B	Microphone connection detection signal	Always	Below 1 V
F77-56 (SPD) - F77-12 (GND1)	V - W-B	Speed signal from combination meter assembly	See "Vehicle Signal Check Mode" in Operation Check (Click here)	-
F78-5 (AGND) - Body ground	Shielded - Body ground	Shield ground	Always	Below 1 V
F78-6 (VV+) - F77-12 (GND1)	B - W-B	Display signal	DVD is playing	A waveform synchronized with display signal is output. (Refer to waveform)
F78-7 (VAR+) - F78-15 (VA-)	W - R	Sound signal (Right)	AUX audio device playing (When stereo jack adapter used)	A waveform synchronized with sound is output.
F78-8 (VAL+) - F78-15 (VA-)	B - R	Sound signal (Left)	AUX audio device playing (When stereo jack adapter used)	A waveform synchronized with sound is output.
F78-13 (SG) - Body ground	Shielded - Body ground	Shield ground	Always	Below 1 V
F78-14 (VV-) - F77-12 (GND1)	W - W-B	Ground	Always	Below 1 V
F78-15 (VA-) - F77-12 (GND1)	R - W-B	Sound signal ground	Always	Below 1 V
F78-16 (ADPG) - F77-12 (GND1)	R - W-B	External device connector detection signal	External device connected	Below 1 V
			External device not connected	2.1 to 3 V
F84-1 (WUO) - F77-12 (GND1)	W - W-B	MOST communication signal	Engine switch on (ACC)	4.5 V or higher
			Engine switch off	Below 1 V
F84-2 (MI+)	B	MOST communication signal	-	-
F84-3 (MI-)	B	MOST communication signal	-	-
F84-4 (SLDI) - Body ground	Shielded - Body ground	Shield ground	Always	Below 1 V
F84-5 (MO+)	B	MOST communication signal	-	-
F84-6 (MO-)	B	MOST communication signal	-	-
F84-7 (SLDO) - Body ground	Shielded - Body ground	Shield ground	Always	Below 1 V
F86-1 (USV1)	#	Power source	-	-
F86-2 (US1-)	#	Data signal	-	-
F86-3 (US1+)	#	Data signal	-	-
F86-4 (UGD1)	#	Ground	-	-
F86-5 (USG1)	-	Shield ground	-	-

#: There is no wire color information.

a. Reference (Oscilloscope waveform):

i. Waveform

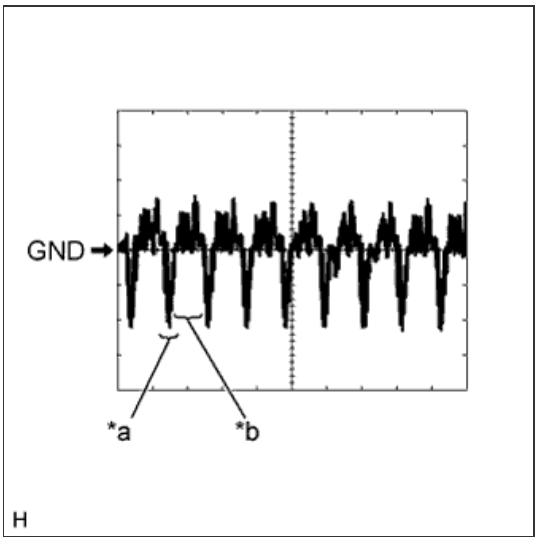
Item	Content
Measurement Terminal	F78-6 (VV+) - F77-12 (GND1)
Measurement Setting	200 mV/DIV., 10 µs/DIV.
Condition	DVD is playing

HINT:

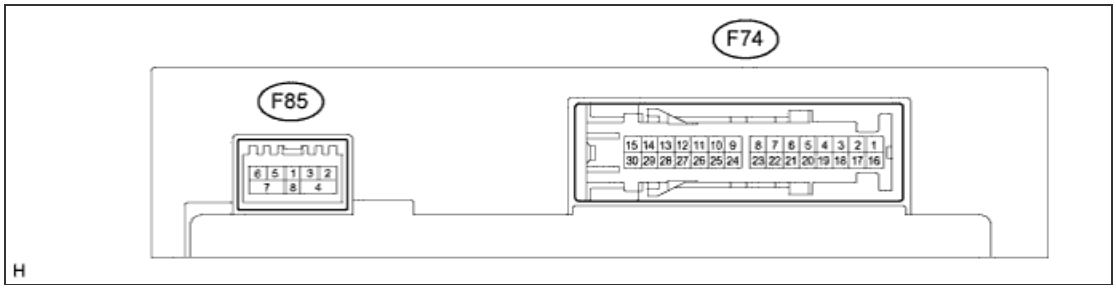
The video waveform changes according to the image input from the multi-media module receiver assembly, but the synchronization signal does not change.

Text in Illustration

*a	Synchronization Signal
*b	Video Waveform



STEREO COMPONENT AMPLIFIER ASSEMBLY

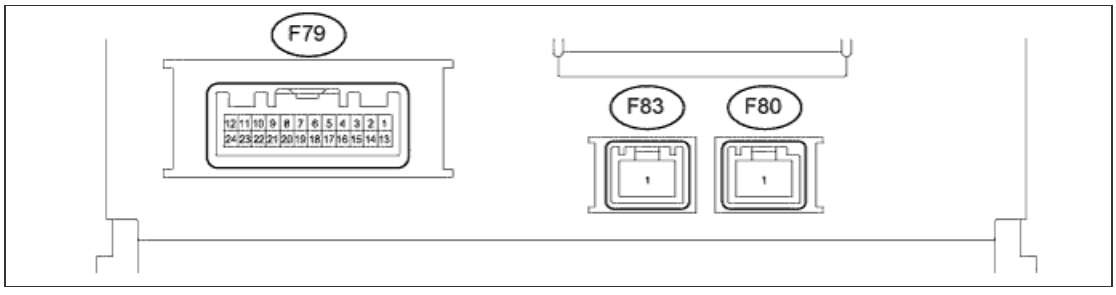


Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specification
F74-1 (+B) - F74-3 (GND)*1	B - W-B	Power source	Always	11 to 14 V
F74-3 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
F74-4 (WFL+) - F74-3 (GND)	P - W-B	Sound signal (Front Left)	Audio system playing	A waveform synchronized with sound is output.
F74-5 (WFR+) - F74-3 (GND)	LG - W-B	Sound signal (Front Right)	Audio system playing	A waveform synchronized with sound is output.
F74-6 (WF1+) - F74-3 (GND)*1	W - W-B	Sound signal (Woofer)	Audio system playing	A waveform synchronized with sound is output.
F74-7 (CTR+) - F74-3 (GND)	W - W-B	Sound signal (Front Center)	Audio system playing	A waveform synchronized with sound is output.
F74-8 (WF2+) - F74-3 (GND)*1	R - W-B	Sound signal (Woofer)	Audio system playing	A waveform synchronized with sound is output.
F74-10 (SL+) - F74-3 (GND)*1	W - W-B	Sound signal (Rear Left)	Audio system playing	A waveform synchronized with sound is output.
F74-11 (SR+) - F74-3 (GND)*1	W - W-B	Sound signal (Rear Right)	Audio system playing	A waveform synchronized with sound is output.
F74-12 (FL+) - F74-3 (GND)	W - W-B	Sound signal (Front Left)	Audio system playing	A waveform synchronized with sound is output.
F74-13 (FR+) - F74-3 (GND)	W - W-B	Sound signal (Front Right)	Audio system playing	A waveform synchronized with sound is output.
F74-14 (R-L+) - F74-3 (GND)*1	W - W-B	Sound signal (Rear Left)	Audio system playing	A waveform synchronized with sound is output
F74-14 (RL+) - F74-3 (GND)*2	B - W-B			
F74-15 (R-R+) - F74-3 (GND)*1	W - W-B	Sound signal (Rear Right)	Audio system playing	A waveform synchronized with sound is output.
F74-15 (RR+) - F74-3 (GND)*2	R - W-B			
F74-16 (+B2) - F74-3 (GND)	L - W-B	Power source	Always	11 to 14 V
F74-17 (SPD) - F74-3 (GND)	V - W-B	Vehicle speed signal	Engine switch on (IG) Wheel being rotated	Pulse generation
F74-18 (GND2) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

F74-19 (WFL-) - F74-3 (GND)	V - W-B	Sound signal (Front Left)	Audio system playing	A waveform synchronized with sound is output.
F74-20 (WFR-) - F74-3 (GND)	L - W-B	Sound signal (Front Right)	Audio system playing	A waveform synchronized with sound is output.
F74-21 (WF1-) - F74-3 (GND)*1	B - W-B	Sound signal (Woofer)	Audio system playing	A waveform synchronized with sound is output.
F74-22 (CTR-) - F74-3 (GND)	B - W-B	Sound signal (Front Center)	Audio system playing	A waveform synchronized with sound is output.
F74-23 (WF2-) - F74-3 (GND)*1	W - W-B	Sound signal (Woofer)	Audio system playing	A waveform synchronized with sound is output.
F74-25 (SL-) - F74-3 (GND)*1	B - W-B	Sound signal (Rear Left)	Audio system playing	A waveform synchronized with sound is output.
F74-26 (SR-) - F74-3 (GND)*1	B - W-B	Sound signal (Rear Right)	Audio system playing	A waveform synchronized with sound is output.
F74-27 (FL-) - F74-3 (GND)	B - W-B	Sound signal (Front Left)	Audio system playing	A waveform synchronized with sound is output.
F74-28 (FR-) - F74-3 (GND)	B - W-B	Sound signal (Front Right)	Audio system playing	A waveform synchronized with sound is output.
F74-29 (R-L-) - F74-3 (GND)*1	B - W-B	Sound signal (Rear Left)	Audio system playing	A waveform synchronized with sound is output.
F74-29 (RL-) - F74-3 (GND)*2	Y - W-B			
F74-30 (R-R-) - F74-3 (GND)*1	B - W-B	Sound signal (Rear Right)	Audio system playing	A waveform synchronized with sound is output.
F74-30 (RR-) - F74-3 (GND)*2	W - W-B			
F85-1 (WUO) - F74-3 (GND)	W - W-B	MOST communication wake-up signal	Engine switch on (ACC)	4.5 V or higher
F85-2 (MI+)	B	MOST communication signal	-	-
F85-3 (MI-)	B	MOST communication signal	-	-
F85-4 (SLDI) - Body ground	Shielded - Body ground	Shield ground	Always	Below 1 Ω
F85-5 (MO+)	B	MOST communication signal	-	-
F85-6 (MO-)	B	MOST communication signal	-	-
F85-7 (SLDO) - Body ground	Shielded - Body ground	Shield ground	Always	Below 1 Ω
F85-8 (WU1) - F74-3 (GND)	W - W-B	MOST communication wake-up signal	Engine switch on (ACC)	4.5 V or higher

*1: for 14 Speakers
*2: for 9 Speakers

MULTI-DISPLAY ASSEMBLY



Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
F79-2 (ILL) - F79-13 (GND1)	G - BR	Illumination signal	Engine switch on (IG), light control switch off	Below 1 V
			Tail or head position	11 to 14 V
F79-3 (UPSW)	P	UART communication signal	-	-
F79-4 (UIND)	R	UART communication signal	-	-
F79-7 (TX+)	B	AVC-LAN communication signal	-	-
			When image on display	3.5 V or higher → Below

F79-11 (VMTI) - F79-13 (GND1)	V - BR	Visual mute signal	switches	1 V → 3.5 V or higher
F79-12 (+B2) - F79-13 (GND1)	R - BR	Power source	Always	11 to 14 V
F79-13 (GND1) - Body ground	BR - Body ground	Ground	Always	Below 1 Ω
F79-14 (ILL-) - F79-13 (GND1)	W - BR	Ground	Always	Below 1 Ω
F79-19 (TX-)	W	AVC-LAN communication signal	-	-
F79-23 (IG) - F79-13 (GND1)	G - BR	Power source (IG)	Engine switch on (IG)	11 to 14 V
			Engine switch off	Below 1 V
F79-24 (ACC) - F79-13 (GND1)	GR - BR	Power source (ACC)	Engine switch on (ACC)	11 to 14 V
			Engine switch off	Below 1 V

TELEVISION DISPLAY ASSEMBLY (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 DTCs, and then write them down.

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

NOTICE:

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

System	Proceed to
Navigation System	Click here
Rear Seat Entertainment 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.**

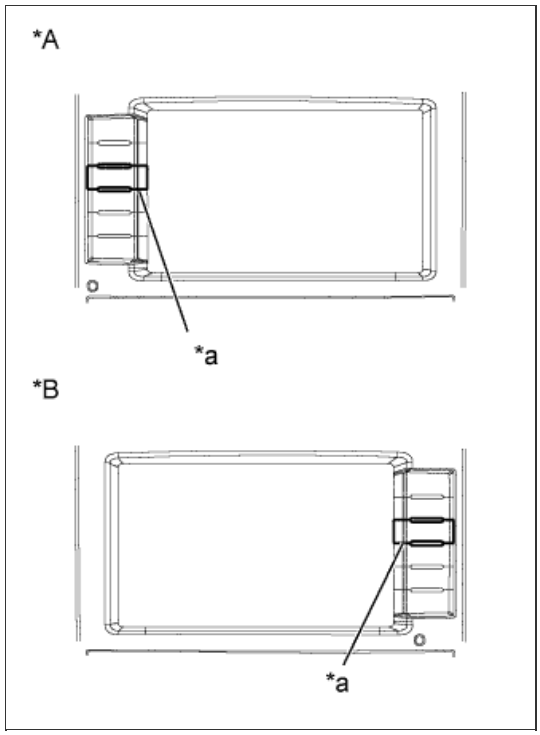
a. Start the engine.

Text in Illustration

*A	for LHD
*B	for RHD
*a	"INFO" Switch

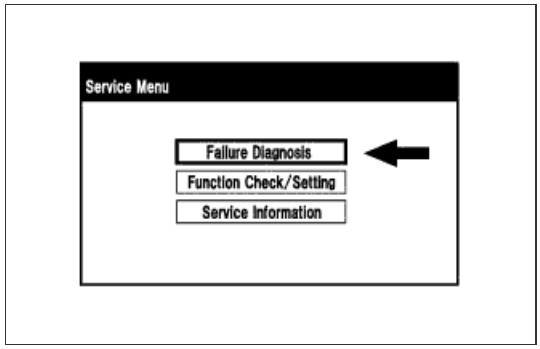
b. While pressing and holding the "INFO" switch, operate the light control switch:
Off → Tail → Off → Tail → Off → Tail → Off.

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

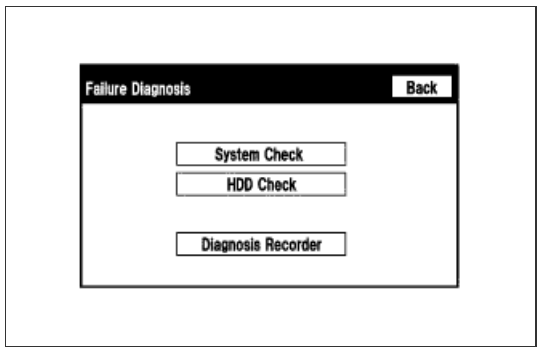


FAILURE DIAGNOSIS

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

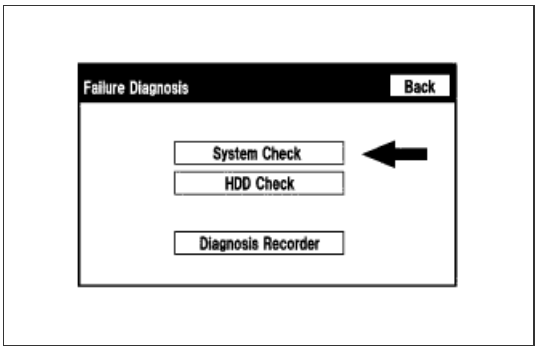


b. The "Failure Diagnosis" will be displayed.

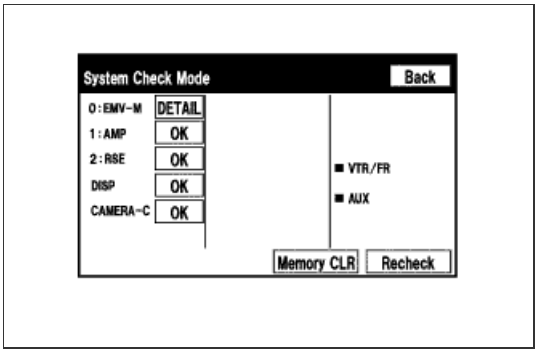


SYSTEM CHECK

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

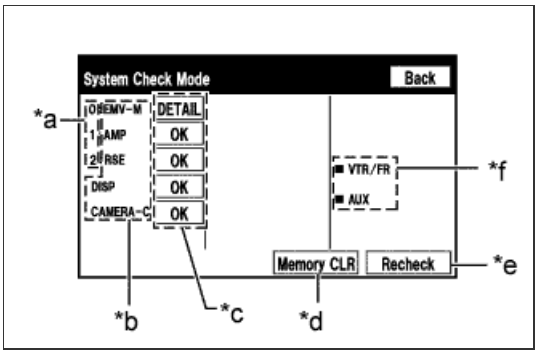


b. The "System Check Mode" screen will be displayed.



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. • 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. • Press the "Memory CLR" switch for 3 seconds.
*e: Recheck	• A system check will be performed again after the memory is cleared. • 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. • 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

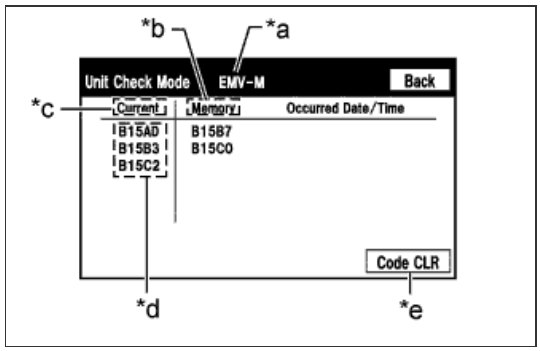
***c: Check Result Description**

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. • 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. • Check the AVC-LAN of the device.

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

Name	Component	Connection Method
VTR/FR	Video terminal	Vehicle wire harness
AUX	No. 1 stereo jack adapter assembly	Vehicle wire harness

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.**

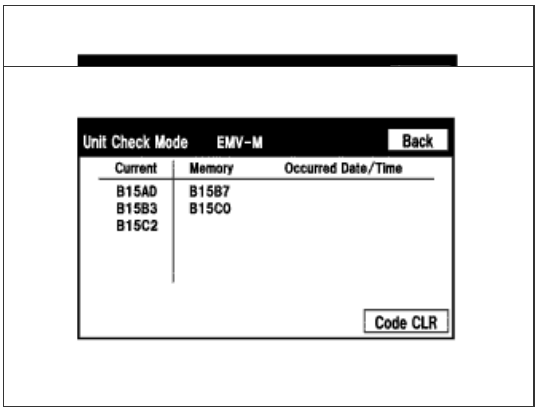
c. Read the system check result.

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.

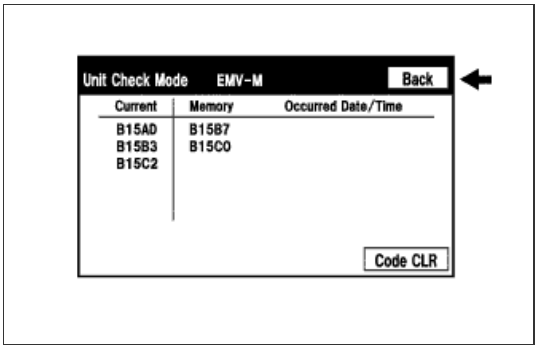
ii. View the results on the "Unit Check Mode" screen and record them.



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 (w/ Navigation System) outputs DTCs for the following system. When DTCs other than those in Diagnostic Trouble Code Chart for the audio and visual system (w/ Navigation System) are output, refer to Diagnostic Trouble Code Chart for the relevant system.

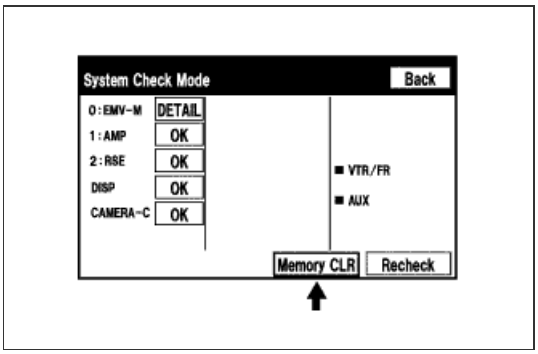
System	Proceed to
Navigation System	Click here
Rear Seat Entertainment System	Click here

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.

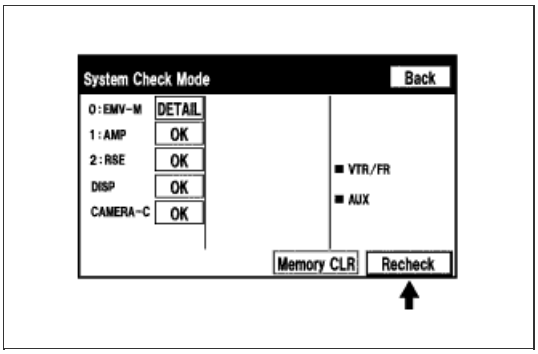


HINT:

- **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

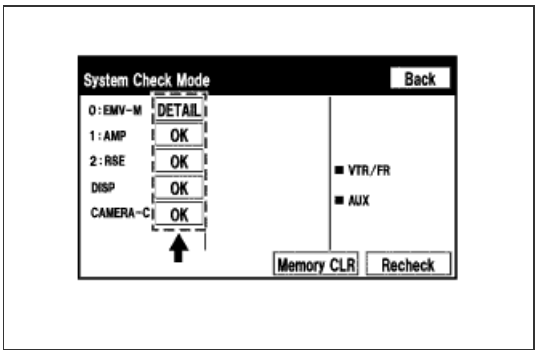
i. Press the "Recheck" switch.



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 Electrical / 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 Electrical / 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 OFF: Active dimmer function off	-
Tail Light SW	Taillight switch / ON or OFF	ON: Light control switch in tail or head position OFF: Light control switch off	-
Reverse Signal	Reverse signal / ON or OFF	ON: Shift lever in R OFF: Shift lever in any position other than R	-
Parking Brake	Parking brake switch / ON or OFF	ON: Parking brake applied OFF: Parking brake released	-
Ignition	Engine switch / ON or OFF	ON: Engine switch on (IG) 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

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
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 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: • Bus malfunction • EEPROM error • Sub-microprocessor malfunction	
B15B3	Tuner communication error	
B15B5	When one of the conditions below is met: • Mechanical communication error • Read malfunction • 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 B15D3 Stereo Component Amplifier Disconnected

for Preparation Click here

DESCRIPTION

The multi-media module receiver assembly, television display assembly* 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 and stereo component amplifier assembly, these DTCs will be stored.

*: w/ Rear Seat Entertainment System

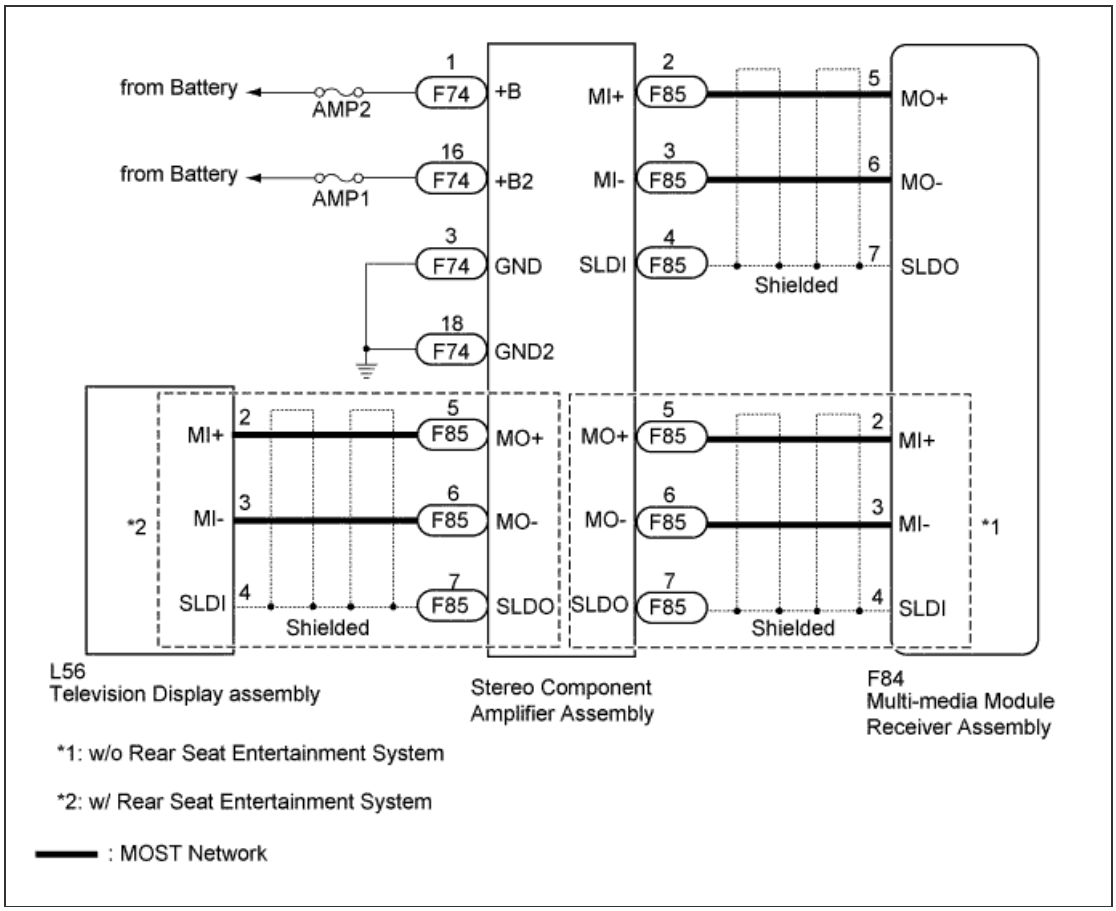
DTC Code	DTC Detection Condition	Trouble Area
B15D3	A device that is listed in the MOST network connected device record of the master unit is missing.	• Stereo component amplifier assembly power source circuit • MOST circuit between multi-media module receiver assembly and stereo component amplifier assembly • MOST circuit between television display assembly and stereo component amplifier assembly* • Stereo component amplifier assembly • Multi-media module receiver assembly • Television display assembly*

*: w/ Rear Seat Entertainment System

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)

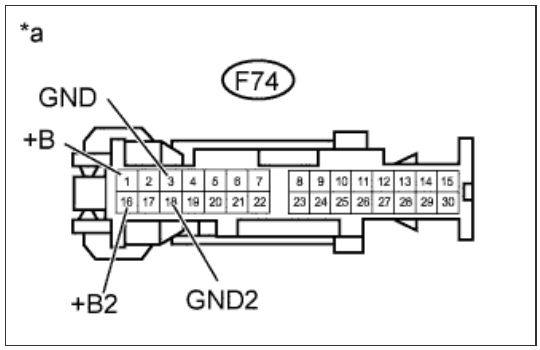
5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - BATTERY AND BODY GROUND)

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
F74-3 (GND) - Body ground	Always	Below 1 Ω
F74-18 (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
F74-1 (+B) - F74-3 (GND)	Always	11 to 14 V
F74-16 (+B2) - F74-3 (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)	B
NG	C

B → Go to step 10

C → REPAIR OR REPLACE HARNESS OR CONNECTOR

A

6.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the F84 multi-media module receiver assembly connector.

b. Disconnect the F85 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
F84-2 (MI+) - F85-5 (MO+)	Always	Below 1 Ω
F84-3 (MI-) - F85-6 (MO-)	Always	Below 1 Ω
F84-4 (SLDI) - F85-7 (SLDO)	Always	Below 1 Ω
F84-5 (MO+) - F84-2 (MI+)	Always	Below 1 Ω
F84-6 (MO-) - F85-3 (MI-)	Always	Below 1 Ω
F84-7 (SLDO) - F85-4 (SLDI)	Always	Below 1 Ω
F84-2 (MI+) - Body ground	Always	10 kΩ or higher
F84-3 (MI-) - Body ground	Always	10 kΩ or higher
F84-4 (SLDI) - Body ground	Always	10 kΩ or higher
F84-5 (MO+) - Body ground	Always	10 kΩ or higher

F84-6 (MO-) - Body ground	Always	10 kΩ or higher
F84-7 (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 F84 multi-media module receiver assembly connector.

b. Disconnect the F85 stereo component amplifier assembly connector.

c. Disconnect the L56 television display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F84-5 (MO+) - F85-2 (MI+)	Always	Below 1 Ω
F84-6 (MO-) - F85-3 (MI-)	Always	Below 1 Ω
F84-7 (SLDO) - F85-4 (SLDI)	Always	Below 1 Ω
F85-5 (MO+) - L56-2 (MI+)	Always	Below 1 Ω
F85-6 (MO-) - L56-3 (MI-)	Always	Below 1 Ω
F85-7 (SLDO) - L56-4 (SLDI)	Always	Below 1 Ω
F85-2 (MI+) - Body ground	Always	10 kΩ or higher

F85-3 (MI-) - Body ground	Always	10 kΩ or higher
F85-4 (SLDI) - Body ground	Always	10 kΩ or higher
F85-5 (MO+) - Body ground	Always	10 kΩ or higher
F85-6 (MO-) - Body ground	Always	10 kΩ or higher
F85-7 (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)

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: • Bus malfunction • EEPROM error • Sub-microprocessor malfunction	
B15B3	Tuner communication error	
B15B5	When one of the conditions below is met: • Mechanical communication error • Read malfunction • 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 B15D6 Display Disconnected

for Preparation Click here

DESCRIPTION

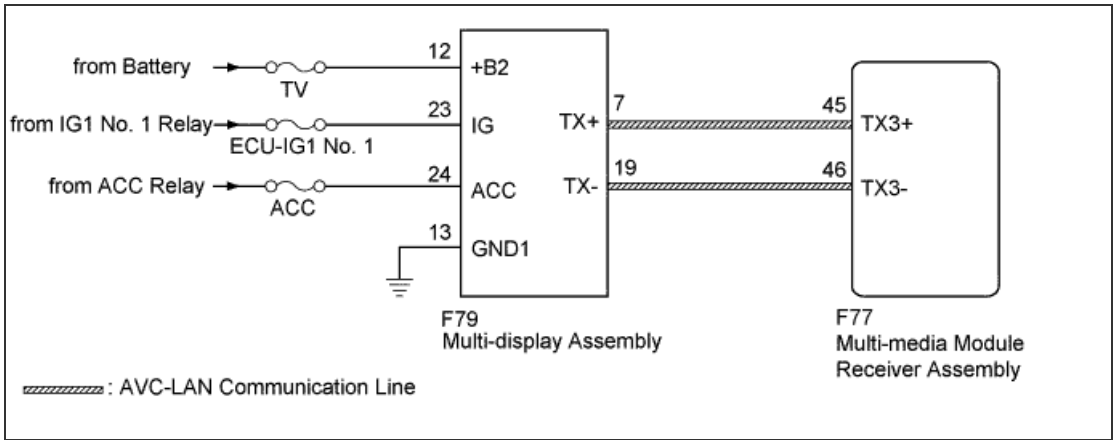
The multi-display assembly and multi-media module receiver assembly are connected by an AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display module board and multi-display assembly, these DTCs will be stored.

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 • Multi-media module receiver assembly • Harness or connector

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:
DTC B15D6 is not 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.

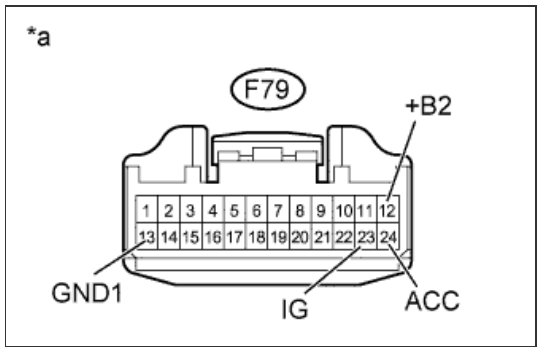
Standard Resistance:

Tester Connection	Condition	Specified Condition
F79-13 (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
F79-12 (+B2) - F79-13 (GND1)	Always	11 to 14 V
F79-23 (IG) - F79-13 (GND1)	Engine switch on (IG)	11 to 14 V
F79-24 (ACC) - F79-13 (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

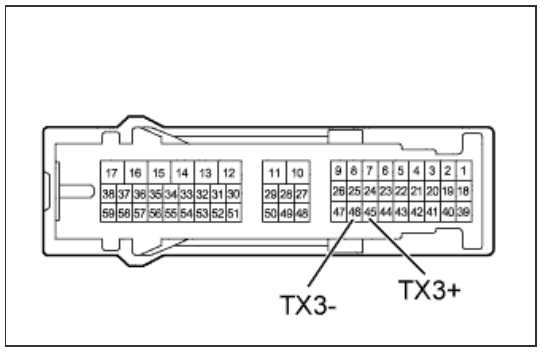
4.INSPECT MULTI-MEDIA MODULE RECEIVER ASSEMBLY

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 F77 multi-media module receiver assembly connector.

b. Disconnect the F79 multi-display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F77-45 (TX3+) - F79-7 (TX+)	Always	Below 1 Ω

F77-46 (TX3-) - F79-19 (TX-)	Always	Below 1 Ω
F77-45 (TX3+) - Body ground	Always	10 kΩ or higher
F77-46 (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:
DTC B15D6 is not output.

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

END (MULTI-DISPLAY ASSEMBLY IS DEFECTIVE)

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: • Bus malfunction • EEPROM error • Sub-microprocessor malfunction	
B15B3	Tuner communication error	
B15B5	When one of the conditions below is met: • Mechanical communication error • Read malfunction • 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 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 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: • Bus malfunction • EEPROM error • Sub-microprocessor malfunction	
B15B3	Tuner communication error	
B15B5	When one of the conditions below is met: • Mechanical communication error • Read malfunction • 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 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 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: • Bus malfunction • EEPROM error • Sub-microprocessor malfunction	
B15B3	Tuner communication error	
B15B5	When one of the conditions below is met: • Mechanical communication error • Read malfunction • 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 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 • Air conditioning system • Air conditioning amplifier assembly • 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 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: • Bus malfunction • EEPROM error • Sub-microprocessor malfunction	
B15B3	Tuner communication error	
B15B5	When one of the conditions below is met: • Mechanical communication error • Read malfunction • 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 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 • Power door lock control system • Wireless door lock control system • Lighting system • Main body ECU (cowl side junction block LH) • 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 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) • 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 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 • Entry and start system (for Entry Function) • Certification ECU (smart key ECU assembly) • 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 B1579 Voice Recognition Microphone Disconnected

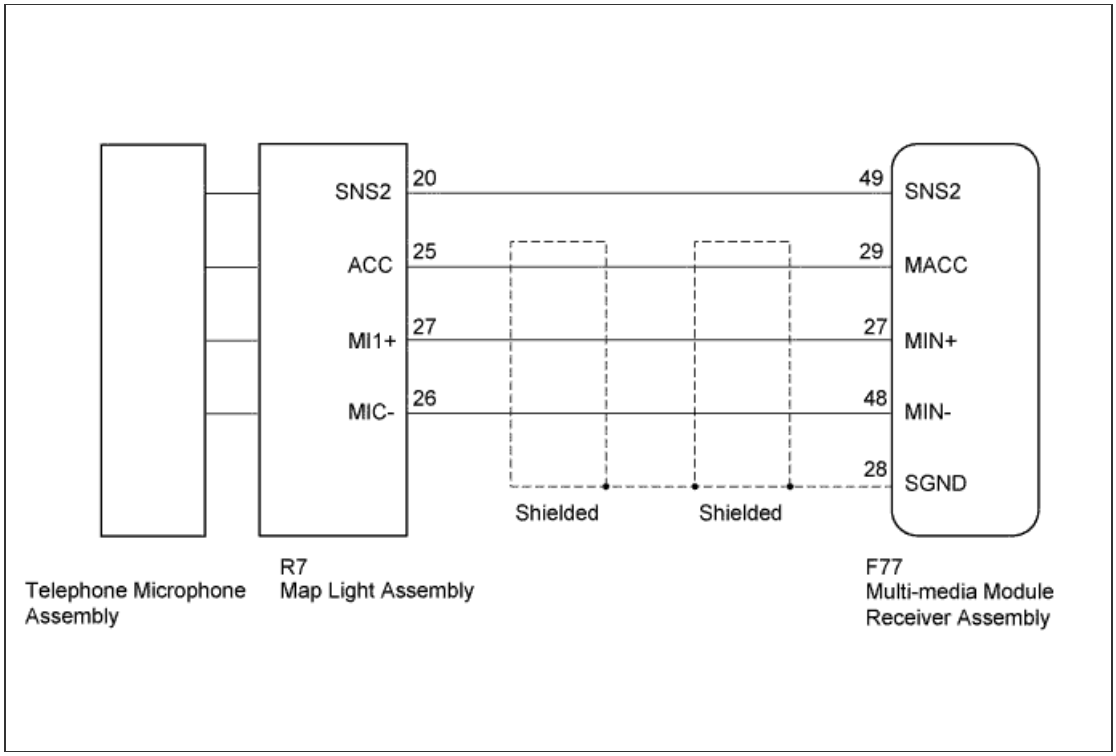
for Preparation Click here

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 • Map light assembly • Telephone microphone assembly • Harness or connector

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MAP LIGHT ASSEMBLY)

a. Disconnect the F77 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
F77-49 (SNS2) - R7-20 (SNS2)	Always	Below 1 Ω
F77-29 (MACC) - R7-25 (ACC)	Always	Below 1 Ω
F77-27 (MIN+) - R7-27 (MI1+)	Always	Below 1 Ω
F77-48 (MIN-) - R7-26 (MIC-)	Always	Below 1 Ω
F77-49 (SNS2) - Body ground	Always	10 kΩ or higher

F77-29 (MACC) - Body ground	Always	10 kΩ or higher
F77-27 (MIN+) - Body ground	Always	10 kΩ or higher
F77-48 (MIN-) - Body ground	Always	10 kΩ or higher
F77-28 (SGND) - Body ground	Always	10 kΩ or higher

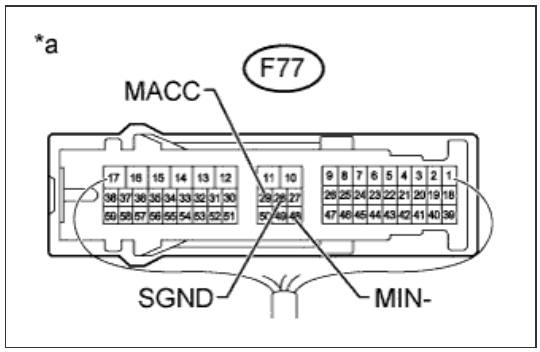
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

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
F77-28 (SGND) - Body ground	Always	Below 1 Ω
F77-48 (MIN-) - 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
F77-29 (MACC) - Body ground	Engine switch on (ACC)	4 to 6 V

Text in Illustration

*a	Component with harness connected (Multi-media Module Receiver Assembly)

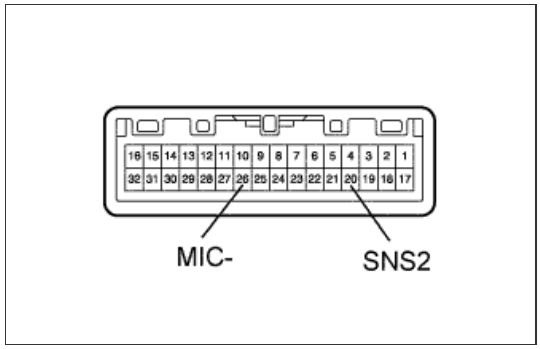
NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

3.CHECK 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
26 (MIC-) - 20 (SNS2)	Always	Below 1 Ω

Text in Illustration

*a	Component without harness connected (Map Light Assembly)

NG → Go to step 5

OK

4.CHECK MAP LIGHT ASSEMBLY

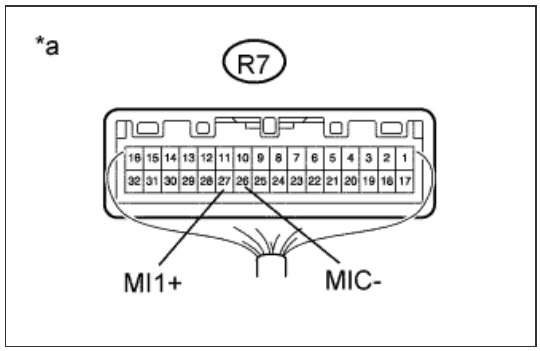
a. Reconnect the multi-media module receiver assembly connector.

b. Reconnect the map light assembly connector.

c. Turn the engine switch on (ACC).

d. Connect an oscilloscope to terminals R7-27 (MI1+) and R7-26 (MIC-) of the map light assembly connector.

e. 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 not output.	A
A waveform synchronized with the voice input to the map light assembly is output.	B

B → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

A

5.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 B15F9 UART Communication Malfunction(for A/C)

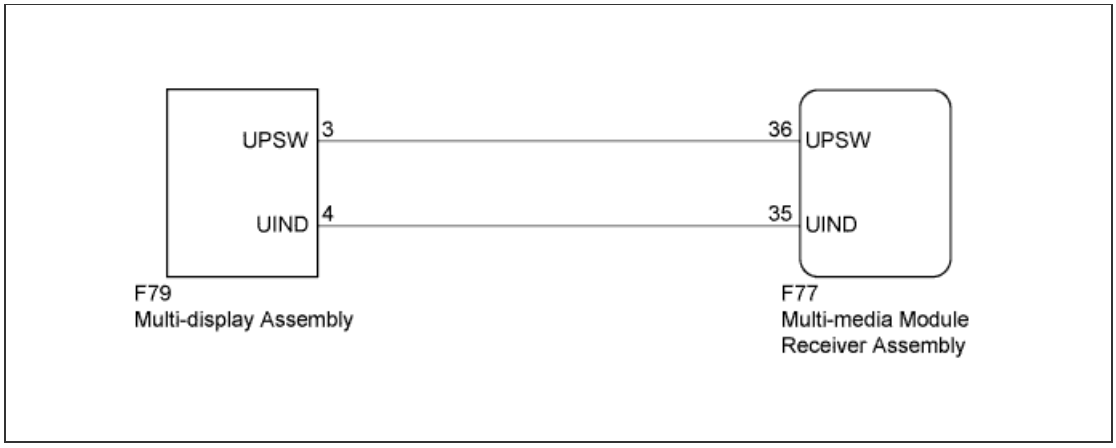
for Preparation Click here

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 • Multi-media module receiver assembly • 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 F77 multi-media module receiver assembly connector.

b. Disconnect the F79 multi-display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition

F77-36 (UPSW) - F79-3 (UPSW)	Always	Below 1 Ω
F77-35 (UIND) - F79-4 (UIND)	Always	Below 1 Ω
F77-36 (UPSW) - Body ground	Always	10 kΩ or higher
F77-35 (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 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 • Non mass-storage class or incompatible protocol USB device • USB device with an incompatible file system, corrupted or incompatible File Allocation Table (FAT) • "iPod" malfunction • "iPod" with unsupported firmware • Unsupported "iPod" model	• USB device or "iPod" • 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 U0073 Sending Malfunction (Navigation to APGS)

DTC U0100 Engine ECU Communication

DTC U0126 Steering Sensor Communication

DTC U0130 Lost Communication with VGRS

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	
U0130	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 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: • Internal power supply malfunction • DSP error • 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 U0073 Sending Malfunction (Navigation to APGS)

DTC U0100 Engine ECU Communication

DTC U0126 Steering Sensor Communication

DTC U0130 Lost Communication with VGRS

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	
U0130	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 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: • RAM error • Drawing controller malfunction • 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 U0073 Sending Malfunction (Navigation to APGS)

DTC U0100 Engine ECU Communication

DTC U0126 Steering Sensor Communication

DTC U0130 Lost Communication with VGRS

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	
U0130	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 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 U0073 Sending Malfunction (Navigation to APGS)

DTC U0100 Engine ECU Communication

DTC U0126 Steering Sensor Communication

DTC U0130 Lost Communication with VGRS

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	
U0130	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 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)

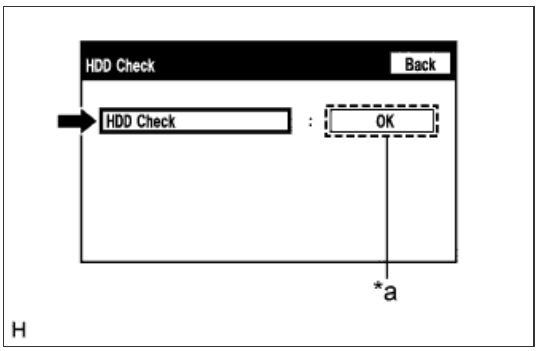
a. Enter the "Failure Diagnosis" screen. Refer to Check Hard Disc in Operation Check (Click here).

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 U0073 Sending Malfunction (Navigation to APGS)

DTC U0100 Engine ECU Communication

DTC U0126 Steering Sensor Communication

DTC U0130 Lost Communication with VGRS

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	
U0130	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 B15C2 Speed Signal Malfunction

for Preparation Click here

DESCRIPTION

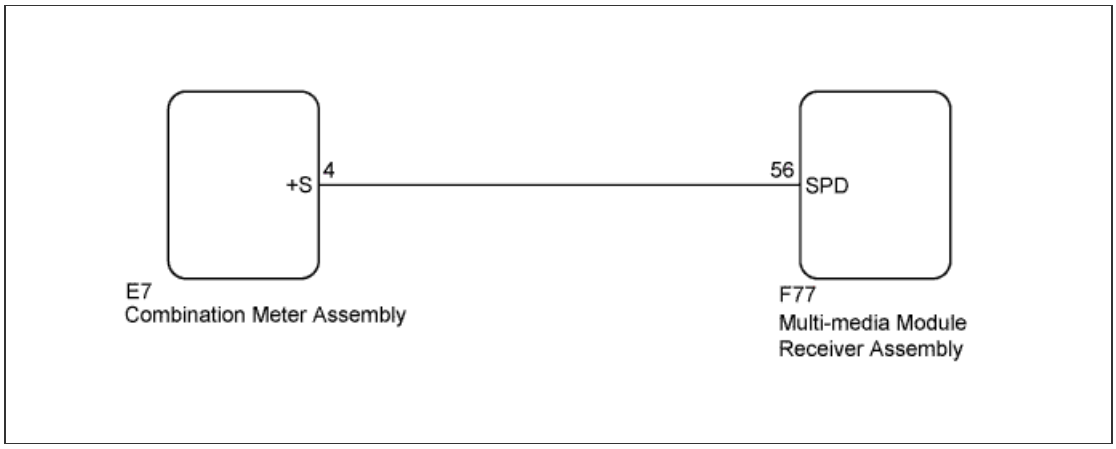
The multi-media module receiver assembly receives a vehicle speed signal from the combination meter assembly and information from the navigation antenna, and then adjusts the vehicle position on the map. The multi-media module receiver assembly stores this DTC when the difference between the speed information 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 • Multi-media module receiver assembly • 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**

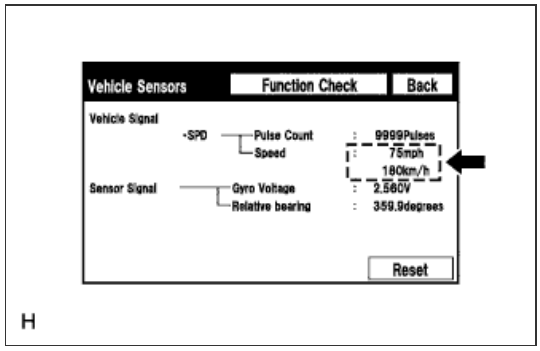
OK

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 U0073 Sending Malfunction (Navigation to APGS)

DTC U0100 Engine ECU Communication

DTC U0126 Steering Sensor Communication

DTC U0130 Lost Communication with VGRS

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	
U0130	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)

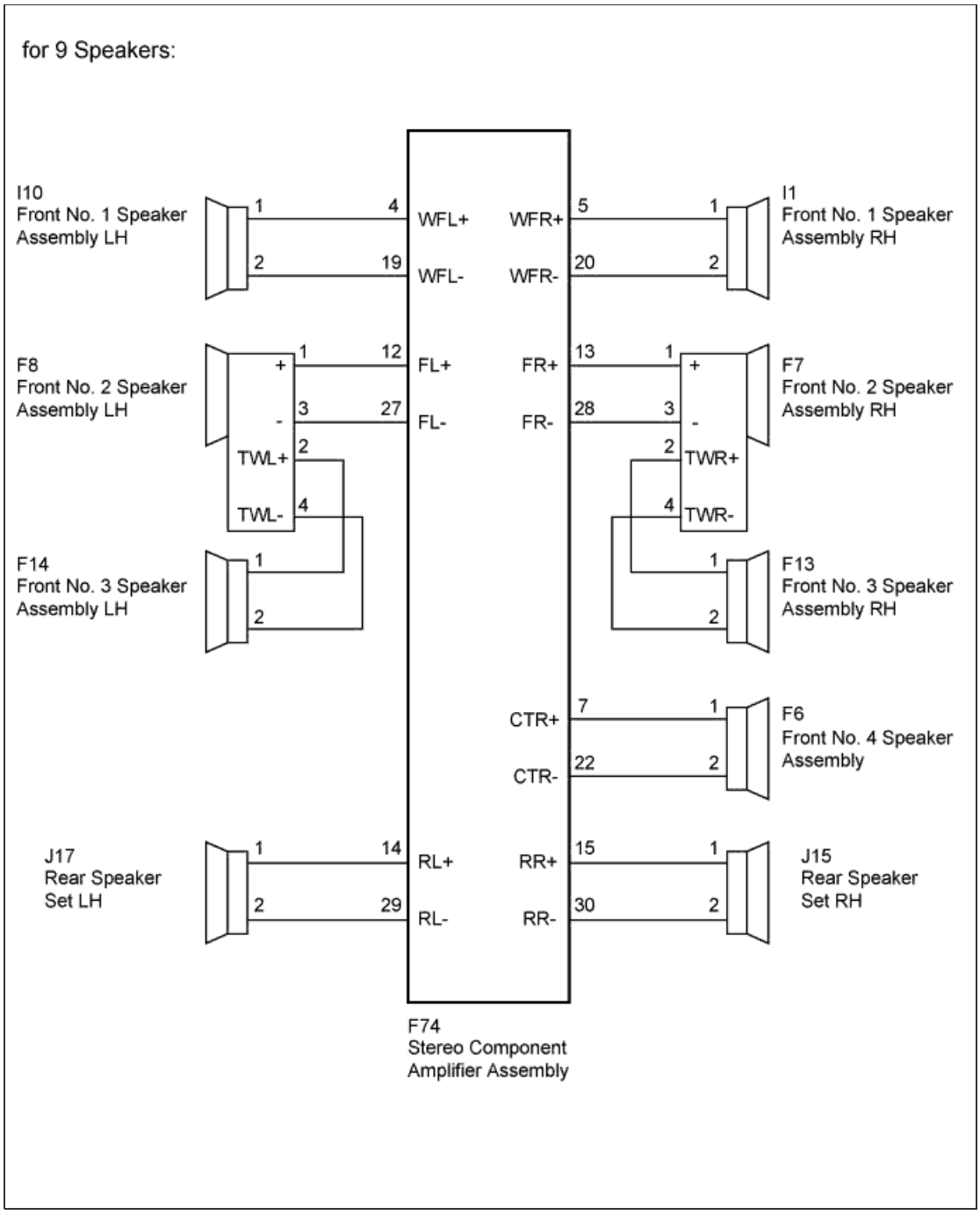
DTC B15C3 Speaker Output Short

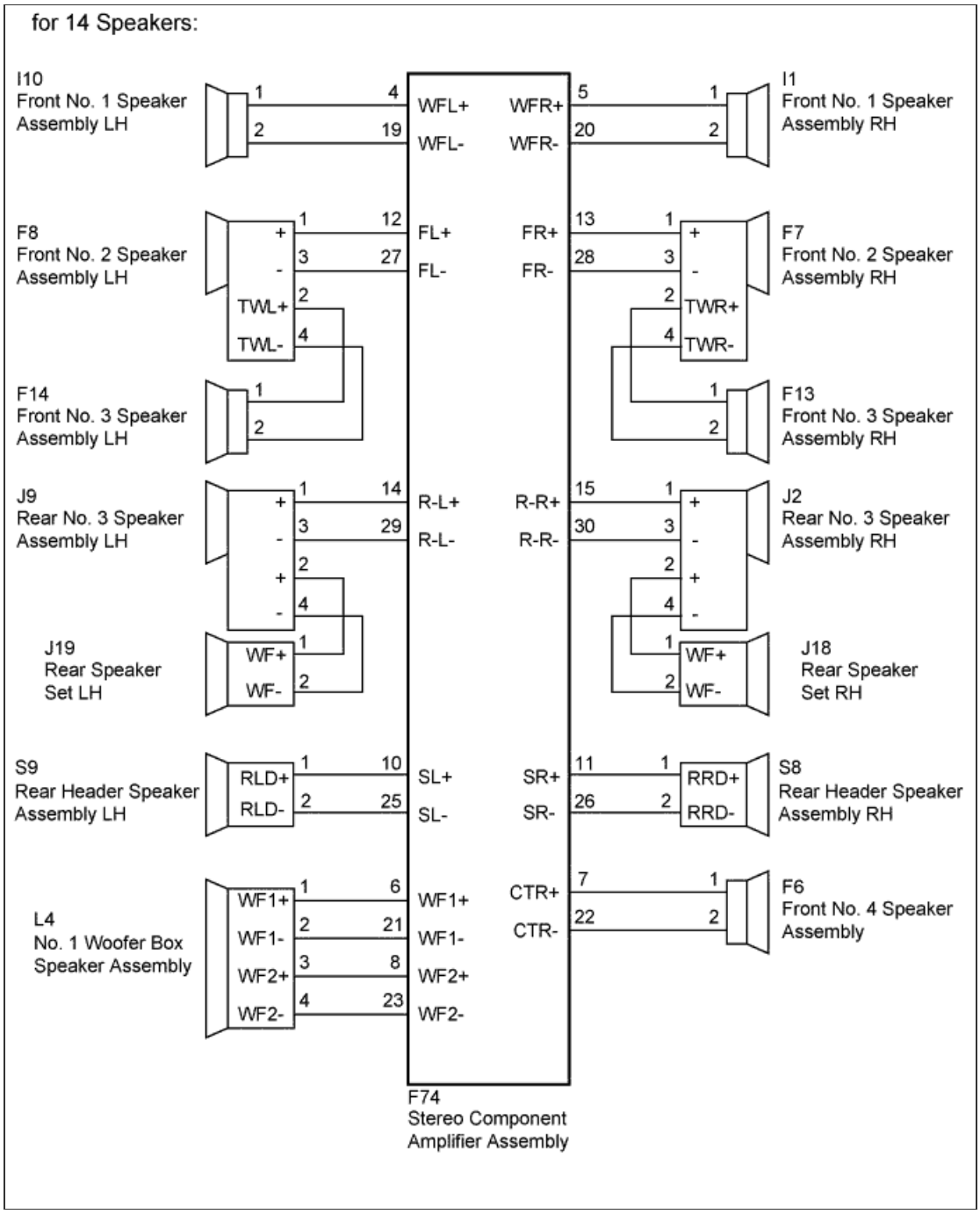
for Preparation Click here

DESCRIPTION

DTC Code	DTC Detection Condition	Trouble Area
B15C3	A short is detected in the speaker output circuit.	• Stereo component amplifier assembly • Speaker • Harness or connector

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: for 14 Speakers
*4: for 9 Speakers

a. Disconnect the F74 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*4.

f. Disconnect the J2*1 and/or J9*2 rear No. 3 speaker connector*3.

g. Disconnect the S8*1 and/or S9*2 rear header speaker assembly connector*3.

h. Disconnect the L4 No. 1 woofer box speaker connector.*3

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F74-5 (WFR+) - I1-1*1	Always	Below 1 Ω
F74-20 (WFR-) - I1-2*1	Always	Below 1 Ω
F74-4 (WFL+) - I10-1*2	Always	Below 1 Ω
F74-19 (WFL-) - I10-2*2	Always	Below 1 Ω
F74-13 (FR+) - F7-1 (+)*1	Always	Below 1 Ω
F74-28 (FR-) - F7-3 (-)*1	Always	Below 1 Ω
F74-12 (FL+) - F8-1 (+)*2	Always	Below 1 Ω
F74-27 (FL-) - F8-2 (-)*2	Always	Below 1 Ω
F74-7 (CTR+) - F6-1	Always	Below 1 Ω
F74-22 (CTR-) - F6-2	Always	Below 1 Ω
F74-15 (RR+) - J15-1*1, *4	Always	Below 1 Ω
F74-30 (RR-) - J15-2*1, *4	Always	Below 1 Ω
F74-14 (RL+) - J17-1*2, *4	Always	Below 1 Ω
F74-29 (RL-) - J17-2*2, *4	Always	Below 1 Ω
F74-15 (R-R+) - J2-1 (+)*1, *3	Always	Below 1 Ω
F74-30 (R-R) - J2-3 (-)*1, *3	Always	Below 1 Ω
F74-14 (R-L+) - J9-1 (+)*2, *3	Always	Below 1 Ω
F74-29 (R-L-) - J9-3 (-)*2, *3	Always	Below 1 Ω
F74-11 (SR+) - S8-1 (RRD+)*1, *3	Always	Below 1 Ω

F74-26 (SR-) - S8-2 (RRD-)*1, *3	Always	Below 1 Ω
F74-10 (SL+) - S9-1 (RLD+)*2, *3	Always	Below 1 Ω
F74-25 (SL-) - S9-2 (RLD-)*2, *3	Always	Below 1 Ω
F74-6 (WF1+) - L4-1 (WF1+)*3	Always	Below 1 Ω
F74-21 (WF1-) - L4-2 (WF1-)*3	Always	Below 1 Ω
F74-8 (WF2+) - L4-3 (WF2+)*3	Always	Below 1 Ω
F74-23 (WF2-) - L4-4 (WF2-)*3	Always	Below 1 Ω
F74-5 (WFR+) - Body ground	Always	10 kΩ or higher
F74-20 (WFR-) - Body ground	Always	10 kΩ or higher
F74-4 (WFL+) - Body ground	Always	10 kΩ or higher
F74-19 (WFL-) - Body ground	Always	10 kΩ or higher
F74-13 (FR+) - Body ground	Always	10 kΩ or higher
F74-28 (FR-) - Body ground	Always	10 kΩ or higher
F74-12 (FL+) - Body ground	Always	10 kΩ or higher
F74-27 (FL-) - Body ground	Always	10 kΩ or higher
F74-7 (CTR+) - Body ground	Always	10 kΩ or higher
F74-22 (CTR-) - Body ground	Always	10 kΩ or higher
F74-15 (RR+) - Body ground	Always	10 kΩ or higher
F74-30 (RR-) - Body ground	Always	10 kΩ or higher
F74-14 (RL+) - Body ground	Always	10 kΩ or higher
F74-29 (RL-) - Body ground	Always	10 kΩ or higher
F74-15 (R-R+) - Body ground	Always	10 kΩ or higher
F74-30 (R-R) - Body ground	Always	10 kΩ or higher
F74-14 (R-L+) - Body ground	Always	10 kΩ or higher
F74-29 (R-L-) - Body ground	Always	10 kΩ or higher
F74-11 (SR+) - Body ground	Always	10 kΩ or higher
F74-26 (SR-) - Body ground	Always	10 kΩ or higher
F74-10 (SL+)- Body ground	Always	10 kΩ or higher
F74-25 (SL-) - Body ground	Always	10 kΩ or higher
F74-6 (WF1+) - Body ground	Always	10 kΩ or higher
F74-21 (WF1-) - Body ground	Always	10 kΩ or higher
F74-8 (WF2+) - Body ground	Always	10 kΩ or higher
F74-23 (WF2-) -	Always	10 kΩ or higher

Body ground		

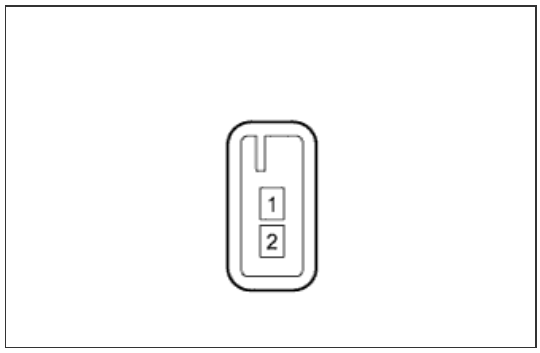
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the front No. 1 speaker assembly connector.

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



Standard Resistance:

for 14 Speakers

Tester Connection	Condition	Specified Condition
1 - 2	Always	1.8 to 2.6 Ω

for 9 Speakers

Tester Connection	Condition	Specified Condition
1 - 2	Always	3 Ω

Result

Result	Proceed to
OK (for 14 Speakers)	A
OK (for 9 Speakers)	B
NG	C

B → Go to step 7

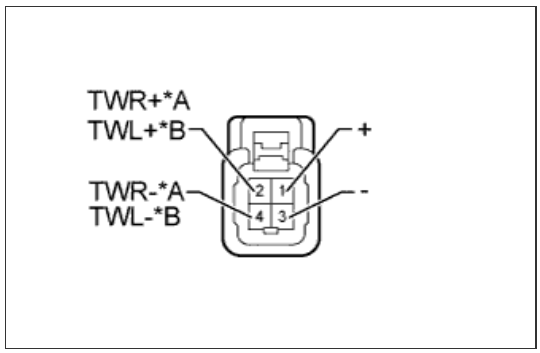
C → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

A

5.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the front No. 2 speaker assembly connector.

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



Standard Resistance:

for RH Side

Tester Connection	Condition	Specified Condition
1 (+) - 2 (TWR+)	Always	Below 1 Ω
3 (-) - 4 (TWR-)	Always	Below 1 Ω
2 (TWR+) - 4 (TWR-)	Always	1.5 to 2.5 Ω

for LH Side

Tester Connection	Condition	Specified Condition
1 (+) - 2 (TWL+)	Always	Below 1 Ω
3 (-) - 4 (TWL-)	Always	Below 1 Ω
2 (TWL+) - 4 (TWL-)	Always	1.5 to 2.5 Ω

Text in Illustration

*A	for RH Side
*B	for LH Side

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.

NG → Go to step 9

OK ↓

END (FRONT NO. 3 SPEAKER ASSEMBLY IS DEFECTIVE)

7.CHECK FRONT NO. 2 SPEAKER ASSEMBLY

a. Temporarily replace the front No. 2 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.

B → Go to step 8

A ↓

END (FRONT NO. 2 SPEAKER ASSEMBLY IS DEFECTIVE)

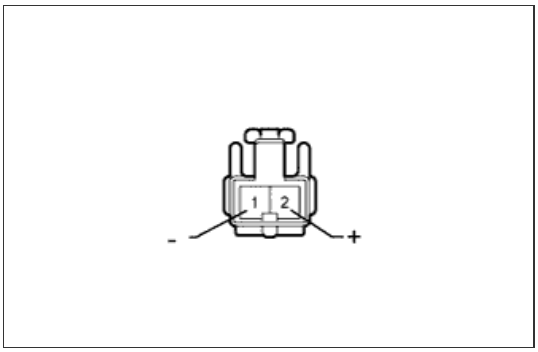
8.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY

a. Disconnect the front No. 3 speaker assembly 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 Ω



NG → REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (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

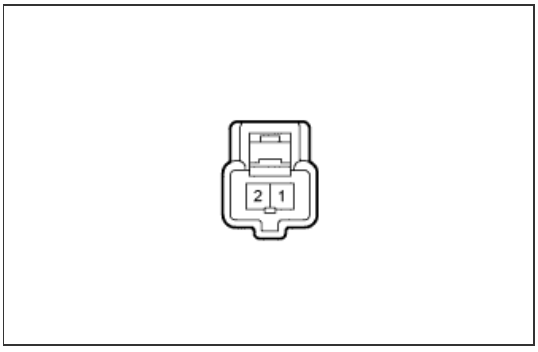
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

10.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the front No. 4 speaker assembly connector.

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



Standard Resistance:

for 14 Speakers

Tester Connection	Condition	Specified Condition
1 - 2	Always	1.5 to 2.5 Ω

for 9 Speakers

Tester Connection	Condition	Specified Condition
1 - 2	Always	6 Ω

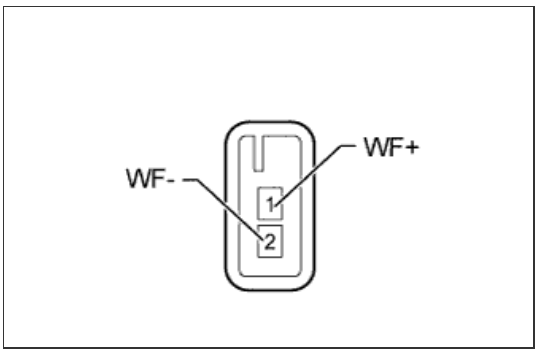
NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

11.INSPECT REAR SPEAKER SET

a. Disconnect the rear speaker set connector.

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



Standard Resistance:

for 14 Speakers

Tester Connection	Condition	Specified Condition
1 (WF+) - 2 (WF-)	Always	1.5 to 2.3 Ω

for 9 Speakers (for FUJITSU TEN Made)

Tester Connection	Condition	Specified Condition
1 (WF+) - 2 (WF-)	Always	4 Ω

for 9 Speakers (for PIONEER Made)

Tester Connection	Condition	Specified Condition
1 (WF+) - 2 (WF-)	Always	5 Ω

Result

Result	Proceed to
OK (for 14 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 HARNESS AND CONNECTOR (REAR NO. 3 SPEAKER - REAR SPEAKER SET)

*1: for RH Side
*2: for LH Side

a. Disconnect the J2*1 and/or J9*2 front No. 3 speaker assembly connector.

b. Disconnect the J18*1 and/or J19*2 rear speaker set connector.

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

Standard Resistance:

for RH Side

Tester Connection	Condition	Specified Condition
J2-2 (+) - J18-1 (WF+)	Always	Below 1 Ω
J2-4 (-) - J18-2 (WF-)	Always	Below 1 Ω
J2-2 (+) - Body ground	Always	10 kΩ or higher
J2-4 (-) - Body ground	Always	10 kΩ or higher

for LH Side

Tester Connection	Condition	Specified Condition
J9-2 (+) - J19-1 (WF+)	Always	Below 1 Ω
J9-4 (-) - J19-2 (WF-)	Always	Below 1 Ω
J9-2 (+) - Body ground	Always	10 kΩ or higher
J9-4 (-) - Body ground	Always	10 kΩ or higher

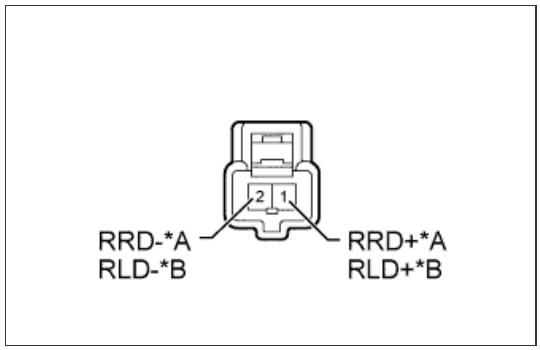
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

13.INSPECT REAR HEADER SPEAKER ASSEMBLY

a. Disconnect the rear header assembly connector.

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



Standard Resistance:

for RH Side

Tester Connection	Condition	Specified Condition
1 (RRD+) - 2 (RRD-)	Always	1.5 to 2.5 Ω

for LH Side

Tester Connection	Condition	Specified Condition
1 (RLD+) - 2 (RLD-)	Always	1.5 to 2.5 Ω

Text in Illustration

*A	for RH Side
*B	for LH Side

NG → REPLACE REAR HEADER SPEAKER ASSEMBLY (Click here)

OK

14.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 15

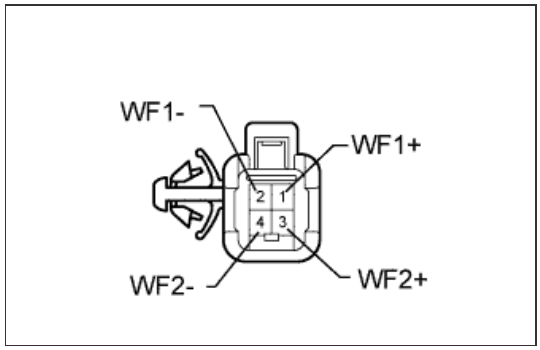
OK

END (REAR NO. 3 SPEAKER ASSEMBLY IS DEFECTIVE)

15.INSPECT NO. 1 WOOFER BOX SPEAKER ASSEMBLY

a. Disconnect the No. 1 woofer box speaker assembly speaker connector.

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



Standard Resistance:

for LH Side

Tester Connection	Condition	Specified Condition
1 (WF1+) - 2 (WF1-)	Always	1.6 to 2.4 Ω

for RH Side

Tester Connection	Condition	Specified Condition
3 (WF2+) - 4 (WF2-)	Always	1.6 to 2.4 Ω

NG → REPLACE NO. 1 WOOFER BOX SPEAKER ASSEMBLY (Click here)

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

DTC U0073 Sending Malfunction (Navigation to APGS)

DTC U0100 Engine ECU Communication

DTC U0126 Steering Sensor Communication

DTC U0130 Lost Communication with VGRS

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	
U0130	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 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 audio and visual 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 audio and visual system due to a short in a speaker circuit, this DTC will be stored.**

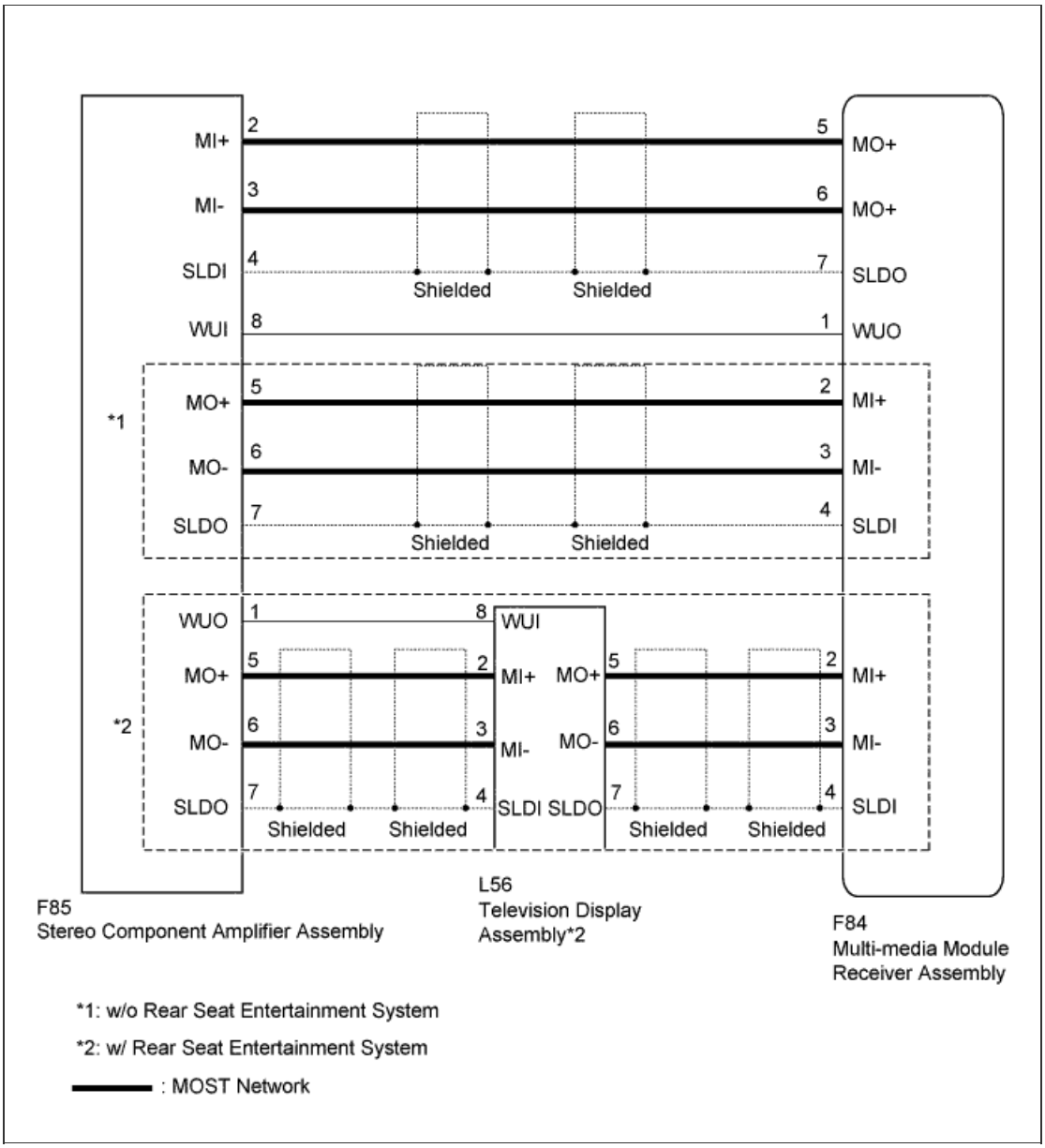
DTC Code	DTC Detection Condition	Trouble Area
B15D0	MOST network cannot be established.	• MOST line check • MOST communication line connector • MOST communication line • Stereo component amplifier assembly • Multi-media module receiver assembly • Television display assembly*

*: w/ Rear Seat Entertainment System

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. 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 audio 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 audio 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 audio and visual 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 audio and visual 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

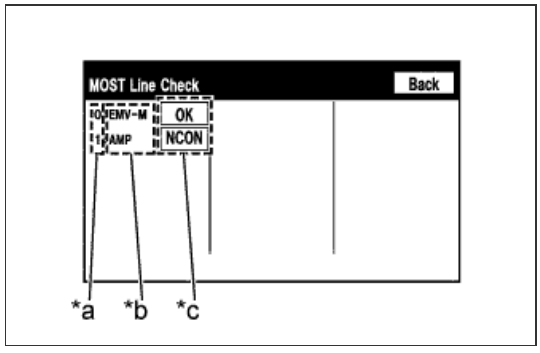
C → GO TO PROBLEM SYMPTOMS TABLE (Click here)

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.

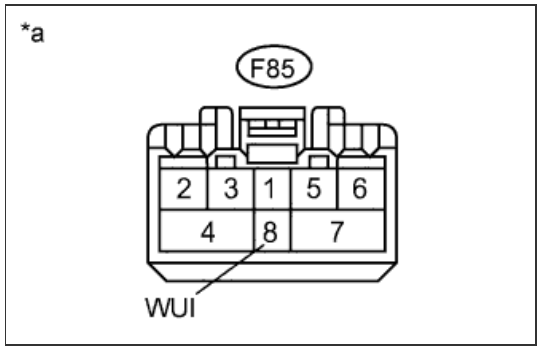
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F85-8 (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 F84 multi-media module receiver assembly connector.

b. Disconnect the F85 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
F84-1 (WUO) - F85-8 (WUI)	Always	Below 1 Ω
F84-1 (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 F84 multi-media module receiver assembly connector.

b. Disconnect the F85 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
F84-2 (MI+) - F85-5 (MO+)	Always	Below 1 Ω
F84-3 (MI-) - F85-6 (MO-)	Always	Below 1 Ω
F84-4 (SLDI) - F85-7 (SLDO)	Always	Below 1 Ω
F84-5 (MO+) - F85-2 (MI+)	Always	Below 1 Ω
F84-6 (MO-) - F85-3 (MI-)	Always	Below 1 Ω
F84-7 (SLDO) - F85-4 (SLDI)	Always	Below 1 Ω
F84-2 (MI+) - Body ground	Always	10 kΩ or higher
F84-3 (MI-) - Body ground	Always	10 kΩ or higher
F84-4 (SLDI) - Body ground	Always	10 kΩ or higher
F84-5 (MO+) - Body ground	Always	10 kΩ or higher
F84-6 (MO-) - Body ground	Always	10 kΩ or higher
F84-7 (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)

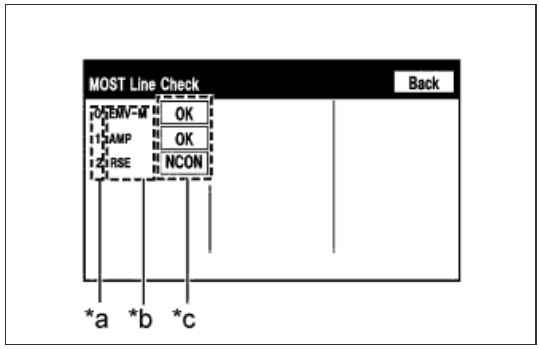
OK

END (STEREO COMPONENT AMPLIFIER ASSEMBLY IS DEFECTIVE)

11.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
"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 18

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.

a. Disconnect the stereo component amplifier assembly connector.

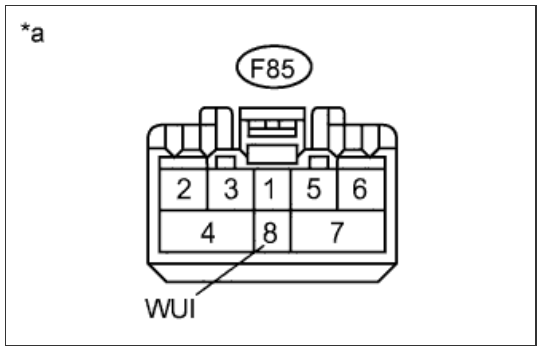
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F85-8 (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 F84 multi-media module receiver assembly connector.

b. Disconnect the F85 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
F84-1 (WUO) - F85-8 (WUI)	Always	Below 1 Ω
F84-1 (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".	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 →

16.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY WAKE UP LINE)

a. Disconnect the television display assembly connector.

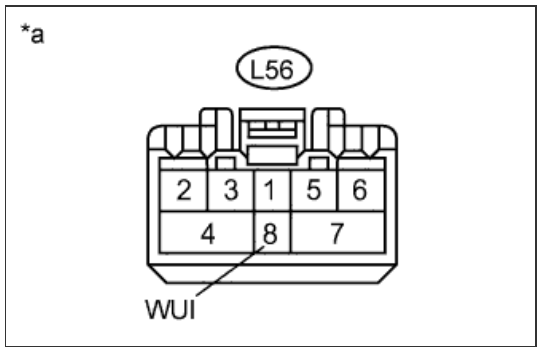
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L56-8 (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 F85 stereo component amplifier assembly connector.

b. Disconnect the L56 television display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F85-1 (WUO) - L56-8 (WUI)	Always	Below 1 Ω
F85-1 (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-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the F84 multi-media module receiver assembly connector.

b. Disconnect the F85 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
F84-2 (MI+) - F85-5 (MO+)	Always	Below 1 Ω
F84-3 (MI-) - F85-6 (MO-)	Always	Below 1 Ω
F84-4 (SLDI) - F85-7 (SLDO)	Always	Below 1 Ω
F84-5 (MO+) - F85-2 (MI+)	Always	Below 1 Ω
F84-6 (MO-) - F85-3 (MI-)	Always	Below 1 Ω
F84-7 (SLDO) - F85-4 (SLDI)	Always	Below 1 Ω

F84-2 (MI+) - Body ground	Always	10 kΩ or higher
F84-3 (MI-) - Body ground	Always	10 kΩ or higher
F84-4 (SLDI) - Body ground	Always	10 kΩ or higher
F84-5 (MO+) - Body ground	Always	10 kΩ or higher
F84-6 (MO-) - Body ground	Always	10 kΩ or higher
F84-7 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

19.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the F85 stereo component amplifier assembly connector.

b. Disconnect the L56 television display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F85-5 (MO+) - L56-2 (MI+)	Always	Below 1 Ω
F85-6 (MO-) - L56-3 (MI-)	Always	Below 1 Ω
F85-7 (SLDO) - L56-4 (SLDI)	Always	Below 1 Ω
F85-5 (MO+) - Body ground	Always	10 kΩ or higher
F85-6 (MO-) - Body ground	Always	10 kΩ or higher
F85-7 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

20.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the F84 multi-media module receiver assembly connector.

b. Disconnect the L56 television display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F84-2 (MI+) - L56-5 (MO+)	Always	Below 1 Ω
F84-3 (MI-) - L56-6 (MO-)	Always	Below 1 Ω
F84-4 (SLDI) - L56-7 (SLDO)	Always	Below 1 Ω
F84-2 (MI+) - Body ground	Always	10 kΩ or higher
F84-3 (MI-) - Body	Always	10 kΩ or higher

ground		
F84-4 (SLDI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

21.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

22.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)

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 AUDIO SETTINGS

a. Display the "Sound Settings" screen.

b. Set volume, fader and balance to the initial values and check that sound is normal.

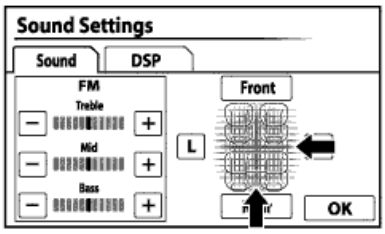
OK:

Audio system returns to normal.

HINT:

Sound quality adjustment measures vary according to the type of amplifier.

*a



H

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 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 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

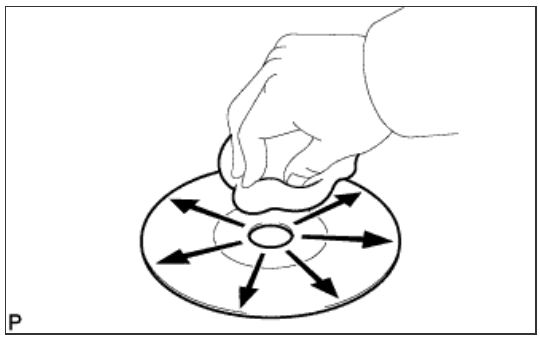
3.CLEAN DISC AND RECHECK

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 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

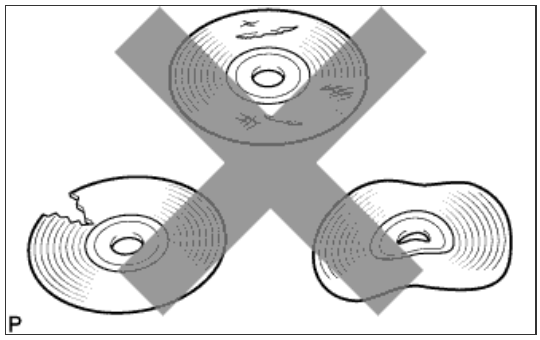
for Preparation Click here

INSPECTION PROCEDURE

1.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.

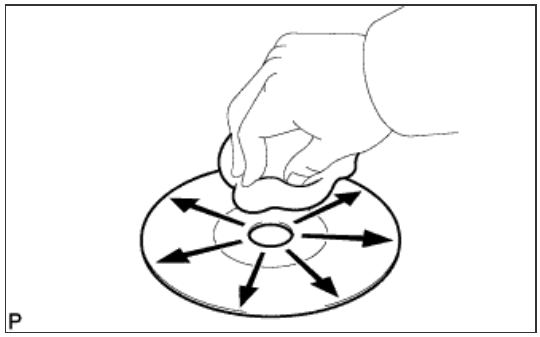
OK:
The disc is clean.

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 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.

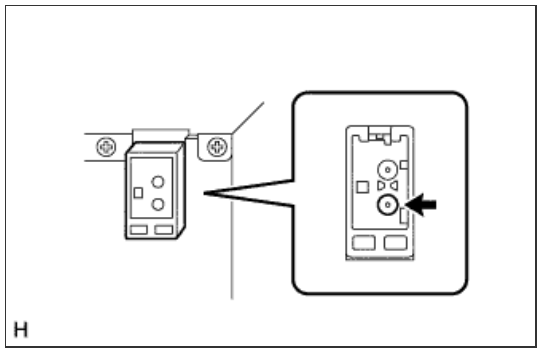
b. Check for noise

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.

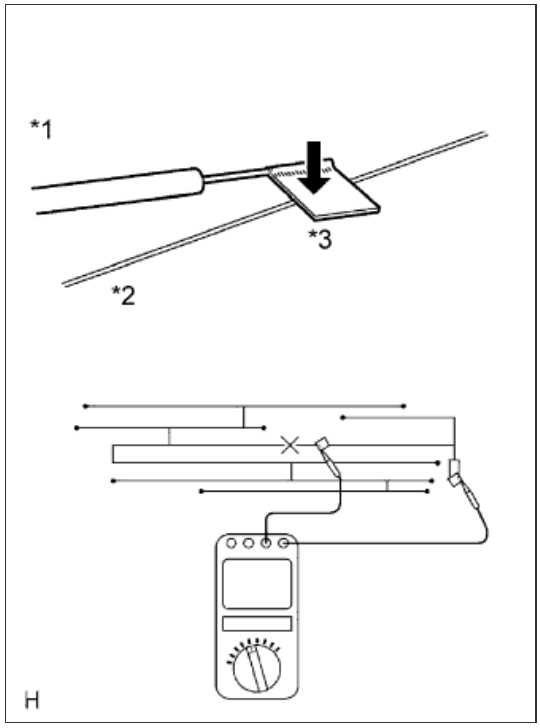
NOTICE:

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.

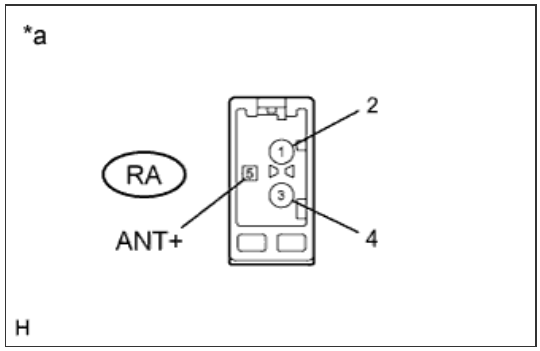
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
RA-5 (ANT+) - Body ground	Engine switch on (ACC) 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

END

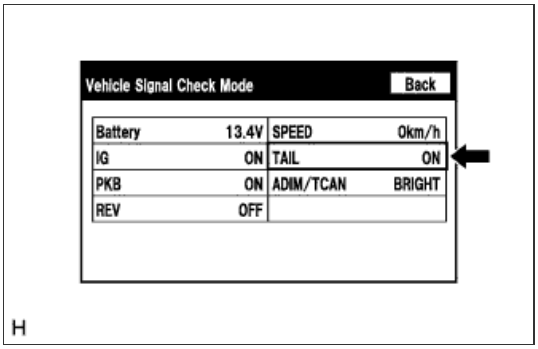
for Preparation Click here

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

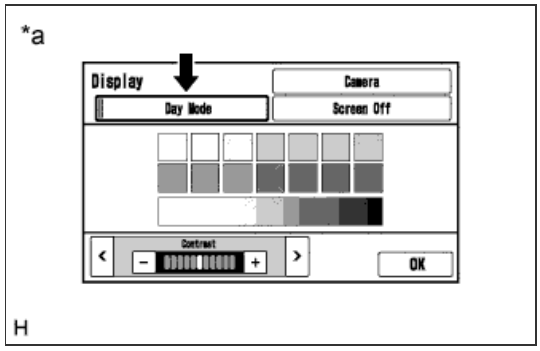
INSPECTION PROCEDURE

1.CHECK IMAGE QUALITY SETTING

a. 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

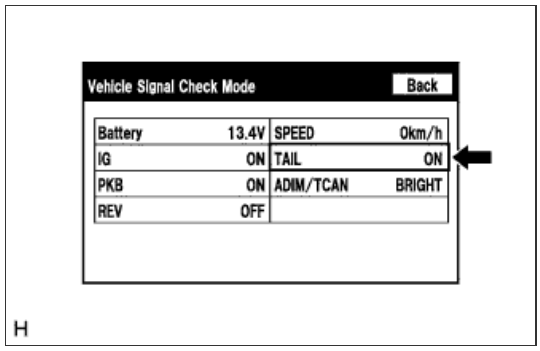
A

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 switches that might prevent operation.

OK:
No foreign matter is found.

NG → REMOVE ANY FOREIGN MATTER FOUND

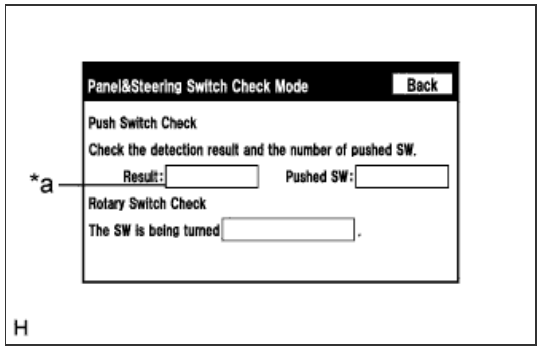
OK ↓

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 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

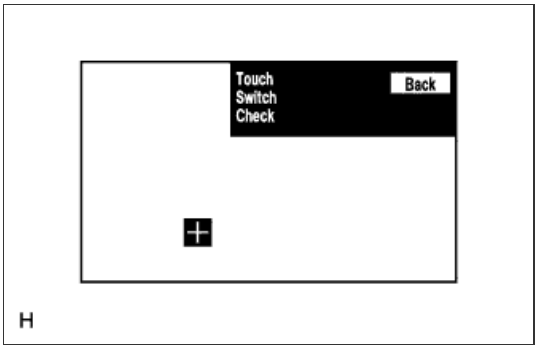
OK

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

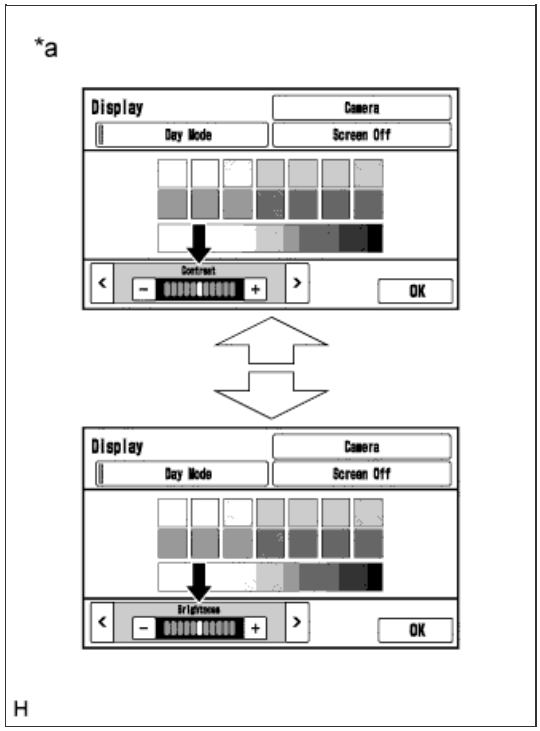
INSPECTION PROCEDURE

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.



Text in Illustration

*a	Example

NG → Go to step 2

OK

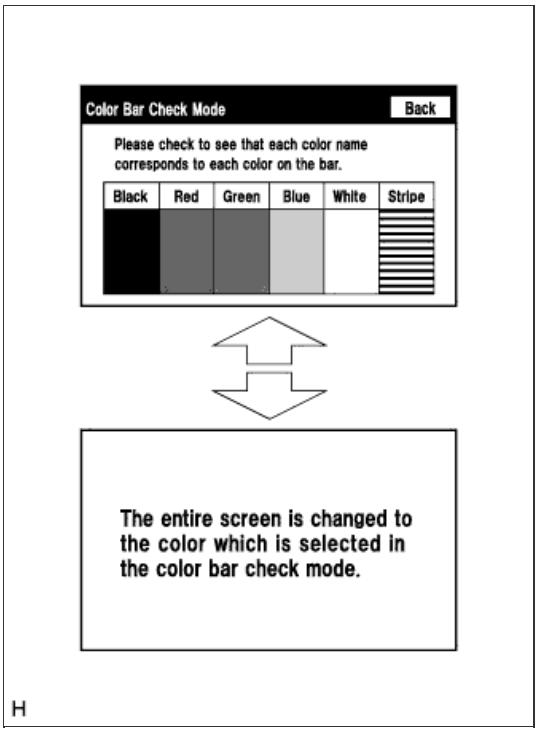
END

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 AUDIO SETTINGS

a. Display the "Sound Settings" screen.

b. Set "Treble", "Mid" and "Bass" to the initial values and check that sound is normal.

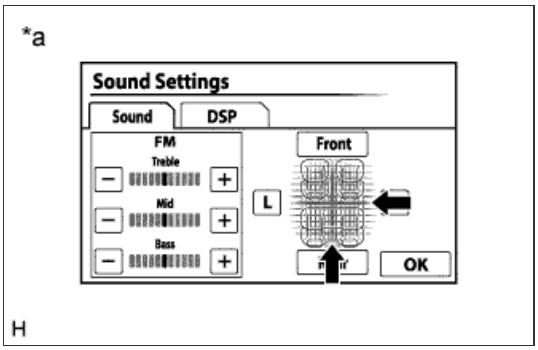
OK:
Malfunction disappears.

HINT:

Sound quality adjustment measures vary according to the type of amplifier.

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

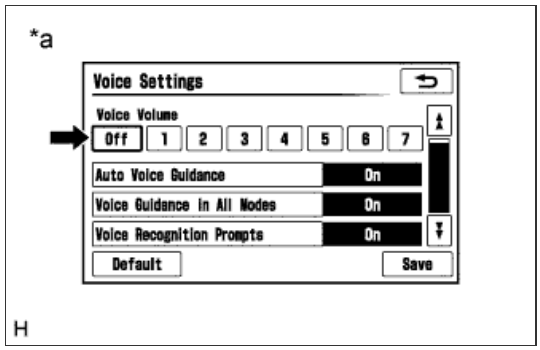
a. Display the "Voice Settings" screen.

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

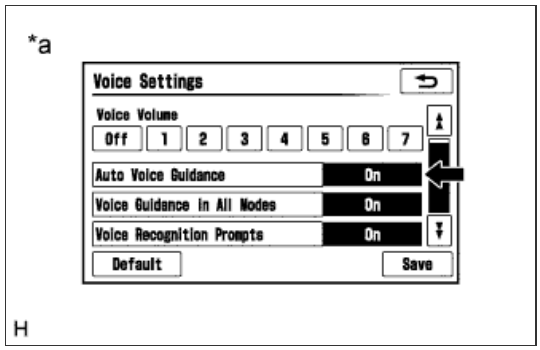
a. Display the "Voice Settings" screen.

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

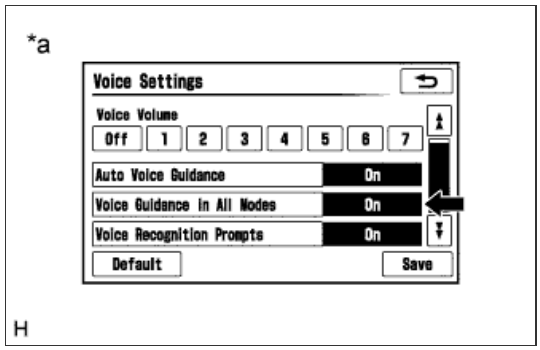
a. Display the "Voice Settings" screen.

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)

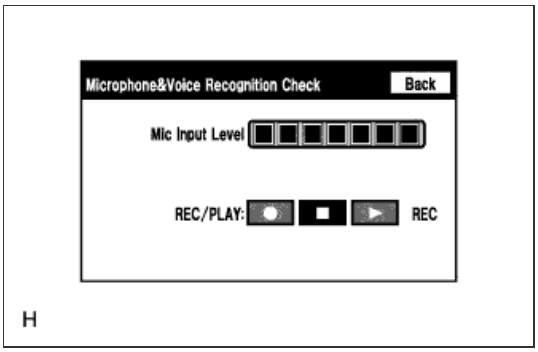
a. Enter the "Microphone&Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

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 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" 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 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

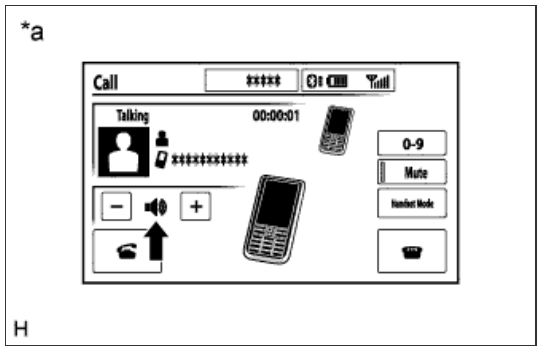
a. Display the "Call" screen.

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

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

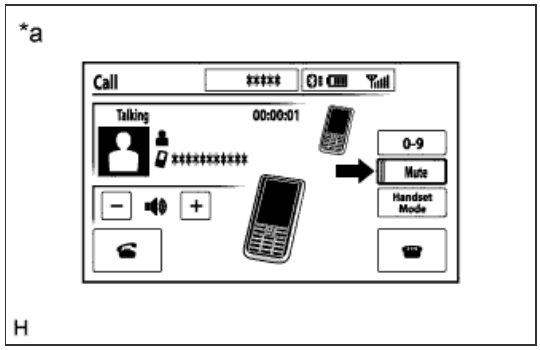
a. Display the "Call" screen.

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)

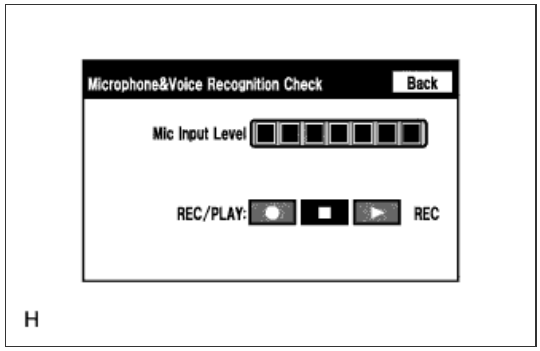
a. Enter the "Microphone&Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

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

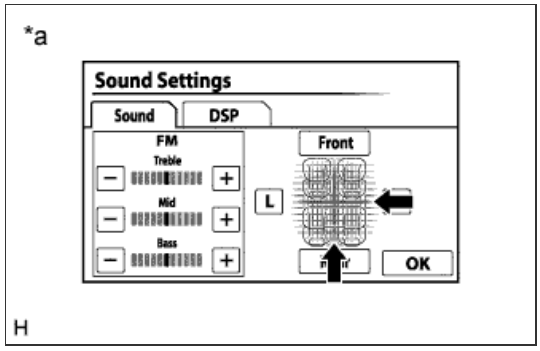
a. Enter the "Sound Settings" screen by pressing the "Sound" switch on the audio display.

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 (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 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

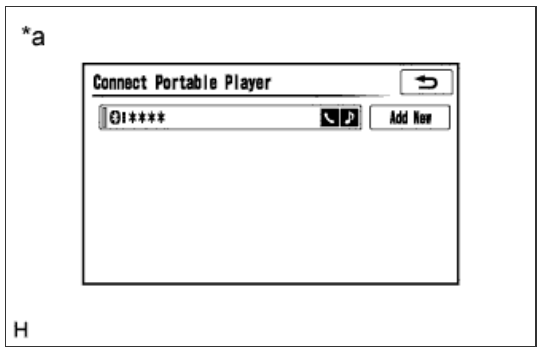
INSPECTION PROCEDURE

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

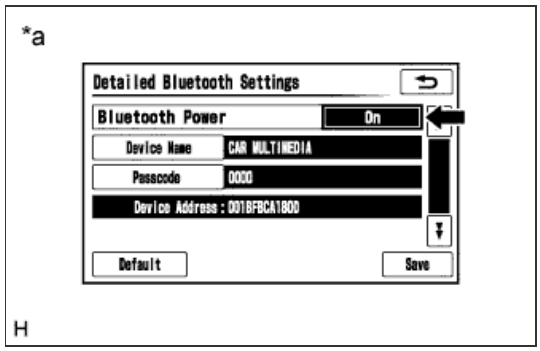
a. Display the "Detailed Bluetooth settings" screen and check automatic connection settings of the "Bluetooth" audio.

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.

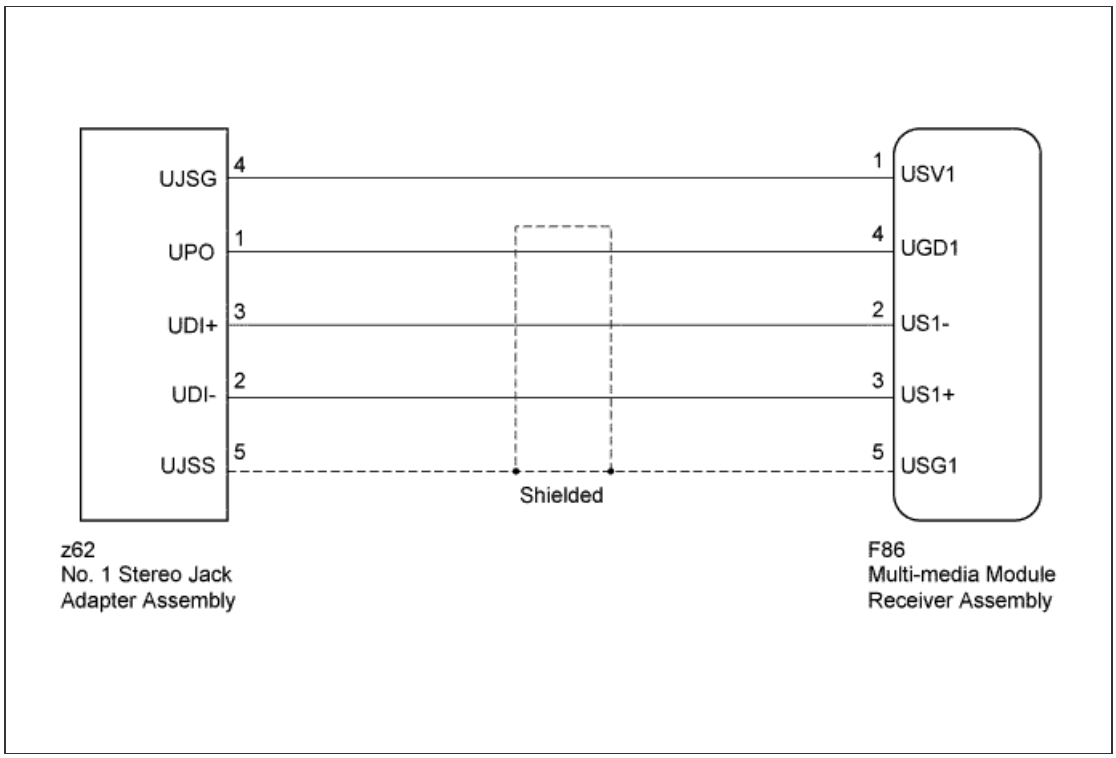
NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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 F86 multi-media module receiver assembly connector.

b. Disconnect the z62 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
F86-1 (USV1) - z62-4 (UJSG)	Always	Below 1 Ω
F86-2 (US1-) - z62-3 (UDI+)	Always	Below 1 Ω
F86-3 (US1+) - z62-2 (UDI-)	Always	Below 1 Ω
F86-4 (UGD1) - z62-1 (UPO)	Always	Below 1 Ω
F86-5 (USG1) - z62-5 (UJSS)	Always	Below 1 Ω
F86-1 (USV1) - Body ground	Always	10 kΩ or higher
F86-2 (US1-) - Body ground	Always	10 kΩ or higher
F86-3 (US1+) - Body ground	Always	10 kΩ or higher
F86-4 (UGD1) - Body ground	Always	10 kΩ or higher
F86-5 (USG1) - 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.

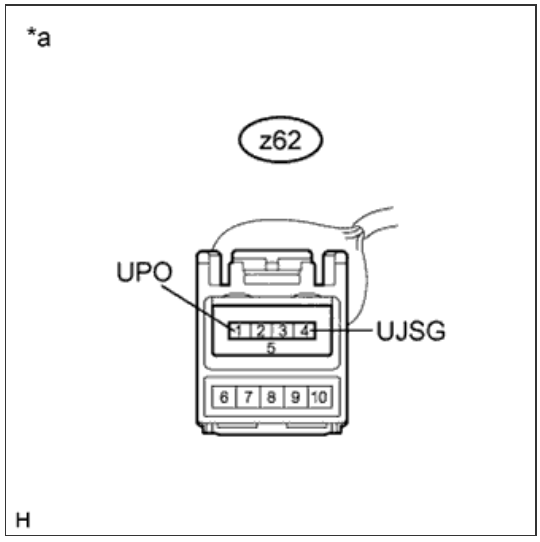
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
z62-1 (UPO) - z62-4 (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

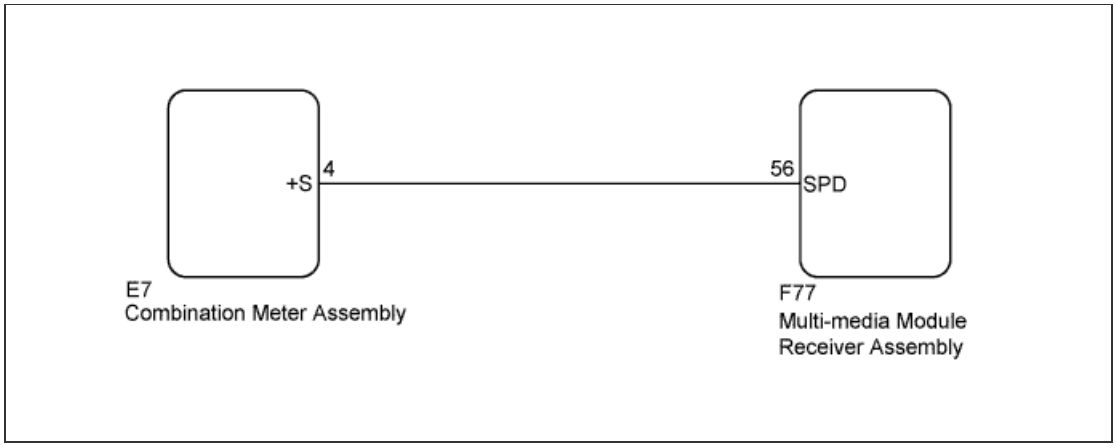
DESCRIPTION

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

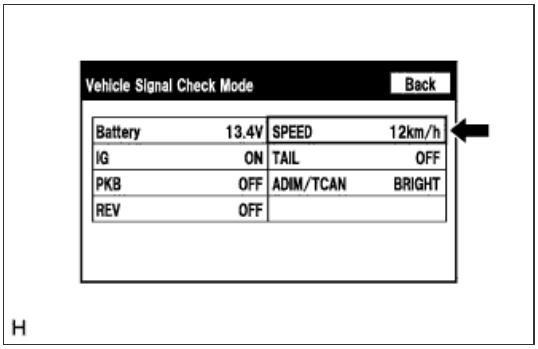


INSPECTION PROCEDURE

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 F77 multi-media module receiver assembly connector.

b. Disconnect the E7 combination meter assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F77-56 (SPD) - E7-4 (+S)	Always	Below 1 Ω
F77-56 (SPD) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

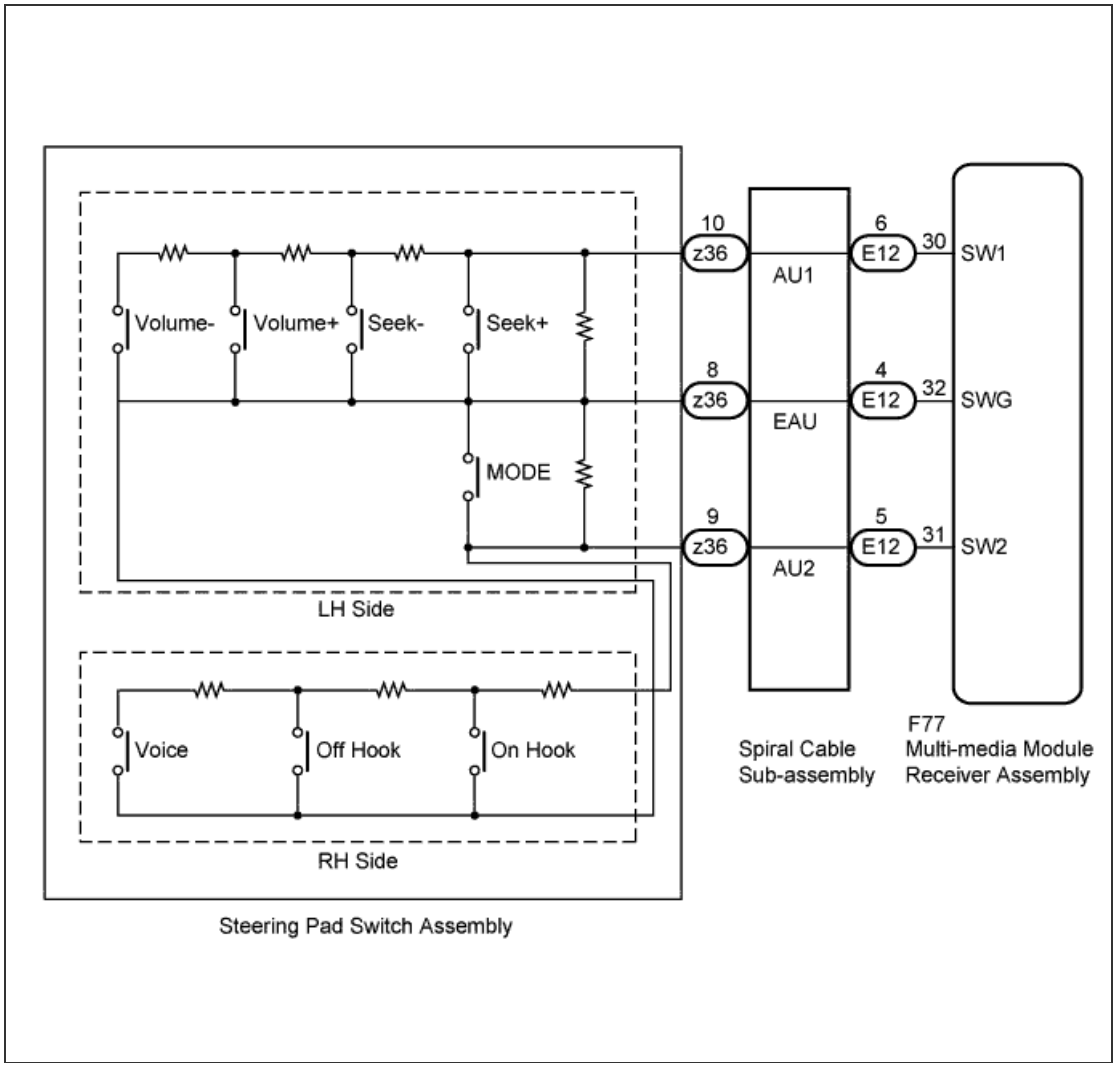
REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

for Preparation Click here

DESCRIPTION

This circuit sends an operation signal from the steering pad switch 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.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

2.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

3.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA NODULE RECEIVER ASSEMBLY - SPIRAL CABLE SUB-ASSEMBLY)

a. Disconnect the F77 multi-media module receiver assembly connector.

b. Disconnect the E12 spiral cable sub-assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F77-30 (SW1) - E12-6 (AU1)	Always	Below 1 Ω
F77-31 (SW2) - E12-5 (AU2)	Always	Below 1 Ω
F77-32 (SWG) - E12-4 (EAU)	Always	Below 1 Ω
F77-30 (SW1) - Body ground	Always	10 kΩ or higher
F77-31 (SW2) - Body ground	Always	10 kΩ or higher
F77-32 (SWG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

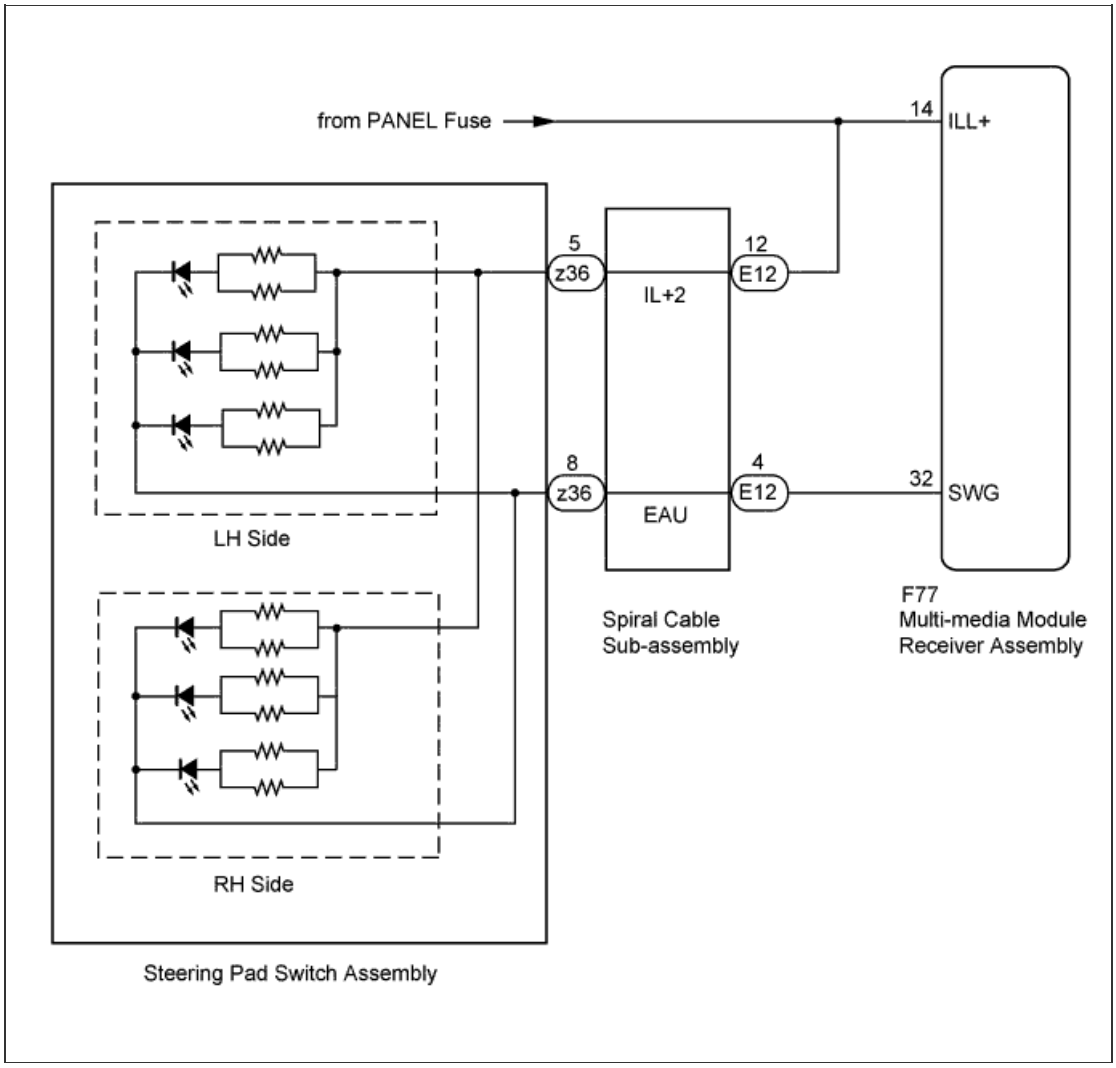
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

Power is supplied to the multi-media module receiver 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, 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-media module receiver assembly.	B

No illumination comes on (multi-media module receiver assembly, steering pad switch, hazard switch, heater control switch, etc.).	C

B → Go to step 6

C → GO TO LIGHTING SYSTEM (Click here)

A

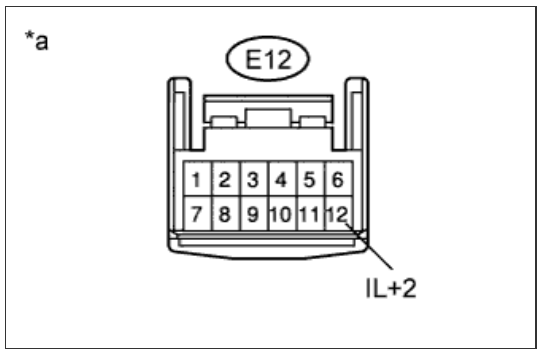
2.CHECK HARNESS AND CONNECTOR (ILLUMINATION SIGNAL)

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
E12-12 (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.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

5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA NODULE RECEIVER ASSEMBLY - SPIRAL CABLE SUB-ASSEMBLY AND BODY GROUND)

a. Disconnect the F77 multi-media module receiver assembly connector.

b. Disconnect the E12 spiral cable sub-assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F77-14 (ILL+) - E12-12 (IL+2)	Always	Below 1 Ω
F77-32 (SWG) - E12-4 (EAU)	Always	Below 1 Ω
F77-14 (ILL+) - Body ground	Always	10 kΩ or higher
F77-32 (SWG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

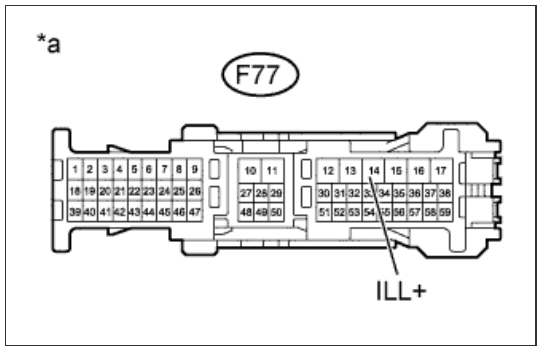
OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

6.CHECK HARNESS AND CONNECTOR (ILLUMINATION SIGNAL CIRCUIT)

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
F77-14 (ILL+) - 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 Multi-media Module Receiver Assembly)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

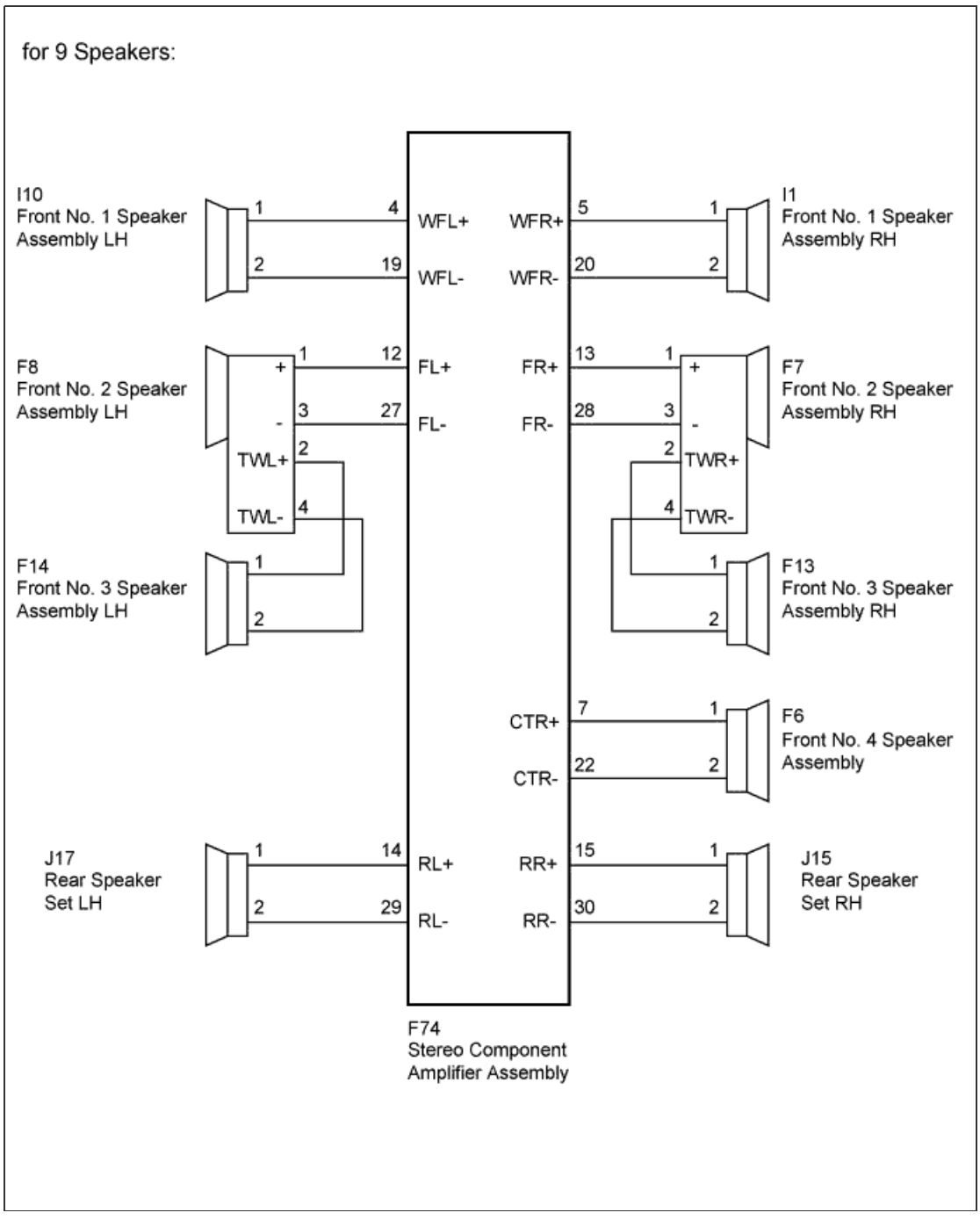
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

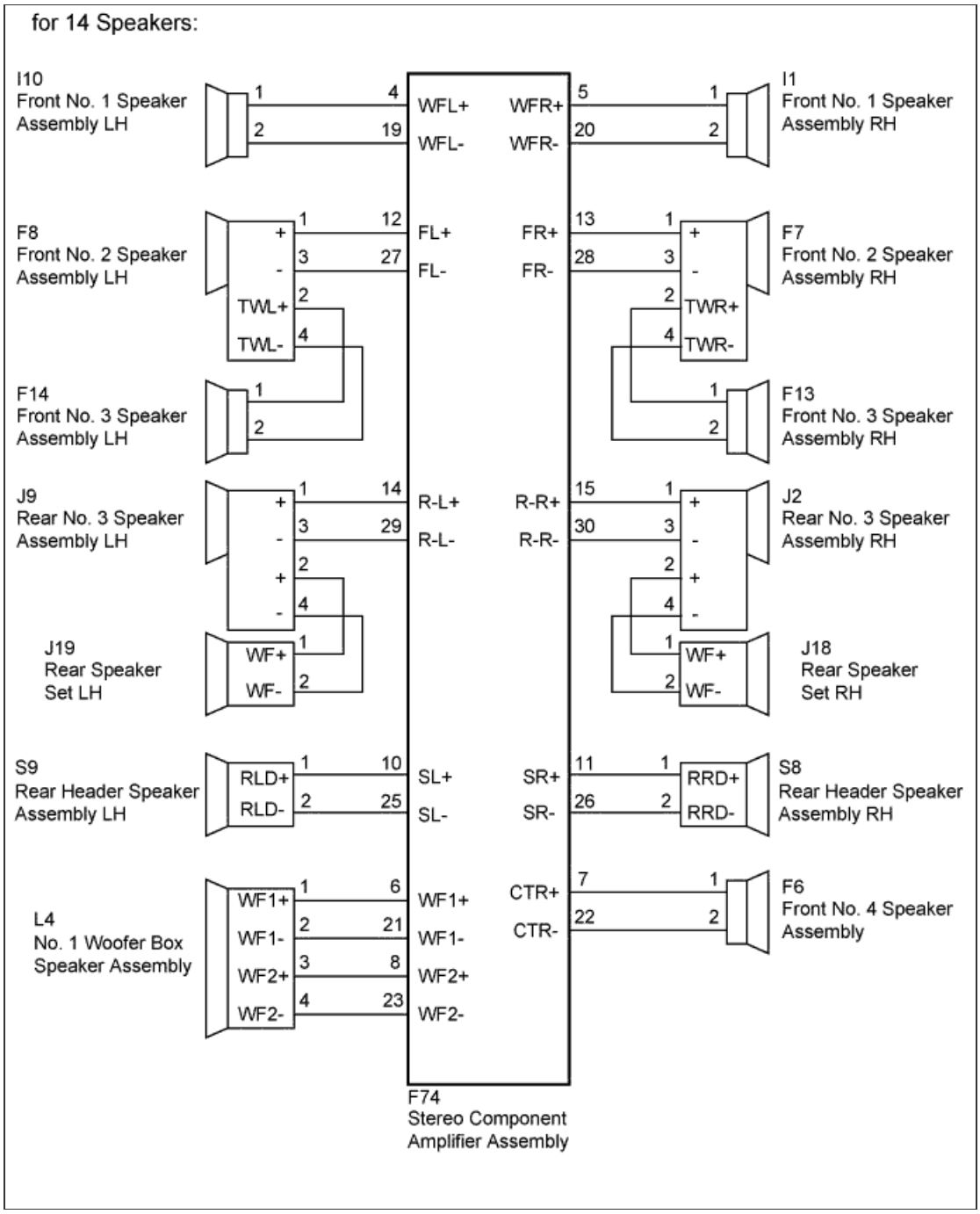
for Preparation Click here

DESCRIPTION

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: for 14 Speakers
*4: for 9 Speakers

a. Disconnect the F74 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*4.

f. Disconnect the J2*1 and/or J9*2 rear No. 3 speaker connector*3.

g. Disconnect the S8*1 and/or S9*2 rear header speaker assembly connector*3.

h. Disconnect the L4 No. 1 woofer box speaker connector.*3

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F74-5 (WFR+) - I1-1*1	Always	Below 1 Ω
F74-20 (WFR-) - I1-2*1	Always	Below 1 Ω
F74-4 (WFL+) - I10-1*2	Always	Below 1 Ω
F74-19 (WFL-) - I10-2*2	Always	Below 1 Ω
F74-13 (FR+) - F7-1 (+)*1	Always	Below 1 Ω
F74-28 (FR-) - F7-3 (-)*1	Always	Below 1 Ω
F74-12 (FL+) - F8-1 (+)*2	Always	Below 1 Ω
F74-27 (FL-) - F8-2 (-)*2	Always	Below 1 Ω
F74-7 (CTR+) - F6-1	Always	Below 1 Ω
F74-22 (CTR-) - F6-2	Always	Below 1 Ω
F74-15 (RR+) - J15-1*1, *4	Always	Below 1 Ω
F74-30 (RR-) - J15-2*1, *4	Always	Below 1 Ω
F74-14 (RL+) - J17-1*2, *4	Always	Below 1 Ω
F74-29 (RL-) - J17-2*2, *4	Always	Below 1 Ω
F74-15 (R-R+) - J2-1 (+)*1, *3	Always	Below 1 Ω
F74-30 (R-R) - J2-3 (-)*1, *3	Always	Below 1 Ω
F74-14 (R-L+) - J9-1 (+)*2, *3	Always	Below 1 Ω
F74-29 (R-L-) - J9-3 (-)*2, *3	Always	Below 1 Ω
F74-11 (SR+) - S8-1 (RRD+)*1, *3	Always	Below 1 Ω
F74-26 (SR-) - S8-2 (RRD-)*1, *3	Always	Below 1 Ω
F74-10 (SL+) - S9-1 (RLD+)*2, *3	Always	Below 1 Ω
F74-25 (SL-) - S9-2 (RLD-)*2, *3	Always	Below 1 Ω
F74-6 (WF1+) - L4-1 (WF1+)*3	Always	Below 1 Ω
F74-21 (WF1-) - L4-2 (WF1-)*3	Always	Below 1 Ω
F74-8 (WF2+) - L4-3 (WF2+)*3	Always	Below 1 Ω
F74-23 (WF2-) - L4-4 (WF2-)*3	Always	Below 1 Ω
F74-5 (WFR+) - Body ground	Always	10 kΩ or higher
F74-20 (WFR-) - Body ground	Always	10 kΩ or higher
F74-4 (WFL+) - Body ground	Always	10 kΩ or higher
F74-19 (WFL-) - Body ground	Always	10 kΩ or higher
F74-13 (FR+) - Body ground	Always	10 kΩ or higher

F74-28 (FR-) - Body ground	Always	10 kΩ or higher
F74-12 (FL+) - Body ground	Always	10 kΩ or higher
F74-27 (FL-) - Body ground	Always	10 kΩ or higher
F74-7 (CTR+) - Body ground	Always	10 kΩ or higher
F74-22 (CTR-) - Body ground	Always	10 kΩ or higher
F74-15 (RR+) - Body ground	Always	10 kΩ or higher
F74-30 (RR-) - Body ground	Always	10 kΩ or higher
F74-14 (RL+) - Body ground	Always	10 kΩ or higher
F74-29 (RL-) - Body ground	Always	10 kΩ or higher
F74-15 (R-R+) - Body ground	Always	10 kΩ or higher
F74-30 (R-R) - Body ground	Always	10 kΩ or higher
F74-14 (R-L+) - Body ground	Always	10 kΩ or higher
F74-29 (R-L-) - Body ground	Always	10 kΩ or higher
F74-11 (SR+) - Body ground	Always	10 kΩ or higher
F74-26 (SR-) - Body ground	Always	10 kΩ or higher
F74-10 (SL+)- Body ground	Always	10 kΩ or higher
F74-25 (SL-) - Body ground	Always	10 kΩ or higher
F74-6 (WF1+) - Body ground	Always	10 kΩ or higher
F74-21 (WF1-) - Body ground	Always	10 kΩ or higher
F74-8 (WF2+) - Body ground	Always	10 kΩ or higher
F74-23 (WF2-) - Body ground	Always	10 kΩ or higher

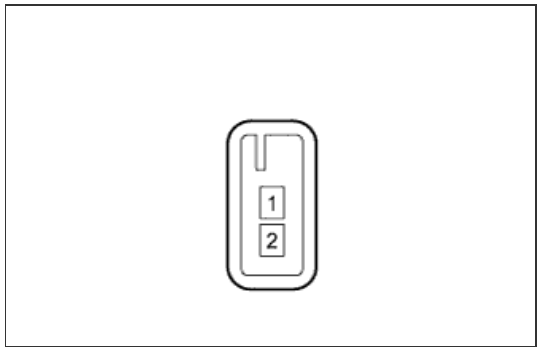
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the front No. 1 speaker assembly connector.

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



Standard Resistance:

for 14 Speakers

Tester Connection	Condition	Specified Condition
1 - 2	Always	1.8 to 2.6 Ω

for 9 Speakers

Tester Connection	Condition	Specified Condition
1 - 2	Always	3 Ω

Result

Result	Proceed to
OK (for 14 Speakers)	A
OK (for 9 Speakers)	B
NG	C

B → Go to step 5

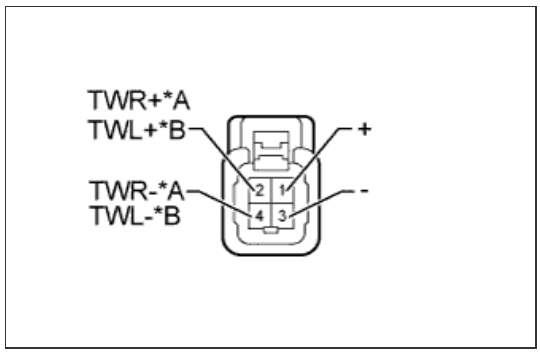
C → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

A

3.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the front No. 2 speaker assembly connector.

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



Standard Resistance:

for RH Side

Tester Connection	Condition	Specified Condition
1 (+) - 2 (TWR+)	Always	Below 1 Ω
3 (-) - 4 (TWR-)	Always	Below 1 Ω
2 (TWR+) - 4 (TWR-)	Always	1.5 to 2.5 Ω

for LH Side

Tester Connection	Condition	Specified Condition
1 (+) - 2 (TWL+)	Always	Below 1 Ω
3 (-) - 4 (TWL-)	Always	Below 1 Ω
2 (TWL+) - 4 (TWL-)	Always	1.5 to 2.5 Ω

Text in Illustration

*A	for RH Side
*B	for LH Side

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.

NG → Go to step 7

OK ↓

END (FRONT NO. 3 SPEAKER ASSEMBLY IS DEFECTIVE)

5.CHECK FRONT NO. 2 SPEAKER ASSEMBLY

a. Temporarily replace the front No. 2 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 6

OK ↓

END (FRONT NO. 2 SPEAKER ASSEMBLY IS DEFECTIVE)

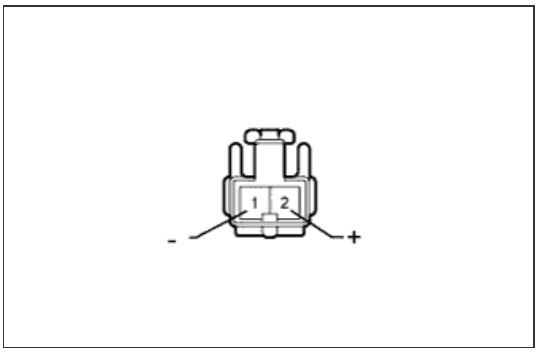
6.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY

a. Disconnect the front No. 3 speaker assembly 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 Ω



NG → REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (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

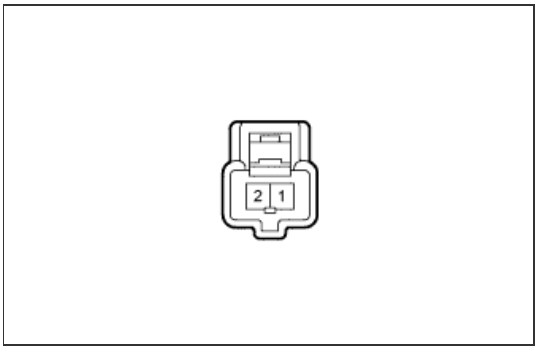
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

8.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the front No. 4 speaker assembly connector.

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



Standard Resistance:

for 14 Speakers

Tester Connection	Condition	Specified Condition
1 - 2	Always	1.5 to 2.5 Ω

for 9 Speakers

Tester Connection	Condition	Specified Condition
1 - 2	Always	6 Ω

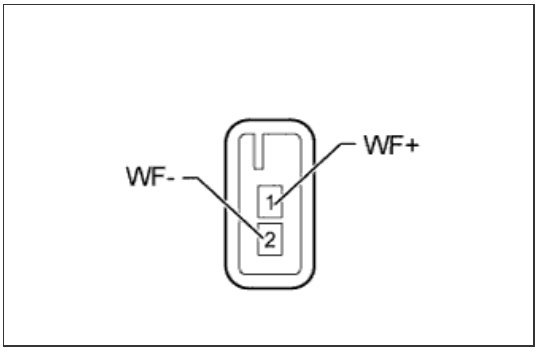
NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

9.INSPECT REAR SPEAKER SET

a. Disconnect the rear speaker set connector.

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



Standard Resistance:

for 14 Speakers

Tester Connection	Condition	Specified Condition
1 (WF+) - 2 (WF-)	Always	1.5 to 2.3 Ω

for 9 Speakers (for FUJITSU TEN Made)

Tester Connection	Condition	Specified Condition
1 (WF+) - 2 (WF-)	Always	4 Ω

for 9 Speakers (for PIONEER Made)

Tester Connection	Condition	Specified Condition
1 (WF+) - 2 (WF-)	Always	5 Ω

Result

Result	Proceed to
OK (for 14 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 HARNESS AND CONNECTOR (REAR NO. 3 SPEAKER - REAR SPEAKER SET)

*1: for RH Side
*2: for LH Side

a. Disconnect the J2*1 and/or J9*2 front No. 3 speaker assembly connector.

b. Disconnect the J18*1 and/or J19*2 rear speaker set connector.

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

Standard Resistance:

for RH Side

Tester Connection	Condition	Specified Condition
J2-2 (+) - J18-1 (WF+)	Always	Below 1 Ω
J2-4 (-) - J18-2 (WF-)	Always	Below 1 Ω
J2-2 (+) - Body ground	Always	10 kΩ or higher
J2-4 (-) - Body ground	Always	10 kΩ or higher

for LH Side

Tester Connection	Condition	Specified Condition
J9-2 (+) - J19-1 (WF+)	Always	Below 1 Ω
J9-4 (-) - J19-2 (WF-)	Always	Below 1 Ω
J9-2 (+) - Body ground	Always	10 kΩ or higher
J9-4 (-) - Body ground	Always	10 kΩ or higher

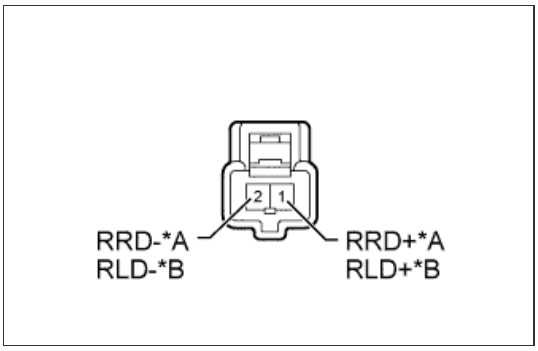
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

11.INSPECT REAR HEADER SPEAKER ASSEMBLY

a. Disconnect the rear header assembly connector.

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



Standard Resistance:

for RH Side

Tester Connection	Condition	Specified Condition
1 (RRD+) - 2 (RRD-)	Always	1.5 to 2.5 Ω

for LH Side

Tester Connection	Condition	Specified Condition
1 (RLD+) - 2 (RLD-)	Always	1.5 to 2.5 Ω

Text in Illustration

*A	for RH Side
*B	for LH Side

NG → REPLACE REAR HEADER SPEAKER ASSEMBLY (Click here)

OK

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

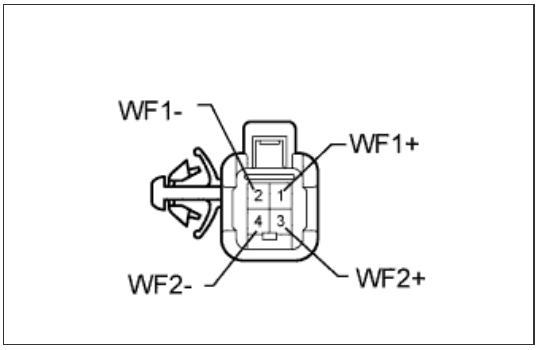
OK

END (REAR NO. 3 SPEAKER ASSEMBLY IS DEFECTIVE)

13.INSPECT NO. 1 WOOFER BOX SPEAKER ASSEMBLY

a. Disconnect the No. 1 woofer box speaker assembly speaker connector.

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



Standard Resistance:

for LH Side

Tester Connection	Condition	Specified Condition

1 (WF1+) - 2 (WF1-)	Always	1.6 to 2.4 Ω

for RH Side

Tester Connection	Condition	Specified Condition
3 (WF2+) - 4 (WF2-)	Always	1.6 to 2.4 Ω

NG → REPLACE NO. 1 WOOFER BOX SPEAKER (Click here)

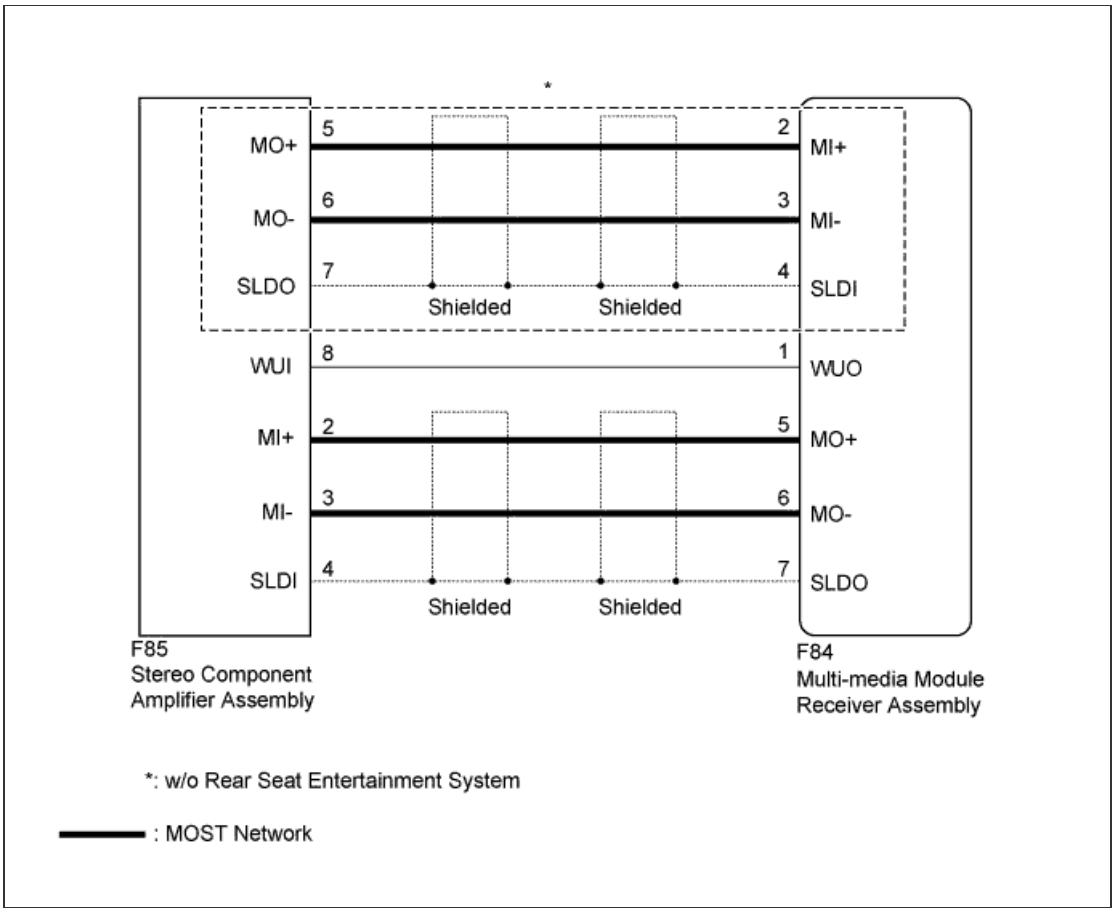
OK → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

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.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the F84 multi-media module receiver assembly connector.

b. Disconnect the F85 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
F84-1 (WUO) - F85-8 (WUI)	Always	Below 1 Ω
F84-2 (MI+) - F85-5 (MO+)	Always	Below 1 Ω
F84-3 (MI-) - F85-6 (MO-)	Always	Below 1 Ω
F84-4 (SLDI) - F85-7 (SLDO)	Always	Below 1 Ω
F84-5 (MO+) - F85-2 (MI+)	Always	Below 1 Ω

F84-6 (MO-) - F85-3 (MI-)	Always	Below 1 Ω
F84-7 (SLDO) - F85-4 (SLDI)	Always	Below 1 Ω
F84-1 (WUO) - Body ground	Always	10 kΩ or higher
F84-2 (MI+) - Body ground	Always	10 kΩ or higher
F84-3 (MI-) - Body ground	Always	10 kΩ or higher
F84-4 (SLDI) - Body ground	Always	10 kΩ or higher
F84-5 (MO+) - Body ground	Always	10 kΩ or higher
F84-6 (MO-) - Body ground	Always	10 kΩ or higher
F84-7 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

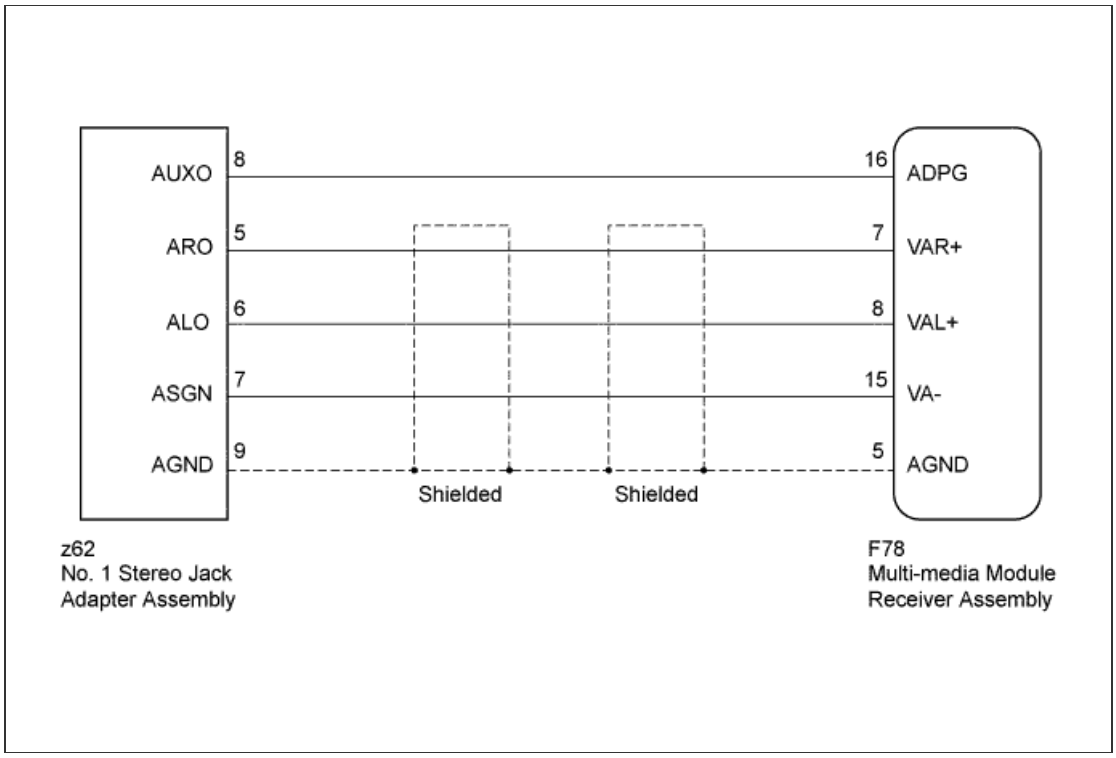
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

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 F78 multi-media module receiver assembly connector.

b. Disconnect the z62 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
F78-16 (ADPG) - z62-8 (AUXO)	Always	Below 1 Ω
F78-7 (VAR+) - z62-5 (ARO)	Always	Below 1 Ω
F78-8 (VAL+) - z62-6 (ALO)	Always	Below 1 Ω
F78-15 (VA-) - z62-7 (ASGN)	Always	Below 1 Ω
F78-5 (AGND) - z62-9 (AGND)	Always	Below 1 Ω
F78-16 (ADPG) - Body ground	Always	10 kΩ or higher
F78-7 (VAR+) -		

Body ground	Always	10 kΩ or higher
F78-8 (VAL+) - Body ground	Always	10 kΩ or higher
F78-15 (VA-) - Body ground	Always	10 kΩ or higher
F78-5 (AGND) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

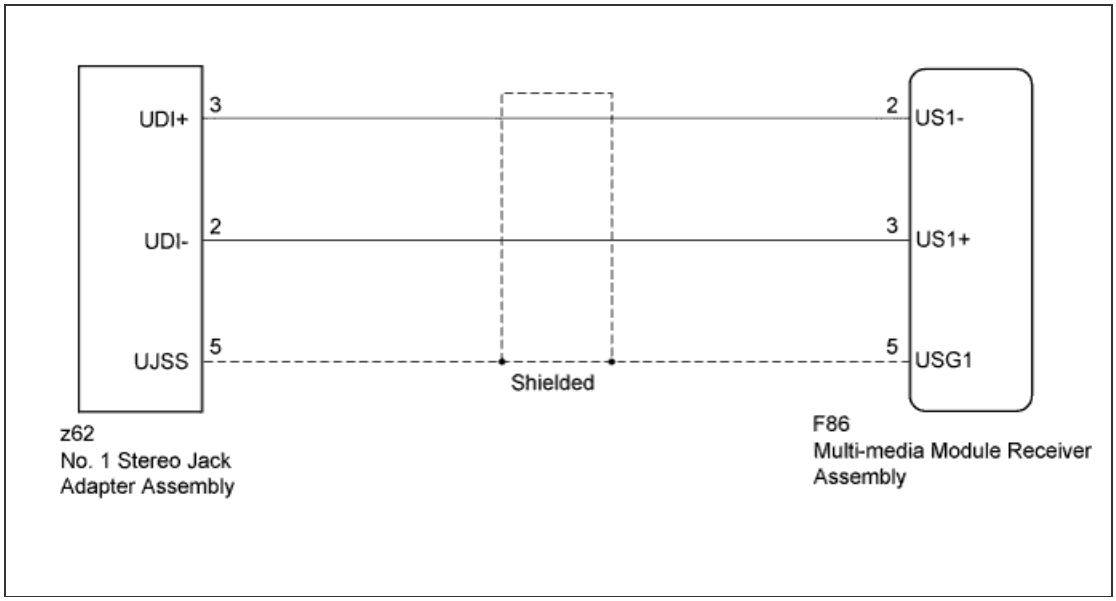
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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 F86 multi-media module receiver assembly connector.

b. Disconnect the z62 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
F86-2 (US1-) - z62-3 (UDI+)	Always	Below 1 Ω
F86-3 (US1+) - z62-2 (UDI-)	Always	Below 1 Ω
F86-5 (USG1) - z62-5 (UJSS)	Always	Below 1 Ω
F86-2 (US1-) - Body ground	Always	10 kΩ or higher
F86-3 (US1+) - Body ground	Always	10 kΩ or higher
F86-5 (USG1) - Body ground	Always	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

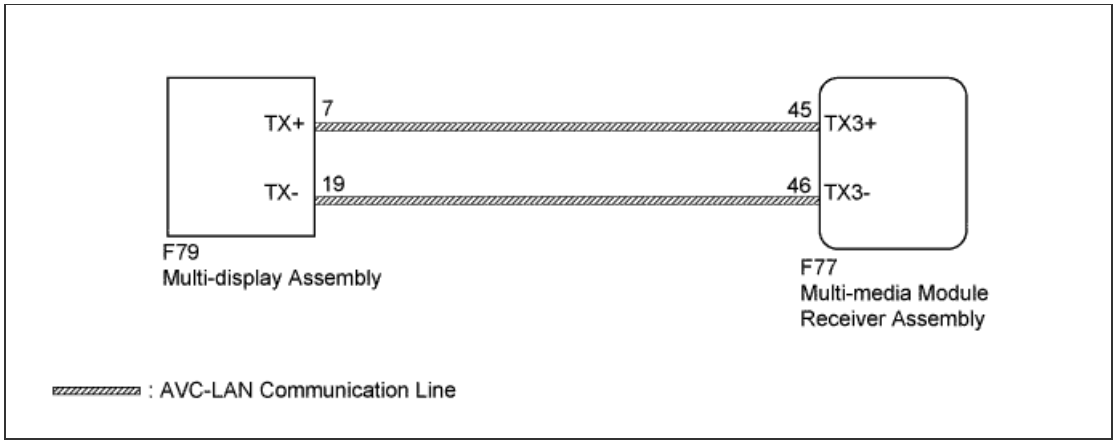
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

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

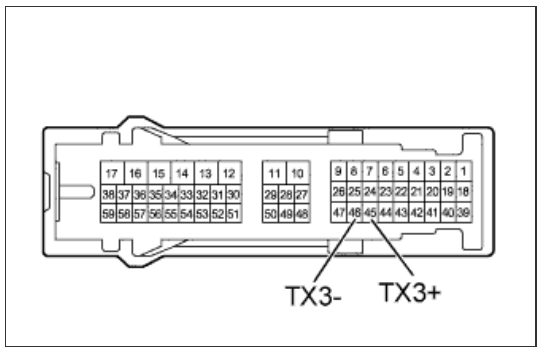
1.INSPECT MULTI-MEDIA MODULE RECEIVER ASSEMBLY

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
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

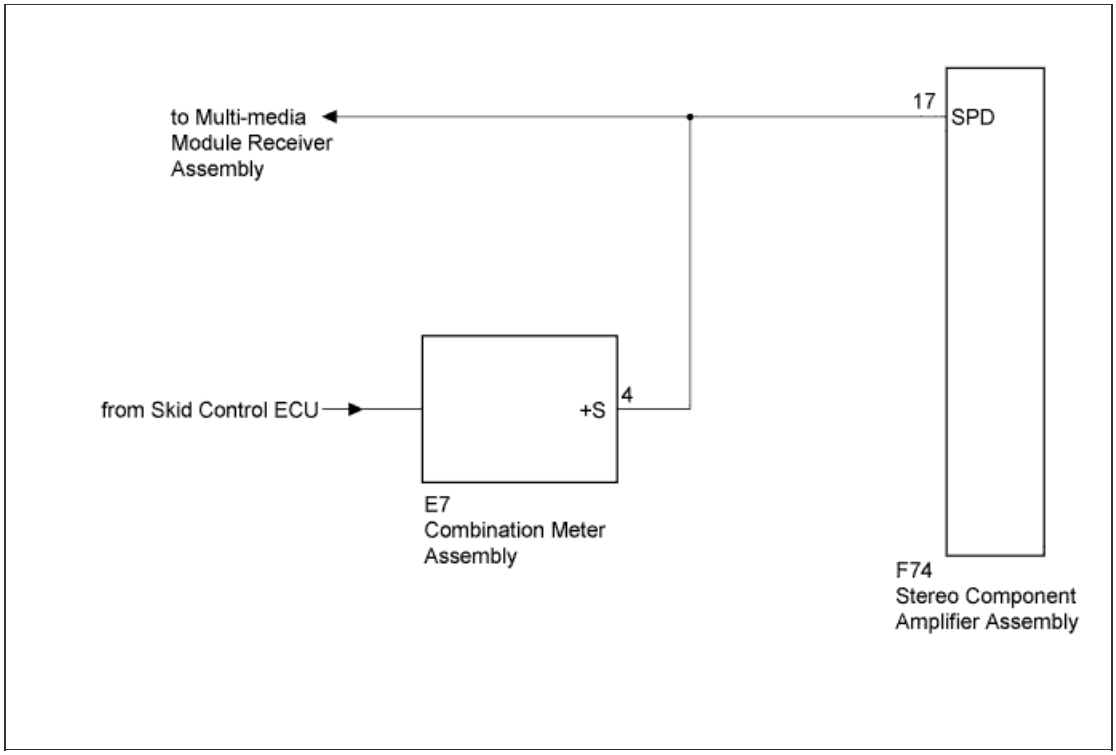
DESCRIPTION

The 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 F74 stereo component amplifier assembly connector and E7 combination meter assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F74-17 (SPD) - F7-4 (+S)	Always	Below 1 Ω
F74-17 (SPD) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.INSPECT COMBINATION METER ASSEMBLY (OUTPUT WAVEFORM)

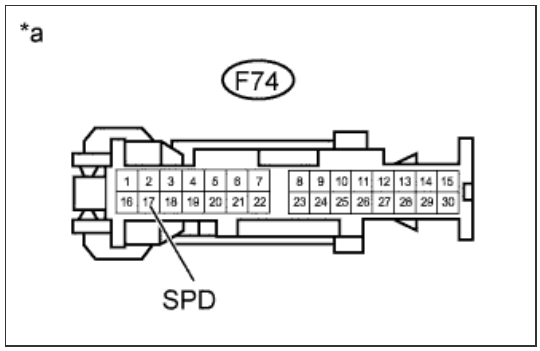
a. Reconnect the E7 combination meter assembly connector.

b. Check the input waveform.

i. Connect an oscilloscope to terminal F74-17 (SPD) and body ground.

ii. Turn the engine switch on (IG).

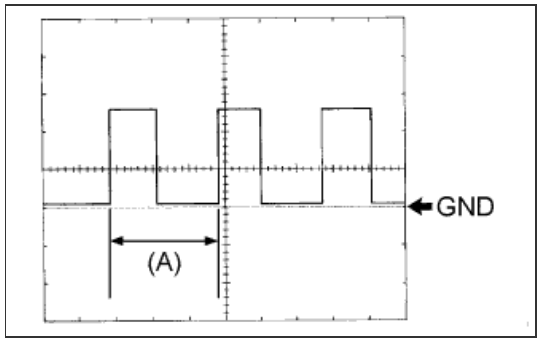
iii. Turn a wheel slowly.



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	F74-17 (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

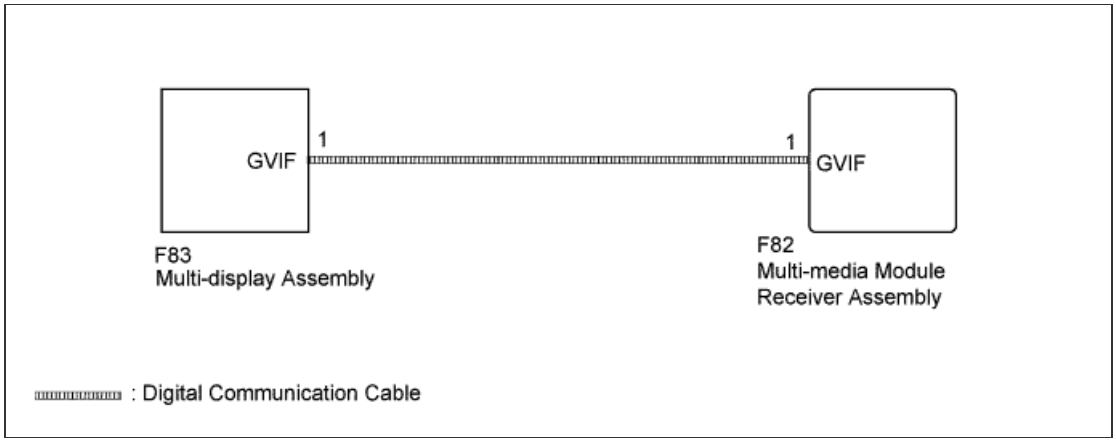
REPLACE PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

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.CHECK 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

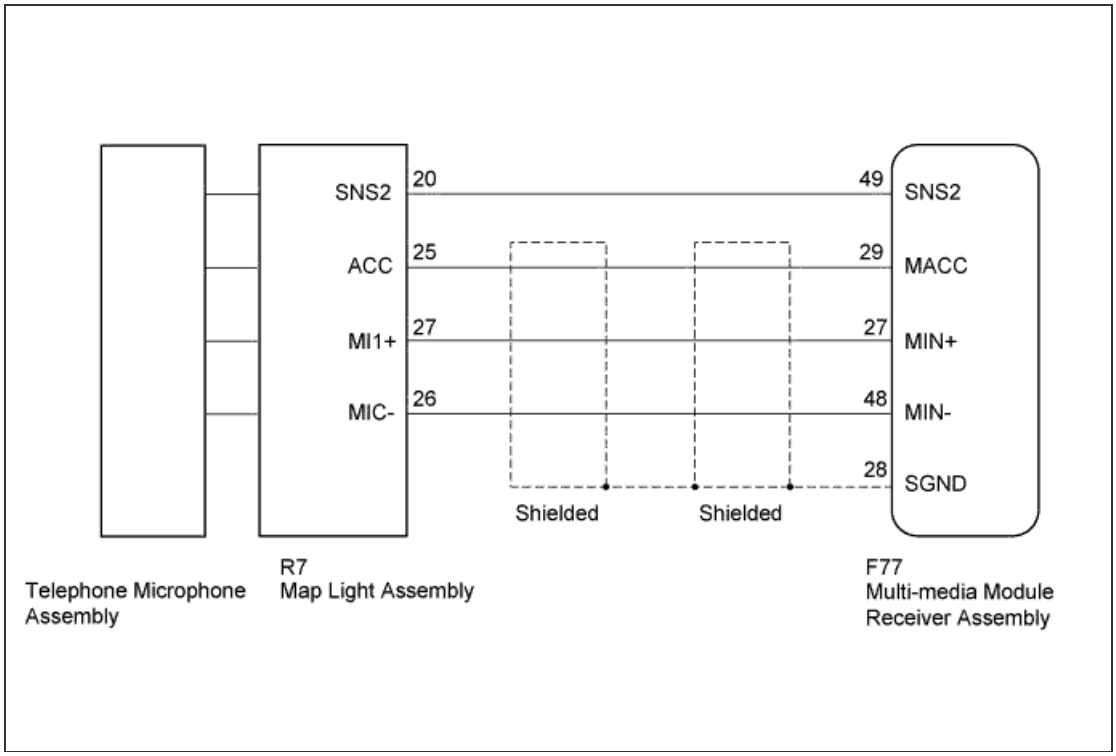
END (MULTI-DISPLAY ASSEMBLY IS DEFECTIVE)

for Preparation Click here

DESCRIPTION

Using this circuit, the multi-media module receiver assembly sends power to the map light assembly (telephone microphone assembly), and the map light assembly sends microphone signals to the multi-media module receiver assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MAP LIGHT ASSEMBLY)

a. Disconnect the F77 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
F77-49 (SNS2) - R7-20 (SNS2)	Always	Below 1 Ω
F77-29 (MACC) - R7-25 (ACC)	Always	Below 1 Ω
F77-27 (MIN+) - R7-27 (MI1+)	Always	Below 1 Ω
F77-48 (MIN-) - R7-26 (MIC-)	Always	Below 1 Ω
F77-49 (SNS2) - Body ground	Always	10 kΩ or higher
F77-29 (MACC) - Body ground	Always	10 kΩ or higher
F77-27 (MIN+) - Body ground	Always	10 kΩ or higher
F77-48 (MIN-) - Body ground	Always	10 kΩ or higher
F77-28 (SGND) -		

Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

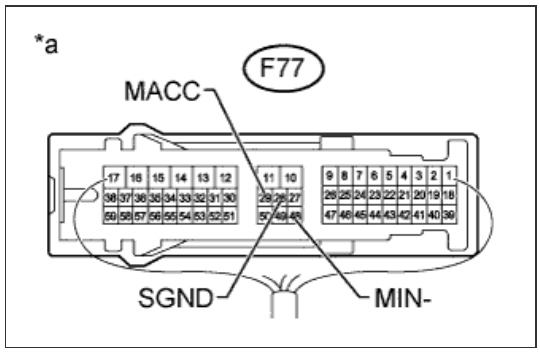
2.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

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
F77-28 (SGND) - Body ground	Always	Below 1 Ω
F77-48 (MIN-) - 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
F77-29 (MACC) - Body ground	Engine switch on (ACC)	4 to 6 V

Text in Illustration

*a	Component with harness connected (Multi-media Module Receiver Assembly)

NG → Go to step 3

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

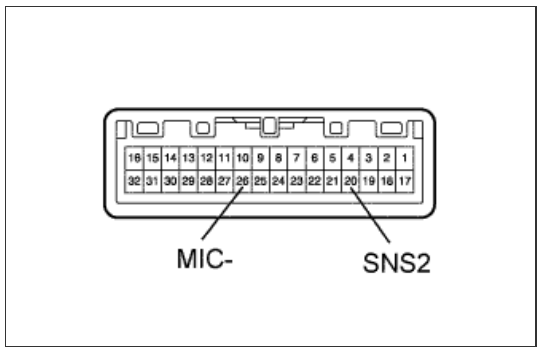
3.INSPECT MAP LIGHT ASSEMBLY

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	Condition	Specified Condition
26 (MIC-) - 20 (SNS2)	Always	Below 1 Ω



Text in Illustration

*a	Component without harness connected (Map Light Assembly)

NG → Go to step 5

OK

4.CHECK MAP LIGHT ASSEMBLY

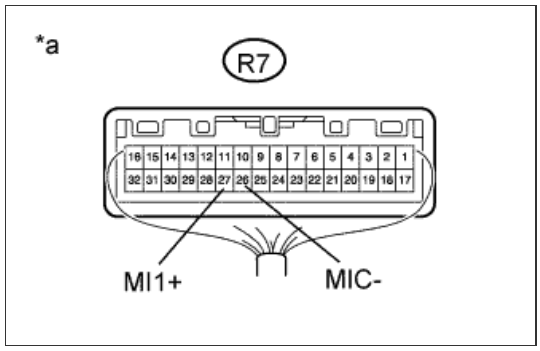
a. Reconnect the multi-media module receiver assembly connector.

b. Reconnect the map light assembly connector.

c. Turn the engine switch on (ACC).

d. Connect an oscilloscope to terminals R7-27 (MI1+) and R7-26 (MIC-) of the map light assembly connector.

e. 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 not output.	A
A waveform synchronized with the voice input to the map light assembly is output.	B

B → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

A

5.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

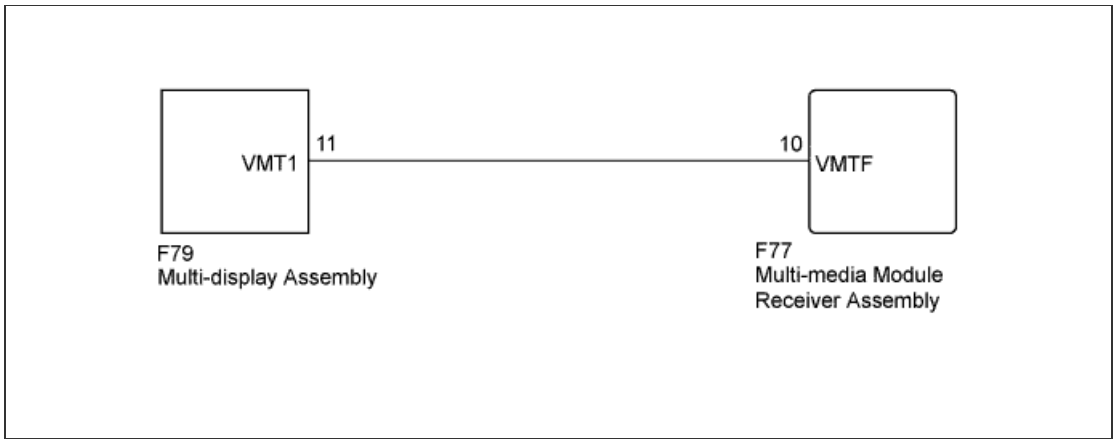
END (TELEPHONE MICROPHONE ASSEMBLY IS DEFECTIVE)

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

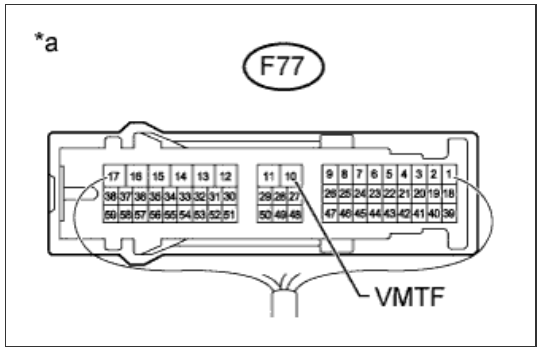
a. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
F77-10 (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 F77 multi-media module receiver assembly connector.

b. Disconnect the F79 multi-display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F77-10 (VMTF) -		

F79-11 (VMT1)	Always	Below 1 Ω
F77-10 (VMTF) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

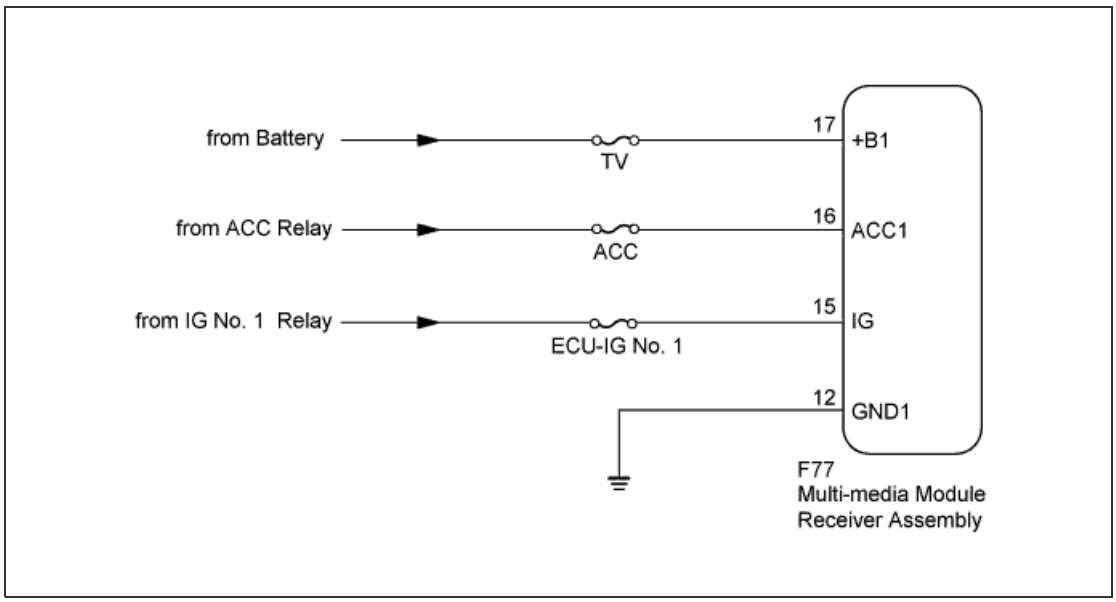
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

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.

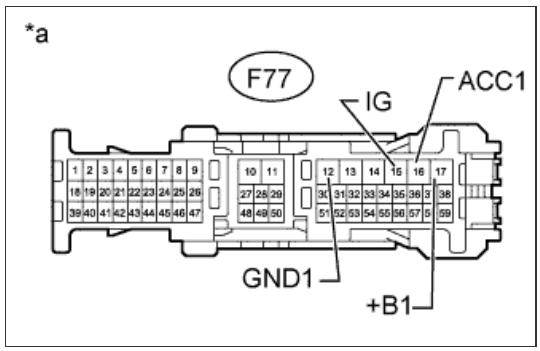
Standard Resistance:

Tester Connection	Condition	Specified Condition
F77-12 (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
F77-15 (IG) - Body ground	Engine switch on (IG)	11 to 14 V
F77-16 (ACC1) - Body ground	Engine switch on (ACC)	11 to 14 V
F77-17 (+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

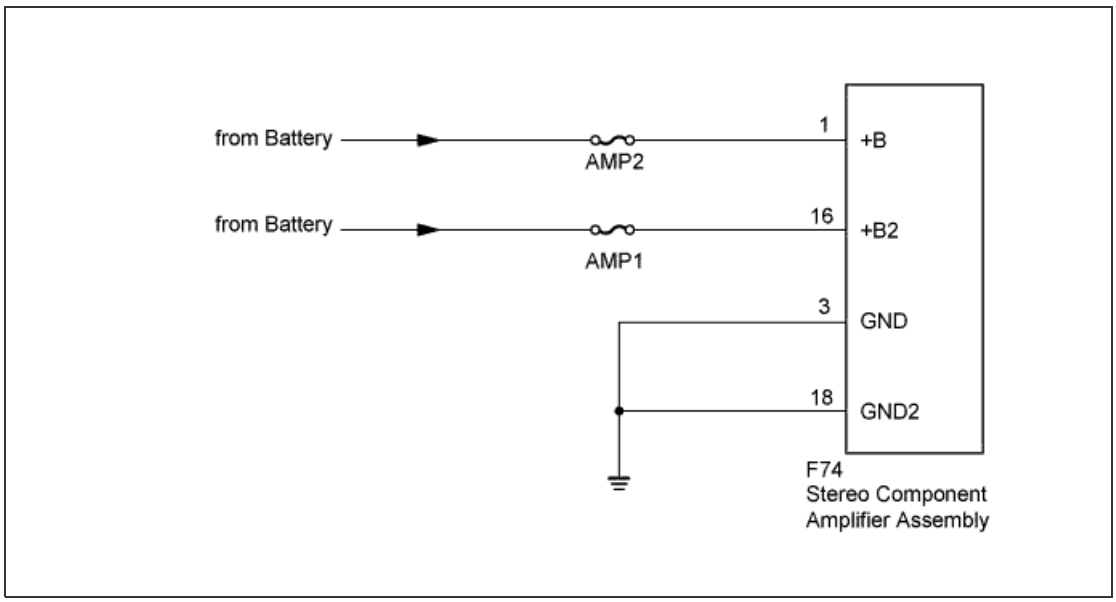
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This circuit provides power to the stereo component amplifier assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

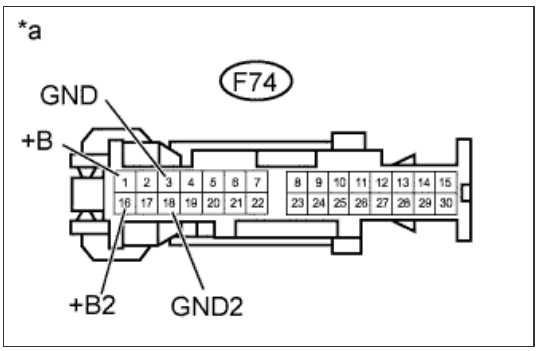
1.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - BATTERY AND BODY GROUND)

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
F74-3 (GND) - Body ground	Always	Below 1 Ω
F74-18 (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
F74-1 (+B) - Body ground	Always	11 to 14 V
F74-16 (+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

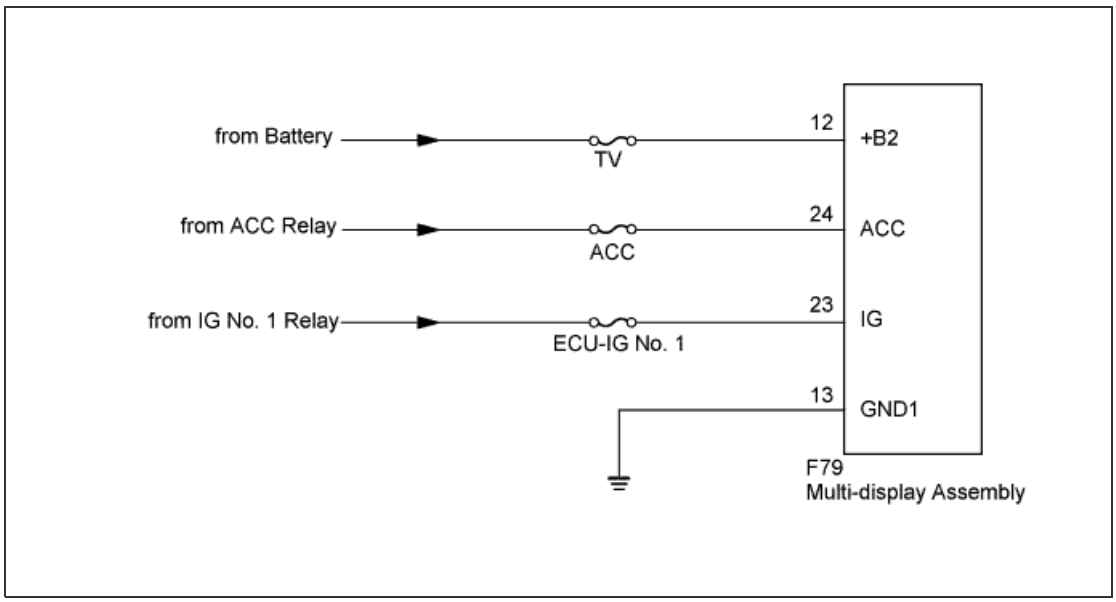
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This circuit provides power to the multi-display 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.

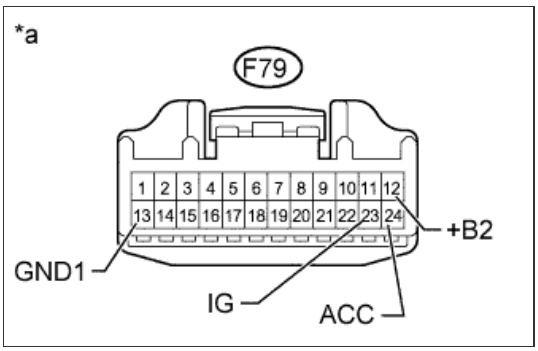
Standard Resistance:

Tester Connection	Condition	Specified Condition
F79-13 (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
F79-12 (+B2) - Body ground	Always	11 to 14 V
F79-23 (IG) - Body ground	Engine switch on (IG)	11 to 14 V
F79-24 (ACC) - Body ground	Engine switch on (ACC)	11 to 14 V



Text in Illustration

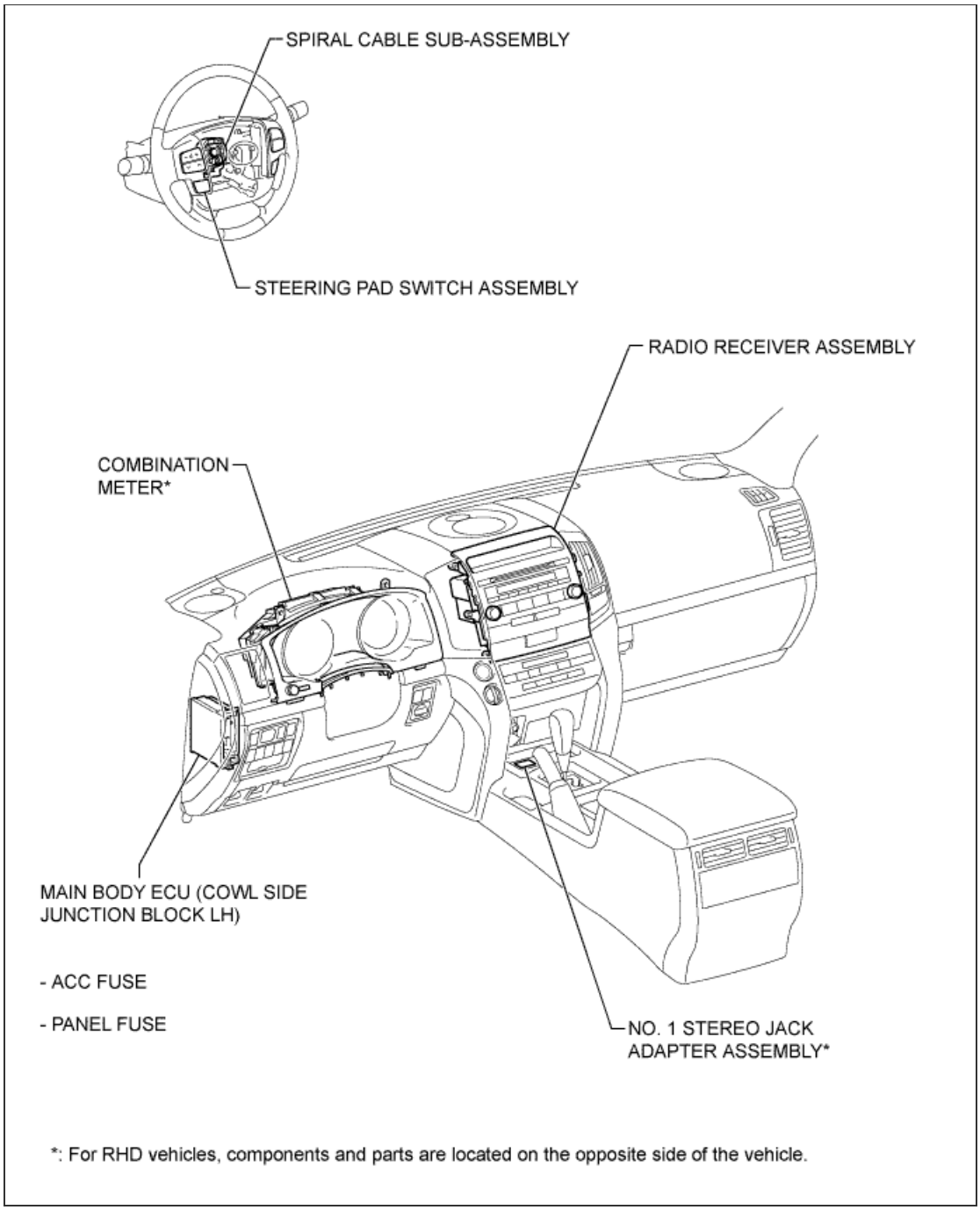
*a	Front view of wire harness connector (to Multi-display Assembly)

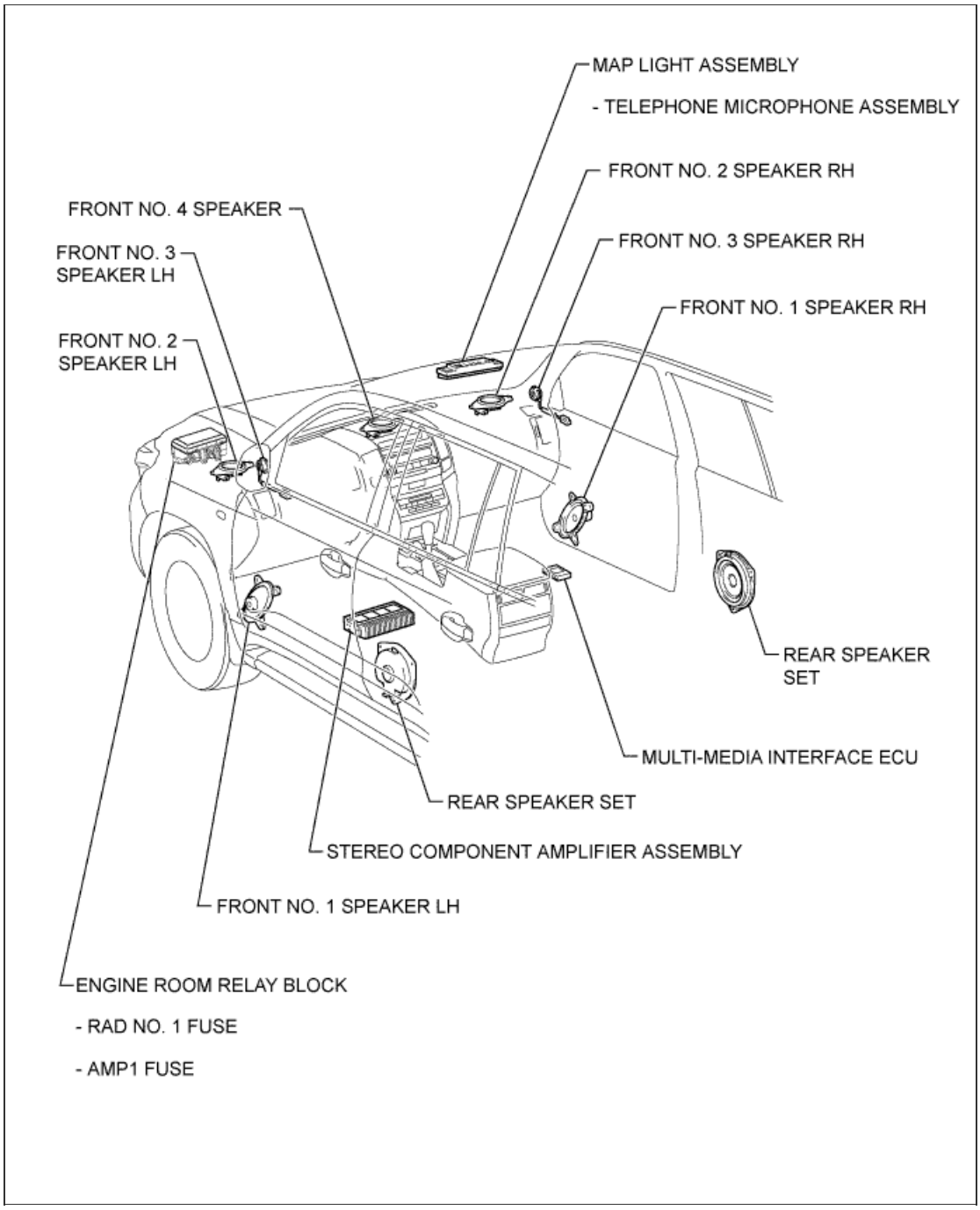
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

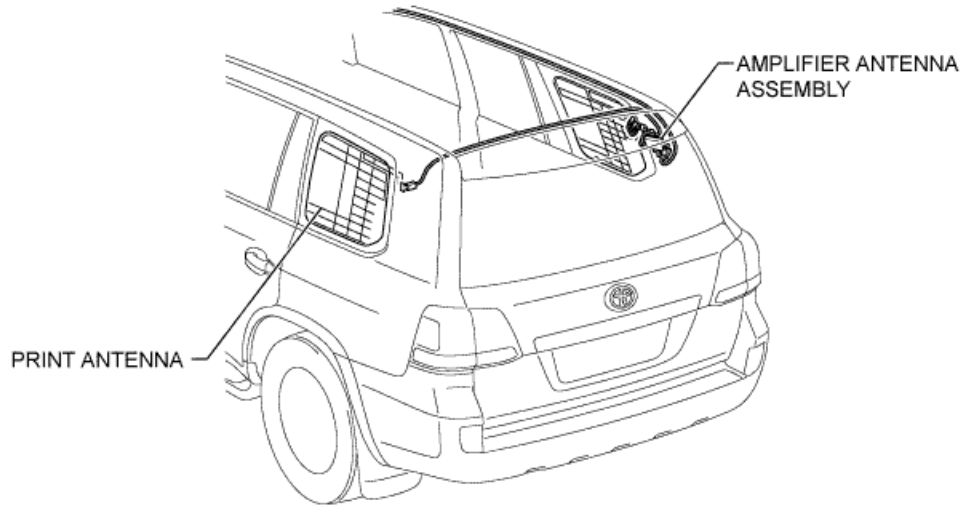
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

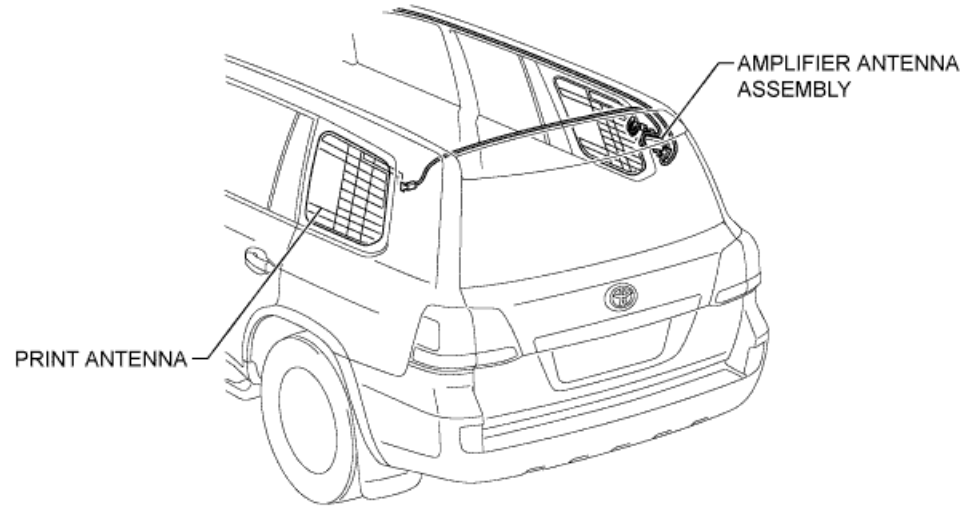



MAP LIGHT ASSEMBLY
- TELEPHONE MICROPHONE ASSEMBLY
FRONT NO. 2 SPEAKER RH
FRONT NO. 4 SPEAKER
FRONT NO. 3 SPEAKER RH
FRONT NO. 3 SPEAKER LH
FRONT NO. 1 SPEAKER RH
FRONT NO. 2 SPEAKER LH
REAR SPEAKER SET
MULTI-MEDIA INTERFACE ECU
REAR SPEAKER SET
STEREO COMPONENT AMPLIFIER ASSEMBLY
FRONT NO. 1 SPEAKER LH
ENGINE ROOM RELAY BLOCK
- RAD NO. 1 FUSE
- AMP1 FUSE

w/ Glass Breakage Sensor:

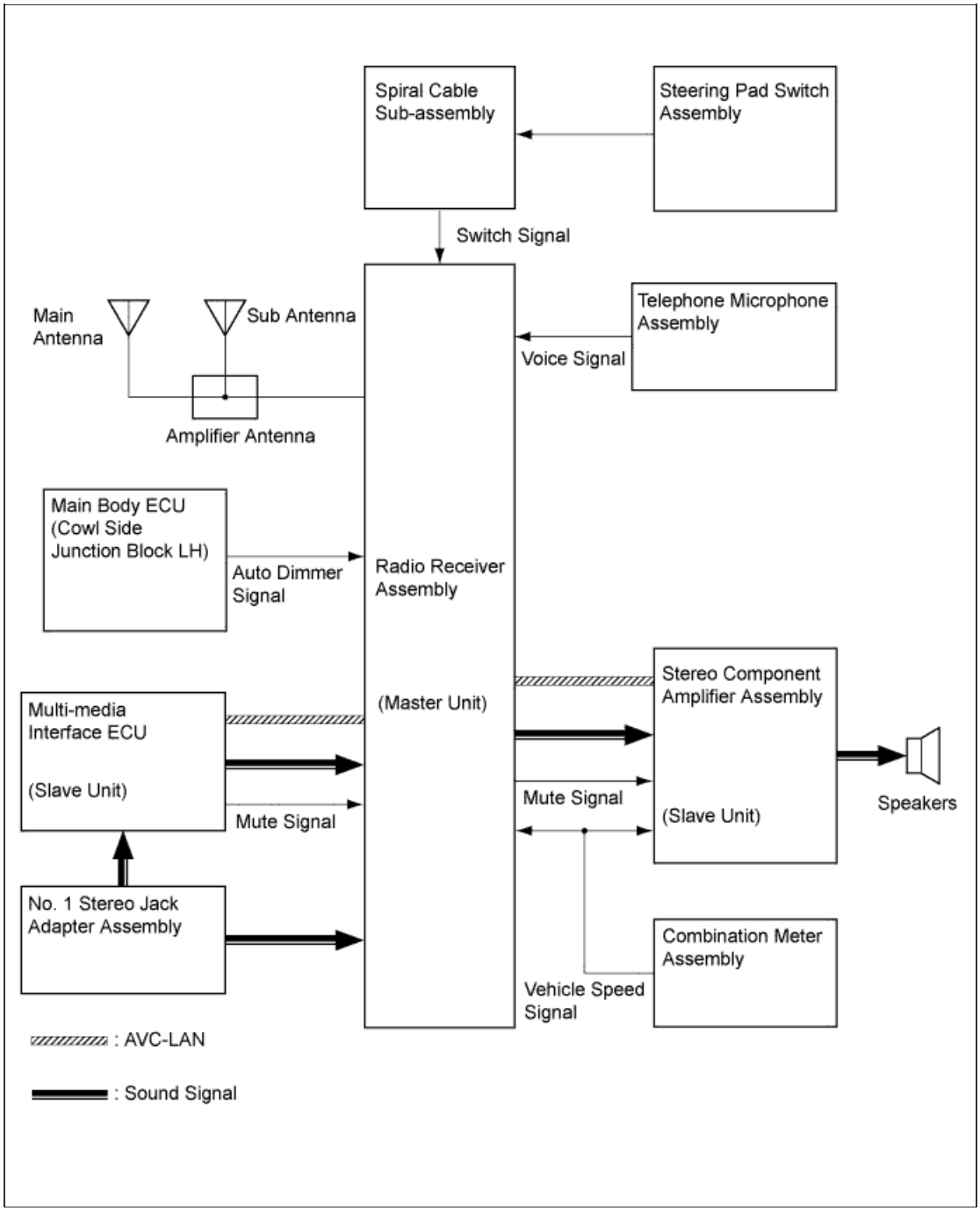


w/o Glass Breakage Sensor:



T

for Preparation Click here



for Preparation Click here

DISC PLAYER OUTLINE

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

CAUTION:

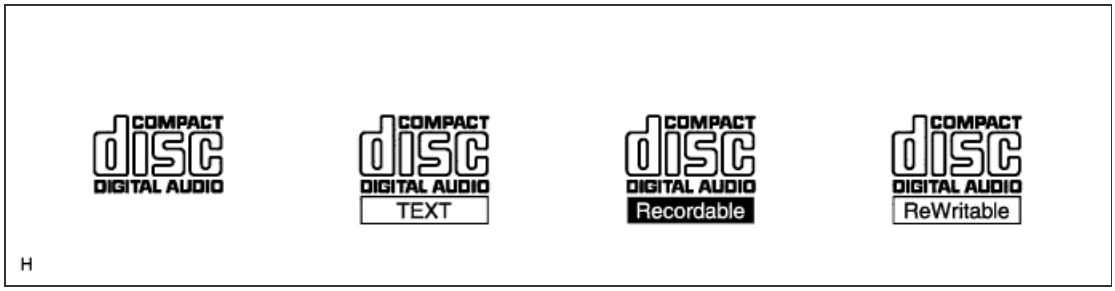
Do not look directly at the laser pickup because the CD player uses an invisible laser beam. Be sure to operate the player only as instructed.

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. The CD player can only play 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.**
- **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-R 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.**

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 road or similar uneven surface(s).**

d. Cleaning

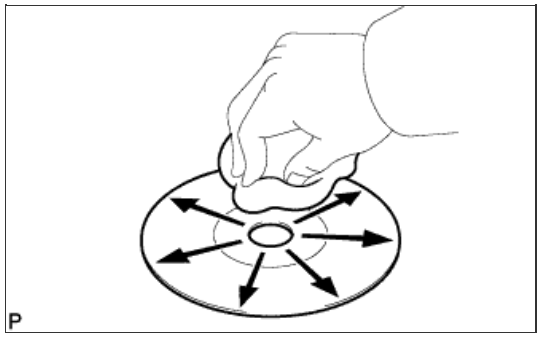
NOTICE:

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 LAYER3, MPEG2 LSF LAYER3)
Compatible sampling frequency	• MPEG1 LAYER3: 32, 44.1, 48 (kHz) • MPEG2 LSF LAYER3: 16, 22.05, 24 (kHz)
Compatible bit rate	• MPEG1 LAYER3: 64, 80, 96, 112, 128, 160, 192, 224, 256, 320 (kbps) • MPEG2 LSF LAYER3: 64, 80, 96, 112, 128, 144, 160 (kbps) • 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) • Ver. 9: CBR48, 64, 80, 96, 128, 160, 192, 256, 320 (kbps) • Compatible with 2 channel playback only

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 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 play normally or the file names or folder names may not display 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.

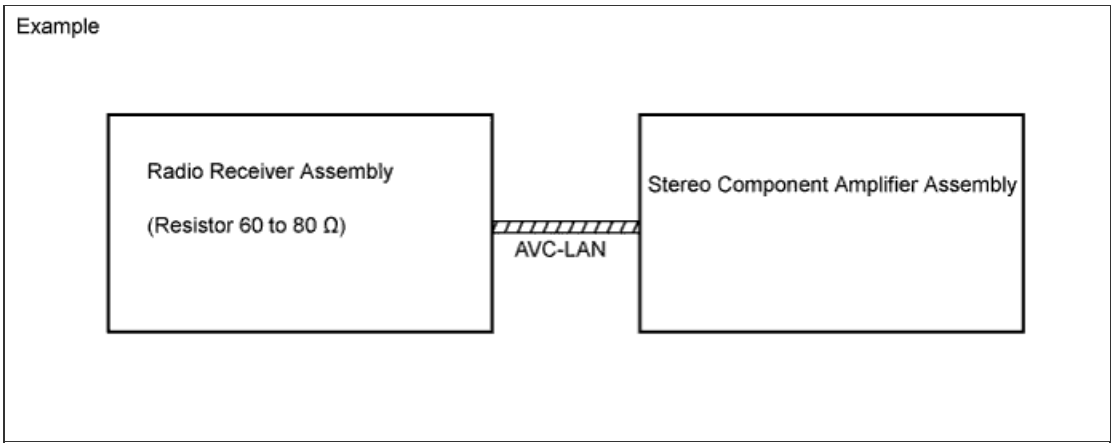
ii. Save MP3 or WMA files with an extension of ".mp3" or ".wma".

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.

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 multi-media 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 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 has a navigation system installed, the multi-display unit acts as the master unit. If the navigation system is not installed, the audio head unit acts as the master unit instead. If the navigation receiver assembly is installed, it is the master unit.**
- **The radio receiver assembly 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 assembly 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

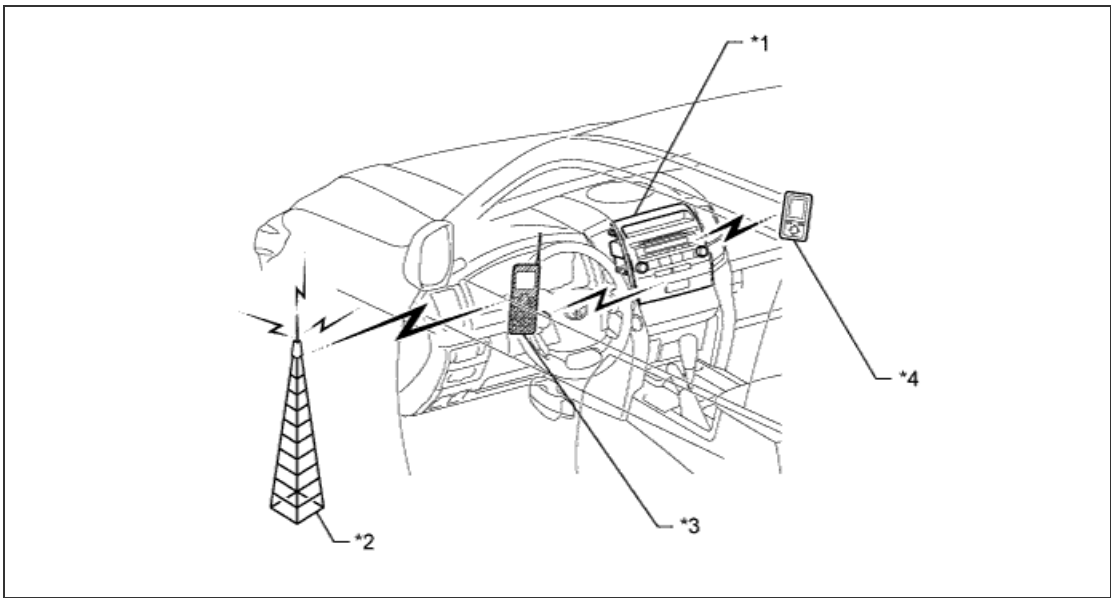
a. The audio system has a diagnostic function (the result is indicated on the master unit).

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

"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 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 attached directly to the cellular phone.
*1: Some versions of "Bluetooth" compatible cellular phones may not function.



Text in Illustration

*1	Radio Receiver Assembly (Built-in "Bluetooth" receiver antenna)	*2	Cellular Tower
*3	Cellular Phone ("Bluetooth" compatible)	*4	Portable Player ("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 • AVRCP (Audio/Video Remote Control Profile) Ver. 1.0 or higher (Ver. 1.3 or higher recommended)
Maximum number of audio devices that can be registered	2

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) • File format: FAT16/32 (Windows) • 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: 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. 1.2.0 or more
"iPod Nano" 1G	Ver. 1.2.0 or more
"iPod Nano" 2G	Ver. 1.1.2 or more
"iPod Nano" 3G	Ver. 1.0.0 or more
"iPod touch"	Ver. 1.1 or more
"iPod classic"	Ver. 1.0.0 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.

for Preparation Click here

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 6

A

4.CHECK FOR DTC

HINT:

Refer to DTC Check/Clear (Click here).

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

b. Clear the DTCs.

c. Recheck for DTCs by simulating the operation indicated by the DTCs.

HINT:

- **If the system cannot enter diagnostic mode, inspect the AVC-LAN and all the components that connect to the AVC-LAN for short circuits and repair or replace the malfunctioning part.**
- **Even if the symptom malfunction is not confirmed, check the DTCs. This is because the system stores history DTCs.**
- **Check and clear history DTCs. Then recheck for DTCs.**

Result

Result	Proceed to
DTC is output again	A
DTC is not output	B

B. Go to step 6

A

5.DIAGNOSTIC TROUBLE CODE CHART

HINT:

Refer to Diagnostic Trouble Code Chart (Click here).

NEXT. → Go to step 8

6.PROBLEM SYMPTOMS TABLE

HINT:

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

B. → Go to step 8

A

7.OVERALL ANALYSIS AND TROUBLESHOOTING

HINT:

Refer to Terminals of ECU (Click here).

NEXT

8.ADJUST, REPAIR OR REPLACE

NEXT

9.CONFIRMATION TEST

NEXT

END

for Preparation Click here

RADIO DESCRIPTION

a. Radio frequency band

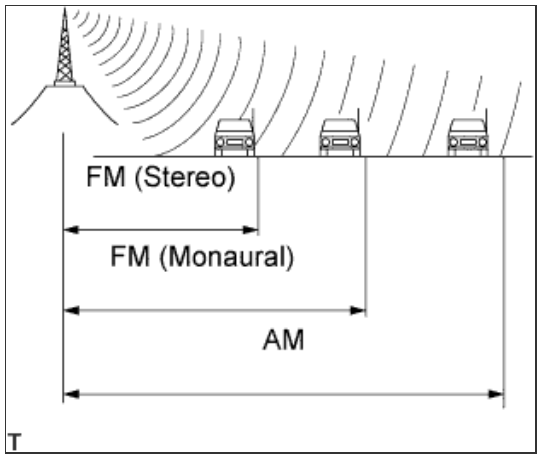
i. Radio broadcasts use the radio frequency bands shown in the table below.

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.

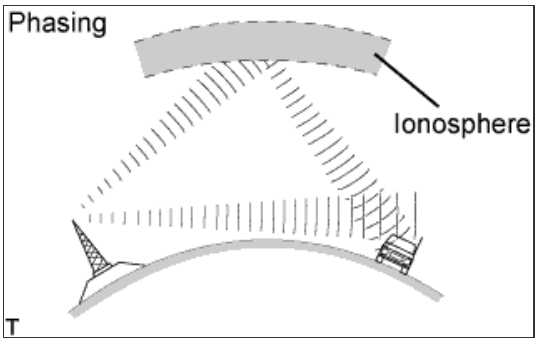


c. Radio reception problems

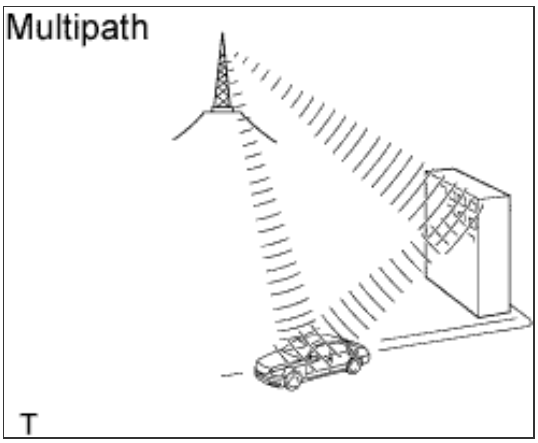
HINT:

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.

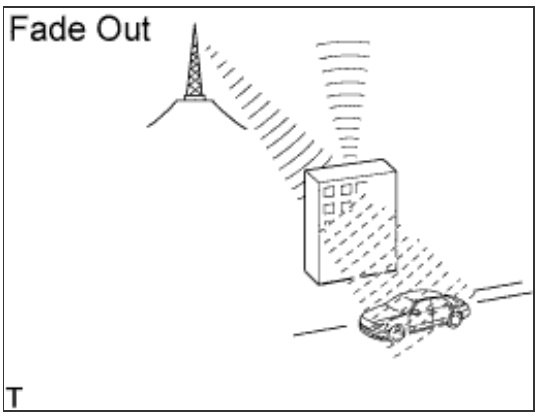
i. Phasing
AM broadcasts are susceptible to electrical interference and another kind of interference called phasing. Occurring only at night, phasing is the interference created when a vehicle receives 2 radio wave signals from the same transmitter. One signal is reflected off the ionosphere and the 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
	AVC-LAN circuit	Click here
	Radio receiver assembly	Click here
Panel switch does not function.	Steering pad switch circuit	Click here
	AVC-LAN circuit	Click here
	Radio receiver assembly	Click here
No sound can be heard from speakers. (Audio is mute.)	AVC-LAN circuit	Click here
	Radio receiver 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 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
	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 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
	Radio receiver power source circuit	Click here
	Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Jack	Click

External device sound cannot be heard or sound quality is bad. (Stereo jack is used.)	Adapter"	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
CD cannot be inserted/played or CD is ejected right after insertion.	Radio receiver power source circuit	Click here
	Proceed to "CD cannot be Inserted / Played or CD is Ejected Right After Insertion"	Click here
CD cannot be ejected.	Radio receiver power source circuit	Click here
	Proceed to "CD cannot be Ejected"	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 sound skips.	Proceed to "CD 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
Steering pad switch cannot be illuminated at night.	Illumination circuit	Click here
	Radio receiver assembly	Click here
CD slot illumination on radio receiver illuminates when turning lights on during daytime or daylight hours.	Proceed to "Dimmer Signal Circuit"	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 assembly	Click here
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
	Proceed to "Cellular Phone Voice Circuit between Radio Receiver and Stereo Component Amplifier"	Click here
	Telephone microphone assembly	Click here
	Radio receiver assembly	Click here
Other caller cannot hear your voice, or your voice is too	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

quiet or distorted.	Telephone microphone assembly	Click here
	Radio receiver assembly	Click here
"Bluetooth" can be connected while driving.	Proceed to "Vehicle Speed Signal Circuit between Radio Receiver and Combination Meter"	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
"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 players 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

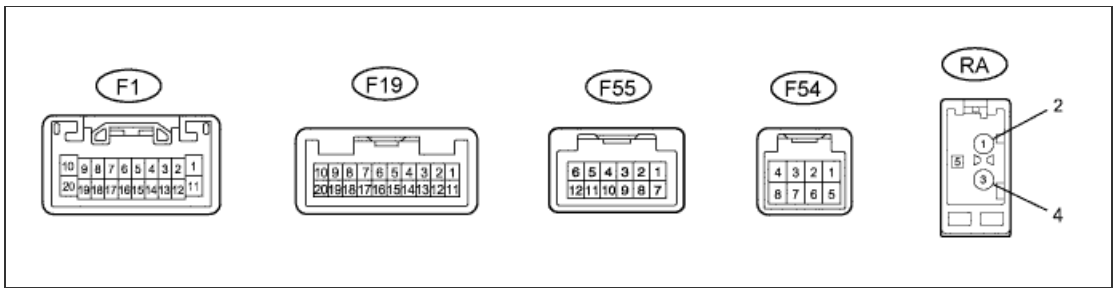
USB Audio System Function

Symptom	Suspected Area	See page
	Multi-media Interface ECU power source circuit	Click here

Sound cannot be heard or sound quality is bad. (Stereo jack is used.)	Proceed to "Sound Signal Circuit between Radio Receiver and Multi-media interface ECU"	Click here
	Proceed to "Mute Signal Circuit between Radio Receiver 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
	Radio receiver assembly	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

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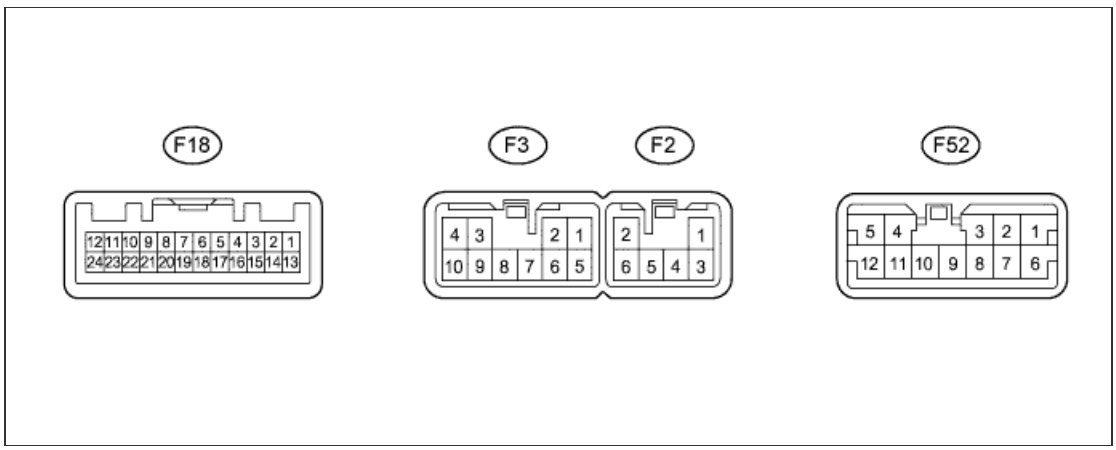
RADIO RECEIVER ASSEMBLY



Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specification
F1-1 (B) - F1-20 (GND)	L - BR	Battery	Always	11 to 14 V
F1-5 (ATX+)	R	AVC-LAN communication signal	-	-
F1-7 (MUTE) - F1-20 (GND)	B - BR	MUTE signal	Audio system playing mode	Above 2.5 V
			Audio system changing mode	Below 0.5 V
F1-8 (R+) - F1-20 (GND)	B - BR	Sound signal (Right)	Audio system playing mode	A waveform synchronized with sounds is output
F1-9 (L+) - F1-20 (GND)	R - BR	Sound signal (Left)	Audio system playing mode	A waveform synchronized with sounds is output
F1-10 (SLD) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
F1-11 (ACC) - F1-20 (GND)	GR - BR	Accessory (ON)	Engine switch off	Below 1 V
			Engine switch on (ACC)	11 to 14 V
F1-15 (ATX-)	W	AVC-LAN communication signal	-	-
F1-18 (R-) - F1-20 (GND)	W - BR	Sound signal (Right)	Audio system playing mode	A waveform synchronized with sounds is output
F1-19 (L-) - F1-20 (GND)	G - BR	Sound signal (Left)	Audio system playing mode	A waveform synchronized with sounds is output
F1-20 (GND) - Body ground	BR - Body ground	Ground	Always	Below 1 V
F19-3 (SPD) - F1-20 (GND)	V - BR	Speed signal from combination meter assembly	Engine switch on (IG) Drive wheels turned slowly	Pulse generation
F19-6 (SWG) - F1-20 (GND)	W - BR	Steering pad switch ground	Always	Below 1 V
F19-7 (SW1) - F1-20 (GND)	L - BR	Steering pad switch signal	Steering pad switch not operated	3.28 to 3.5 V
			Seek+ switch pushed	Below 0.8 V
			Seek- switch pushed	0.9 to 1.3 V
			Volume+ switch pushed	1.65 to 1.9 V
			Volume- switch pushed	2.45 to 2.6 V
F19-8 (SW2) - F1-20 (GND)	P - BR	Steering pad switch signal	Steering pad switch not operated	3.28 to 3.5 V
			MODE switch pushed	Below 0.8 V
			On hook switch pushed	0.9 to 1.3 V
			Off hook switch pushed	1.65 to 1.9 V
			Voice switch pushed	2.45 to 2.6 V
F19-11 (IVO+) - F1-20 (GND)	B - BR	Voice signal	"Bluetooth" handsfree voice signal received	A waveform synchronized with sounds is output
F19-12 (IVO-) - F1-20 (GND)	W - BR	Voice signal	"Bluetooth" handsfree voice signal received	A waveform synchronized with sounds is output
F19-13 (SLD1) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
F19-15 (ARI) - F1-20 (GND)	W - BR	Sound signal (Right)	External device playing (When stereo jack used)	A waveform synchronized with sounds is output

F19-16 (ASGN) - F1-20 (GND)	R - BR	Shield ground	Always	Below 1 V
F19-17 (ALI) - F1-20 (GND)	B - BR	Sound signal (Left)	External device playing (When stereo jack used)	A waveform synchronized with sounds is output
F19-18 (AGND) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
F19-19 (AUXI) - F1-20 (GND)	R - BR	External device connection detection signal	External device connected	Below 1 V
F19-20 (ADIM) - F1-20 (GND)	L - BR	Auto dimmer signal	Engine switch on (IG), headlight dimmer switch in tail or on and automatic light control sensor covered by hand	Above 9 V
F54-1 (SNS2) - F1-20 (GND)	GR - BR	Microphone connection detection signal	Always	Below 1 V
F54-2 (MIN+) - F1-20 (GND)	B - BR	Microphone voice signal	"Bluetooth" handsfree function on	A waveform synchronized with sounds is output
F54-3 (MACC) - F1-20 (GND)	W - BR	Microphone amplifier power supply	Engine switch off	Below 1 V
			Engine switch on (IG)	4 to 6 V
F54-5 (MIN-) - F1-20 (GND)	R - BR	Microphone voice signal	"Bluetooth" handsfree function on	A waveform synchronized with sounds is output
F54-6 (SGND) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
F55-1 (CSLD) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
F55-2 (CDR+) - F1-20 (GND)	W - BR	USB audio system sound signal	USB audio system playing	A Waveform synchronized with sound is output
F55-3 (CDR-) - F1-20 (GND)	R - BR	USB audio system sound signal	USB audio system playing	A Waveform synchronized with sound is output
F55-4 (CDL+) - F1-20 (GND)	B - BR	USB audio system sound signal	USB audio system playing	A Waveform synchronized with sound is output
F55-5 (CDL-) - F1-20 (GND)	G - BR	USB audio system sound signal	USB audio system playing	A Waveform synchronized with sound is output
F55-6 (MUTE) - F1-20 (GND)	P - BR	Mute signal	USB audio system playing	Above 2.5 V
			USB audio system changing mode	Below 0.5 V
F55-7 (GND) - F1-20 (GND)	B - BR	Ground	Always	Below 1 V
F55-9 (TXM+)	W	AVC-LAN communication signal	-	-
F55-10 (TXM-)	L	AVC-LAN communication signal	-	-
F55-11 (ACC) - F1-20 (GND)	GR - BR	Accessory (ON)	Engine switch off	Below 1 V
			Engine switch on (ACC)	11 to 14 V
F55-12 (+B) - F1-20 (GND)	R - BR	Battery	Always	11 to 14 V
RA-5 (ANT+) - F1-20 (GND)	BR - BR	Power source of antenna	Engine switch on (ACC) Radio switch on and AM or FM	11 to 14 V

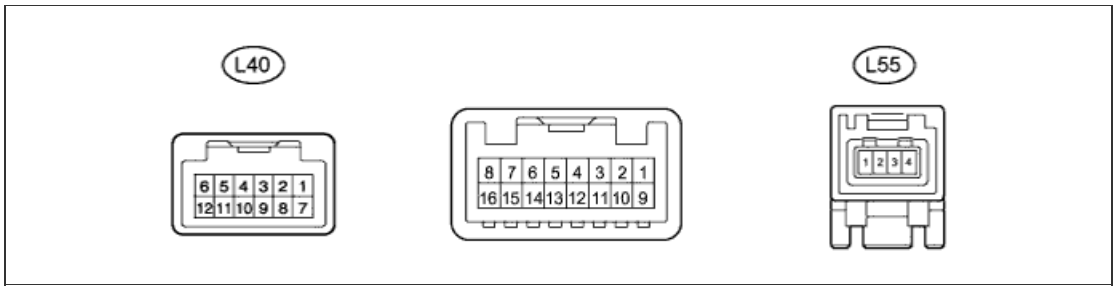
CHECK STEREO COMPONENT AMPLIFIER



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
F18-10 (LRHD) - 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
F18-12 (ACC) - F2-2 (GND)	GR - W-B	Accessory (ON)	Engine switch off	Below 1 V
			Engine switch on (ACC)	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
F52-3 (FL+) - F2-2 (GND)	W - W-B	Sound signal	Audio system playing	Waveform synchronized with sound is output
F52-8 (FL-) - F2-2 (GND)	B - W-B	Sound signal	Audio system playing	Waveform synchronized with sound is output
F52-10 (FR+) - F2-2 (GND)	W - W-B	Sound signal	Audio system playing	Waveform synchronized with sound is output
F52-9 (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 → changing modes	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
F18-14 (II1-) - F2-2 (GND)	W - W-B	Voice signal	"Bluetooth" handsfree voice signal transmitted	Waveform synchronized with sound is output
F18-15 (II1+) - F2-2 (GND)	B - W-B	Voice signal	"Bluetooth" handsfree voice signal transmitted	Waveform synchronized with sound is output
F52-4 (RL+) - F2-2 (GND)	B - W-B	Sound signal (left)	Audio system playing	Waveform synchronized with sound is output
F52-11 (RL-) - F2-2 (GND)	Y - W-B	Sound signal (left)	Audio system playing	Waveform synchronized with sound is output
F52-5 (RR+) - F2-2 (GND)	R - W-B	Sound signal (right)	Audio system playing	Waveform synchronized with sound is output
F52-12 (RR-) - F2-2 (GND)	W - W-B	Sound signal (right)	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

MULTI-MEDIA INTERFACE ECU



Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specification
L40-1 (USD1) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
L40-2 (URO+) - L40-7 (GND)	W - B	USB audio system sound signal	USB audio system playing	A waveform synchronized with sounds is output
L40-3 (URO-) - L40-7 (GND)	R - B	USB audio system sound signal	USB audio system playing	A waveform synchronized with sounds is output
L40-4 (ULO+) - L40-7 (GND)	B - B	USB audio system sound signal	USB audio system playing	A waveform synchronized with sounds is output
L40-5 (ULO-) - L40-7 (GND)	G - B	USB audio system sound signal	USB audio system playing	A waveform synchronized with sounds is output
L40-6 (MUTI) - L40-7 (GND)	P - B	Mute signal from multi-media interface ECU	USB audio system playing	Above 2.5 V
			USB audio system changing mode	Below 0.5 V
L40-7 (GND) - Body ground	B - Body ground	Ground	Always	Below 1 V
L40-9 (TX1+)	W	AVC-LAN communication signal	-	-
L40-10 (TX1-)	L	AVC-LAN communication signal	-	-
L40-11 (ACC) - L40-7 (GND)	GR - B	Accessory (ON)	Engine switch off	Below 1 V
			Engine switch on (ACC)	11 to 14 V
L40-12 (+B) - L40-7 (GND)	R - B	Battery	Always	11 to 14 V
L55-4 (UESG) - Body ground	-	Ground	Always	Below 1 V
L55-2 (UDI-)	-	Data signal	USB device or "iPod" connected	-
L55-3 (UDI+)	-	Data signal	USB device or "iPod" connected	-
L55-1 (UPO) - L55-4 (UESG)	-	Battery	Always	5 V

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HINT:

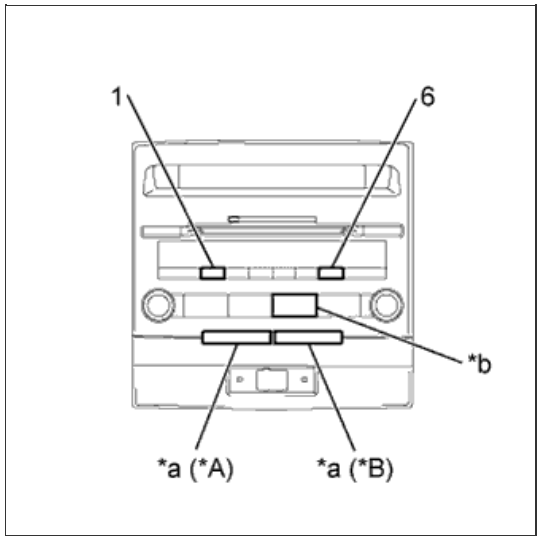
If the system cannot enter diagnostic mode, inspect the AVC-LAN and all the components that are connected to the AVC-LAN for short circuits and repair or replace the malfunctioning part (Click here).

STARTING DIAGNOSTIC MODE

a. Turn the engine switch on (ACC).

b. Turn off the audio system.

c. While pressing preset switches "1" and "6" at the same time, press the "CD AUX" switch 3 times.



Text in Illustration

*A	for LHD
*B	for RHD
*a	SEEK TRACK Switch
*b	CD AUX Switch

HINT:

A beep is emitted 3 times and the diagnostic function is activated. The system enters the all element illumination mode and the switch check mode.

ALL ELEMENT ILLUMINATION MODE AND SWITCH CHECK MODE

HINT:

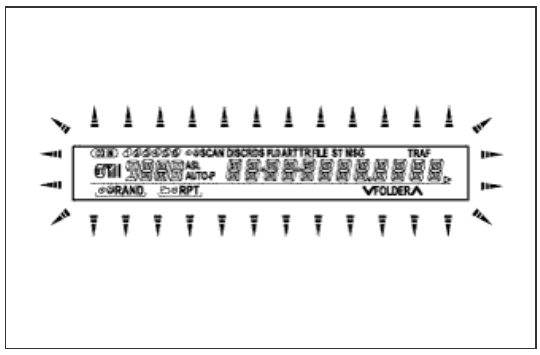
Illumination status of all switches and operations of the panel switches can be checked.

a. Check that all elements are on.

b. When pressing each panel switch, check that a beep is emitted.

HINT:

Pressing the "SEEK TRACK UP" switch transfers the screen to the stereo jack adapter connection check screen. Check the operation of this switch by confirming the transfer of the screen.



STEREO JACK ADAPTER CONNECTION CHECK MODE

a. Press the "SEEK TRACK UP" switch.

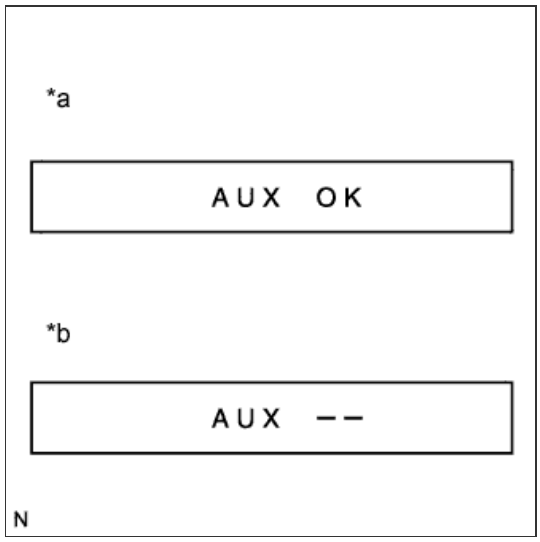
Text in Illustration

*a	When a stereo jack adapter is connected
*b	When a stereo jack adapter is not connected

b. Check if the stereo jack adapter is recognized.

HINT:

- **The radio receiver assembly displays "AUX OK" or "AUX ON" when it recognizes a connection to the stereo jack adapter.**
- **Vehicles that do not have a stereo jack adapter also have this function.**
- **This function is not to check connection status to an external device, but to check recognition of the stereo jack adapter.**



SERVICE CHECK MODE

a. Press the "SEEK TRACK UP" switch.

HINT:

For details of the service check mode, refer to following "6. Check DTC" and "7. DTC Clear/Recheck".

FINISHING DIAGNOSTIC MODE

a. Press the "CD AUX" switch for 2 seconds or more, or turn the engine switch off.

CHECK DTC

HINT:

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

a. Reference
In the system check mode, the system check and diagnostic memory check are performed, and the check results are displayed in ascending order of the component codes (physical address).

Term	Meaning
Component code (Physical address)	Three-digit code (in hexadecimal) is given to each device comprising AVC-LAN. Corresponding to its function, individual symbol is provided.
Logical address	Two-digit code (in hexadecimal) is given to each function and device unit in each device comprising AVC-LAN.

b. Service check result display

Display	Previous Term	Meaning	Action to be Taken
good	Good (normal)	No DTCs are detected in both "System Check Mode" and "Diagnostic Memory Mode".	-
nCon	No connection	The system recognized the component when it was registered, but the component gives no response to "Diagnostic Mode ON Request".	Check the power source circuit and the communication circuit of the component indicated by the component code (physical address).
ECHn	Exchange	One or more DTCs for "Exchange" are detected in either "System Check Mode" or "Diagnostic Memory Mode".	Go to the detailed information mode to check the trouble area referring to the DTC chart.
CHEC	Check	When no DTCs are detected for "Exchange", one or more DTCs for "Check" are detected in either "System Check Mode" or	Go to the detailed information mode to check the trouble area

		"Diagnostic Memory Mode".	referring to the DTC chart.
OLd	Old version	Old DTC application is identified and DTC is detected in either "System Check Mode" or "Diagnostic Memory Mode".	-
nrES	No response	The device gives no response to any one of "System Check Mode ON Request", "System Check Result Request" and "Diagnostic Memory Request".	Check the power source circuit and the communication circuit of the component indicated by the component code (physical address).

c. Device name and physical address

Physical Address No.	Name
190	Radio receiver assembly
440	Stereo component amplifier assembly
388	Multi-media interface ECU

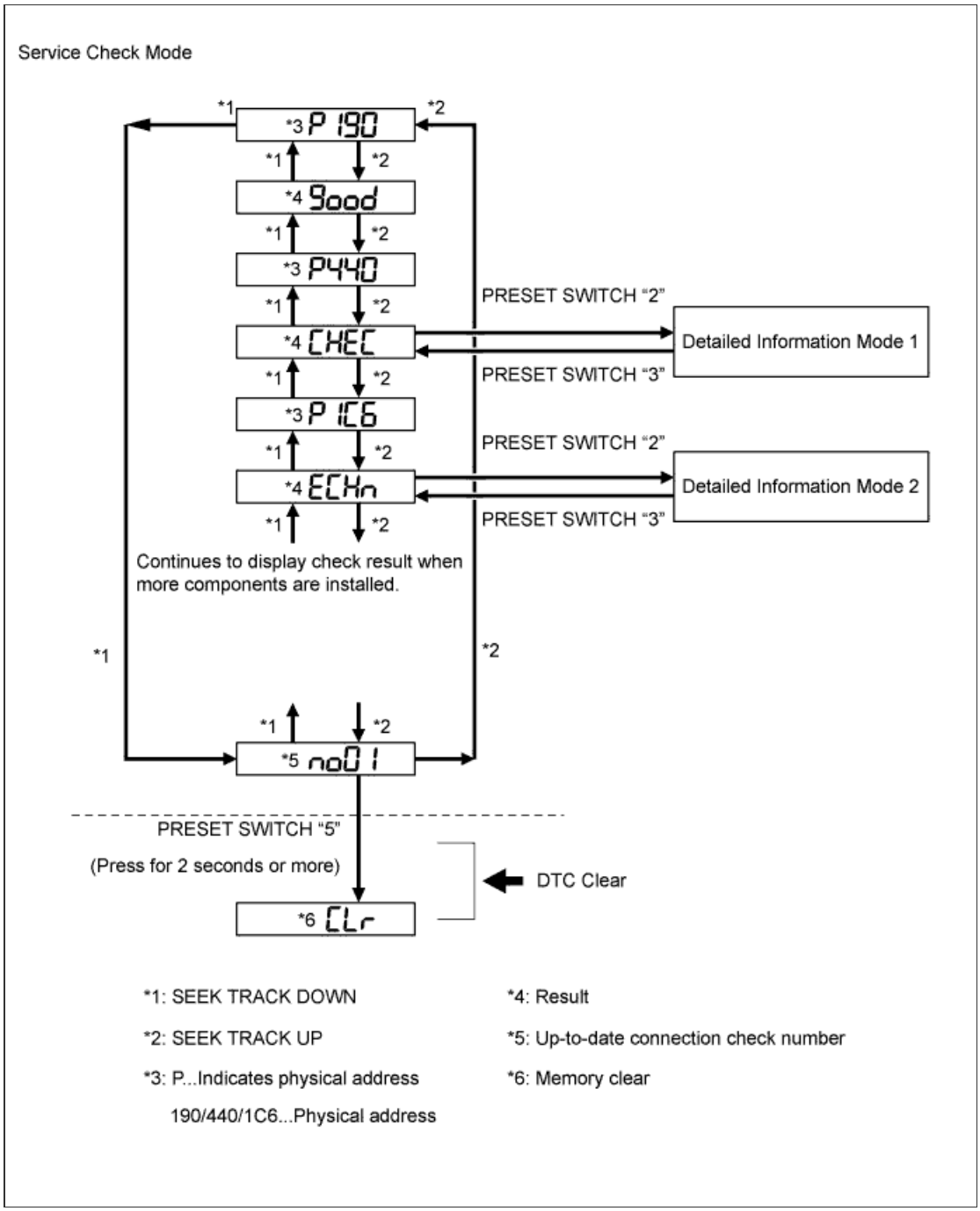
d. Service check mode

i. Press the "SEEK TRACK" switch to see the check result of each component.

ii. The component code (physical address) is displayed first, and then the check result follows.

HINT:

- **If all check results are "good", the system judges that no DTC exists.**
- **If preset switch "1" is pressed in the service check mode, service check is performed again.**
- **This illustration is only an example and may differ for each optional part and output DTCs.**



e. Detailed information mode 1

HINT:

- **"Detailed Information Mode 1" is displayed when there is no response to "System Check Result Request" and DTC is stored only in "Diagnostic Memory Request".**
- **The component device code (physical address) is displayed first, and then the check result follows.**
- **This illustration is only an example and may differ in cases such as for each optional part and output DTCs.**

i. Press preset switch "2" to go to "Detailed Information Mode 1".

ii. Press the "SEEK TRACK" switch to display the physical address and DTC of the component.

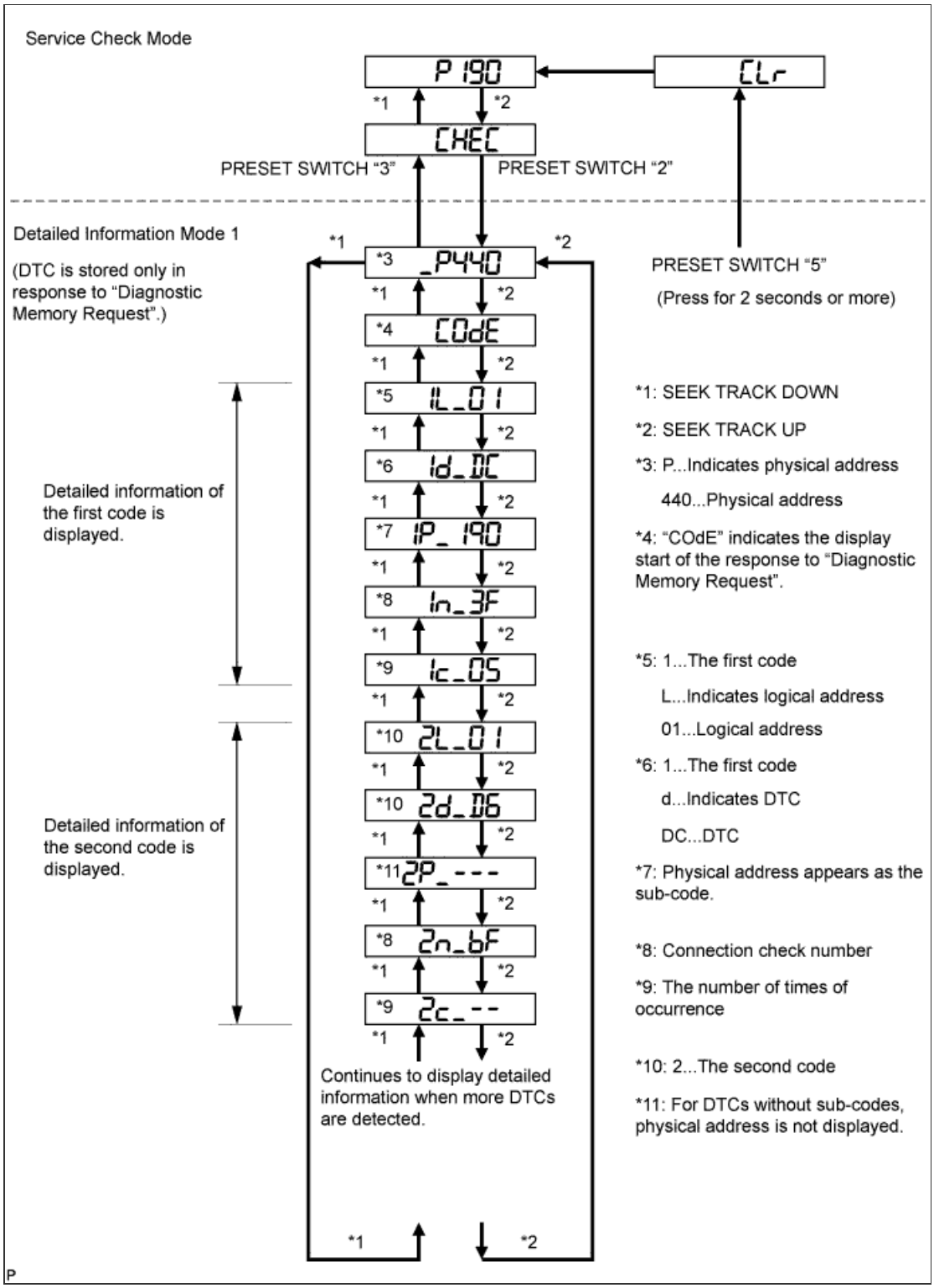
iii. Press the preset switch "3" to go to "Service Check Mode".

iv. Select between the displays of the responses to "System Check Result Request" and "Diagnostic Memory Request". In order to distinguish the information detected in "System Check Mode" and "Diagnostic Memory Mode" in "ECHn", "CHEC", and "OLd" in "Detailed Information Mode 1", refer to the following:

- "SyS" is displayed before the detailed codes detected as a result of "System Check Result Request" are displayed.
- "COdE" is displayed before the detailed codes detected as a result of "Diagnostic Memory Request" are displayed.

HINT:

- **The response to "System Check Result Request" is the current information given from each ECU as a result of the system check.**
- **The response to "Diagnostic Memory Request" contains the information received from each ECU or stored in each ECU in the past.**
- **The response to "Diagnostic Memory Request" is the output DTCs as a result of the diagnostic memory check or the DTCs received from each ECU.**
- **"System Check Result Request (SyS)" is displayed first, and then the logical address and DTC appear in order.**
- **"Diagnostic Memory Request (COdE)" is displayed first, and then the logical address, DTC, sub-code, connection check number, and the number of occurrence appear in order.**



f. Detailed information mode 2

HINT:

- **"Detailed Information Mode 2" is displayed when DTCs are stored in responses to both "System Check Result Request" and "Diagnostic Memory Request".**
- **The component device code (physical address) is displayed first, and then the check result follows.**
- **This illustration is only an example and may differ in cases such as for each option part and output DTCs.**

i. Press preset switch "2" to go to "Detailed Information Mode 2".

ii. Press the "SEEK TRACK" switch to display the physical address and DTC of the component.

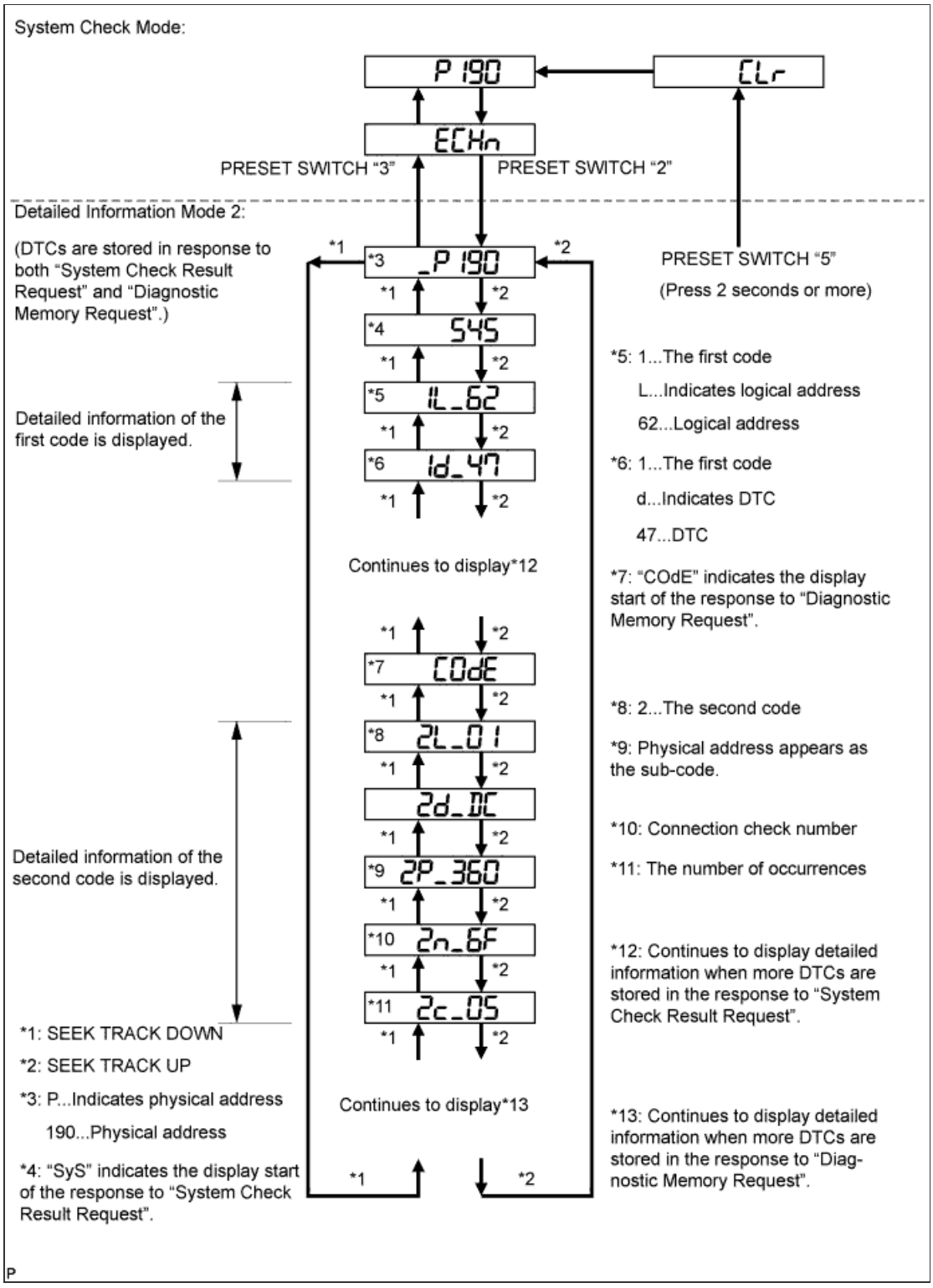
iii. Press preset switch "3" to go to "Service Check Mode".

iv. Select between the displays of the responses to "System Check Result Request" and "Diagnostic Memory Request". In order to distinguish the information detected in "System Check Mode" and "Diagnostic Memory Mode" in "ECHn", "CHEC", and "OLd" in "Detailed Information Mode 2", refer to the following:

- "SyS" is displayed before the detailed codes detected as a result of "System Check Result Request" are displayed.
- "COdE" is displayed before the detailed codes detected as a result of "Diagnostic Memory Request" are displayed.

HINT:

- **The response to "System Check Result Request" is the current information given from each ECU as a result of the system check.**
- **The response to "Diagnostic Memory Request" contains the information received from each ECU or stored in each ECU in the past.**
- **The response to "Diagnostic Memory Request" is the output DTCs as a result of the diagnostic memory check or the DTCs received from each ECU.**
- **"System Check Result Request (SyS)" is displayed first, and then the logical address and DTC appear in order.**
- **"Diagnostic Memory Request (COdE)" is displayed first, and then the logical address, DTC, sub-code, connection check number, and the number of occurrence appear in order.**



DTC CLEAR/RECHECK

a. Clearing All DTC Memory (when clearing all the memory of the previously detected DTCs)

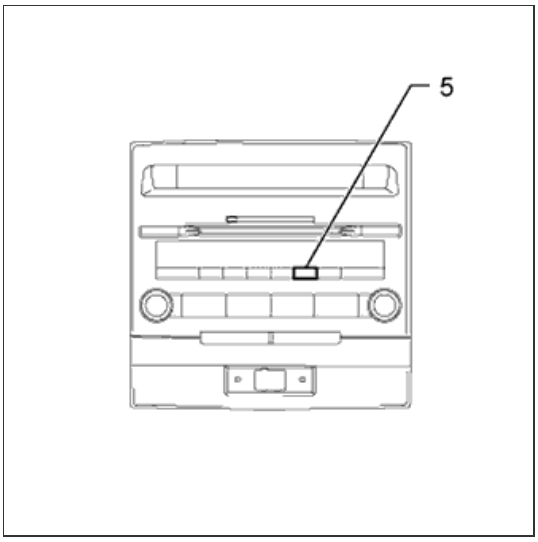
i. When preset switch "5" is pressed for 2 seconds or more during "Service Check Mode", the DTCs for all components are cleared. ("CLr" is displayed at this time.)

HINT:

- **A beep sound is emitted once when the DTC memory is completely cleared.**
- **When the DTC memory for all the components is**

cleared, only the component codes (physical address) are displayed.

- **After the DTC memory is cleared, "Service Check Mode" is restored.**



b. Clearing the specified DTC Memory (when clearing the specified memory of the previously detected DTC)

i. When preset switch "5" is pressed for 2 seconds or more during "Detailed Information Mode 1" or "Detailed Information Mode 2", the DTCs for the target component are cleared.

HINT:

- **A beep sound is emitted once when the DTC memory is completely cleared.**
- **When the DTC memory is cleared, only the component code (physical address) is displayed for the target component.**
- **After the DTC memory is cleared, the "Service Check Mode" is restored.**
- **To check DTCs, press preset switch "1" and perform the system check again.**

c. Press preset switch "1" to perform the service check again, and check that no DTCs are displayed for all the component codes (physical address).

for Preparation Click here

Communication Diagnosis

DTC Code	Detection Item	See page
01-21	ROM Error	Click here
01-22	RAM Error	Click here
01-2E	EEPROM Error	Click here
01-D5	Absence of Registration Unit	Click here
01-D6	No Master	Click here
01-D7	Connection Check Error	Click here
01-D8	No Response for Connection Check	Click here
01-D9	Last Mode Error	Click here
01-DA	No Response Against ON / OFF Command	Click here
01-DB	Mode Status Error	Click here
01-DC	Transmission Error	Click here
01-DD	Master Reset	Click here
01-DE	Slave Reset	Click here
01-DF	Master Error	Click here
01-E0	Registration Complete Indication Error	Click here
01-E1	Voice Processing Device ON Error	Click here
01-E2	ON / OFF Indication Parameter Error	Click here
01-E3	Registration Demand Transmission	Click here
01-E4	Multiple Frame Incomplete	Click here
01-F2	No Response from Diagnosis Memory Request	Click here
01-FF	No Response to Diagnosis Request	Click here

Telephone

DTC Code	Detection Item	See page
57-10	TEL ECU Malfunction (TEL)	Click here
57-47	Bluetooth Module Initialization Failed	Click here

Radio Unit

DTC Code	Detection Item	See page
60-10	AM Tuner PLL does not Lock	Click here
60-11	FM Tuner PLL does not Lock	Click here
60-42	Tuner Power Source Error	Click here
60-43	AM Tuner Error	Click here
60-44	FM Tuner Error	Click here
60-50	Malfunction in Internal IC	Click here

In-dash CD Changer

DTC Code	Detection Item	See page
63-10	CD Changer Mechanical Error	Click here
63-11	CD Insertion and Ejection Error	Click here
63-12	CD Reading Abnormal	Click here
63-41	Wrong Disc	Click here
63-42	Disc cannot be Read	Click here
63-43	CD-ROM Abnormal	Click here
63-44	CD Abnormal	Click here
63-45	Eject Error	Click here
63-46	Scratched / Reversed Disc	Click here
63-47	High Temperature	Click here
63-48	Excess Current	Click here

63-50	Tray Insertion / Ejection Error	Click here
63-51	Elevator Error	Click here
63-52	Clamp Error	Click here
63-78	DSP Error	Click here
63-7D	Disc cannot be Played	Click here
63-7E	No Playable Files	Click here
63-7F	Copyright Protection Error	Click here

Speakers

DTC Code	Detection Item	See page
74-40	Short in Speaker Circuit	Click here

Multi-media Interface ECU

DTC Code	Detection Item	See page
CB-10	System Microcomputer Malfunction	Click here
CB-11	Media Interface Microcomputer Malfunction	Click here
CB-12	CD-LSI Malfunction	Click here
CB-13	USB Over Current Detection	Click here
CB-43	USB Device Class/Protocol Error	Click here
CB-44	USB File System Error	Click here
CB-45	USB Communication Error	Click here
CB-46	iPod Control Error	Click here
CB-47	iPod Communication Error	Click here
CB-50	iPod Malfunction	Click here
CB-51	iPod Protocol Error	Click here
CB-52	No Playable iPod File Exists	Click here
CB-7D	iPod Protocol Unsupported	Click here
CB-7E	No Playable USB File Exists	Click here

DTC 01-21 ROM Error

DTC 01-22 RAM Error

DTC 01-2E EEPROM Error

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-21	A ROM malfunction exists.	Radio receiver assembly
01-22	A RAM malfunction exists.	
01-2E	A checksum malfunction exists.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly (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 No.	DTC Detection Condition	Trouble Area
63-10	A mechanical error in the CD changer is detected while the CD is not being inserted or ejected.	Radio receiver assembly
63-11	CDs cannot be inserted or ejected.	
63-12	CD read problem occurs.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly (Click here).

NEXT

END

DTC 01-21 ROM Error

DTC 01-22 RAM Error

DTC 01-2E EEPROM Error

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-21	A ROM malfunction exists.	Radio receiver assembly
01-22	A RAM malfunction exists.	
01-2E	A checksum malfunction exists.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly (Click here).

NEXT

END

DTC 63-41 Wrong Disc

DTC 63-42 Disc cannot be Read

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-41	An unsuitable disc is inserted.	• CD • Radio receiver assembly
63-42	The disc cannot be read.	

INSPECTION PROCEDURE

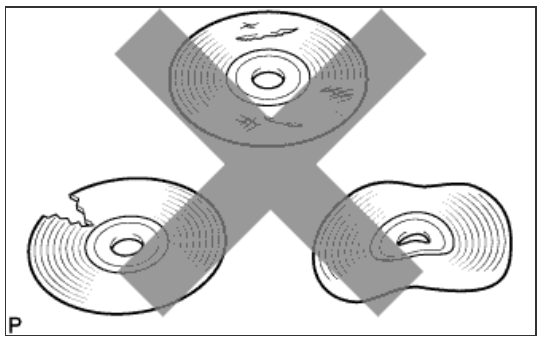
HINT:

After the inspection is completed, clear the DTCs.

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

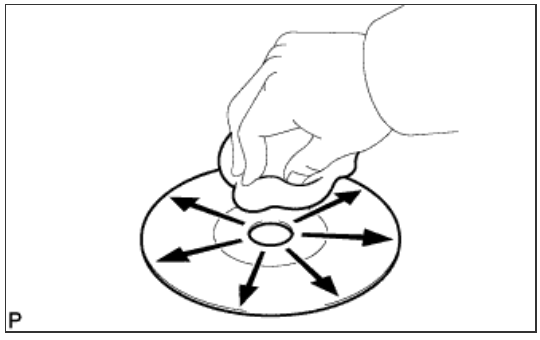
2.DISC CLEANING

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.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

4.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

OK:
Malfunction disappears.

NG	Go to step 5

OK

END

5.REPLACE DISC AND RECHECK

a. Replace the disc and recheck.

i. Replace the disc with a known good one.

ii. Clear the DTCs (Click here).

iii. Recheck for DTCs and check if the same trouble occurs again.

OK:
Malfunction disappears.

NG	REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

DTC 01-21 ROM Error

DTC 01-22 RAM Error

DTC 01-2E EEPROM Error

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-21	A ROM malfunction exists.	Radio receiver assembly
01-22	A RAM malfunction exists.	
01-2E	A checksum malfunction exists.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly (Click here).

NEXT

END

DTC 63-41 Wrong Disc

DTC 63-42 Disc cannot be Read

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-41	An unsuitable disc is inserted.	• CD • Radio receiver assembly
63-42	The disc cannot be read.	

INSPECTION PROCEDURE

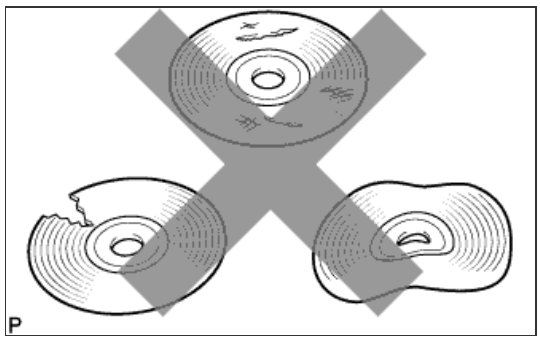
HINT:

After the inspection is completed, clear the DTCs.

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

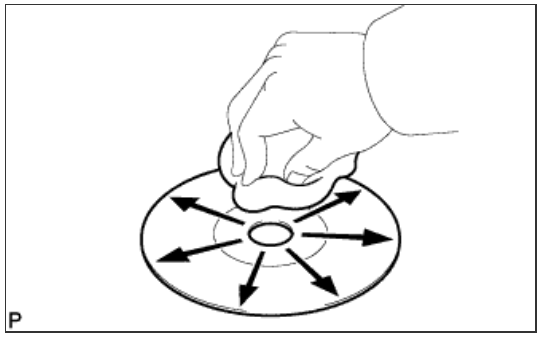
2.DISC CLEANING

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.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

4.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

OK:
Malfunction disappears.

NG	Go to step 5

OK

END

5.REPLACE DISC AND RECHECK

a. Replace the disc and recheck.

i. Replace the disc with a known good one.

ii. Clear the DTCs (Click here).

iii. Recheck for DTCs and check if the same trouble occurs again.

OK:
Malfunction disappears.

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 No.	DTC Detection Condition	Trouble Area
01-D5 *1, *3	A device indicated by the sub-code is (was) disconnected from the system while the engine switch on (IG) or (ACC). The communication condition with the device that the DTC shows cannot be obtained when the engine starts.	• Power source circuit of the component shown by the sub-code • AVC-LAN circuit between the radio receiver assembly and component shown by the sub-code • Component shown by the sub-code
01-D8 *2, *3	The device indicated 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 while the engine switch on (IG) or (ACC).	
01-DA *3	No response is identified when changing mode. Sound and image do not change by switch operation.	
01-DB *1, *3	A dual alarm is detected.	
01-DE *3, *4	A slave device has been disconnected after the engine starts.	

HINT:

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- ***2: If the power connector is disconnected after the engine starts, this DTC is stored after 180 seconds.**
- ***3: If the device is reported as not existing during verification, check the power source circuit and AVC-LAN circuit for the device.**
- ***4: This DTC may be stored if the engine is started and the engine switch start again.**

NOTICE:

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

INSPECTION PROCEDURE

NOTICE:

Be sure to read Description before performing the following procedure.

1.CHECK "RADIO RECEIVER COMMUNICATION ERROR" IN FLOW CHART

HINT:

Refer to Radio Receiver Communication Error (Click here).

NEXT

END

DTC 63-43 CD-ROM Abnormal

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-43	CD-ROM operation is abnormal.	• CD • Radio receiver assembly

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.CHECK IF A PROPER CD IS INSERTED

a. Make sure that a supported CD is used, and that it is not deformed, flawed, stained, deteriorated 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 supported CDs, refer to the Owner's Manual.**

NG → **CHANGE DISC**

OK

2.REPLACE CD AND RECHECK

a. Replace the CD and recheck.

i. Replace the CD with a known good one.

ii. Clear the DTCs (Click here).

iii. Recheck for DTCs and check if the same trouble occurs again.

OK:
Malfunction disappears.

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 No.	DTC Detection Condition	Trouble Area
01-D5 *1, *3	A device indicated by the sub-code is (was) disconnected from the system while the engine switch on (IG) or (ACC). The communication condition with the device that the DTC shows cannot be obtained when the engine starts.	• Power source circuit of the component shown by the sub-code • AVC-LAN circuit between the radio receiver assembly and component shown by the sub-code • Component shown by the sub-code
01-D8 *2, *3	The device indicated 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 while the engine switch on (IG) or (ACC).	
01-DA *3	No response is identified when changing mode. Sound and image do not change by switch operation.	
01-DB *1, *3	A dual alarm is detected.	
01-DE *3, *4	A slave device has been disconnected after the engine starts.	

HINT:

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- ***2: If the power connector is disconnected after the engine starts, this DTC is stored after 180 seconds.**
- ***3: If the device is reported as not existing during verification, check the power source circuit and AVC-LAN circuit for the device.**
- ***4: This DTC may be stored if the engine is started and the engine switch start again.**

NOTICE:

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

INSPECTION PROCEDURE

NOTICE:

Be sure to read Description before performing the following procedure.

1.CHECK "RADIO RECEIVER COMMUNICATION ERROR" IN FLOW CHART

HINT:

Refer to Radio Receiver Communication Error (Click here).

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 No.	DTC Detection Condition	Trouble Area
63-44	Operation error in the CD mechanism	Radio receiver assembly
63-48	Excess current is present in the CD changer.	
63-50	Malfunction in insertion/ejection system	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

HINT:

If DTCs are detected frequently, replace the radio receiver assembly.

OK:
Malfunction disappears.

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 No.	DTC Detection Condition	Trouble Area
01-D5 *1, *3	A device indicated by the sub-code is (was) disconnected from the system while the engine switch on (IG) or (ACC). The communication condition with the device that the DTC shows cannot be obtained when the engine starts.	• Power source circuit of the component shown by the sub-code • AVC-LAN circuit between the radio receiver assembly and component shown by the sub-code • Component shown by the sub-code
01-D8 *2, *3	The device indicated 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 while the engine switch on (IG) or (ACC).	
01-DA *3	No response is identified when changing mode. Sound and image do not change by switch operation.	
01-DB *1, *3	A dual alarm is detected.	
01-DE *3, *4	A slave device has been disconnected after the engine starts.	

HINT:

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- ***2: If the power connector is disconnected after the engine starts, this DTC is stored after 180 seconds.**
- ***3: If the device is reported as not existing during verification, check the power source circuit and AVC-LAN circuit for the device.**
- ***4: This DTC may be stored if the engine is started and the engine switch start again.**

NOTICE:

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

INSPECTION PROCEDURE

NOTICE:

Be sure to read Description before performing the following procedure.

1.CHECK "RADIO RECEIVER COMMUNICATION ERROR" IN FLOW CHART

HINT:

Refer to Radio Receiver Communication Error (Click here).

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 No.	DTC Detection Condition	Trouble Area
63-44	Operation error in the CD mechanism	Radio receiver assembly
63-48	Excess current is present in the CD changer.	
63-50	Malfunction in insertion/ejection system	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

HINT:

If DTCs are detected frequently, replace the radio receiver assembly.

OK:
Malfunction disappears.

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 No.	DTC Detection Condition	Trouble Area
01-D5 *1, *3	A device indicated by the sub-code is (was) disconnected from the system while the engine switch on (IG) or (ACC). The communication condition with the device that the DTC shows cannot be obtained when the engine starts.	• Power source circuit of the component shown by the sub-code • AVC-LAN circuit between the radio receiver assembly and component shown by the sub-code • Component shown by the sub-code
01-D8 *2, *3	The device indicated 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 while the engine switch on (IG) or (ACC).	
01-DA *3	No response is identified when changing mode. Sound and image do not change by switch operation.	
01-DB *1, *3	A dual alarm is detected.	
01-DE *3, *4	A slave device has been disconnected after the engine starts.	

HINT:

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- ***2: If the power connector is disconnected after the engine starts, this DTC is stored after 180 seconds.**
- ***3: If the device is reported as not existing during verification, check the power source circuit and AVC-LAN circuit for the device.**
- ***4: This DTC may be stored if the engine is started and the engine switch start again.**

NOTICE:

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

INSPECTION PROCEDURE

NOTICE:

Be sure to read Description before performing the following procedure.

1.CHECK "RADIO RECEIVER COMMUNICATION ERROR" IN FLOW CHART

HINT:

Refer to Radio Receiver Communication Error (Click here).

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 No.	DTC Detection Condition	Trouble Area
63-44	Operation error in the CD mechanism	Radio receiver assembly
63-48	Excess current is present in the CD changer.	
63-50	Malfunction in insertion/ejection system	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

HINT:

If DTCs are detected frequently, replace the radio receiver assembly.

OK:
Malfunction disappears.

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 No.	DTC Detection Condition	Trouble Area
01-D5 *1, *3	A device indicated by the sub-code is (was) disconnected from the system while the engine switch on (IG) or (ACC). The communication condition with the device that the DTC shows cannot be obtained when the engine starts.	• Power source circuit of the component shown by the sub-code • AVC-LAN circuit between the radio receiver assembly and component shown by the sub-code • Component shown by the sub-code
01-D8 *2, *3	The device indicated 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 while the engine switch on (IG) or (ACC).	
01-DA *3	No response is identified when changing mode. Sound and image do not change by switch operation.	
01-DB *1, *3	A dual alarm is detected.	
01-DE *3, *4	A slave device has been disconnected after the engine starts.	

HINT:

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- ***2: If the power connector is disconnected after the engine starts, this DTC is stored after 180 seconds.**
- ***3: If the device is reported as not existing during verification, check the power source circuit and AVC-LAN circuit for the device.**
- ***4: This DTC may be stored if the engine is started and the engine switch start again.**

NOTICE:

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

INSPECTION PROCEDURE

NOTICE:

Be sure to read Description before performing the following procedure.

1.CHECK "RADIO RECEIVER COMMUNICATION ERROR" IN FLOW CHART

HINT:

Refer to Radio Receiver Communication Error (Click here).

NEXT

END

DTC 63-45 Eject Error

DTC 63-51 Elevator Error

DTC 63-52 Clamp Error

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-45	CD cannot be ejected.	Radio receiver assembly
63-51	Mechanical error occurs during elevator operation.	
63-52	Error occurs in CD changer clamp.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

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-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 No.	DTC Detection Condition	Trouble Area
01-D5 *1, *3	A device indicated by the sub-code is (was) disconnected from the system while the engine switch on (IG) or (ACC). The communication condition with the device that the DTC shows cannot be obtained when the engine starts.	• Power source circuit of the component shown by the sub-code • AVC-LAN circuit between the radio receiver assembly and component shown by the sub-code • Component shown by the sub-code
01-D8 *2, *3	The device indicated 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 while the engine switch on (IG) or (ACC).	
01-DA *3	No response is identified when changing mode. Sound and image do not change by switch operation.	
01-DB *1, *3	A dual alarm is detected.	
01-DE *3, *4	A slave device has been disconnected after the engine starts.	

HINT:

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- ***2: If the power connector is disconnected after the engine starts, this DTC is stored after 180 seconds.**
- ***3: If the device is reported as not existing during verification, check the power source circuit and AVC-LAN circuit for the device.**
- ***4: This DTC may be stored if the engine is started and the engine switch start again.**

NOTICE:

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

INSPECTION PROCEDURE

NOTICE:

Be sure to read Description before performing the following procedure.

1.CHECK "RADIO RECEIVER COMMUNICATION ERROR" IN FLOW CHART

HINT:

Refer to Radio Receiver Communication Error (Click here).

NEXT

END

DTC 63-45 Eject Error

DTC 63-51 Elevator Error

DTC 63-52 Clamp Error

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-45	CD cannot be ejected.	Radio receiver assembly
63-51	Mechanical error occurs during elevator operation.	
63-52	Error occurs in CD changer clamp.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

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-D6 No Master

DTC 01-D7 Connection Check Error

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-D6 *1	Either condition is met: • The device that stores (stored) the DTC has (had) been disconnected while the engine switch on (IG) or (ACC). • The master device has (had) been disconnected when this DTC is stored.	• Radio receiver assembly power source circuit • Power source circuit of the component which has stored this code • AVC-LAN circuit between the radio receiver assembly and component which has stored this code • Component which has stored this code • Radio receiver assembly
01-D7 *2	Either condition is met: • The device that stored the code has (had) been disconnected after the engine starts (started). • The master device has (had) been disconnected when this DTC is (was) stored.	

HINT:

- ***1: Even if no fault is present, this DTC 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 (IG) or (ACC), this DTC is stored.**

NOTICE:

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

INSPECTION PROCEDURE

NOTICE:

Be sure to read Description before performing the following procedure.

1.CHECK RADIO RECEIVER ASSEMBLY POWER SOURCE CIRCUIT

HINT:

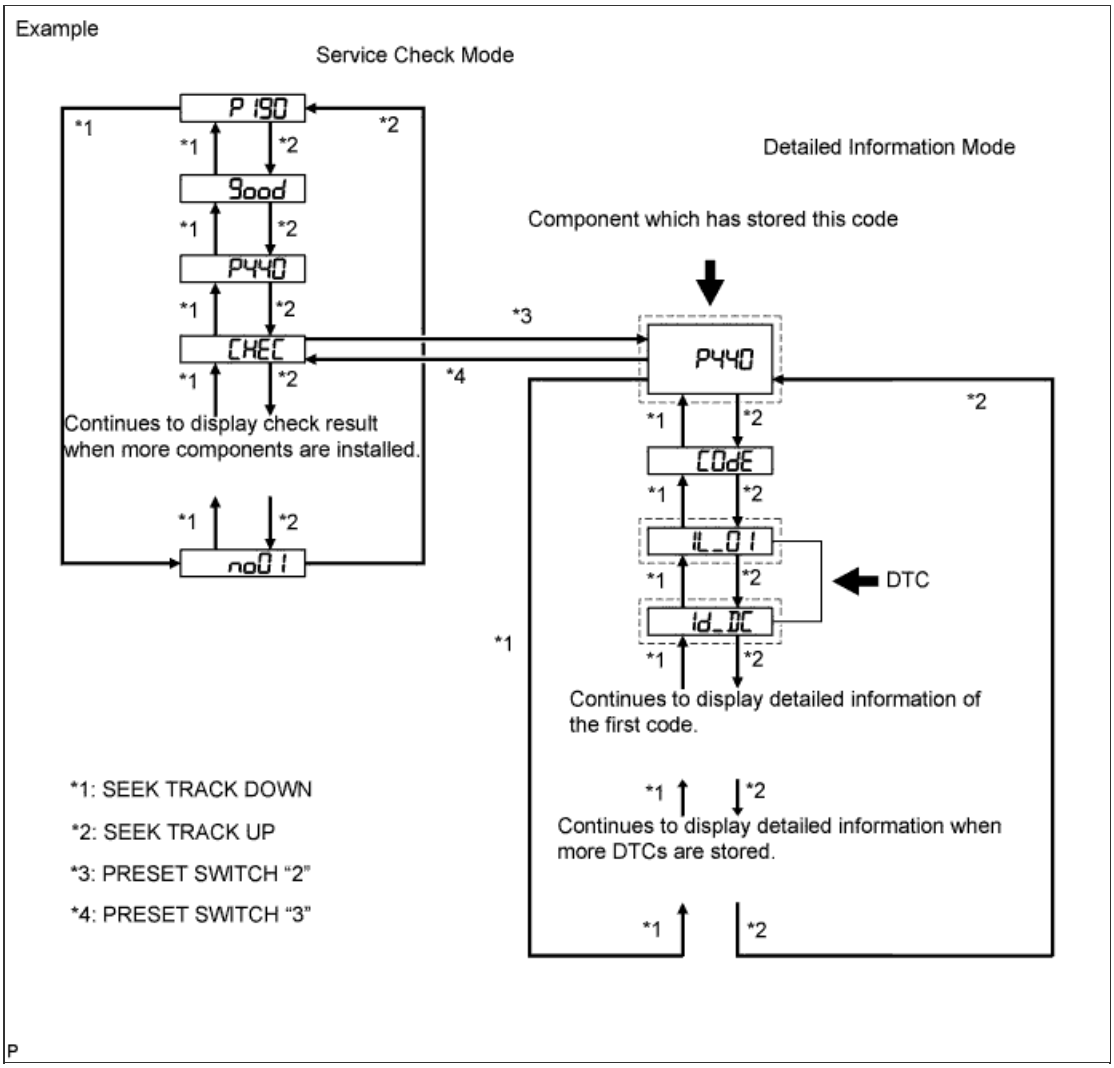
Refer to Radio Receiver Power Source Circuit (Click here).

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

NEXT

2.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter diagnostic mode.



b. Press preset switch "2" to change the mode to "Detailed Information Mode".

c. Identify the component which has stored this code.

Component Table

Component	Physical Address
Stereo component amplifier assembly	440
Multi-media interface ECU	388

HINT:

- **"P440" set by the stereo component amplifier assembly shown in the preceding illustration as an example.**
- **For details of the DTC display, refer to DTC Check/Clear (Click here).**

NEXT

3.CHECK COMPONENT SHOWN BY SUB-CODE

a. Select the component shown by the sub-code.

Component Table

Component	Proceed to
Except radio receiver assembly	A
Radio receiver assembly (190)	B

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

A

4.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
Stereo component amplifier assembly	Stereo component amplifier power source circuit (Click here)
Multi-media interface ECU	Multi-media interface ECU power source circuit (Click here)

NEXT

5.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the F1 and F55 radio receiver assembly connectors.

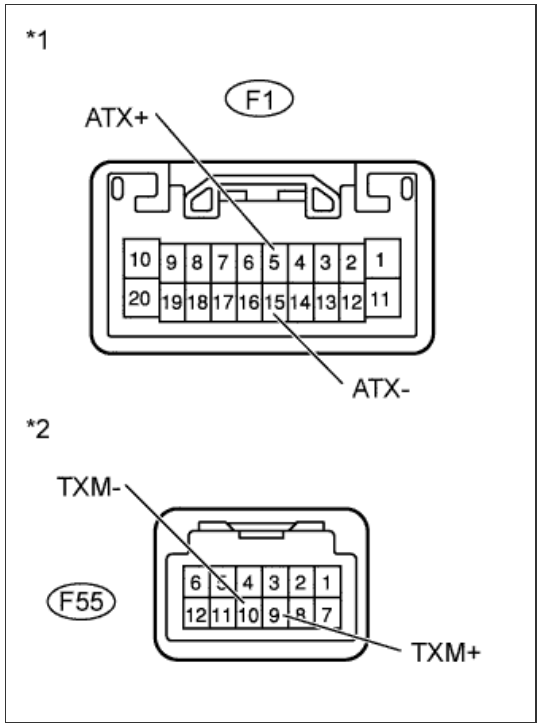
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F1-5 (ATX+) - F1-15 (ATX-)	Always	60 to 80 Ω
F55-9 (TXM+) - F55-10 (TXM-)	Always	60 to 80 Ω

Text in Illustration

*1	Component without harness connected (Radio Receiver Assembly)
*2	Component without harness connected (Radio Receiver Assembly)



NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

6.CHECK HARNESS AND CONNECTOR (AVC-LAN CIRCUIT)

HINT:

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

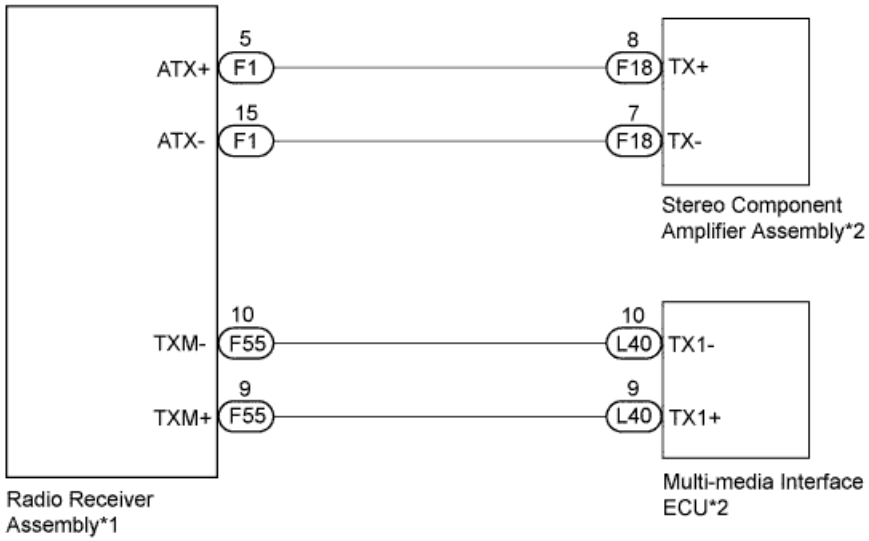
a. Referring to the following AVC-LAN wiring diagram, check the AVC-LAN circuit between the radio receiver assembly and component which has stored this code.

i. Disconnect all connectors between the radio receiver assembly and component which has stored this code.

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

OK:
There is no open or short circuit.

AVC-LAN WIRING DIAGRAM:



*1: Master Unit

*2: Slave Unit

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.REPLACE COMPONENT WHICH HAS STORED THIS CODE

a. Replace the component which has stored this code with a known good one.

NEXT

8.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

9.RECHECK FOR DTC

a. Recheck for DTCs and check if the same problem occurs again.

OK:
Malfunction disappears.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

DTC 63-45 Eject Error

DTC 63-51 Elevator Error

DTC 63-52 Clamp Error

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-45	CD cannot be ejected.	Radio receiver assembly
63-51	Mechanical error occurs during elevator operation.	
63-52	Error occurs in CD changer clamp.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

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-D6 No Master

DTC 01-D7 Connection Check Error

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-D6 *1	Either condition is met: • The device that stores (stored) the DTC has (had) been disconnected while the engine switch on (IG) or (ACC). • The master device has (had) been disconnected when this DTC is stored.	• Radio receiver assembly power source circuit • Power source circuit of the component which has stored this code • AVC-LAN circuit between the radio receiver assembly and component which has stored this code • Component which has stored this code • Radio receiver assembly
01-D7 *2	Either condition is met: • The device that stored the code has (had) been disconnected after the engine starts (started). • The master device has (had) been disconnected when this DTC is (was) stored.	

HINT:

- ***1: Even if no fault is present, this DTC 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 (IG) or (ACC), this DTC is stored.**

NOTICE:

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

INSPECTION PROCEDURE

NOTICE:

Be sure to read Description before performing the following procedure.

1.CHECK RADIO RECEIVER ASSEMBLY POWER SOURCE CIRCUIT

HINT:

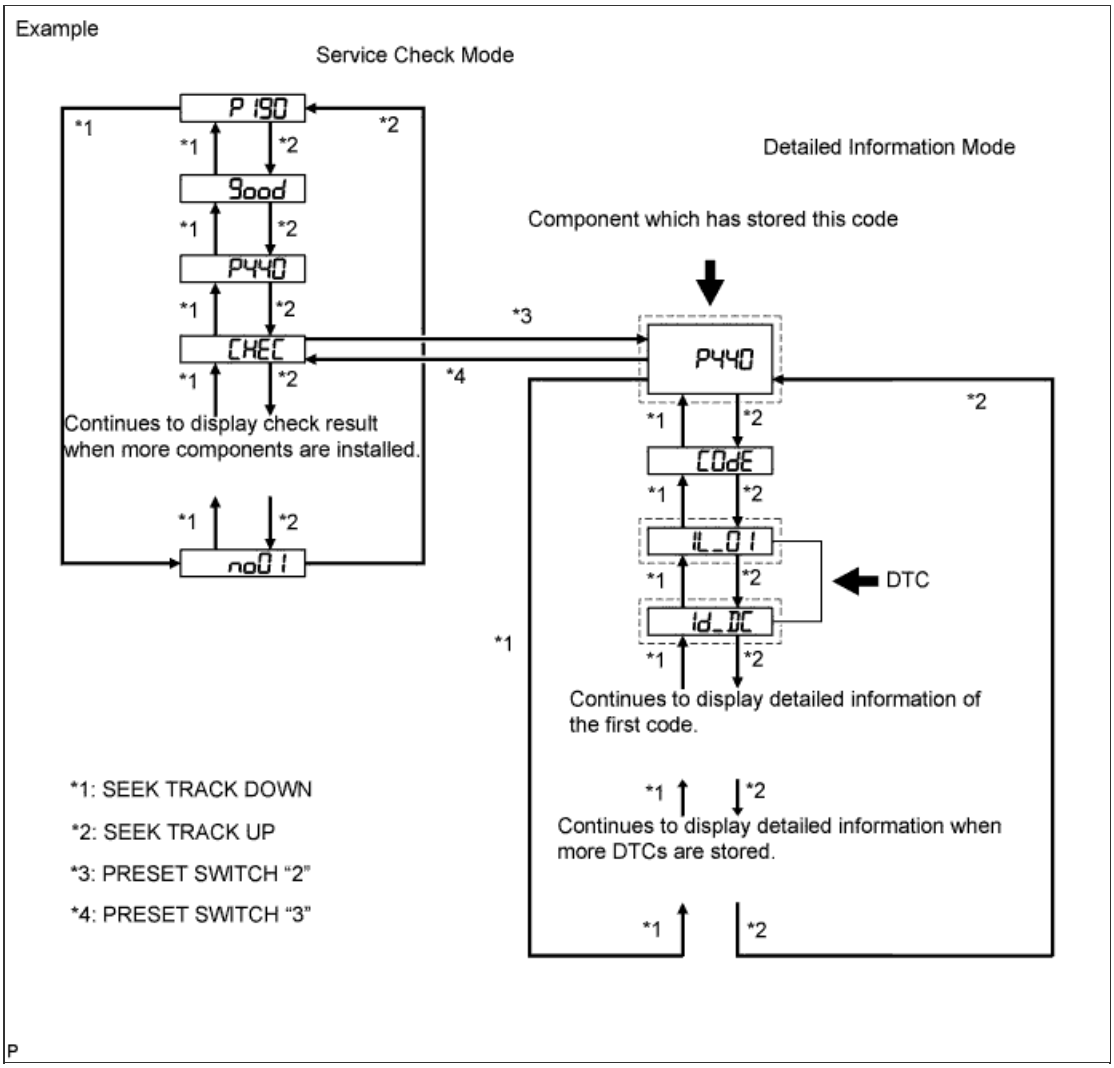
Refer to Radio Receiver Power Source Circuit (Click here).

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

NEXT

2.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter diagnostic mode.



b. Press preset switch "2" to change the mode to "Detailed Information Mode".

c. Identify the component which has stored this code.

Component Table

Component	Physical Address
Stereo component amplifier assembly	440
Multi-media interface ECU	388

HINT:

- **"P440" set by the stereo component amplifier assembly shown in the preceding illustration as an example.**
- **For details of the DTC display, refer to DTC Check/Clear (Click here).**

NEXT

3.CHECK COMPONENT SHOWN BY SUB-CODE

a. Select the component shown by the sub-code.

Component Table

Component	Proceed to
Except radio receiver assembly	A
Radio receiver assembly (190)	B

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

A

4.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
Stereo component amplifier assembly	Stereo component amplifier power source circuit (Click here)
Multi-media interface ECU	Multi-media interface ECU power source circuit (Click here)

NEXT

5.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the F1 and F55 radio receiver assembly connectors.

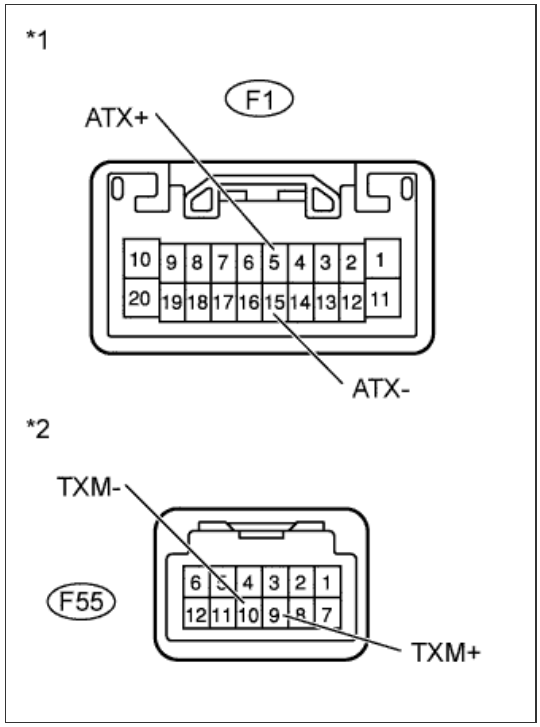
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F1-5 (ATX+) - F1-15 (ATX-)	Always	60 to 80 Ω
F55-9 (TXM+) - F55-10 (TXM-)	Always	60 to 80 Ω

Text in Illustration

*1	Component without harness connected (Radio Receiver Assembly)
*2	Component without harness connected (Radio Receiver Assembly)



NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

6.CHECK HARNESS AND CONNECTOR (AVC-LAN CIRCUIT)

HINT:

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

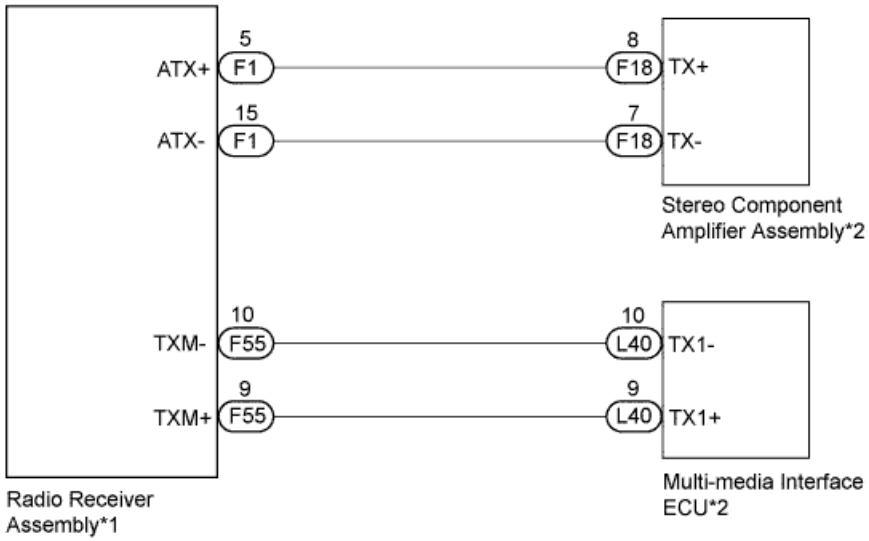
a. Referring to the following AVC-LAN wiring diagram, check the AVC-LAN circuit between the radio receiver assembly and component which has stored this code.

i. Disconnect all connectors between the radio receiver assembly and component which has stored this code.

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

OK:
There is no open or short circuit.

AVC-LAN WIRING DIAGRAM:



*1: Master Unit

*2: Slave Unit

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.REPLACE COMPONENT WHICH HAS STORED THIS CODE

a. Replace the component which has stored this code with a known good one.

NEXT

8.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

9.RECHECK FOR DTC

a. Recheck for DTCs and check if the same problem occurs again.

OK:
Malfunction disappears.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

DTC 63-46 Scratched / Reversed Disc

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-46	Scratches or dirt is found on CD surface or CD is set upside down.	• CD • Radio receiver assembly

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.CHECK THAT CD IS INSERTED PROPERLY

a. Check whether or not the CD is inserted upside down.

OK:
CD is properly inserted.

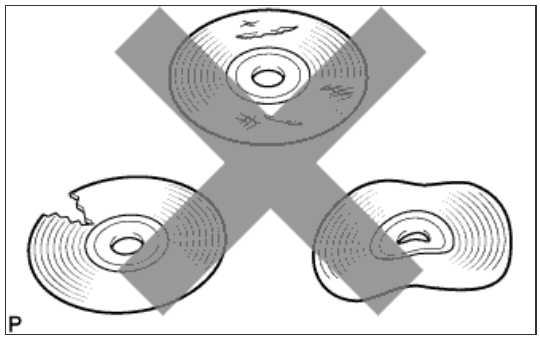
NG → REPLACE CD AND RECHECK

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

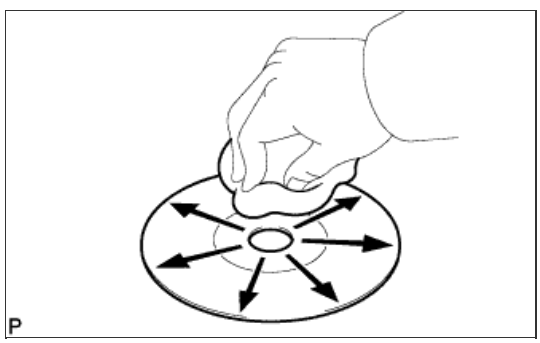
3.DISC CLEANING

a. 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

4.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

5.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

OK:
Malfunction disappears.

NG → Go to step 6

OK

END

6.REPLACE CD AND RECHECK

a. Replace the disc and recheck.

i. Replace the disc with a known good one.

ii. Clear the DTCs (Click here).

iii. Recheck for DTCs and check if the same trouble occurs again.

OK:
Malfunction disappears.

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

OK

END

DTC 01-DC Transmission Error

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-DC *1	Transmission to component shown by sub-code failed (Detecting this DTC does not always mean actual failure).	If the same sub-code is stored in other components, check power source circuit and communication system of all components shown by sub-code

HINT:

*1: If the engine switch is turned off after idling for 60 seconds, this DTC may be stored when the engine is started again.

NOTICE:

- **Before starting troubleshooting, be sure to clear the DTCs stored due to the reason described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The radio receiver assembly is the master unit.**
- **Be sure to clear and recheck for the DTCs after the inspection is completed to confirm that no DTCs are output.**

INSPECTION PROCEDURE

NOTICE:

Be sure to read Description before performing the following procedure.

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.

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

HINT:

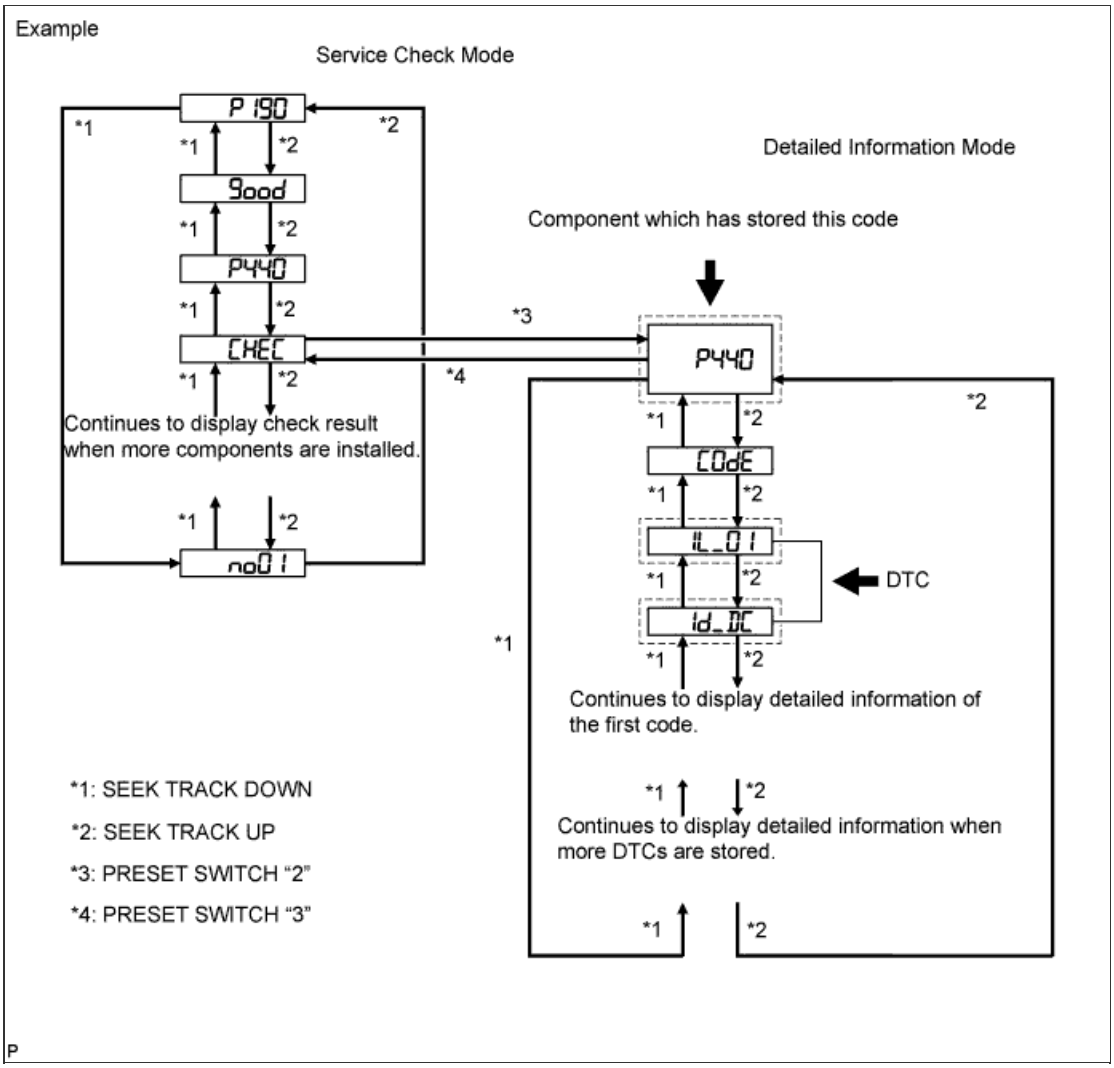
For the list of the components shown by sub-codes, refer to the table in step 2.

B → Go to step 4

A

2.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter diagnostic mode.



b. Press preset switch "2" to change the mode to "Detailed Information Mode".

c. Identify the component which has stored this code.

Component Table

Component	Physical Address
Stereo component amplifier assembly	440
Radio receiver assembly	190
Multi-media interface ECU	388

HINT:

- **"P440" set by the stereo component amplifier assembly is shown in the preceding illustration as an example.**
- **For details of the DTC display, refer to DTC Check/Clear (Click here).**

NEXT

3.CHECK COMPONENT WHICH HAS STORED THIS CODE

a. Select the component which has stored this code.

Component Table

Component	Proceed to
Stereo component amplifier assembly	Stereo component amplifier communication error (Click here)
Radio receiver assembly	Radio receiver communication error (Click here)
Multi-media interface ECU	Multi-media interface ECU 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 FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

OK:
Malfunction disappears.

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
Stereo component amplifier assembly	Stereo component amplifier communication error (Click here)
Radio receiver assembly	Radio receiver communication error (Click here)
Multi-media interface ECU	Multi-media interface ECU communication error (Click here)

NEXT

END

DTC 63-47 High Temperature

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-47	Sensor detects that CD unit temperature is high (Over 80°C (176°F)).	Radio receiver assembly

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.CHECK RADIO RECEIVER ASSEMBLY

a. Park the vehicle in a cool place.

b. Operate the radio receiver assembly after it has the sufficiently cooled down, and start the engine.

NEXT

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.CHECK DTC

a. Recheck for DTCs and check if the same trouble occurs again.

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 No.	DTC Detection Condition	Trouble Area
01-DD *1	The device that should be the master has been disconnected after the engine starts.	• Radio receiver assembly power source circuit • AVC-LAN circuit between the radio receiver assembly and component which has stored this code • Radio receiver assembly • Component which has stored this code
01-E1 *2	The AMP device stores that the AMP output does not function even while the source device operates.	

HINT:

- ***1: If the engine switch is turned off after idling for 60 seconds, this DTC may be stored when the engine is started again.**
- ***2: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**

NOTICE:

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

INSPECTION PROCEDURE

NOTICE:

Be sure to read Description before performing the following procedure.

1.CHECK RADIO RECEIVER POWER SOURCE CIRCUIT

HINT:

Refer to Radio Receiver 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 F55 radio receiver assembly connectors.

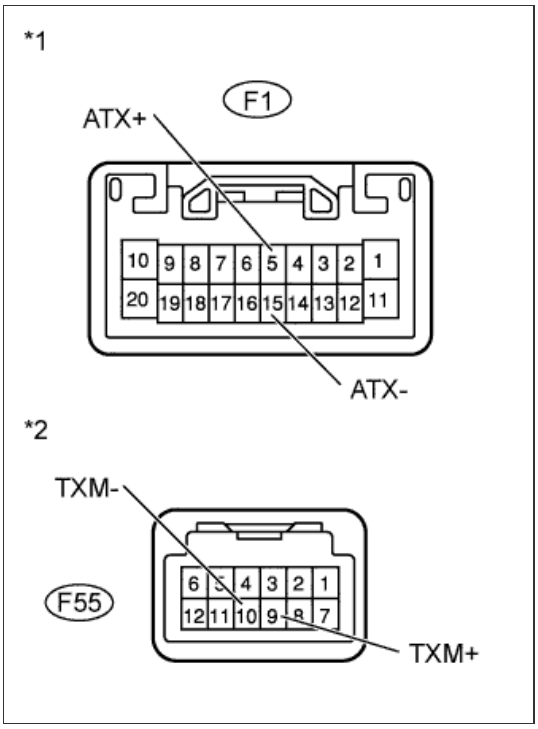
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F1-5 (ATX+) - F1-15 (ATX-)	Always	60 to 80 Ω
F55-9 (TXM+) - F55-10 (TXM-)	Always	60 to 80 Ω

Text in Illustration

*1	Component without harness connected (Radio Receiver Assembly)
*2	Component without harness connected (Radio Receiver Assembly)

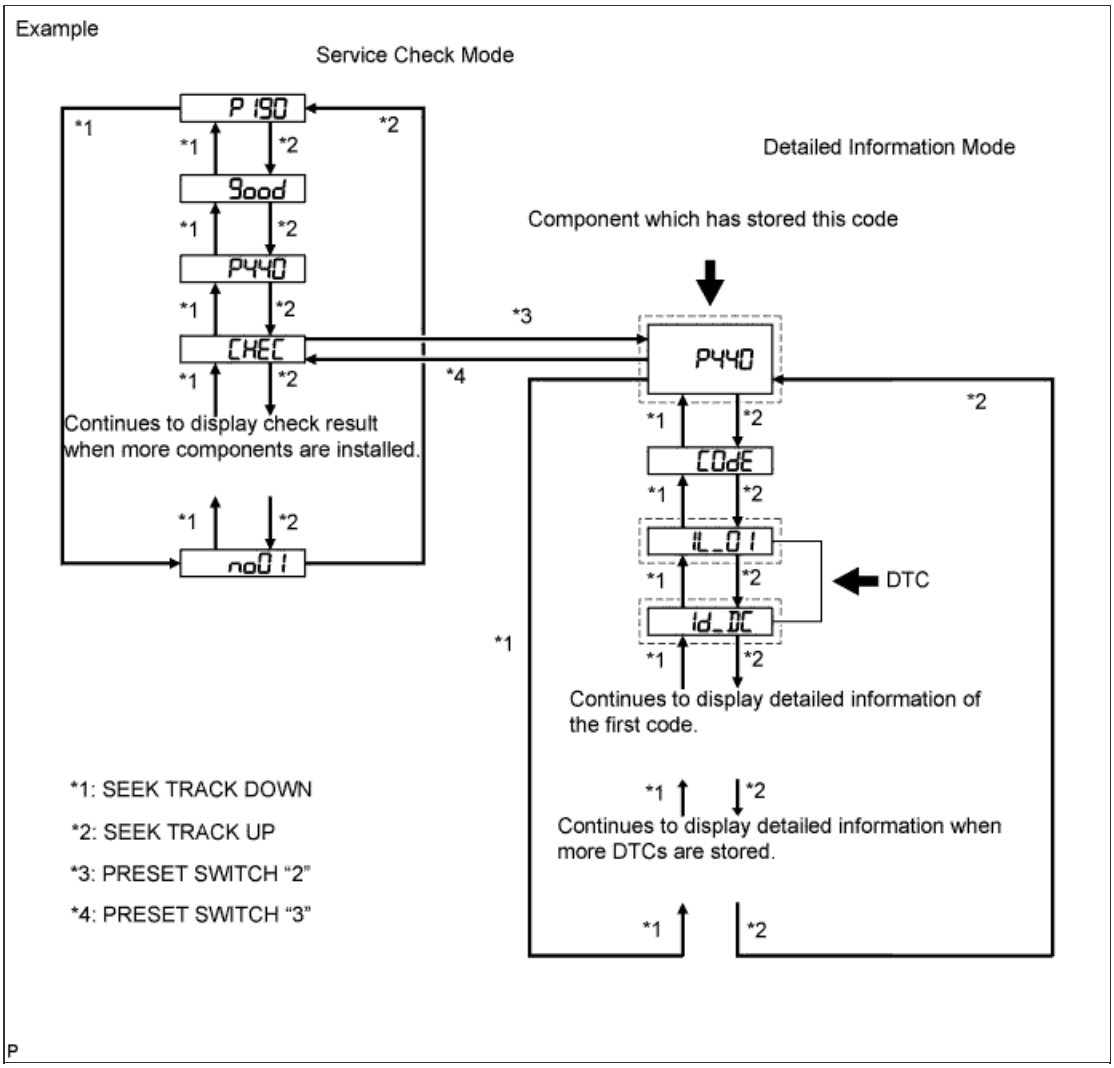


NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

3.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter diagnostic mode.



b. Press preset switch "2" to change the mode to "Detailed Information Mode".

c. Identify the component which has stored this code.

Component Table

Component	Physical Address
Stereo component amplifier assembly	440
Radio receiver assembly	190
Multi-media interface ECU	388

HINT:

- **"P440" set by the stereo component amplifier assembly is shown in the preceding illustration as an example.**
- **For details of the DTC display, refer to DTC Check/Clear (Click here).**

NEXT

4.CHECK COMPONENT SHOWN BY SUB-CODE

a. Select the component shown by the sub-code.

Component Table

Component	Proceed to
Except radio receiver assembly	A
Radio receiver assembly (190)	B

B → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

A

5.CHECK HARNESS AND CONNECTOR (AVC-LAN CIRCUIT)

HINT:

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

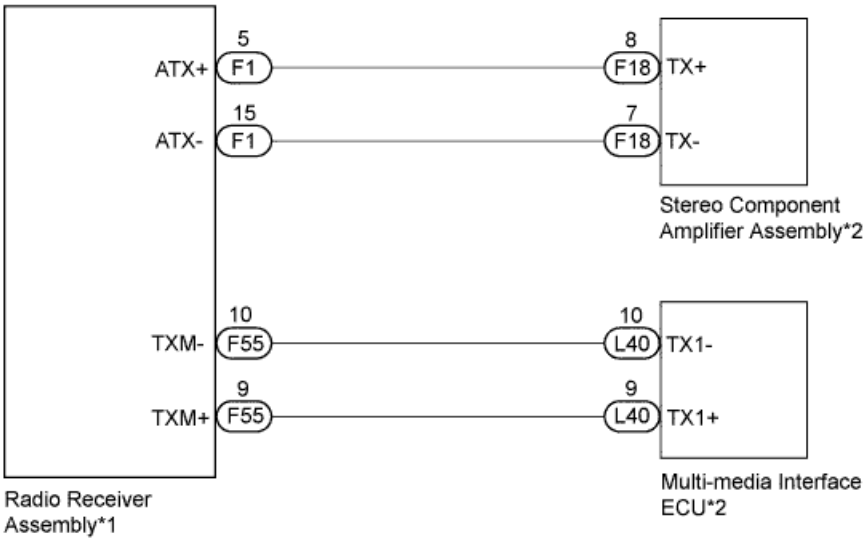
a. Referring to the following AVC-LAN wiring diagram, check the AVC-LAN circuit between the radio receiver assembly and component which has stored this code.

i. Disconnect all connectors between the radio receiver assembly and component which has stored this code.

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

OK:
There is no open or short circuit.

AVC-LAN WIRING DIAGRAM:



*1: Master Unit

*2: Slave Unit

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly with a known good one.

NEXT

7.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

8.RECHECK FOR DTC

a. Recheck for DTCs and check if the same problem occurs again.

OK:
Malfunction disappears.

NG → REPLACE COMPONENT WHICH HAS STORED THIS CODE

OK

END

DTC 63-78 DSP Error

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-78	An error occurs during the decode process (MP3/WMA).	-

INSPECTION PROCEDURE

NOTICE:

- **This DTC may be output even if there is no malfunction.**
- **If this DTC is detected frequently, replace the radio receiver assembly.**

HINT:

After the inspection is completed, clear the DTCs.

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

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 No.	DTC Detection Condition	Trouble Area
01-DD *1	The device that should be the master has been disconnected after the engine starts.	• Radio receiver assembly power source circuit • AVC-LAN circuit between the radio receiver assembly and component which has stored this code • Radio receiver assembly • Component which has stored this code
01-E1 *2	The AMP device stores that the AMP output does not function even while the source device operates.	

HINT:

- ***1: If the engine switch is turned off after idling for 60 seconds, this DTC may be stored when the engine is started again.**
- ***2: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**

NOTICE:

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

INSPECTION PROCEDURE

NOTICE:

Be sure to read Description before performing the following procedure.

1.CHECK RADIO RECEIVER POWER SOURCE CIRCUIT

HINT:

Refer to Radio Receiver 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 F55 radio receiver assembly connectors.

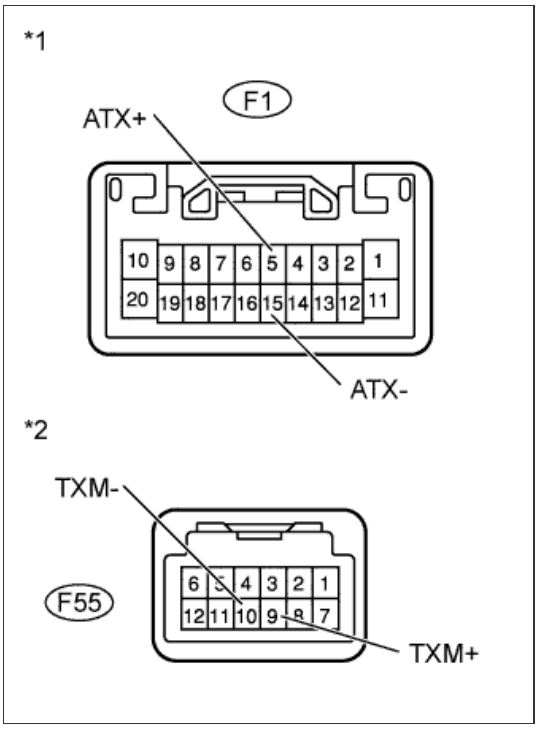
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F1-5 (ATX+) - F1-15 (ATX-)	Always	60 to 80 Ω
F55-9 (TXM+) - F55-10 (TXM-)	Always	60 to 80 Ω

Text in Illustration

*1	Component without harness connected (Radio Receiver Assembly)
*2	Component without harness connected (Radio Receiver Assembly)

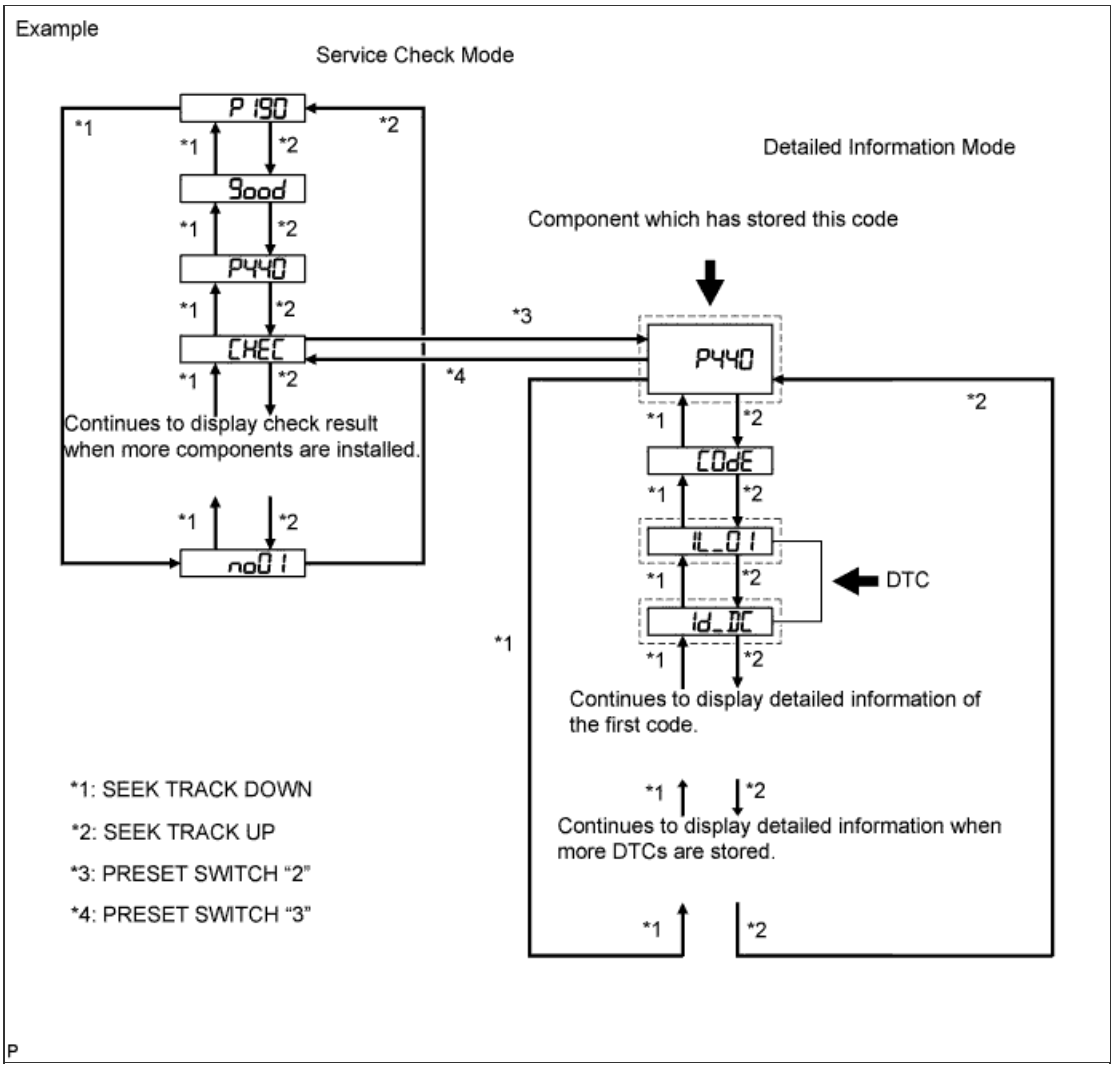


NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

3.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter diagnostic mode.



b. Press preset switch "2" to change the mode to "Detailed Information Mode".

c. Identify the component which has stored this code.

Component Table

Component	Physical Address
Stereo component amplifier assembly	440
Radio receiver assembly	190
Multi-media interface ECU	388

HINT:

- **"P440" set by the stereo component amplifier assembly is shown in the preceding illustration as an example.**
- **For details of the DTC display, refer to DTC Check/Clear (Click here).**

NEXT

4.CHECK COMPONENT SHOWN BY SUB-CODE

a. Select the component shown by the sub-code.

Component Table

Component	Proceed to
Except radio receiver assembly	A
Radio receiver assembly (190)	B

B → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

A

5.CHECK HARNESS AND CONNECTOR (AVC-LAN CIRCUIT)

HINT:

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

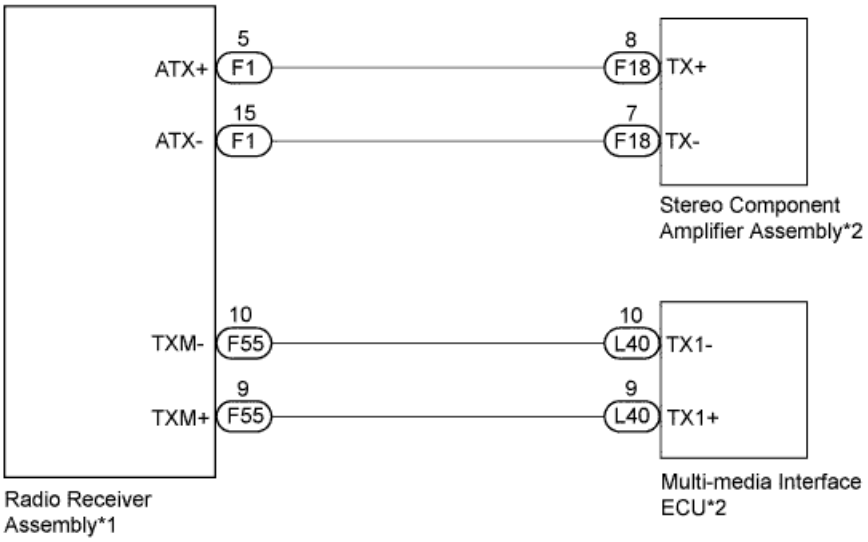
a. Referring to the following AVC-LAN wiring diagram, check the AVC-LAN circuit between the radio receiver assembly and component which has stored this code.

i. Disconnect all connectors between the radio receiver assembly and component which has stored this code.

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

OK:
There is no open or short circuit.

AVC-LAN WIRING DIAGRAM:



*1: Master Unit

*2: Slave Unit

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly with a known good one.

NEXT

7.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

8.RECHECK FOR DTC

a. Recheck for DTCs and check if the same problem occurs again.

OK:
Malfunction disappears.

NG → REPLACE COMPONENT WHICH HAS STORED THIS CODE

OK

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 No.	DTC Detection Condition	Trouble Area
63-7D	• An incompatible MP3/WMA file is used. • Although the file has an extension of ".mp3" or ".wma", the header information cannot be read.	• CD • Radio receiver assembly
63-7E	• A disc with no music data is used. • Playable files are not on the disc (MP3/WMA).	
63-7F	Copyright protection exists and playback is not possible.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

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

END

DTC 01-DF Master Error

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-DF *1	The device with a display fails and the master unit is switched to the audio device. Also when a communication error between the sub-master unit (audio) and master unit occurs, this DTC is stored.	• Radio receiver assembly power source circuit • AVC-LAN circuit between the radio receiver assembly and component which has stored this code • Radio receiver assembly • Component which has stored this code

HINT:

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

NOTICE:

- **Before starting troubleshooting, be sure to clear the DTCs stored due to the reason described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.**
- **The radio receiver assembly is the master unit.**
- **Be sure to clear and recheck for the DTCs after the inspection is completed to confirm that no DTCs are output.**

INSPECTION PROCEDURE

NOTICE:

Be sure to read Description before performing the following procedure.

1.CHECK RADIO RECEIVER POWER SOURCE CIRCUIT

HINT:

Refer to Radio Receiver 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 F55 radio receiver assembly connectors.

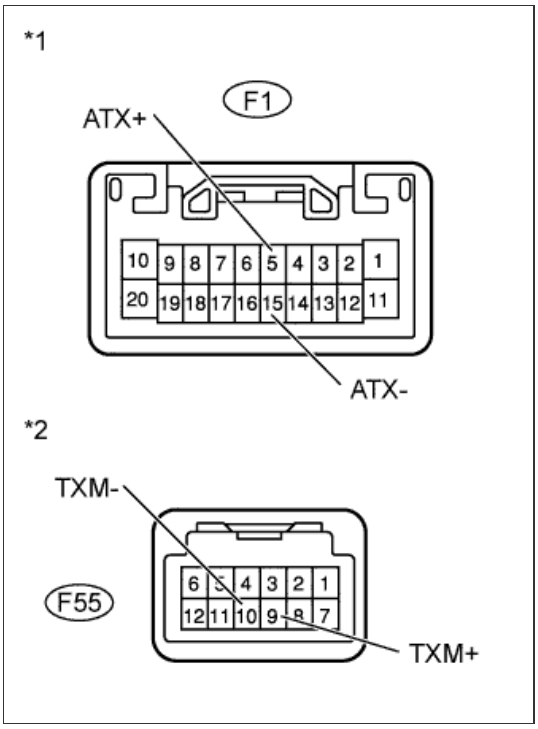
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F1-5 (ATX+) - F1-15 (ATX-)	Always	60 to 80 Ω
F55-9 (TXM+) - F55-10 (TXM-)	Always	60 to 80 Ω

Text in Illustration

*1	Component without harness connected (Radio Receiver Assembly)
*2	Component without harness connected (Radio Receiver Assembly)

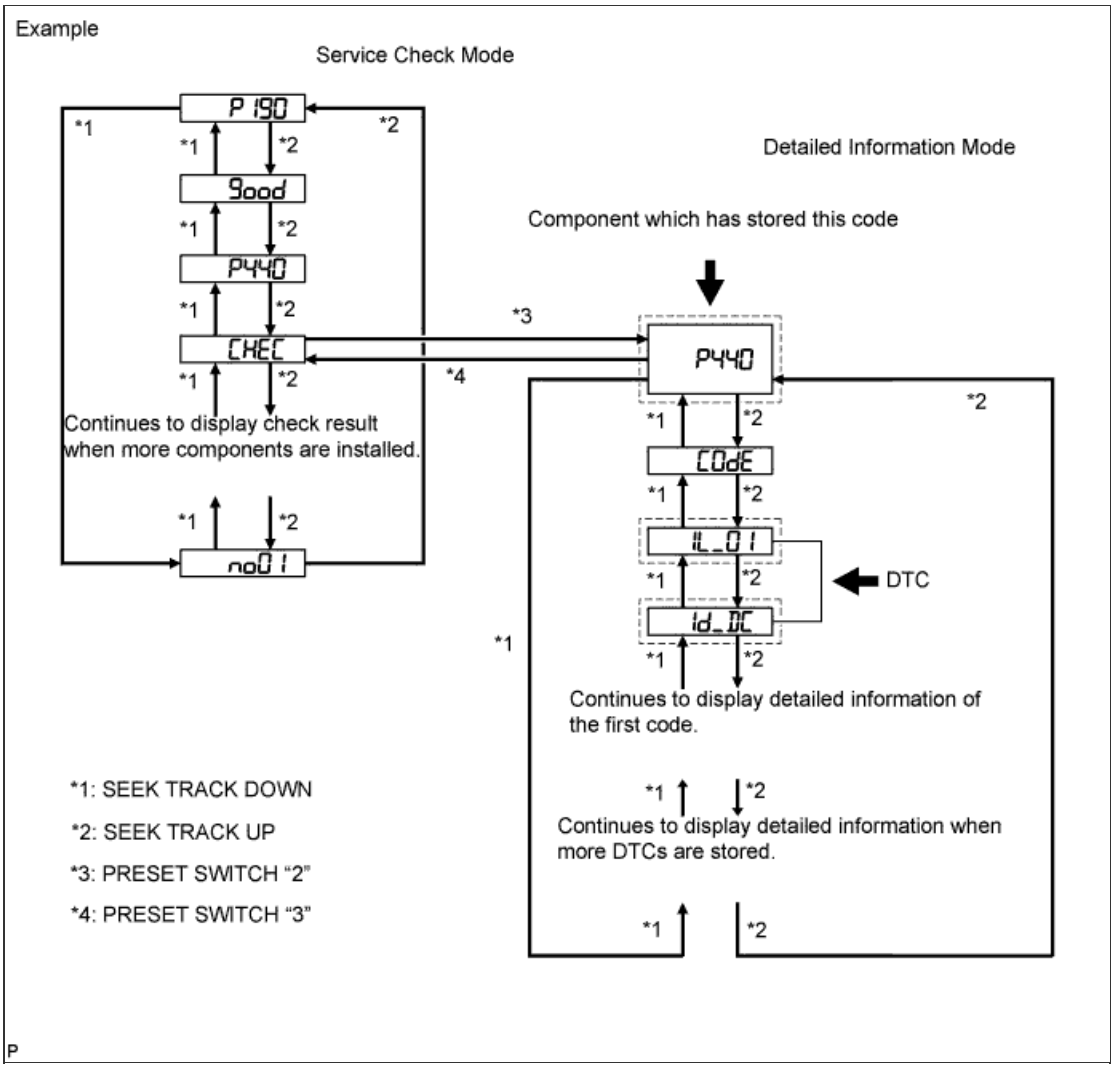


NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

3.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. Enter diagnostic mode.



b. Press preset switch "2" to change the mode to "Detailed Information Mode".

c. Identify the component which has stored this code.

Component Table

Component	Physical Address
Stereo component amplifier assembly	440
Radio receiver assembly	190
Multi-media interface ECU	388

HINT:

- **"P440" set by the stereo component amplifier assembly is shown in the preceding illustration as an example.**
- **For details of the DTC display, refer to DTC Check/Clear (Click here).**

NEXT

4.CHECK COMPONENT SHOWN BY SUB-CODE

a. Select the component shown by the sub-code.

Component Table

Component	Proceed to
Except radio receiver assembly	A
Radio receiver assembly (190)	B

B → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

A

5.CHECK HARNESS AND CONNECTOR (AVC-LAN CIRCUIT)

HINT:

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

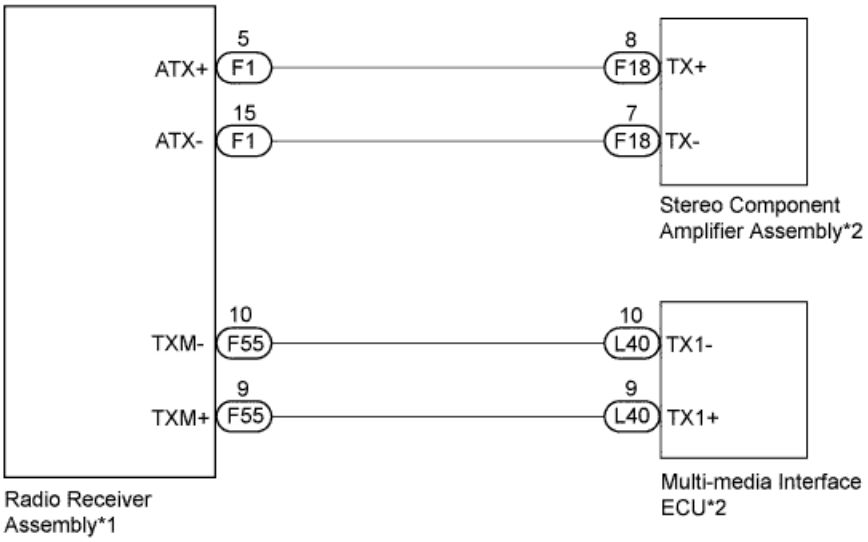
a. Referring to the following AVC-LAN wiring diagram, check the AVC-LAN circuit between the radio receiver assembly and component which has stored this code.

i. Disconnect all connectors between the radio receiver assembly and component which has stored this code.

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

OK:
There is no open or short circuit.

AVC-LAN WIRING DIAGRAM:



*1: Master Unit

*2: Slave Unit

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly with a known good one.

NEXT

7.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

8.RECHECK FOR DTC

a. Recheck for DTCs and check if the same problem occurs again.

OK:
Malfunction disappears.

NG → REPLACE COMPONENT WHICH HAS STORED THIS CODE

OK

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 No.	DTC Detection Condition	Trouble Area
63-7D	• An incompatible MP3/WMA file is used. • Although the file has an extension of ".mp3" or ".wma", the header information cannot be read.	• CD • Radio receiver assembly
63-7E	• A disc with no music data is used. • Playable files are not on the disc (MP3/WMA).	
63-7F	Copyright protection exists and playback is not possible.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

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

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 No.	DTC Detection Condition	Trouble Area
01-E0	"Registration complete" signal from the master device cannot be received.	-
01-E3	Either condition is met: • The registration demand signal from the slave device is output. • The registration demand signal is output by receiving connection confirmation signal from the sub-master device.	-
01-E4	The multiple frame transmission is incomplete.	-

HINT:

Even if no fault is present, these DTCs may be stored depending on the battery condition or engine start voltage.

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs. These DTCs do not indicate a malfunction.

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 No.	DTC Detection Condition	Trouble Area
63-7D	• An incompatible MP3/WMA file is used. • Although the file has an extension of ".mp3" or ".wma", the header information cannot be read.	• CD • Radio receiver assembly
63-7E	• A disc with no music data is used. • Playable files are not on the disc (MP3/WMA).	
63-7F	Copyright protection exists and playback is not possible.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

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

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 No.	DTC Detection Condition	Trouble Area
01-E0	"Registration complete" signal from the master device cannot be received.	-
01-E3	Either condition is met: • The registration demand signal from the slave device is output. • The registration demand signal is output by receiving connection confirmation signal from the sub-master device.	-
01-E4	The multiple frame transmission is incomplete.	-

HINT:

Even if no fault is present, these DTCs may be stored depending on the battery condition or engine start voltage.

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs. These DTCs do not indicate a malfunction.

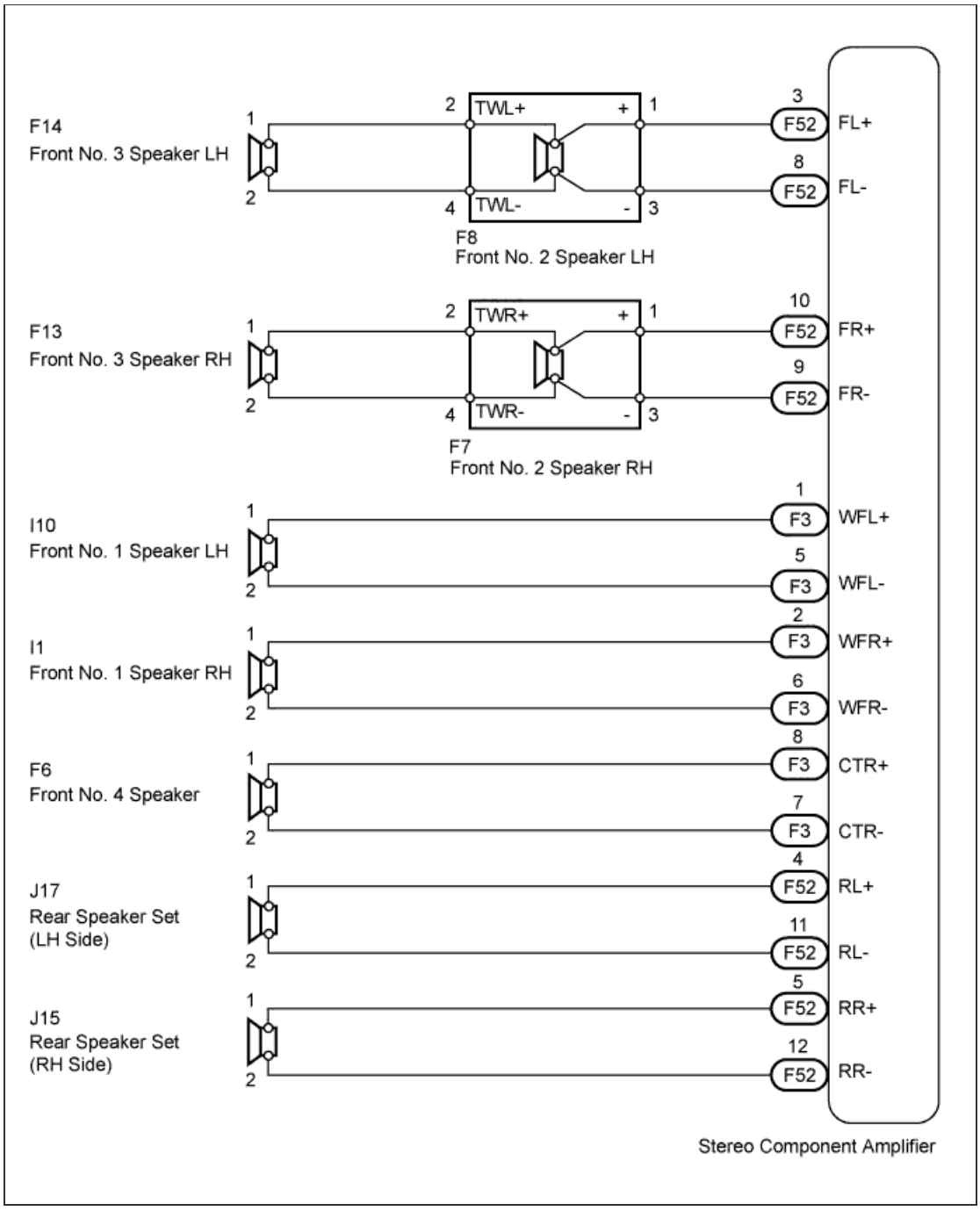
DTC 74-40 Short in Speaker Circuit

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
74-40	Short is detected in the speaker output circuit.	• Harness or connector • Speaker • Stereo component amplifier assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.CHECK DTC

a. Disconnect the F3 and F52 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

2.CHECK DTC

a. Reconnect the F52 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 6

OK

3.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	Always	10 kΩ or higher
F3-1 (WFL+) - Body ground	Always	10 kΩ or higher
F3-5 (WFL-) - Body ground	Always	10 kΩ or higher
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

4.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I10 and I1 speaker connectors.

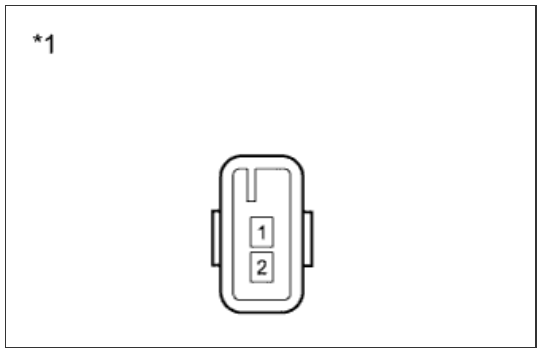
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	3 Ω

Text in Illustration

*1	Component without harness connected (Front No. 1 Speaker)



NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

5.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 speaker connector.

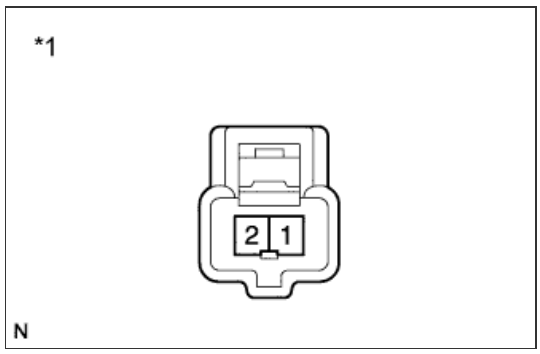
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	6 Ω

Text in Illustration

*1	Component without harness connected (Front No. 4 Speaker)



NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

6.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - SPEAKER)

a. Disconnect the F52 amplifier connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F52-8 (FL-) - Body ground	Always	10 kΩ or higher
F52-3 (FL+) - Body ground	Always	10 kΩ or higher
F52-9 (FR-) - Body ground	Always	10 kΩ or higher
F52-10 (FR+) - Body ground	Always	10 kΩ or higher
F52-5 (RR+) - Body ground	Always	10 kΩ or higher
F52-12 (RR-) - Body ground	Always	10 kΩ or higher
F52-4 (RL+) - Body ground	Always	10 kΩ or higher
F52-11 (RL-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.INSPECT REAR SPEAKER SET

a. Disconnect the J17 and J15 speaker connectors.

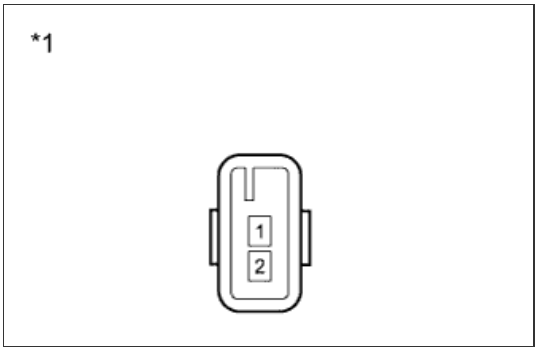
b. Measure the resistance according to the value(s) in the table below.

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

Go to step 9

8.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 speaker connectors.

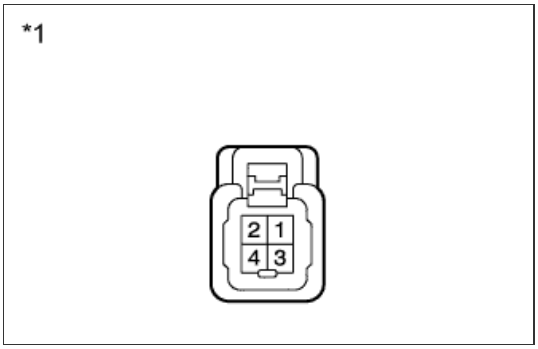
b. Measure the resistance according to the value(s) in the table below.

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)



NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

Go to step 10

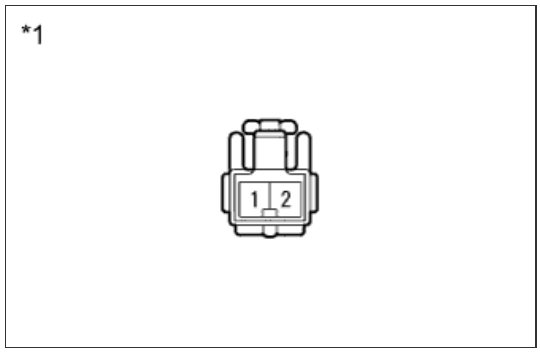
9.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY

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)

NG → REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

OK

10.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 01-E0 Registration Complete Indication Error

DTC 01-E3 Registration Demand Transmission

DTC 01-E4 Multiple Frame Incomplete

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-E0	"Registration complete" signal from the master device cannot be received.	-
01-E3	Either condition is met: • The registration demand signal from the slave device is output. • The registration demand signal is output by receiving connection confirmation signal from the sub-master device.	-
01-E4	The multiple frame transmission is incomplete.	-

HINT:

Even if no fault is present, these DTCs may be stored depending on the battery condition or engine start voltage.

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs. These DTCs do not indicate a malfunction.

DTC CB-10 System Microcomputer Malfunction

DTC CB-11 Media Interface Microcomputer Malfunction

DTC CB-12 CD-LSI Malfunction

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
CB-10	System microcomputer malfunction	• Multi-media interface ECU • USB device or "iPod"
CB-11	Media interface microcomputer malfunction	
CB-12	CD-LSI (large scale integration) malfunction	

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 one of these DTCs 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.

NEXT

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.RECHECK FOR DTC

a. Recheck for DTCs and check if the same DTC occurs again.

HINT:

If DTCs are detected frequently, replace the multi-media interface ECU.

OK:

Malfunction disappears.

NG → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

OK

USB DEVICE OR "iPod" WAS DEFECTIVE

DTC 01-E2 ON / OFF Indication Parameter Error

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-E2	The command for ON/OFF control from the master device has a problem.	Radio receiver assembly

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly (Click here).

NEXT

END

DTC CB-10 System Microcomputer Malfunction

DTC CB-11 Media Interface Microcomputer Malfunction

DTC CB-12 CD-LSI Malfunction

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
CB-10	System microcomputer malfunction	• Multi-media interface ECU • USB device or "iPod"
CB-11	Media interface microcomputer malfunction	
CB-12	CD-LSI (large scale integration) malfunction	

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 one of these DTCs 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.

NEXT

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.RECHECK FOR DTC

a. Recheck for DTCs and check if the same DTC occurs again.

HINT:

If DTCs are detected frequently, replace the multi-media interface ECU.

OK:

Malfunction disappears.

NG → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

OK

USB DEVICE OR "iPod" WAS DEFECTIVE

DTC 01-F2 No Response from Diagnosis Memory Request

DTC 01-FF No Response to Diagnosis Request

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-F2	Any reply to a system inspection instruction, system inspection result request or diagnosis memory request could not be completed within a designated time.	Stereo component amplifier assembly
01-FF	No response to a diagnosis request	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

OK:
Malfunction disappears.

NG → **REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)**

OK

END

DTC CB-10 System Microcomputer Malfunction

DTC CB-11 Media Interface Microcomputer Malfunction

DTC CB-12 CD-LSI Malfunction

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
CB-10	System microcomputer malfunction	• Multi-media interface ECU • USB device or "iPod"
CB-11	Media interface microcomputer malfunction	
CB-12	CD-LSI (large scale integration) malfunction	

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 one of these DTCs 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.

NEXT

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.RECHECK FOR DTC

a. Recheck for DTCs and check if the same DTC occurs again.

HINT:

If DTCs are detected frequently, replace the multi-media interface ECU.

OK:

Malfunction disappears.

NG → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

OK

USB DEVICE OR "iPod" WAS DEFECTIVE

DTC 01-F2 No Response from Diagnosis Memory Request

DTC 01-FF No Response to Diagnosis Request

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-F2	Any reply to a system inspection instruction, system inspection result request or diagnosis memory request could not be completed within a designated time.	Stereo component amplifier assembly
01-FF	No response to a diagnosis request	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

OK:
Malfunction disappears.

NG → **REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)**

OK

END

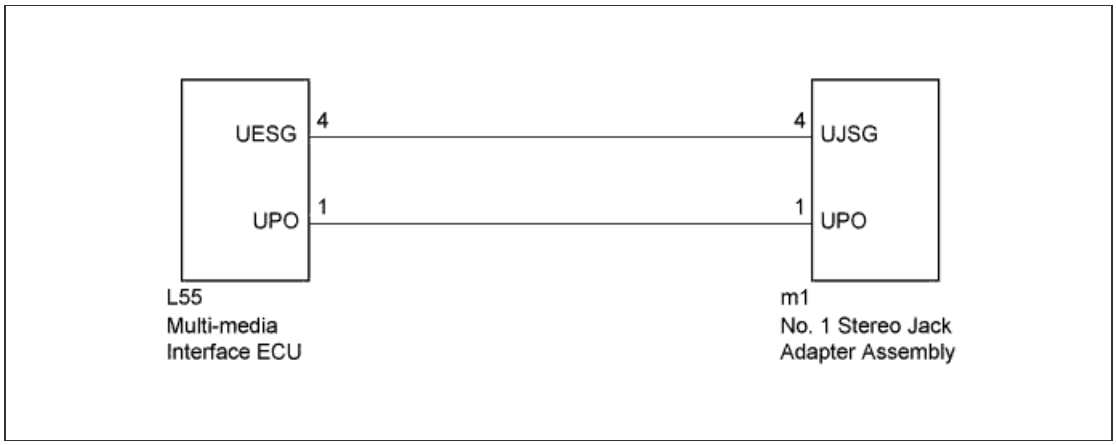
DTC CB-13 USB Over Current Detection

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
CB-13	USB device or "iPod" overcurrent malfunction	• USB device or "iPod" • No. 1 stereo jack adapter assembly • Wire harness or connector • Multi-media interface ECU

WIRING DIAGRAM



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 one of these DTCs 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.

NEXT

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.RECHECK FOR DTC

a. Recheck for DTCs and check if the same DTC occurs again.

HINT:

If DTCs are detected frequently, replace the multi-media interface ECU.

OK:

Malfunction disappears.

NG → Go to step 4

OK

USB DEVICE OR "iPod" WAS DEFECTIVE

4.INSPECT MULTI-MEDIA INTERFACE ECU

a. Disconnect the m1 No. 1 stereo jack adapter assembly connector.

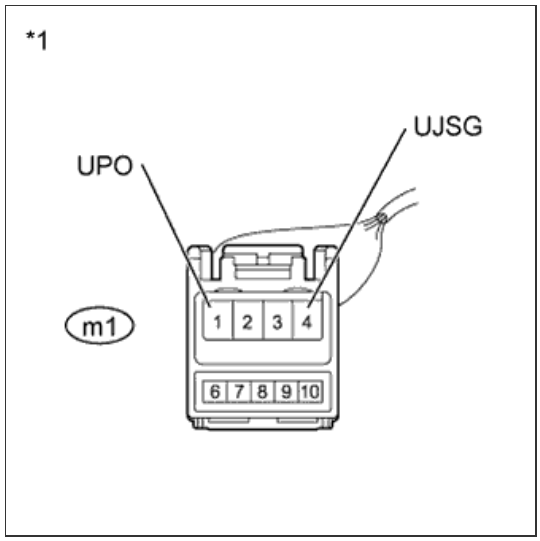
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
m1-1 (UPO) - m1-4 (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 (MULTI-MEDIA INTERFACE ECU - NO. 1 STEREO JACK ADAPTER)

a. Disconnect the L55 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
L55-1 (UPO) - m1-1 (UPO)	Always	Below 1 Ω
L55-4 (UESG) - m1-4 (UJSG)	Always	Below 1 Ω
m1-1 (UPO) - Body ground	Always	10 kΩ or higher
m1-4 (UJSG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

DTC 57-10 TEL ECU Malfunction (TEL)

DTC 57-47 Bluetooth Module Initialization Failed

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
57-10	"Bluetooth" module malfunction	Radio receiver assembly
57-47	• "Bluetooth" module is not installed. • Problem with "Bluetooth" module • Problem in communication line to "Bluetooth" module	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly (Click here).

NEXT

END

DTC CB-43 USB Device Class/Protocol Error

DTC CB-44 USB File System Error

DTC CB-50 iPod Malfunction

DTC CB-51 iPod Protocol Error

DTC CB-7D iPod Protocol Unsupported

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
CB-43	When a non mass-storage class or in compatible protocol USB device is connected.	• Multi-media interface ECU • USB device
CB-44	When a USB device with an incompatible file system, corrupted or incompatible File Allocation Table (FAT) is connected.	
CB-50	"iPod" malfunction	• Multi-media interface ECU • "iPod"
CB-51	When an "iPod" with an unsupported firmware is connected.	
CB-7D	When an unsupported model of "iPod" is connected.	

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 one of these DTCs 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.RECHECK FOR DTC

a. Recheck for DTCs and check if the same DTC occurs again.

HINT:

If DTCs are detected frequently, replace the multi-media interface ECU.

OK:
Malfunction disappears.

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 57-10 TEL ECU Malfunction (TEL)

DTC 57-47 Bluetooth Module Initialization Failed

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
57-10	"Bluetooth" module malfunction	Radio receiver assembly
57-47	• "Bluetooth" module is not installed. • Problem with "Bluetooth" module • Problem in communication line to "Bluetooth" module	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly (Click here).

NEXT

END

DTC CB-43 USB Device Class/Protocol Error

DTC CB-44 USB File System Error

DTC CB-50 iPod Malfunction

DTC CB-51 iPod Protocol Error

DTC CB-7D iPod Protocol Unsupported

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
CB-43	When a non mass-storage class or in compatible protocol USB device is connected.	• Multi-media interface ECU • USB device
CB-44	When a USB device with an incompatible file system, corrupted or incompatible File Allocation Table (FAT) is connected.	
CB-50	"iPod" malfunction	• Multi-media interface ECU • "iPod"
CB-51	When an "iPod" with an unsupported firmware is connected.	
CB-7D	When an unsupported model of "iPod" is connected.	

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 one of these DTCs 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.RECHECK FOR DTC

a. Recheck for DTCs and check if the same DTC occurs again.

HINT:

If DTCs are detected frequently, replace the multi-media interface ECU.

OK:
Malfunction disappears.

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 60-10 AM Tuner PLL does not Lock

DTC 60-11 FM Tuner PLL does not Lock

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
60-10	The AM tuner PLL (phase locked loop) synchronization is impossible.	Radio receiver assembly
60-11	The FM tuner PLL (phase locked loop) synchronization is impossible.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly (Click here).

NEXT

END

DTC CB-43 USB Device Class/Protocol Error

DTC CB-44 USB File System Error

DTC CB-50 iPod Malfunction

DTC CB-51 iPod Protocol Error

DTC CB-7D iPod Protocol Unsupported

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
CB-43	When a non mass-storage class or in compatible protocol USB device is connected.	• Multi-media interface ECU • USB device
CB-44	When a USB device with an incompatible file system, corrupted or incompatible File Allocation Table (FAT) is connected.	
CB-50	"iPod" malfunction	• Multi-media interface ECU • "iPod"
CB-51	When an "iPod" with an unsupported firmware is connected.	
CB-7D	When an unsupported model of "iPod" is connected.	

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 one of these DTCs 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.RECHECK FOR DTC

a. Recheck for DTCs and check if the same DTC occurs again.

HINT:

If DTCs are detected frequently, replace the multi-media interface ECU.

OK:
Malfunction disappears.

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 60-10 AM Tuner PLL does not Lock

DTC 60-11 FM Tuner PLL does not Lock

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
60-10	The AM tuner PLL (phase locked loop) synchronization is impossible.	Radio receiver assembly
60-11	The FM tuner PLL (phase locked loop) synchronization is impossible.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly (Click here).

NEXT

END

DTC CB-43 USB Device Class/Protocol Error

DTC CB-44 USB File System Error

DTC CB-50 iPod Malfunction

DTC CB-51 iPod Protocol Error

DTC CB-7D iPod Protocol Unsupported

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
CB-43	When a non mass-storage class or in compatible protocol USB device is connected.	• Multi-media interface ECU • USB device
CB-44	When a USB device with an incompatible file system, corrupted or incompatible File Allocation Table (FAT) is connected.	
CB-50	"iPod" malfunction	• Multi-media interface ECU • "iPod"
CB-51	When an "iPod" with an unsupported firmware is connected.	
CB-7D	When an unsupported model of "iPod" is connected.	

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 one of these DTCs 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.RECHECK FOR DTC

a. Recheck for DTCs and check if the same DTC occurs again.

HINT:

If DTCs are detected frequently, replace the multi-media interface ECU.

OK:
Malfunction disappears.

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 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 No.	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 IC inside the tuner unit and radio reception is not normal.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

HINT:

If DTCs are detected frequently, replace the radio receiver assembly.

OK:
Malfunction disappears.

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

OK

END

DTC CB-43 USB Device Class/Protocol Error

DTC CB-44 USB File System Error

DTC CB-50 iPod Malfunction

DTC CB-51 iPod Protocol Error

DTC CB-7D iPod Protocol Unsupported

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
CB-43	When a non mass-storage class or in compatible protocol USB device is connected.	• Multi-media interface ECU • USB device
CB-44	When a USB device with an incompatible file system, corrupted or incompatible File Allocation Table (FAT) is connected.	
CB-50	"iPod" malfunction	• Multi-media interface ECU • "iPod"
CB-51	When an "iPod" with an unsupported firmware is connected.	
CB-7D	When an unsupported model of "iPod" is connected.	

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 one of these DTCs 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.RECHECK FOR DTC

a. Recheck for DTCs and check if the same DTC occurs again.

HINT:

If DTCs are detected frequently, replace the multi-media interface ECU.

OK:
Malfunction disappears.

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 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 No.	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 IC inside the tuner unit and radio reception is not normal.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

HINT:

If DTCs are detected frequently, replace the radio receiver assembly.

OK:
Malfunction disappears.

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

OK

END

DTC CB-45 USB Communication Error

DTC CB-46 iPod Control Error

DTC CB-47 iPod Communication Error

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
CB-45	Communication error with USB device	• Multi-media interface ECU • USB device
CB-46	"iPod" control software malfunction	• Multi-media interface ECU • "iPod"
CB-47	Communication error with "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 one of these DTCs 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 DTC occurs again.

HINT:

If DTCs are detected frequently, replace the multi-media interface ECU.

OK:
Malfunction disappears.

NG → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

OK

USB DEVICE OR "iPod" WAS DEFECTIVE

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 No.	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 IC inside the tuner unit and radio reception is not normal.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

HINT:

If DTCs are detected frequently, replace the radio receiver assembly.

OK:
Malfunction disappears.

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

OK

END

DTC CB-45 USB Communication Error

DTC CB-46 iPod Control Error

DTC CB-47 iPod Communication Error

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
CB-45	Communication error with USB device	• Multi-media interface ECU • USB device
CB-46	"iPod" control software malfunction	• Multi-media interface ECU • "iPod"
CB-47	Communication error with "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 one of these DTCs 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 DTC occurs again.

HINT:

If DTCs are detected frequently, replace the multi-media interface ECU.

OK:
Malfunction disappears.

NG → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

OK

USB DEVICE OR "iPod" WAS DEFECTIVE

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 No.	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 IC inside the tuner unit and radio reception is not normal.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.RECHECK FOR DTC

a. Recheck for DTCs and check if the same trouble occurs again.

HINT:

If DTCs are detected frequently, replace the radio receiver assembly.

OK:
Malfunction disappears.

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

OK

END

DTC CB-45 USB Communication Error

DTC CB-46 iPod Control Error

DTC CB-47 iPod Communication Error

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
CB-45	Communication error with USB device	• Multi-media interface ECU • USB device
CB-46	"iPod" control software malfunction	• Multi-media interface ECU • "iPod"
CB-47	Communication error with "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 one of these DTCs 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 DTC occurs again.

HINT:

If DTCs are detected frequently, replace the multi-media interface ECU.

OK:
Malfunction disappears.

NG → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

OK

USB DEVICE OR "iPod" WAS DEFECTIVE

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 No.	DTC Detection Condition	Trouble Area
63-10	A mechanical error in the CD changer is detected while the CD is not being inserted or ejected.	Radio receiver assembly
63-11	CDs cannot be inserted or ejected.	
63-12	CD read problem occurs.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly (Click here).

NEXT

END

DTC CB-52 No Playable iPod File Exists

DTC CB-7E No Playable USB File Exists

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
CB-52	No playable files on the "iPod"	"iPod"
CB-7E	No playable files on the USB device	USB device

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

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).

Result

Result	Proceed to
No playable files exist.	A
Playable files exist.	B

B → Go to step 2

A

END

2.REPLACE USB DEVICE OR "iPod"

a. Turn the engine switch off.

HINT:

When one of these DTCs 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.

b. Turn the engine switch on (ACC).

c. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

NEXT

3.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

4.RECHECK FOR DTC

a. Recheck for DTCs and check if the same DTC occurs again.

HINT:

If DTCs are detected frequently, replace the multi-media interface ECU.

OK:

Malfunction disappears.

NG → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

OK

USB DEVICE OR "iPod" WAS DEFECTIVE

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 No.	DTC Detection Condition	Trouble Area
63-10	A mechanical error in the CD changer is detected while the CD is not being inserted or ejected.	Radio receiver assembly
63-11	CDs cannot be inserted or ejected.	
63-12	CD read problem occurs.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.REPLACE RADIO RECEIVER ASSEMBLY

a. Replace the radio receiver assembly (Click here).

NEXT

END

DTC CB-52 No Playable iPod File Exists

DTC CB-7E No Playable USB File Exists

for Preparation Click here

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
CB-52	No playable files on the "iPod"	"iPod"
CB-7E	No playable files on the USB device	USB device

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

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).

Result

Result	Proceed to
No playable files exist.	A
Playable files exist.	B

B → Go to step 2

A

END

2.REPLACE USB DEVICE OR "iPod"

a. Turn the engine switch off.

HINT:

When one of these DTCs 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.

b. Turn the engine switch on (ACC).

c. Connect a known good USB device or "iPod" to the No. 1 stereo jack adapter assembly.

NEXT

3.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

4.RECHECK FOR DTC

a. Recheck for DTCs and check if the same DTC occurs again.

HINT:

If DTCs are detected frequently, replace the multi-media interface ECU.

OK:

Malfunction disappears.

NG → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

OK

USB DEVICE OR "iPod" WAS DEFECTIVE

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
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 RADIO RECEIVER ASSEMBLY

a. Check radio receiver assembly 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 → **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 CD AND RECHECK

a. Replace the CD 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.PRESS "EJECT" AND CHECK OPERATION

a. Press the CD eject switch of the radio receiver assembly for 2 seconds or more and check that the CD is ejected.

OK:
CD is ejected.

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

OK

2.REPLACE CD AND RECHECK

a. Replace the CD with a known good one and recheck.

OK:
CD is ejected.

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

OK

END

for Preparation Click here

INSPECTION PROCEDURE

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, deteriorated 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 → CHANGE DISC

OK

2.CHECK THAT CD IS INSERTED PROPERLY

a. Check whether or not the CD is inserted upside down.

OK:
CD is properly inserted.

NG → INSERT CD PROPERLY

OK

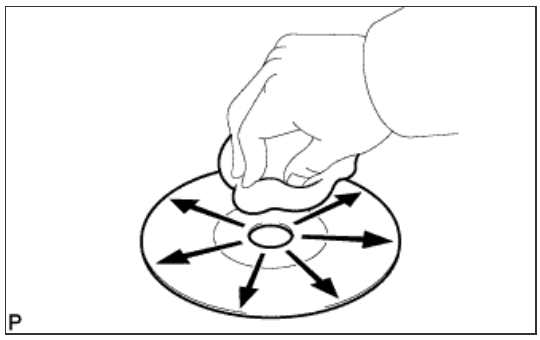
3.CLEAN CD AND RECHECK

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 CD AND RECHECK

a. Replace the CD with a known good one and check that the malfunction disappears.

OK:

Malfunction disappears.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

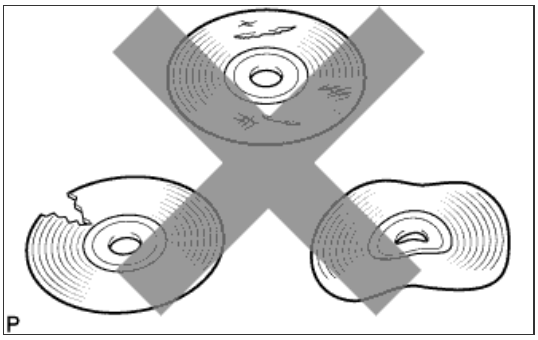
for Preparation Click here

INSPECTION PROCEDURE

1.CHECK CD

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

OK:
No deformation or cracks on the CD



NG → CHANGE DISC

OK

2.CHECK CD

a. Check the CD.

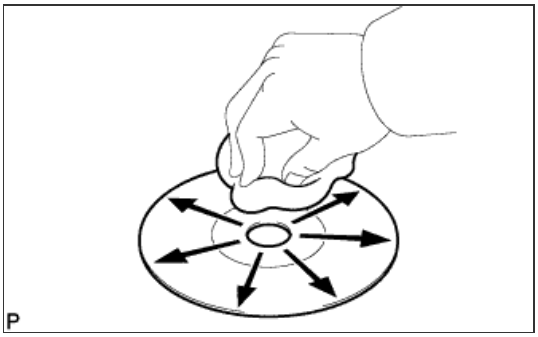
OK:
The CD is clean.

HINT:

If dirt is on the CD 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 CD

OK

3.CHECK OPERATION

a. Check if the problem recurs using a known good CD.

OK:
Malfunction disappears.

NG → Go to step 4

OK

END

4.CHECK RADIO RECEIVER ASSEMBLY

a. Check the radio receiver assembly installation condition.

i. 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 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 RECEIVER ASSEMBLY

a. Preparation for check

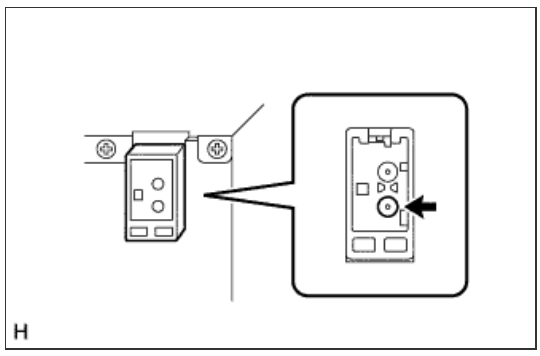
i. Remove the antenna plug from the radio receiver assembly.

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:

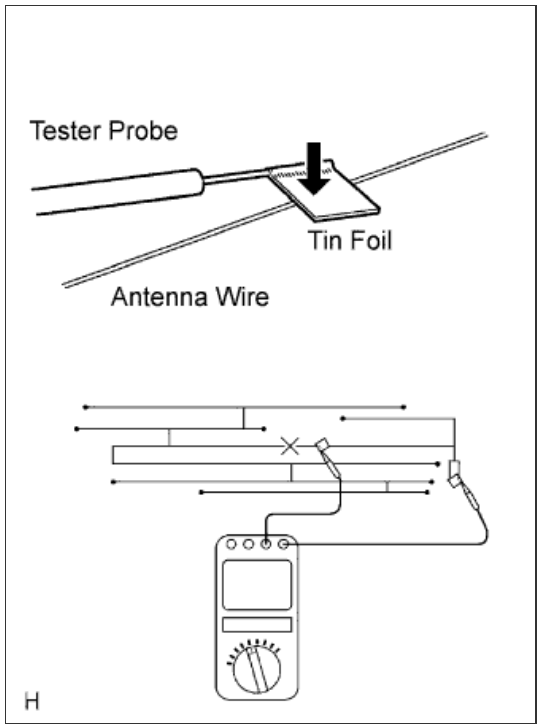
Check for continuity at the center of each antenna wire as shown in the illustration.

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.



NG → REPAIR GLASS ANTENNA

OK

5.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the RA radio receiver assembly connector.

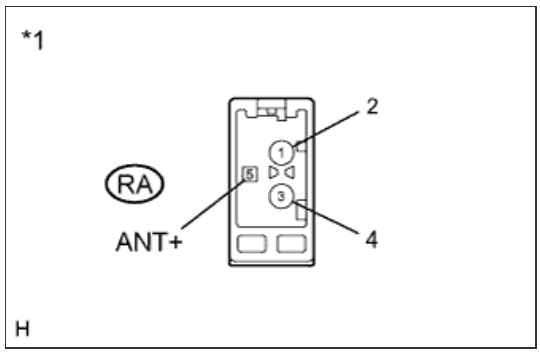
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
RA-5 (ANT+) - Body ground	Engine switch on (ACC) 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 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 → USE A "BLUETOOTH" COMPATIBLE 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 the cellular phone can make a call.

HINT:

When the battery is low, registration or directory transfer cannot be done.

OK:

Cellular phone can make a call.

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 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 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 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:
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:
The cellular phone can make calls.

NG → END (CELLULAR PHONES CAN ONLY FUNCTION IN CELLULAR SERVICE AREAS)

OK

2.CHECK RECEPTION

a. Check the "Bluetooth" connection indicator (BT indicator) on the screen.

Result

Result	Procedure
BT indicator is displayed	A
BT indicator is not displayed	B

B → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

A

SELECT REGISTERED CELLULAR PHONE OR REGISTER "BLUETOOTH" COMPATIBLE PHONE

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 AUDIO AND VISUAL SYSTEM

a. Check that sound from the audio system can be heard from the front speakers.

OK:
Sound from the audio system can be heard.

HINT:

If sound from the audio system cannot be heard, proceed to "No sound can be heard from speakers. (Audio is mute.)" in Problem Symptoms Table (Click here).

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK ↓

3.CHECK SETTINGS

a. Check that the received voice level setting on the cellular phone is not too low.

OK:
The received voice level setting is not too low.

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 caller 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 is set to on.

OK:
Mute is not set to on.

NG → TURN MUTE OFF

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. 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 SETTINGS

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)

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 that devices other than the radio 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 radio receiver assembly, even if the portable audio player itself can play files (Click here).**
- **Refer to the owner's manual for the operating procedure.**

1.CHECK CONNECTED DEVICE SETTINGS

a. 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.

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. Check the automatic connection settings of the "Bluetooth" audio.

i. Turn the engine switch off.

ii. Turn the engine switch on (ACC) or (IG).

OK:
The portable player is automatically recognized by the radio receiver assembly.

NG → CHANGE SETTING TO ALLOW PORTABLE PLAYER TO BE RECOGNIZED BY RADIO RECEIVER ASSEMBLY

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

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 "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.

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.

HINT:
The portable player cannot be registered under any of the following conditions:

- **The Advanced Audio Distribution Profile (A2DP) 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 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 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 radio receiver assembly, or if information such as track, artist and album names are displayed on 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

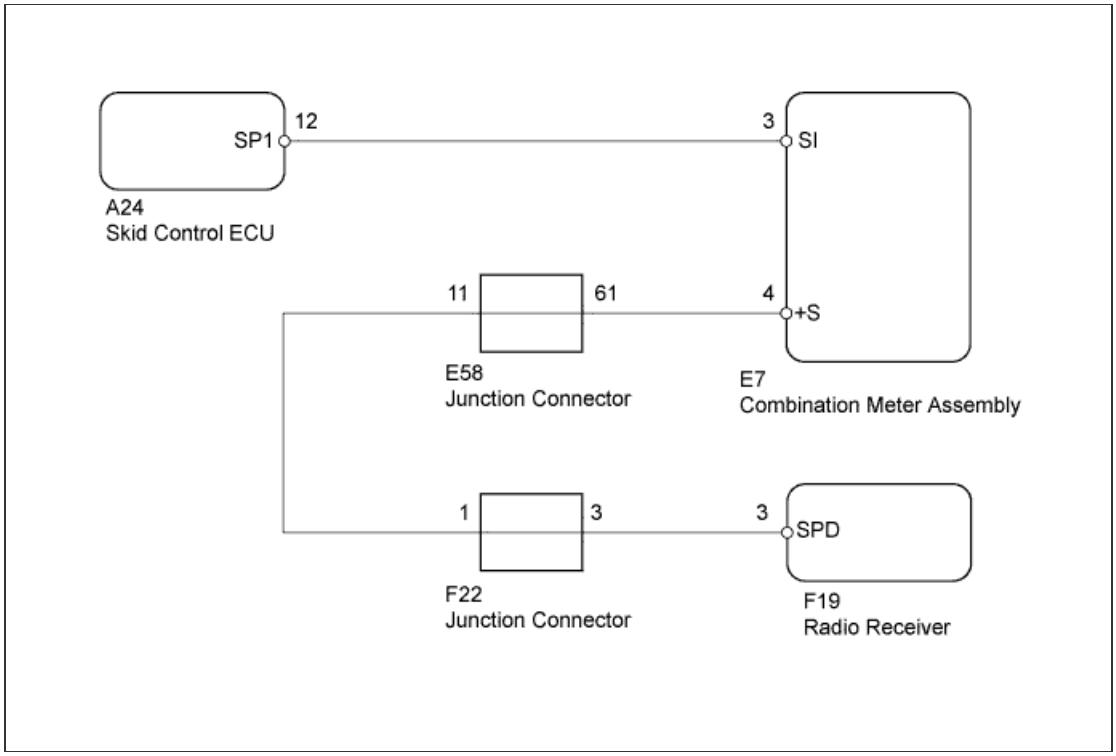
DESCRIPTION

Speed signals are received from the combination meter assembly and used to cancel "Bluetooth" function operation.
The radio receiver assembly recognizes that the vehicle is being to driven and makes it impossible to connect or register a "Bluetooth" device while driving.

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.INSPECT COMBINATION METER ASSEMBLY (OUTPUT WAVEFORM)

a. Check the output waveform.

i. Remove the combination meter assembly with the connector still connected.

ii. Connect an oscilloscope to terminal E7-4 (+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	E7-4 (+S) - Body ground
Tool setting	5 V/DIV., 20 ms./DIV.

Vehicle condition	Driving at approx. 20 km/h (12 mph)

OK:

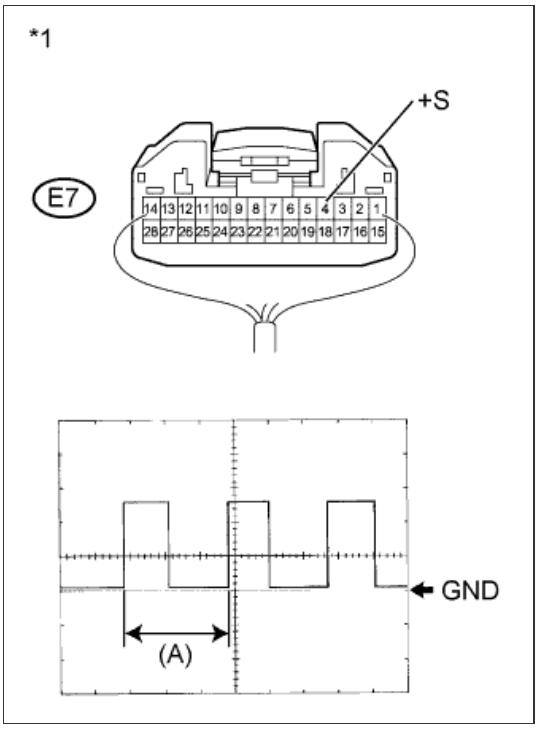
The waveform is displayed as shown in the illustration.

Text in Illustration

*1	Component with harness connected (Combination Meter Assembly)

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

2.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - COMBINATION METER ASSEMBLY)

a. Disconnect the F19 radio receiver assembly and E7 combination meter assembly connectors.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F19-3 (SPD) - E7-4 (+S)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

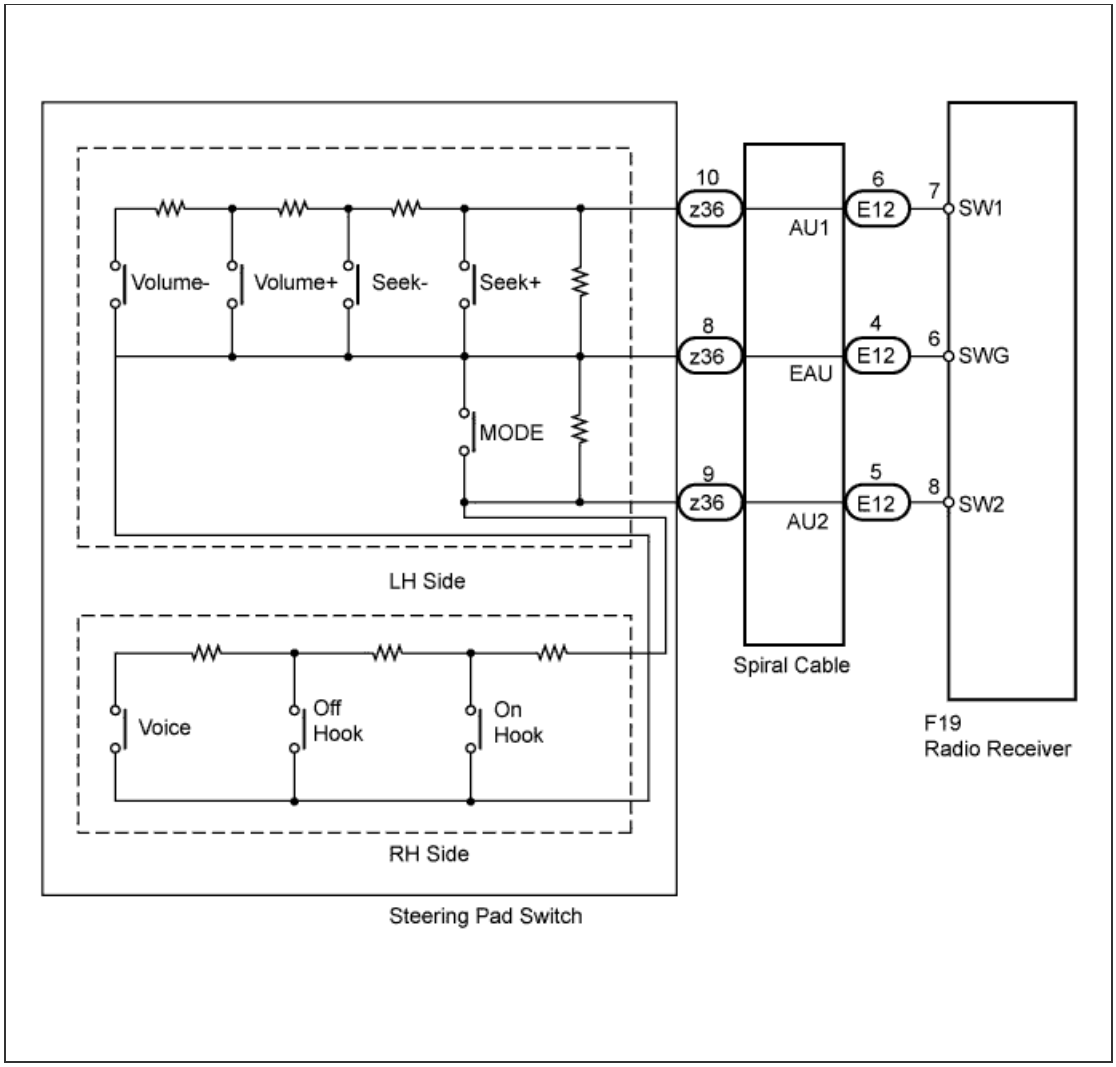
REPLACE RADIO RECEIVER ASSEMBLY (Click here)

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 audio 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 audio system cannot be operated using the steering pad switch, and the audio 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 F19 receiver connector.

b. Disconnect the E12 cable connector.

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

Standard Resistance:

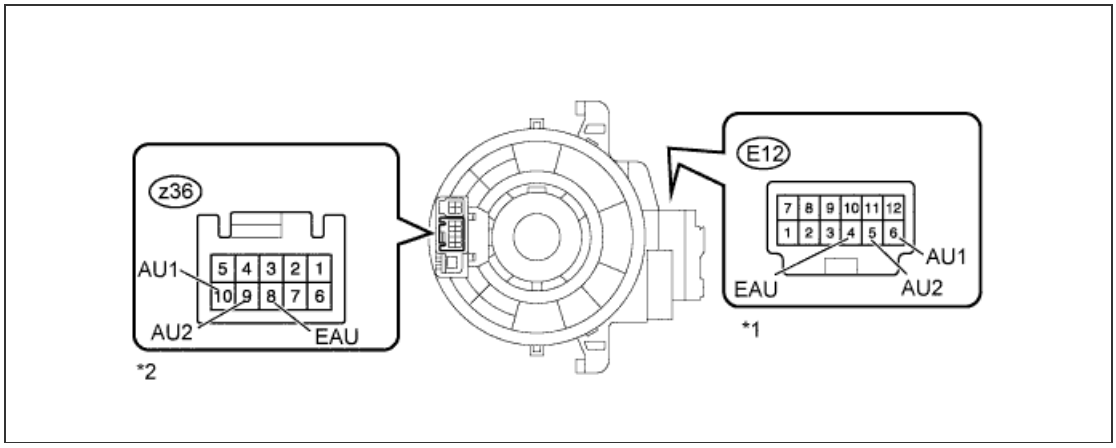
Tester Connection	Condition	Specified Condition
F19-8 (SW2) - E12-5 (AU2)		

F19-6 (SWG) - E12-4 (EAU)	Always	Below 1 Ω
F19-7 (SW1) - E12-6 (AU1)		
F19-8 (SW2) - Body ground	Always	10 kΩ or higher
F19-6 (SWG) - Body ground		
F19-7 (SW1) - Body ground		

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.INSPECT SPIRAL CABLE SUB-ASSEMBLY



Text in Illustration

*1	Vehicle Side	*2	Steering Pad Switch Side

a. Disconnect the z36 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) - z36-8 (EAU)	Spiral cable is turned 2.5 rotations counterclockwise	Below 1 Ω
	Spiral cable is centered	
	Spiral cable is turned 2.5 rotations clockwise	
E12-5 (AU2) - z36-9 (AU2)	Spiral cable is turned 2.5 rotations counterclockwise	Below 1 Ω
	Spiral cable is centered	
	Spiral cable is turned 2.5 rotations clockwise	
E12-6 (AU1) - z36-10 (AU1)	Spiral cable is turned 2.5 rotations counterclockwise	Below 1 Ω
	Spiral cable is centered	
	Spiral cable is	

	turned 2.5 rotations clockwise	

CAUTION:

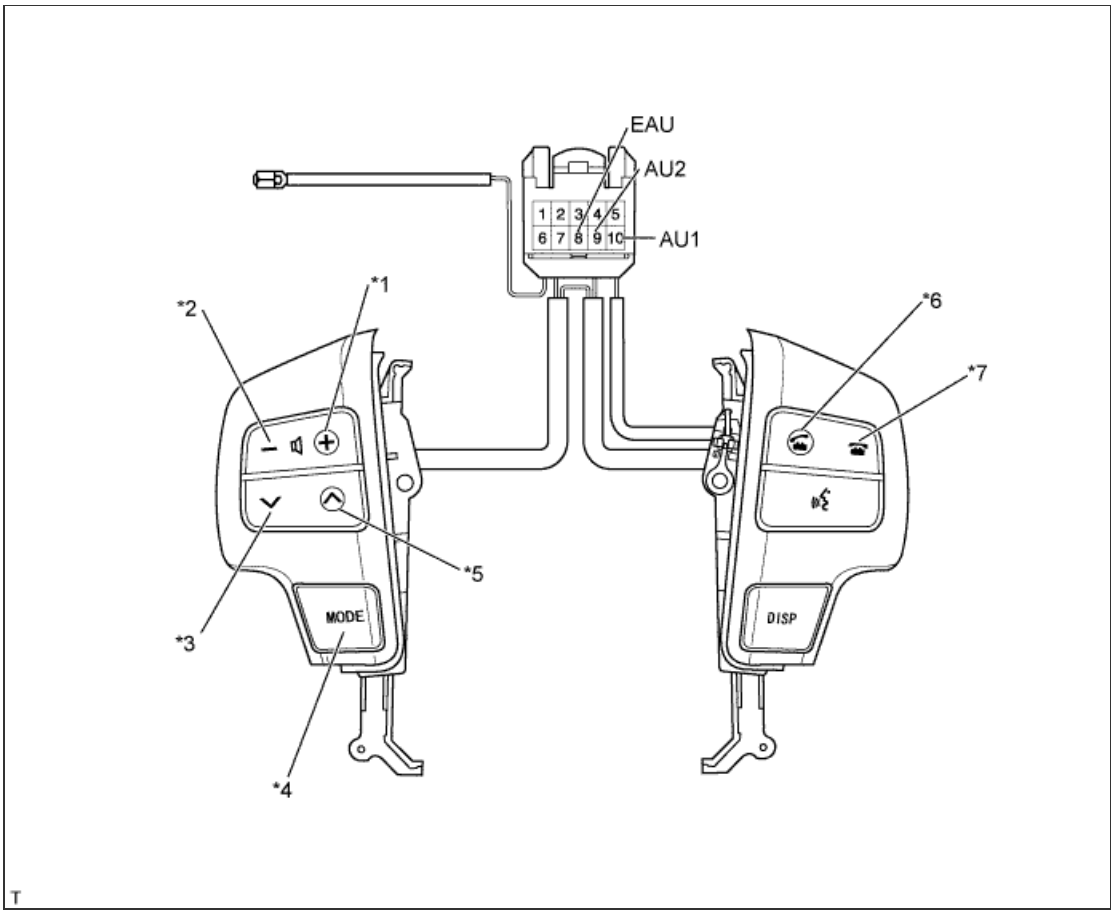
The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the SRS (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

OK

3.INSPECT STEERING PAD SWITCH ASSEMBLY

a. Disconnect the z36 switch connector.



Text in Illustration

*1	Volume+	*2	Volume-
*3	Seek-	*4	MODE
*5	Seek+	*6	Off Hook
*7	On Hook	-	-

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
	No switch is pushed	95 to 105 kΩ
	Seek+ switch pushed	Below 2.5 Ω
	Seek- switch	

10 (AU1) - 8 (EAU)	pushed	312 to 345 Ω
	Volume+ switch pushed	950 to 1050 Ω
	Volume- switch pushed	2954 to 3265 Ω
9 (AU2) - 8 (EAU)	No switch is pushed	95 to 105 kΩ
	MODE switch pushed	Below 2.5 Ω
	On hook switch pushed	312 to 345 Ω
	Off hook switch pushed	950 to 1050 Ω
	Voice switch pushed	2954 to 3265 Ω

NG → REPLACE STEERING PAD SWITCH ASSEMBLY (Click here)

OK

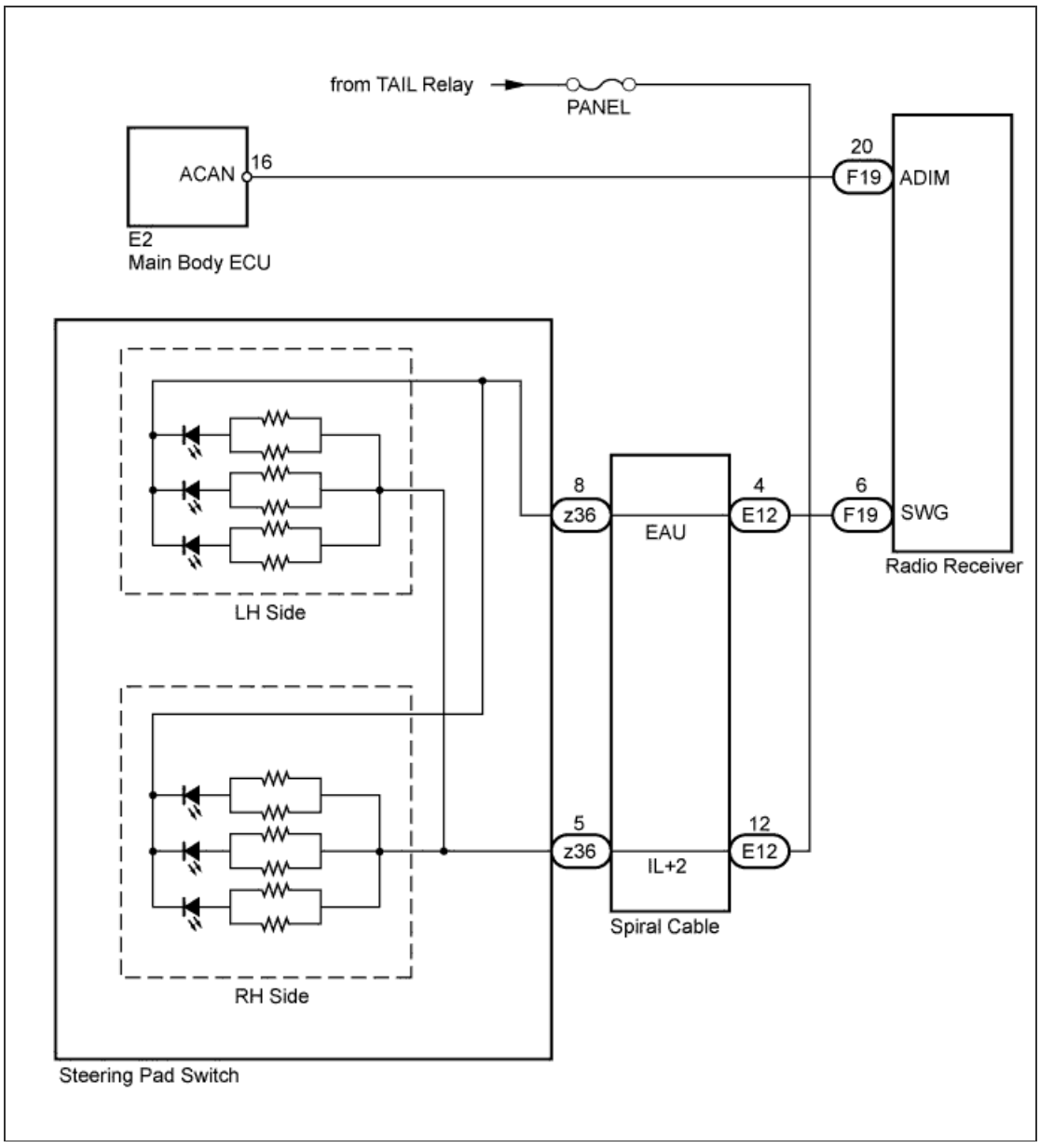
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

Power is supplied to the 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).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

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
No illumination comes on for radio receiver, multi-display, glove box light, front seat memory switch, cigarette lighter, etc.	C

B	Go to step 6
C	GO TO LIGHTING SYSTEM (Click here)

A

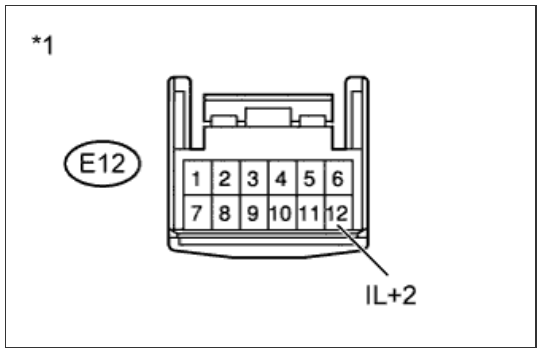
2.CHECK HARNESS AND CONNECTOR (BATTERY - SPIRAL CABLE)

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



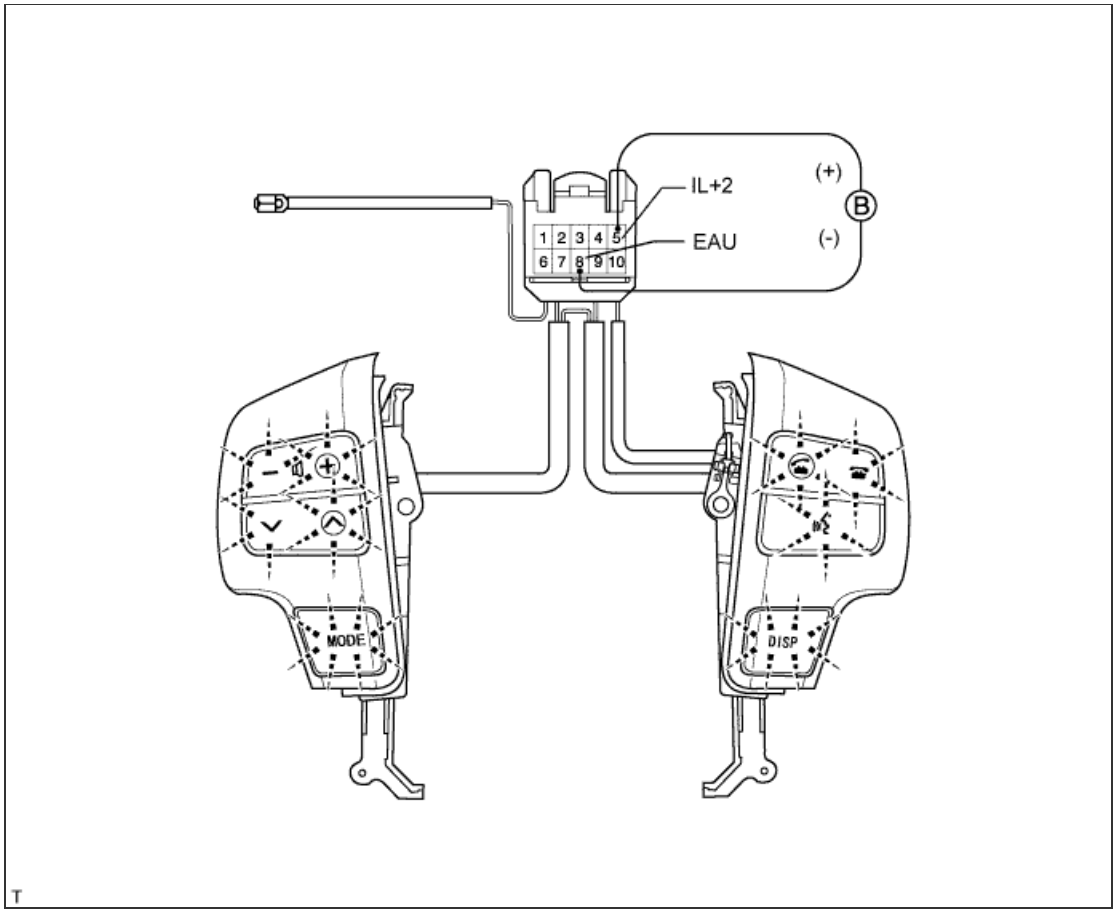
Text in Illustration

*1	Front view of wire harness connector (to Spiral Cable)

NG	REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT STEERING PAD SWITCH ASSEMBLY (STEERING PAD SIDE)



a. Disconnect the z36 switch connector.

b. Apply battery voltage to the terminals of the connector, and check the LED illumination condition.

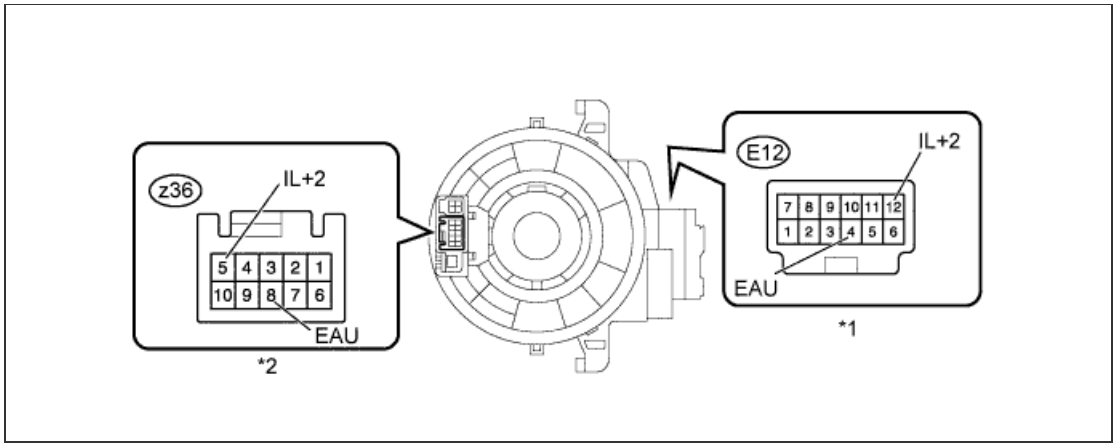
OK

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 5 (IL+2) Battery negative (-) → Terminal 8 (EAU)	Light illuminates

NG → REPLACE STEERING PAD SWITCH ASSEMBLY (Click here)

OK

4.INSPECT SPIRAL CABLE SUB-ASSEMBLE



Text in Illustration

*1	Vehicle Side	*2	Steering Pad Switch Side

a. Remove the spiral cable (Click here).

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
E12-12 (IL+2) - z36-5 (IL+2)	Spiral cable is turned 2.5 rotations counterclockwise	Below 1 Ω
	Spiral cable is centered	
	Spiral cable is turned 2.5 rotations clockwise	
E12-4 (EAU) - z36-8 (EAU)	Spiral cable is turned 2.5 rotations counterclockwise	Below 1 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

5.CHECK HARNESS AND CONNECTOR (SPIRAL CABLE - RADIO RECEIVER)

a. Disconnect the F19 radio receiver connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F19-6 (SWG) - E12-4 (EAU)	Always	Below 1 Ω
F19-6 (SWG) - 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)

6.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - MAIN BODY ECU)

a. Disconnect the F19 receiver connector.

b. Disconnect the E2 main body ECU connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F19-20 (ADIM) - E2-16 (ACAN)	Always	Below 1 Ω
F19-20 (ADIM) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

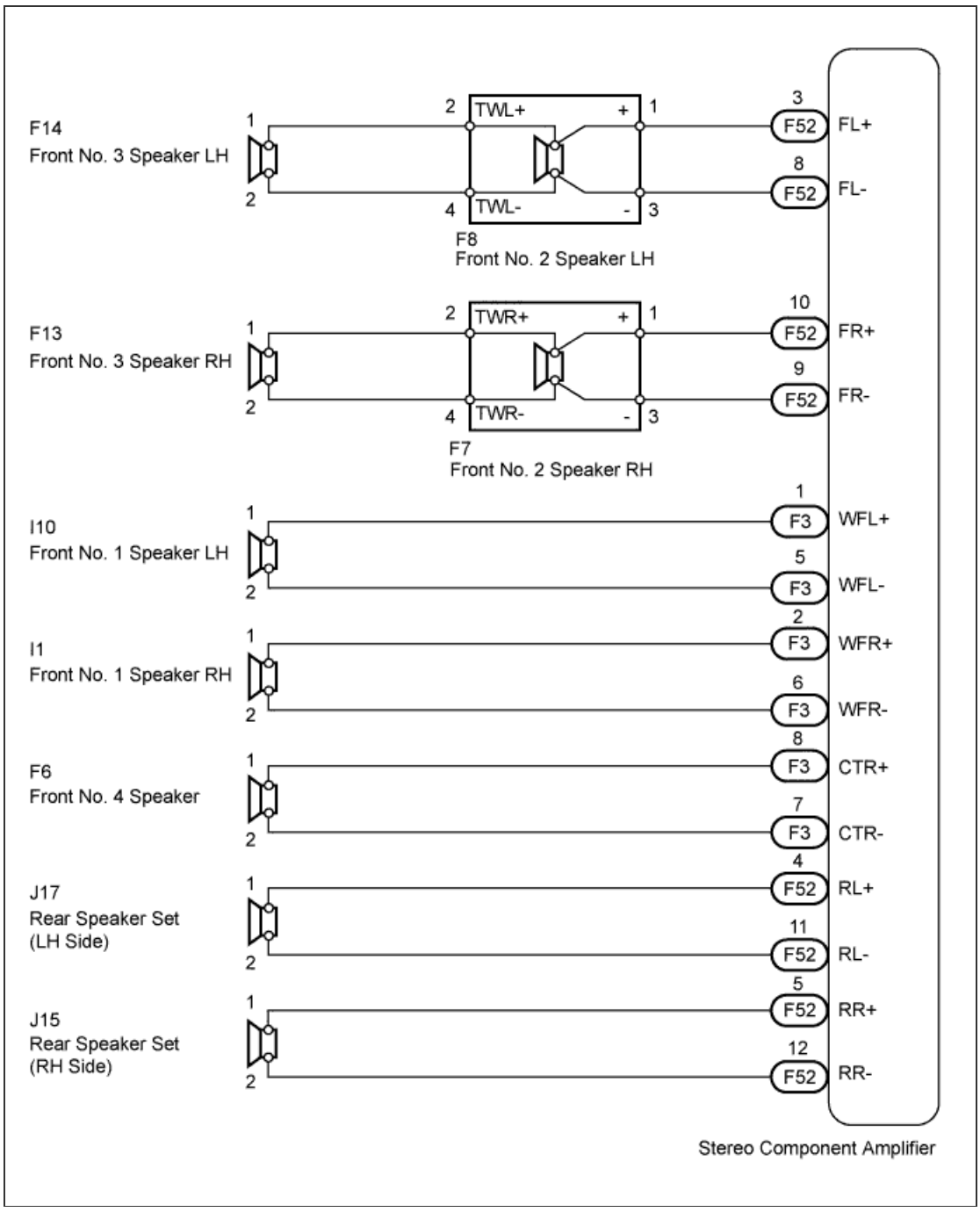
REPLACE RADIO RECEIVER ASSEMBLY (Click here)

for Preparation Click here

DESCRIPTION

The stereo component amplifier sends sound signals to the speakers.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.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 4

C → Go to step 6

D → Go to step 8

E → Go to step 10

A

2.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 speaker connector.

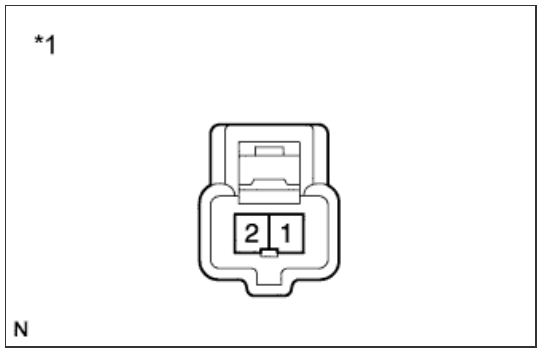
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	6 Ω

Text in Illustration

*1	Component without harness connected (Front No. 4 Speaker)



NG → REPLACE FRONT NO. 4 SPEAKER ASSEMBLY (Click here)

OK

3.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

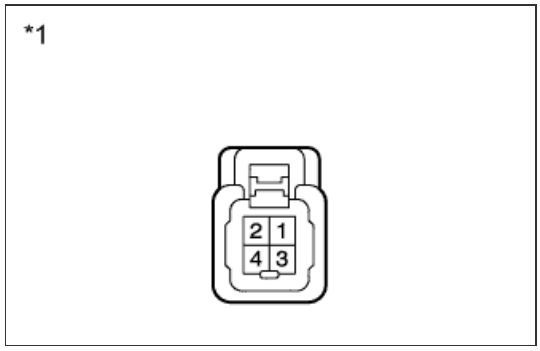
OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

4.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)

NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

5.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 2 SPEAKER)

a. Disconnect the F52 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
F52-3 (FL+) - F8-1 (+)	Always	Below 1 Ω
F52-8 (FL-) - F8-3 (-)	Always	Below 1 Ω
F52-3 (FL+) - Body ground	Always	10 kΩ or higher
F52-8 (FL-) - Body ground	Always	10 kΩ or higher

for RH:

Tester Connection	Condition	Specified Condition
F52-10 (FR+) - F7-1 (+)	Always	Below 1 Ω
F52-9 (FR-) - F7-3 (-)	Always	Below 1 Ω
F52-10 (FR+) - Body ground	Always	10 kΩ or higher
F52-9 (FR-) - 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. 1 SPEAKER ASSEMBLY

a. Disconnect the I10 and I1 speaker connectors.

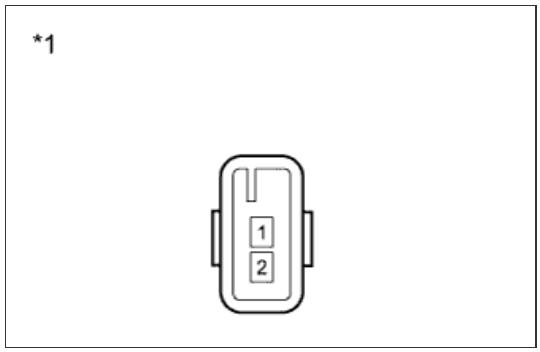
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	3 Ω

Text in Illustration

*1	Component without harness connected (Front No. 1 Speaker)



NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 1 SPEAKER)

a. Disconnect the I10 and I1 speaker connectors.

b. Disconnect the F3 amplifier connector.

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)

8.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY

a. Disconnect the F14 and F13 speaker connectors.

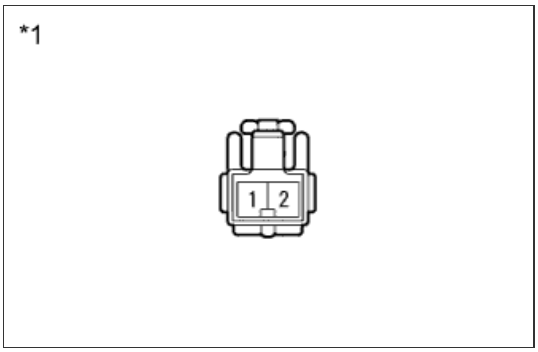
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	4 Ω

Text in Illustration

*1	Component without harness connected (Front No. 3 Speaker)



NG → REPLACE FRONT NO. 3 SPEAKER ASSEMBLY (Click here)

OK

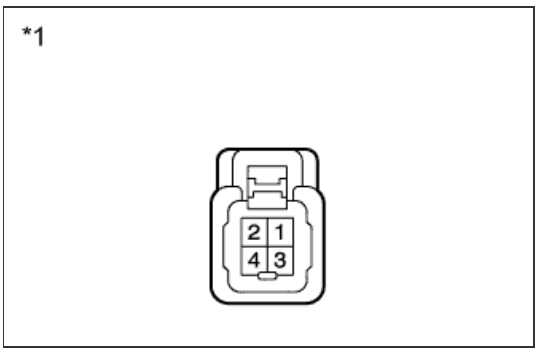
9.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

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)

NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

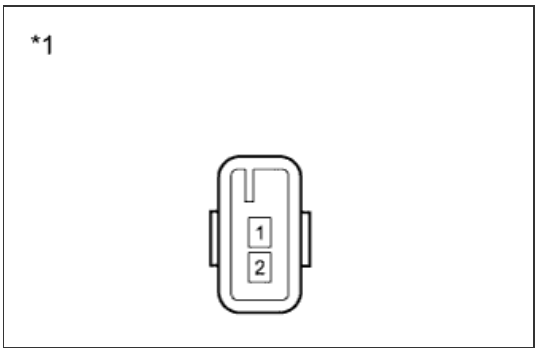
10.INSPECT REAR SPEAKER SET

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

11.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR SPEAKER SET)

a. Disconnect the F52 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
F52-4 (RL+) - J17-1	Always	Below 1 Ω
F52-11 (RL-) - J17-2	Always	Below 1 Ω
F52-4 (RL+) - Body ground	Always	10 kΩ or higher
F52-11 (RL-) - Body ground	Always	10 kΩ or higher

for RH:

Tester Connection	Condition	Specified Condition
F52-5 (RR+) - J15-1	Always	Below 1 Ω
F52-12 (RR-) - J15-2	Always	Below 1 Ω
F52-5 (RR+) - Body ground	Always	10 kΩ or higher
F52-12 (RR-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

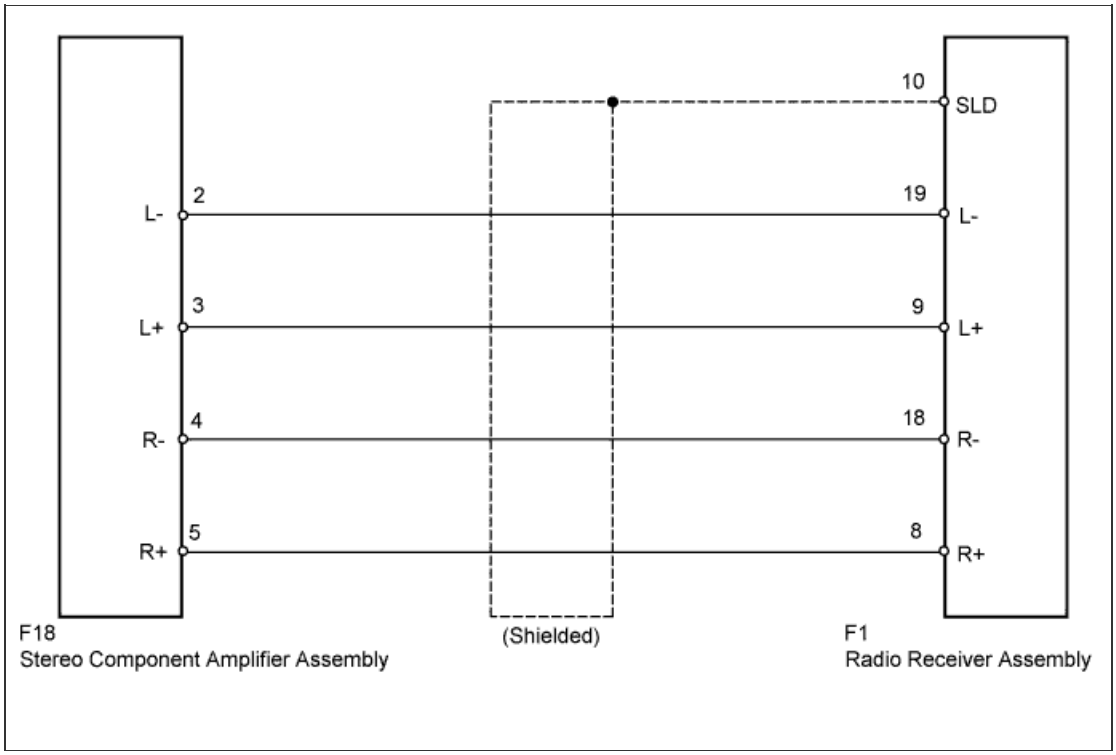
REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

for Preparation Click here

DESCRIPTION

The radio receiver assembly sends sounds 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 or speakers.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY- STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the F1 radio receiver assembly and F18 stereo component amplifier assembly connectors.

b. 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-)	Always	Below 1 Ω
F1-8 (R+) - F18-5 (R+)	Always	Below 1 Ω
F1-18 (R-) - F18-4 (R-)	Always	Below 1 Ω
F1-9 (L+) - Body ground	Always	10 kΩ or higher
F1-19 (L-) - Body ground	Always	10 kΩ or higher
F1-8 (R+) - Body ground	Always	10 kΩ or higher
F1-18 (R-) - Body ground	Always	10 kΩ or higher
F1-10 (SLD) - Body		

ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

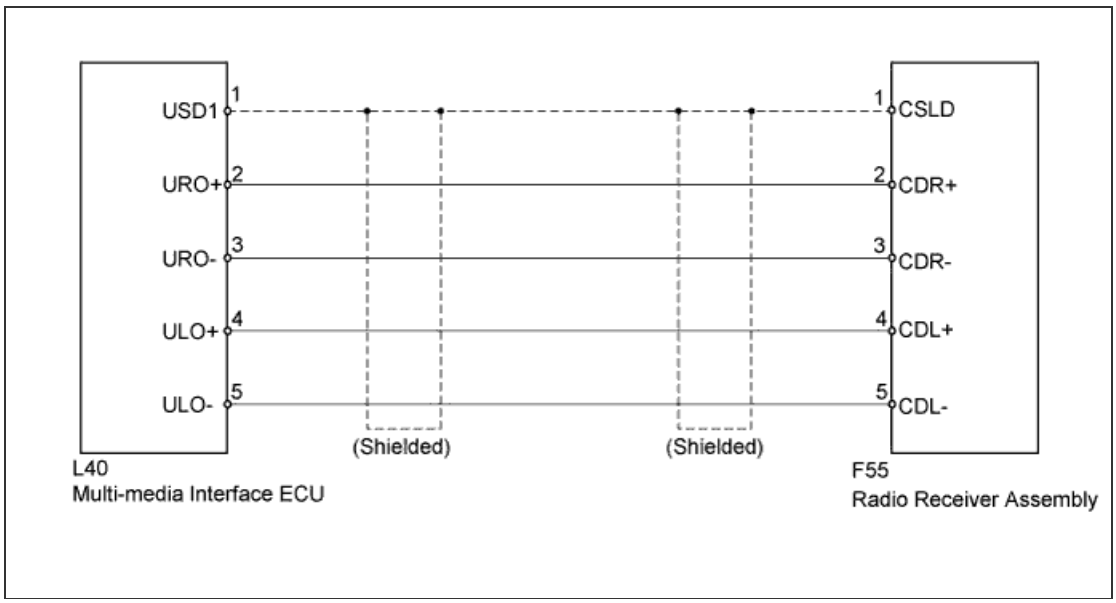
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

The multi-media interface ECU sends sound signals to the radio receiver assembly 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 or speakers.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - MULTI-MEDIA INTERFACE ECU)

a. Disconnect the F55 radio receiver assembly and L40 multi-media interface ECU connectors.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L40-1 (USD1) - F55-1 (CSLD)	Always	Below 1 Ω
L40-2 (URO+) - F55-2 (CDR+)	Always	Below 1 Ω
L40-3 (URO-) - F55-3 (CDR-)	Always	Below 1 Ω
L40-4 (ULO+) - F55-4 (CDL+)	Always	Below 1 Ω
L40-5 (ULO-) - F55-5 (CDL-)	Always	Below 1 Ω
L40-1 (USD1) - Body ground	Always	10 kΩ or higher
L40-2 (URO+) - Body ground	Always	10 kΩ or higher
L40-3 (URO-) - Body ground	Always	10 kΩ or higher
L40-4 (ULO+) - Body ground	Always	10 kΩ or higher
L40-5 (ULO-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

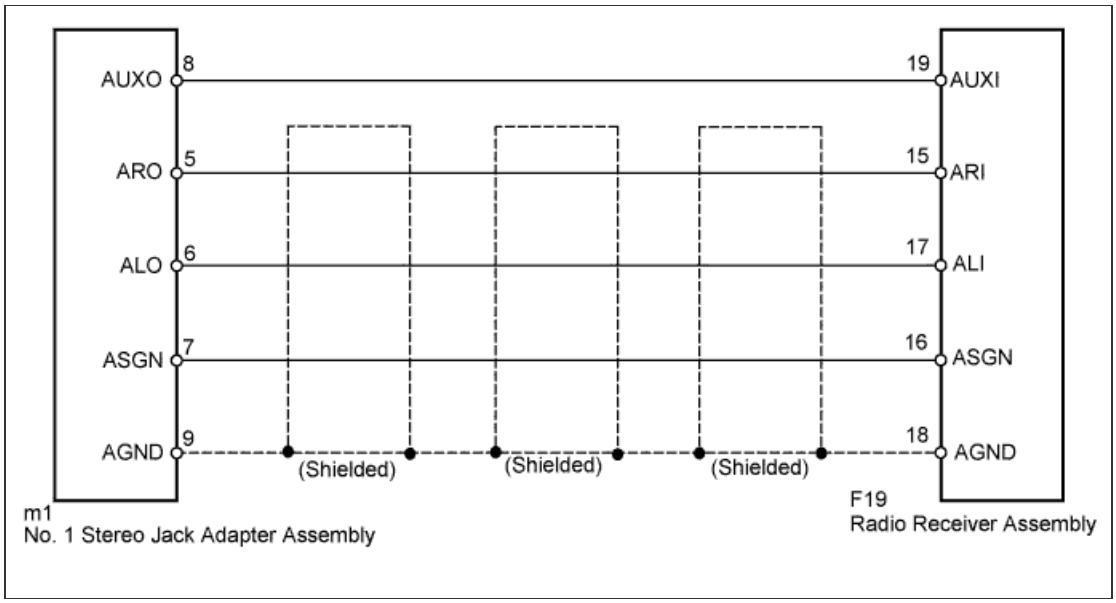
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

The No. 1 stereo jack adapter assembly sends sound signal from an external device 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 m1 No. 1 stereo jack adapter assembly and F19 radio receiver assembly connectors.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
m1-8 (AUXO) - F19-19 (AUXI)	Always	Below 1 Ω
m1-7 (ASGN) - F19-16 (ASGN)	Always	Below 1 Ω
m1-5 (ARO) - F19-15 (ARI)	Always	Below 1 Ω
m1-6 (ALO) - F19-17 (ALI)	Always	Below 1 Ω
m1-9 (AGND) - F19-18 (AGND)	Always	Below 1 Ω
m1-8 (AUXO) - Body ground	Always	10 kΩ or higher
m1-7 (ASGN) - Body ground	Always	10 kΩ or higher
m1-5 (ARO) - Body ground	Always	10 kΩ or higher
m1-6 (ALO) - Body ground	Always	10 kΩ or higher
m1-9 (AGND) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

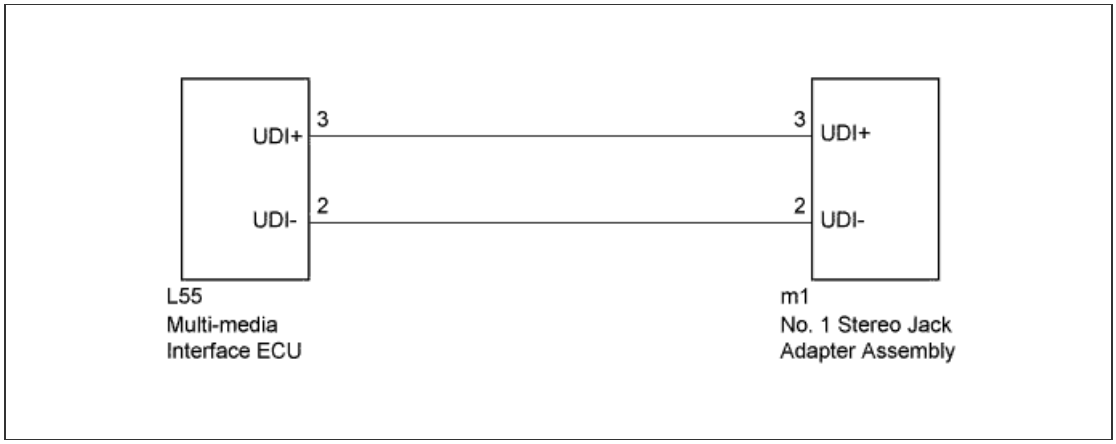
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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)

a. Disconnect the L55 multi-media interface ECU connector.

b. Disconnect the m1 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
m1-3 (UDI+) - L55-3 (UDI+)	Always	Below 1 Ω
m1-2 (UDI-) - L55-2 (UDI-)	Always	Below 1 Ω
m1-3 (UDI+) - Body ground	Always	10 kΩ or higher
m1-2 (UDI-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

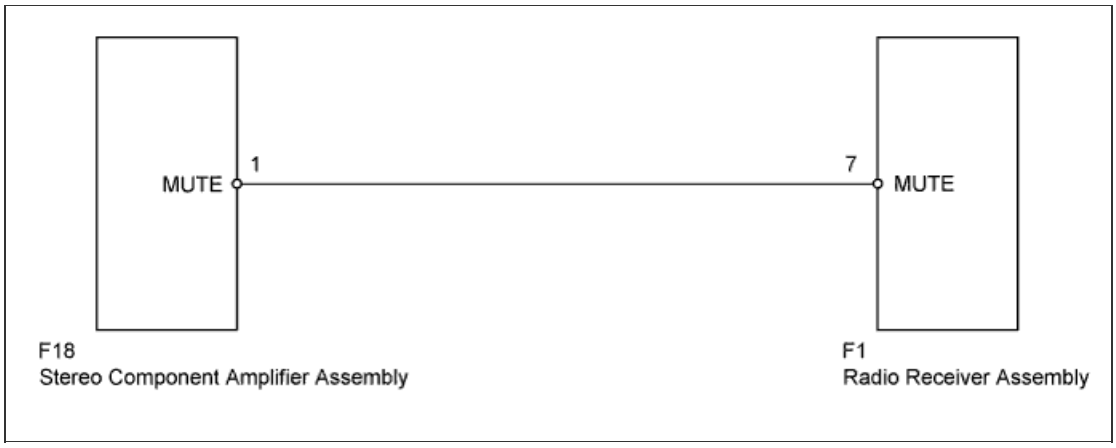
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This circuit sends a signal to the stereo component amplifier assembly to mute noise. Because of that, the noise produced by changing the sound source ceases.
If there is an open in the circuit, noise can be heard from the speakers when changing the sound source.
If there is a short in the circuit, even though the stereo component amplifier assembly is functioning, no sound, or only an extremely faint sound, can be heard.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.INSPECT STEREO COMPONENT AMPLIFIER ASSEMBLY

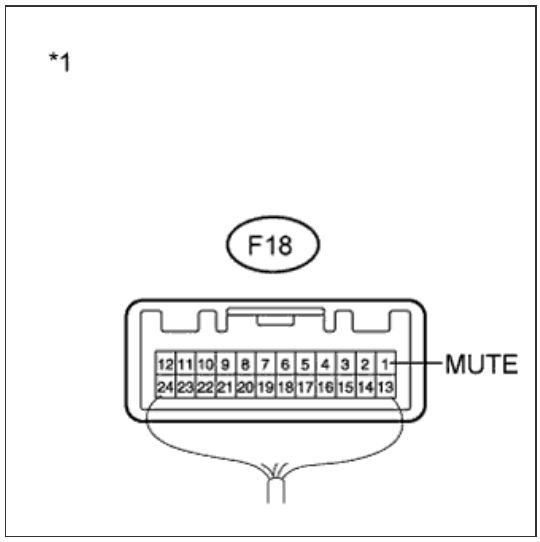
a. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F18-1 (MUTE) - Body ground	Engine switch on (ACC), audio system is playing → Changing sources	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 (RADIO RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER)

a. Disconnect the F1 radio receiver assembly and F18 stereo component amplifier assembly connectors.

b. 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

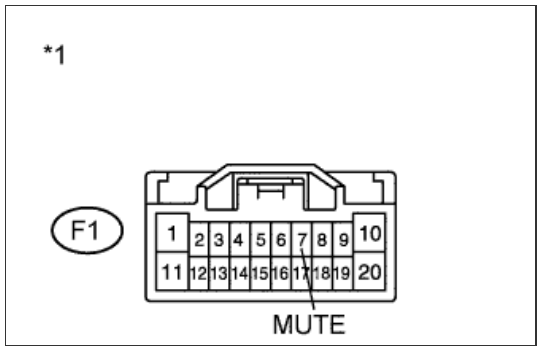
3.INSPECT STEREO COMPONENT AMPLIFIER ASSEMBLY (OUTPUT SIGNAL)

a. Reconnect the F18 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
F1-7 (MUTE) - Body ground	Engine switch on (ACC), audio system is playing	Above 2.5 V



Text in Illustration

*1	Front view of wire harness connector (to Radio Receiver Assembly)

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

for Preparation Click here

DESCRIPTION

The multi-media interface ECU sends a mute signal to the radio receiver assembly.
The radio receiver assembly controls the volume according to the mute signal from the multi-media interface ECU.
The mute signal is sent to reduce noise and popping sounds generated when switching modes.
If there is an open in the circuit, noise can be heard from the speakers when changing the sound source.
If there is a short in the circuit, even though the radio receiver assembly is functioning, no sound, or only an extremely faint sound, can be heard.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.INSPECT RADIO RECEIVER ASSEMBLY

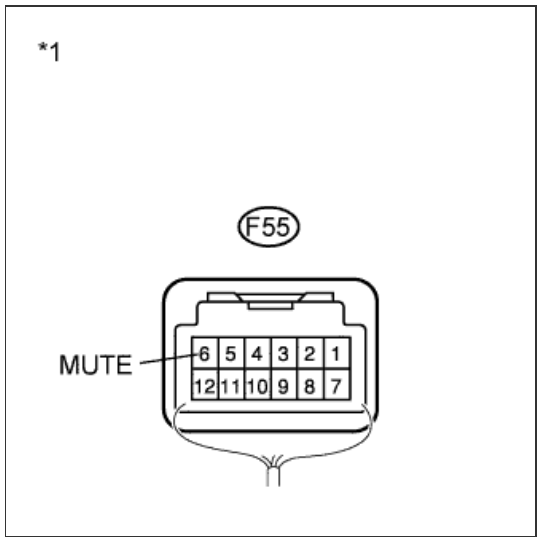
a. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F55-6 (MUTE) - Body ground	Engine switch on (ACC), USB audio system is playing → Mode is changing	Above 2.5 V → Below 0.5 V

Text in Illustration

*1	Component with harness connected (Radio 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 (RADIO RECEIVER ASSEMBLY - MULTI-MEDIA INTERFACE ECU)

a. Disconnect the F55 radio receiver assembly and L40 multi-media interface ECU connectors.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F55-6 (MUTE) - L40-6 (MUTI)	Always	Below 1 Ω
F55-6 (MUTE) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT MULTI-MEDIA INTERFACE ECU

a. Reconnect the L40 multi-media interface ECU connector.

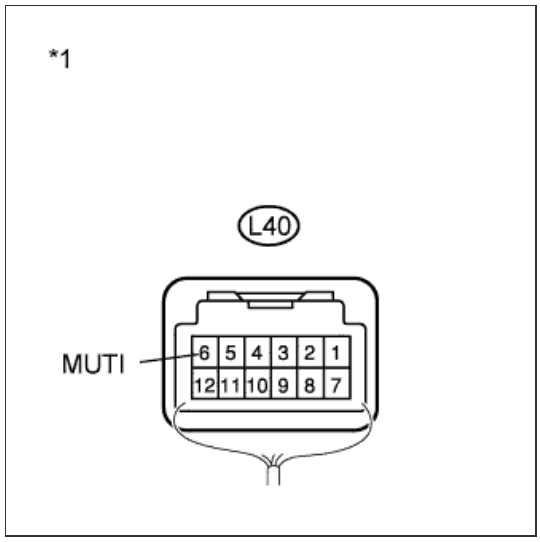
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L40-6 (MUTI) - Body ground	Engine switch on (ACC)	Above 2.5 V

Text in Illustration

*1	Component with harness connected (Multi-media Interface ECU)



NG → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

for Preparation Click here

DESCRIPTION

Each audio system component connected to the AVC-LAN (communication bus) transfers the 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 audio system will not function normally as communication is stopped.

INSPECTION PROCEDURE

1.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the F1 and F55 radio receiver assembly connectors.

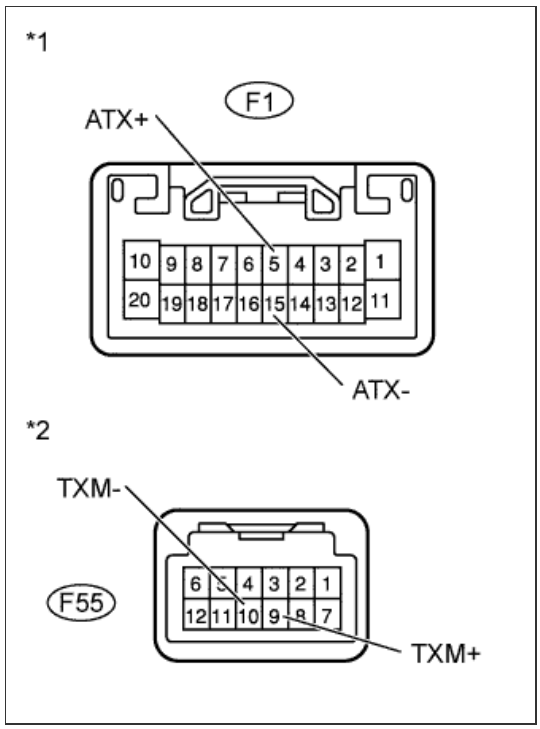
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F1-5 (ATX+) - F1-15 (ATX-)	Always	60 to 80 Ω
F55-9 (TXM+) - F55-10 (TXM-)	Always	60 to 80 Ω

Text in Illustration

*1	Component without harness connected (Radio Receiver Assembly)
*2	Component without harness connected (Radio Receiver Assembly)



NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

2.CHECK HARNESS AND CONNECTOR (AVC-LAN CIRCUIT)

HINT:

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

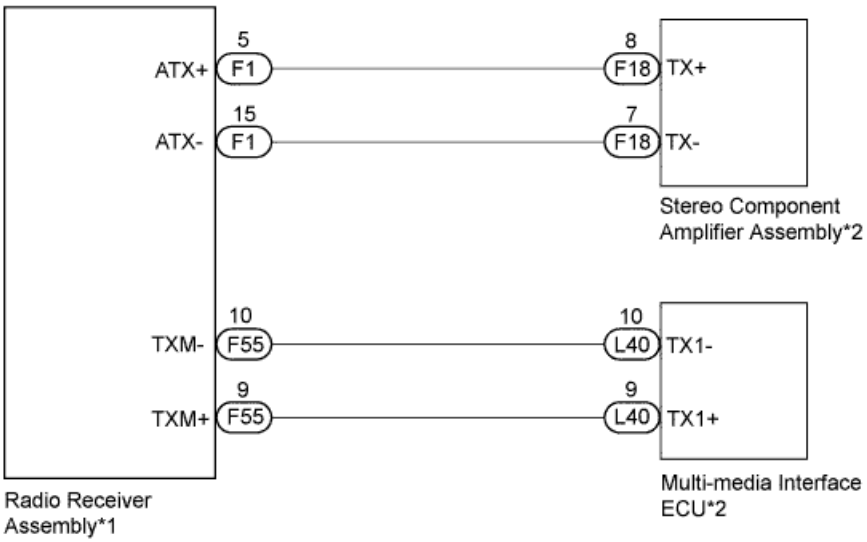
a. Referring to the following AVC-LAN wiring diagram, check all AVC-LAN circuits.

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.

AVC-LAN WIRING DIAGRAM:



*1: Master Unit

*2: Slave Unit

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

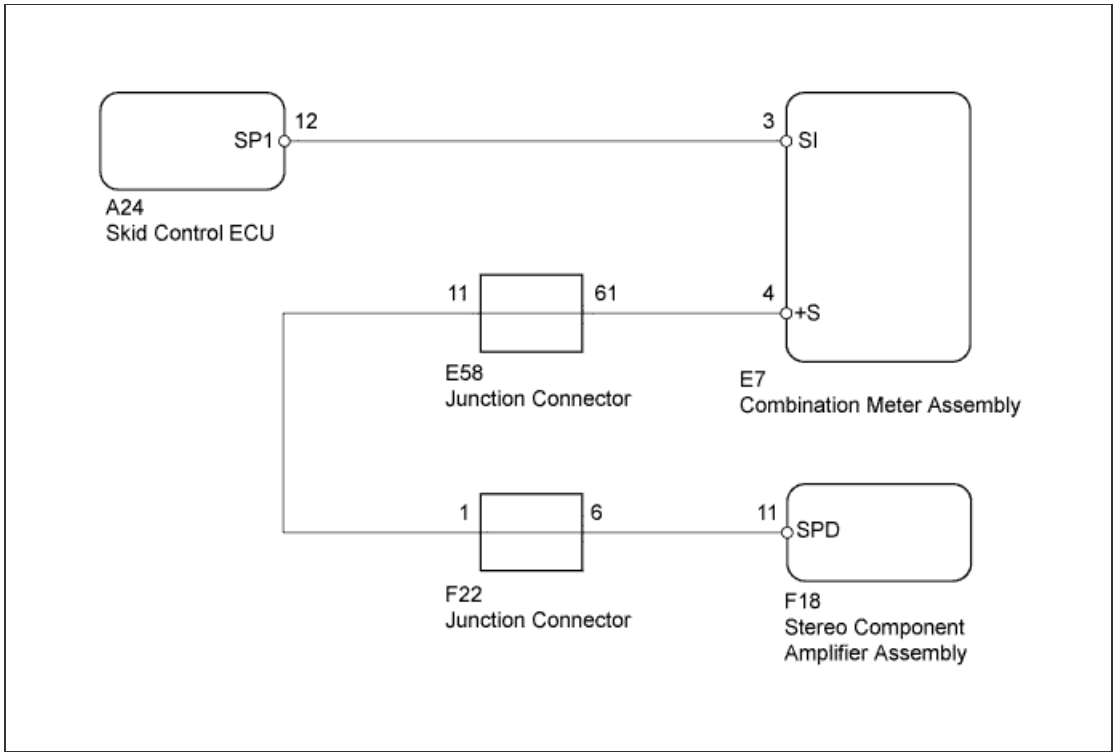
DESCRIPTION

The 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 following diagram will not operate normally.**

WIRING DIAGRAM



INSPECTION PROCEDURE

1.INSPECT COMBINATION METER ASSEMBLY (OUTPUT WAVEFORM)

a. Check the output waveform.

i. Remove the combination meter assembly with the connector still connected.

ii. Connect an oscilloscope to terminal E7-4 (+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	E7-4 (+S) - Body ground

Tool setting	5 V/DIV., 20 ms./DIV.
Vehicle condition	Driving at approx. 20 km/h (12 mph)

OK:

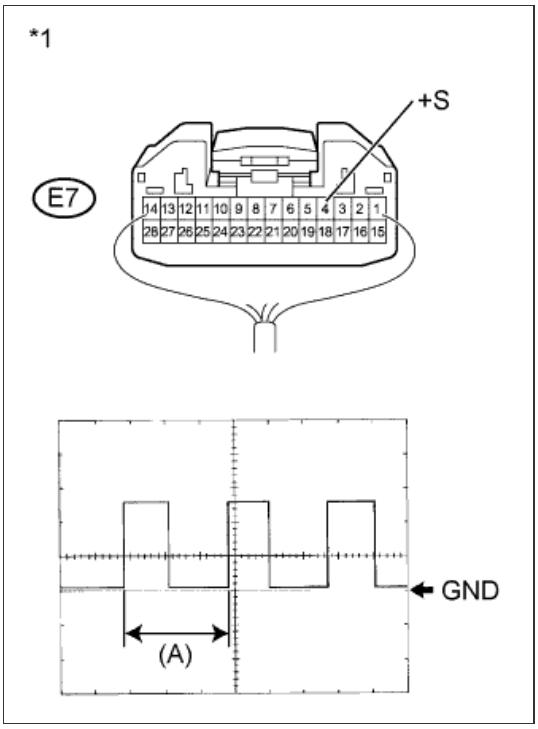
The waveform is displayed as shown in the illustration.

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	Component with harness connected (Combination Meter Assembly)



NG → GO TO METER / GAUGE SYSTEM (Click here)

OK

2.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - COMBINATION METER)

a. Disconnect the F18 stereo component amplifier assembly and E7 combination meter assembly connectors.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F18-11 (SPD) - E7-4 (+S)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

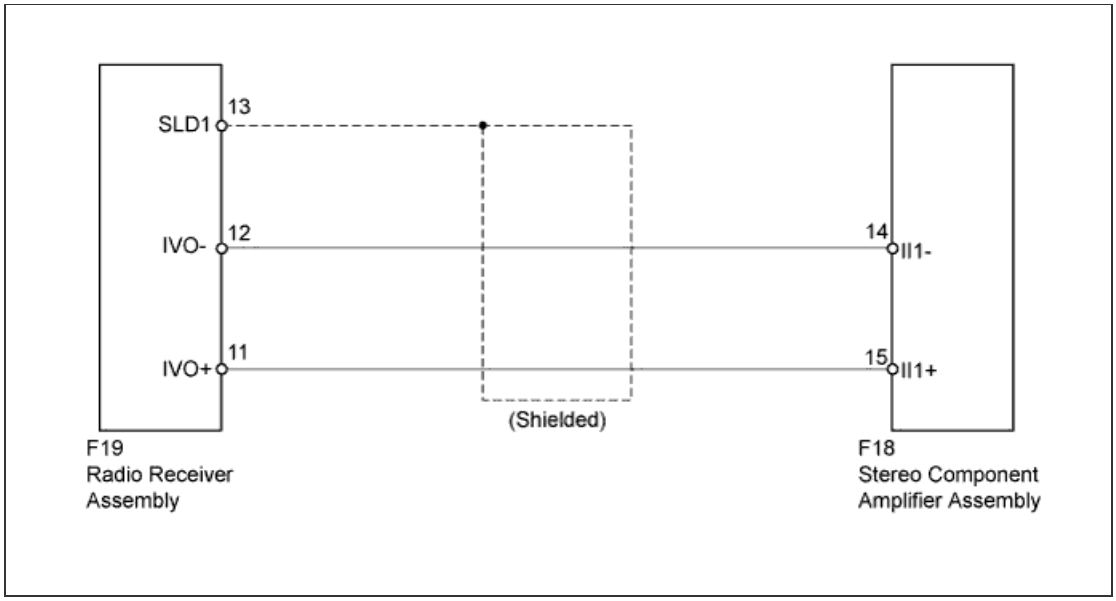
REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

for Preparation Click here

DESCRIPTION

This circuit is used when an incoming cellular phone voice in the "Bluetooth" handsfree system is received.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER)

a. Disconnect the F19 radio receiver assembly and F18 stereo component amplifier assembly connectors.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F19-11 (IVO+) - F18-15 (II1+)	Always	Below 1 Ω
F19-12 (IVO-) - F18-14 (II1-)	Always	Below 1 Ω
F19-11 (IVO+) - Body ground	Always	10 kΩ or higher
F19-12 (IVO-) - Body ground	Always	10 kΩ or higher
F19-13 (SLD1) - Body ground	Always	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

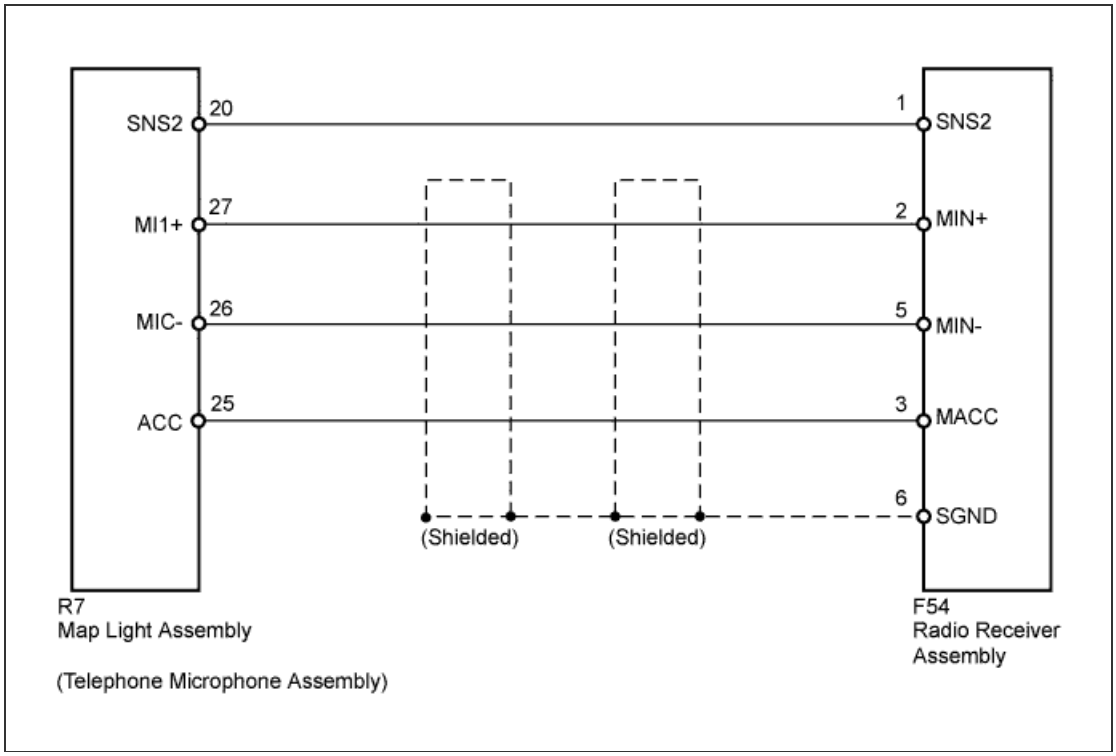
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This circuit sends the microphone signal from the map light assembly (telephone microphone assembly) to the radio receiver assembly.
It also supplies power source from the radio receiver assembly to the map light assembly (telephone microphone assembly).

WIRING DIAGRAM



INSPECTION PROCEDURE

1.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the F54 radio receiver assembly connector.

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

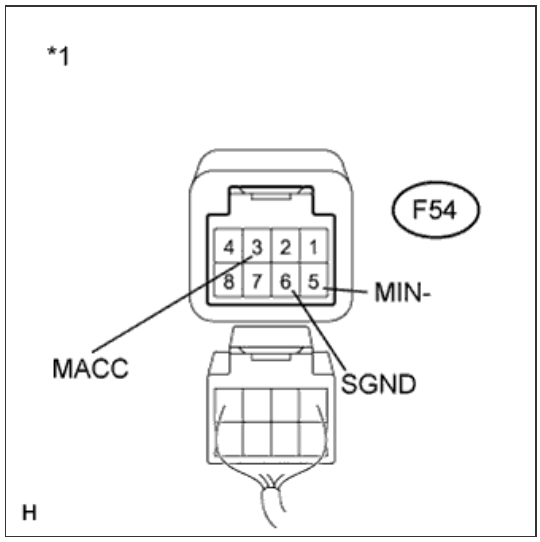
Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F54-3 (MACC) - Body ground	Engine switch on (IG)	4 to 6 V

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F54-6 (SGND) - Body ground	Always	Below 1 Ω
F54-5 (MIN-) - Body ground	Always	Below 1 Ω



Text in Illustration

*1	Component without harness connected (Radio Receiver Assembly)

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

2.CHECK HARNESS AND CONNECTOR (MAP LIGHT ASSEMBLY - RADIO RECEIVER ASSEMBLY)

a. Disconnect the R7 map light assembly and F54 radio receiver assembly connectors.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
R7-20 (SNS2) - F54-1 (SNS2)	Always	Below 1 Ω
R7-27 (MI1+) - F54-2 (MIN+)	Always	Below 1 Ω
R7-26 (MIC-) - F54-5 (MIN-)	Always	Below 1 Ω
R7-25 (ACC) - F54-3 (MACC)	Always	Below 1 Ω
R7-20 (SNS2) - Body ground	Always	10 kΩ or higher
R7-27 (MI1+) - Body ground	Always	10 kΩ or higher
R7-26 (MIC-) - Body ground	Always	10 kΩ or higher
R7-25 (ACC) - Body ground	Always	10 kΩ or higher
F54-6 (SGND) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT MAP LIGHT ASSEMBLY

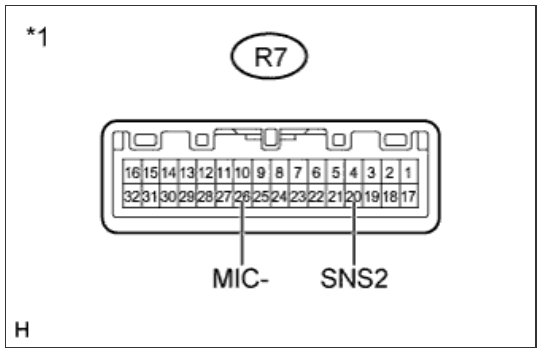
a. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
R7-20 (SNS2) - R7-26 (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

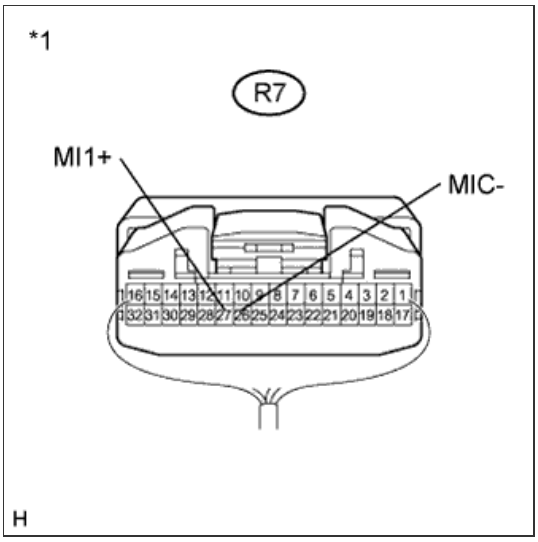
a. Reconnect the radio receiver assembly connector.

b. Reconnect the map light assembly connector.

c. Turn the engine switch on (ACC).

d. Connect an oscilloscope to terminals R7-27 (MI1+) and R7-26 (MIC-) of the map light assembly connector.

e. 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 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)

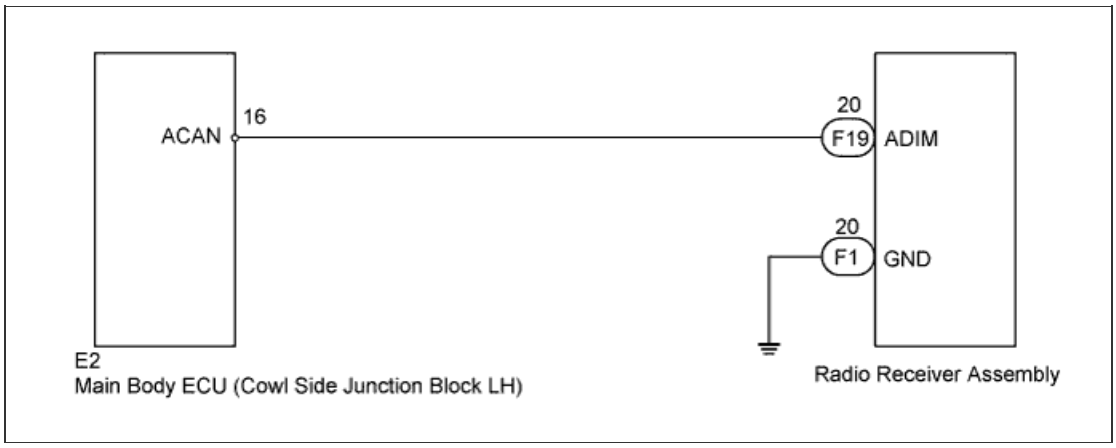
A → END

for Preparation Click here

DESCRIPTION

The radio receiver assembly uses this circuit to communicate with the main body ECU (cowl side junction block LH) via a direct line. The main body ECU (cowl side junction block LH) uses this circuit to send an auto dimmer signal to the radio receiver assembly. The main body ECU (cowl side junction block LH) detects the position of the light control switch according to the resistance. When the light control switch is set to the head/tail position, the resistance between the head/tail terminal and body ground is below 1 Ω. When the light control switch is set to the head/tail position, the main body ECU (cowl side junction block LH) sends an auto dimmer signal to the radio receiver assembly. When the radio receiver assembly receives an auto dimmer signal from the main body ECU (cowl side junction block LH), the radio receiver assembly causes instrument panel illumination to be dimmed.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.INSPECT MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)

a. Disconnect the F19 radio receiver assembly connector.

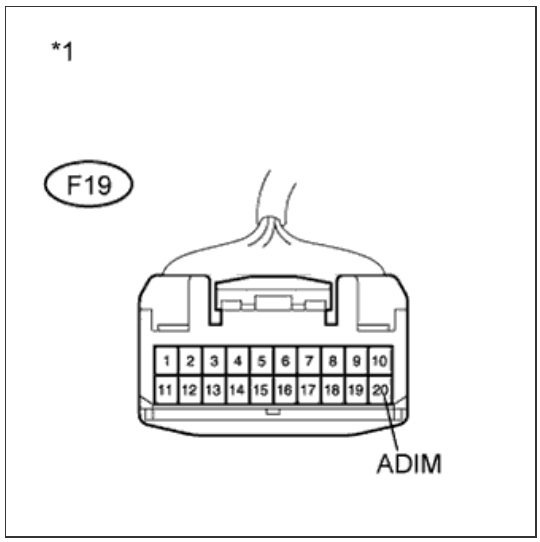
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F19-20 (ADIM) - Body ground	Engine switch on (IG), automatic light control sensor covered by hand, and light control switch tail or head position	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Radio Receiver Assembly)



NG → Go to step 3

OK

2.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the F1 radio receiver assembly connector.

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

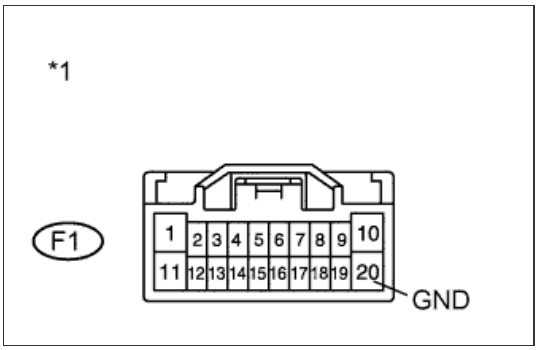
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F1-20 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*1	Front view of wire harness connector (to Radio Receiver Assembly)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

3.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - MAIN BODY ECU)

a. Disconnect the F19 radio receiver assembly and E2 main body ECU (cowl side junction block LH) connectors.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
E2-16 (ACAN) - F19-20 (ADIM)	Always	Below 1 Ω
F19-20 (ADIM) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

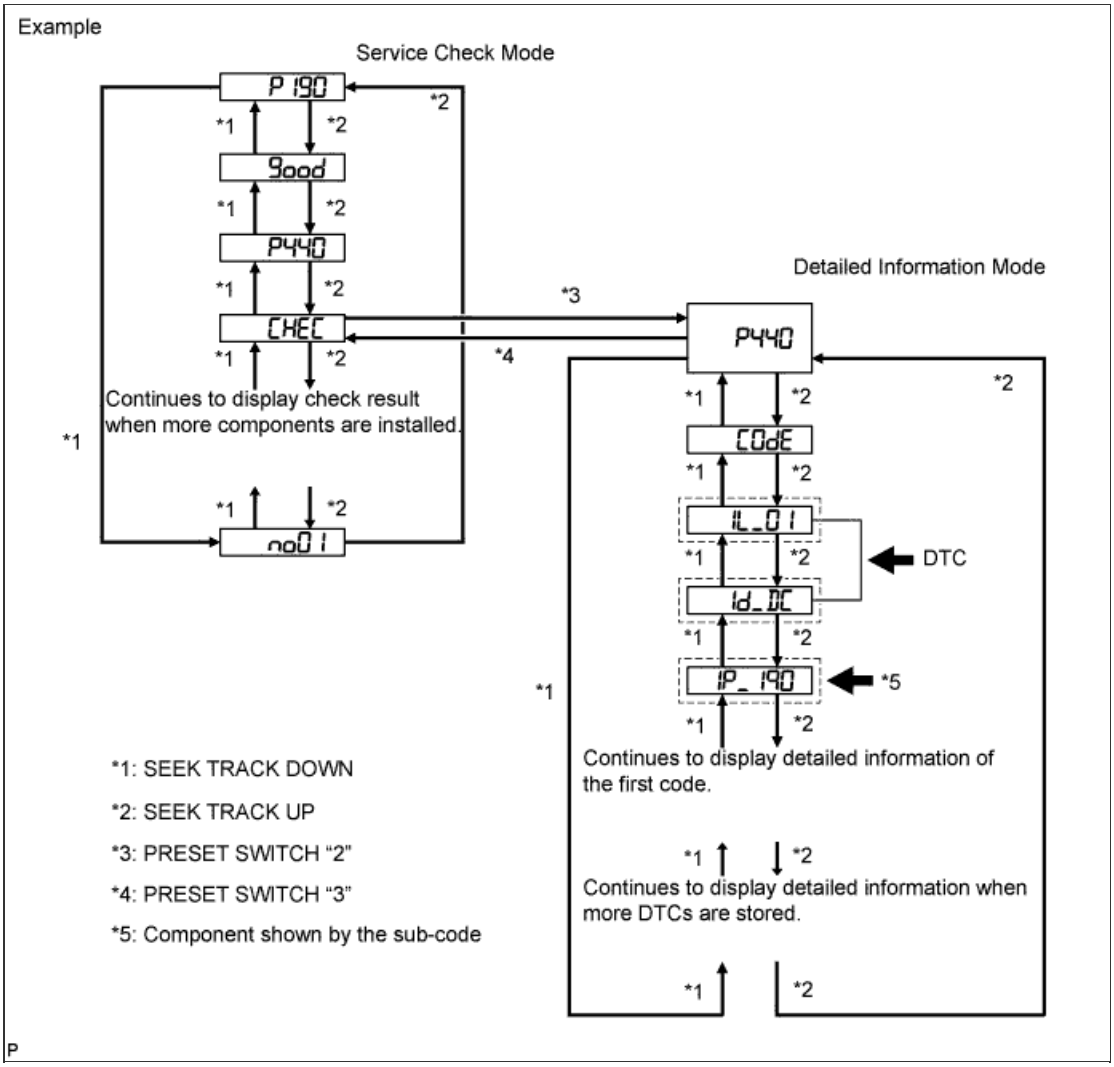
REPLACE MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)

for Preparation Click here

INSPECTION PROCEDURE

1.IDENTIFY COMPONENT SHOWN BY SUB-CODE

a. Enter diagnostic mode.



b. Press preset switch "2" to change the mode to "Detailed Information Mode".

c. Identify the component shown by the sub-code.

HINT:

- **"P190" set by the radio receiver assembly is shown in the preceding illustration as an example.**
- **For details of the DTC display, refer to DTC Check/Clear (Click here).**

NEXT

2.CHECK COMPONENT SHOWN BY SUB-CODE

a. Select the component shown by the sub-code.

Component Table

Component	Proceed to

Except radio receiver assembly	A
Radio receiver assembly (190)	B

B → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

A

3.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 assembly (440)	Stereo component amplifier power source circuit (Click here)
Multi-media interface ECU (388)	Multi-media interface ECU power source circuit (Click here)

NEXT

4.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the F1 and F55 radio receiver assembly connectors.

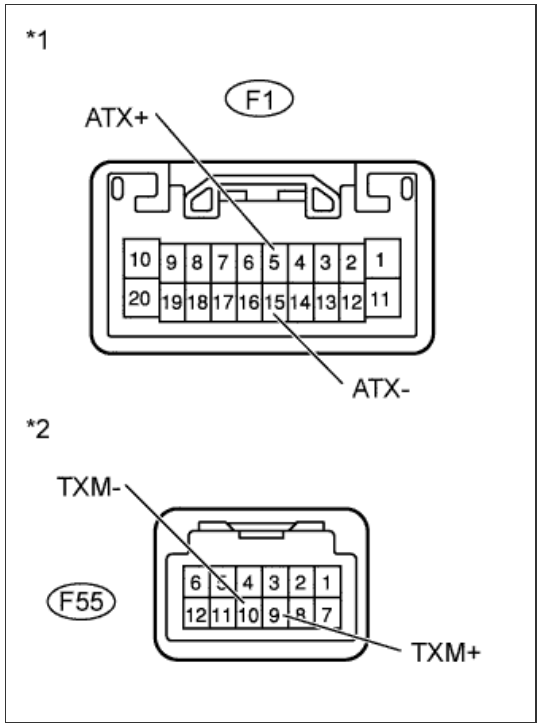
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F1-5 (ATX+) - F1-15 (ATX-)	Always	60 to 80 Ω
F55-9 (TXM+) - F55-10 (TXM-)	Always	60 to 80 Ω

Text in Illustration

*1	Component without harness connected (Radio Receiver Assembly)
*2	Component without harness connected (Radio Receiver Assembly)



NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

5.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - 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).**

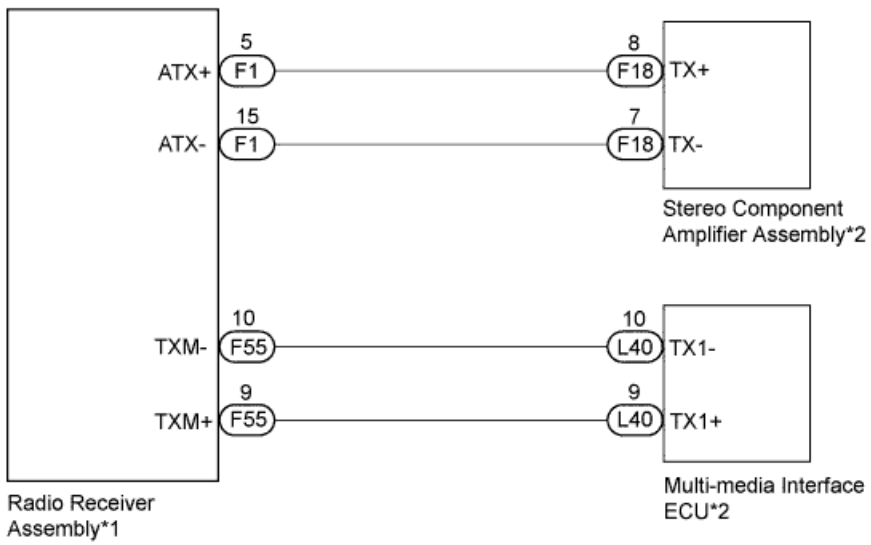
a. Referring to the following AVC-LAN wiring diagram, check the AVC-LAN circuit between the radio receiver assembly and component shown by the sub-code.

i. Disconnect all connectors between the radio receiver assembly and component shown by the sub-code.

ii. Check for an open or short in the AVC-LAN circuit between the radio receiver assembly and component shown by the sub-code.

OK:
There is no open or short circuit.

AVC-LAN WIRING DIAGRAM:



*1: Master Unit

*2: Slave Unit

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.REPLACE COMPONENT SHOWN BY SUB-CODE

a. Replace the component shown by the sub-code with a known good one and check if the same problem occurs again.

OK:
Malfunction disappears.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

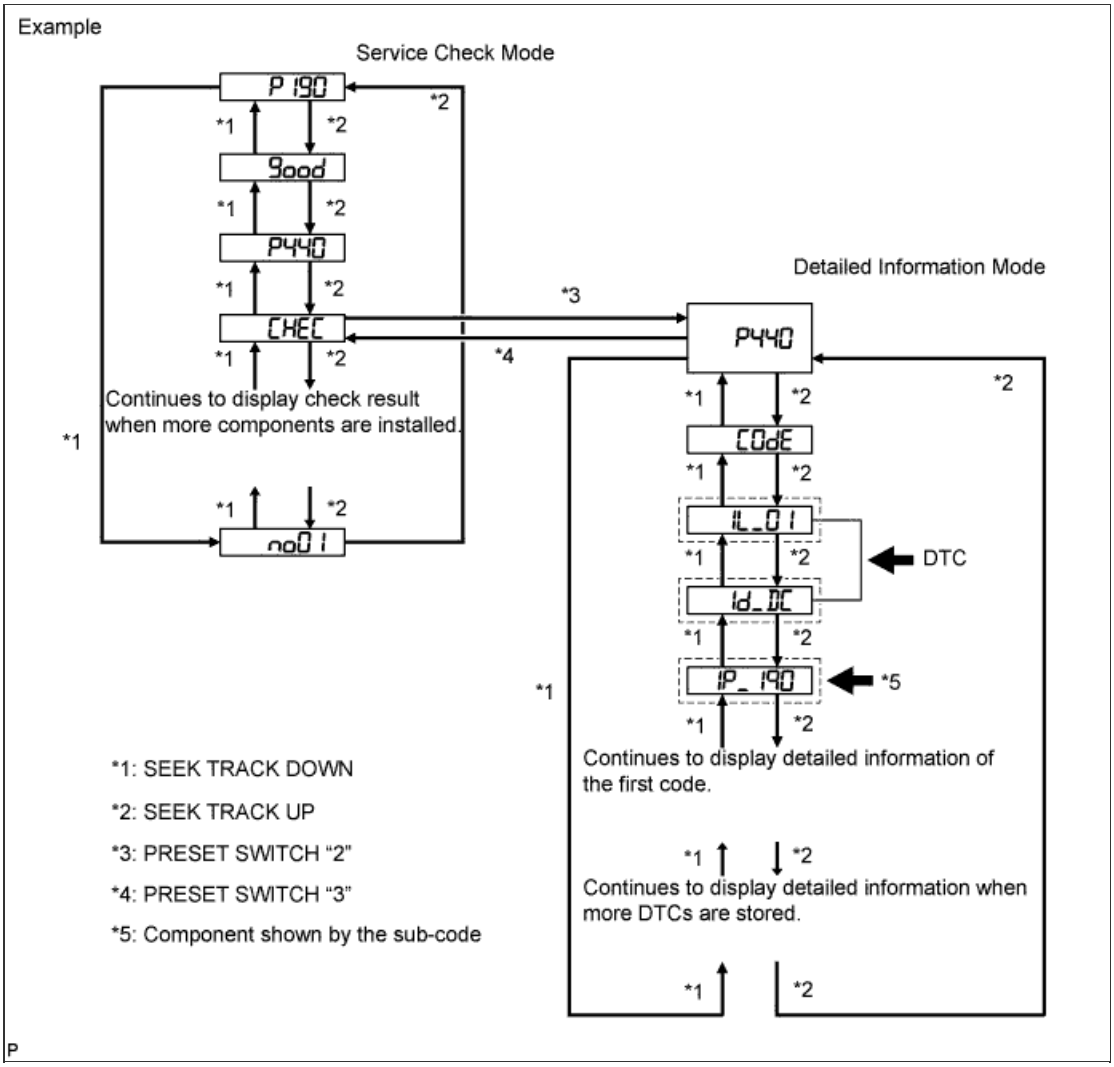
END

for Preparation Click here

INSPECTION PROCEDURE

1.IDENTIFY COMPONENT SHOWN BY SUB-CODE

a. Enter diagnostic mode.



b. Press preset switch "2" to change the mode to "Detailed Information Mode".

c. Identify the component shown by the sub-code.

HINT:

- **"P190" set by the radio receiver assembly is shown in the preceding illustration as an example.**
- **For details of the DTC display, refer to DTC Check/Clear (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 assembly (190)	Radio receiver power source circuit (Click here)
Multi-media interface ECU (388)	Multi-media interface ECU power source circuit (Click here)

NEXT

3.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the F1 and F55 radio receiver assembly connectors.

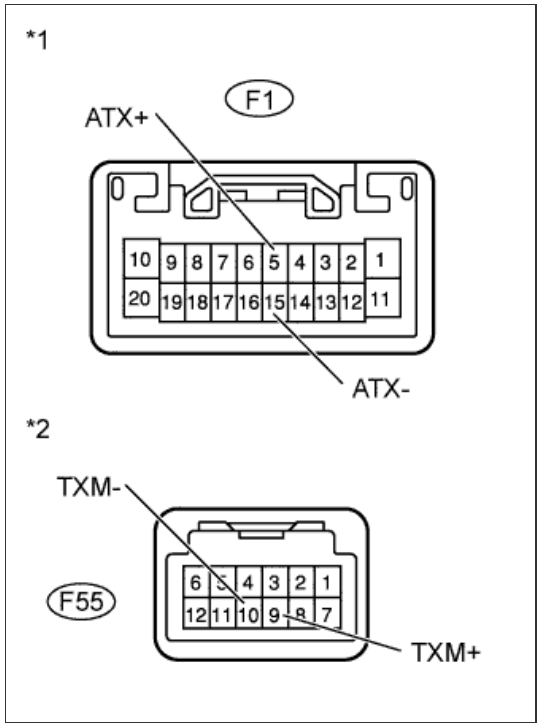
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F1-5 (ATX+) - F1-15 (ATX-)	Always	60 to 80 Ω
F55-9 (TXM+) - F55-10 (TXM-)	Always	60 to 80 Ω

Text in Illustration

*1	Component without harness connected (Radio Receiver Assembly)
*2	Component without harness connected (Radio Receiver Assembly)



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 following AVC-LAN wiring diagram, check the AVC-LAN circuit between the stereo component amplifier assembly and the component shown by the sub-code.

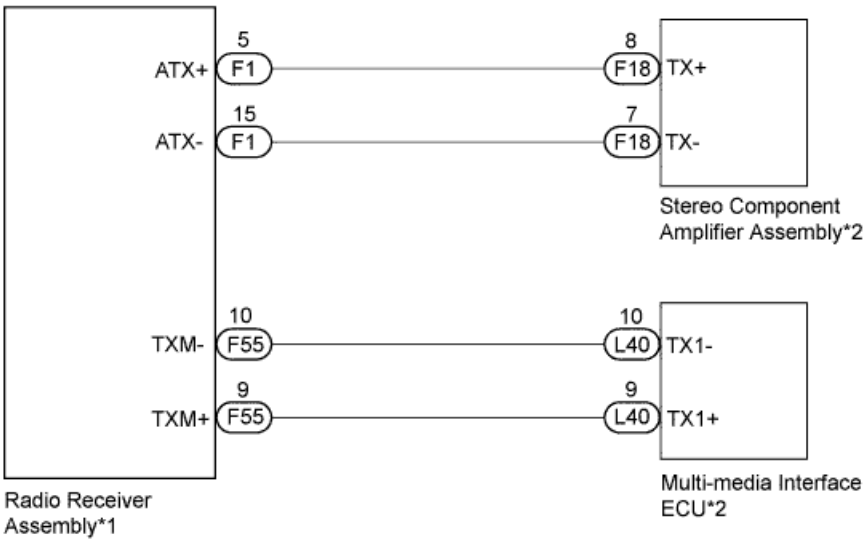
i. Disconnect all connectors between the stereo component amplifier assembly and component shown by the sub-code.

ii. Check for an open or short in the AVC-LAN circuit between the stereo component amplifier assembly and component shown by the sub-code.

OK:

There is no open or short circuit.

AVC-LAN WIRING DIAGRAM:



*1: Master Unit

*2: Slave Unit

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 known good one and check if the same problem occurs again.

OK:
Malfunction disappears.

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK

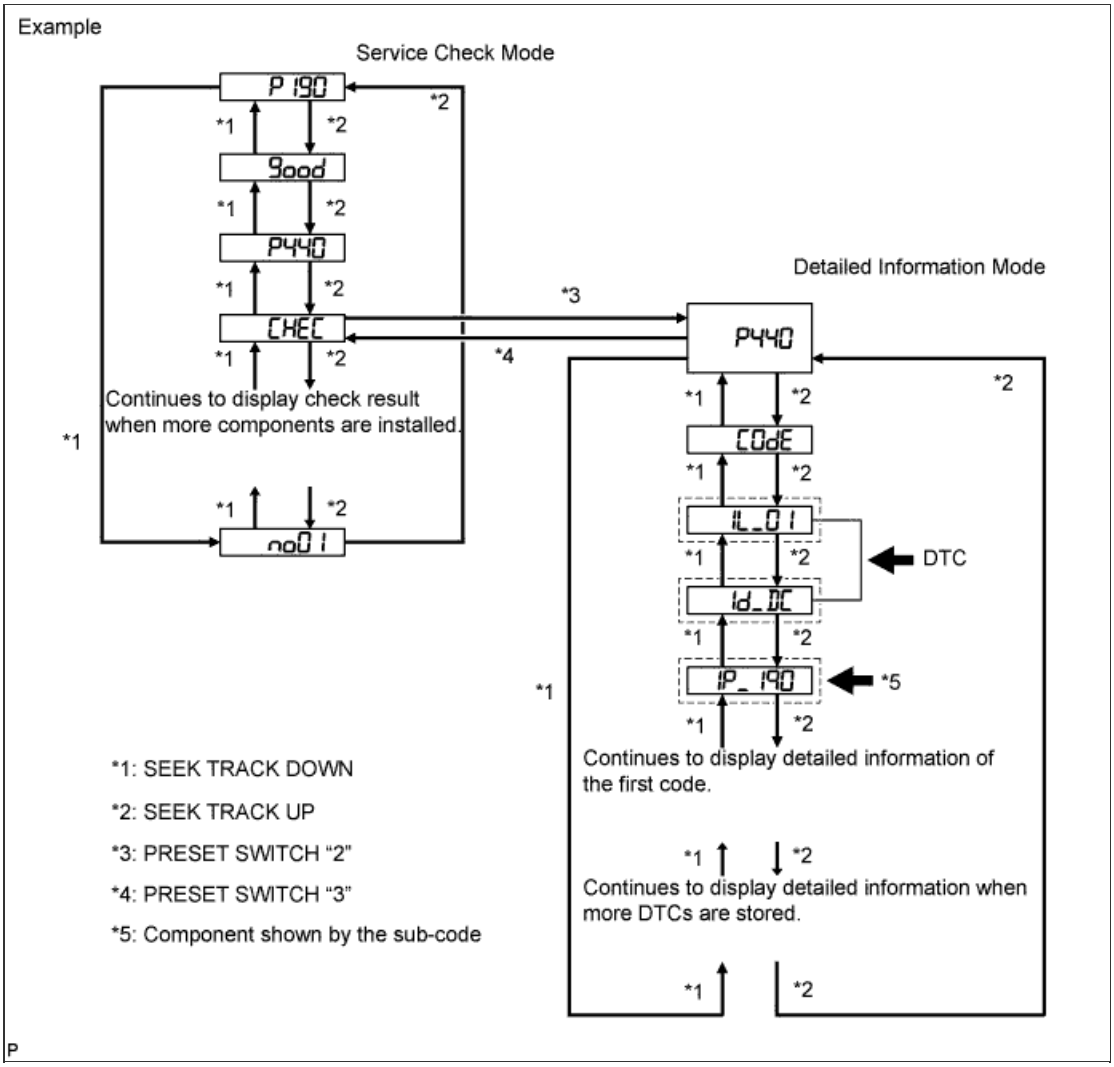
END

for Preparation Click here

INSPECTION PROCEDURE

1.IDENTIFY COMPONENT SHOWN BY SUB-CODE

a. Enter diagnostic mode.



b. Press preset switch "2" to change to "Detailed Information Mode".

c. Identify the component shown by the sub-code.

HINT:

- **"P190" set by the radio receiver assembly shown in the preceding illustration as an example.**
- **For details of the DTC display, refer to DTC Check/Clear (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 assembly (190)	Radio receiver power source circuit (Click here)
Stereo component amplifier assembly (440)	Stereo component amplifier power source circuit (Click here)

NEXT

3.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the F1 and F55 radio receiver assembly connectors.

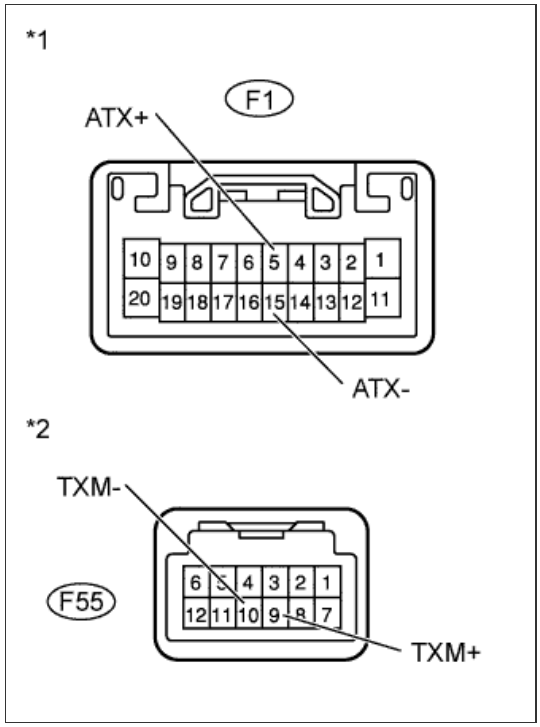
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F1-5 (ATX+) - F1-15 (ATX-)	Always	60 to 80 Ω
F55-9 (TXM+) - F55-10 (TXM-)	Always	60 to 80 Ω

Text in Illustration

*1	Component without harness connected (Radio Receiver Assembly)
*2	Component without harness connected (Radio Receiver Assembly)



NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE 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 multi-media interface ECU and component shown by the sub-code.

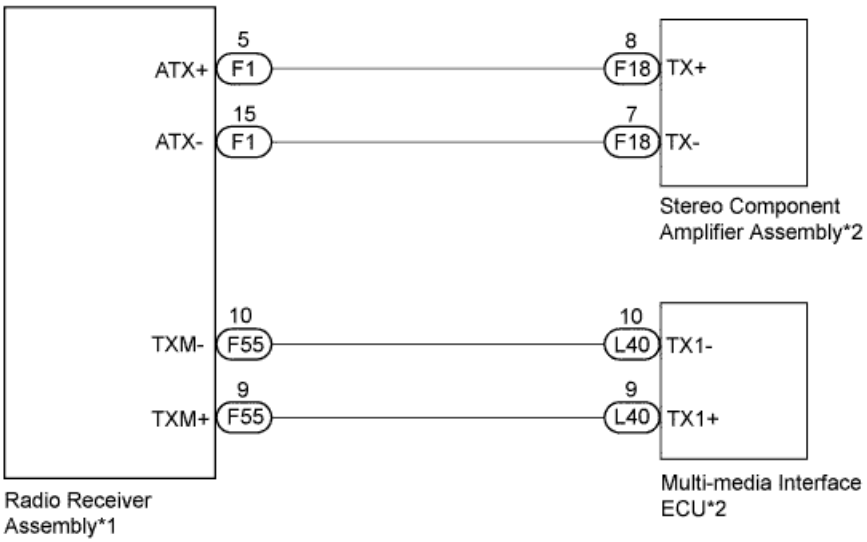
i. Disconnect all connectors between the multi-media interface ECU and component shown by the sub-code.

ii. Check for an open or short in the AVC-LAN circuit between the multi-media interface ECU and component shown by the sub-code.

OK:

There is no open or short circuit.

AVC-LAN WIRING DIAGRAM:



*1: Master Unit

*2: Slave Unit

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 known good one and check if the same problem occurs again.

OK:
Malfunction disappears.

NG → REPLACE MULTI-MEDIA INTERFACE ECU (Click here)

OK

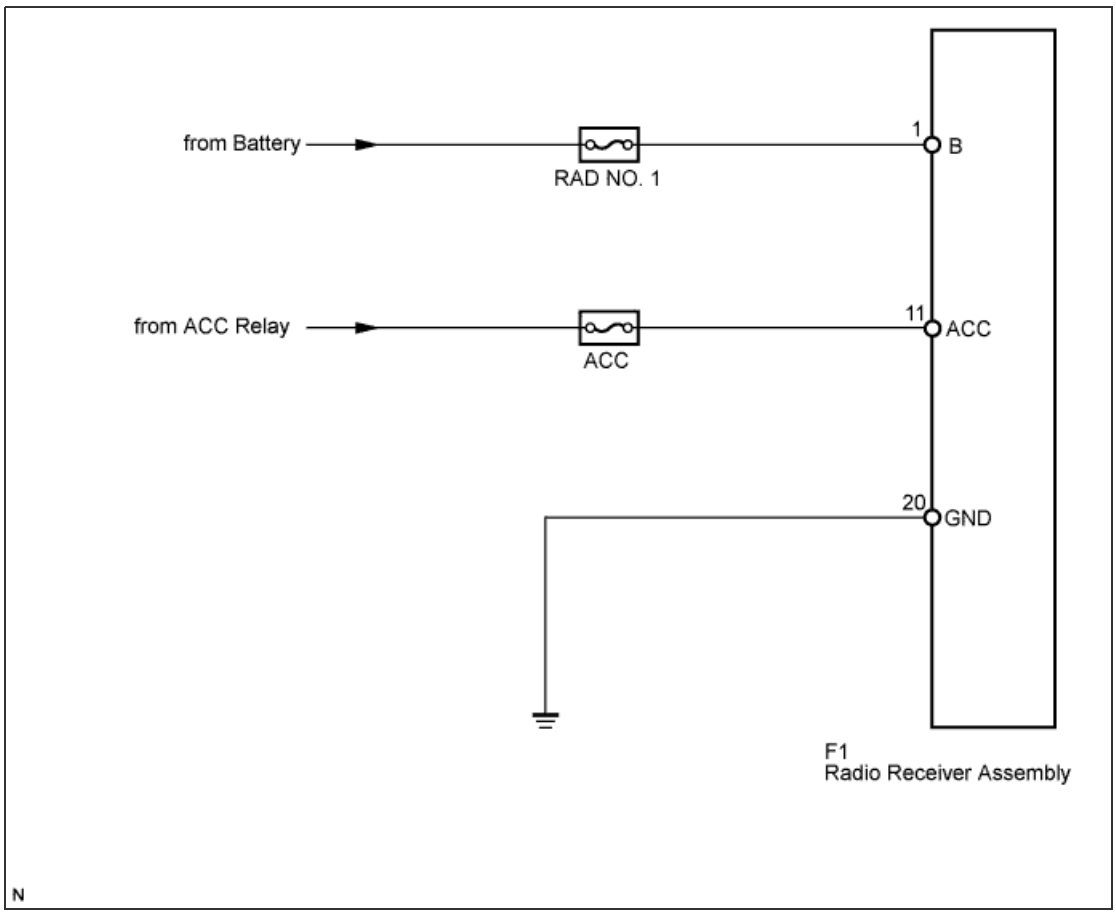
END

for Preparation Click here

DESCRIPTION

This circuit provides power to the radio receiver assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

1.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the F1 radio receiver assembly connector.

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

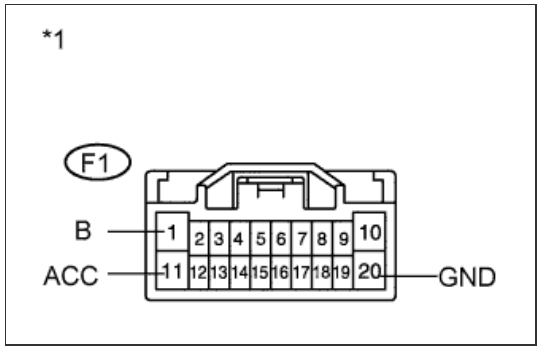
Standard Resistance:

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) - F1-20 (GND)	Always	11 to 14 V



F1-11 (ACC) - F1-20 (GND)	Engine switch on (ACC)	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

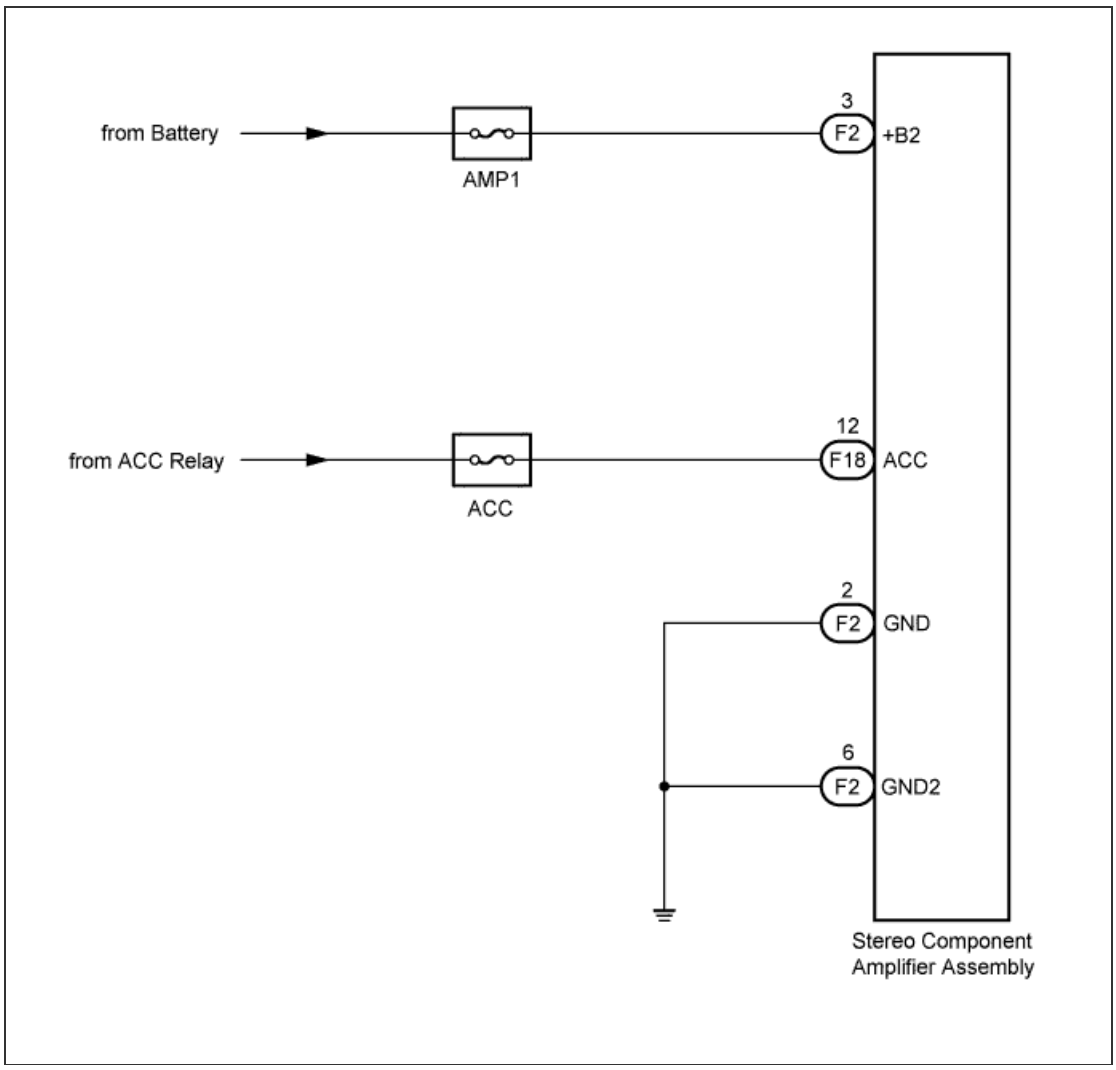
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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 and F18 stereo component amplifier assembly 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	Always	Below 1 Ω

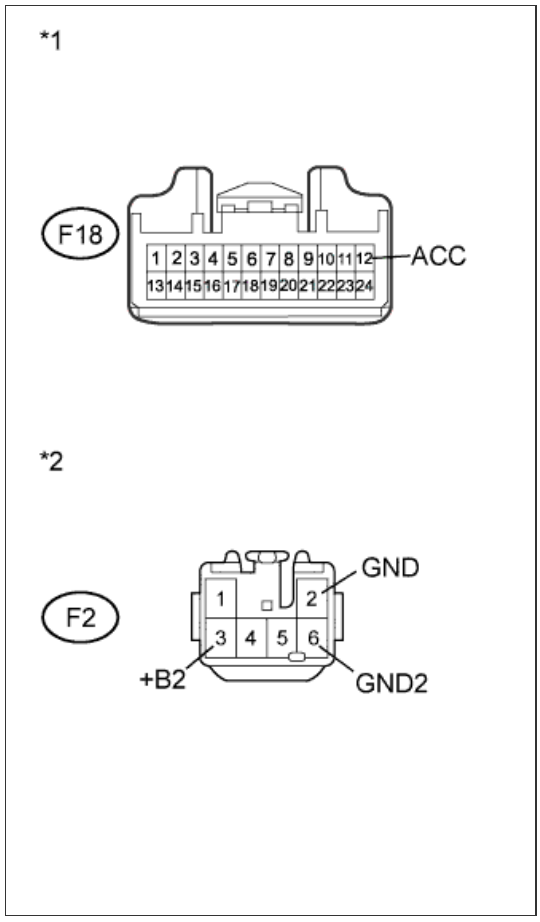
c. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F2-3 (+B2) - F2-2 (GND)	Always	11 to 14 V
F18-12 (ACC) - F2-2 (GND)	Engine switch on (ACC)	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Stereo Component Amplifier Assembly)
*2	Front view of wire harness connector (to Stereo Component Amplifier Assembly)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

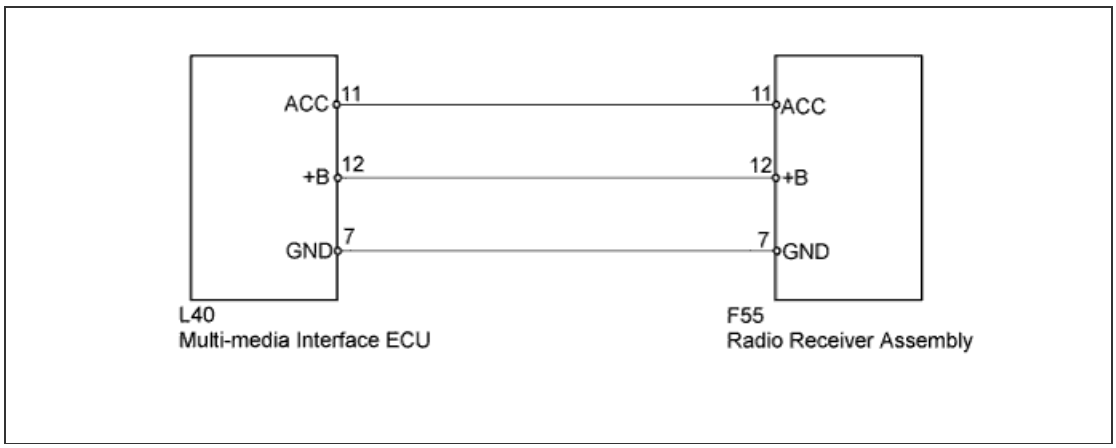
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This circuit provides power to the multi-media interface ECU.

WIRING DIAGRAM

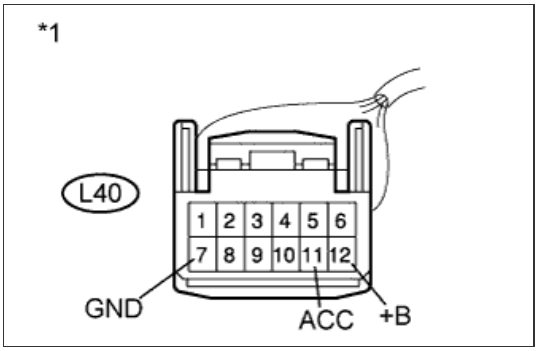


INSPECTION PROCEDURE

1.INSPECT MULTI-MEDIA INTERFACE ECU

a. Disconnect the L40 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
L40-12 (+B) - L40-7 (GND)	Always	11 to 14 V
L40-11 (ACC) - L40-7 (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 (MULTI-MEDIA INTERFACE ECU - RADIO RECEIVER ASSEMBLY)

a. Disconnect the F55 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L40-11 (ACC) - F55-11 (ACC)	Always	Below 1 Ω
L40-12 (+B) - F55-12 (+B)	Always	Below 1 Ω

L40-7 (GND) - F55-7 (GND)	Always	Below 1 Ω
L40-11 (ACC) - Body ground	Always	10 kΩ or higher
L40-12 (+B) - Body ground	Always	10 kΩ or higher
L40-7 (GND) - 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)

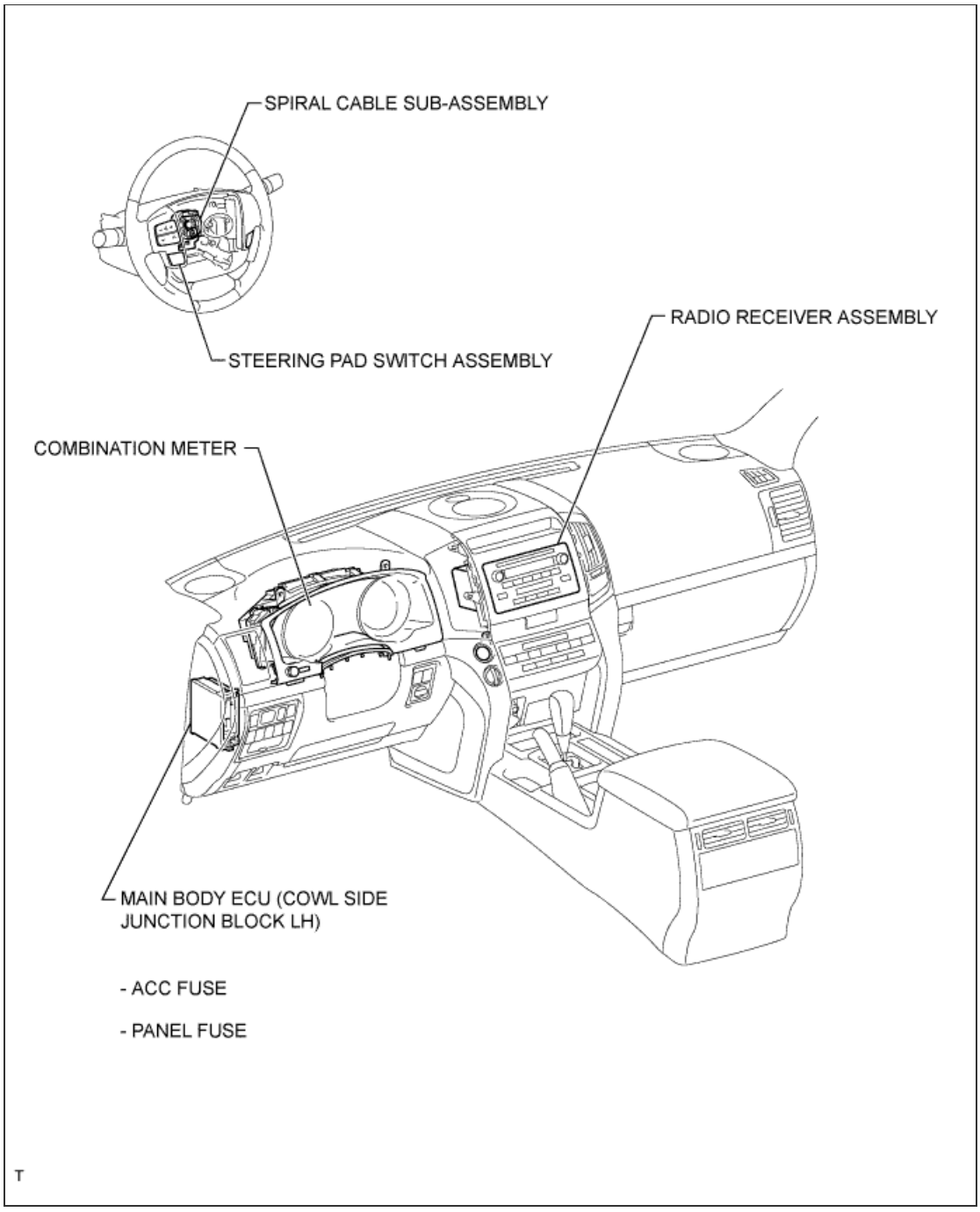
for Preparation Click here

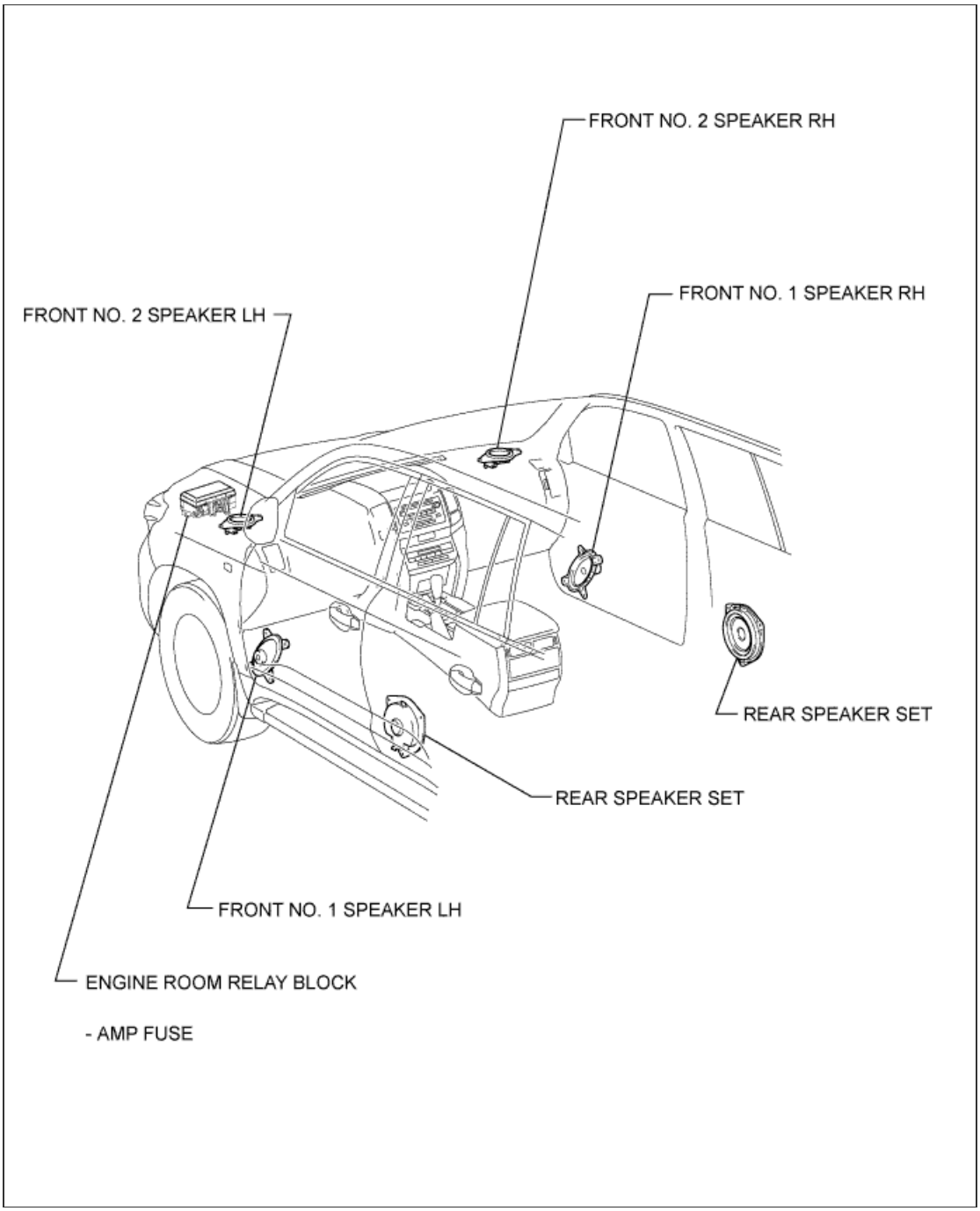
1.IGNITION SWITCH EXPRESSIONS

a. The type of ignition switch used on this model differs according to the specifications of the vehicle. The expressions listed in the table below are used in this section.

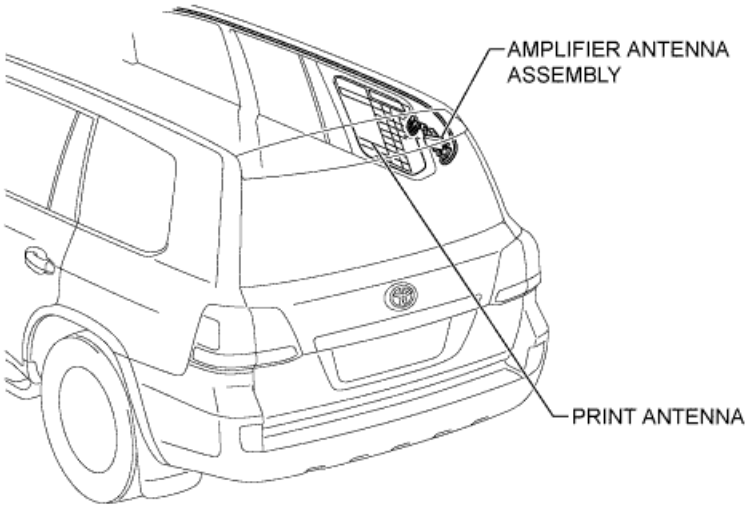
Expression	Ignition Switch (Position)	Engine Switch (Condition)
Ignition Switch off	LOCK	Off (Lock)
Ignition Switch ACC	ACC	On (ACC)
Ignition Switch ON	ON	On (IG)
Engine Start	START	On (Start)

for Preparation Click here

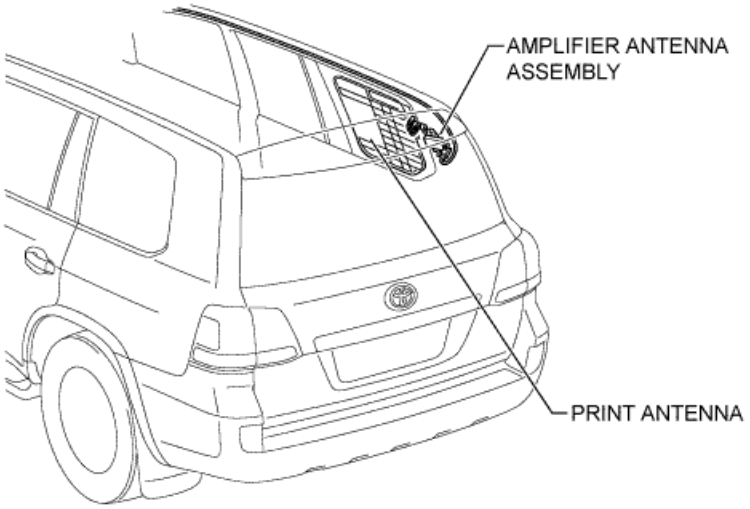



FRONT NO. 2 SPEAKER RH
FRONT NO. 1 SPEAKER RH
FRONT NO. 2 SPEAKER LH
REAR SPEAKER SET
REAR SPEAKER SET
FRONT NO. 1 SPEAKER LH
ENGINE ROOM RELAY BLOCK
- AMP FUSE

w/ Glass Breakage Sensor:

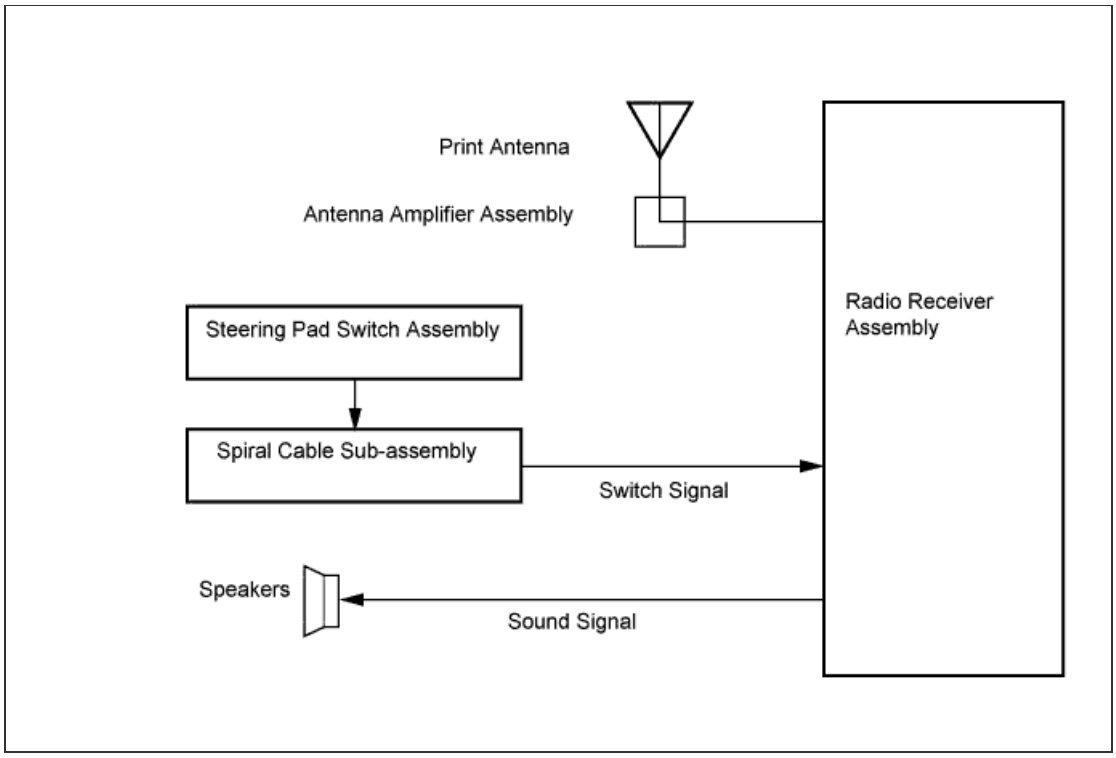


w/o Glass Breakage Sensor:



T

for Preparation Click here



for Preparation Click here

DISC PLAYER OUTLINE

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

CAUTION:

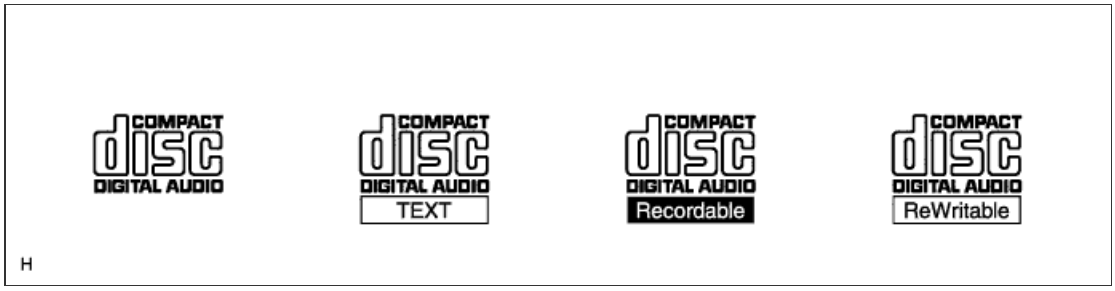
Do not look directly at the laser pickup because the CD player uses an invisible laser beam. Be sure to operate the player only as instructed.

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. CD player



c. Precautions for handling discs

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.**
- **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:

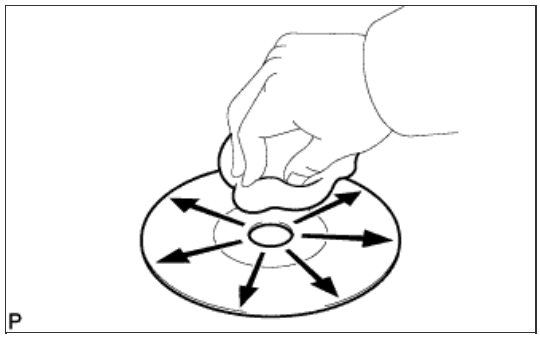
- **Just as condensation fogs the vehicle windows during wet or cold weather, condensation may also form inside the player. If condensation forms, CD skipping or playback stoppage may occur. Ventilate or dehumidify the vehicle for a while before using the player.**
- **If the player vibrates severely due to driving on a rough road, the CD 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, anti-static agents, alcohol, benzene, thinner or other solvents, and chemical cloths on a disc will damage the disc and may make the disc unusable.**

MP3 OUTLINE

a. Playable MP3 file standards

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

b. ID3 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).

c. Usable media

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

d. 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 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 files are added. However, only the first session can be played.**
- **Discs whose first session includes both music data and MP3 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 files)
Maximum number of files in a disc	255 (Including non-MP3 files)

e. File names

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

ii. Save MP3 files with an extension of ".mp3".

NOTICE:

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

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.

DIAGNOSTIC TROUBLE CHART

Terms	Definitions
Physical address (component code)	• Three-digit code (in hexadecimals) given to each component of the AVC-LAN. • Individual symbols provided corresponding to each function.
Logical address	Two-digit code (in hexadecimals) given to each function and component unit in each component of AVC-LAN.

HINT:

Titles for each unit below are stated in the following order: physical address (part name).

a. 190 (RADIO RECEIVER)

Logical Address: 01 (Communication Control)

DTC	Diagnostic Item	Diagnostic Content	Troubleshooting
D5*1	Absence of Registration Unit	When either condition below is met: • Device that the sub-code shows is (was) disconnected from the system when turning ignition switch to ON or ACC. • Communication condition with the device that the code shows cannot be obtained when the engine starts.	• Check harness of power supply system of component shown by sub-code. • Check harness of communication system of component shown by sub-code.
D8*2	No Response for Connection Check	Device indicated by the sub-code is (was) disconnected from the system after the engine starts.	• Check harness of power supply system of component shown by sub-code. • Check harness of communication system of component shown by sub-code.
D9*1	Last Mode Error	Device that had functioned before the engine stopped is (was) disconnected from the system when the ignition switch is (was) in ON or ACC.	• Check harness of power supply system of component shown by sub-code. • Check harness of communication system of component shown by sub-code.
DA	No Response Against ON/OFF Command	When either condition below is met: • No response is identified when changing modes. • Detected when the sound and image do not change by switch operation.	• Check harness of power supply system of component shown by sub-code. • Check harness of communication system of component shown by sub-code. • If error occurs again, replace component shown by sub-code.
			• Check harness of power supply system of

DB*1	Mode Status Error	Dual alarm is detected.	component shown by sub-code. • Check harness of communication system of component shown by sub-code.
DC*3	Transmission Error	Transmission to the component shown by the sub-code failed. (Detecting this DTC does not always mean an actual failure).	If same sub-code is recorded in other components, check harness of power supply and communication system of all components shown by code. If not, delete DTCs and recheck.
DE*4	Slave Reset	Code is stored when the slave device has been disconnected after the engine starts.	• Check harness of power supply system of component shown by sub-code. • Check harness of communication system of component shown by sub-code.
E1*1	Voice Processing Device ON Error	AMP device records that the AMP output does not function even while the source device operates.	• Check harness of power supply system of component shown by sub-code. • Check harness of communication system of component shown by sub-code.
E4*1	Multiple Frame Incomplete	Multiple frame transmission is incomplete.	Since this DTC is provided for engineering purposes, it may be detected when no actual failure exists.

HINT:

*1: Even if no failure is detected, a trouble code may be recorded depending on the battery condition or engine start voltage.

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

*3: This code may be stored if the engine is started, idled for 60 seconds and then started again.

*4: This code may be stored if an engine start is attempted while the engine is running.

Logical Address: 63 (in-dash CD Changer)

DTC	Diagnosis Item	Diagnosis Content	Troubleshooting
42	Disc cannot be Read	Disc cannot be read.	• Inspect CD. • Replace radio receiver.
44	CD Abnormal	Operation error in the CD mechanism.	Replace radio receiver.
47	High Temperature	A sensor detects that the CD unit temperature is high.	Put vehicle in shade and allow it to cool down with ignition switch off, and then recheck for DTCs.
48	Excess Current	Excess current is present in the CD changer.	Replace radio receiver.

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.BASIC INSPECTION

a. Turn the ignition switch to ACC.

b. Check whether or not the display appears on the radio receiver.

Result

Result	Proceed to
Display appears	A
Display does not appear	B

B. → Go to step 5

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 operation 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.**
- **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).

NEXT

7.ADJUST, REPAIR OR REPLACE

NEXT

END

for Preparation Click here

RADIO WAVE BAND

a. Radio frequency band

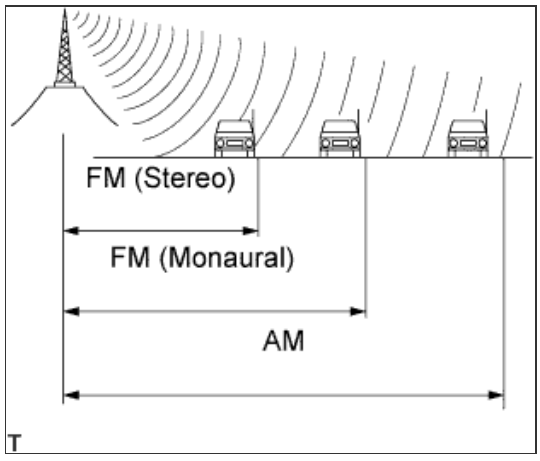
i. Radio broadcasts use the radio frequency bands shown in the table below.

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).

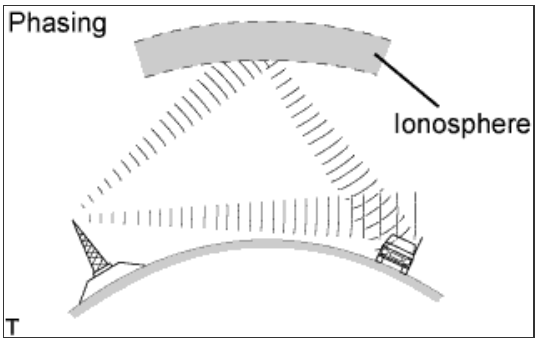


RECEPTION PROBLEMS

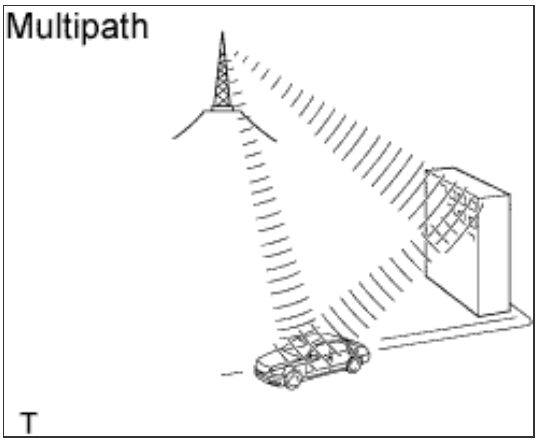
HINT:

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.

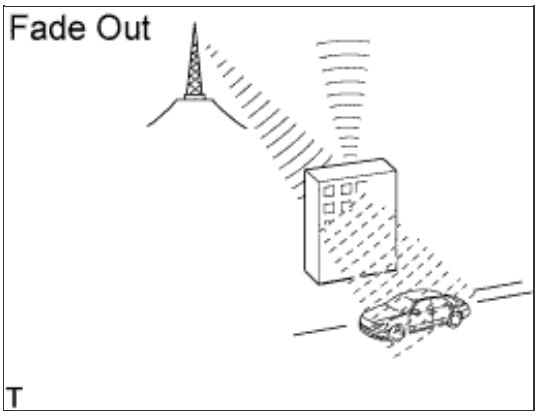
a. AM broadcasts are susceptible to electrical interference called phasing.
Occurring only at night, phasing is the interference created when a vehicle receives 2 radio wave signals from the same transmitter. One signal is reflected off of the ionosphere and the other signal is received directly from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

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
Turning ignition switch to ON does not turn on system	Radio receiver power source circuit	Click here
	Replace radio receiver assembly	Click here
Turning on light control switch does not activate nighttime illumination of radio receiver	Illumination for panel switch does not come on with tail switch on	Click here
	Illumination circuit	Click here
	Replace radio receiver assembly	Click here
No sound can be heard from speakers	No sound can be heard from speakers	Click here
	Speaker circuit	Click here
	Radio receiver power source circuit	Click here
	Replace radio receiver assembly	Click here
Poor sound quality in all modes (low volume)	Poor sound quality in all modes (Low volume)	Click here
	Speaker circuit	Click here
	Replace radio receiver assembly	Click here
Noise occurs	Noise occurs	Click here
Radio broadcast cannot be received (bad reception)	Radio broadcast cannot be received (Bad reception)	Click here
CD cannot be inserted or is ejected right after insertion	CD cannot be inserted or is ejected right after insertion	Click here
	Radio receiver power source circuit	Click here
	Replace radio receiver assembly	Click here
CD cannot be ejected	CD cannot be ejected	Click here
	Radio receiver power source circuit	Click here
	Replace radio receiver assembly	Click here
Sound quality is bad only when CD is played (volume is too low)	Sound quality is bad only when CD is played (Volume is too low)	Click here
CD sound skips	CD sound skips	Click here
Turning on light control switch does not activate nighttime illumination of radio receiver	Illumination for panel switch does not come on with tail switch on	Click here
	Illumination circuit	Click here
	Replace steering pad switch assembly	Click here

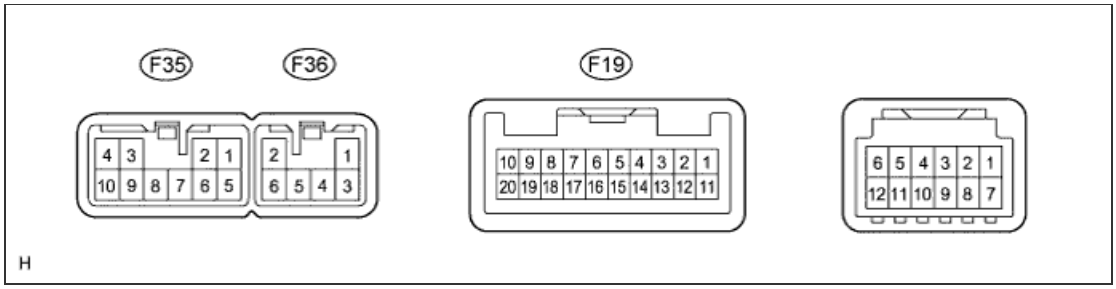
Audio system cannot be operated with steering pad switch	Steering pad switch circuit	Click here
	Replace radio receiver assembly	Click here

Steering Pad Switch Function

Symptom	Suspected Area	See page
System cannot be operated by steering pad switch	Steering pad switch circuit	Click here
	Replace radio receiver assembly	Click here
Illumination for steering pad switch does not come on with light control switch on	Illumination circuit	Click here
	Replace steering pad switch assembly	Click here

for Preparation Click here

CHECK RADIO RECEIVER



a. Disconnect the F35 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	Specification
F35-4 (B) - F35-7 (GND)	L - BR	Battery	Always	11 to 14 V
F35-7 (GND) - Body ground	BR - Body ground	Ground	Always	Below 1 Ω
F35-3 (ACC) - F35-7 (GND)	GR - BR	Accessory (ON)	Ignition switch off	Below 1 V
			Ignition switch ACC	11 to 14 V
F35-10 (ILL+) - F35-7 (GND)	G - BR	Illumination signal	Ignition switch ON, light control switch off	Below 1 V
			Ignition switch ON, light control switch tail or 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 F35 receiver connector.

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

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specification
F19-6 (SWG) - F35-7 (GND)	W - BR	Steering pad switch ground	Always	Below 1 V
F19-7 (SW1) - F35-7 (GND)	L - BR	Steering pad switch signal	Steering pad switch not pushed	4 V or more
			Steering pad switch seek+ switch pushed	Below 2.5 V
			Steering pad switch seek- switch pushed	Below 0.9 V
			Steering pad switch vol+ switch pushed	Below 1.5 V
			Steering pad switch vol+ switch pushed	Below 0.9 V
F19-8 (SW2) - F35-7 (GND)	P - BR	Steering pad switch signal	Steering pad switch not pushed	4 V or more
			Steering pad switch MODE switch pushed	Below 2.5 V
			Steering pad switch DISP switch pushed	Below 2.5 V
F35-1 (FR+) - F35-7 (GND)	W - BR	Sound signal (Front right)	Audio system playing	Waveform synchronized with sound is output
F35-2 (FL+) - F35-7 (GND)	W - BR	Sound signal (Front left)	Audio system playing	Waveform synchronized with sound is output
F35-5 (FR-) - F35-7 (GND)	B - BR	Sound signal (Front right)	Audio system playing	Waveform synchronized with sound is output
F35-6 (FL-) - F35-7 (GND)	B - BR	Sound signal (Front left)	Audio system playing	Waveform synchronized with sound is output

F35-8 (ANT) - F35-7 (GND)	P - BR	Power source of antenna	Radio switch is on and AM or FM	11 to 14 V
F36-1 (RR+) - F35-7 (GND)	R - BR	Sound signal (Rear right)	Audio system playing	Waveform synchronized with sound is output
F36-2 (RL+) - F35-7 (GND)	B - BR	Sound signal (Rear left)	Audio system playing	Waveform synchronized with sound is output
F36-3 (RR-) - F35-7 (GND)	W - BR	Sound signal (Rear right)	Audio system playing	Waveform synchronized with sound is output
F36-6 (RL-) - F35-7 (GND)	Y - BR	Sound signal (Rear left)	Audio system playing	Waveform synchronized with sound is output

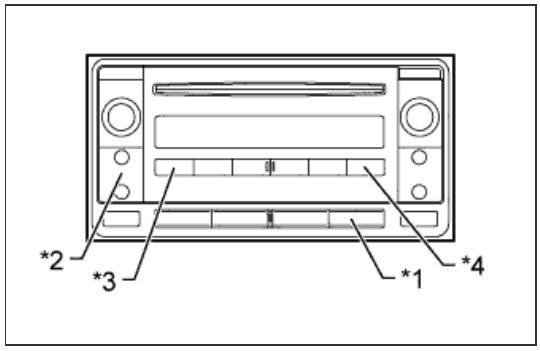
If the result is not as specified, the receiver may have a malfunction.

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STARTING DIAGNOSTIC MODE

Text in Illustration

*1	MEDIA
*2	Seek Track
*3	Channel 1
*4	Channel 6

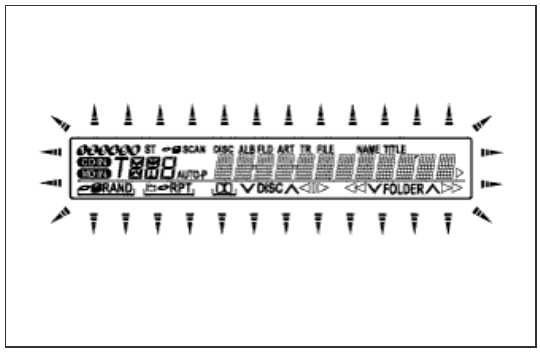


a. Turn off the audio system and turn the ignition switch to ACC. While pressing the preset switches "1" and "6" at the same time, press the "MEDIA" switch 3 times.

ALL ELEMENT ILLUMINATE MODE AND SWITCH INSPECTION MODE

HINT:

- **When the system enters the diagnostic mode, a "beep" sound is emitted 3 times and all the elements turn on during the switch check mode.**
- **It takes about 40 seconds to complete the check.**
- **All elements on the LCD will illuminate. Check that the illuminating elements are not malfunctioning.**
- **When pressing a switch, confirm that a beep sound is emitted. At that time, press the SEEK-TRACK up switch to a mode where the stereo jack adapter connection check can be performed.**



SERVICE CHECK MODE

a. Press the "SEEK-TRACK up" switch.

HINT:

For details about the service check mode, refer to the "CHECK DTC" and "DTC CLEAR/RECHECK procedures.

FINISHING DIAGNOSTIC MODE

a. Press the "DISC" switch for 2 seconds or more, or turn the ignition switch off.

CHECK DTC

HINT:

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

a. Reference:
In the system check mode, the system check and the diagnostic memory check are performed, and the check results are displayed in ascending order of the component codes (physical address).

Terms	Meaning
Physical address (component code)	Three-digit code (in hexadecimal) given to each component of AVC-LAN. Individual symbol is provided corresponding to each function.
Logical address	Two-digit code (in hexadecimal) given to each function and component unit in each component of AVC-LAN.

b. Service check result display

Display	Original Language	Meaning	Action to be Taken
		No DTCs are stored in both	

good	Good (normal)	"System Check Mode" and "Diagnostic Memory Mode".	-
nCon	No connection	System recognized component when it was registered, but component gives no response to "Diagnostic Mode ON Request".	Check power source circuit and communication circuit of component indicated by component code (physical address).
ECHn	Exchange	One or more DTCs for "Exchange" are stored in either "System Check Mode" or "Diagnostic Memory Mode".	Go to detailed information mode to check trouble area on DTC list.
CHEC	Check	When no DTCs are stored for "Exchange", one or more DTCs for "Check" are stored in either "System Check Mode" or "Diagnostic Memory Mode".	Go to detailed information mode to check trouble area on DTC list.
OLd	Old version	Old DTC application is identified and DTC is stored in either "System Check Mode" or "Diagnostic Memory Mode".	-
nrES	No response	Device gives no response to "System Check Mode ON Request", "System Check Result Request" or "Diagnostic Memory Request".	Check power source circuit and communication circuit of component indicated by component code (physical address).

c. Device name and physical address.

Physical Address No.	Name
190	Radio receiver

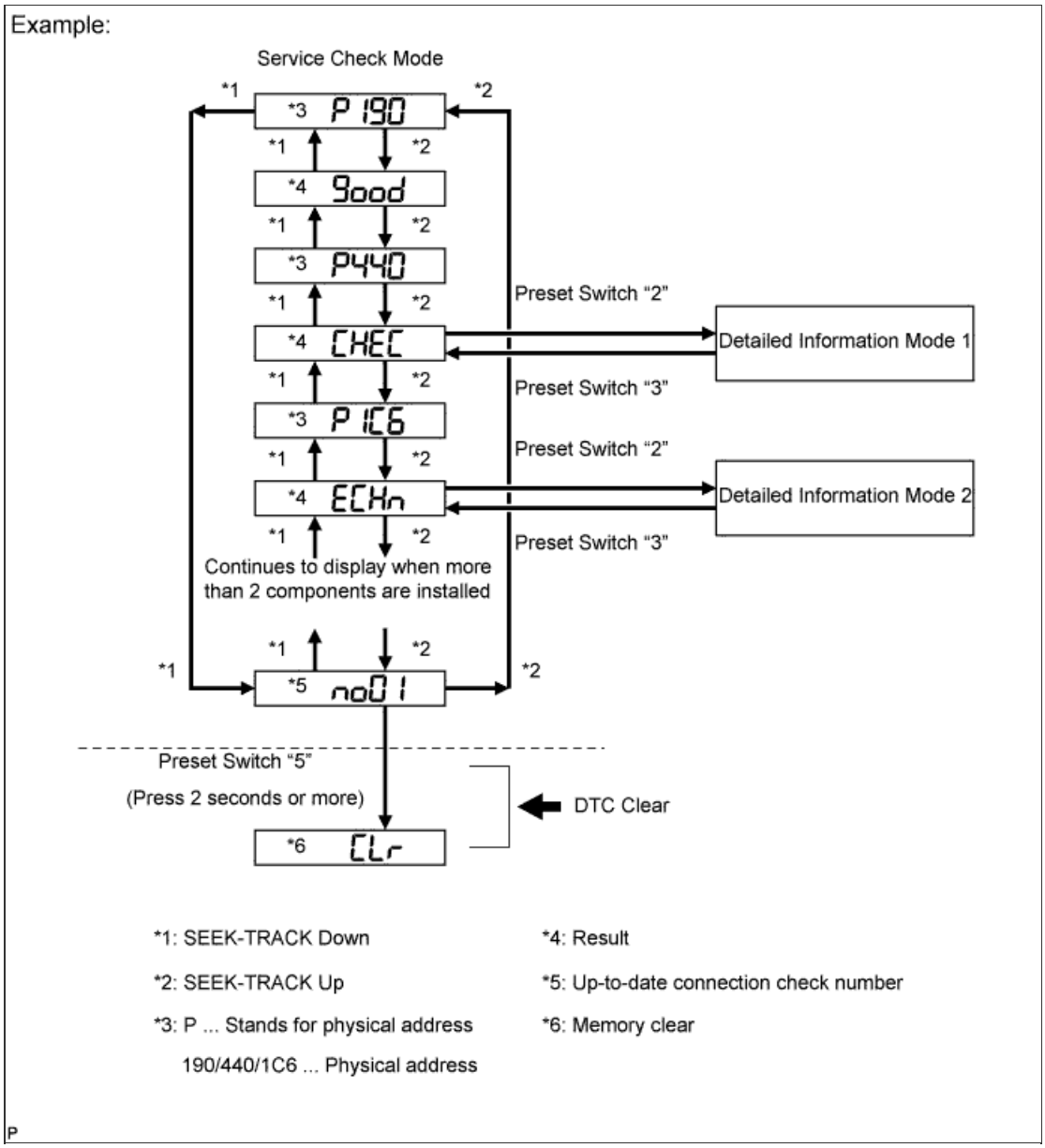
d. Service check mode.

i. Press the "SEEK-TRACK" switch to see the check result of each component.

ii. The component code (physical address) is displayed first, and then the check result follows.

HINT:

- **If all check results are "good", the system judges that no DTC is stored.**
- **If the preset switch "1" is pressed in the service check mode, service check is performed again.**
- **This illumination is only an example and may differ in cases such as for each option part and output DTCs.**



e. Detailed Information Mode 1

HINT:

- **"Detailed Information Mode 1" is displayed when there is no response to "System Check Result Request" and DTC is stored only in "Diagnostic Memory Request".**
- **The component device code (physical address) is displayed first, and then the check result follows.**
- **This illumination is only an example and may differ in cases such as for each option part and output DTCs.**

i. Press preset switch "2" to go to "Detailed Information Mode 1".

ii. Press the "SEEK-TRACK" switch to display the physical address and DTC of the component.

iii. Press preset switch "3" to go to "Service Check Mode".

iv. Distinguish between the displays of the responses to "System Check Result Request" and "Diagnostic Memory Request". In order to distinguish the information detected in "System Check Mode" and "Diagnostic Memory Mode" in "ECHn", "CHEC", and "old" in "Detailed Information Mode 1", refer to the following:

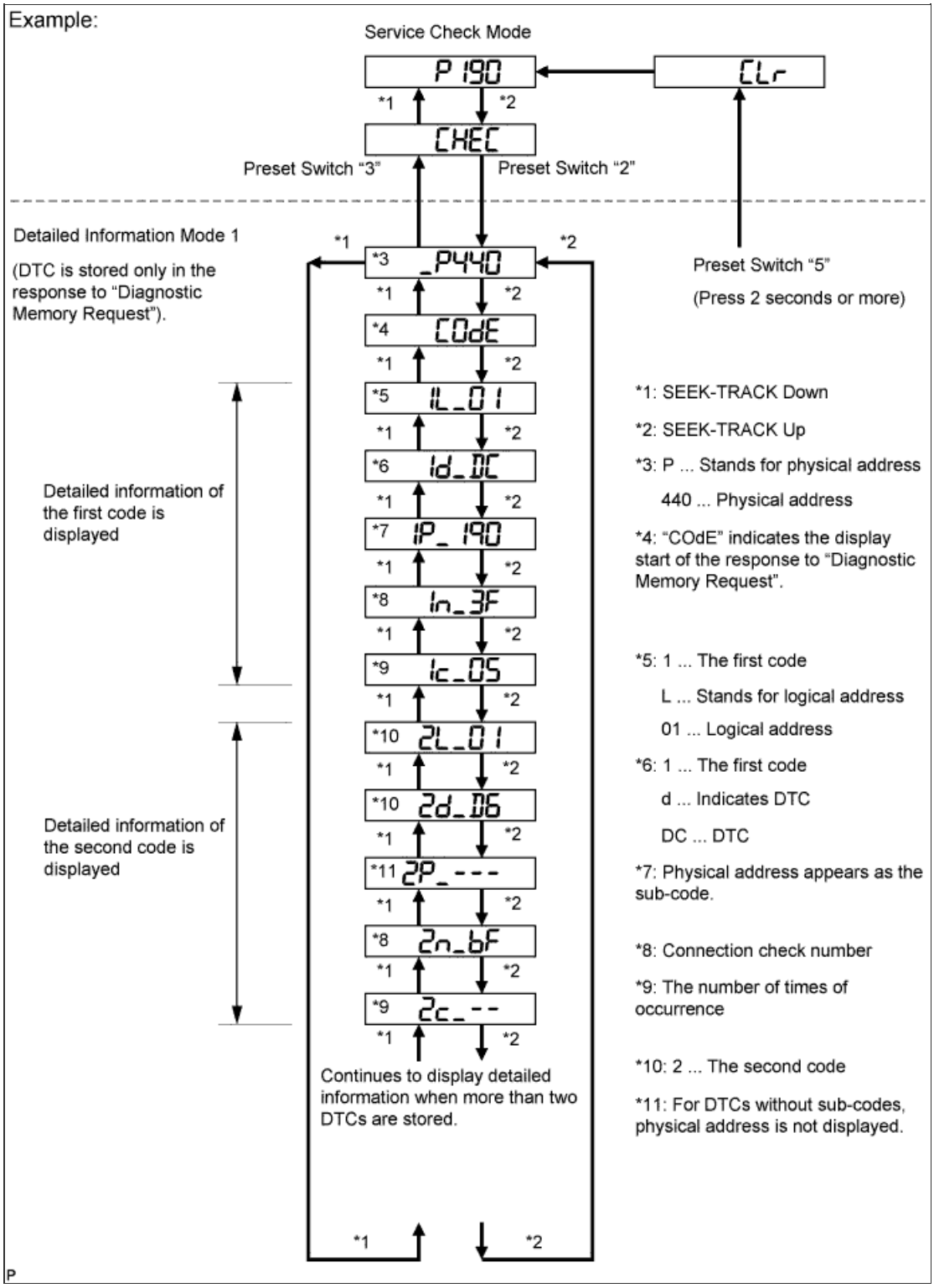
- "SYS" is displayed before the detailed codes detected as a result of "System Check Result Request".
- "COdE" is displayed before the detailed codes detected as a result of "Diagnostic Memory Request".

HINT:

- **The response to "System Check Result Request" is the current information given from each ECU as a result of**

the system check.

- The response to "Diagnostic Memory Request" contains the information received from each ECU or stored in each ECU in the past.
- The response to "Diagnostic Memory Request" is that DTCs as a result of the diagnostic memory check or the DTCs received from each ECU are output.
- "System Check Result Request (SYS)" is displayed first, and then the logical address and DTC appear in order.
- "Diagnostic Memory Request (COdE)" is displayed first, and then the logical address, DTC, sub-code, connection check number, and the number of occurrences appear in order.



f. Detailed Information Mode 2

HINT:

- "Detailed Information Mode 2" is displayed when DTCs are stored in the responses to both "System Check Result

Request" and "Diagnostic Memory Request".

- **The component device code (physical address) is displayed first, and then the check result follows.**
- **This illumination is only an example and may differ in cases such as for each option part and output DTCs.**

i. Press preset switch "2" to go to "Detailed Information Mode 2".

ii. Press the "SEEK-TRACK" switch to display the physical address and DTC of the component.

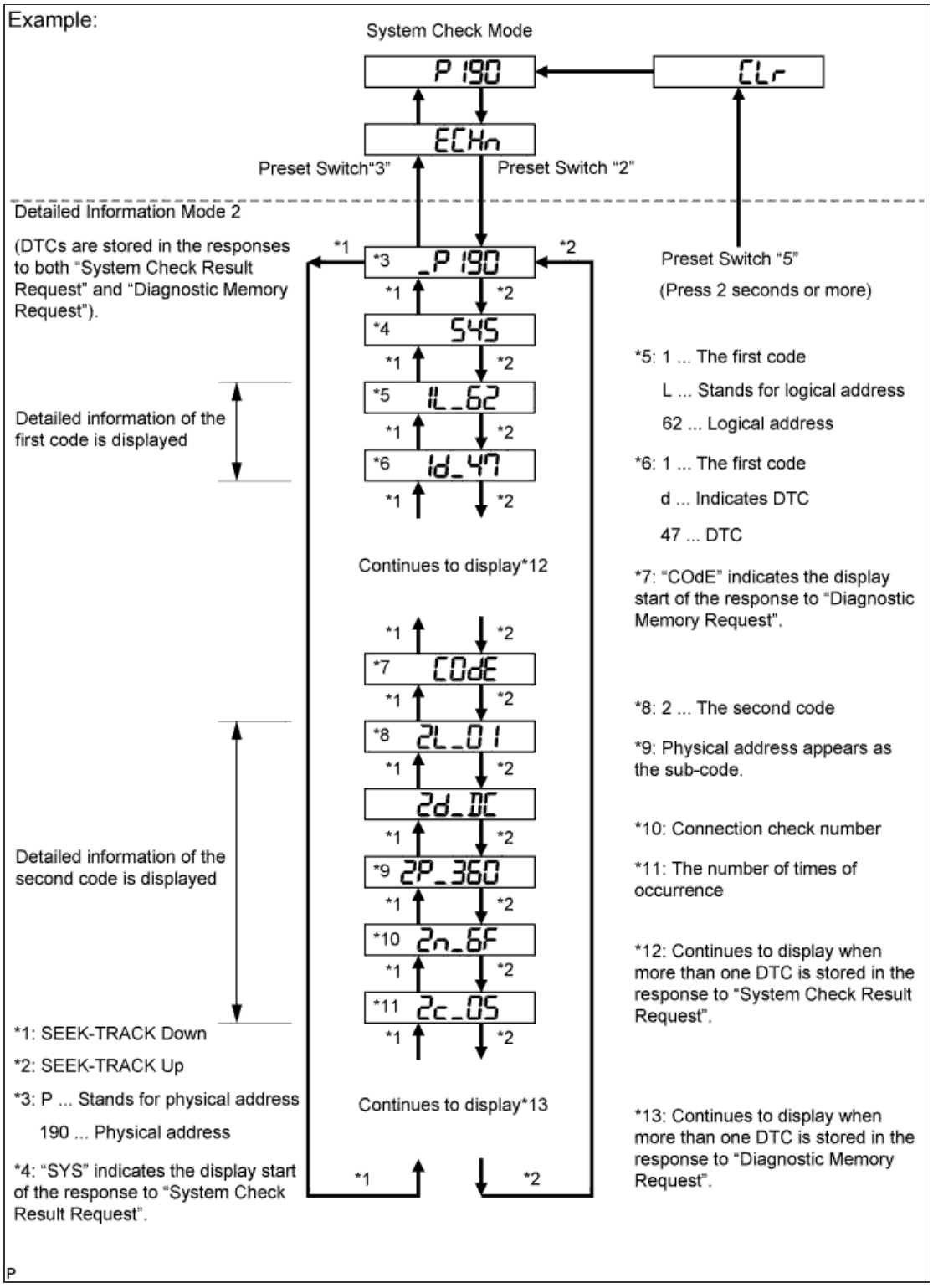
iii. Press preset switch "3" to go to "Service Check Mode".

iv. Distinguish between the displays of the responses to "System Check Result Request" and "Diagnostic Memory Request". In order to distinguish the information detected in "System Check Mode" and "Diagnostic Memory Mode" in "ECHn", "CHEC", and "old" in "Detailed Information Mode 2", refer to the following:

- "SYS" is displayed before the detailed codes detected as a result of "System Check Result Request".
- "COdE" is displayed before the detailed codes detected as a result of "Diagnostic Memory Request".

HINT:

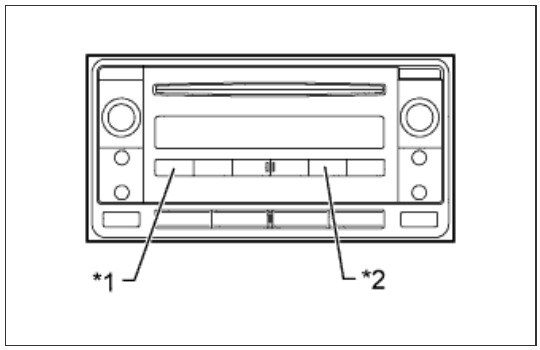
- **The response to "System Check Result Request" is the current information given from each ECU as a result of the system check.**
- **The response to "Diagnostic Memory Request" contains the information received from each ECU or stored in each ECU in the past.**
- **The response to "Diagnostic Memory Request" is that DTCs as a result of the diagnostic memory check or the DTCs received from each ECU are output.**
- **"System Check Result Request (SYS)" is displayed first, and then the logical address and DTC appear in order.**
- **"Diagnostic Memory Request (COdE)" is displayed first, and then the logical address, DTC, sub-code, connection check number, and the number of occurrences appear in order.**



DTC CLEAR/RECHECK

Text in Illustration

*1	Channel 1
*2	Channel 5



a. Clearing all DTC Memory (when clearing all the memory of the DTCs previously detected).

i. When preset switch "5" is pressed for 2 seconds or more during "Service Check Mode", the DTCs for all components are cleared. ("Clr" is displayed at this time).

HINT:

- **A beep sound is emitted once when the DTC memory is completely cleared.**
- **When the DTC memory for all the components is cleared, only the component codes (physical address) are**

displayed.

- **After the DTC memory is cleared, the "Service Check Mode" is restored.**

b. Clearing Individual DTC Memory (when clearing the memory of the DTC previously detected individually).

i. When preset switch "5" is pressed for 2 seconds or more during "Detailed Information Mode 1" or "Detailed Information Mode 2", the DTCs for the target component are cleared.

HINT:

- **A beep sound is emitted once when the DTC memory is completely cleared.**
- **When the DTC memory is cleared, only the component code (physical address) is displayed for target component.**
- **After the DTC memory is cleared, the "Service Check Mode" is restored.**
- **To check DTCs, press preset switch "1" and perform the system check again.**

c. Press preset switch "1" to perform the service check again, and check that no DTCs are displayed for all the component codes (physical address).

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 • When ignition switch is ON	Fuel pump noise
• When horn switch is pressed and released • 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	Engine coolant 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 OR REPLACE NOISE SOURCE

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK RADIO RECEIVER ASSEMBLY (VOLUME)

a. Check the radio receiver setting.

i. Check if the volume is set to minimum.

OK:
Volume is set to minimum.

NG → GO TO "SPEAKER CIRCUIT" (Click here)

OK

ADJUST SETTINGS

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.CHECK OPERATION

a. Press "EJECT" and check the operation.

i. Press the cassette tape EJECT switch of the radio receiver assembly for 2 seconds or more and check that the cassette tape is ejected.

OK:
The cassette tape is ejected.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

2.CHECK CASSETTE TAPE

a. Check the cassette tape.

i. Check that the ejected cassette tape does not have a peeled label, a cassette body deformation or any other defect.

OK:
No fault on the cassette tape.

NG → CASSETTE TAPE IS FAULTY

OK

3.REPLACE CASSETTE TAPE WITH ANOTHER AND RECHECK

a. Replace the cassette tape with a normal one and check if the same problem occurs again.

OK:
Malfunction disappears.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

CASSETTE TAPE IS FAULTY

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK FOR FOREIGN OBJECT

a. Check for any foreign objects.

i. Check that no foreign objects or defects are detected in the cassette tape player of the radio receiver assembly.

OK:
No foreign objects or defects are detected

NG → REMOVE FOREIGN OBJECT

OK

2.CHECK CASSETTE TAPE

a. Check the cassette tape.

i. Check that the cassette tape is a normal tape with music or voice recorded.

OK:
Proper cassette tape with music or voice recorded.

NG → CASSETTE TAPE IS FAULTY

OK

3.REPLACE CASSETTE TAPE WITH ANOTHER AND RECHECK

a. Replace the cassette tape with a normal one and check if the same problem occurs again.

OK:
Malfunction disappears.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

CASSETTE TAPE IS FAULTY

for Preparation Click here

INSPECTION PROCEDURE

1.PRESS "EJECT" AND CHECK OPERATION

a. Press the CD eject switch of the radio receiver for 2 seconds or more and check that the CD ejects.

OK:
CD ejects.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

2.REPLACE CD WITH ANOTHER AND RECHECK

a. Replace the CD with a normal one and check that the CD ejects.

OK:
CD ejects.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

CD IS FAULTY

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK IF PROPER CD IS INSERTED

a. Make sure that the CD is a normal audio CD, and that it is not deformed, flawed, stained, burred or otherwise defective.

OK:
Normal audio CD.

HINT:

Translucent or uniquely-shaped CDs cannot be played.

NG → CD IS FAULTY

OK

2.CHECK THAT CD IS INSERTED PROPERLY

a. Check whether or not the CD is inserted upside down.

OK:
CD is properly inserted.

NG → INSERT CD PROPERLY

OK

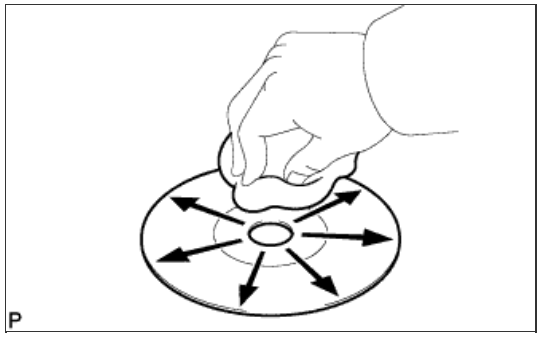
3.CLEAN CD

a. Clean the disc by wiping the CD underside radially with a soft cloth.

OK:
Malfunction disappears.

NOTICE:

Do not use a conventional record cleaner or anti-static preservative.



NG → Go to step 4

OK

CD WAS DIRTY

4.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 → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK

CD IS FAULTY

for Preparation Click here

INSPECTION PROCEDURE

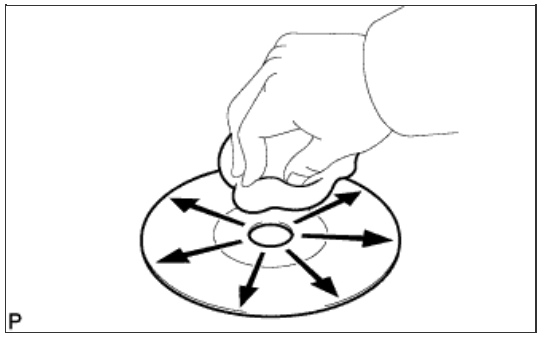
1.CLEAN CD

a. If the disc is dirty, clean the disc by wiping the CD underside radially with a soft cloth.

OK:
Malfunction disappears.

NOTICE:

Do not use a conventional record cleaner or anti-static preservative.



NG → Go to step 2

OK →

CD WAS DIRTY

2.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 → Go to step 3

OK →

CD IS FAULTY

3.CHECK WHEN PROBLEM OCCURS

a. Check the location in which CD 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 CD sound skips.

OK:
CD 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 CD player, which may disable CD 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 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 the telephone antenna or other optional components are installed.

OK:
Optional component(s) installed.

NG → Go to step 3

OK →

EFFECT FROM OPTIONAL COMPONENTS

3.CHECK ANTENNA FOR NOISE PRODUCTION

a. With the ignition switch 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)

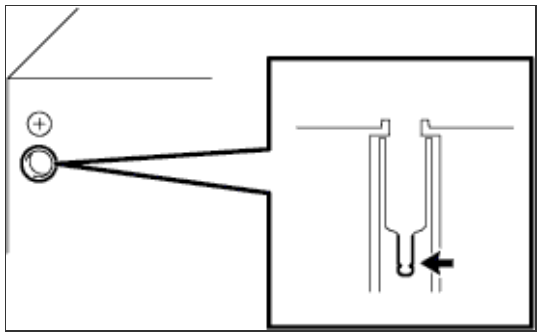
a. Remove the antenna plug of the radio receiver.

b. With the radio receiver connector connected, turn the ignition switch to 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 RADIO RECEIVER ASSEMBLY (Click here)

OK

REPLACE ANTENNA ASSEMBLY AND ANTENNA CORD SUB-ASSEMBLY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

1.REPLACE CASSETTE TAPE WITH ANOTHER AND RECHECK

a. Replace the cassette tape with a normal one and check if the same problem occurs again.

OK:
Malfunction disappears.

NG → Go to step 2

OK →

CASSETTE TAPE IS FAULTY

2.CHECK FOR FOREIGN OBJECT

a. Check for foreign objects.

i. Check that no foreign objects or defects are detected in the cassette tape player.

OK:
No foreign objects or defects are detected.

NG → REMOVE FOREIGN OBJECT

OK →

3.CLEAN HEAD

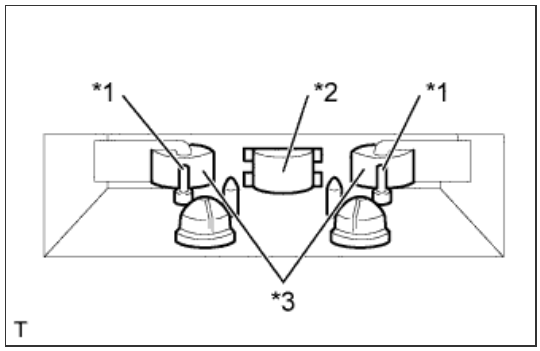
a. Head cleaning

i. Raise the cassette door with your finger. Using a pencil or similar object, push in the guide.

ii. Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, pinch rollers and capstans.

b. Check if the same trouble occurs again.

OK:
Malfunction disappears.



Text in Illustration

*1	Capstan
*2	Head
*3	Pinch Roller

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK →

END

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK FOR FOREIGN OBJECT

a. Check for any foreign objects.

i. Check that no foreign objects or defects are detected in the cassette tape player of the radio receiver assembly.

OK:
No foreign objects or defects are detected.

NG → REMOVE FOREIGN OBJECT

OK ↓

2.REPLACE CASSETTE TAPE

a. Replace the cassette tape with another one and recheck.

i. Replace the cassette tape with another normal one (90 minutes or less) to see if the same trouble occurs again.

OK:
Malfunction disappears.

NG → Go to step 3

OK ↓

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

3.CLEAN HEAD

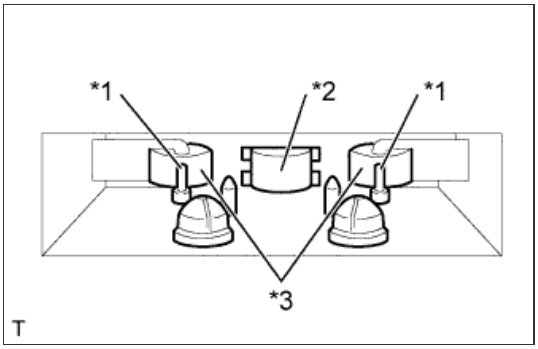
a. Head cleaning

i. Raise the cassette door with your finger. Using a pencil or similar object, push in the guide.

ii. Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, pinch rollers and capstans.

b. Check if the same trouble occurs again.

OK:
Malfunction disappears.



Text in Illustration

*1	Capstan
*2	Head
*3	Pinch Roller

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK ↓

END

for Preparation Click here

INSPECTION PROCEDURE

1.INSPECT NIGHTTIME ILLUMINATION

a. Turn on the light control switch and check the nighttime illumination of the vehicle interior.

Result

Result	Proceed to
Only radio receiver or steering pad switch nighttime illumination does not activate	A
No nighttime illumination at all	B

B → GO TO LIGHTING SYSTEM (Click here)

A → 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 →

END (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 → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

OK →

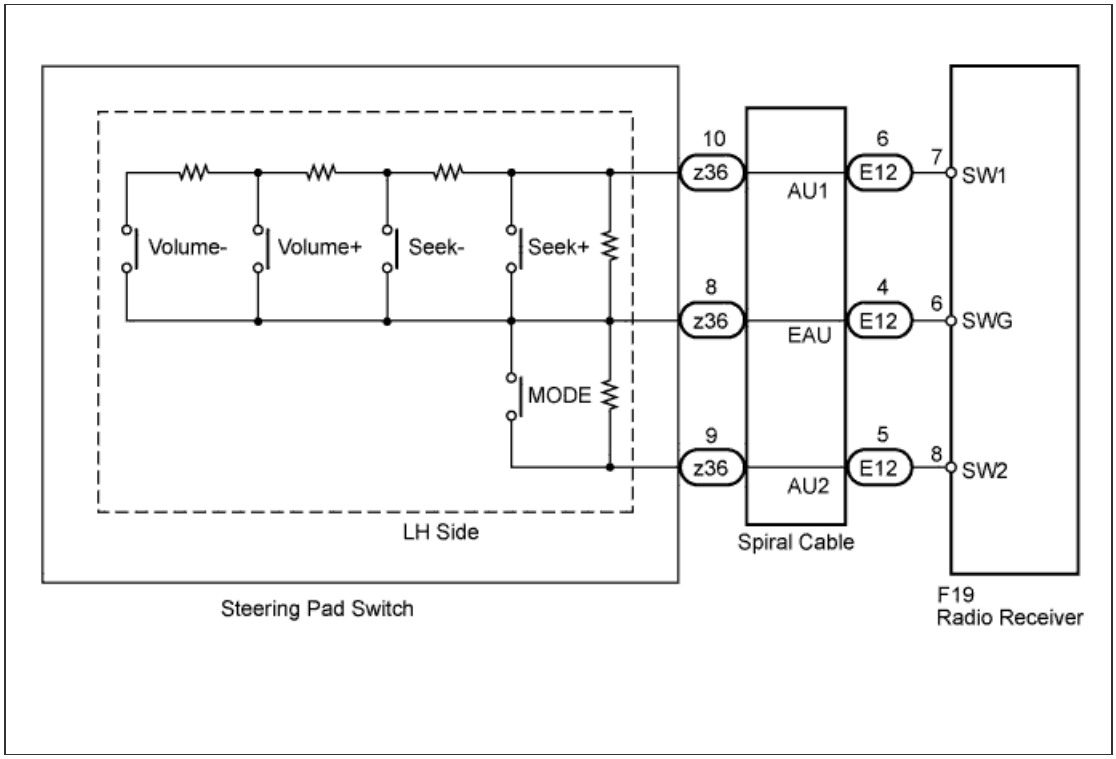
END (BAD SOUND QUALITY)

for Preparation Click here

DESCRIPTION

This circuit sends an operation signal from the steering pad switch to the radio receiver.
If there is a short in the circuit, the resulting condition is the same as if the switch were continuously depressed.

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 F19 receiver connector.

b. Disconnect the E12 cable connector.

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

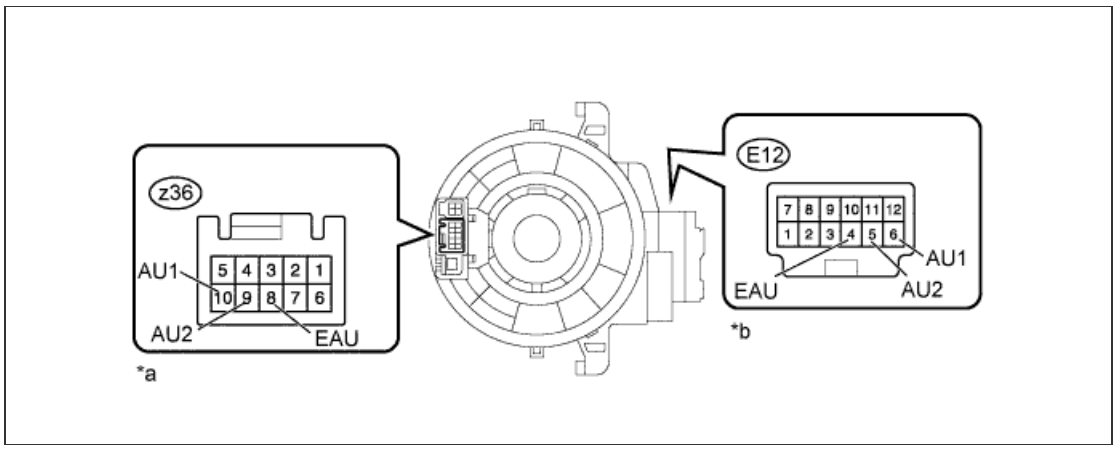
Standard Resistance:

Tester Connection	Condition	Specified Condition
F19-8 (SW2) - E12-5 (AU2)	Always	Below 1 Ω
F19-6 (SWG) - E12-4 (EAU)	Always	Below 1 Ω
F19-7 (SW1) - E12-6 (AU1)	Always	Below 1 Ω
F19-8 (SW2) - Body ground	Always	10 kΩ or higher
F19-6 (SWG) - Body ground	Always	10 kΩ or higher
F19-7 (SW1) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.INSPECT SPIRAL CABLE SUB-ASSEMBLY



Text in Illustration

*a	Steering Pad Switch Side	*b	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
E12-4 (EAU) - z36-8 (EAU)	2.5 rotations to the left	Below 3 Ω
	Center	
	2.5 rotations to the right	
E12-5 (AU2) - z36-9 (AU2)	2.5 rotations to the left	Below 3 Ω
	Center	
	2.5 rotations to the right	
E12-6 (AU1) - z36-10 (AU1)	2.5 rotations to the left	Below 3 Ω
	Center	
	2.5 rotations to the right	

CAUTION:

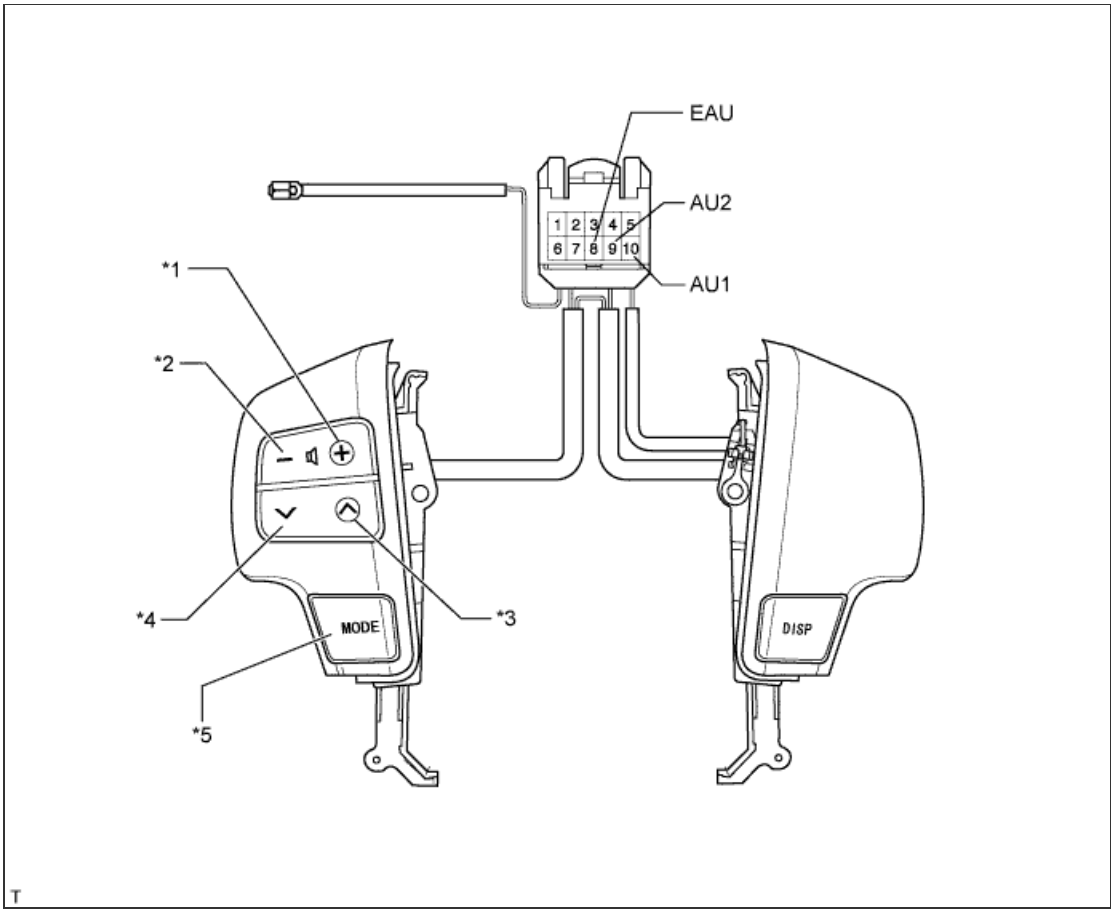
The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the SRS (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

OK

3.INSPECT STEERING PAD SWITCH ASSEMBLY

a. Disconnect the z36 switch connector.



Text in Illustration

*1	Volume+	*2	Volume-
*3	Seek+	*4	Seek-
*5	MODE	-	-

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
	Seek+ switch pushed	Below 2.5 Ω
	Seek- switch pushed	329 Ω
	Volume+ switch pushed	1000 Ω
	Volume- switch pushed	3110 Ω
9 (AU2) - 8 (EAU)	No switch is pushed	100 kΩ
	MODE switch pushed	Below 2.5 Ω

NG → REPLACE STEERING PAD SWITCH ASSEMBLY (Click here)

OK

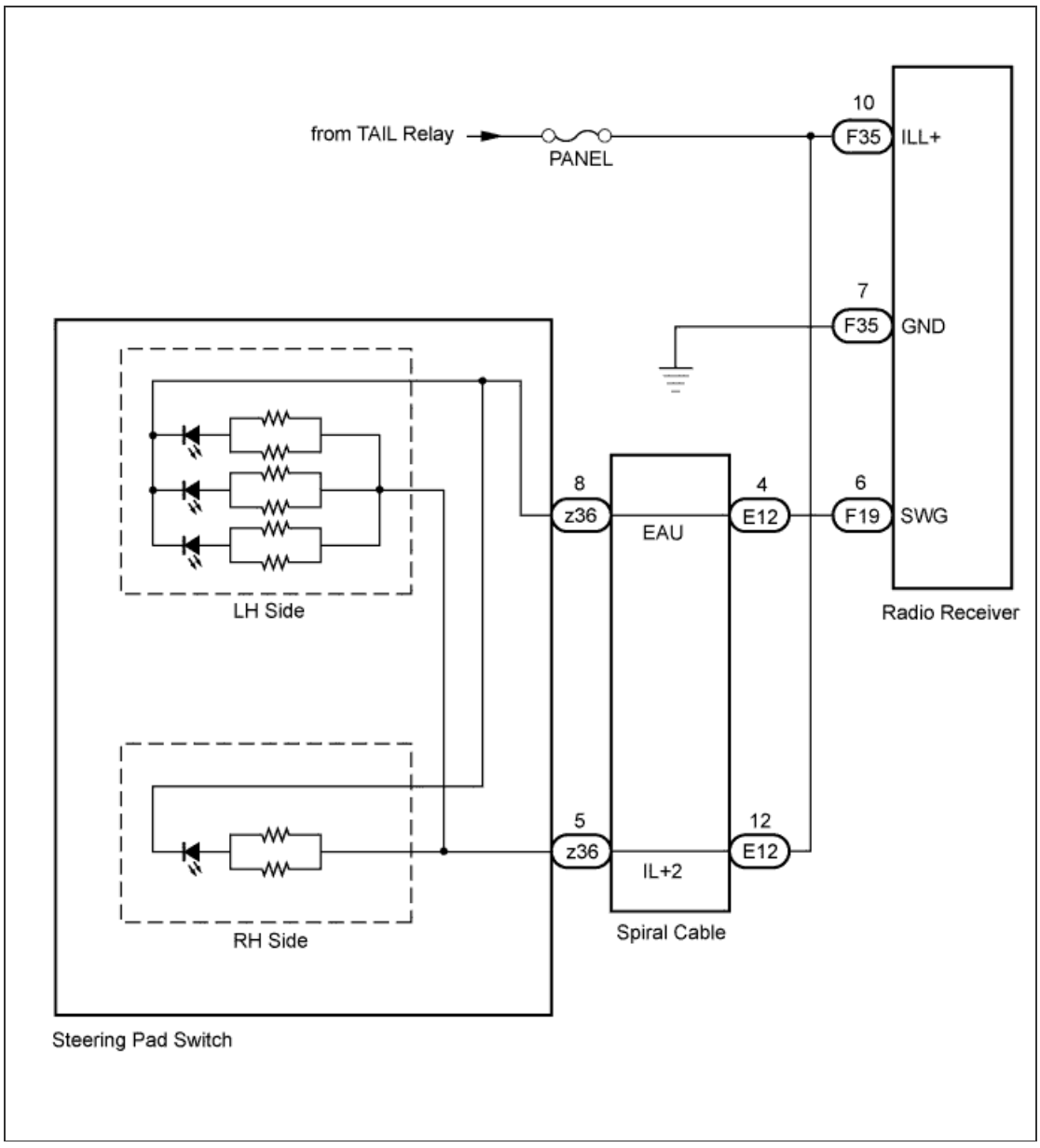
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

Power is supplied to the 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).

NOTICE:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

1.CHECK ILLUMINATION

a. Check if the illumination for the 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
No illumination comes on for radio receiver, glove box light, front seat memory switch, cigarette lighter, etc.	C

B → Go to step 6

C → GO TO LIGHTING SYSTEM (Click here)

A

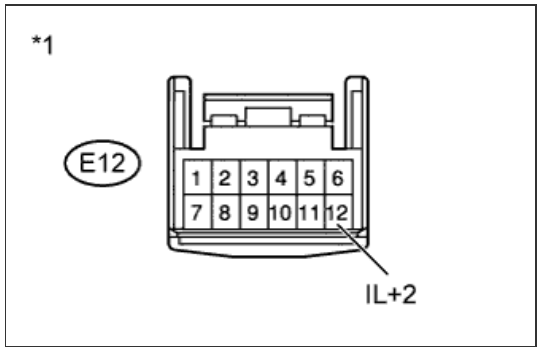
2.CHECK HARNESS AND CONNECTOR (SPIRAL CABLE - TAIL RELAY)

a. Disconnect the E12 cable 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 tail or head	11 to 14 V



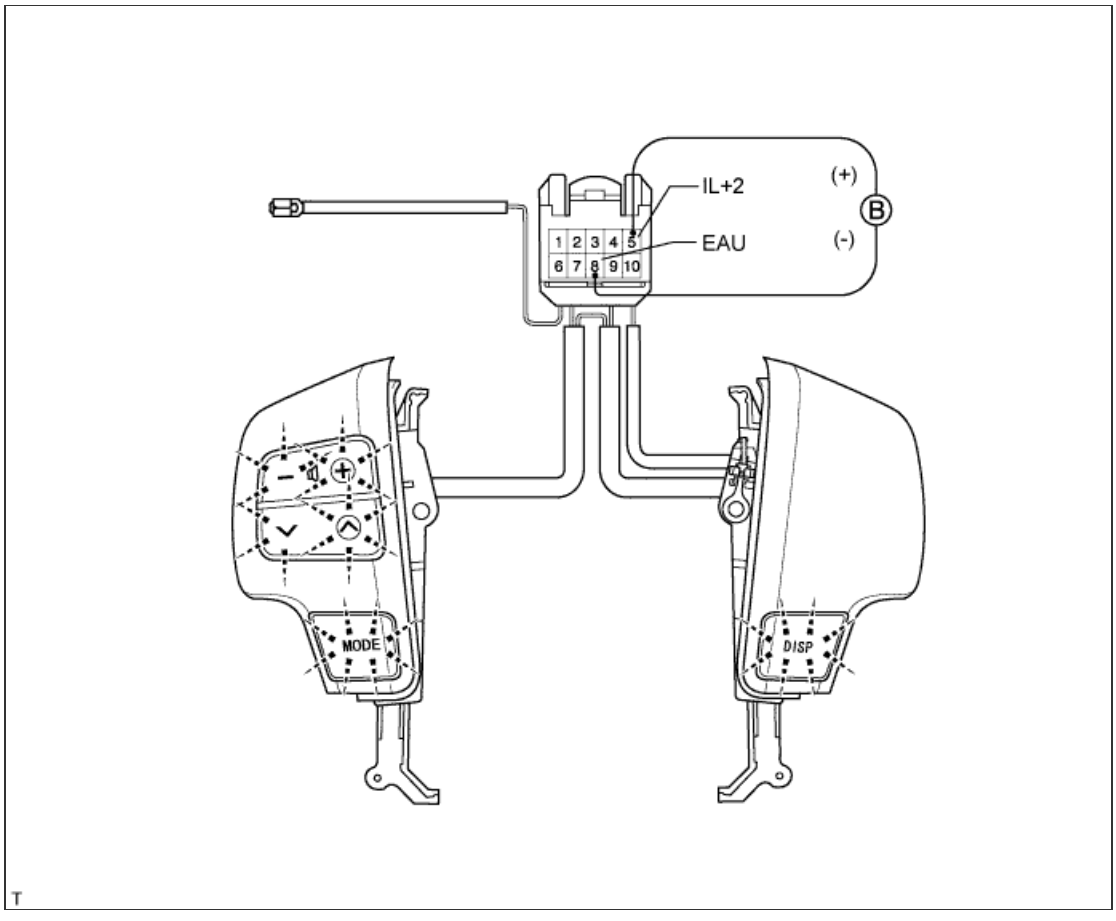
Text in Illustration

*1	Front view of wire harness connector (to Spiral Cable)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT STEERING PAD SWITCH ASSEMBLY



a. Disconnect the z36 switch connector.

b. Apply battery voltage to the terminals of the connector, and check the LED illumination condition.

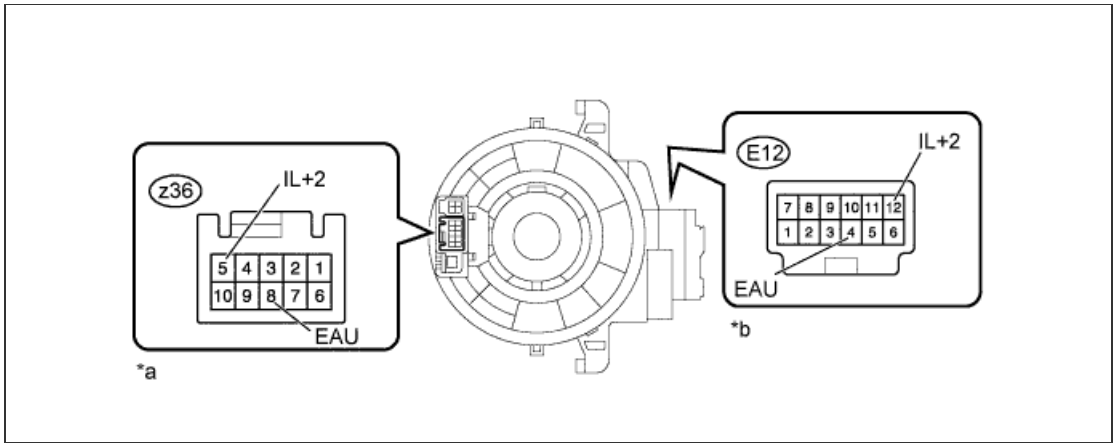
OK:

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 5 (IL+2) Battery negative (-) → Terminal 8 (EAU)	Light illuminates

NG → REPLACE STEERING PAD SWITCH ASSEMBLY (Click here)

OK

4.INSPECT SPIRAL CABLE SUB-ASSEMBLY



Text in Illustration

*a	Steering Pad Switch Side	*b	Vehicle Side

a. Disconnect the E12 and z36 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) - z36-5 (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) - z36-8 (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

5.CHECK HARNESS AND CONNECTOR (SPIRAL CABLE - RADIO RECEIVER)

a. Disconnect the F19 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
F19-6 (SWG) - E12-4 (EAU)	Always	Below 1 Ω
F19-6 (SWG) - 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)

6.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - TAIL RELAY AND BODY GROUND)

a. Disconnect the F35 receiver connector.

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

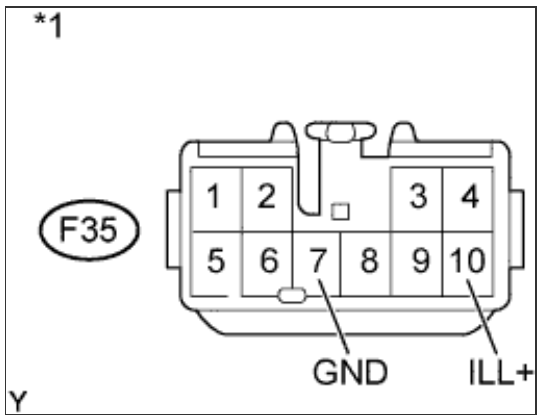
Standard Resistance:

Tester Connection	Condition	Specified Condition
F35-7 (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
F35-10 (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)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

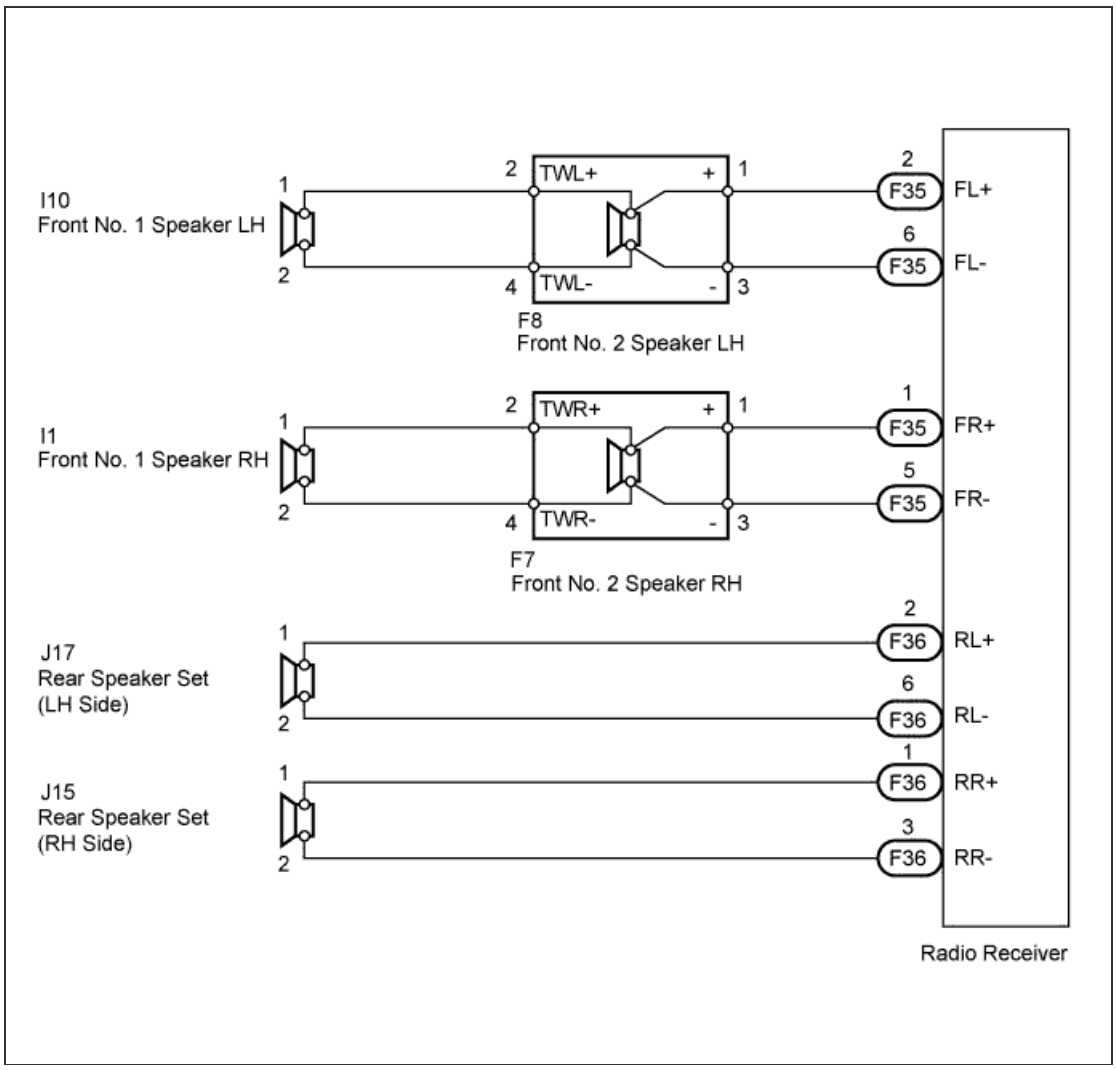
REPLACE RADIO RECEIVER ASSEMBLY (Click here)

for Preparation Click here

DESCRIPTION

The radio receiver sends sound signals to the speakers.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.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 7

A

2.CHECK SPEAKER

a. Check the malfunctioning speakers.

Result

Result	Proceed to
Front No. 2 speaker	A
Front No. 1 speaker	B

B → Go to step 5

A

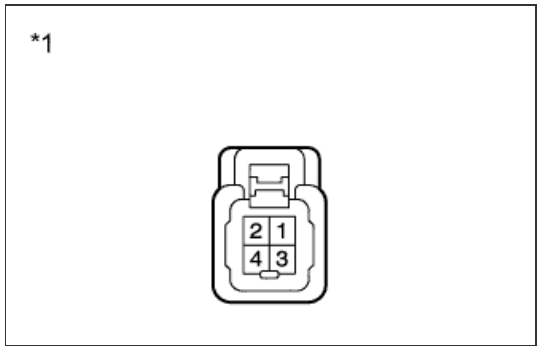
3.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

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	8 Ω



Text in Illustration

*1	Component without harness connected (Front No. 2 Speaker)

NG → REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

OK

4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - FRONT NO. 2 SPEAKER)

a. Disconnect the F35 receiver 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
F35-2 (FL+) - F8-1 (+)	Always	Below 1 Ω
F35-6 (FL-) - F8-3 (-)		
F35-2 (FL+) - Body ground	Always	10 kΩ or higher
F35-6 (FL-) - Body ground		

for RH:

Tester Connection	Condition	Specified Condition
F35-1 (FR+) - F7-1 (+)	Always	Below 1 Ω
F35-5 (FR-) - F7-3 (-)		
F35-1 (FR+) - Body ground	Always	10 kΩ or higher
F35-5 (FR-) - Body ground		

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

5.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I10 and I1 speaker connectors.

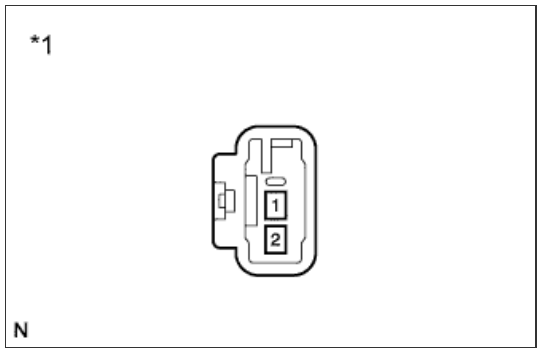
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	4 Ω

Text in Illustration

*1	Component without harness connected (Front No. 1 Speaker)



NG → REPLACE FRONT NO. 1 SPEAKER ASSEMBLY (Click here)

OK

6.CHECK HARNESS AND CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 1 SPEAKER)

a. Disconnect the I10, I1, F8 and F7 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+) - I10-1	Always	Below 1 Ω
F8-4 (TWL-) - I10-2		
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+) - I1-1	Always	Below 1 Ω
F7-4 (TWR-) - I1-2		
F7-2 (TWR+) - Body ground	Always	10 kΩ or higher
F7-4 (TWR-) - Body ground		

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE FRONT NO. 2 SPEAKER ASSEMBLY (Click here)

7.INSPECT REAR SPEAKER SET

a. Disconnect the J17 and J15 speaker connectors.

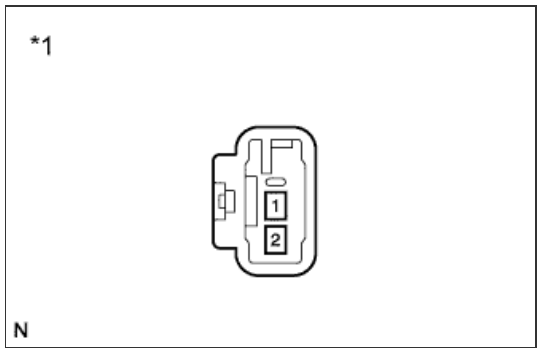
b. Measure the resistance according to the value(s) in the table below.

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

8.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - REAR SPEAKER SET)

a. Disconnect the F36 receiver 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
F36-2 (RL+) - J17-1	Always	Below 1 Ω
F36-6 (RL-) - J17-2		
F36-2 (RL+) - Body ground	Always	10 kΩ or higher
F36-6 (RL-) - Body ground		

for RH:

Tester Connection	Condition	Specified Condition
F36-1 (RR+) - J15-1	Always	Below 1 Ω
F36-3 (RR-) - J15-2		
F36-1 (RR+) - Body ground	Always	10 kΩ or higher
F36-3 (RR-) - Body ground		

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

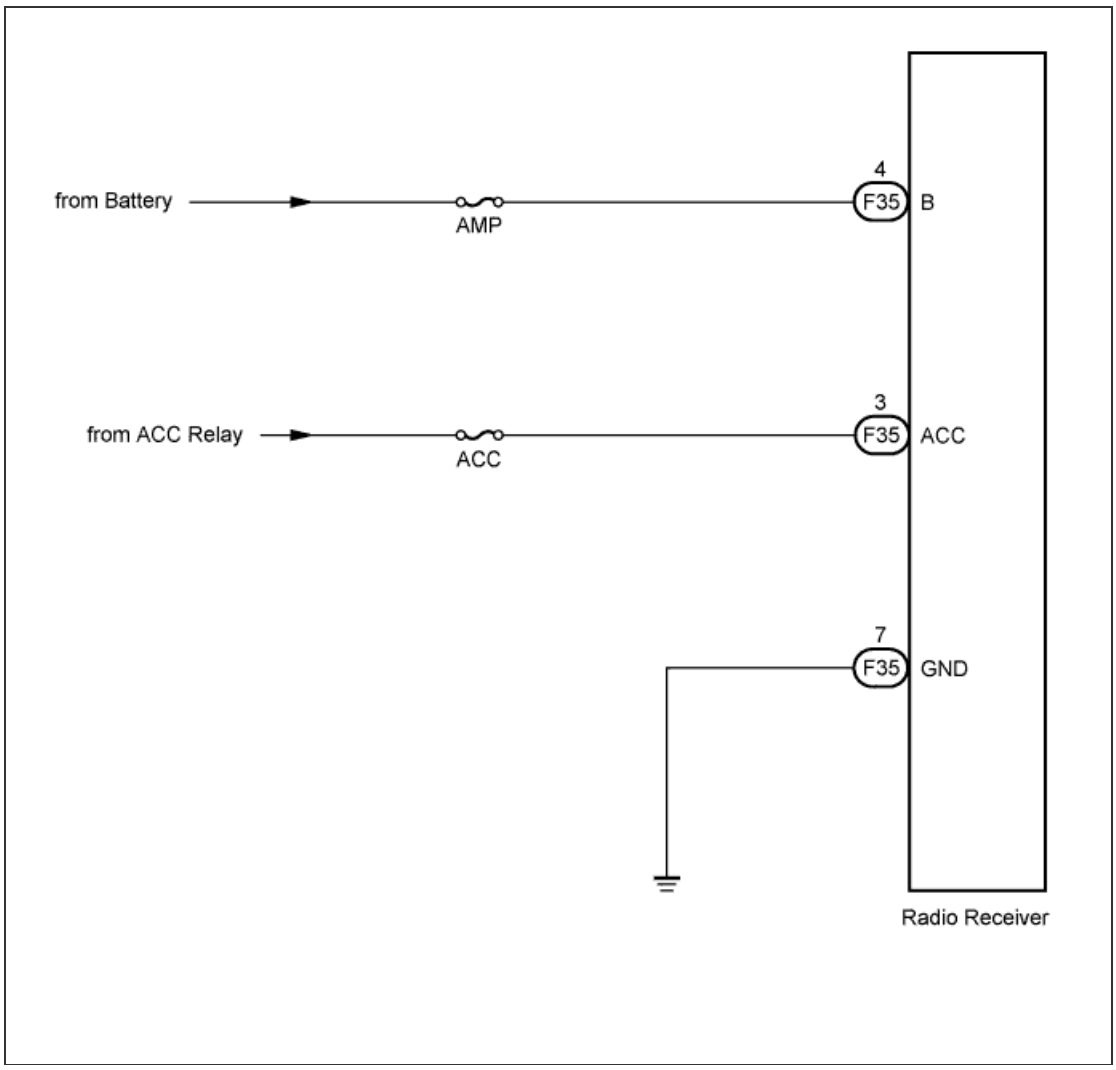
REPLACE RADIO RECEIVER ASSEMBLY (Click here)

for Preparation Click here

DESCRIPTION

This circuit provides power to the radio receiver.

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 (RADIO RECEIVER - BATTERY AND BODY GROUND)

a. Disconnect the F35 receiver connector.

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

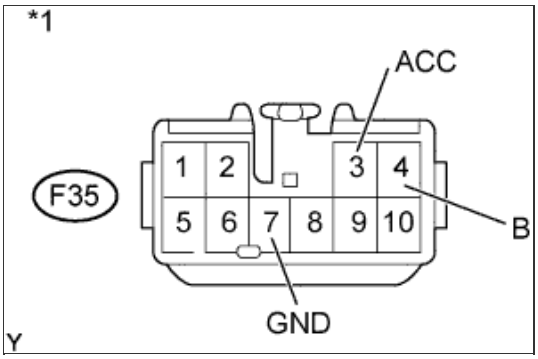
Standard Resistance:

Tester Connection	Condition	Specified Condition
F35-7 (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
F35-4 (B) - Body ground	Always	11 to 14 V
F35-3 (ACC) - Body ground	Ignition switch ACC	



Text in Illustration

*1	Front view of wire harness connector (to Radio Receiver)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

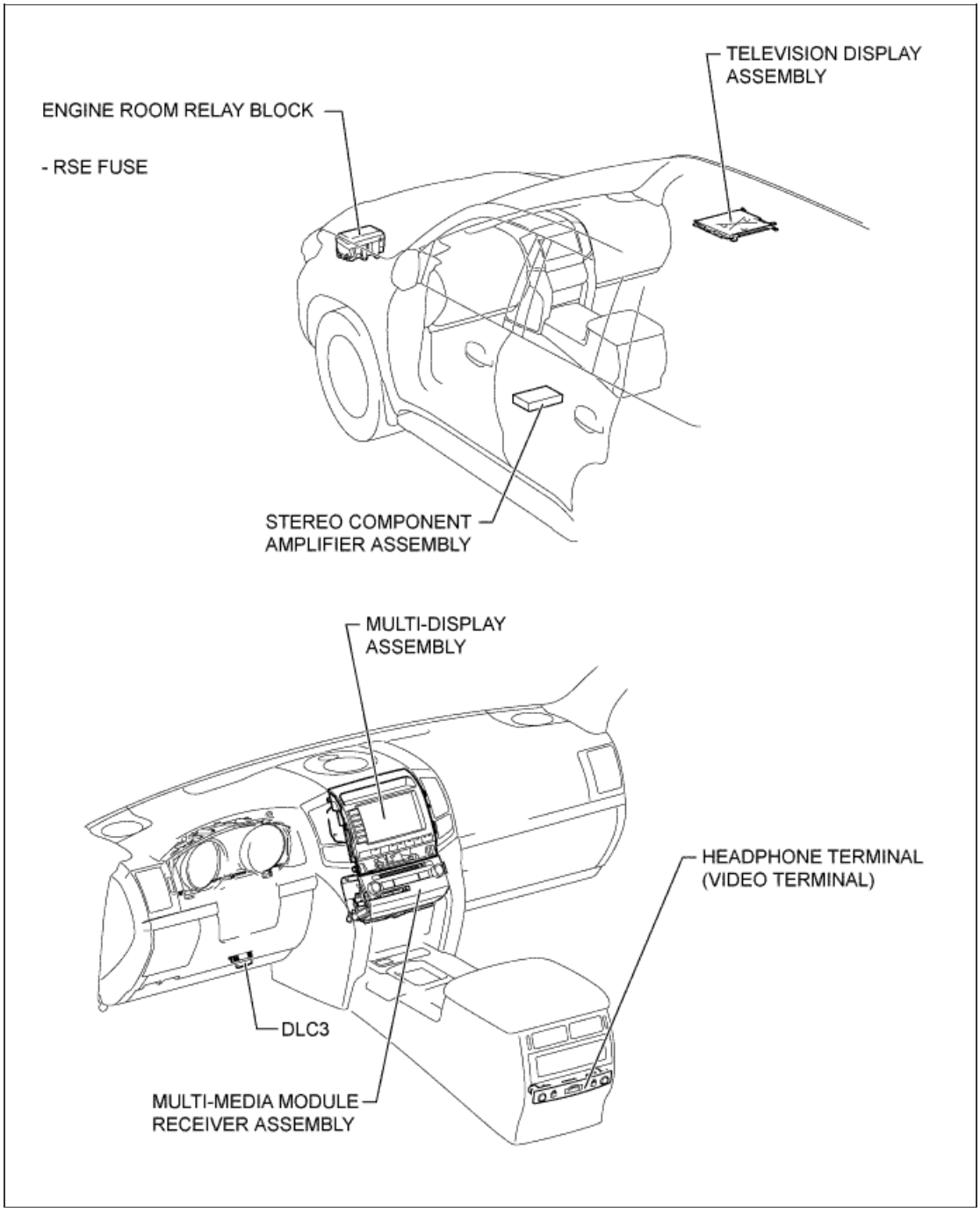
for Preparation Click here

1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

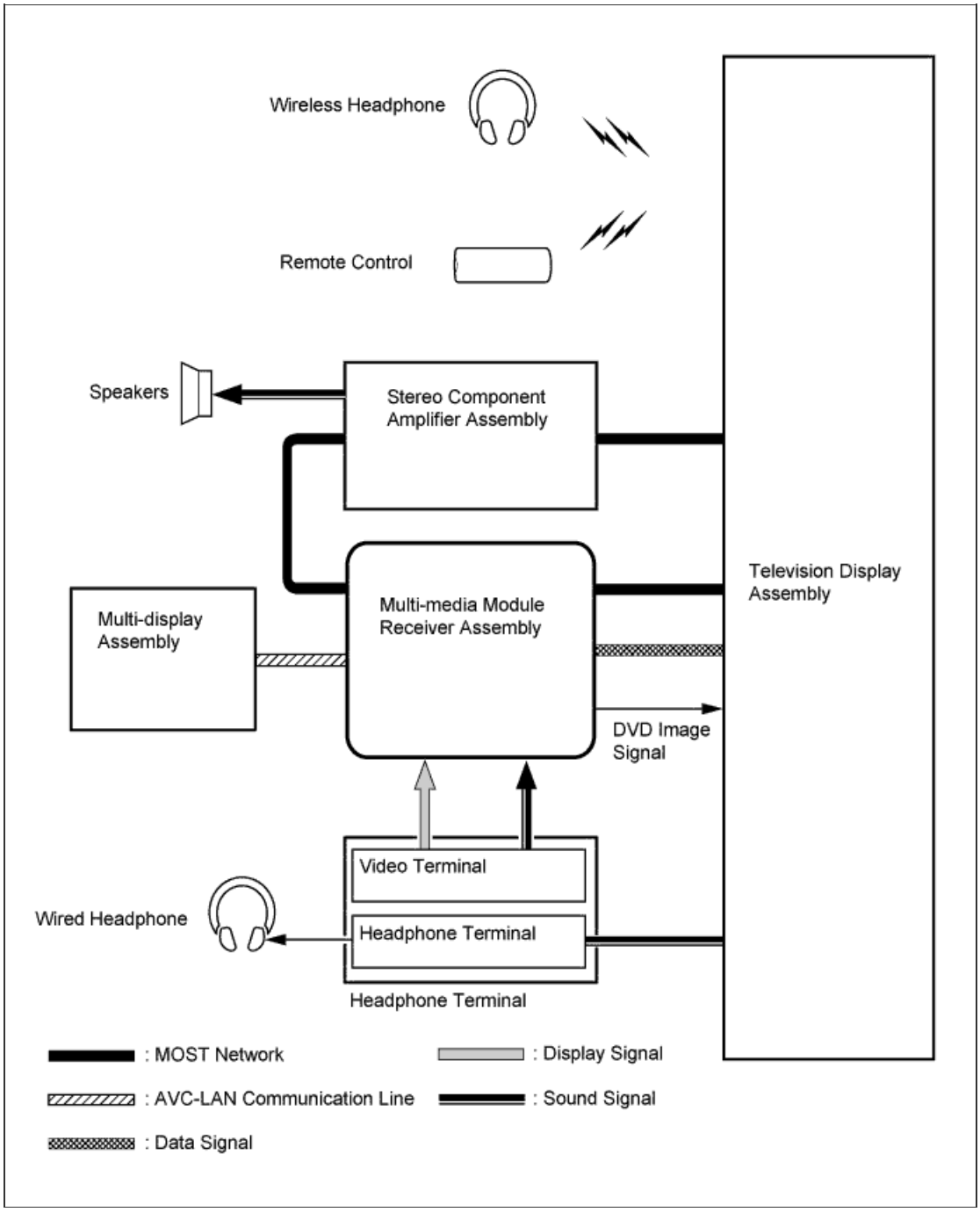
NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

for Preparation Click here



for Preparation Click here



for Preparation Click here

OUTLINE

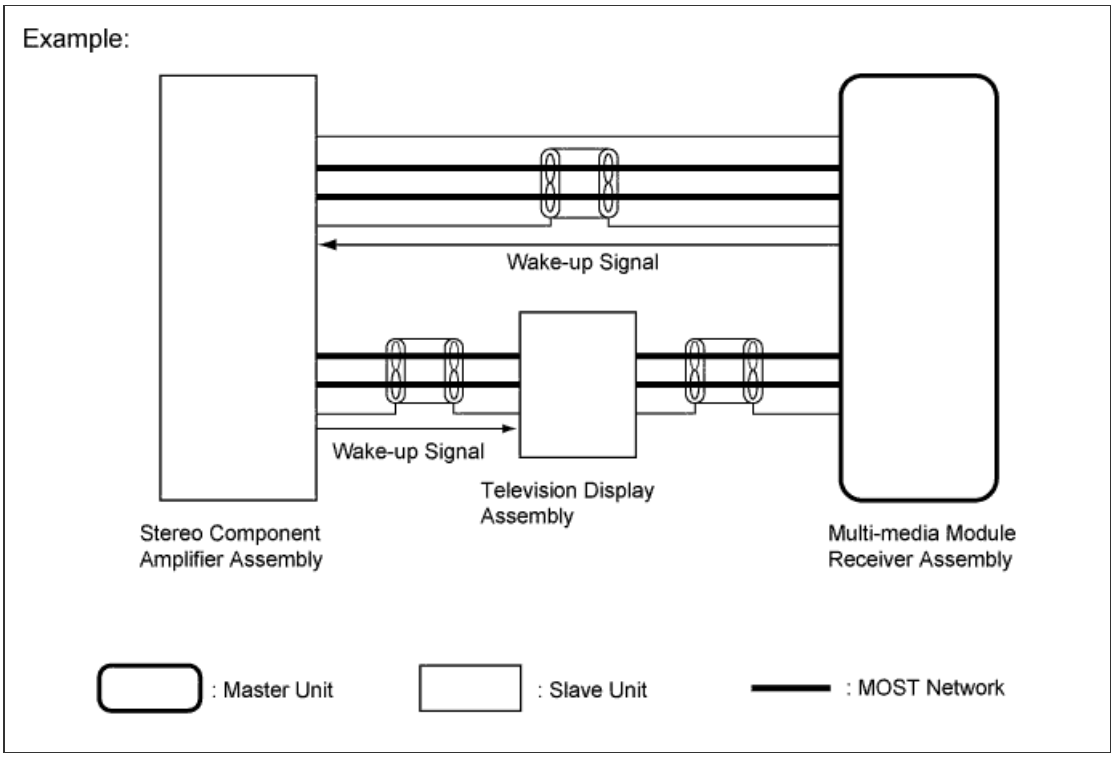
- As a unique feature of the Rear Seat Entertainment (RSE) system, the rear seat occupants can enjoy different audio-visual modes at the same time.
- The rear seat occupants can control the audio-visual modes with the remote control, and listen to audio by using wired or wireless headphones.
- The television 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. • Receives signals from the remote control and outputs them to the multi-media module receiver assembly. • Outputs audio signals to the wireless headphones in the form of infrared signals. • Displays the audio-visual control screen. • Displays the adjustment screen. • Displays the diagnosis screen. The diagnosis screen appears when diagnosis mode is started on the multi-display assembly. • 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). • 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. • 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. • 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.

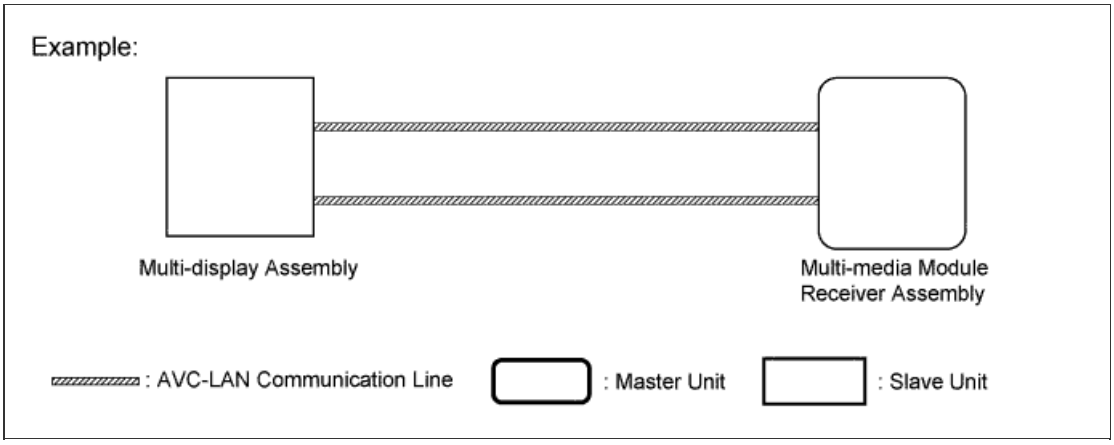
iv. MOST communication lines connect each slave unit centering around the master unit to form a MOST network ring.

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:



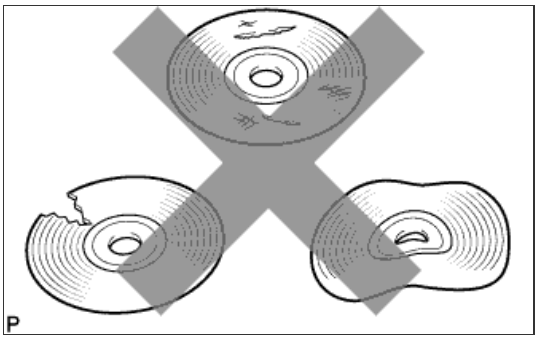
i. Precaution for use of discs

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

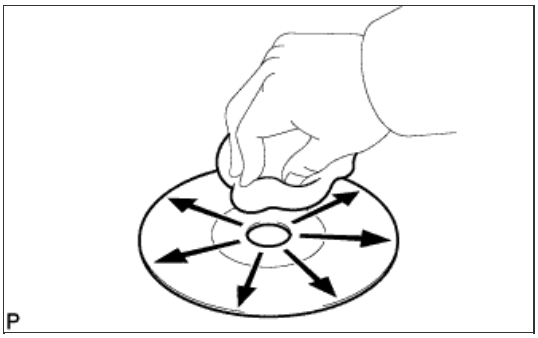
NOTICE:

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 (w/ Navigation 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 (w/ Navigation 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).

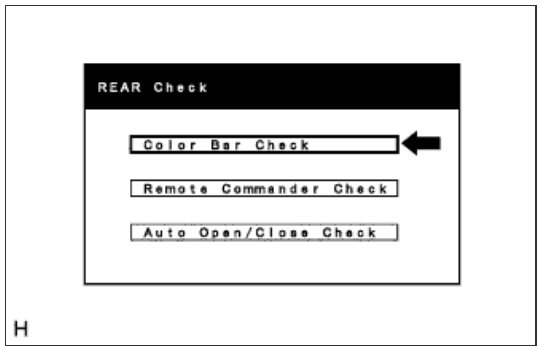
REAR CHECK

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.

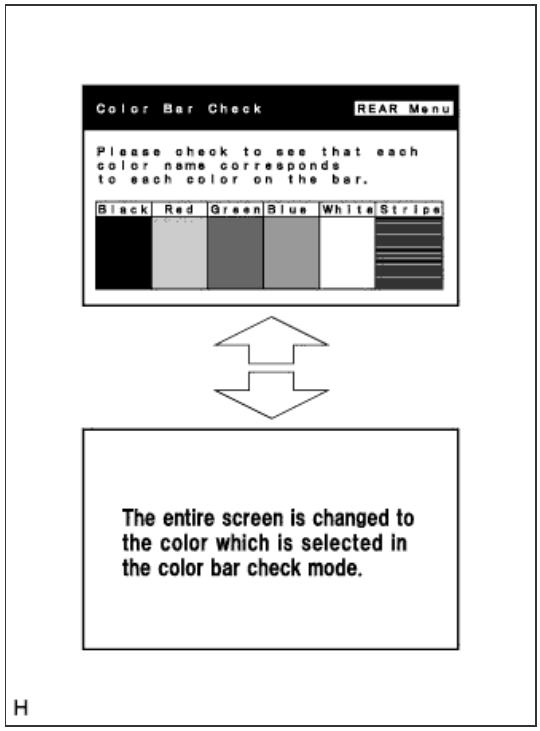


ii. Select a color bar from the "Color Bar Check" screen.

iii. Check the display color.

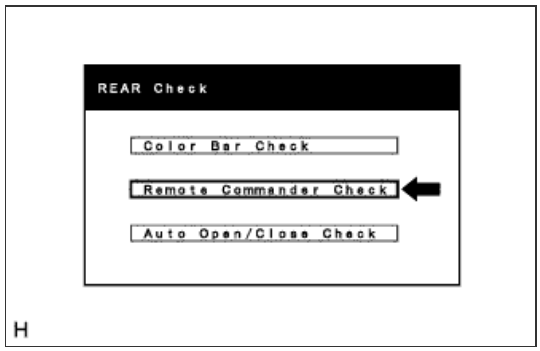
HINT:

- **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.**

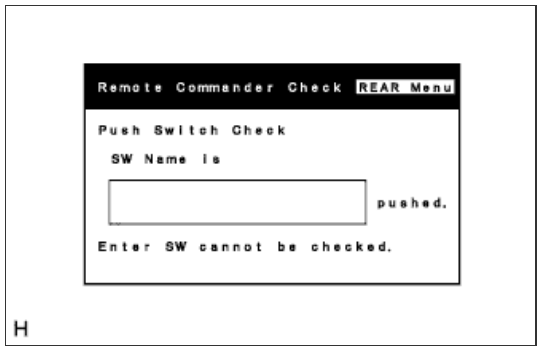


b. Remote Commander Check

i. Select "Remote Commander Check" from the "REAR Check" screen.

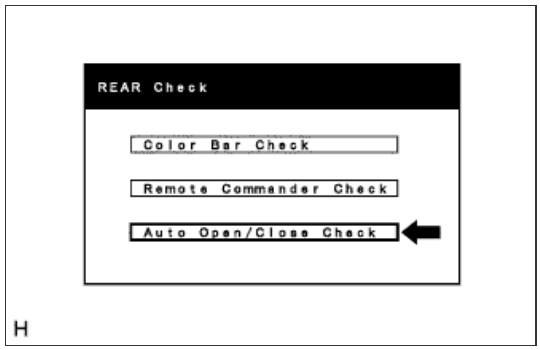


ii. Operate each switch and check that the switch name and condition are correctly displayed.



c. Auto Open/Close Check

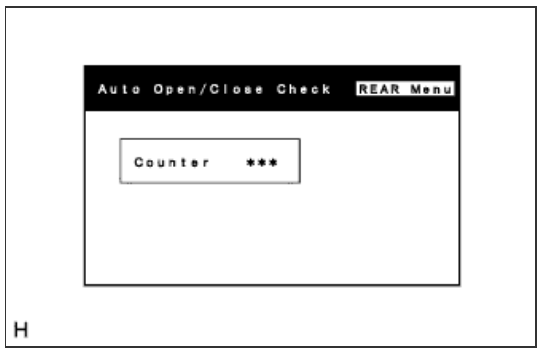
i. Select "Auto Open/Close Check" from the "REAR Check" screen.



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
	Headphone terminal (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

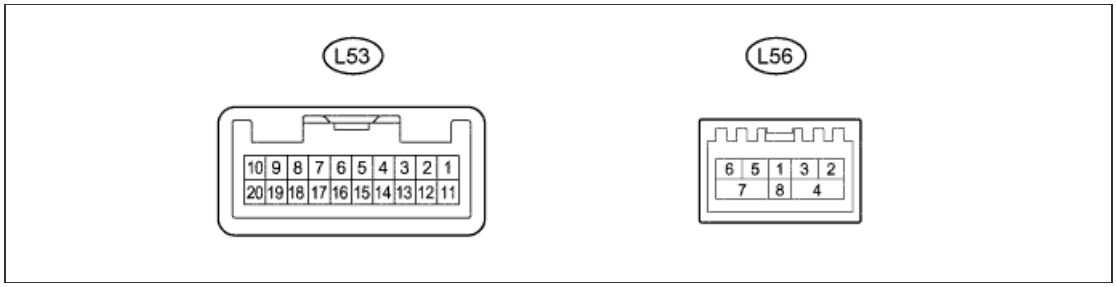
	Television display assembly	here
Quality of sound from headphone connected to headphone terminal is poor or no sound can be heard.	Proceed to "Sound from Wired Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor"	Click here
	Proceed to "Sound Signal Circuit between Headphone Terminal and Television Display"	Click here
	MOST communication line	-
	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 Radio Receiver and Video Terminal"	Click here
	MOST communication line	-
	Headphone terminal (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
L53-1 (+B) - L53-3 (GND)	L - W-B	Battery	Always	11 to 14 V
L53-3 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
L53-4 (GND2) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
L53-5 (HP2L) - L53-3 (GND)	W - W-B	RSE sound signal	RSE is playing	Waveform synchronized with sound is output.
L53-6 (SLD6) - L53-3 (GND)	Shielded - W-B	Shield ground	Always	Below 1 V
L53-7 (HP2R) - L53-3 (GND)	B - W-B	RSE sound signal	RSE is playing	Waveform synchronized with sound is output.
L53-8 (HP1L) - L53-3 (GND)	W - W-B	RSE sound signal	RSE is playing	Waveform synchronized with sound is output.
L53-9 (SLD5) - L53-3 (GND)	Shielded - W-B	Shield ground	Always	Below 1 V
L53-10 (HP1R) - L53-3 (GND)	B - W-B	RSE sound signal	RSE is playing	Waveform synchronized with sound is output.
L53-11 (+B2) - L53-3 (GND)	L - W-B	Battery	Always	11 to 14 V
L53-17 (VMTR) - L53-3 (GND)	G - W-B	Mute signal	RSE is playing → Source is changed	4 V or higher → Below 0.7 V → 4 V or higher
L53-18 (SLD4) - L53-3 (GND)	Shielded - W-B	Shield ground	Always	Below 1 V
L53-19 (SGN4) - L53-3 (GND)	W - W-B	Display signal ground	Always	Below 1 V
L53-20 (NTS4) - L53-19 (SGN4)	B - W	Display signal	RSE is playing	Waveform synchronized with display signals is output
L56-2 (MI+)	B	MOST communication signal	-	-
L56-3 (MI-)	B	MOST communication signal	-	-
L56-4 (SLDI) - Body ground	Shielded - Body ground	Shield ground	Always	Below 1 V
L56-5 (MO+)	B	MOST communication signal	-	-
L56-6 (MO-)	B	MOST communication signal	-	-
L56-7 (SLDO) - Body ground	Shielded - Body ground	Shield ground	Always	Below 1 V
L56-8 (WUI) - L53-3 (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 (w/ Navigation System) (Click here).

for Preparation Click here

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 • RAM malfunction • 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

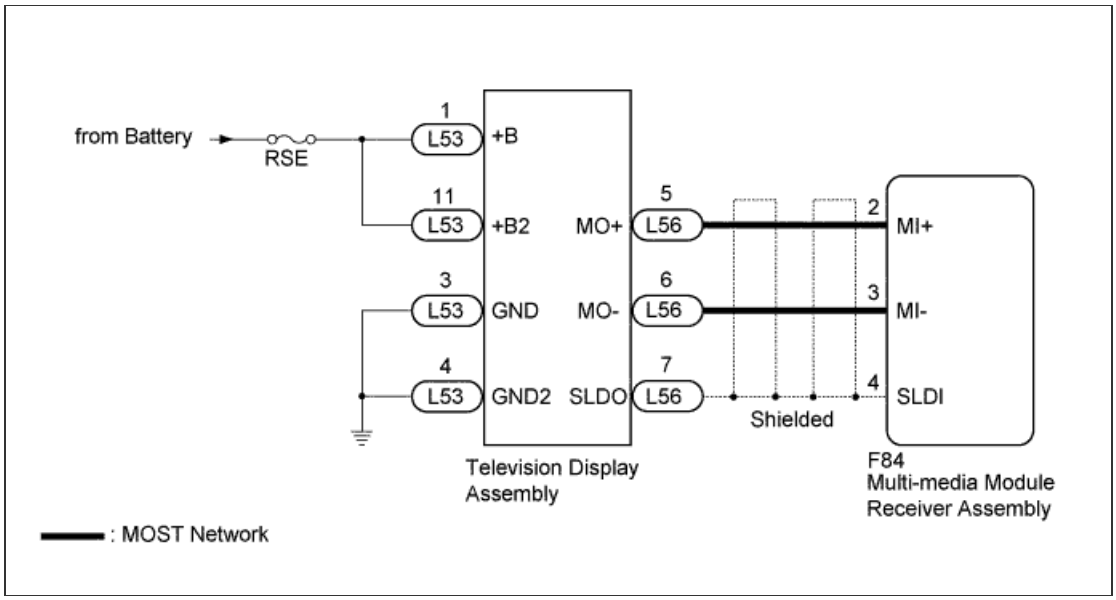
The television display assembly and multi-media module receiver assembly are connected by a MOST network.
When a MOST network error occurs between the display module board and multi-display assembly, these DTCs will be stored.

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 • MOST network • Multi-display assembly • 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)

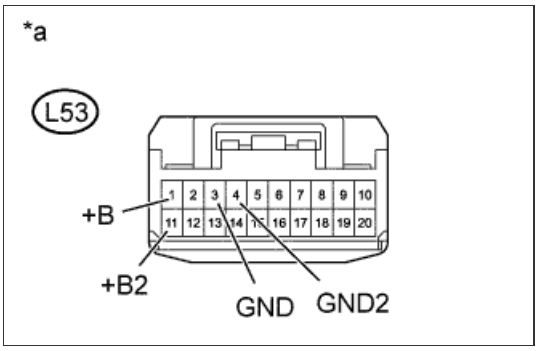
3.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - BATTERY AND BODY GROUND)

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
L53-3 (GND) - Body ground	Always	Below 1 Ω
L53-4 (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
L53-1 (+B) - Body ground	Always	11 to 14 V
L53-11 (+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 F84 multi-media module receiver assembly connector.

b. Disconnect the L56 television display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F84-2 (MI+) - L56-5 (MO+)	Always	Below 1 Ω
F84-3 (MI-) - L56-6 (MO-)	Always	Below 1 Ω
F84-4 (SLDI) - L56-7 (SLDO)	Always	Below 1 Ω
F84-2 (MI+) - Body ground	Always	10 kΩ or higher
F84-3 (MI-) - Body ground	Always	10 kΩ or higher
F84-4 (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: • Picture circuit (TFT unit) malfunction • Back light malfunction (excess current)	• Television display assembly • 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

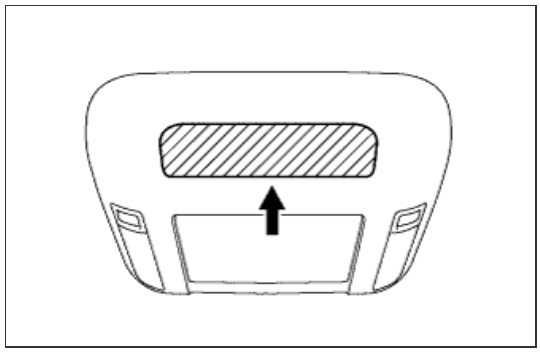
INSPECTION PROCEDURE

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.

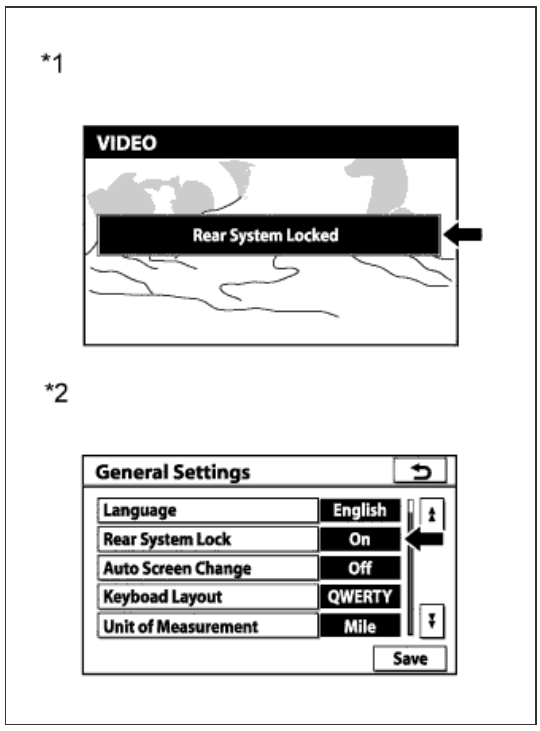
OK:
The message does not appear.

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.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

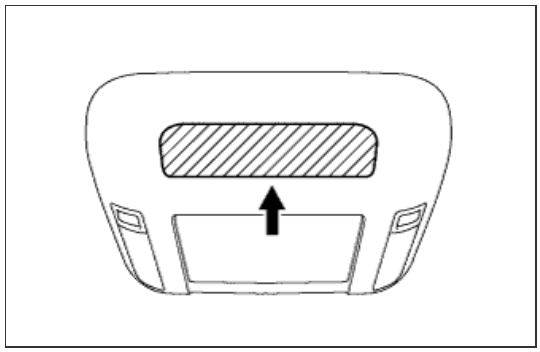
INSPECTION PROCEDURE

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 →

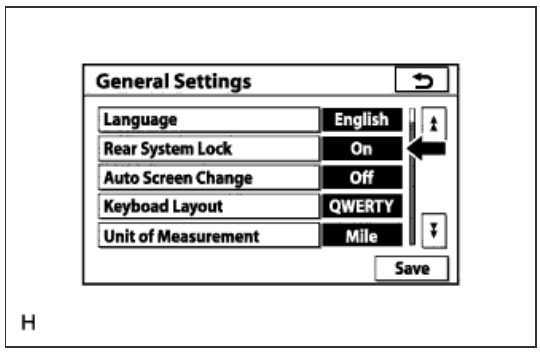
END

2.CHECK SYSTEM

a. Check that the remote control operation of the rear system is not locked by the 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

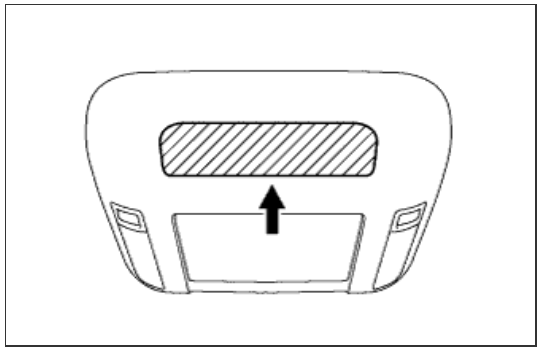
OK

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

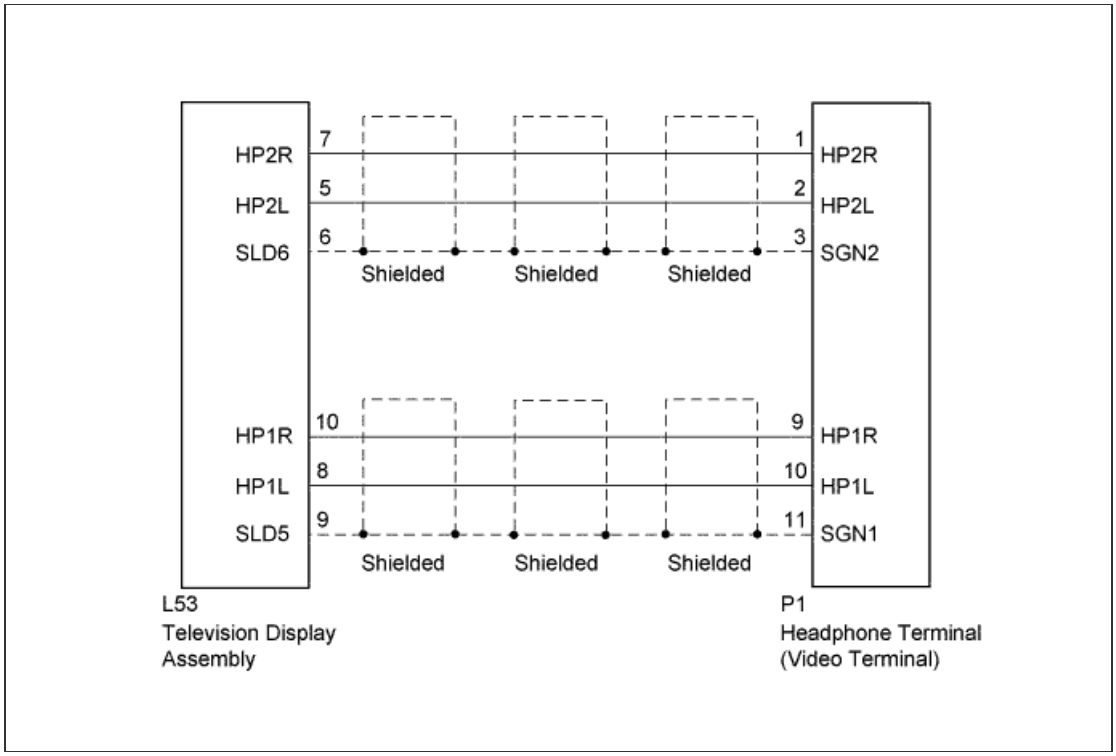
END (HEADPHONE WAS DEFECTIVE)

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 L53 television display assembly connector.

b. Disconnect the P1 headphone terminal (video terminal) connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L53-7 (HP2R) - P1-1 (HP2R)	Always	Below 1 Ω
L53-5 (HP2L) - P1-2 (HP2L)	Always	Below 1 Ω
L53-6 (SLD6) - P1-3 (SGN2)	Always	Below 1 Ω
L53-10 (HP1R) - P1-9 (HP1R)	Always	Below 1 Ω
L53-8 (HP1L) - P1-10 (HP1L)	Always	Below 1 Ω
L53-9 (SLD5) - P1-11 (SGN1)	Always	Below 1 Ω
L53-7 (HP2R) - Body ground	Always	10 kΩ or higher
L53-5 (HP2L) - Body ground	Always	10 kΩ or higher
L53-6 (SLD6) - Body ground	Always	10 kΩ or higher

L53-10 (HP1R) - Body ground	Always	10 kΩ or higher
L53-8 (HP1L) - Body ground	Always	10 kΩ or higher
L53-9 (SLD5) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

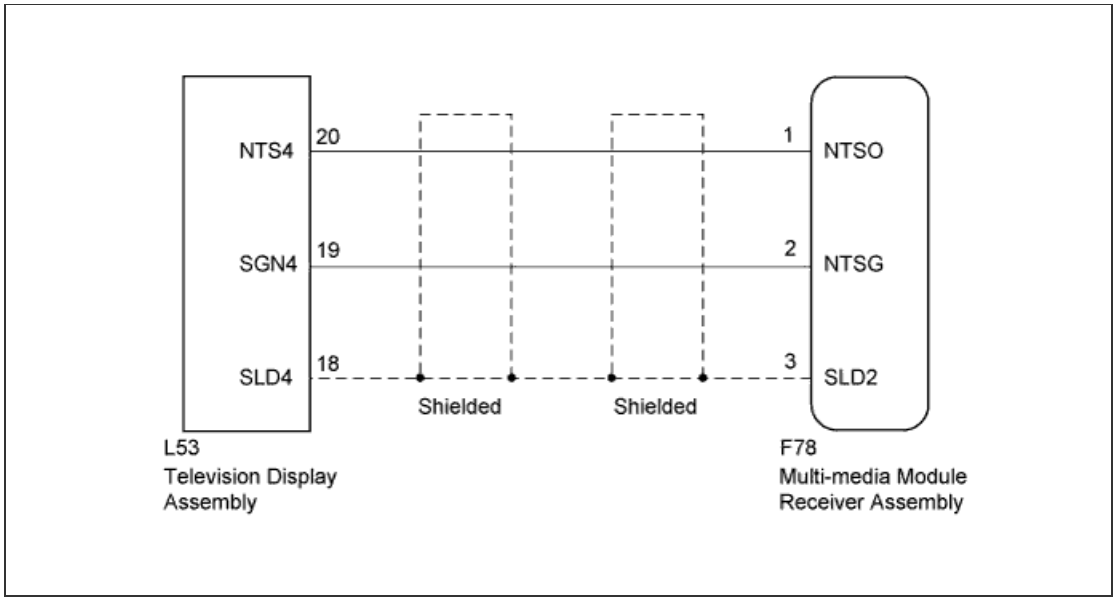
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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 F78 multi-media module receiver assembly connector.

b. Disconnect the L53 television display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F78-1 (NTSO) - L53-20 (NTS4)	Always	Below 1 Ω
F78-2 (NTSG) - L53-19 (SGN4)	Always	Below 1 Ω
F78-3 (SLD2) - L53-18 (SLD4)	Always	Below 1 Ω
F78-1 (NTSO) - Body ground	Always	10 kΩ or higher
F78-2 (NTSG) - Body ground	Always	10 kΩ or higher
F78-3 (SLD2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

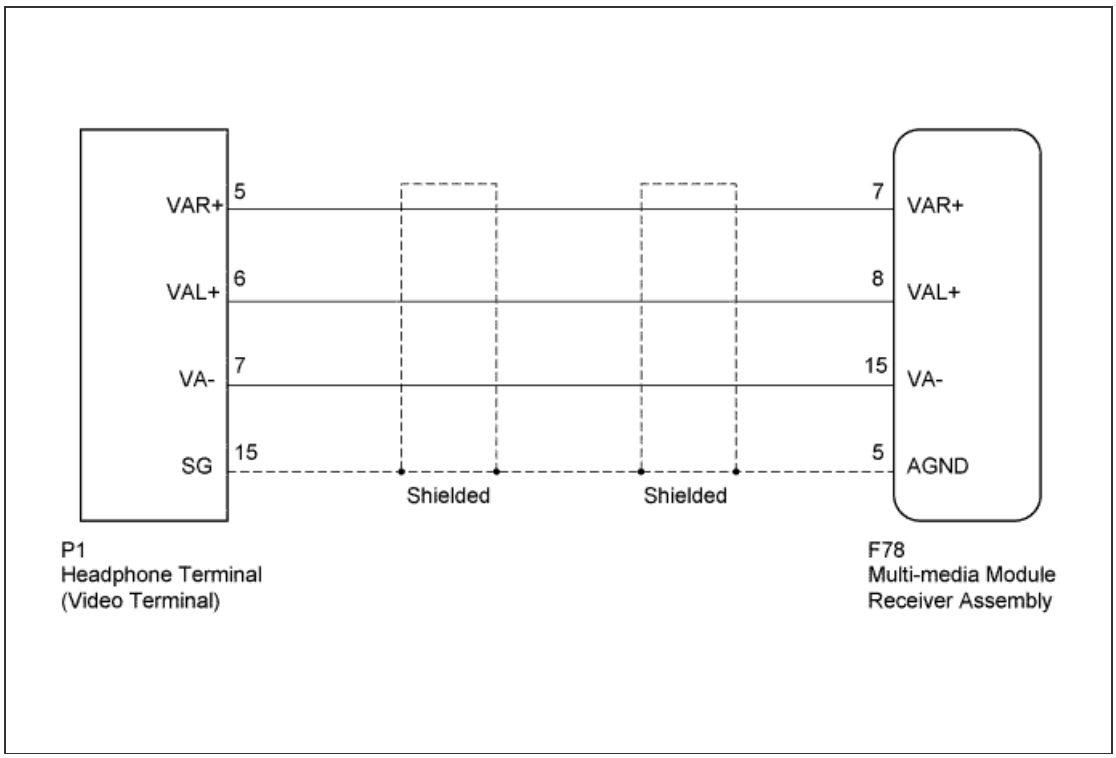
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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 F78 multi-media module receiver assembly connector.

b. Disconnect the P1 headphone terminal (video terminal) connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F78-7 (VAR+) - P1-5 (VAR+)	Always	Below 1 Ω
F78-8 (VAL+) - P1-6 (VAL+)	Always	Below 1 Ω
F78-15 (VA-) - P1-7 (VA-)	Always	Below 1 Ω
F78-5 (AGND) - P1-15 (SG)	Always	Below 1 Ω
F78-7 (VAR+) - Body ground	Always	10 kΩ or higher
F78-8 (VAL+) - Body ground	Always	10 kΩ or higher
F78-15 (VA-) - Body ground	Always	10 kΩ or higher
F78-5 (AGND) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

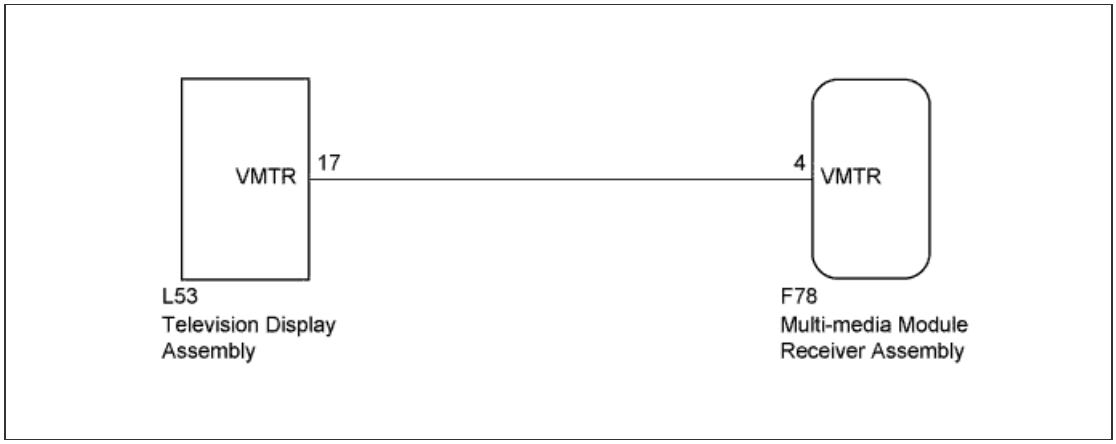
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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

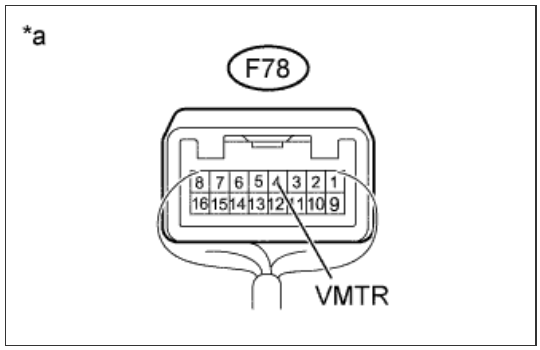
a. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
F78-4 (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)

a. Disconnect the F78 multi-media module receiver assembly connector.

b. Disconnect the L53 television display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F78-4 (VMTR) - L53-17 (VMTR)	Always	Below 1 Ω
F78-4 (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 L53 television display assembly connector.

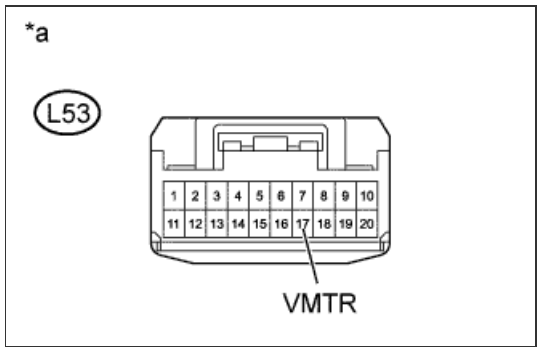
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
L53-17 (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

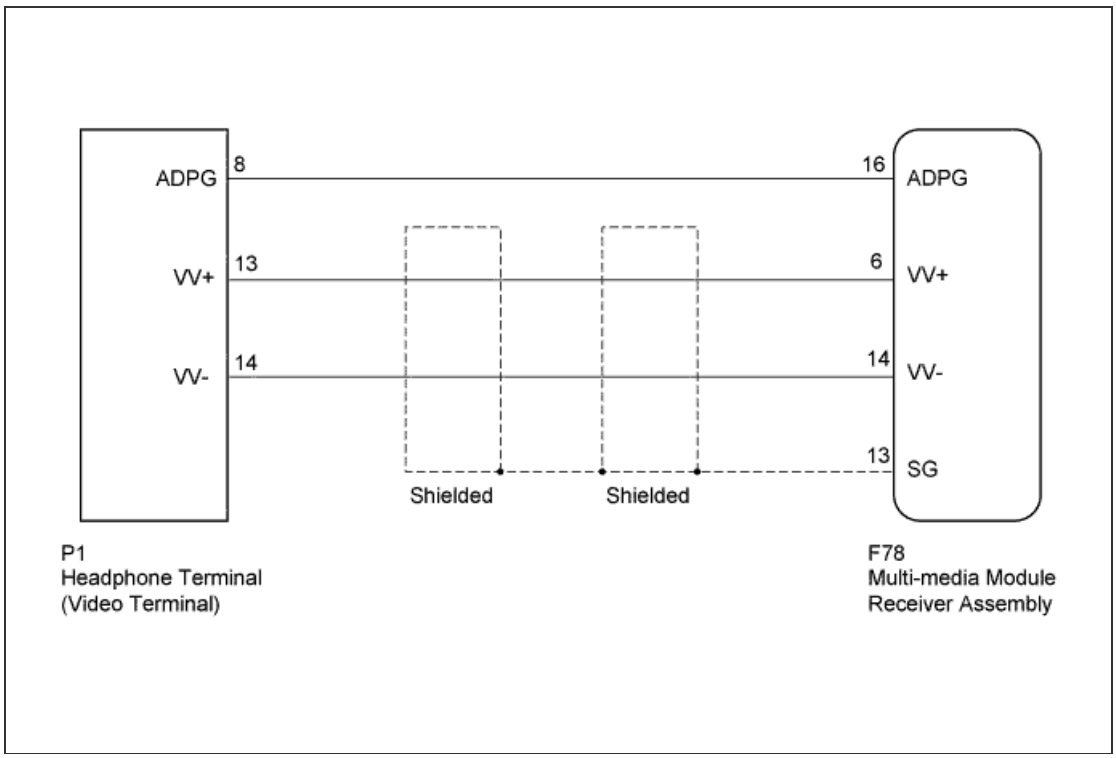
REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

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 F78 multi-media module receiver assembly connector.

b. Disconnect the P1 headphone terminal (video terminal) connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F78-6 (VV+) - P1-13 (VV+)	Always	Below 1 Ω
F78-14 (VV-) - P1-14 (VV-)	Always	Below 1 Ω
F78-16 (ADPG) - P1-8 (ADPG)	Always	Below 1 Ω
F78-6 (VV+) - Body ground	Always	10 kΩ or higher
F78-14 (VV-) - Body ground	Always	10 kΩ or higher
F78-13 (SG) - Body ground	Always	10 kΩ or higher
F78-16 (ADPG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

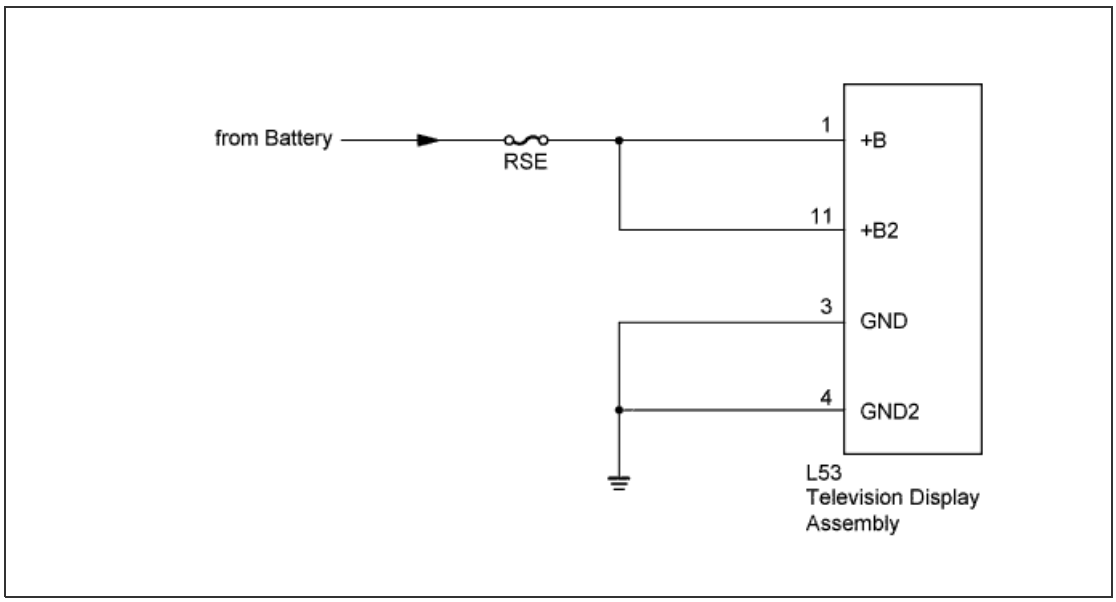
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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.

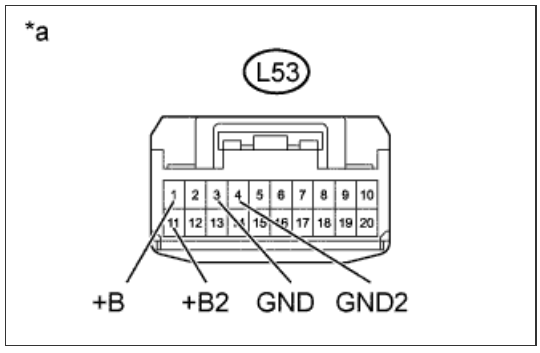
1.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - BATTERY AND BODY GROUND)

a. Disconnect the L53 television display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L53-3 (GND) - Body ground	Always	Below 1 Ω
L53-4 (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
L53-11 (+B2) - Body ground	Always	11 to 14 V
L53-1 (+B) - Body ground	Always	11 to 14 V

Text in Illustration

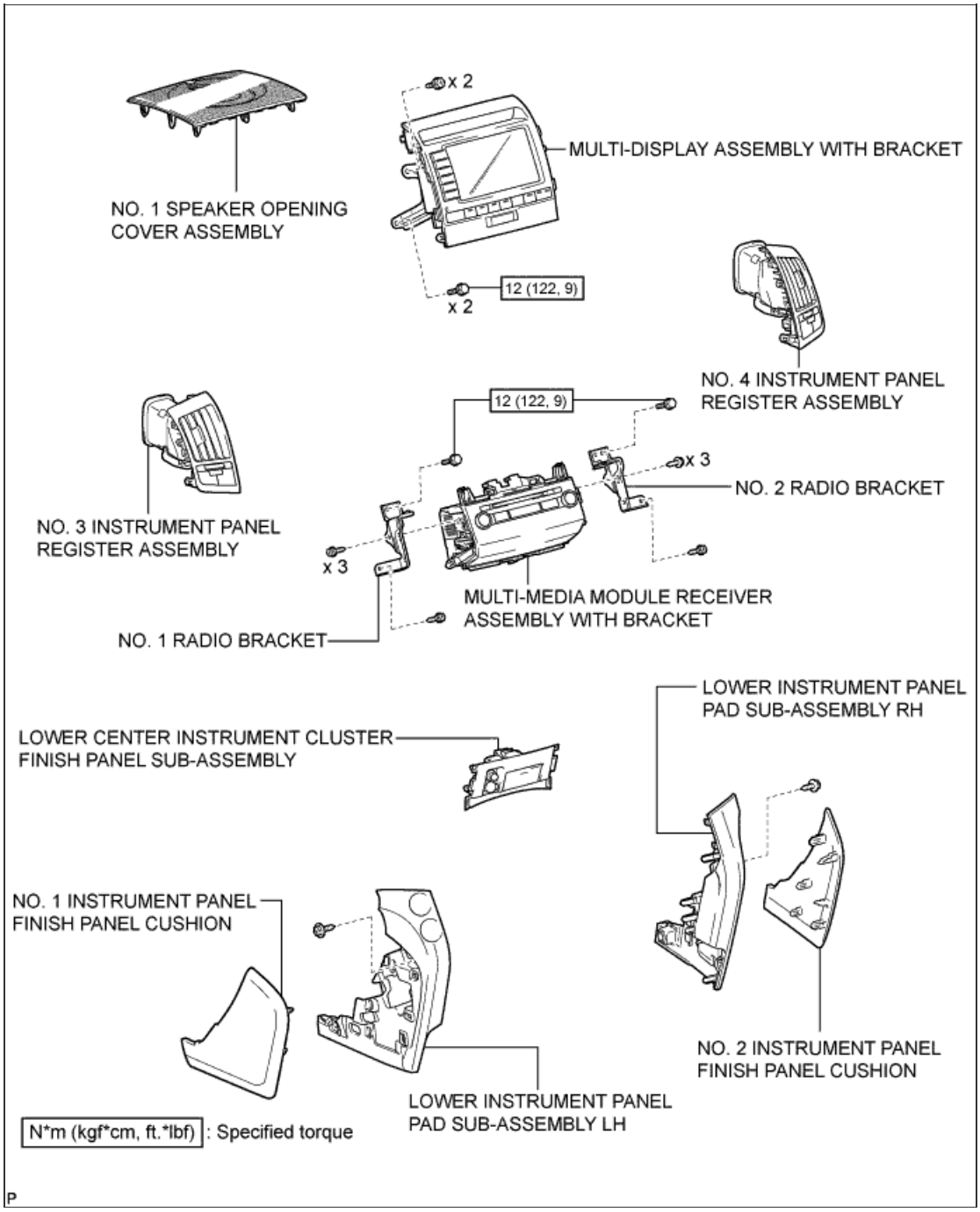
*a	Front view of wire harness connector (to Television Display Assembly)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here



for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

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).

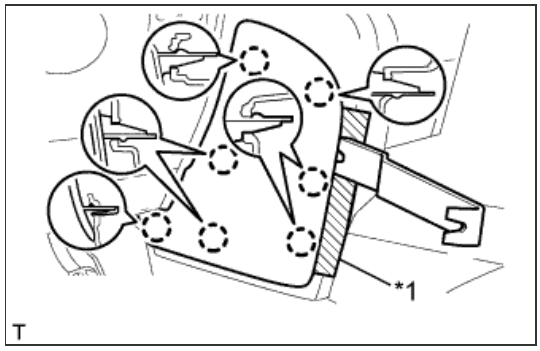
3. REMOVE NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Put protective tape around the No. 2 instrument panel finish panel cushion.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 7 claws and remove the No. 2 instrument panel finish panel cushion.

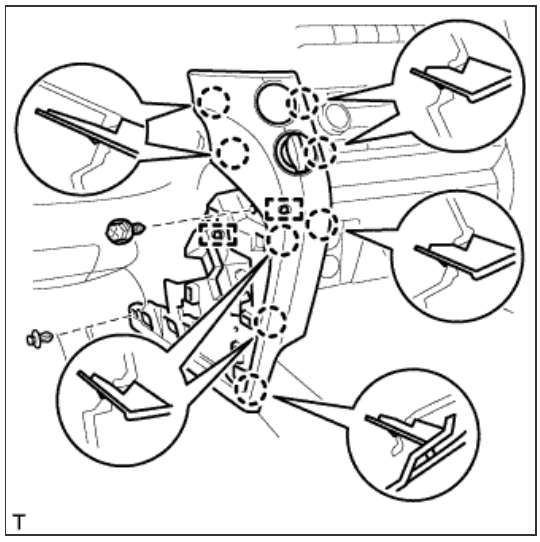


4. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Remove the clip and screw.

b. Detach the 8 claws.

c. Disconnect the connectors, detach the 2 clamps and remove the lower instrument panel pad sub-assembly.



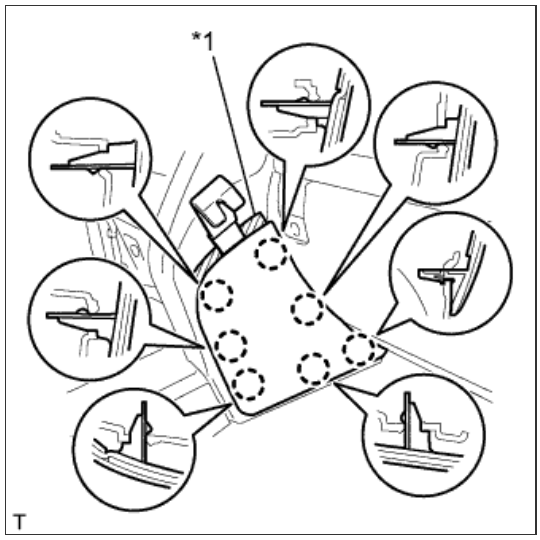
5. REMOVE NO. 1 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Put protective tape around the No. 1 instrument panel finish panel cushion.

Text in Illustration

*1	Protective Tape

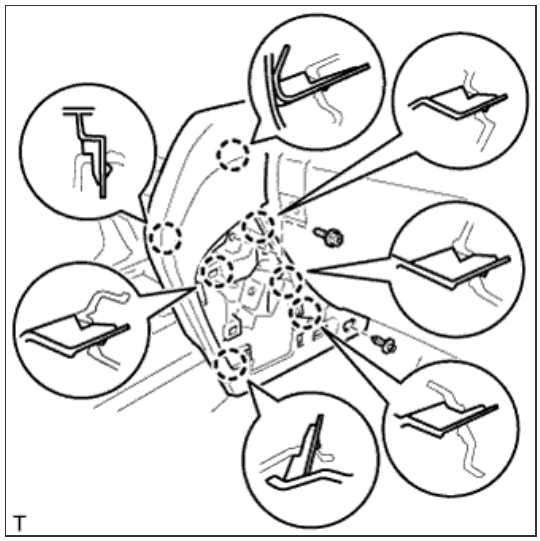
b. Using a moulding remover, detach the 7 claws and remove the No. 1 instrument panel finish panel cushion.



6. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

a. Remove the clip and screw.

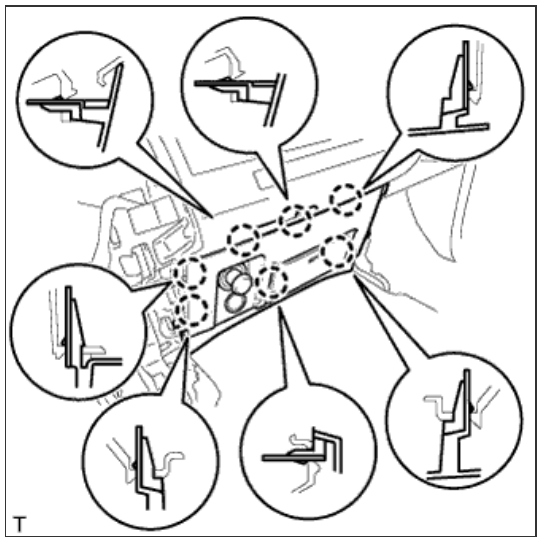
b. Detach the 7 claws and remove the lower instrument panel pad sub-assembly.



7. REMOVE LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

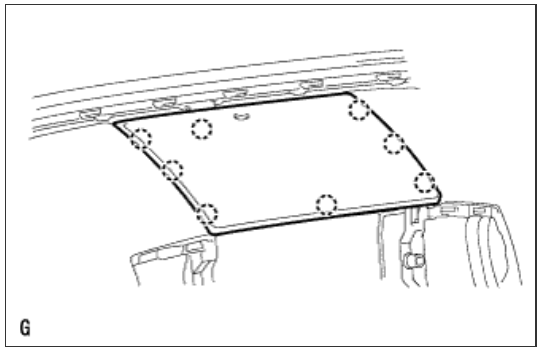
a. Detach the 7 claws.

b. Disconnect the connectors and remove the lower center instrument cluster finish panel sub-assembly.



8. REMOVE NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Detach the 8 claws and remove the opening cover.



9. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

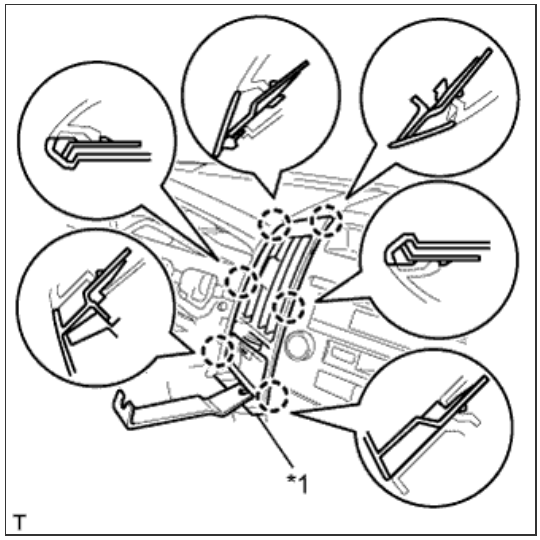
a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 6 claws.

c. Disconnect the connector and remove the No. 3 instrument panel register.



10. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

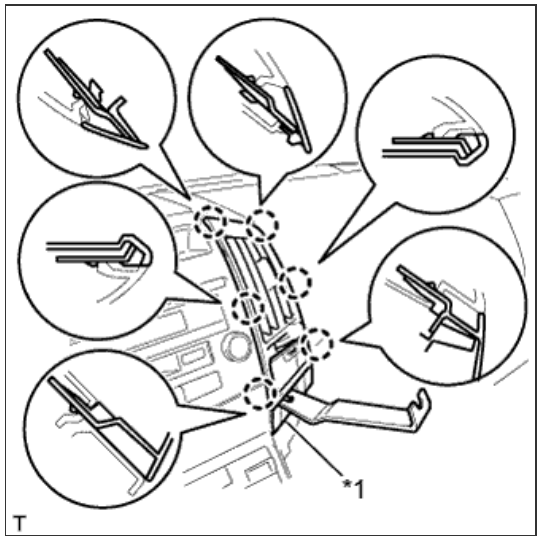
a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

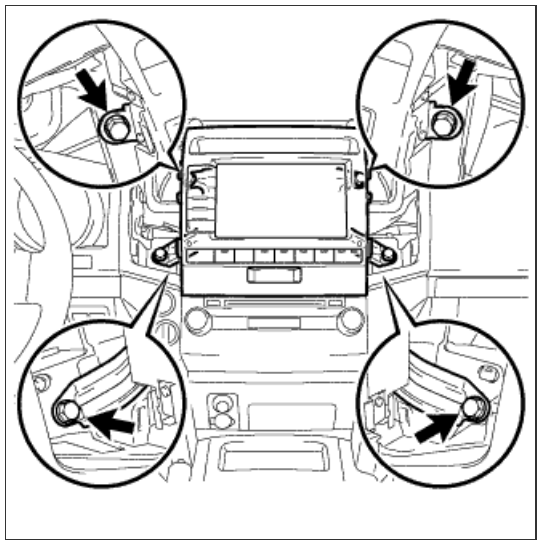
b. Using a moulding remover, detach the 6 claws.

c. Disconnect the connector and remove the No. 4 instrument panel register.



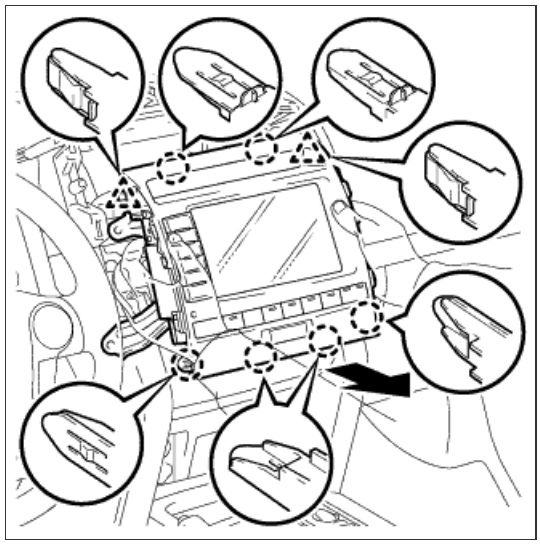
11. REMOVE MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Remove the 2 screws and 2 bolts.



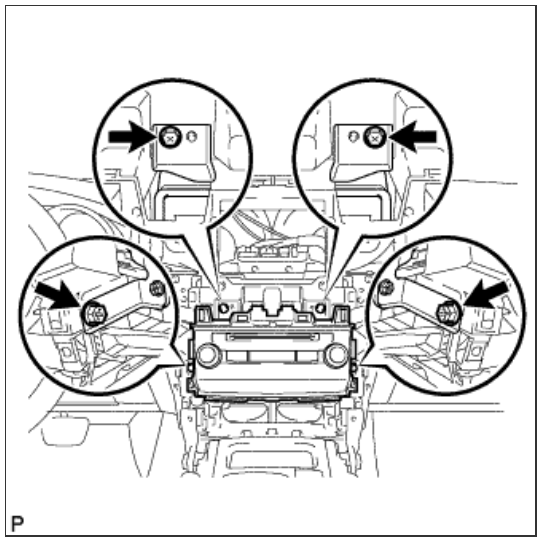
b. Pull the multi-display assembly to detach the 2 clips and 6 claws on the backside of the multi-display assembly.

c. Disconnect the connectors and remove the multi-display assembly.



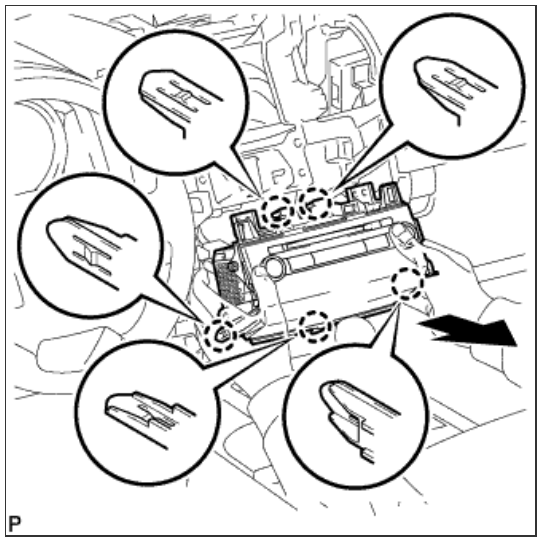
12. REMOVE MULTI-MEDIA MODULE RECEIVER ASSEMBLY WITH BRACKET

a. Remove the 2 screws and 2 bolts.



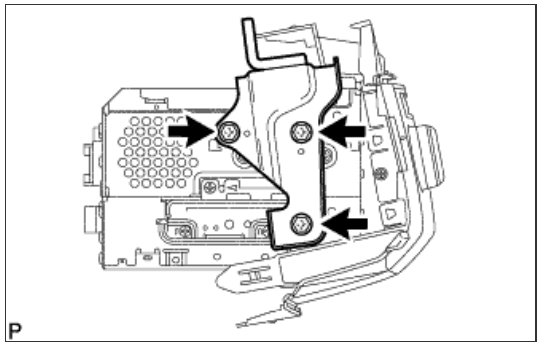
b. Pull the multi-media module receiver assembly to detach the 5 claws on the backside of the multi-media module receiver assembly.

c. Disconnect the connectors and remove the multi-media module receiver assembly.



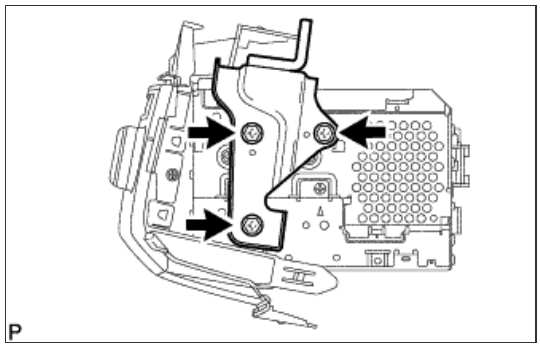
13. REMOVE NO. 1 RADIO BRACKET

a. Remove the 3 bolts and No. 1 radio bracket.



14. REMOVE NO. 2 RADIO BRACKET

a. Remove the 3 bolts and No. 2 radio bracket.



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 }

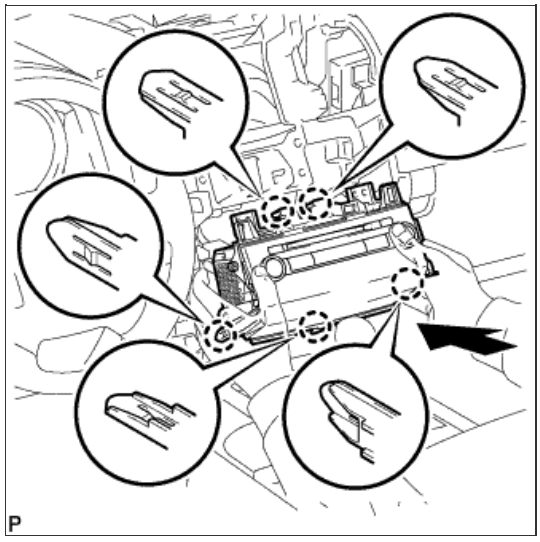
3. INSTALL MULTI-MEDIA MODULE RECEIVER ASSEMBLY WITH BRACKET

a. Connect the connectors.

b. Insert the multi-media module receiver assembly to attach the 5 claws on its backside.

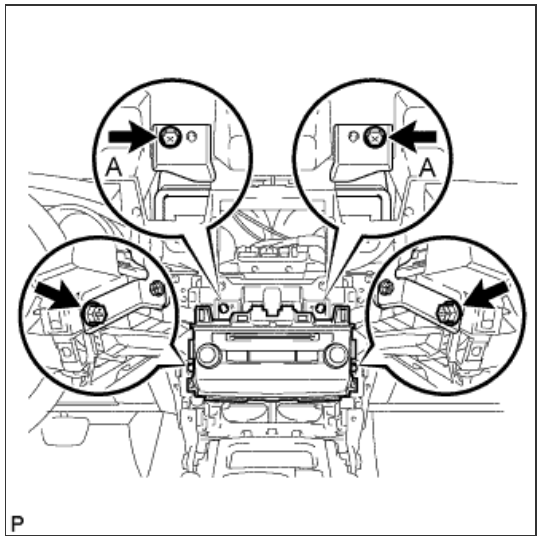
NOTICE:

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.

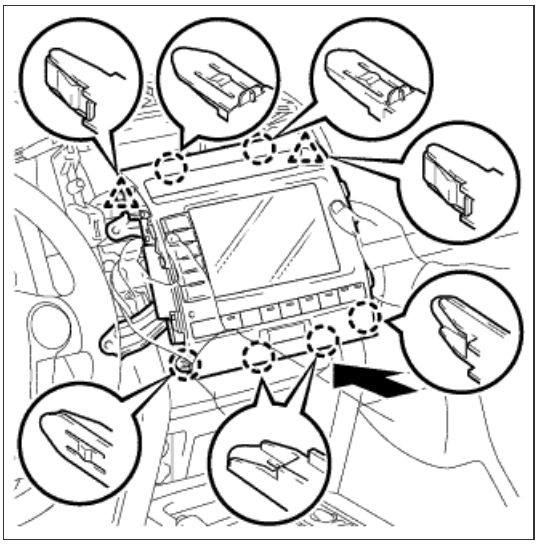
Torque:
Bolt A:
12 N*m{ 122 kgf*cm , 9 ft.*lbf }



4. INSTALL MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Connect the connectors.

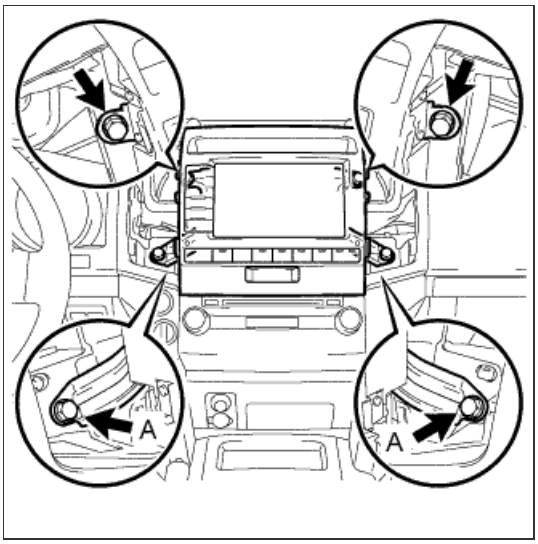
b. Insert the multi-display assembly and attach the 2 clips and 6 claws on its backside.



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.

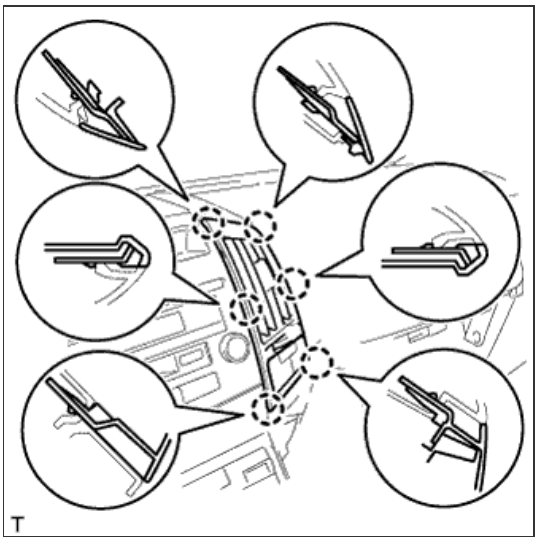


Torque:
Bolt A:
12 N*m{ 122 kgf*cm , 9 ft.*lbf }

5. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Connect the connector.

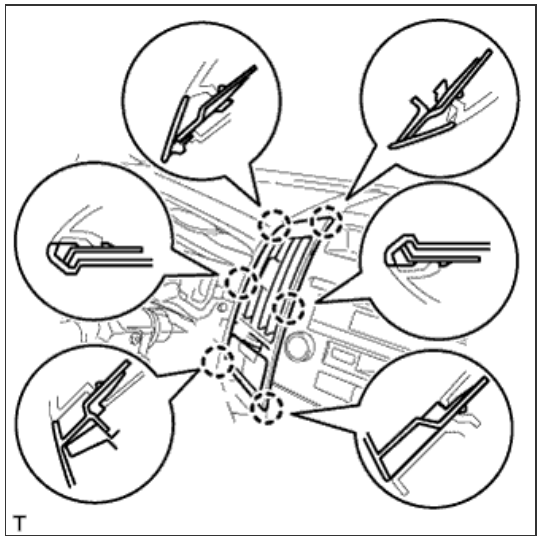
b. Attach the 6 claws to install the No. 4 instrument panel register.



6. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

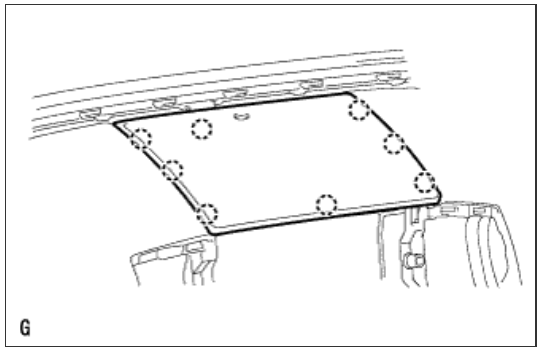
a. Connect the connector.

b. Attach the 6 claws to install the No. 3 instrument panel register.



7. INSTALL NO. 1 SPEAKER OPENING COVER ASSEMBLY

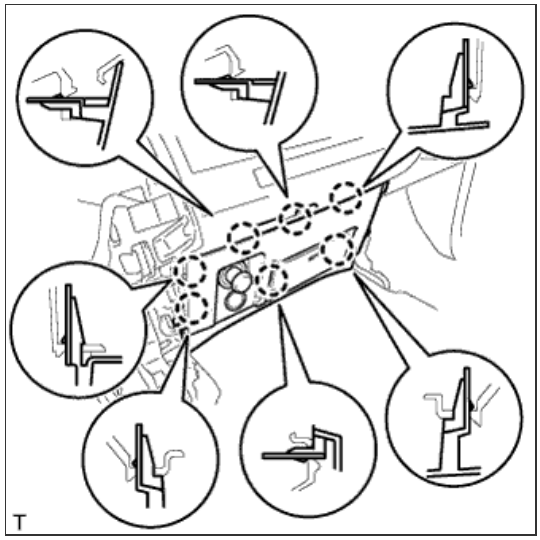
a. Attach the 8 claws to install the opening cover.



8. INSTALL LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

a. Connect the connectors.

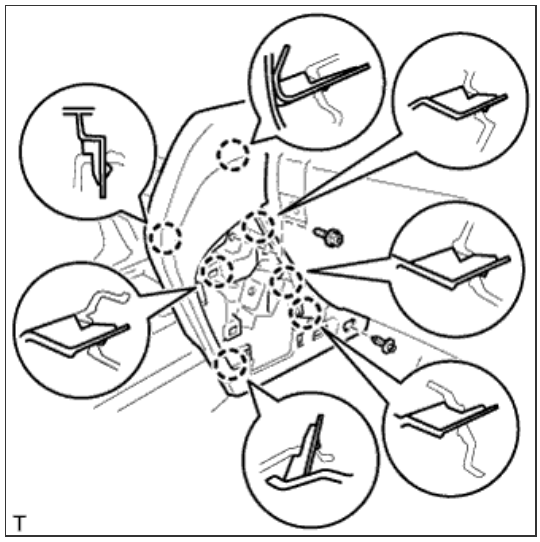
b. Attach the 7 claws to install the lower center instrument cluster finish panel sub-assembly.



9. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

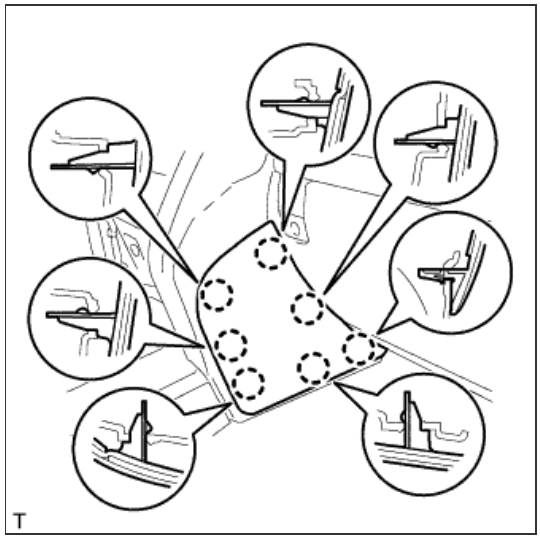
a. Attach the 7 claws to install the lower instrument panel pad sub-assembly.

b. Install the clip and screw.



10. INSTALL NO. 1 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Attach the 7 claws to install the No. 1 instrument panel finish panel cushion.

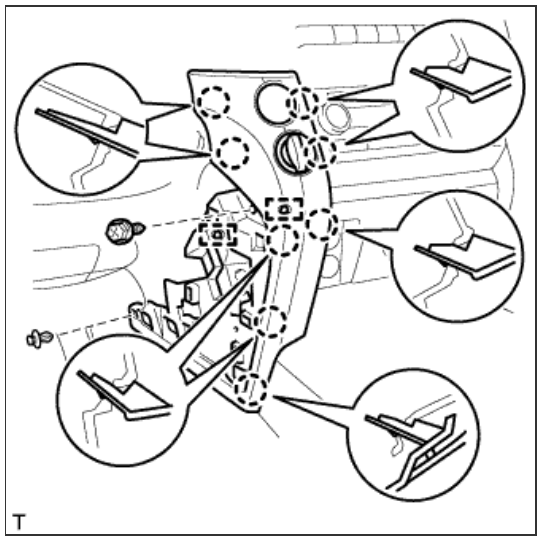


11. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connectors and attach the 2 clamps.

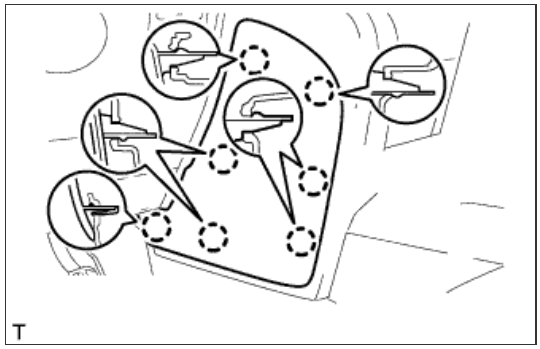
b. Attach the 8 claws to install the lower instrument panel pad sub-assembly.

c. Install the clip and screw.



12. INSTALL NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Attach the 7 claws to install the No. 2 instrument panel finish panel cushion.

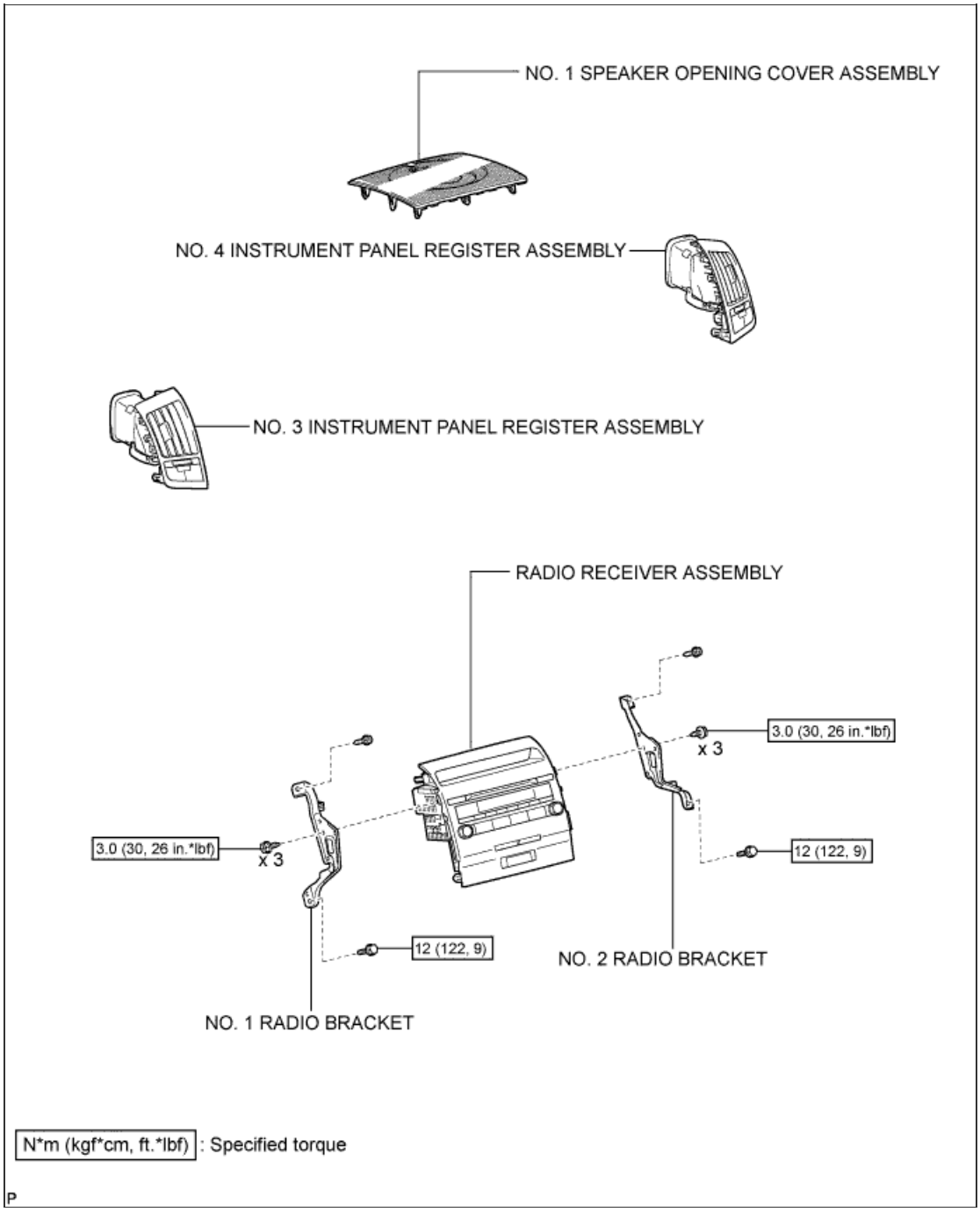


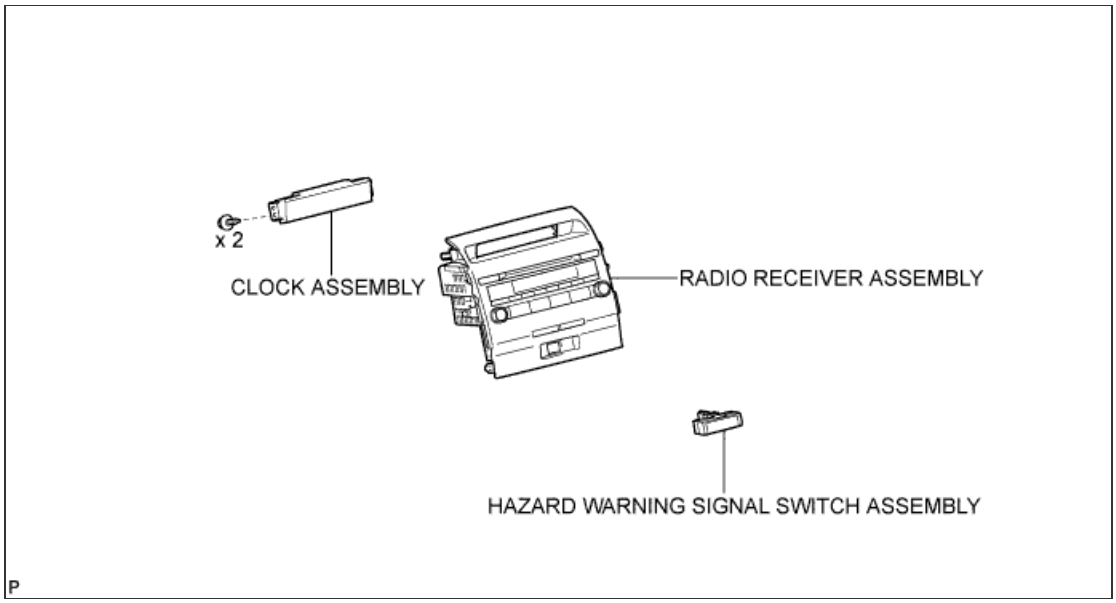
13. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

for Preparation Click here




x 2
CLOCK ASSEMBLY
RADIO RECEIVER ASSEMBLY
HAZARD WARNING SIGNAL SWITCH ASSEMBLY
P

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

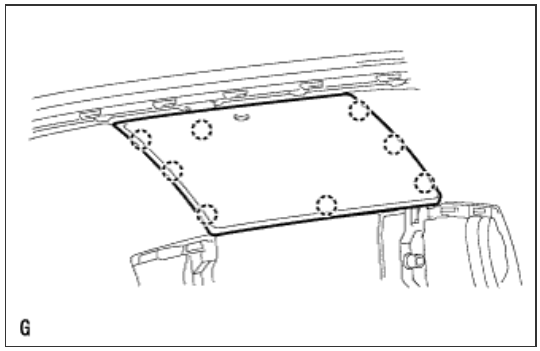
2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Detach the 8 claws and remove the opening cover.



4. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

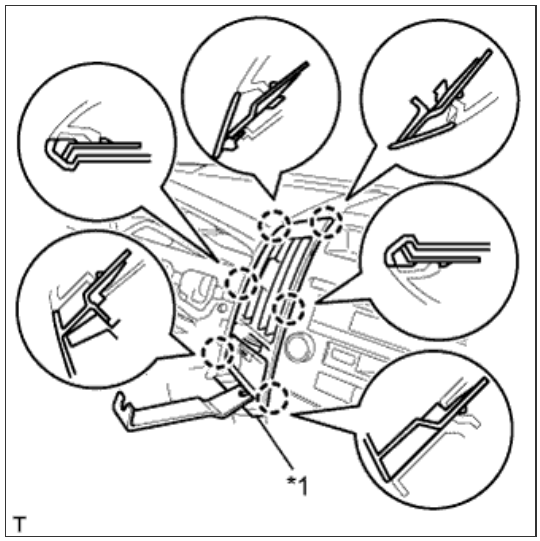
a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 6 claws.

c. Disconnect the connector and remove the No. 3 instrument panel register.



5. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

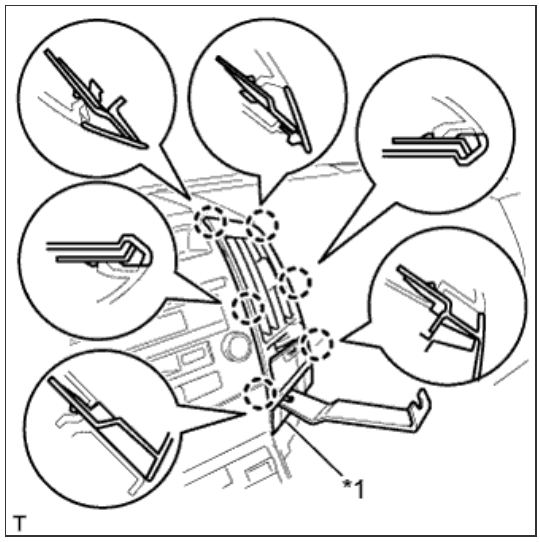
a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 6 claws.

c. Disconnect the connector and remove the No. 4 instrument panel register.



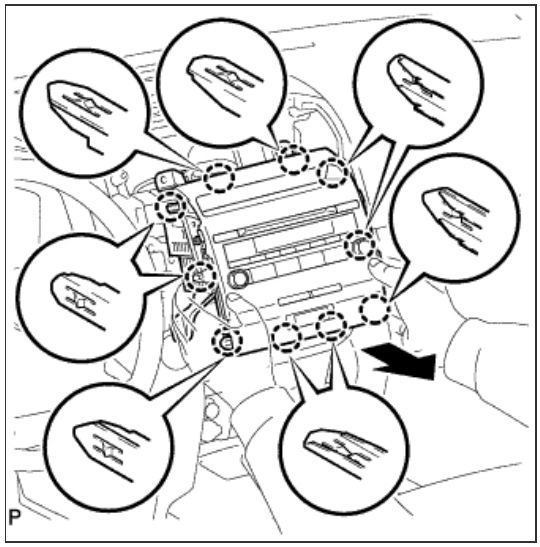
6. REMOVE RADIO RECEIVER ASSEMBLY WITH BRACKET

a. Remove the 2 screws and 2 bolts.



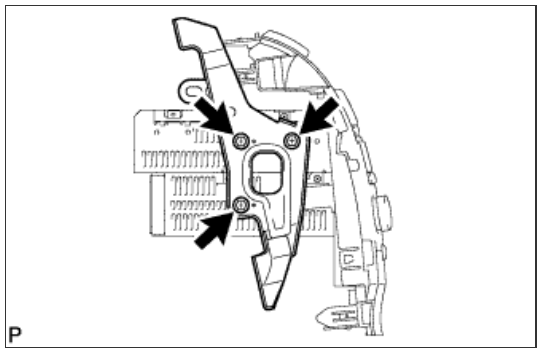
b. Pull the radio receiver to detach the 10 claws on the backside of the radio receiver.

c. Disconnect the connectors and remove the radio receiver.



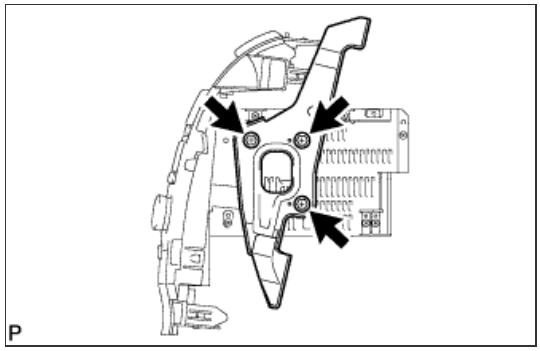
7. REMOVE NO. 1 RADIO BRACKET

a. Remove the 3 bolts and bracket.



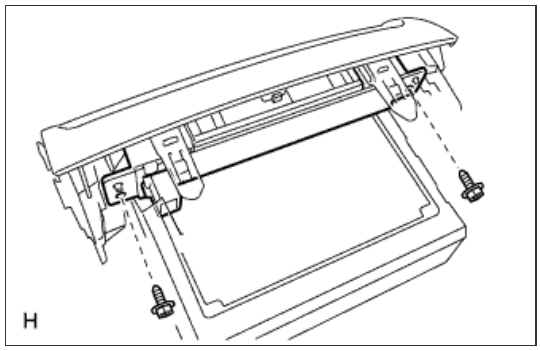
8. REMOVE NO. 2 RADIO BRACKET

a. Remove the 3 bolts and bracket.



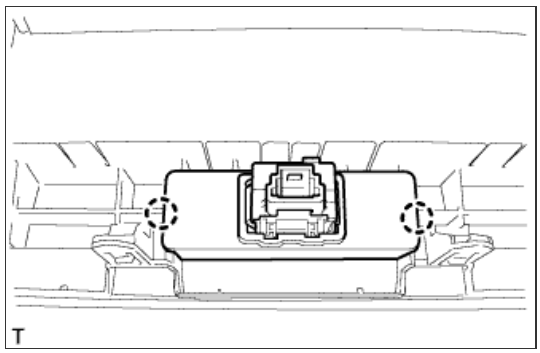
9. REMOVE CLOCK ASSEMBLY

a. Remove the 2 screws and clock.



10. REMOVE HAZARD WARNING SIGNAL SWITCH ASSEMBLY

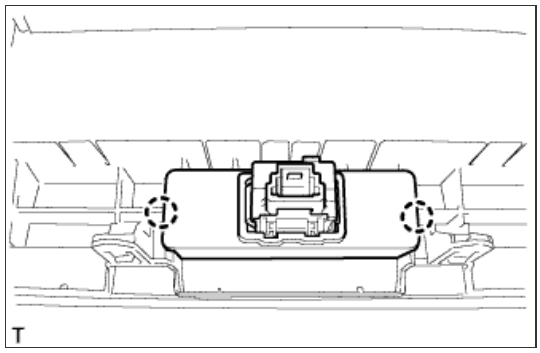
a. Detach the 2 claws and remove the hazard warning switch.



for Preparation Click here

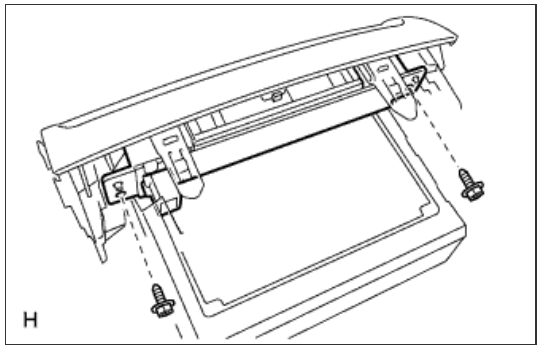
1. INSTALL HAZARD WARNING SIGNAL SWITCH ASSEMBLY

a. Attach the 2 claws to install the hazard warning switch.



2. INSTALL CLOCK ASSEMBLY

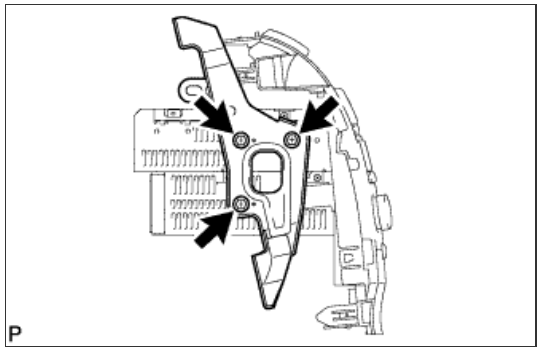
a. Install the clock with the 2 screws.



3. INSTALL NO. 1 RADIO BRACKET

a. Install the bracket with the 3 bolts.

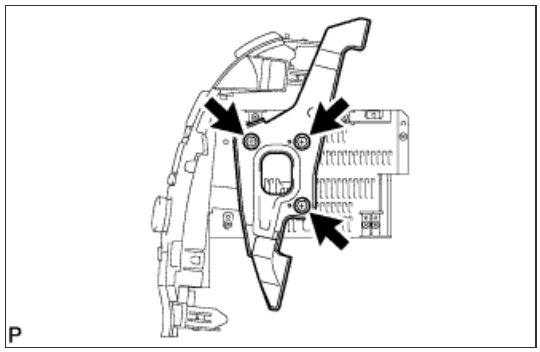
Torque:
3.0 N*m{ 30 kgf*cm , 26 in.*lbf }



4. INSTALL NO. 2 RADIO BRACKET

a. Install the bracket with the 3 bolts.

Torque:
3.0 N*m{ 30 kgf*cm , 26 in.*lbf }



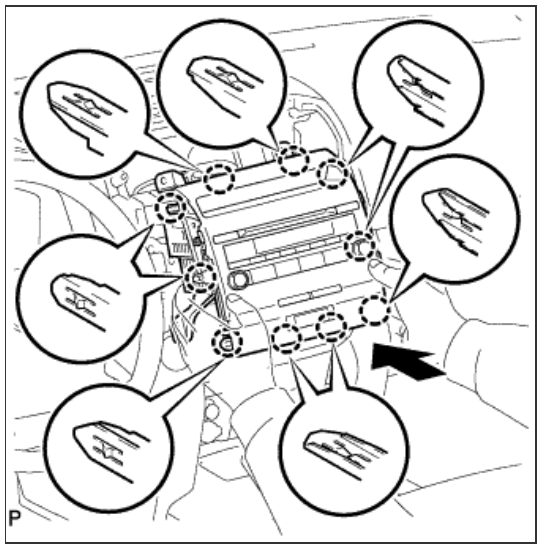
5. INSTALL RADIO RECEIVER ASSEMBLY WITH BRACKET

a. Connect the connectors.

b. Insert the radio receiver to attach the 10 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.

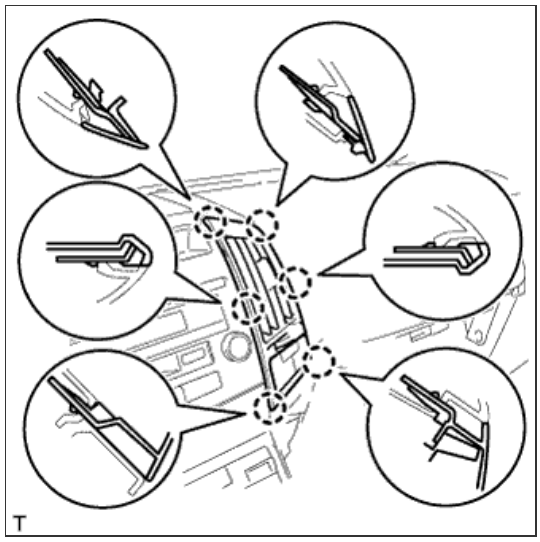
Torque:
Bolt:
12 N*m{ 122 kgf*cm , 9 ft.*lbf }



6. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Connect the connector.

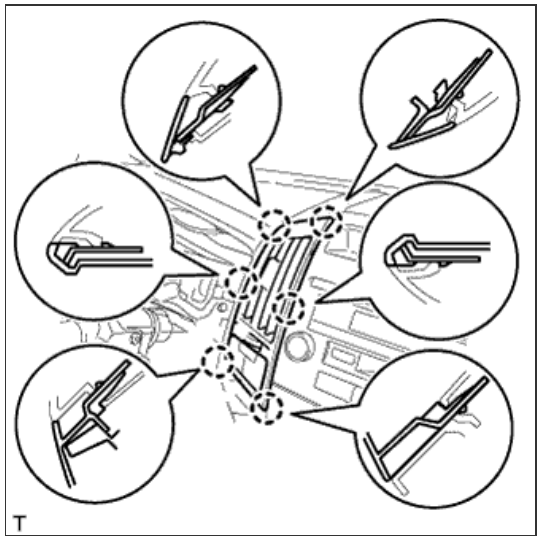
b. Attach the 6 claws to install the No. 4 instrument panel register.



7. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

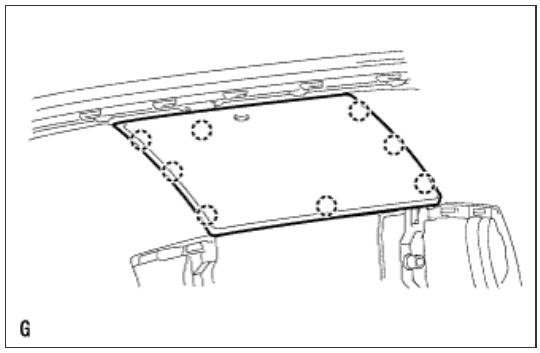
a. Connect the connector.

b. Attach the 6 claws to install the No. 3 instrument panel register.



8. INSTALL NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Attach the 8 claws to install the opening cover.

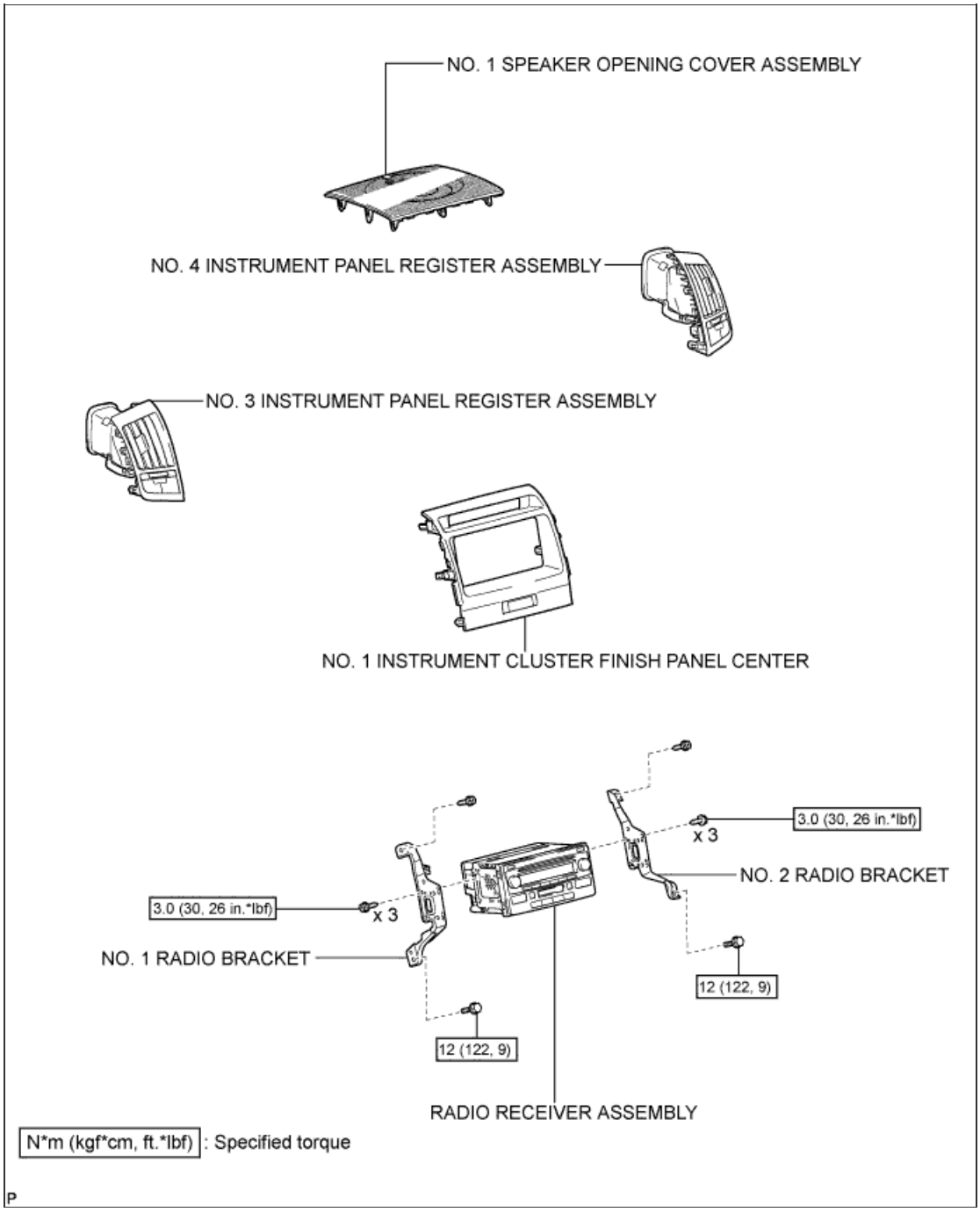


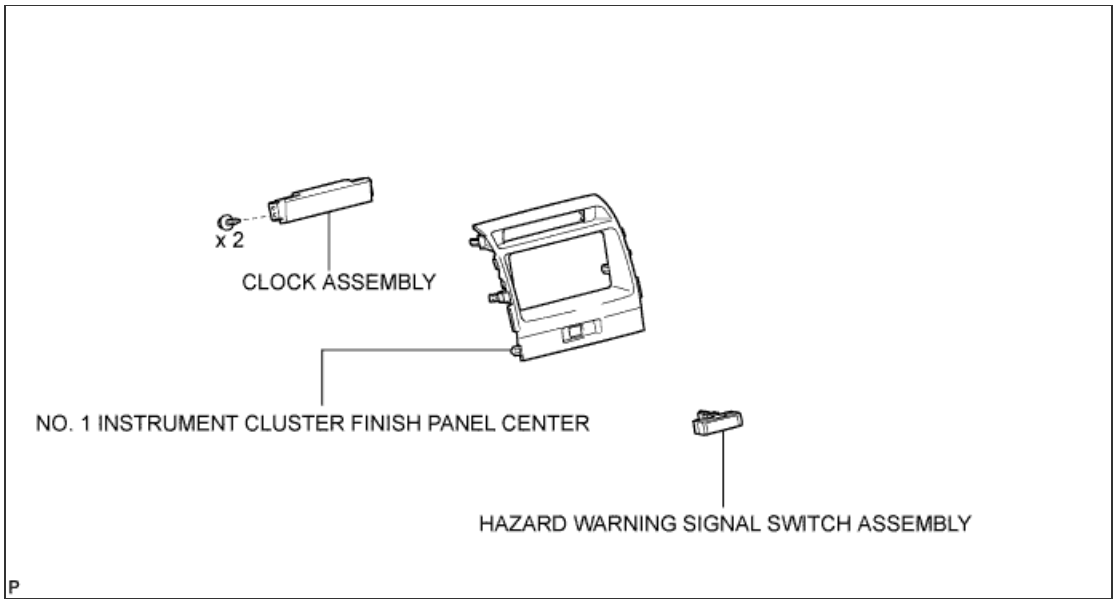
9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

for Preparation Click here




x 2
CLOCK ASSEMBLY
NO. 1 INSTRUMENT CLUSTER FINISH PANEL CENTER
HAZARD WARNING SIGNAL SWITCH ASSEMBLY
P

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

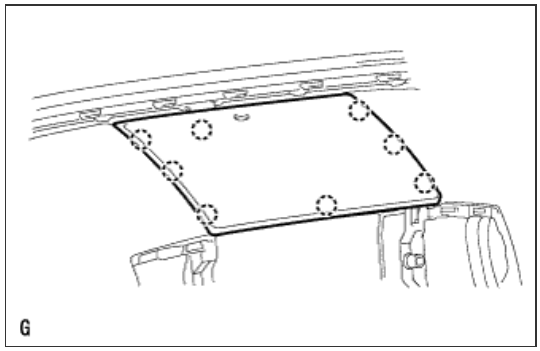
2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Detach the 8 claws and remove the opening cover.



4. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

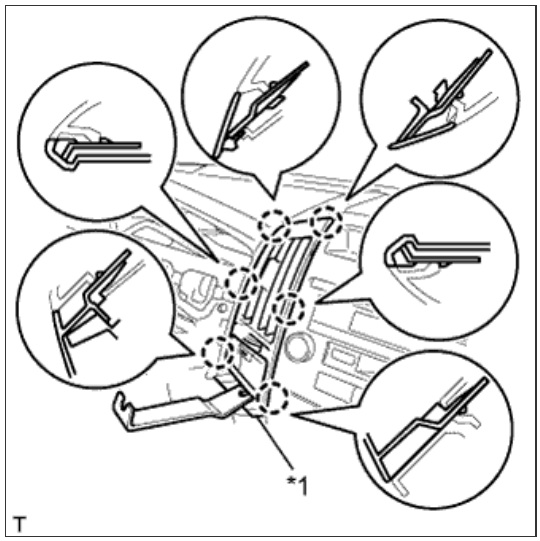
a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 6 claws.

c. Disconnect the connector and remove the No. 3 instrument panel register.



5. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

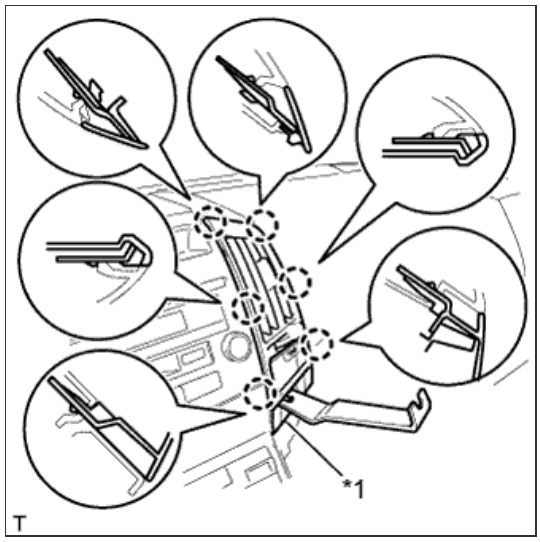
a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

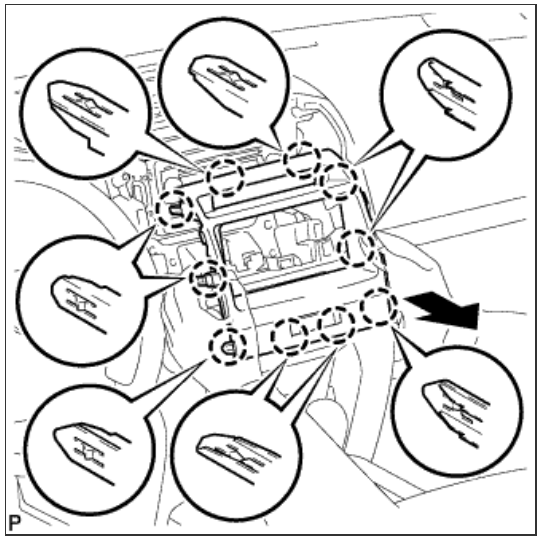
b. Using a moulding remover, detach the 6 claws.

c. Disconnect the connector and remove the No. 4 instrument panel register.



6. REMOVE NO. 1 INSTRUMENT CLUSTER FINISH PANEL CENTER

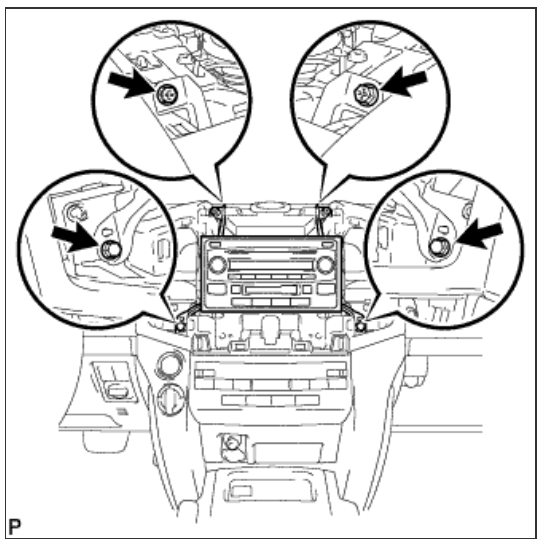
a. Detach the 10 claws on the backside of the cluster finish panel to remove it.



7. REMOVE RADIO RECEIVER ASSEMBLY WITH BRACKET

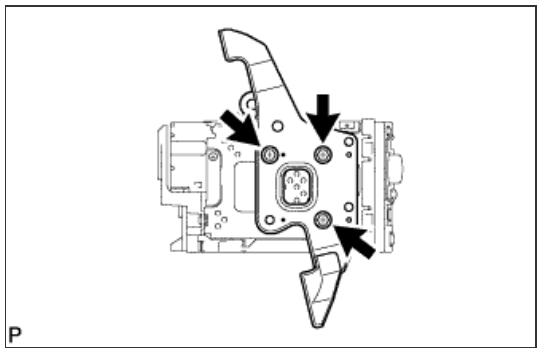
a. Remove the 2 screws and 2 bolts.

b. Disconnect the connectors and remove the radio receiver.



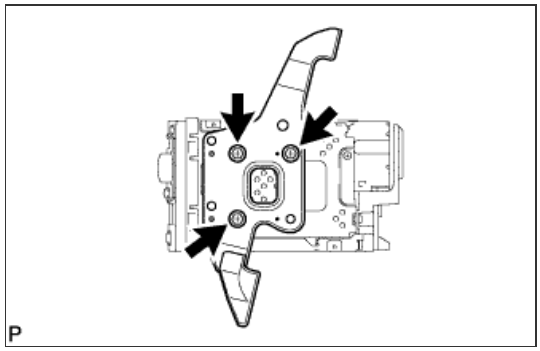
8. REMOVE NO. 1 RADIO BRACKET

a. Remove the 3 bolts and bracket.



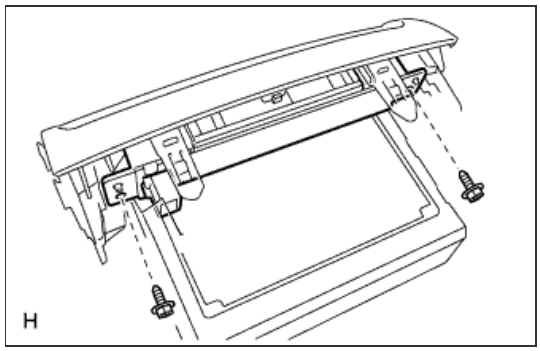
9. REMOVE NO. 2 RADIO BRACKET

a. Remove the 3 bolts and bracket.



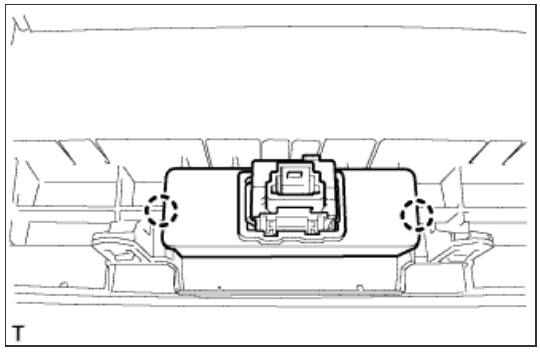
10. REMOVE CLOCK ASSEMBLY

a. Remove the 2 screws and clock.



11. REMOVE HAZARD WARNING SIGNAL SWITCH ASSEMBLY

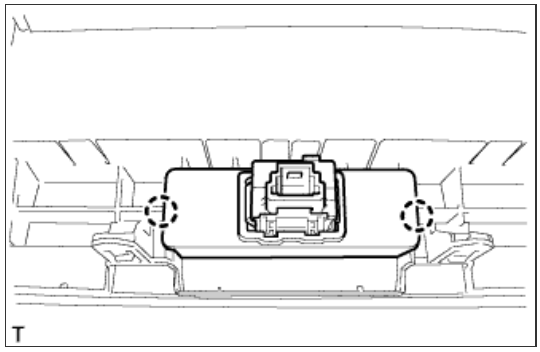
a. Detach the 2 claws and remove the hazard warning switch.



for Preparation Click here

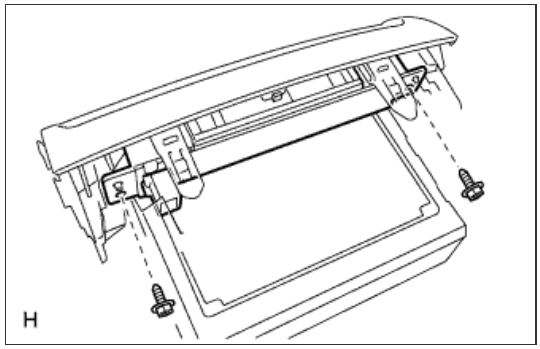
1. INSTALL HAZARD WARNING SIGNAL SWITCH ASSEMBLY

a. Attach the 2 claws to install the hazard warning switch.



2. INSTALL CLOCK ASSEMBLY

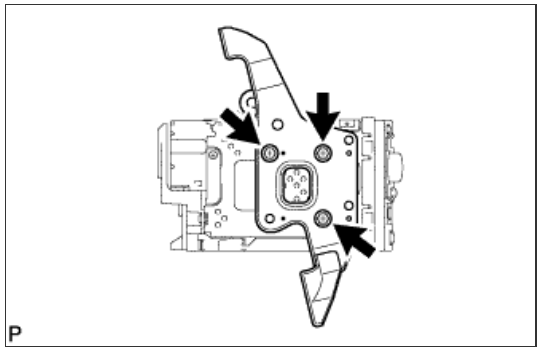
a. Install the clock with the 2 screws.



3. INSTALL NO. 1 RADIO BRACKET

a. Install the bracket with the 3 bolts.

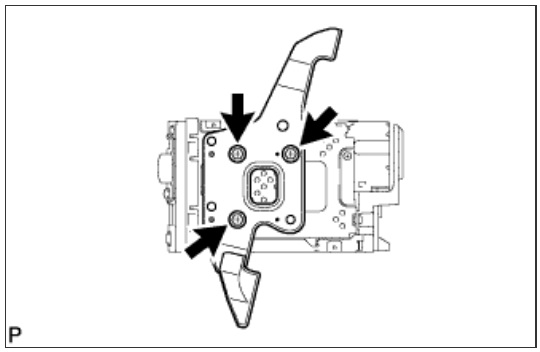
Torque:
3.0 N*m{ 30 kgf*cm , 26 in.*lbf }



4. INSTALL NO. 2 RADIO BRACKET

a. Install the bracket with the 3 bolts.

Torque:
3.0 N*m{ 30 kgf*cm , 26 in.*lbf }

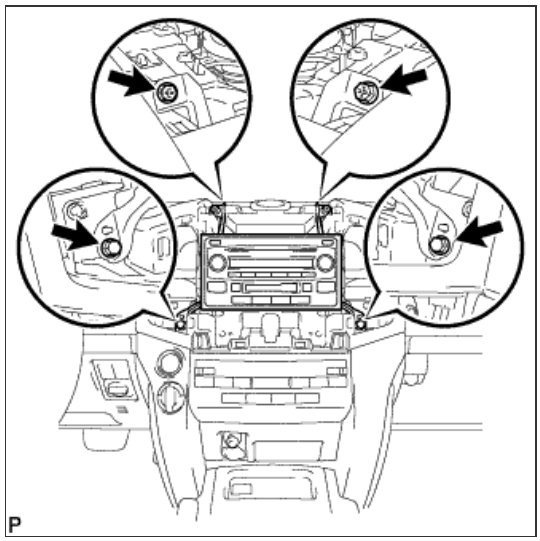


5. INSTALL RADIO RECEIVER ASSEMBLY WITH BRACKET

a. Connect the connectors.

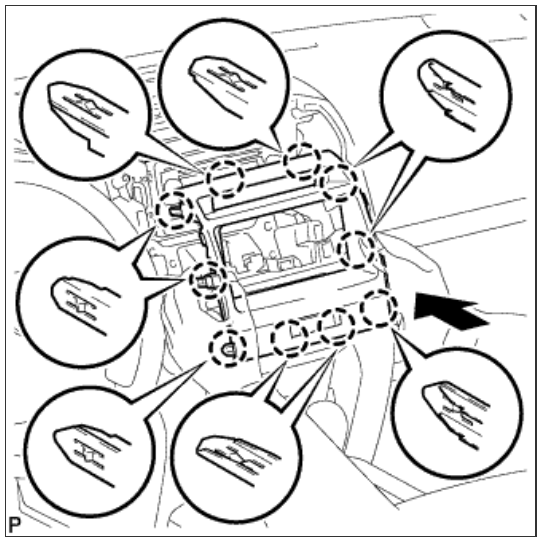
b. Install the radio receiver with the 2 screws and 2 bolts.

Torque:
Bolt:
12 N*m{ 122 kgf*cm , 9 ft.*lbf }



6. INSTALL NO. 1 INSTRUMENT CLUSTER FINISH PANEL CENTER

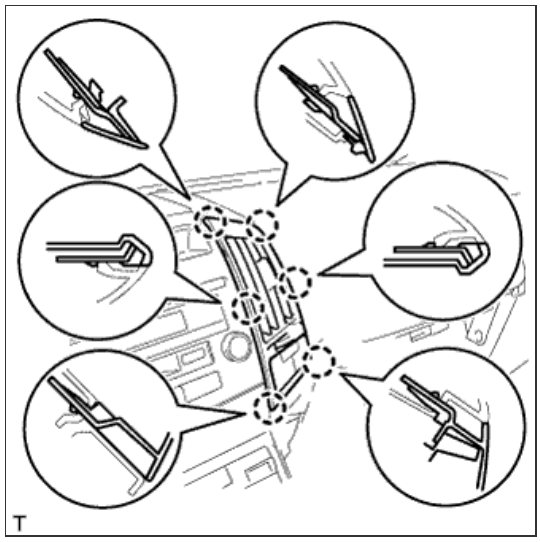
a. Insert the cluster finish panel and attach the 10 claws on its backside to install it.



7. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Connect the connector.

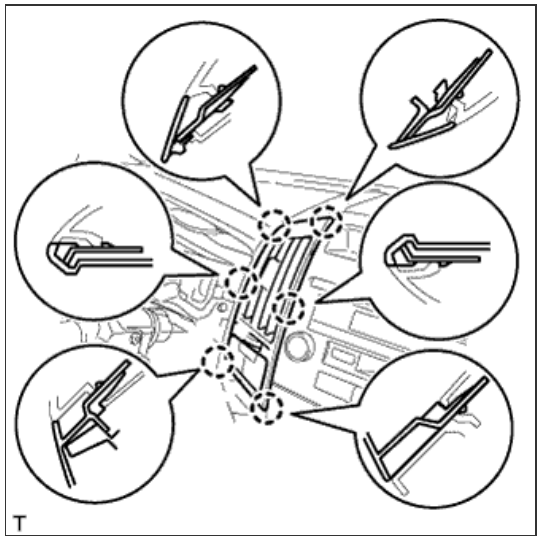
b. Attach the 6 claws to install the No. 4 instrument panel register.



8. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

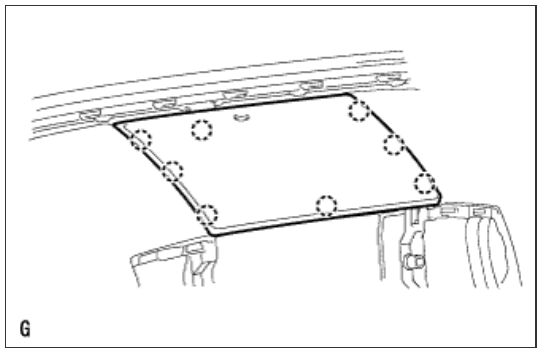
a. Connect the connector.

b. Attach the 6 claws to install the No. 3 instrument panel register.



9. INSTALL NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Attach the 8 claws to install the opening cover.

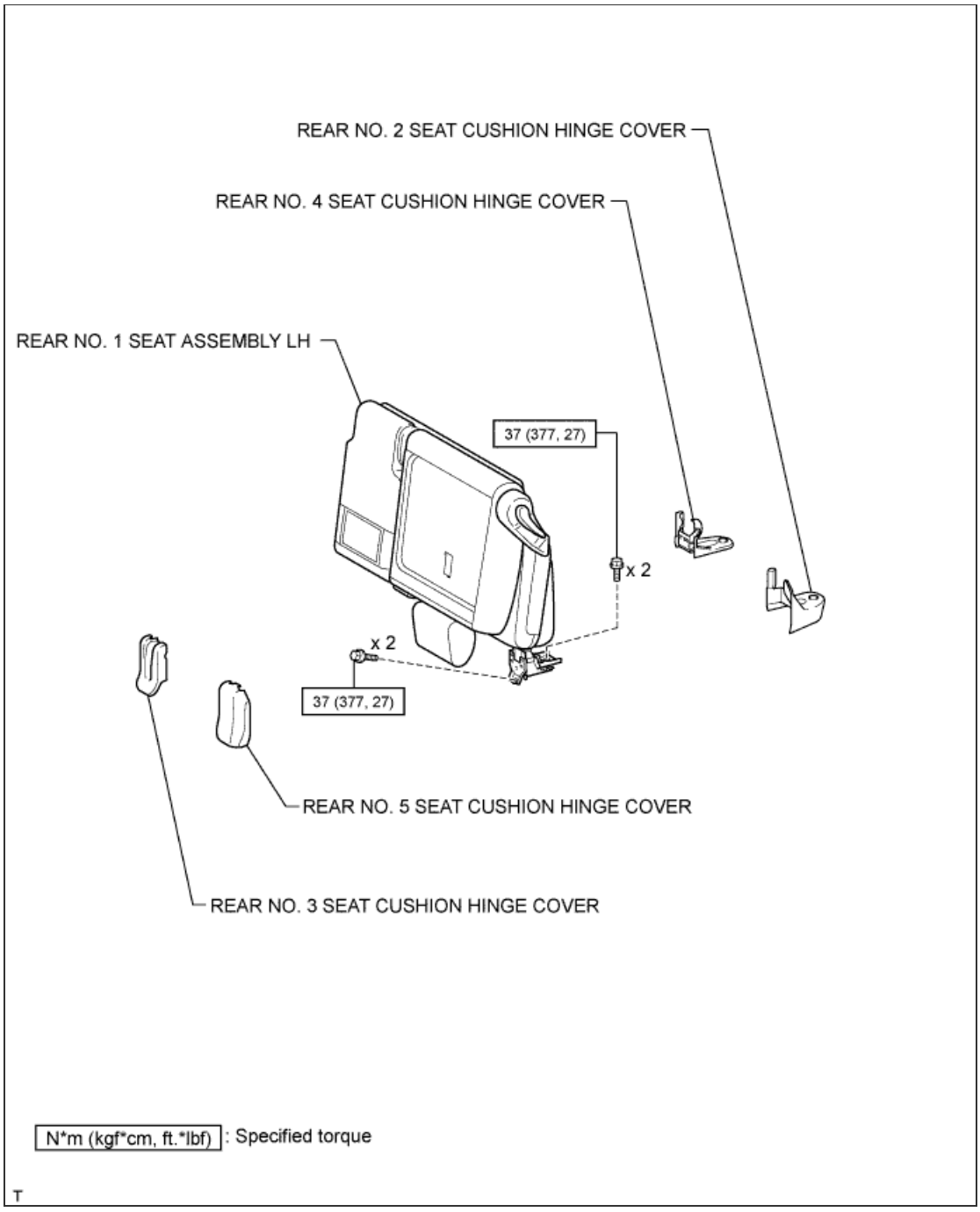


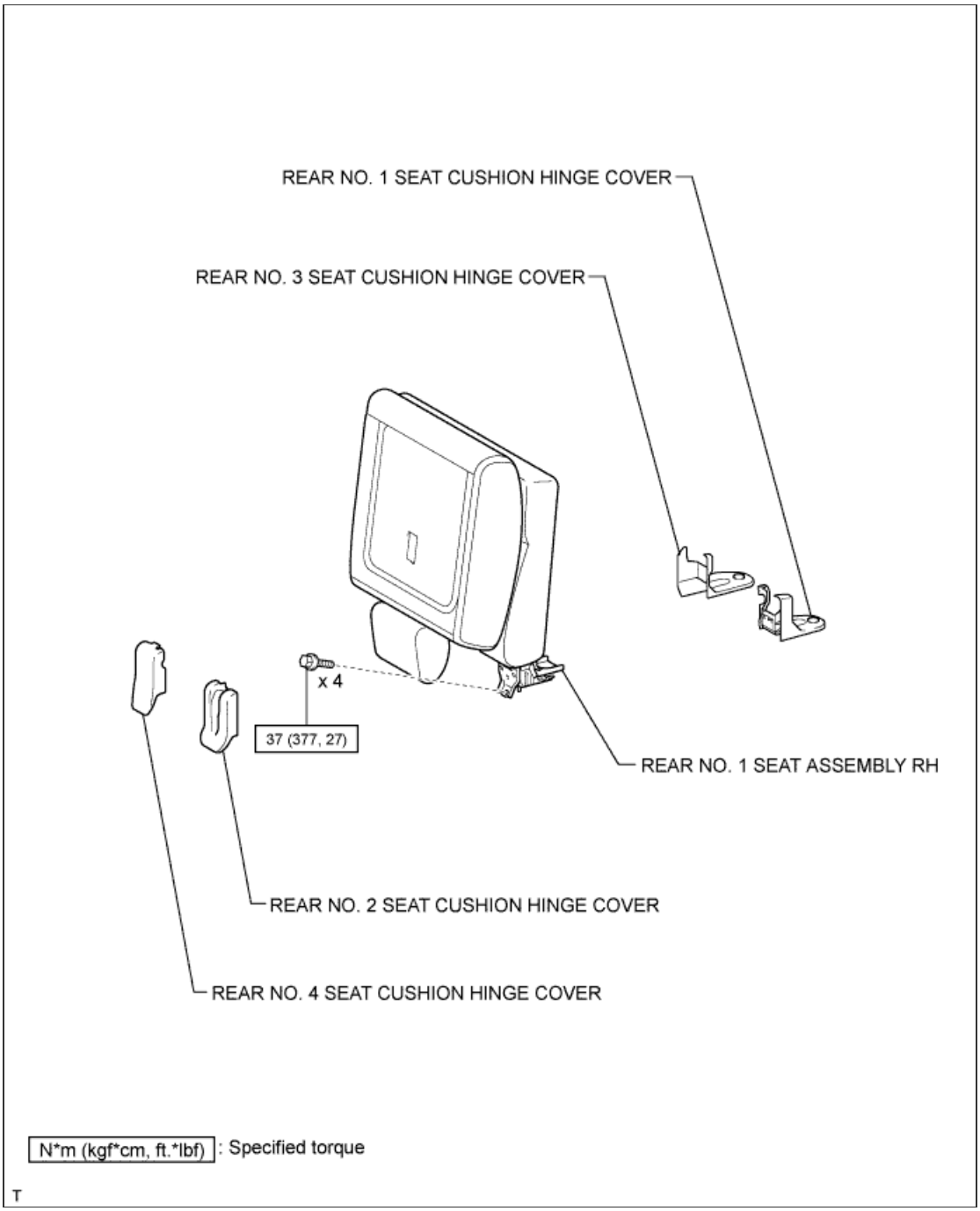
10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

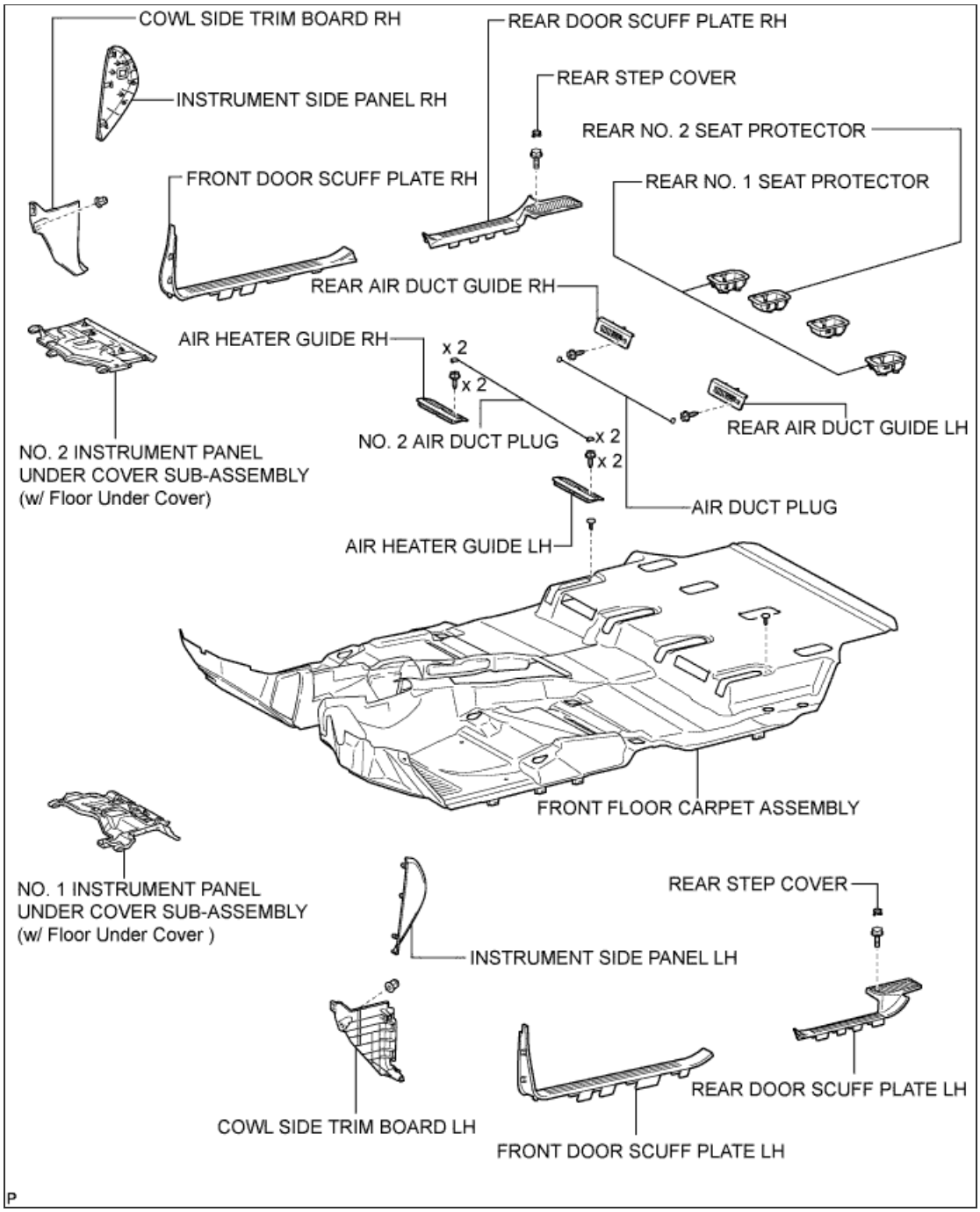
for Preparation Click here

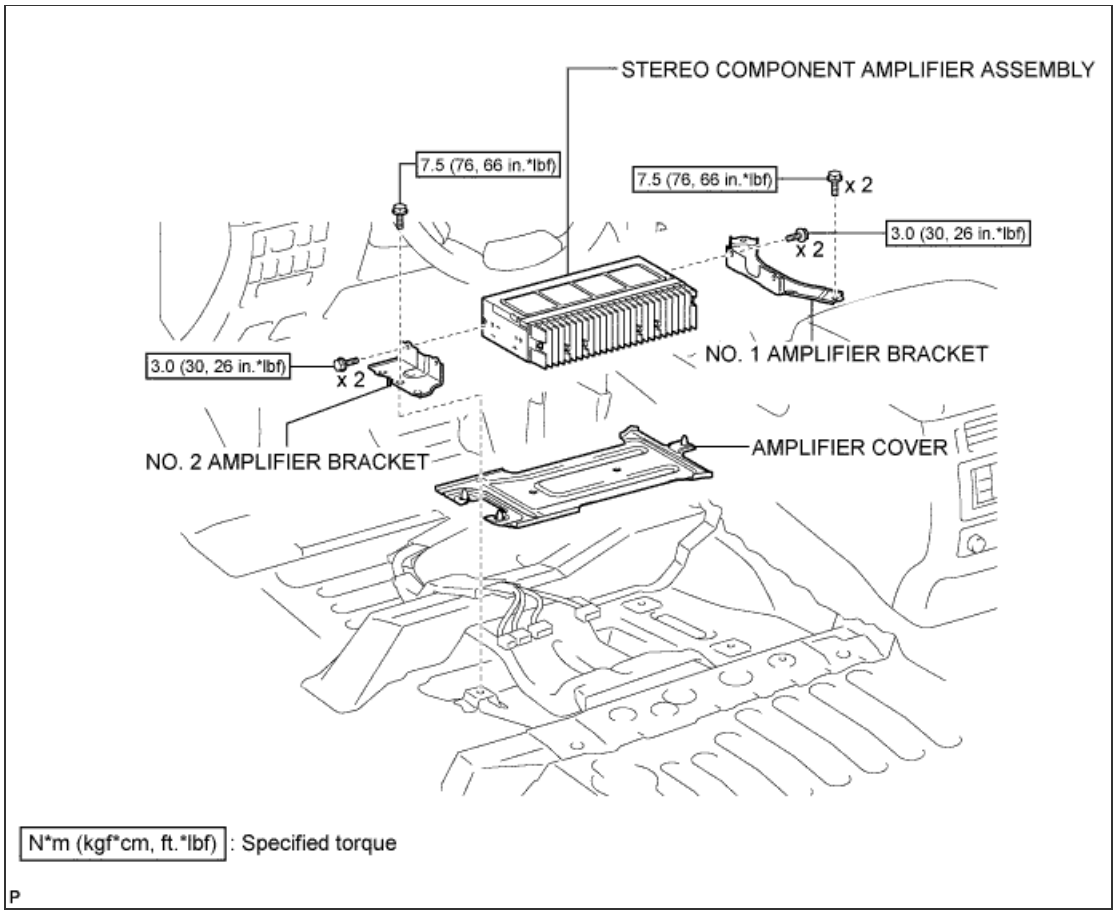




N*m (kgf*cm, ft.*lbf) : Specified torque

T


COWL SIDE TRIM BOARD RH
REAR DOOR SCUFF PLATE RH
REAR STEP COVER
INSTRUMENT SIDE PANEL RH
REAR NO. 2 SEAT PROTECTOR
FRONT DOOR SCUFF PLATE RH
REAR NO. 1 SEAT PROTECTOR
REAR AIR DUCT GUIDE RH
AIR HEATER GUIDE RH
x 2
x 2
REAR AIR DUCT GUIDE LH
NO. 2 AIR DUCT PLUG
x 2
x 2
NO. 2 INSTRUMENT PANEL
UNDER COVER SUB-ASSEMBLY
(w/ Floor Under Cover)
AIR DUCT PLUG
AIR HEATER GUIDE LH
FRONT FLOOR CARPET ASSEMBLY
NO. 1 INSTRUMENT PANEL
UNDER COVER SUB-ASSEMBLY
(w/ Floor Under Cover)
REAR STEP COVER
INSTRUMENT SIDE PANEL LH
REAR DOOR SCUFF PLATE LH
COWL SIDE TRIM BOARD LH
FRONT DOOR SCUFF PLATE LH
P


STEREO COMPONENT AMPLIFIER ASSEMBLY
7.5 (76, 66 in.*lbf)
7.5 (76, 66 in.*lbf)
x 2
3.0 (30, 26 in.*lbf)
x 2
NO. 1 AMPLIFIER BRACKET
3.0 (30, 26 in.*lbf)
x 2
NO. 2 AMPLIFIER BRACKET
AMPLIFIER COVER
N*m (kgf*cm, ft.*lbf) : Specified torque
P

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

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. for Manual Seat:
Remove the front seat assembly LH (Click here).

b. for Power Seat:
Remove the front seat assembly LH (Click here).

4. REMOVE FRONT SEAT ASSEMBLY RH

a. for Manual Seat:
Remove the front seat assembly RH (Click here).

b. for Power Seat:
Remove the front seat assembly RH (Click here).

HINT:

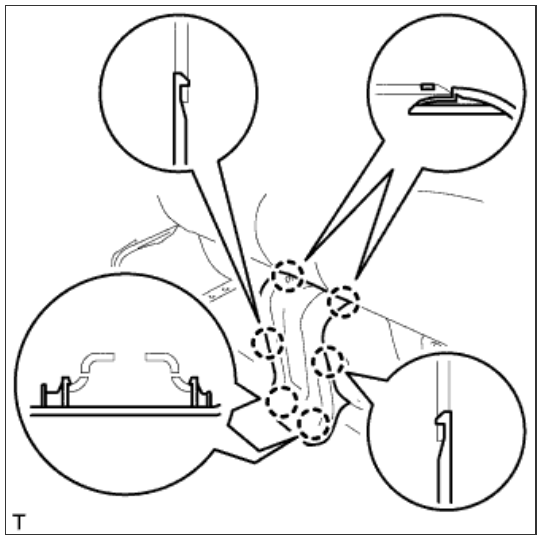
Use the same procedures described for the LH side.

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.

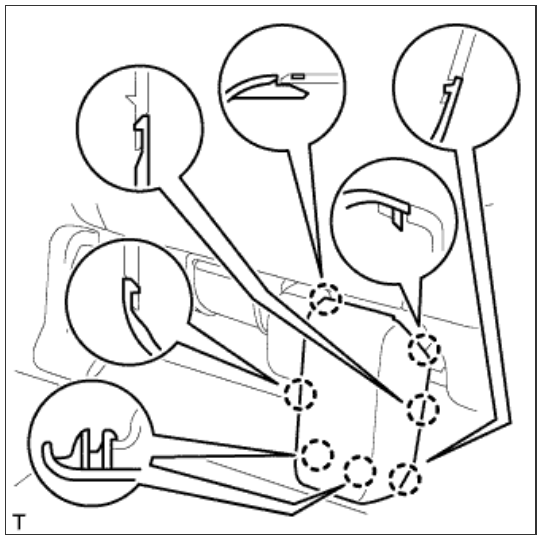


6. REMOVE REAR NO. 5 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 7 claws and remove the cover.

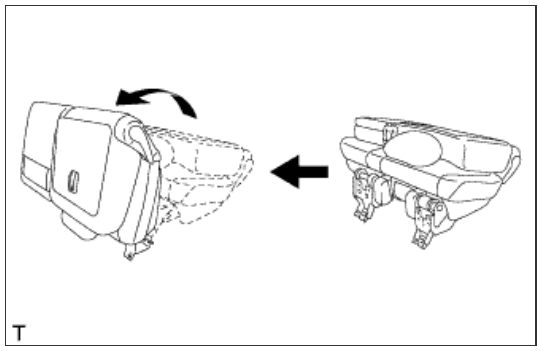
HINT:

Tape the screwdriver tip before use.



7. REMOVE REAR NO. 2 SEAT CUSHION HINGE COVER

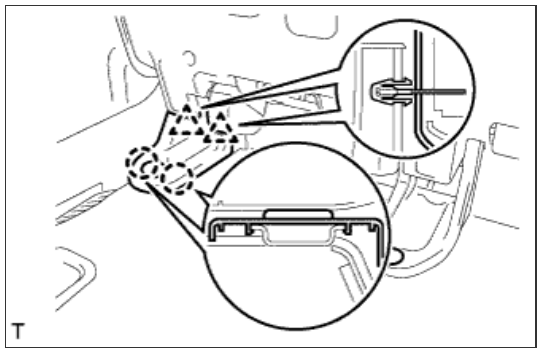
a. Operate the reclining adjuster release handle to move the seat into the position shown in the illustration.



b. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

HINT:

Tape the screwdriver tip before use.

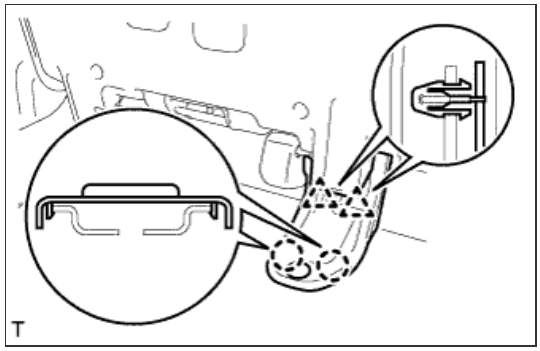


8. REMOVE REAR NO. 4 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

HINT:

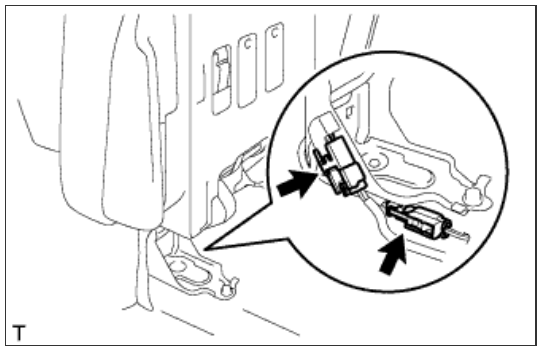
Tape the screwdriver tip before use.



9. REMOVE REAR NO. 1 SEAT ASSEMBLY LH

a. w/ Rear Seat Side Airbag:
Disconnect the connector.

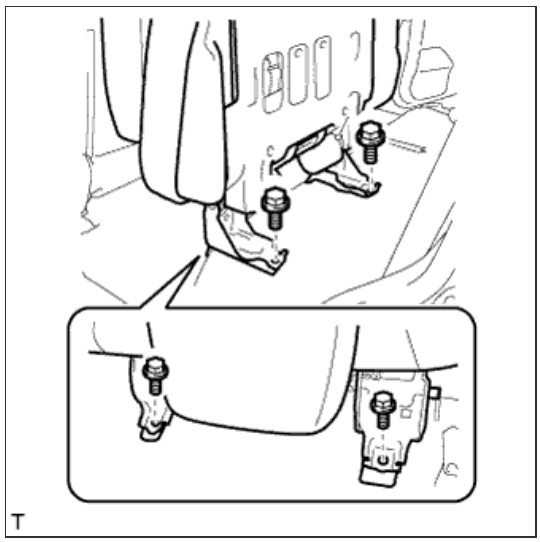
b. w/ Seat Heater System:
Disconnect the connector.



c. Remove the 4 bolts and seat assembly.

NOTICE:

Be careful not to damage the vehicle body.

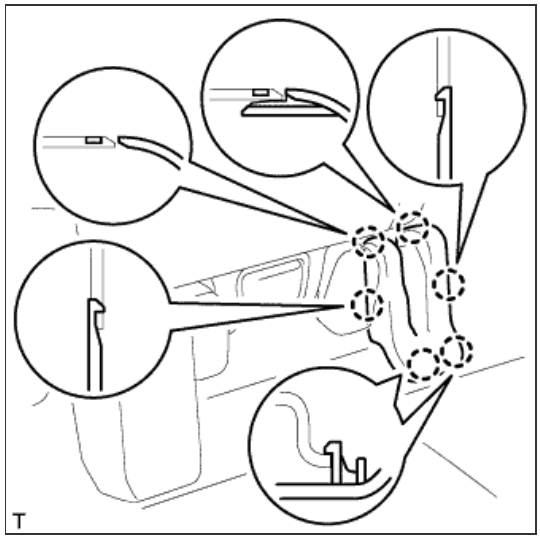


10. REMOVE REAR NO. 2 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 6 claws and remove the cover.

HINT:

Tape the screwdriver tip before use.

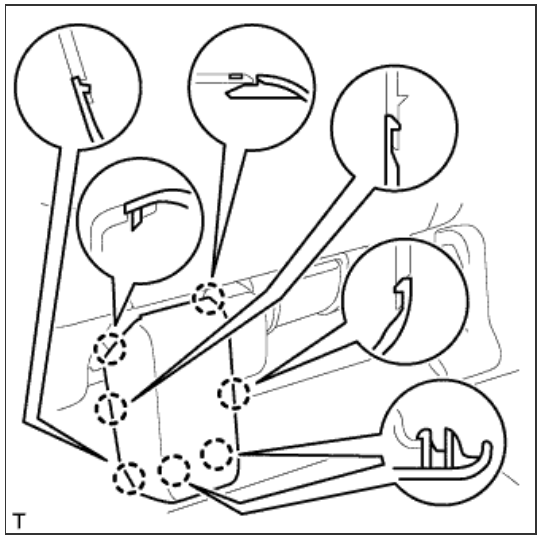


11. REMOVE REAR NO. 4 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 7 claws and remove the cover.

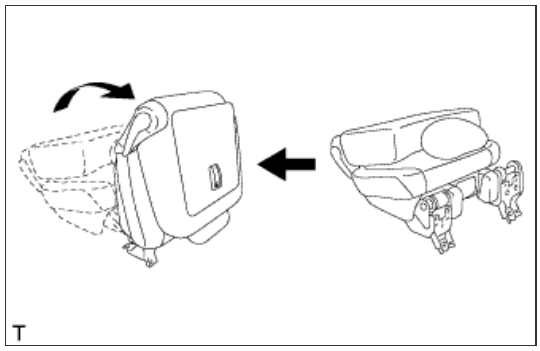
HINT:

Tape the screwdriver tip before use.



12. REMOVE REAR NO. 1 SEAT CUSHION HINGE COVER

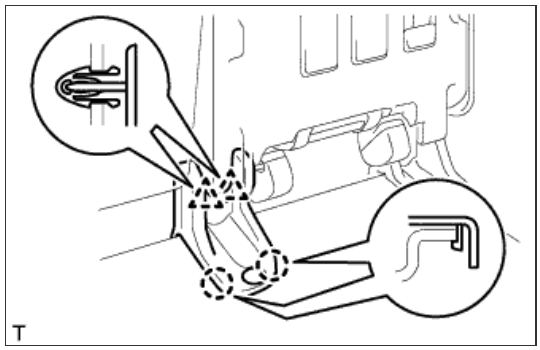
a. Operate the reclining adjuster release handle to move the seat into the position shown in the illustration.



b. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

HINT:

Tape the screwdriver tip before use.

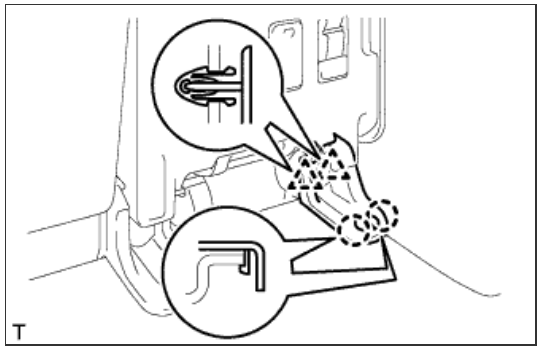


13. REMOVE REAR NO. 3 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

HINT:

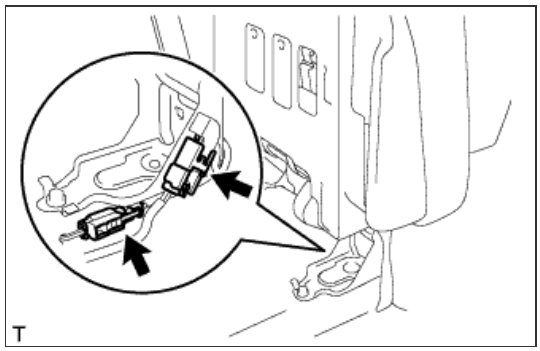
Tape the screwdriver tip before use.



14. REMOVE REAR NO. 1 SEAT ASSEMBLY RH

a. w/ Rear Seat Side Airbag:
Disconnect the connector.

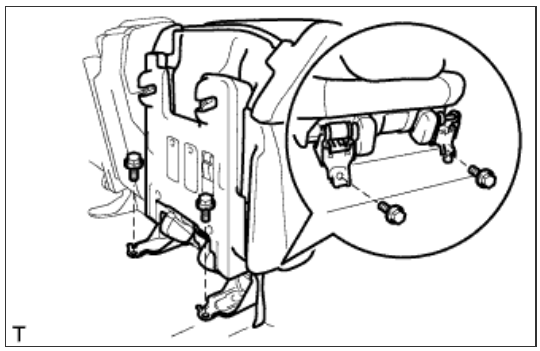
b. w/ Seat Heater System:
Disconnect the connector.



c. Remove the 4 bolts and seat assembly.

NOTICE:

Be careful not to damage the vehicle body.



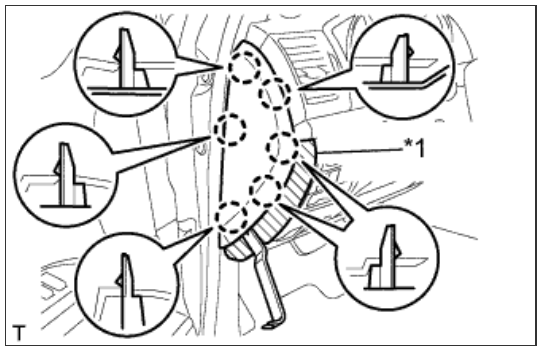
15. REMOVE INSTRUMENT SIDE PANEL LH

a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 6 claws and remove the instrument side panel.



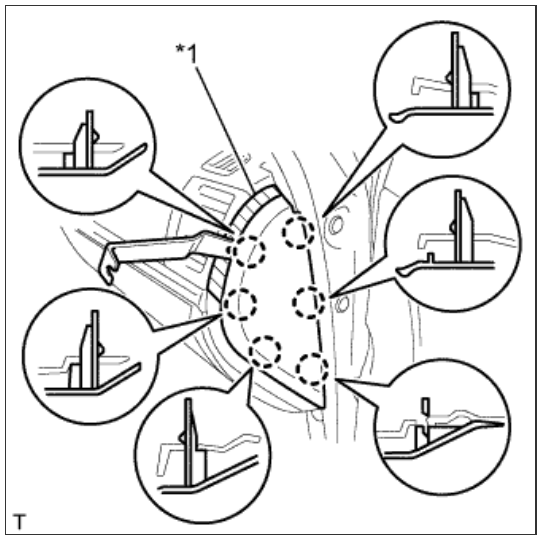
16. REMOVE INSTRUMENT SIDE PANEL RH (w/o Airbag Cut Off Switch)

a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 6 claws and remove the instrument side panel.



17. REMOVE INSTRUMENT SIDE PANEL RH (w/ Airbag Cut Off Switch)

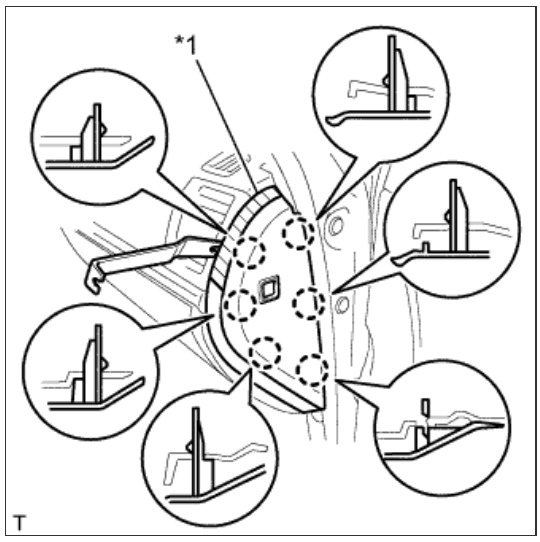
a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

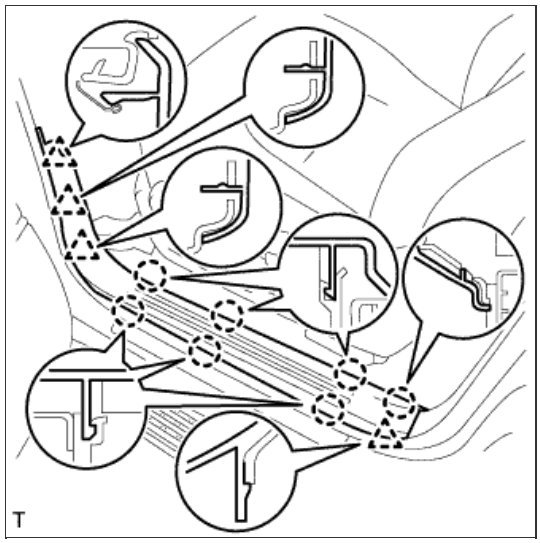
b. Using a moulding remover, detach the 6 claws.

c. Disconnect the connector and remove the instrument side panel.



18. REMOVE FRONT DOOR SCUFF PLATE LH

a. Detach the 7 claws and 4 clips, and remove the scuff plate.



19. REMOVE FRONT DOOR SCUFF PLATE RH

HINT:

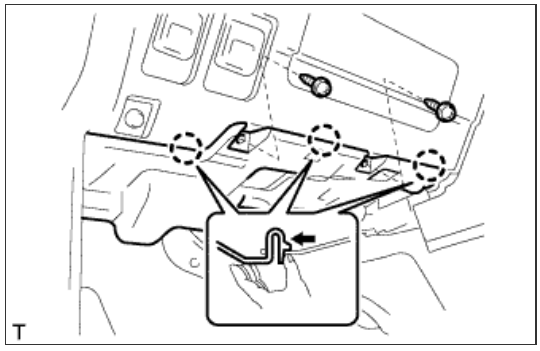
Use the same procedures described for the LH side.

20. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

a. Remove the 2 screws.

b. Detach the 3 claws.

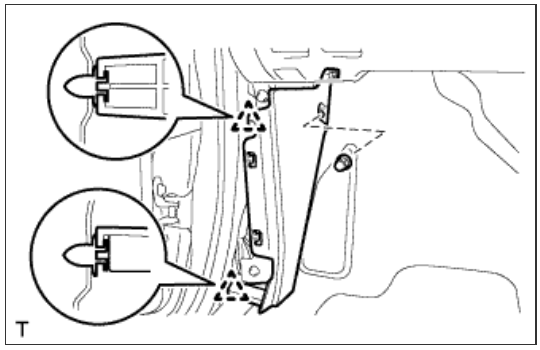
c. Disconnect the connectors and remove the No. 1 instrument panel under cover.



21. REMOVE COWL SIDE TRIM BOARD LH

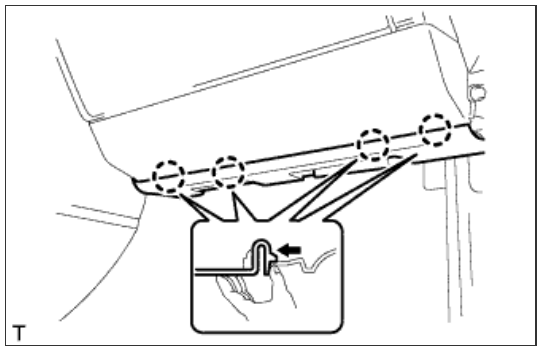
a. Remove the cap nut.

b. Detach the 2 clips and remove the cowl side trim board.



22. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

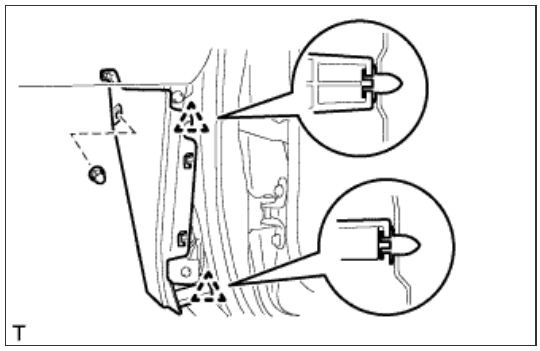
a. Detach the 4 claws and remove the No. 2 instrument panel under cover.



23. REMOVE COWL SIDE TRIM BOARD RH

a. Remove the cap nut.

b. Detach the 2 clips and remove the cowl side trim board.

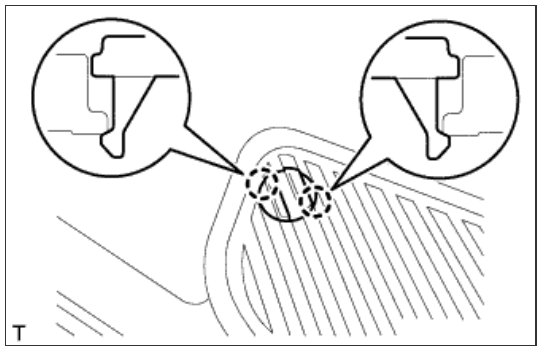


24. REMOVE REAR STEP COVER

HINT:

Use the same procedure to remove the step cover on the other side.

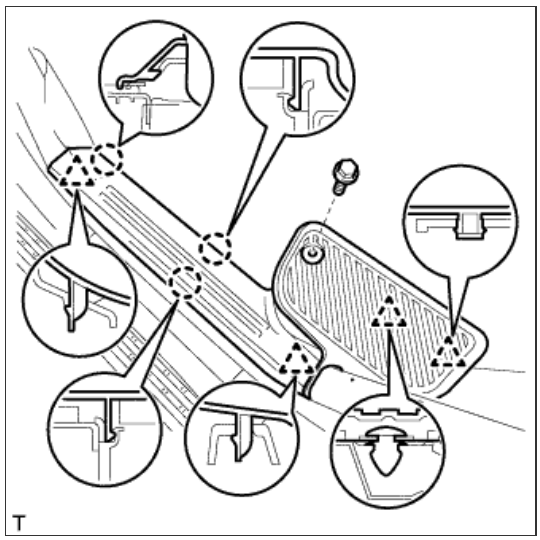
a. Detach the 2 claws and remove the step cover.



25. REMOVE REAR DOOR SCUFF PLATE LH

a. Remove the screw.

b. Detach the 3 claws and 4 clips, and remove the scuff plate.



26. REMOVE REAR DOOR SCUFF PLATE RH

HINT:

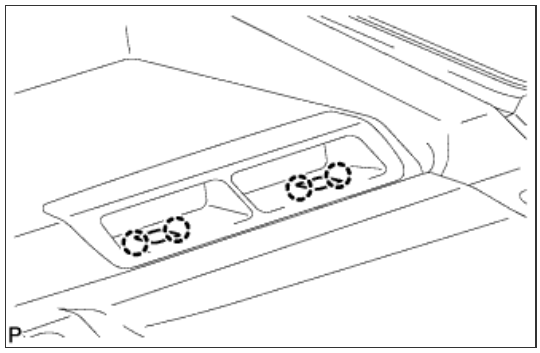
Use the same procedures described for the LH side.

27. REMOVE NO. 2 AIR DUCT PLUG

a. Detach the 4 claws and remove the 2 plugs.

HINT:

Use the same procedures for both sides.

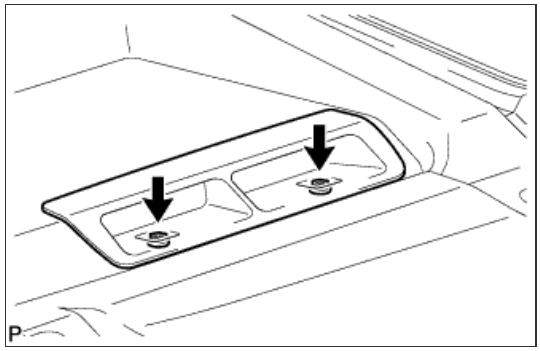


28. REMOVE AIR HEATER GUIDE

a. Remove the 2 screws and guide.

HINT:

Use the same procedures for both sides.

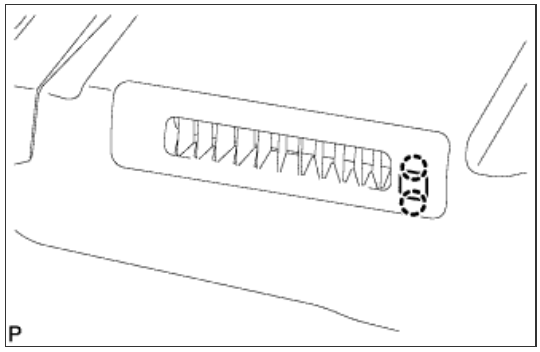


29. REMOVE AIR DUCT PLUG

a. Detach the 2 claws and remove the plug.

HINT:

Use the same procedures for both sides.



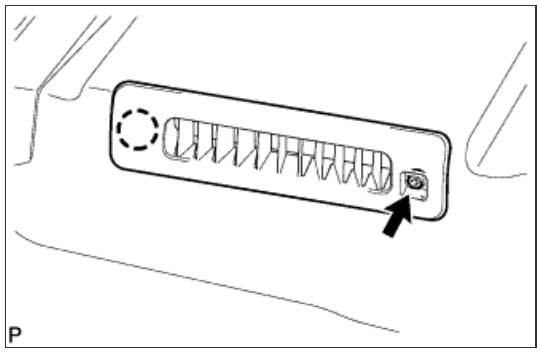
30. REMOVE REAR AIR DUCT GUIDE

a. Remove the screw.

b. Detach the claw and remove the guide.

HINT:

Use the same procedures for both sides.

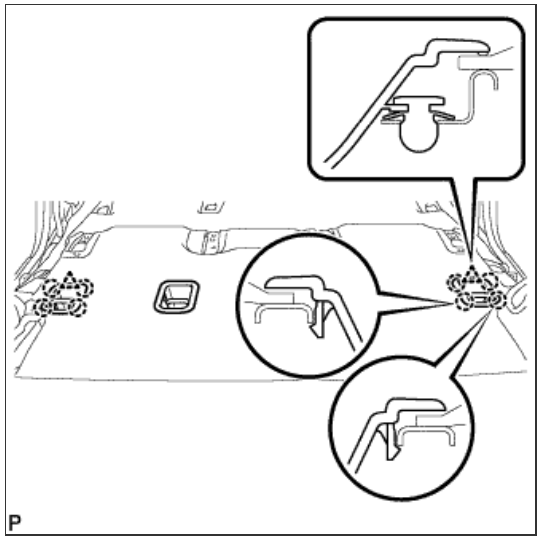


31. REMOVE REAR NO. 1 SEAT PROTECTOR

a. Detach the clip and 4 claws, and remove the protector.

HINT:

Use the same procedures to remove the protector on the other side.

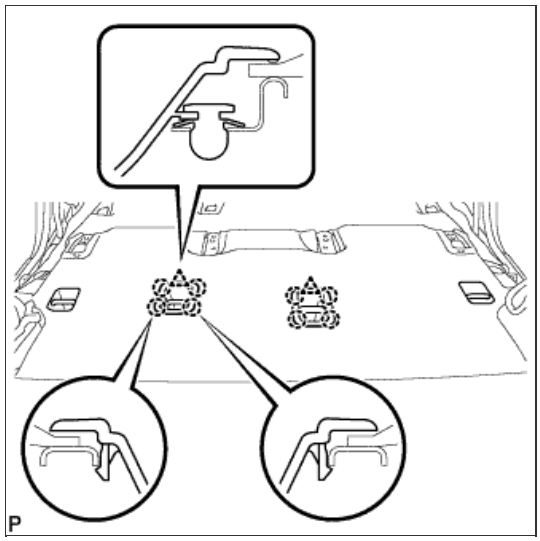


32. REMOVE REAR NO. 2 SEAT PROTECTOR

a. Detach the clip and 4 claws, and remove the protector.

HINT:

Use the same procedures to remove the protector on the other side.



33. REMOVE COOLING BOX ASSEMBLY (w/ Cool Box)

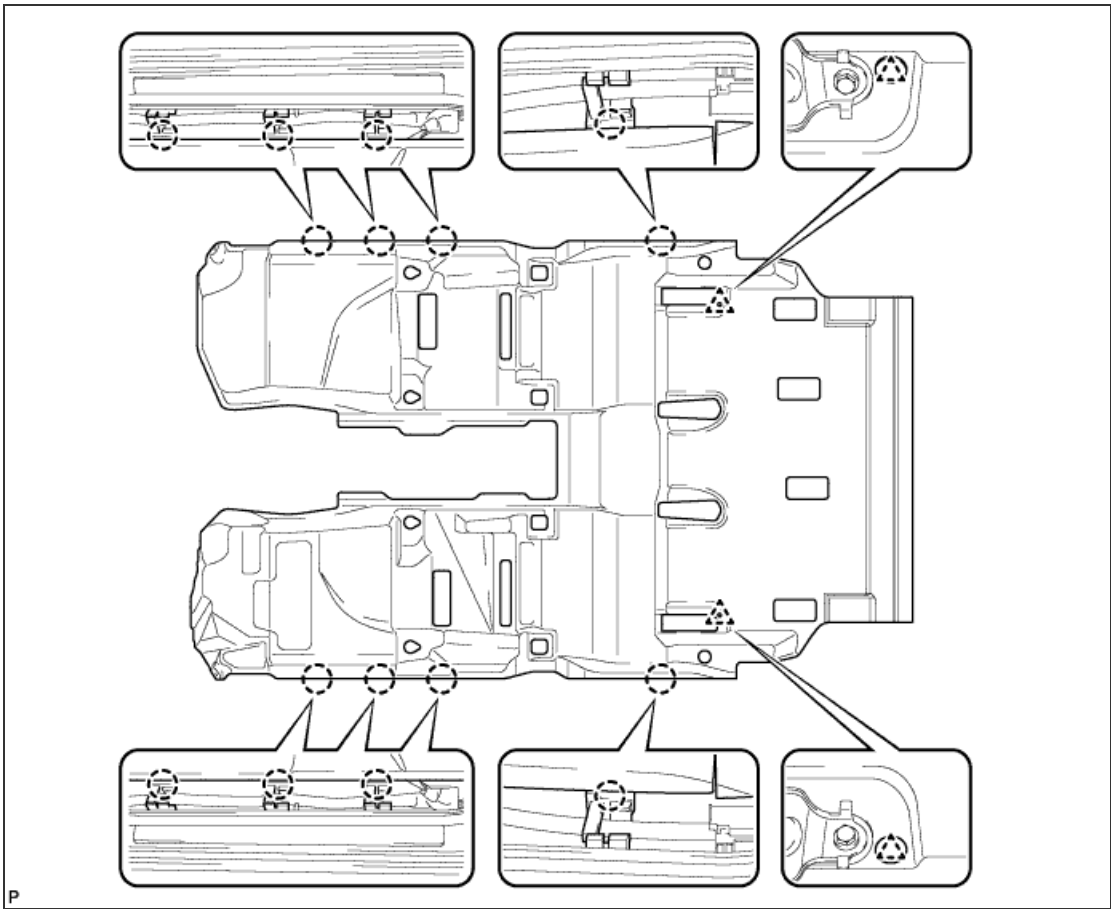
a. Remove the cooling box assembly (Click here).

34. REMOVE REAR CONSOLE BOX SUB-ASSEMBLY (w/o Cool Box)

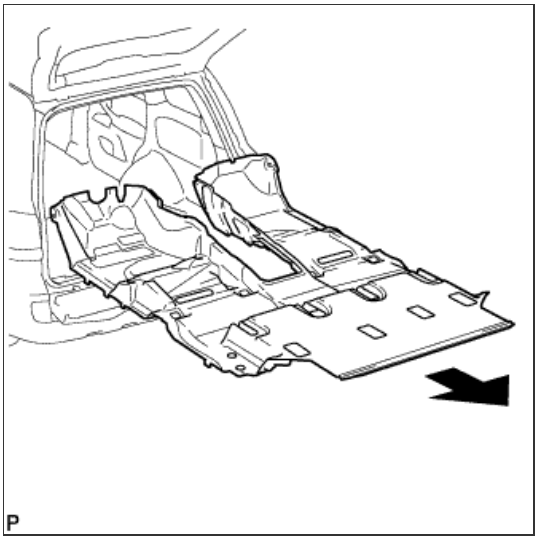
a. Remove the rear console box sub-assembly (Click here).

35. REMOVE FRONT FLOOR CARPET ASSEMBLY

a. Detach the 2 clips and 8 claws.



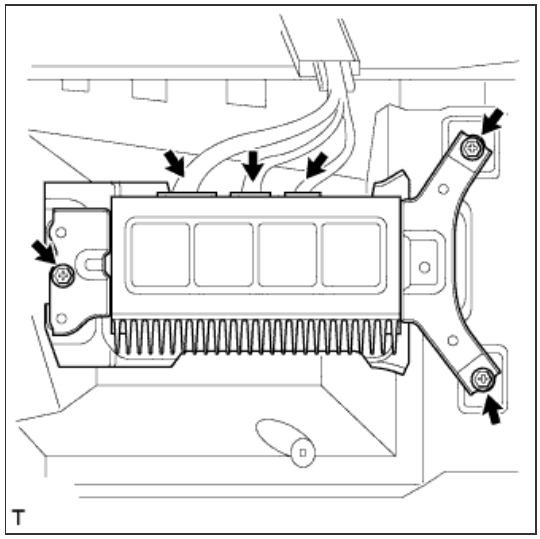
b. Remove the carpet from the floor, open the back door and tail gate, and remove the carpet from the rear of the vehicle.



36. REMOVE STEREO COMPONENT AMPLIFIER ASSEMBLY WITH BRACKET

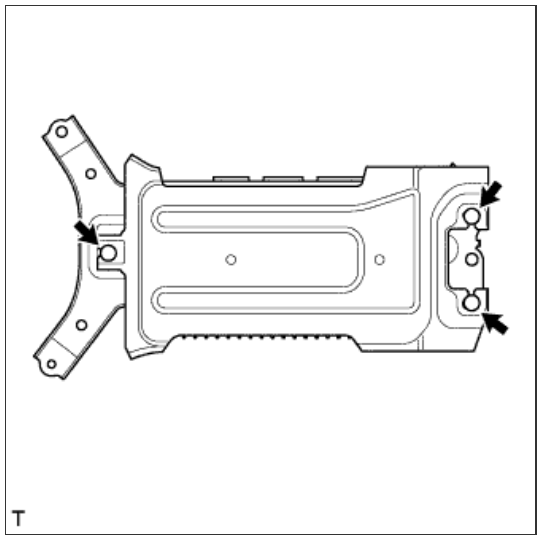
a. Disconnect the 3 connectors.

b. Remove the 3 bolts and remove the amplifier with bracket.



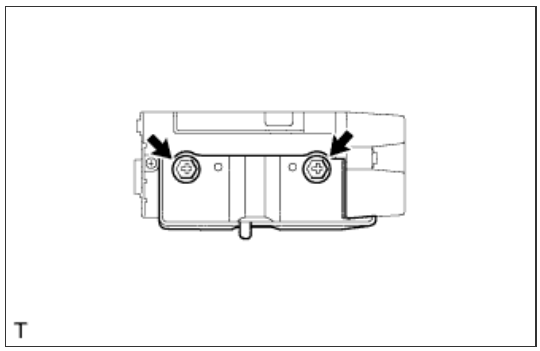
37. REMOVE AMPLIFIER COVER

a. Detach the 3 clips and remove the cover.



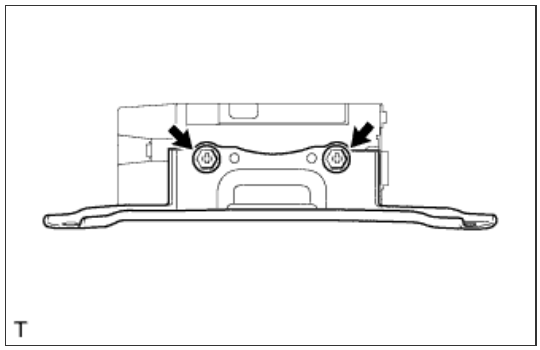
38. REMOVE NO. 1 AMPLIFIER BRACKET

a. Remove the 2 screws and bracket.



39. REMOVE NO. 2 AMPLIFIER BRACKET

a. Remove the 2 screws and bracket.



T

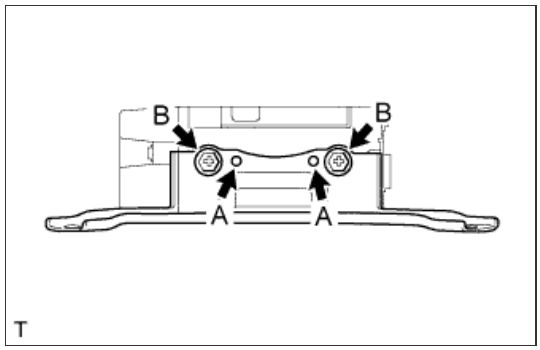
for Preparation Click here

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 }

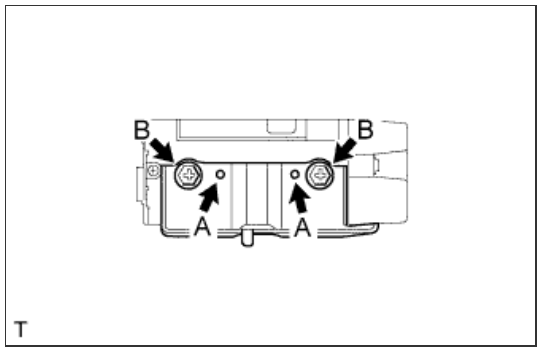


2. INSTALL NO. 1 AMPLIFIER BRACKET

a. Set the aligning protrusions of the bracket labeled A, into the holes of the amplifier.

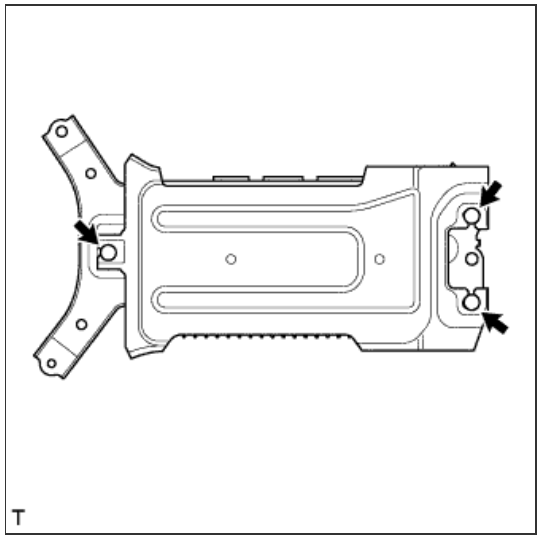
b. Install the bracket with the 2 screws labeled B.

Torque:
3.0 N*m{ 30 kgf*cm , 26 in.*lbf }



3. INSTALL AMPLIFIER COVER

a. Attach the 3 clips to install the cover.

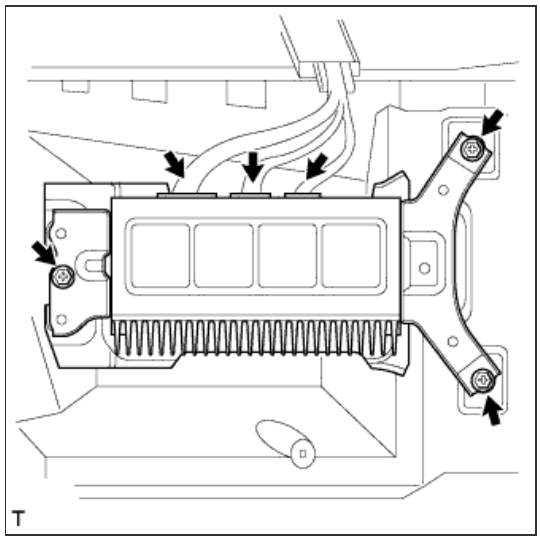


4. INSTALL STEREO COMPONENT AMPLIFIER ASSEMBLY WITH BRACKET

a. Install the amplifier with the 3 bolts.

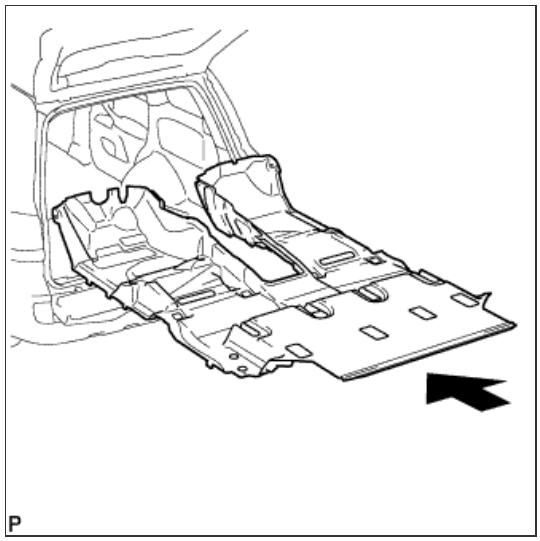
Torque:
7.5 N*m{ 76 kgf*cm , 66 in.*lbf }

b. Connect the 3 connectors.

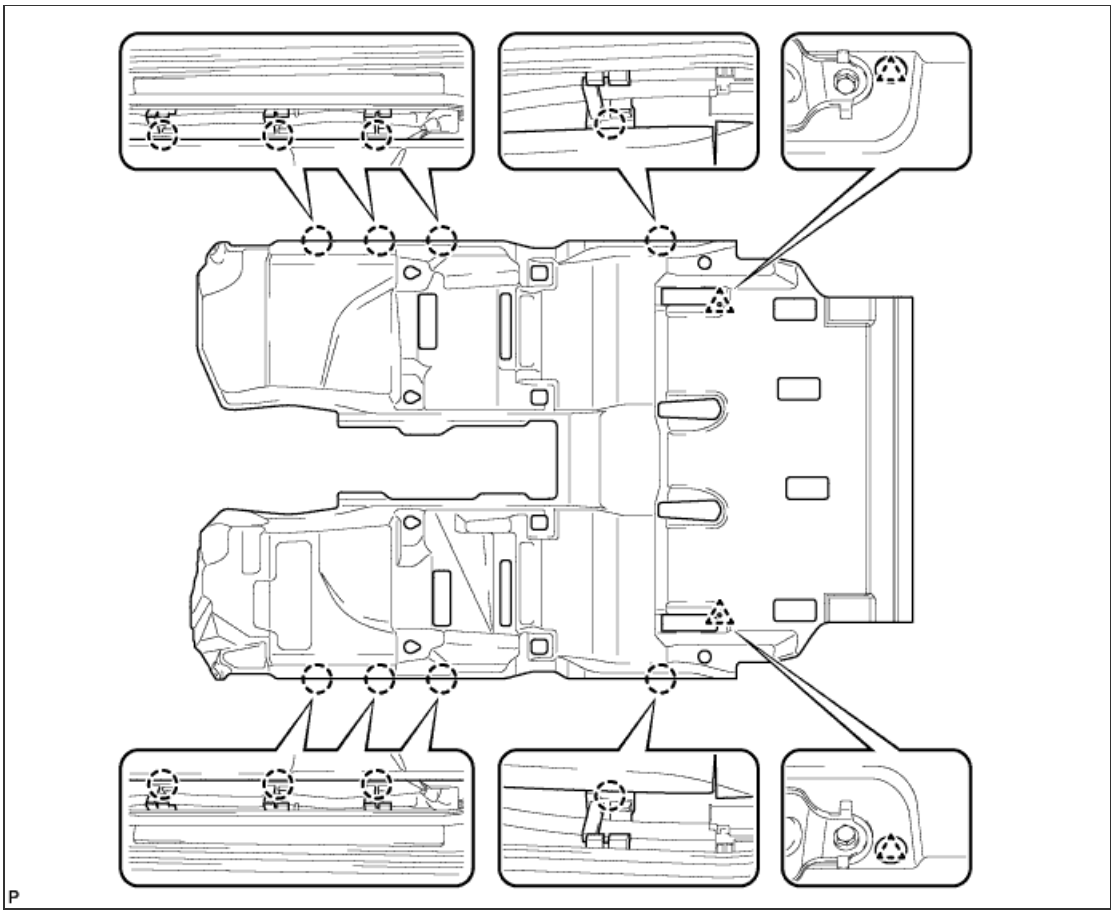


5. INSTALL FRONT FLOOR CARPET ASSEMBLY

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)

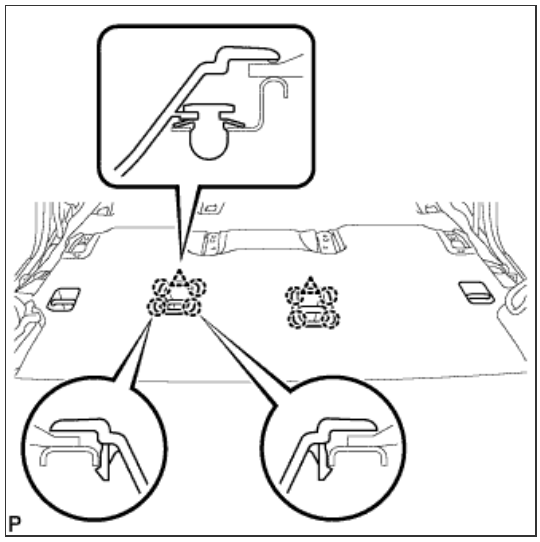
a. Install the cooling box assembly (Click here).

8. INSTALL REAR NO. 2 SEAT PROTECTOR

a. Attach the clip and 4 claws to install the protector.

HINT:

Use the same procedures to install the protector on the other side.

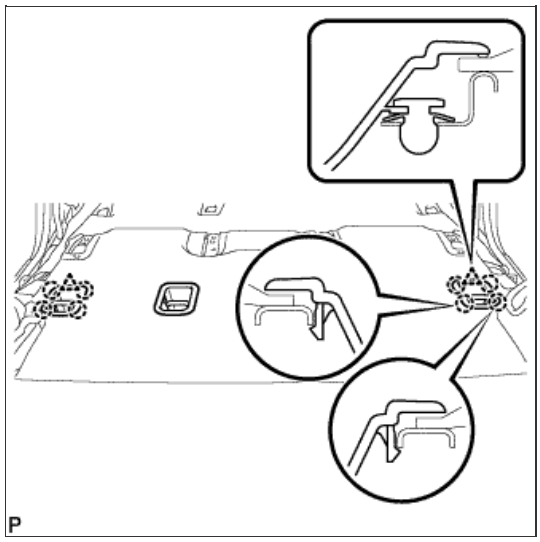


9. INSTALL REAR NO. 1 SEAT PROTECTOR

a. Attach the clip and 4 claws to install the protector.

HINT:

Use the same procedures to install the protector on the other side.



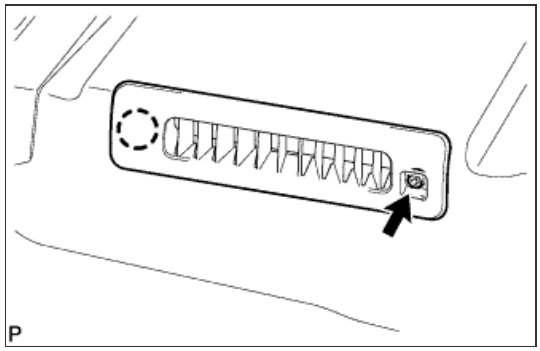
10. INSTALL REAR AIR DUCT GUIDE

a. Attach the claw to install the guide.

b. Install the screw.

HINT:

Use the same procedures for both sides.

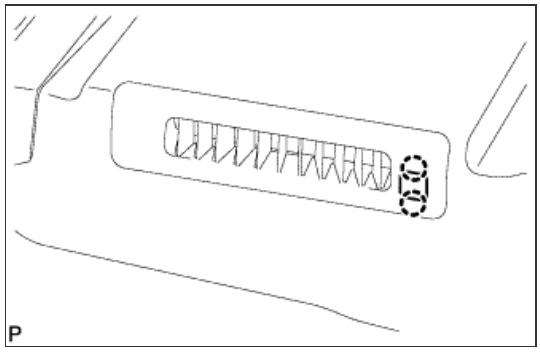


11. INSTALL AIR DUCT PLUG

a. Attach the 2 claws to install the plug.

HINT:

Use the same procedures for both sides.

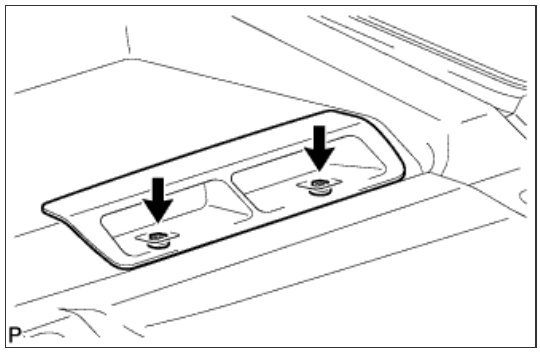


12. INSTALL AIR HEATER GUIDE

a. Install the guide with the 2 screws.

HINT:

Use the same procedures for both sides.

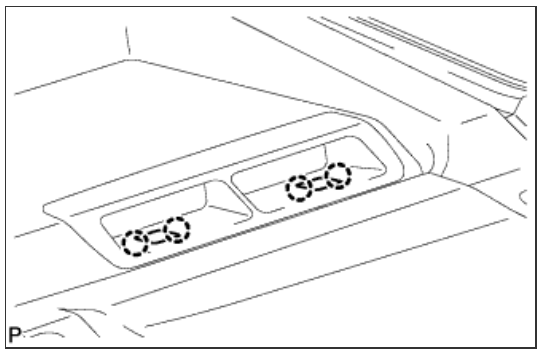


13. INSTALL NO. 2 AIR DUCT PLUG

a. Attach the 4 claws to install the 2 plugs.

HINT:

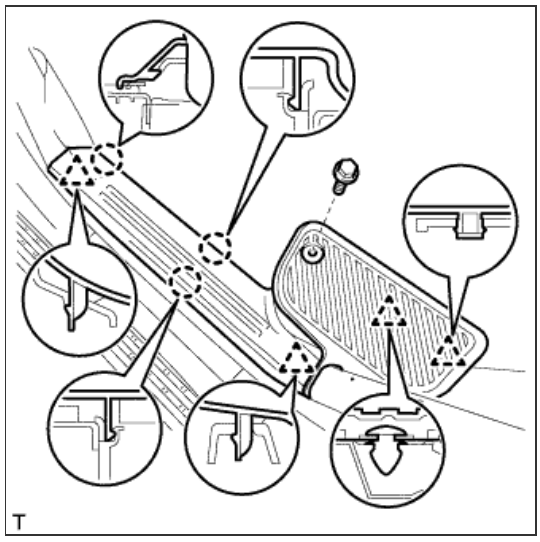
Use the same procedures for both sides.



14. INSTALL REAR DOOR SCUFF PLATE LH

a. Attach the 3 claws and 4 clips to install the scuff plate.

b. Install the screw.



15. INSTALL REAR DOOR SCUFF PLATE RH

HINT:

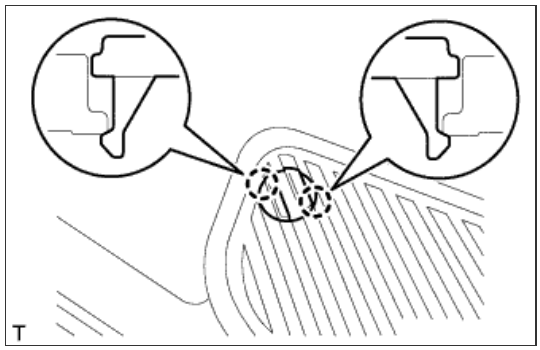
Use the same procedures described for the LH side.

16. INSTALL REAR STEP COVER

HINT:

Use the same procedure to install the step cover on the other side.

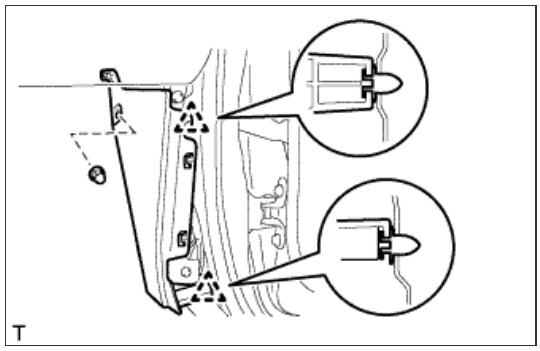
a. Attach the 2 claws to install the step cover.



17. INSTALL COWL SIDE TRIM BOARD RH

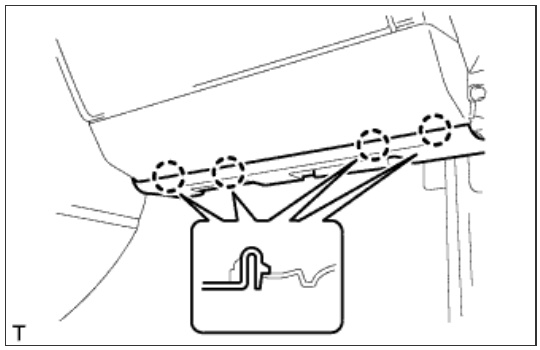
a. Attach the 2 clips to install the cowl side trim board.

b. Install the cap nut.



18. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

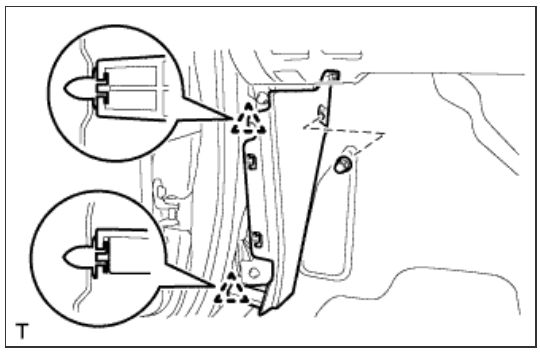
a. Attach the 4 claws to install the No. 2 instrument panel under cover.



19. INSTALL COWL SIDE TRIM BOARD LH

a. Attach the 2 clips to install the cowl side trim board.

b. Install the cap nut.

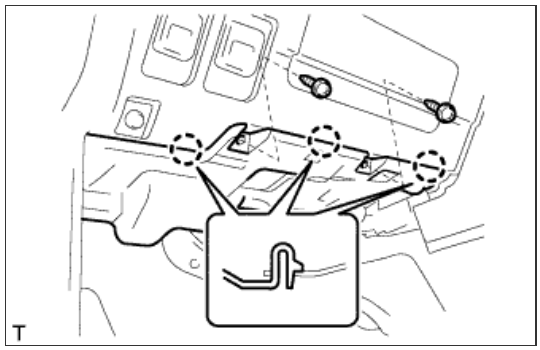


20. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

a. Connect the connectors.

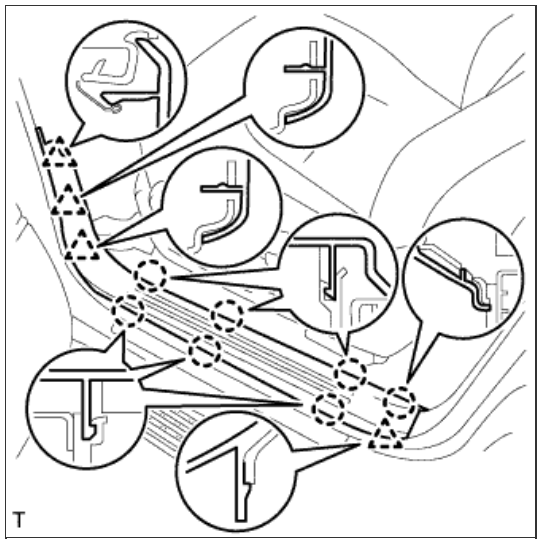
b. Attach the 3 claws to install the No. 1 instrument panel under cover.

c. Install the 2 screws.



21. INSTALL FRONT DOOR SCUFF PLATE LH

a. Attach the 7 claws and 4 clips to install the scuff plate.



22. INSTALL FRONT DOOR SCUFF PLATE RH

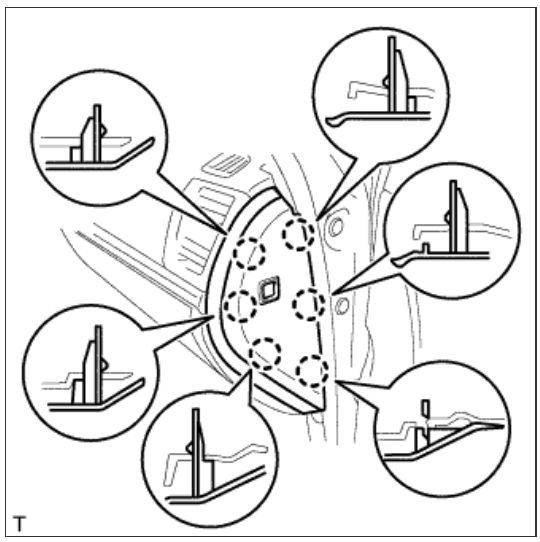
HINT:

Use the same procedures described for the LH side.

23. INSTALL INSTRUMENT SIDE PANEL RH (w/ Airbag Cut Off Switch)

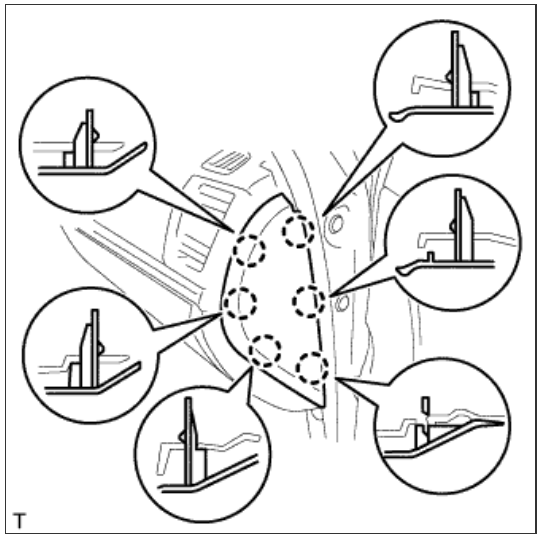
a. Connect the connector.

b. Attach the 6 claws to install the instrument side panel.



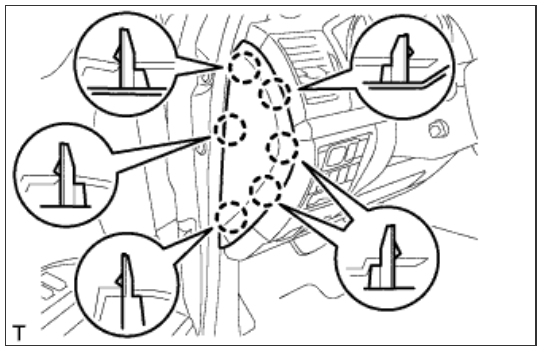
24. INSTALL INSTRUMENT SIDE PANEL RH (w/o Airbag Cut Off Switch)

a. Attach the 6 claws to install the instrument side panel.



25. INSTALL INSTRUMENT SIDE PANEL LH

a. Attach the 6 claws to install the instrument side panel.



26. INSTALL REAR NO. 1 SEAT ASSEMBLY RH

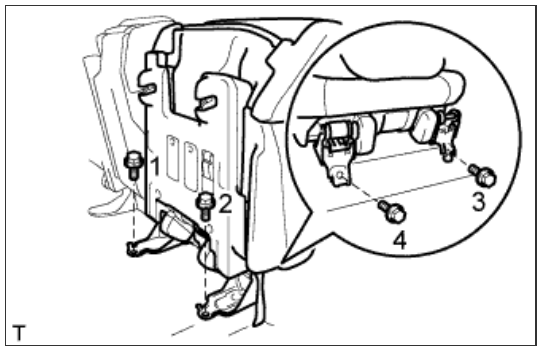
a. Temporarily install the seat assembly with the 4 bolts.

NOTICE:

Be careful not to damage the vehicle body.

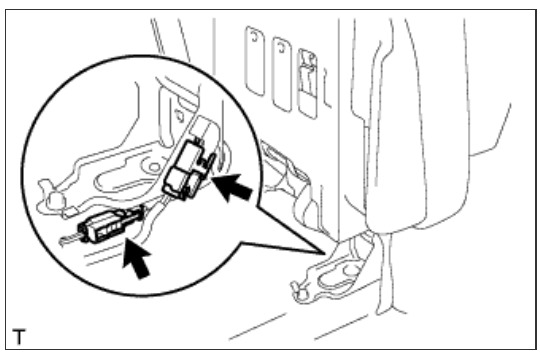
b. Tighten the bolts in the order shown in the illustration.

Torque:
37 N*m{ 377 kgf*cm , 27 ft.*lbf }



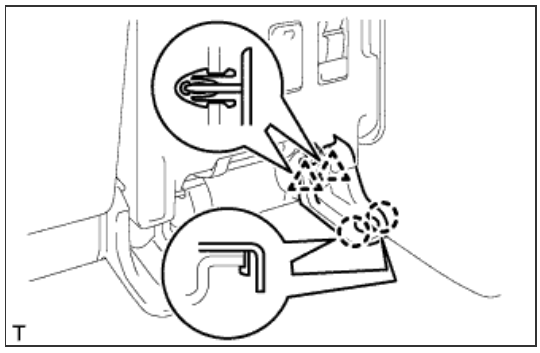
c. w/ Rear Seat Side Airbag:
Connect the connector.

d. w/ Seat Heater System:
Connect the connector.



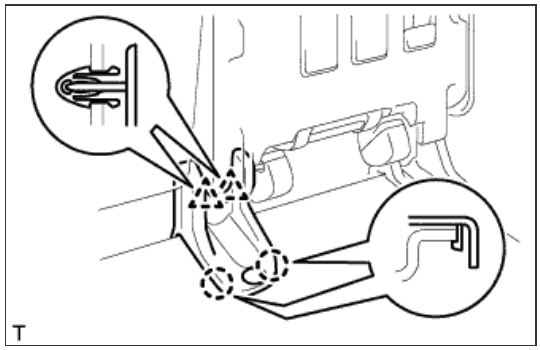
27. INSTALL REAR NO. 3 SEAT CUSHION HINGE COVER

a. Attach the 2 clips and 2 claws to install the cover.



28. INSTALL REAR NO. 1 SEAT CUSHION HINGE COVER

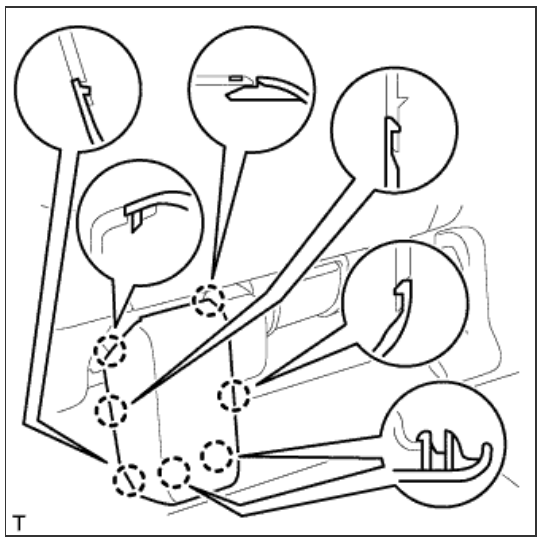
a. Attach the 2 clips and 2 claws to install the cover.



29. INSTALL REAR NO. 4 SEAT CUSHION HINGE COVER

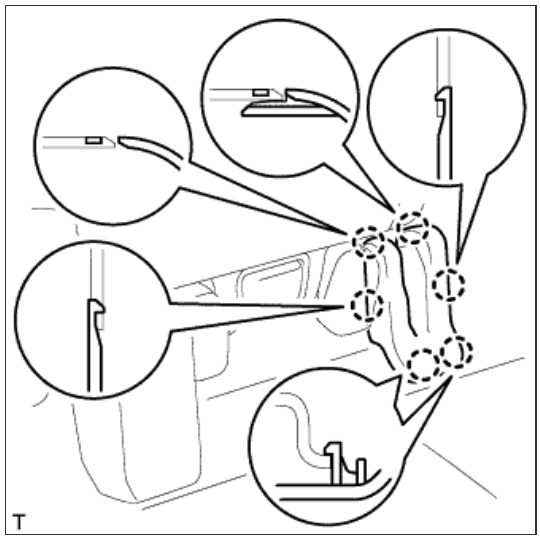
a. Return the seat to the upright position.

b. Attach the 7 claws to install the cover.



30. INSTALL REAR NO. 2 SEAT CUSHION HINGE COVER

a. Attach the 6 claws to install the cover.



31. INSTALL REAR NO. 1 SEAT ASSEMBLY LH

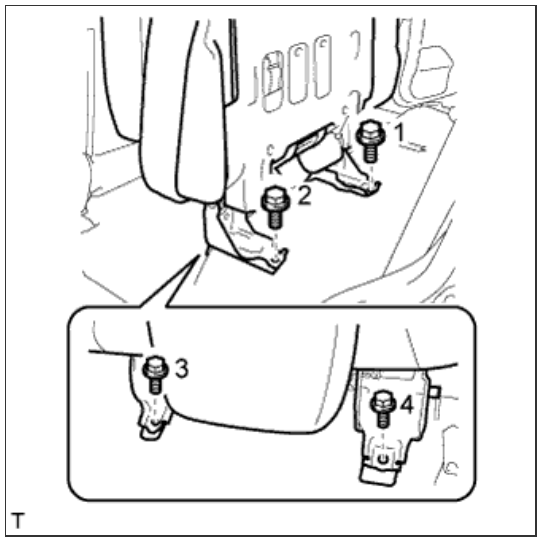
a. Temporarily install the seat assembly with the 4 bolts.

NOTICE:

Be careful not to damage the vehicle body.

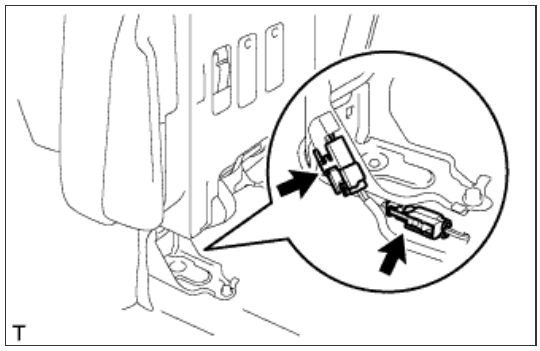
b. Tighten the bolts in the order shown in the illustration.

Torque:
37 N*m{ 377 kgf*cm , 27 ft.*lbf }



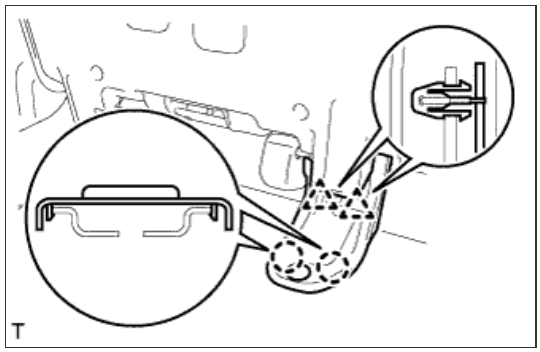
c. w/ Rear Seat Side Airbag:
Connect the connector.

d. w/ Seat Heater System:
Connect the connector.



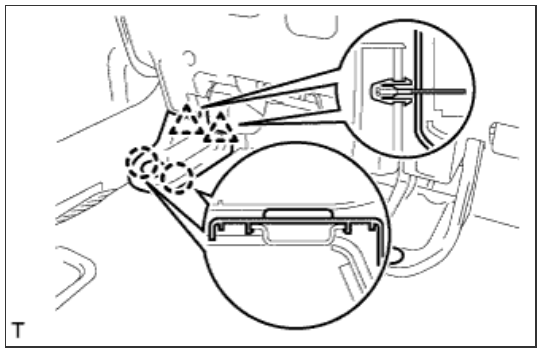
32. INSTALL REAR NO. 4 SEAT CUSHION HINGE COVER

a. Attach the 2 clips and 2 claws to install the cover.



33. INSTALL REAR NO. 2 SEAT CUSHION HINGE COVER

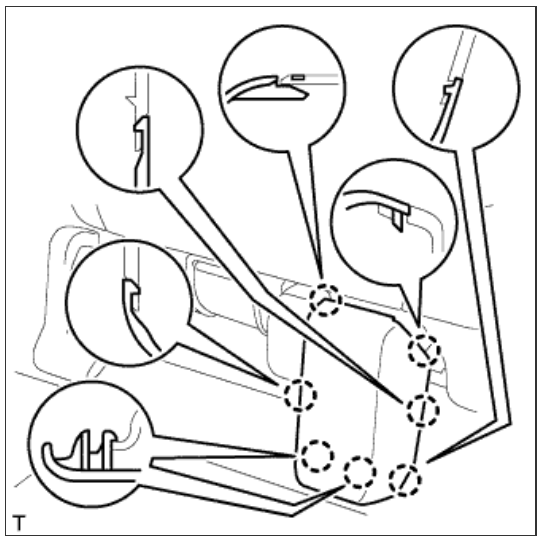
a. Attach the 2 clips and 2 claws to install the cover.



34. INSTALL REAR NO. 5 SEAT CUSHION HINGE COVER

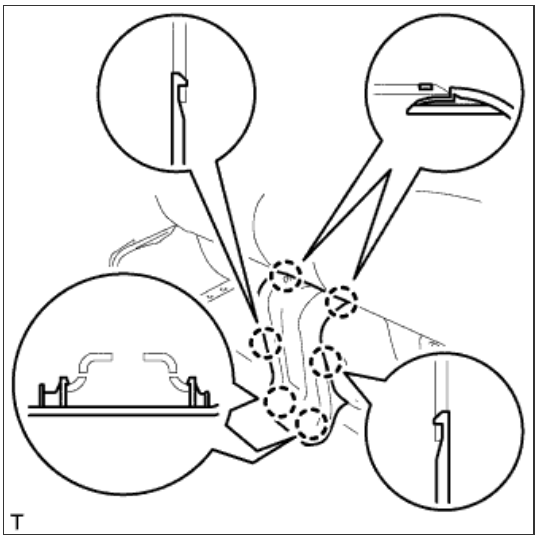
a. Return the seat to the upright position.

b. Attach the 7 claws to install the cover.



35. INSTALL REAR NO. 3 SEAT CUSHION HINGE COVER

a. Attach the 6 claws to install the cover.



36. INSTALL FRONT SEAT ASSEMBLY RH

a. for Manual Seat:
Install the front seat assembly RH (Click here).

b. for Power Seat:
Install the front seat assembly RH (Click here).

HINT:

Use the same procedures described for the LH side.

37. INSTALL FRONT SEAT ASSEMBLY LH

a. for Manual Seat:
Install the front seat assembly LH (Click here).

b. for Power Seat:
Install the front seat assembly LH (Click here).

38. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

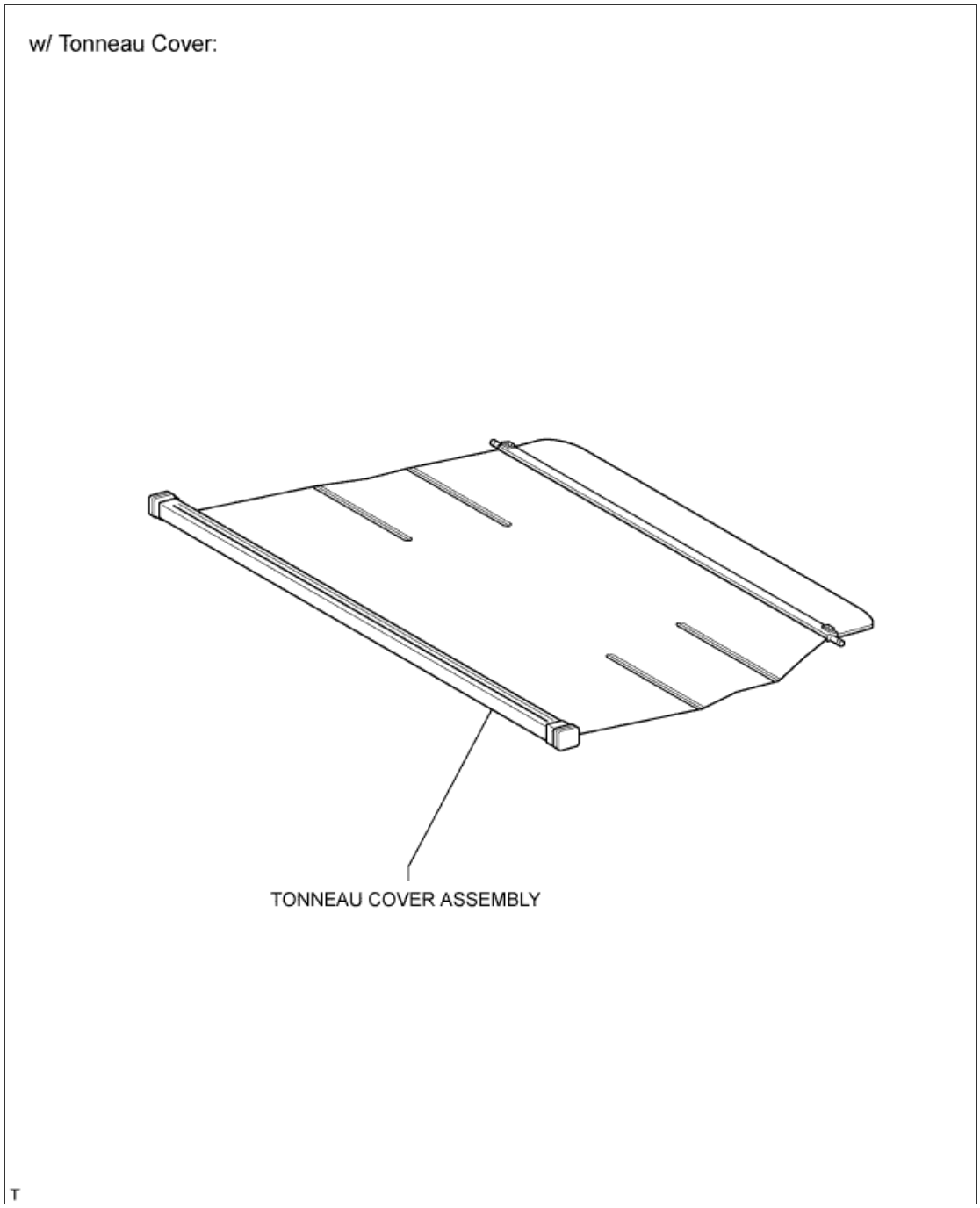
NOTICE:

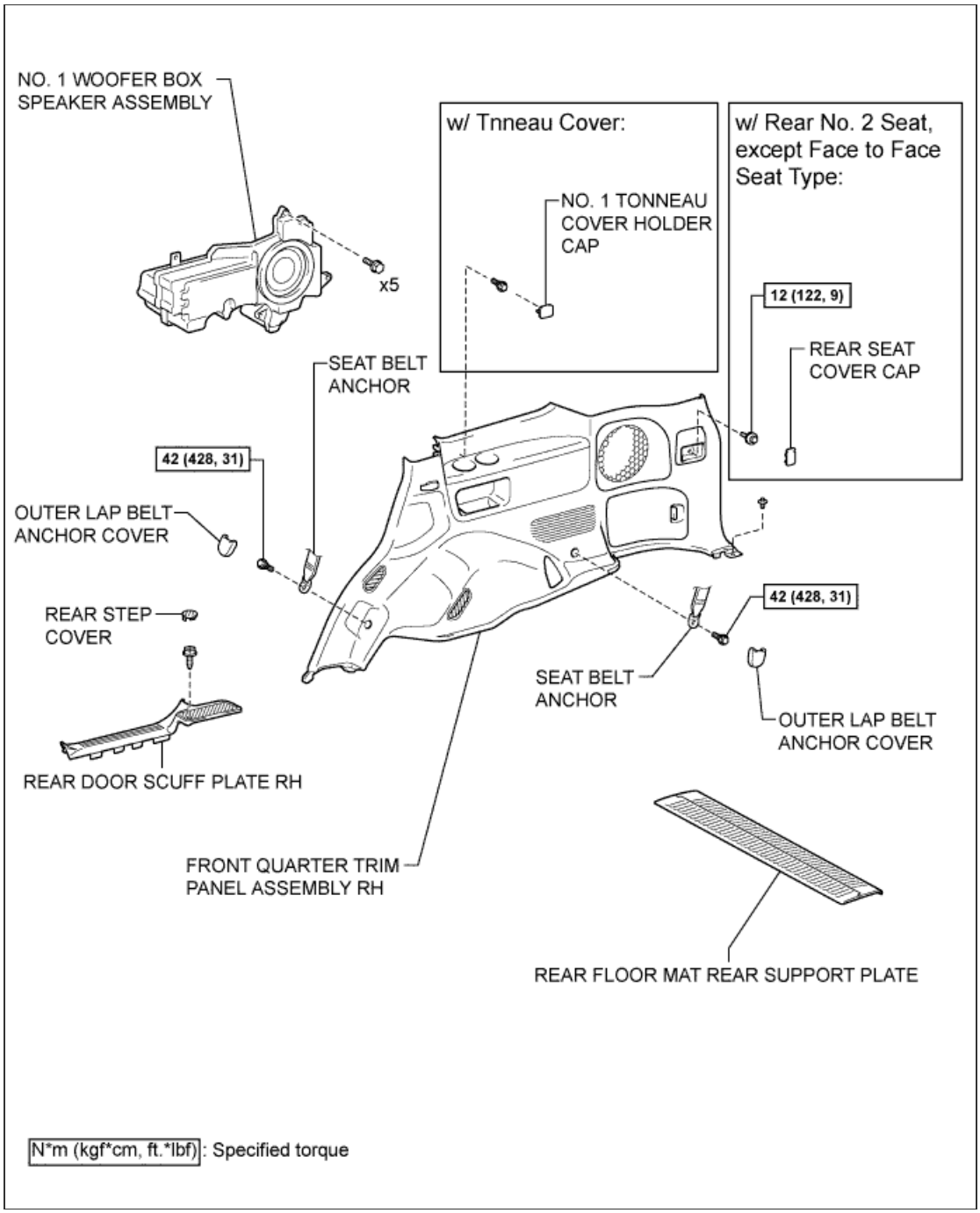
When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

39. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

for Preparation Click here




NO. 1 WOOFER BOX SPEAKER ASSEMBLY
x5
w/ Tnneau Cover:
NO. 1 TONNEAU COVER HOLDER CAP
w/ Rear No. 2 Seat, except Face to Face Seat Type:
12 (122, 9)
REAR SEAT COVER CAP
SEAT BELT ANCHOR
42 (428, 31)
OUTER LAP BELT ANCHOR COVER
REAR STEP COVER
REAR DOOR SCUFF PLATE RH
42 (428, 31)
SEAT BELT ANCHOR
OUTER LAP BELT ANCHOR COVER
FRONT QUARTER TRIM PANEL ASSEMBLY RH
REAR FLOOR MAT REAR SUPPORT PLATE
N*m (kgf*cm, ft.*lbf): Specified torque

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

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 TONNEAU COVER ASSEMBLY (w/ Tonneau Cover)

a. Remove the tonneau cover.

4. REMOVE REAR NO. 2 SEAT ASSEMBLY RH (for Face to Face Seat Type)

HINT:

Use the same procedures described for the LH side (Click here).

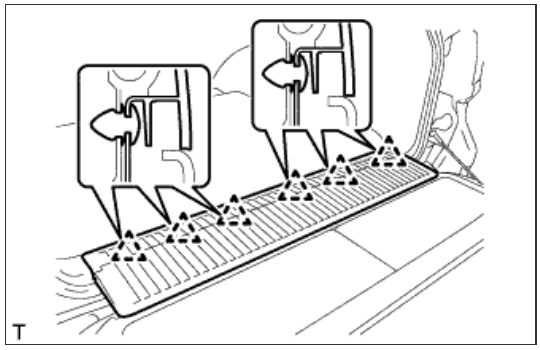
5. REMOVE REAR NO. 2 SEAT ASSEMBLY RH (except Face to Face Seat Type)

HINT:

Use the same procedures described for the LH side (Click here).

6. REMOVE REAR FLOOR MAT REAR SUPPORT PLATE

a. Detach the 6 clips and remove the support plate.

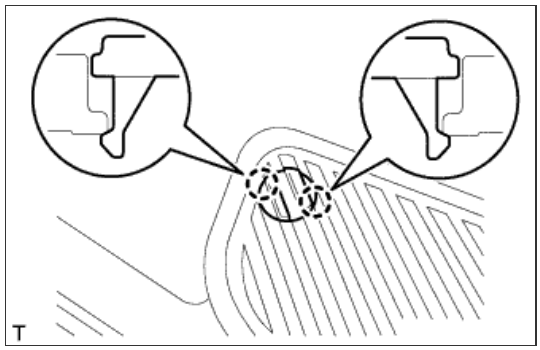


7. REMOVE REAR STEP COVER

HINT:

Use the same procedure to remove the step cover on the other side.

a. Detach the 2 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 (w/ Rear No. 2 Seat, except Face to Face Seat Type)

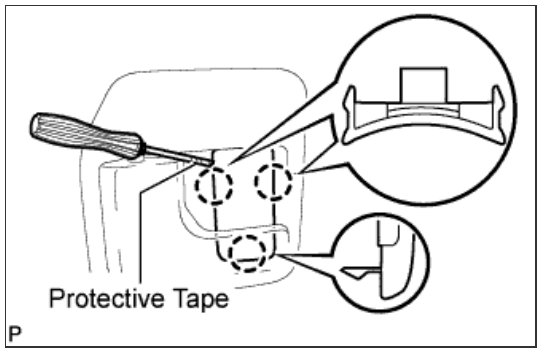
HINT:

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.

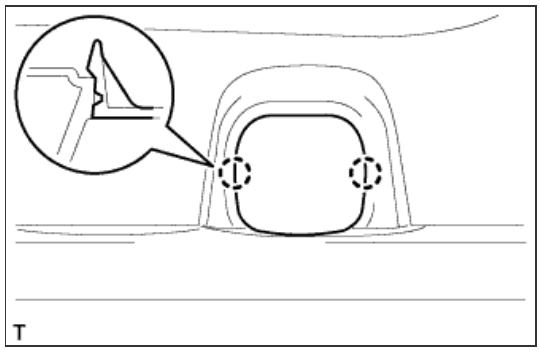


10. REMOVE NO. 1 TONNEAU COVER HOLDER CAP (w/ Tonneau Cover)

HINT:

Use the same procedure to remove the tonneau cover holder cap on the other side.

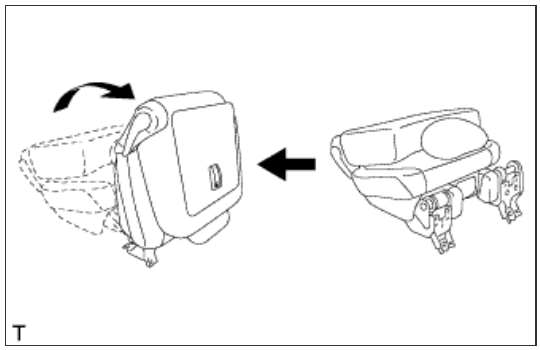
a. Detach the 2 claws and remove the tonneau cover holder cap.



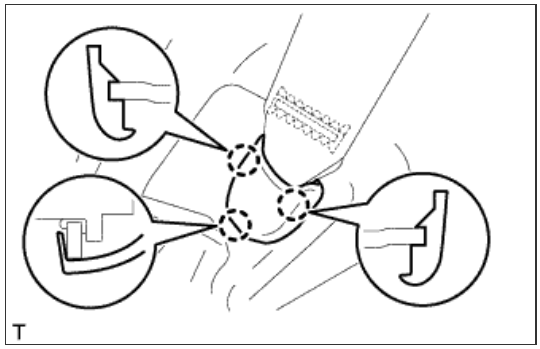
11. REMOVE FRONT QUARTER TRIM PANEL ASSEMBLY RH

HINT:

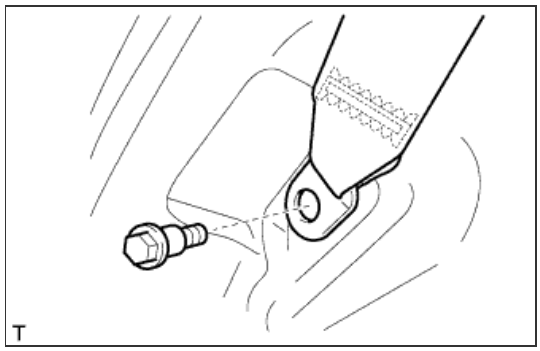
When removing the front quarter trim panel, operate the reclining adjuster release handle and move the No. 1 rear seat to the position shown in the illustration.



a. Detach the 3 claws and remove the cover.

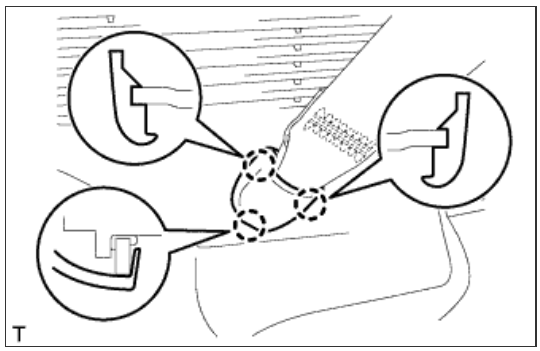


b. Remove the bolt and rear No. 1 seat belt anchor.

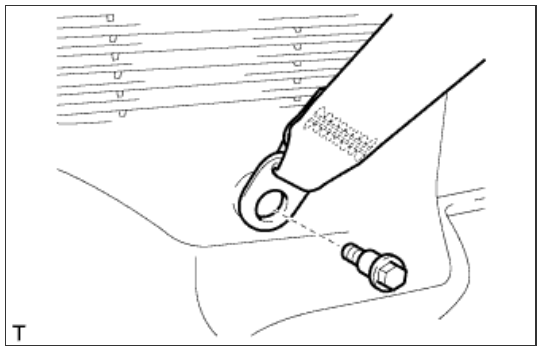


c. w/ Rear No. 2 Seat, except Face to Face Seat Type:

i. Detach the 3 claws and remove the cover.



ii. Remove the bolt and rear No. 2 seat belt anchor.



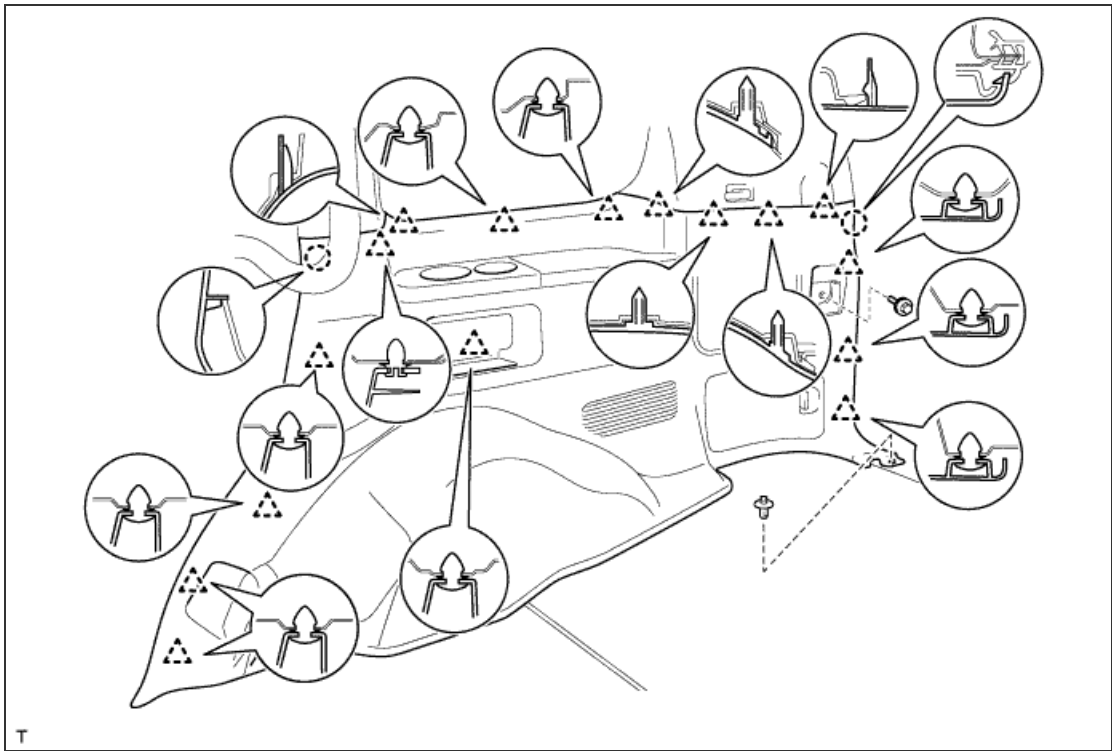
d. w/ Rear No. 2 Seat, except Face to Face Seat Type:

i. Remove the clip and bolt.

ii. Detach the 16 clips and 2 claws.

iii. w/o Rear Air Conditioning System:
Disconnect the rear seat lock control lever cable and then remove the quarter trim panel.

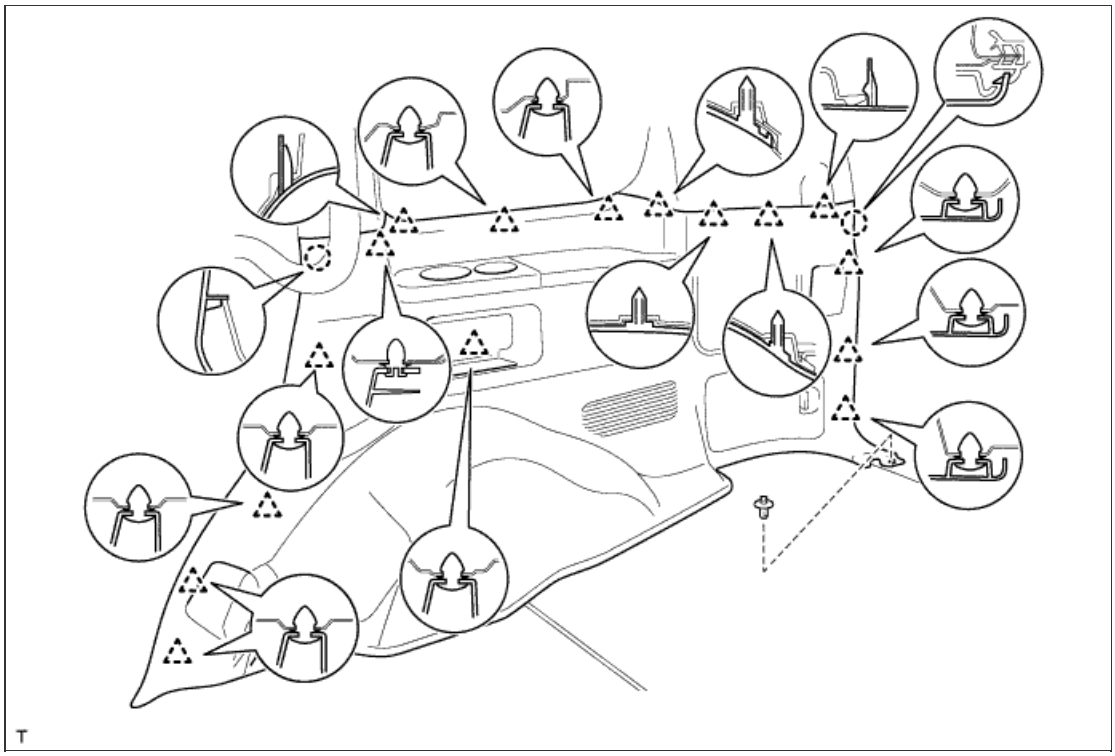
iv. w/ Rear Air Conditioning System:
Disconnect the thermistor connector and rear seat lock control lever cable, and then remove the quarter trim panel.



e. w/o Rear No. 2 Seat or w/ Rear No. 2 Seat, for Face to Face Seat Type:

i. Remove the clip.

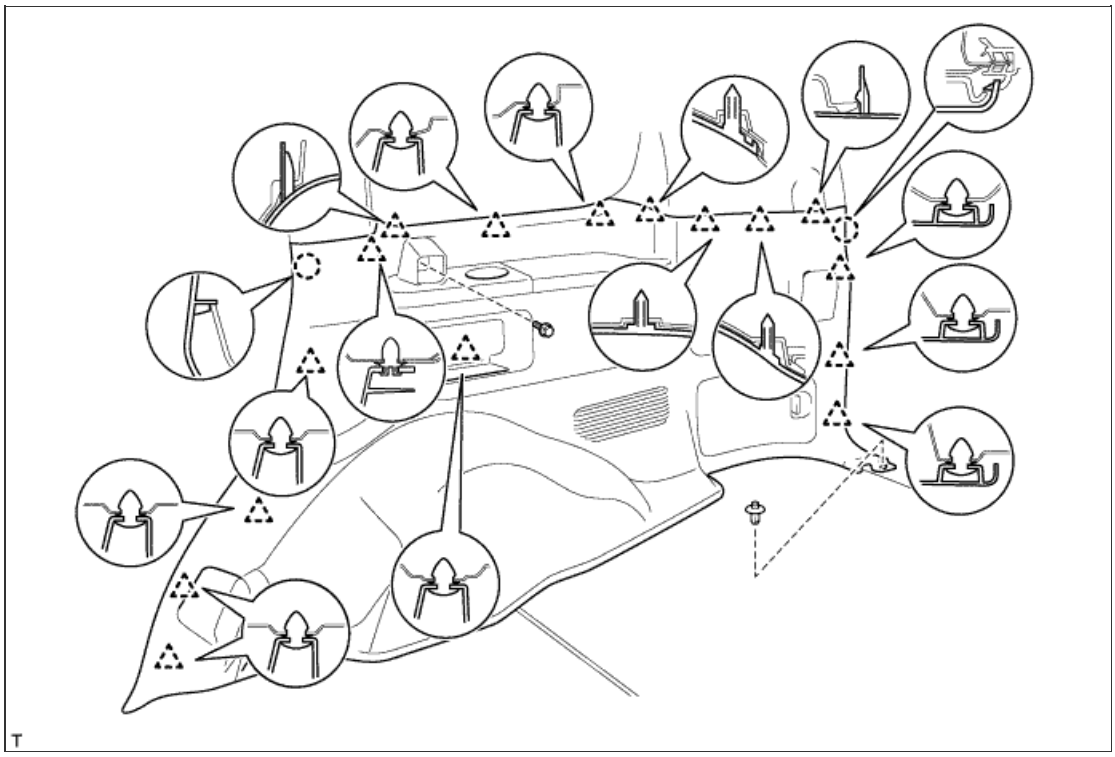
ii. Detach the 16 clips and 2 claws, and remove the quarter trim panel.



f. w/ Tonneau Cover:

i. Remove the screw and clip.

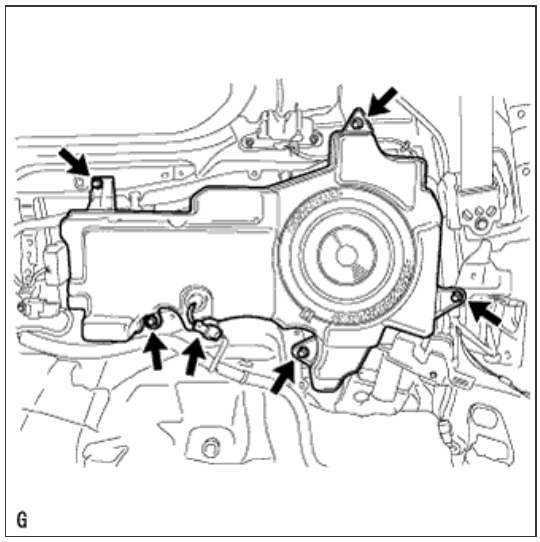
ii. Detach the 16 clips and 2 claws, and remove the quarter trim panel.



12. REMOVE NO. 1 WOOFER BOX SPEAKER ASSEMBLY

a. Disconnect the connector.

b. Remove the 5 bolts and box speaker.



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.

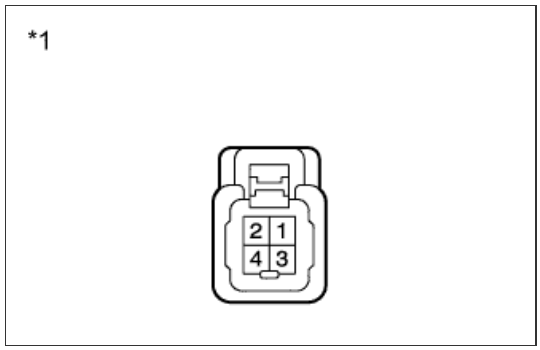
Text in Illustration

*1	Component without harness connected (No. 1 Woofer Box Speaker)

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	1.6 to 2.4 Ω
3 - 4	Always	1.6 to 2.4 Ω

If the result is not as specified, replace the speaker assembly.



for Preparation Click here

1. INSTALL NO. 1 WOOFER BOX SPEAKER ASSEMBLY

a. Install the box speaker with the 5 bolts.

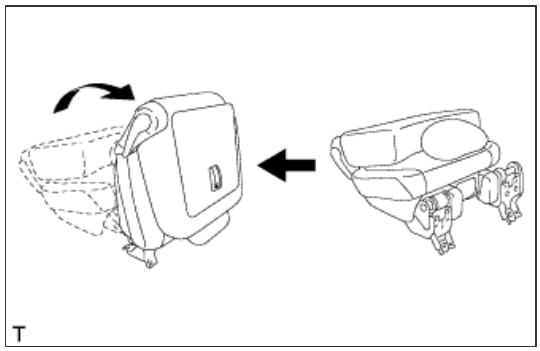
b. Connect the connector.



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. w/ Rear No. 2 Seat, except Face to Face Seat Type:

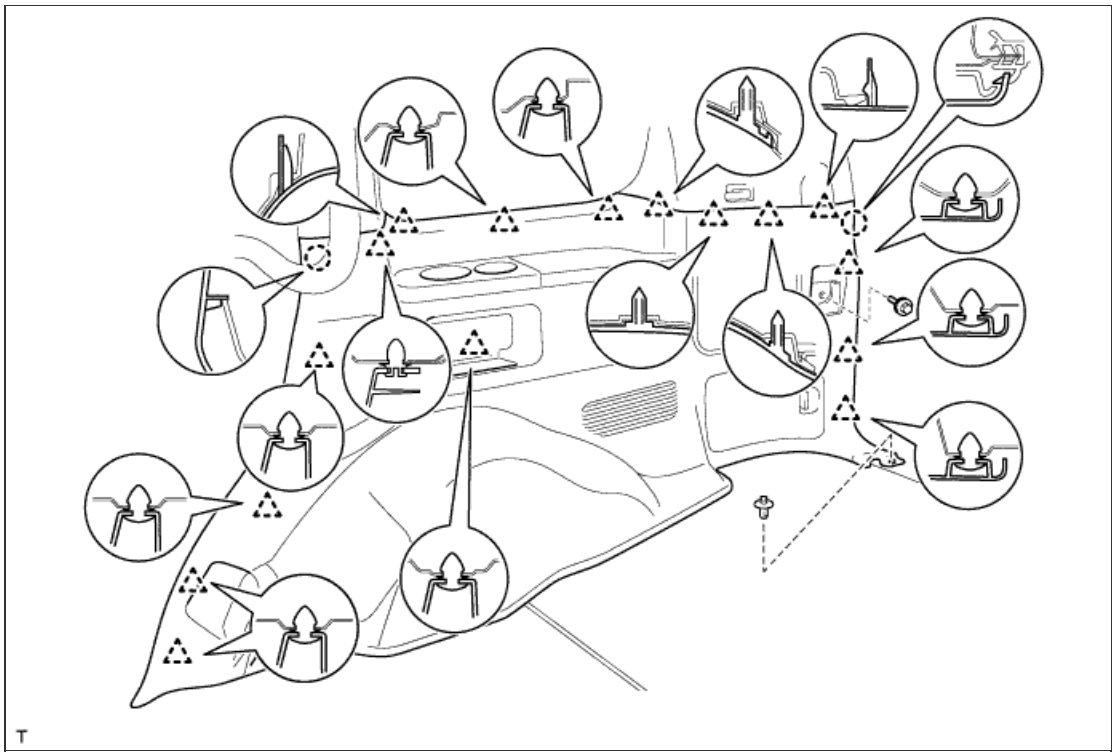
i. w/o Rear Air Conditioning System:
Connect the rear seat lock control lever cable.

ii. w/ Rear Air Conditioning System:
Connect the thermistor connector and rear seat lock control lever cable.

iii. Attach the 16 clips and 2 claws to install the quarter trim panel.

iv. Install the clip and bolt.

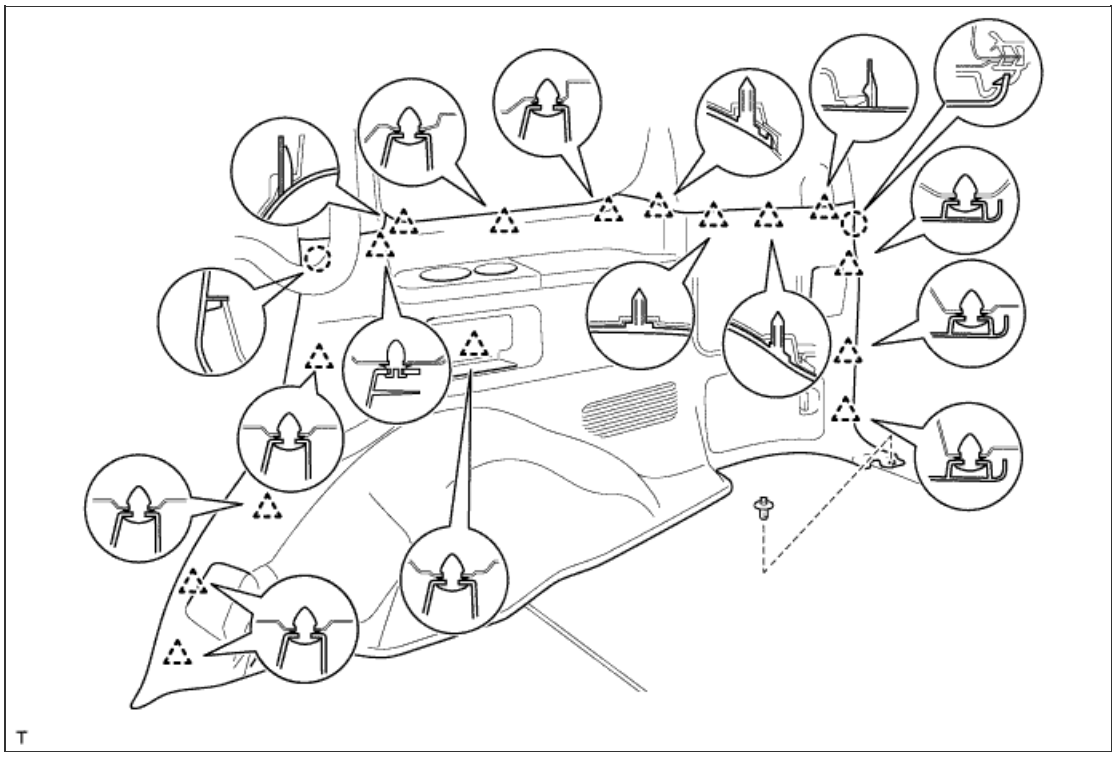
Torque:
12 N*m{ 122 kgf*cm , 9 ft.*lbf }



b. w/o Rear No. 2 Seat or w/ Rear No. 2 Seat, for Face to Face Seat Type:

i. Attach the 16 clips and 2 claws to install the quarter trim panel.

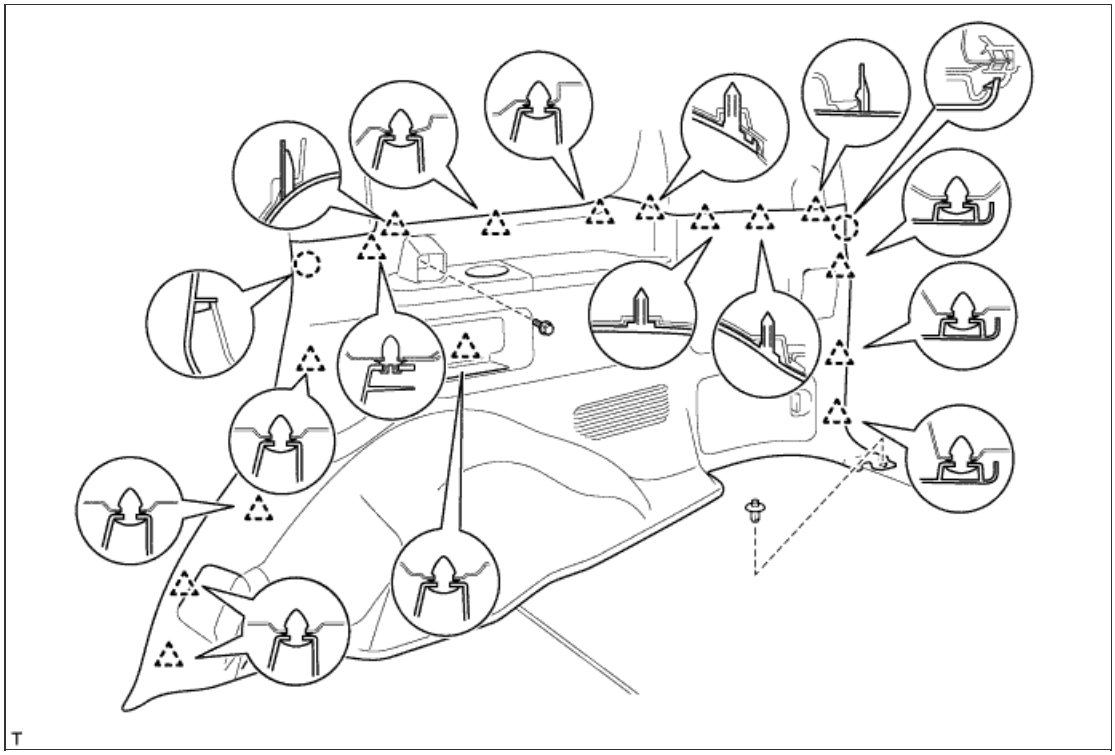
ii. Install the clip.



c. w/ Tonneau Cover:

i. Attach the 16 clips and 2 claws to install the quarter trim panel.

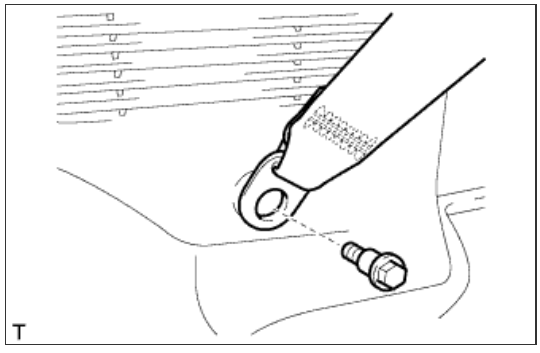
ii. Install the screw and clip.



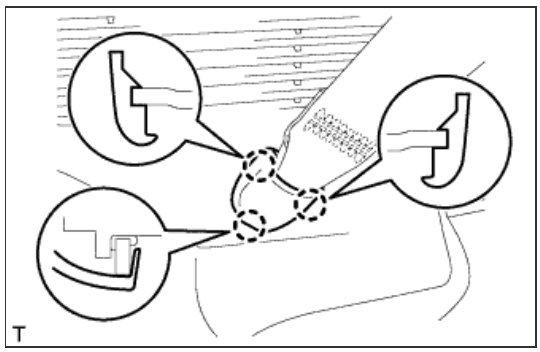
d. w/ Rear No. 2 Seat, except Face to Face Seat Type:

i. Install the rear No. 2 seat belt anchor with the bolt.

Torque:
42 N*m{ 428 kgf*cm , 31 ft.*lbf }

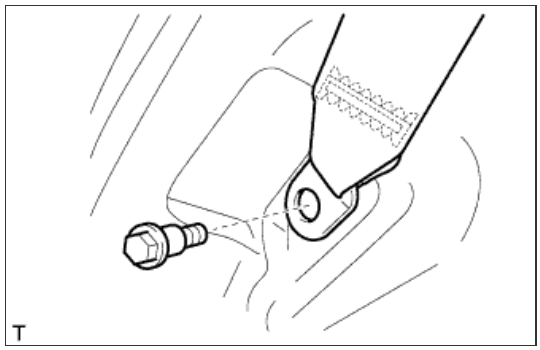


ii. Attach the 3 claws to install the cover.

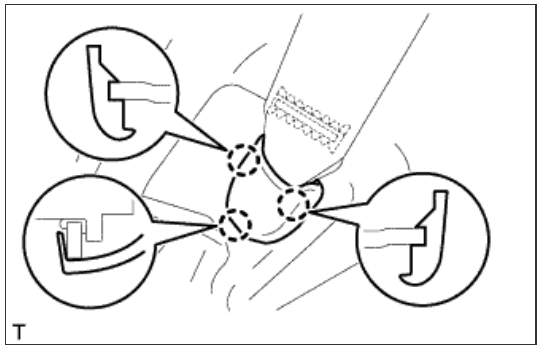


e. Install the rear No. 1 seat belt anchor with the bolt.

Torque:
42 N*m{ 428 kgf*cm , 31 ft.*lbf }



f. Attach the 3 claws to install the cover.

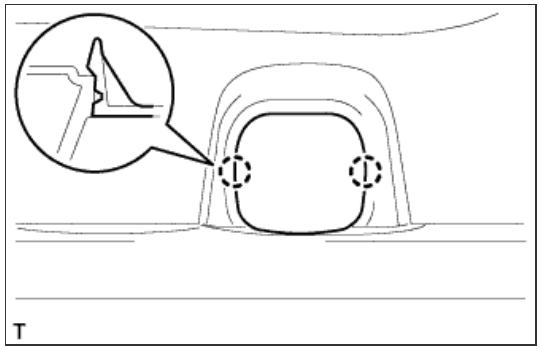


3. INSTALL NO. 1 TONNEAU COVER HOLDER CAP (w/ Tonneau Cover)

HINT:

Use the same procedure to install the tonneau cover holder cap on the other side.

a. Attach the 2 claws to install the tonneau cover holder cap.

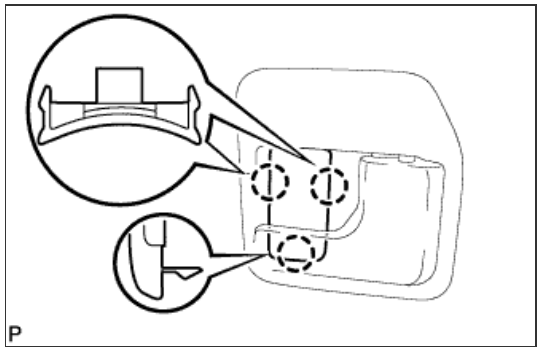


4. INSTALL REAR SEAT COVER CAP (w/ Rear No. 2 Seat, except Face to Face Seat Type)

HINT:

Use the same procedure to install the rear seat cover cap on the other side.

a. Attach the 3 claws to install the rear seat cover cap.



5. INSTALL REAR DOOR SCUFF PLATE RH

HINT:

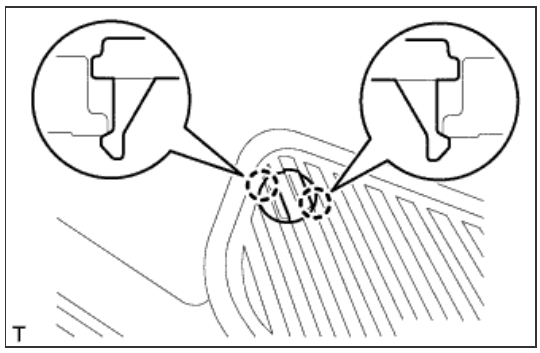
Use the same procedures described for the LH side.

6. INSTALL REAR STEP COVER

HINT:

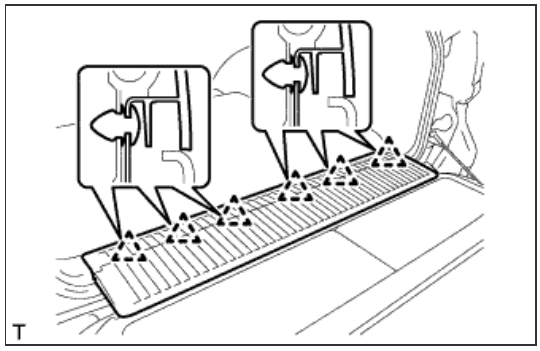
Use the same procedure to install the step cover on the other side.

a. Attach the 2 claws to install the step cover.



7. INSTALL REAR FLOOR MAT REAR SUPPORT PLATE

a. Attach the 6 clips to install the support plate.



8. INSTALL REAR NO. 2 SEAT ASSEMBLY RH (for Face to Face Seat Type)

HINT:

Use the same procedures described for the LH side (Click here).

9. INSTALL REAR NO. 2 SEAT ASSEMBLY RH (except Face to Face Seat Type)

HINT:

Use the same procedures described for the LH side (Click here).

10. INSTALL TONNEAU COVER ASSEMBLY (w/ Tonneau Cover)

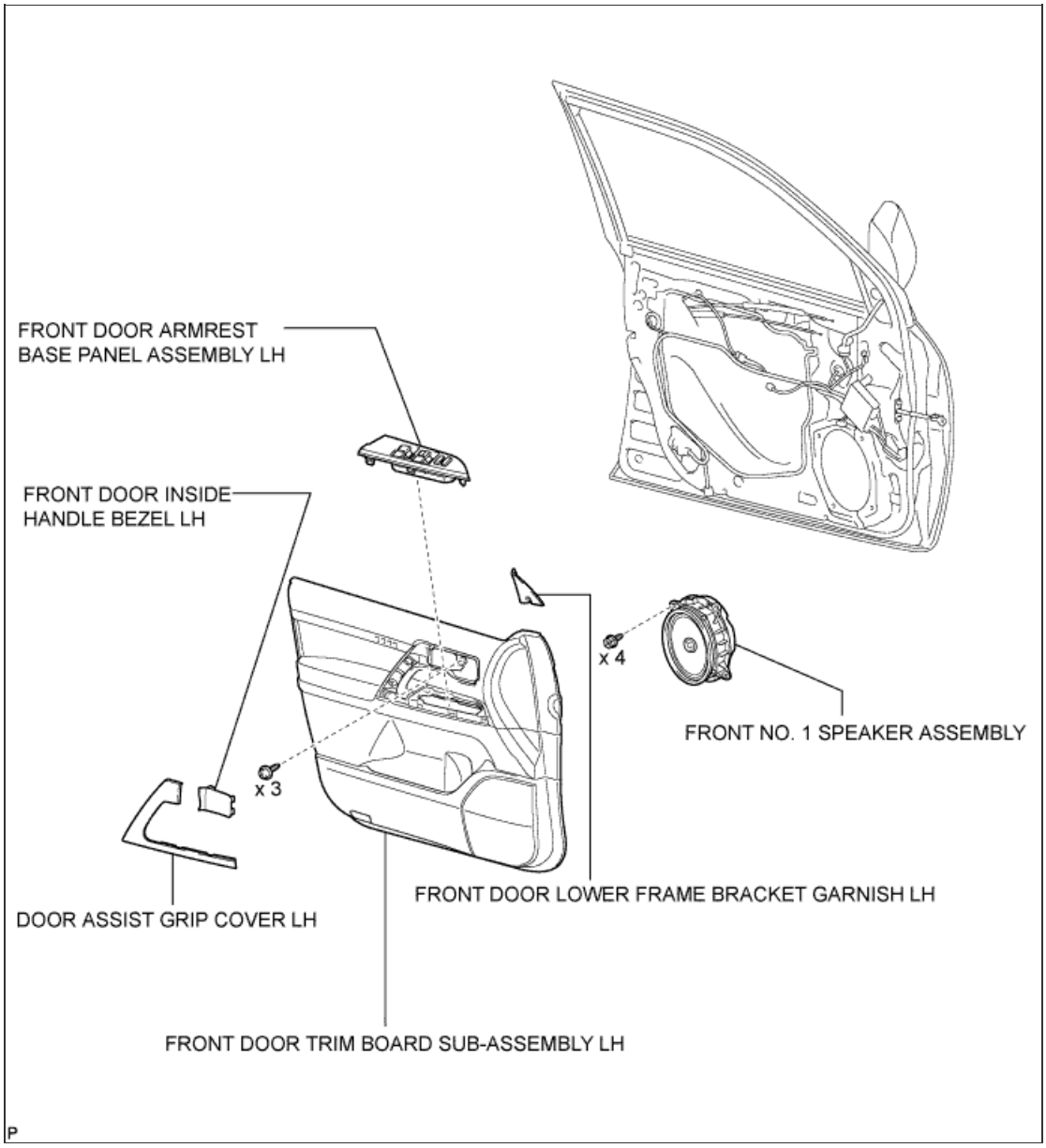
a. Install the tonneau cover assembly.

11. 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



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. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

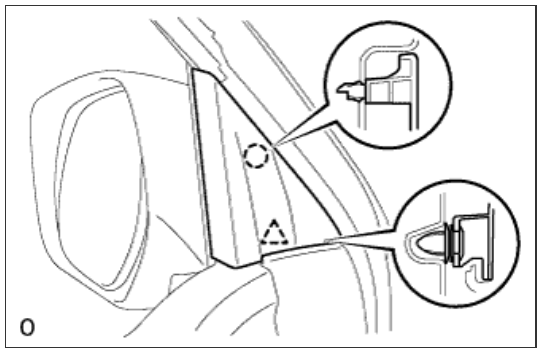
2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE FRONT DOOR LOWER FRAME BRACKET GARNISH LH

a. Detach the clip and claw, and remove the front door lower frame bracket garnish LH.



4. REMOVE FRONT DOOR INSIDE HANDLE BEZEL LH

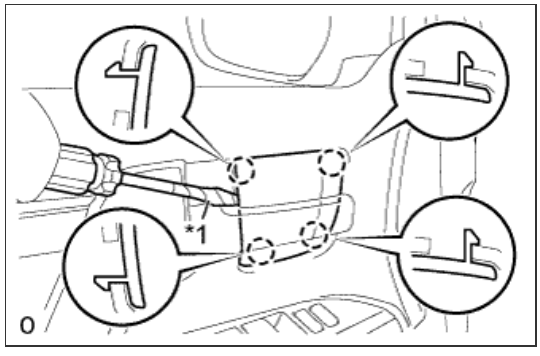
a. Using a screwdriver, detach the 4 claws and remove the front door inside handle bezel LH.

HINT:

Tape the screwdriver tip before use.

Text in Illustration

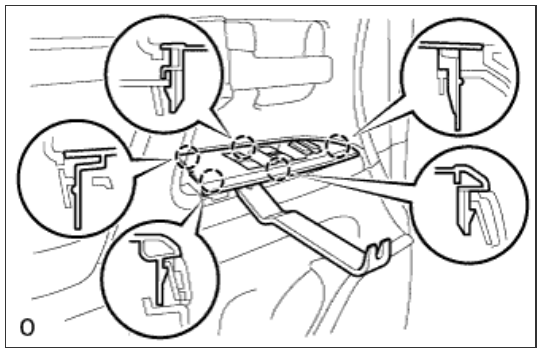
*1	Protective Tape



5. REMOVE FRONT DOOR ARMREST BASE PANEL ASSEMBLY LH

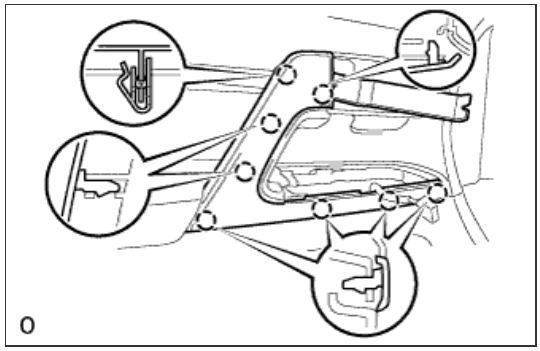
a. Using a moulding remover, detach the 5 claws.

b. Disconnect the connector and remove the armrest base panel.



6. REMOVE DOOR ASSIST GRIP COVER LH

a. Using a moulding remover, detach the 8 claws and remove the door assist grip cover LH.



7. REMOVE FRONT DOOR TRIM BOARD SUB-ASSEMBLY LH

a. Remove the 3 screws.

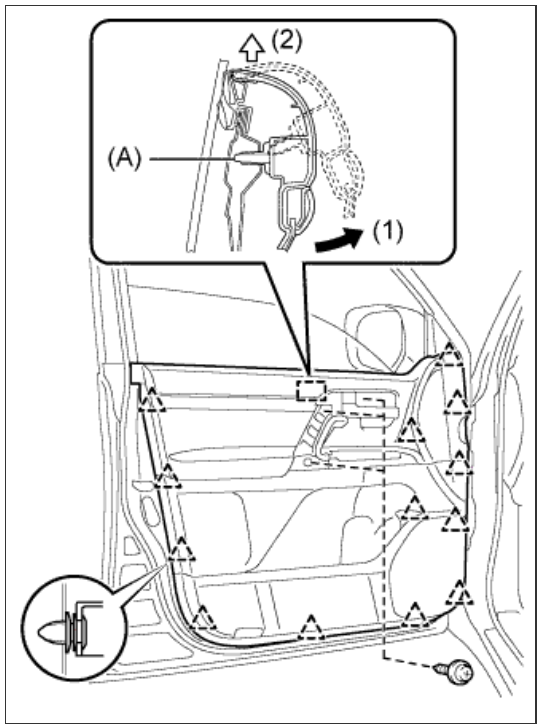
b. Remove the 13 clips.

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.

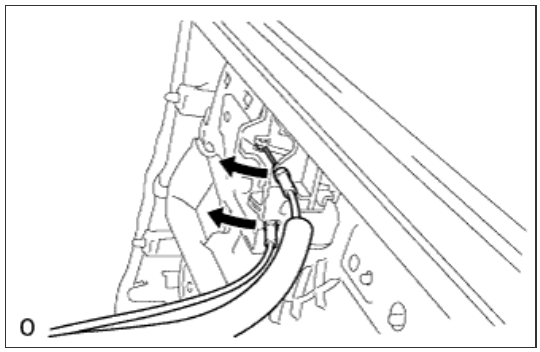
HINT:

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.



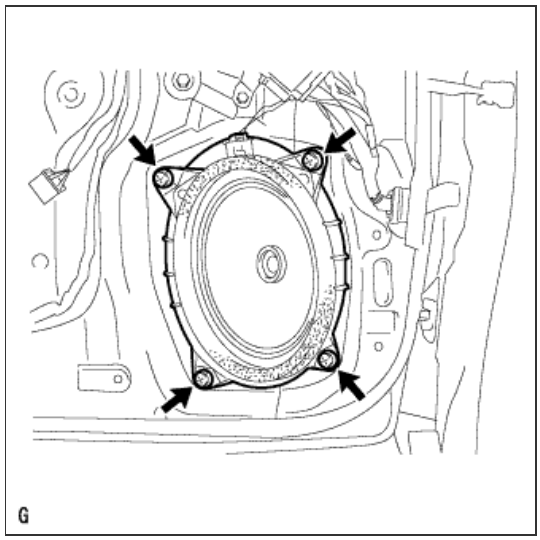
8. REMOVE FRONT NO. 1 SPEAKER ASSEMBLY

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:

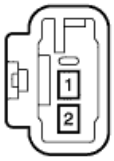
Tester Connection	Condition	Specified Condition
1 - 2	Always	3 Ω*1
1 - 2	Always	4 Ω*2

HINT:

- ***1: for 9 Speakers Models**
- ***2: except 9 Speakers Models**

If the result is not as specified, replace the 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.**

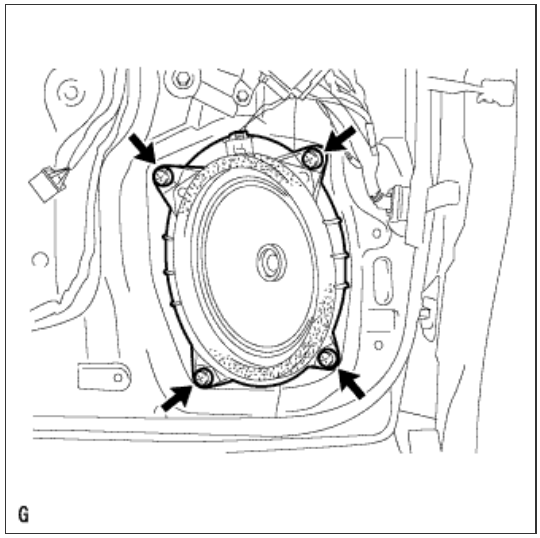
1. INSTALL FRONT NO. 1 SPEAKER ASSEMBLY

a. Connect the speaker connector.

b. Install the speaker with the 4 screws.

NOTICE:

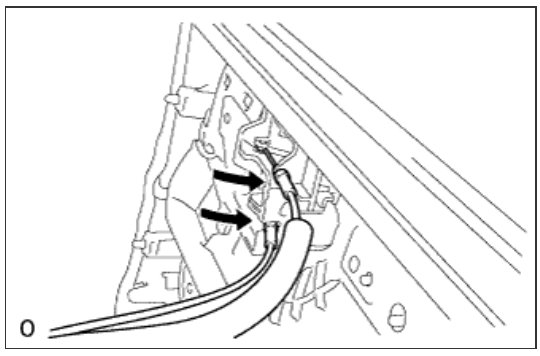
Do not touch the cone part of the speaker.



2. INSTALL FRONT DOOR TRIM BOARD SUB-ASSEMBLY LH

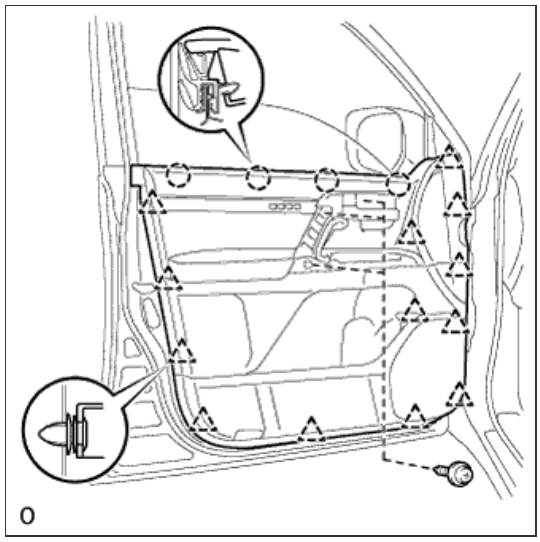
a. Connect the connector.

b. Connect the front door lock remote control cable 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 13 clips to install the front door trim board sub-assembly LH.

d. Install the 3 screws.



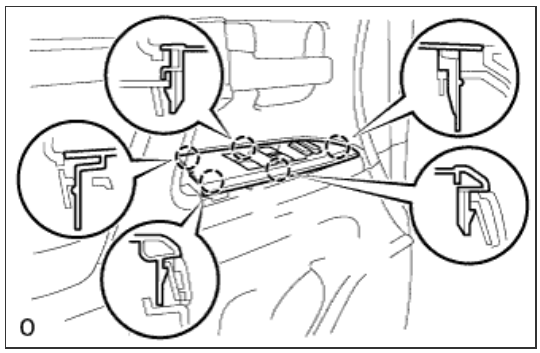
3. INSTALL DOOR ASSIST GRIP COVER LH

a. Attach the 8 claws to install the door assist grip cover LH to the front door trim board sub-assembly LH.

4. INSTALL FRONT DOOR ARMREST BASE PANEL ASSEMBLY LH

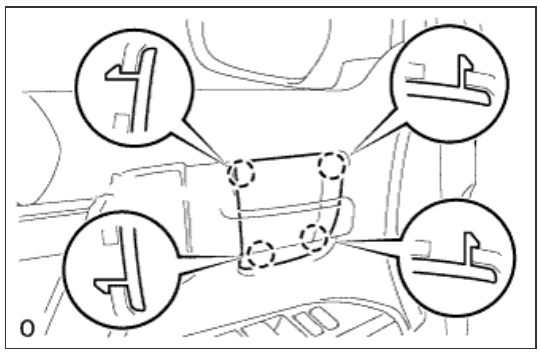
a. Connect the connector.

b. Attach the 5 claws to install the armrest base panel.



5. INSTALL FRONT DOOR INSIDE HANDLE BEZEL LH

a. Attach the 4 claws to install the front door inside handle bezel LH.



6. INSTALL FRONT DOOR LOWER FRAME BRACKET GARNISH LH

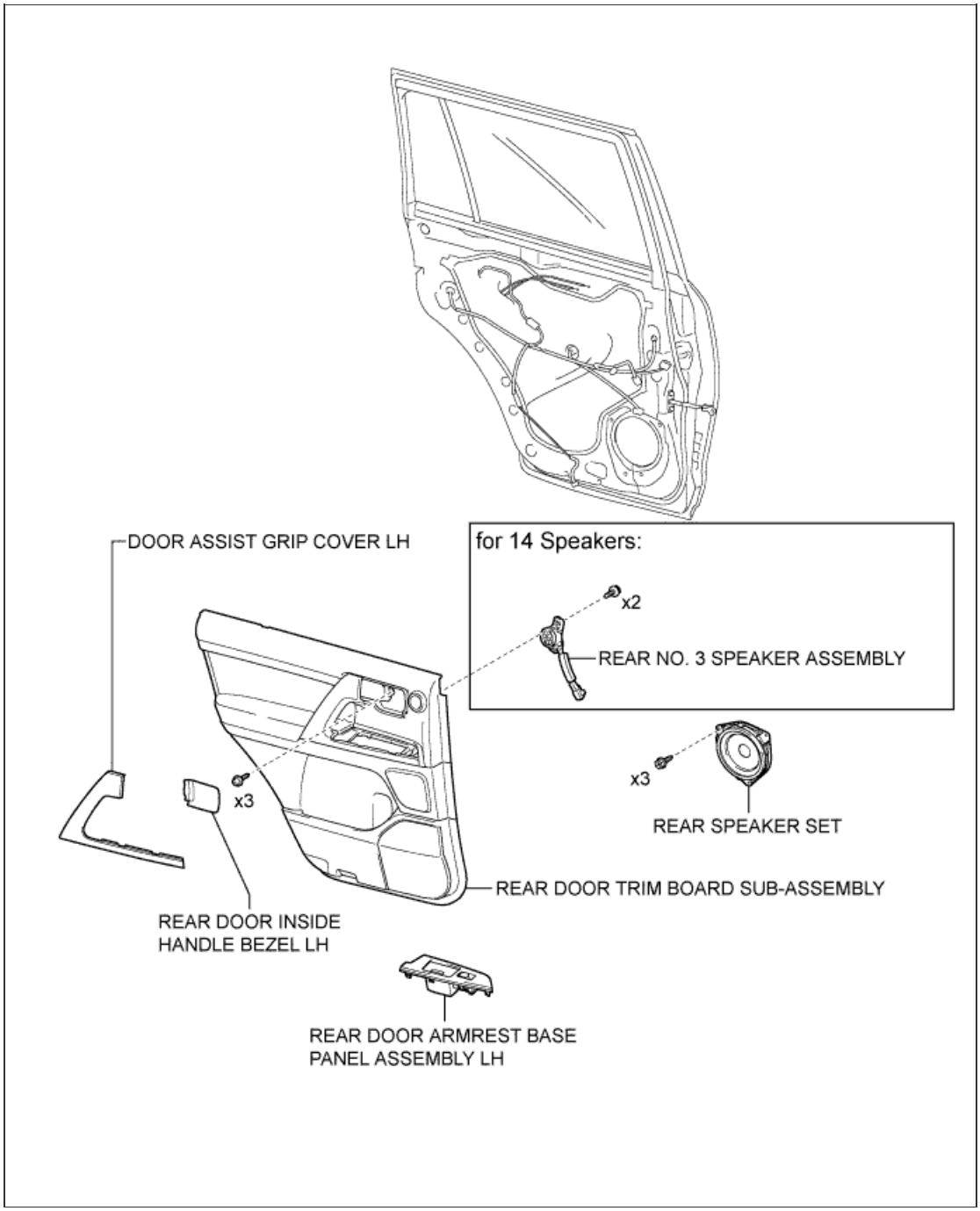
a. Attach the clip and claw, and install the front door lower frame bracket garnish LH.

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).

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. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

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 LH

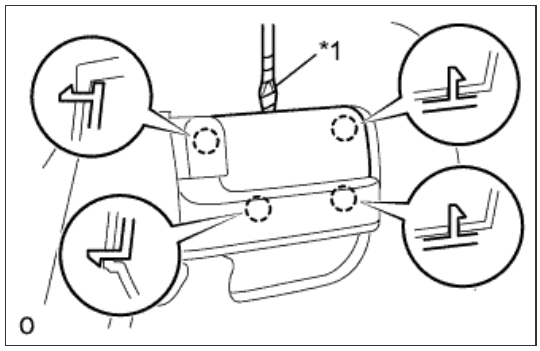
a. Using a screwdriver, detach the 4 claws and remove the rear door inside handle bezel LH.

HINT:

Tape the screwdriver tip before use.

Text in Illustration

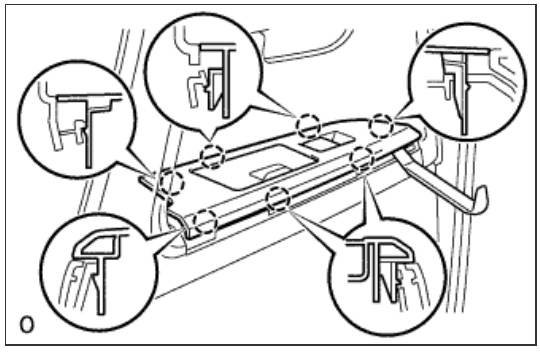
*1	Protective Tape



4. REMOVE REAR DOOR ARMREST BASE PANEL ASSEMBLY LH

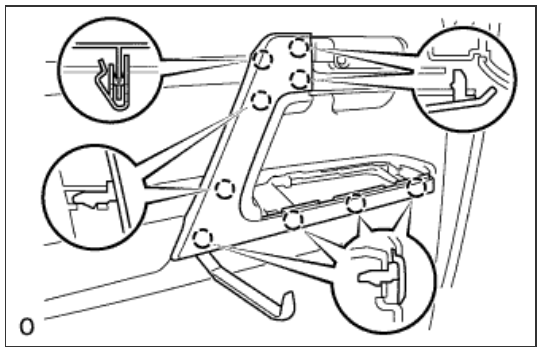
a. Using a moulding remover, detach the 7 claws.

b. Disconnect the connector and remove the armrest base panel.



5. REMOVE DOOR ASSIST GRIP COVER LH

a. Using a moulding remover, detach the 9 claws and remove the assist grip cover LH.



6. REMOVE REAR DOOR TRIM BOARD SUB-ASSEMBLY

a. Remove the 3 screws.

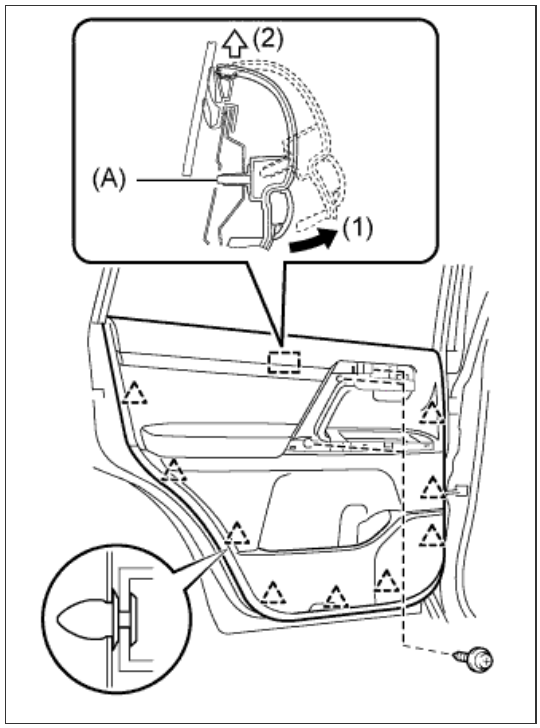
b. Remove the 9 clips.

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.

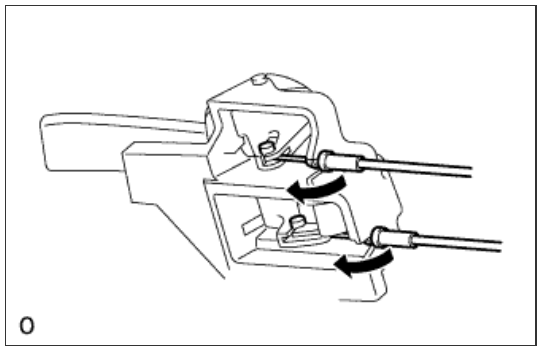
HINT:

Make sure that the pin labeled A in the illustration is detached from the door panel.

d. Disconnect the connector and remove the rear door trim board sub-assembly LH.



e. Disconnect the 2 cables from the rear door inside handle sub-assembly LH.



7. REMOVE REAR SPEAKER SET

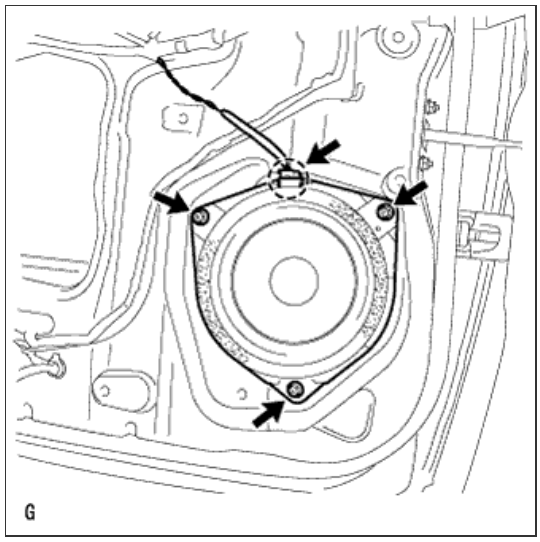
a. Disconnect the speaker connector.

b. Remove the 3 screws.

c. Detach the claw and remove the speaker.

NOTICE:

Do not touch the cone part of the speaker.



8. REMOVE REAR NO. 3 SPEAKER ASSEMBLY (for 14 Speakers)

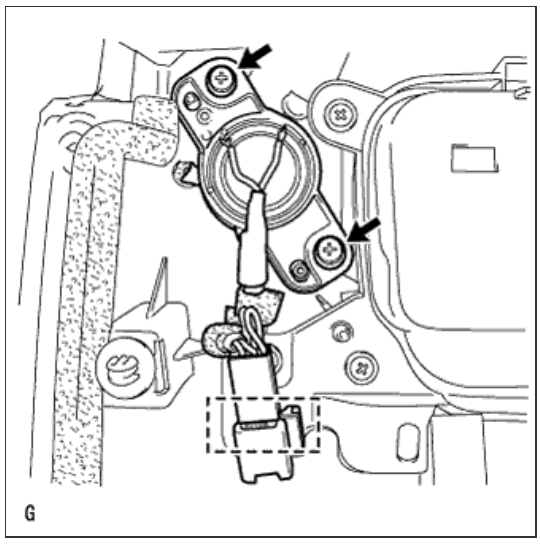
a. Disconnect the connector.

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 (except 14 Speakers)

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

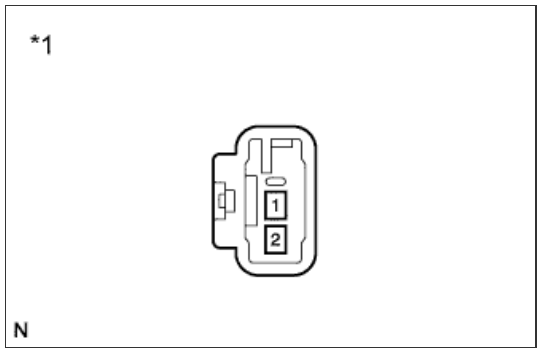
Text in Illustration

*1	Component without harness connected (Rear Speaker Set)

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	4 Ω

If the result is not as specified, replace the speaker set.



2. INSPECT REAR SPEAKER SET (for 14 Speakers)

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

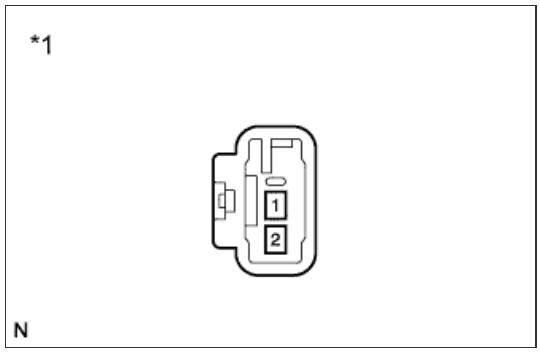
Text in Illustration

*1	Component without harness connected (Rear Speaker Set)

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	1.5 to 2.3 Ω

If the result is not as specified, replace the speaker set.



3. INSPECT REAR NO. 3 SPEAKER ASSEMBLY (for 14 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 14 Speakers)

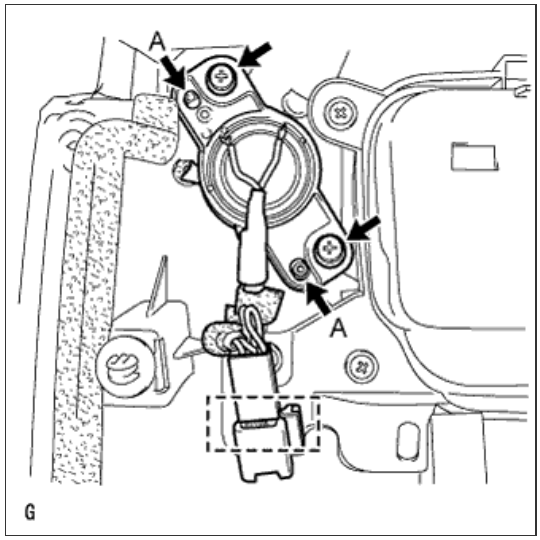
a. Align the speaker to the door position pins labeled A.

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 SPEAKER SET

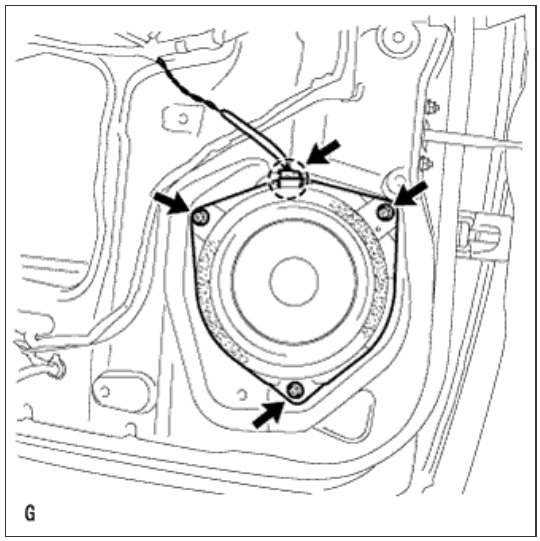
a. Temporarily install the speaker by attaching the claw of the speaker to the door panel.

b. Install the speaker with the 3 screws.

NOTICE:

Do not touch the cone part of the speaker.

c. Connect the connector.

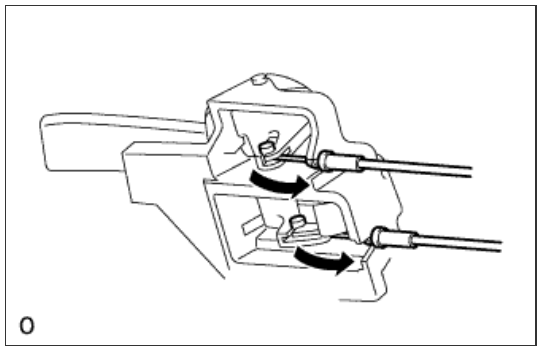


3. INSTALL REAR DOOR TRIM BOARD SUB-ASSEMBLY

a. Connect the connector.

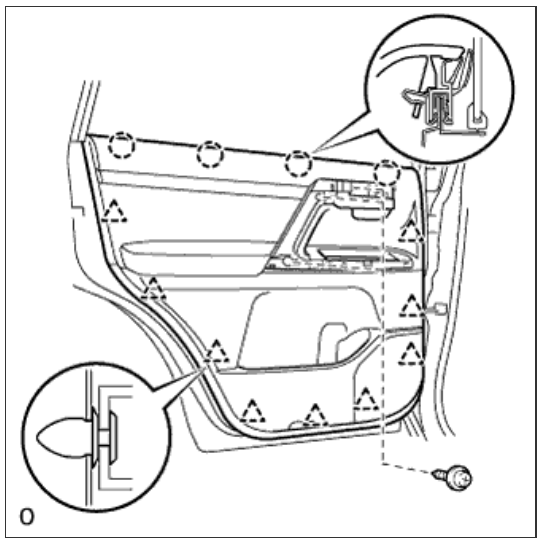
b. Connect the rear door lock remote control cable assembly LH and rear door

inside locking cable assembly LH to the rear door inside handle sub-assembly LH.



c. Attach the 4 claws and 9 clips to install the rear door trim board sub-assembly LH.

d. Install the 3 screws.



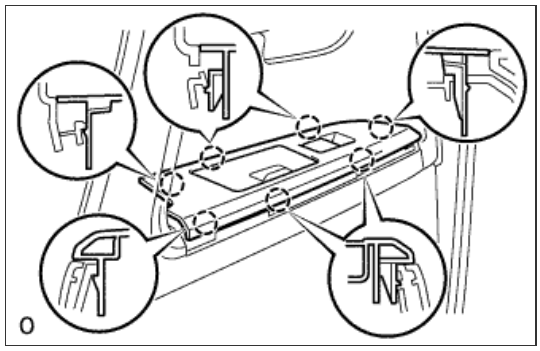
4. INSTALL DOOR ASSIST GRIP COVER LH

a. Attach the 9 claws to install the assist grip cover LH to the rear door trim board sub-assembly LH.

5. INSTALL REAR DOOR ARMREST BASE PANEL ASSEMBLY LH

a. Connect the connector.

b. Attach the 7 claws to install the armrest base panel.



6. INSTALL REAR DOOR INSIDE HANDLE BEZEL LH

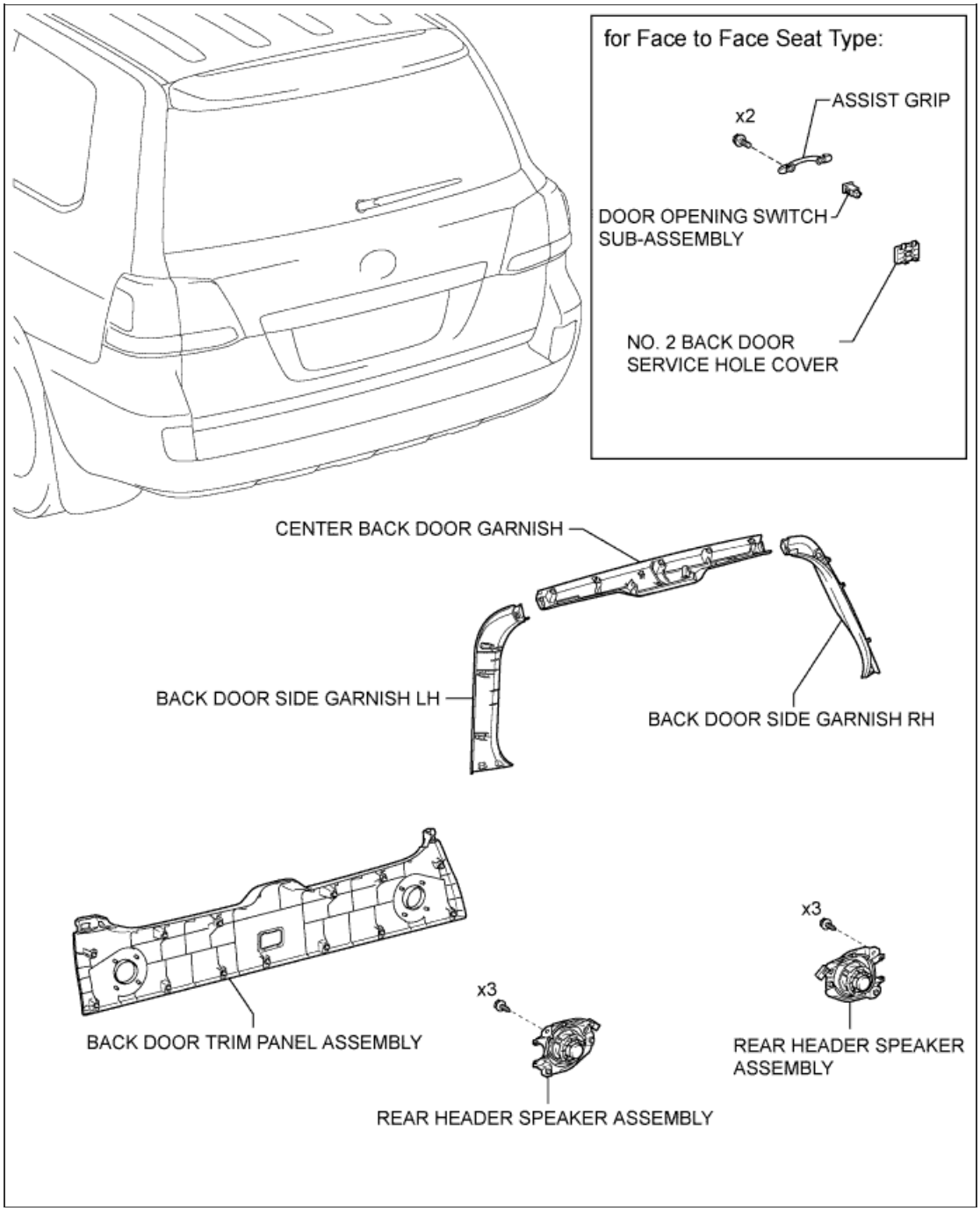
a. Attach the 4 claws to install the rear door inside handle bezel LH.

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).

for Preparation Click here



for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

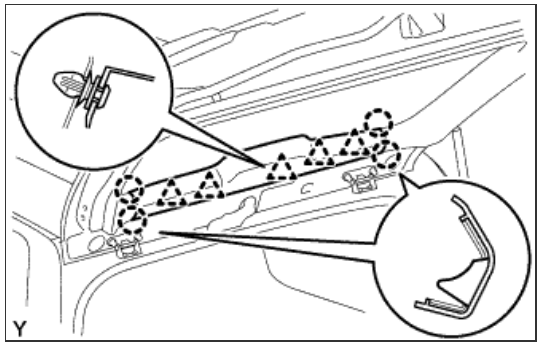
2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

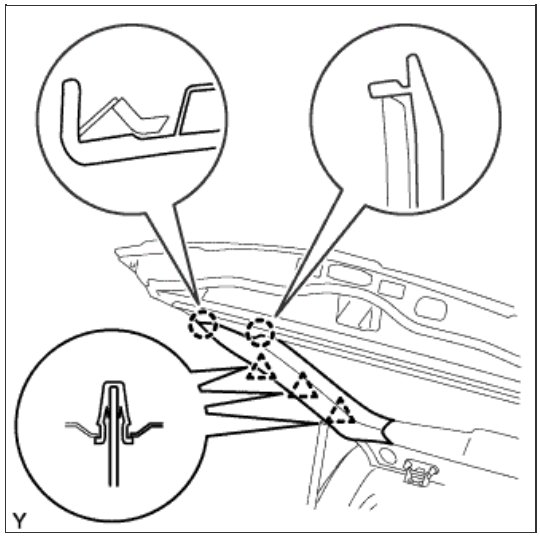
3. REMOVE CENTER BACK DOOR GARNISH

a. Detach the 5 clips and 4 claws, and remove the center back door garnish.



4. REMOVE BACK DOOR SIDE GARNISH LH

a. Detach the 3 clips and 2 claws, and remove the back door side garnish LH.



5. REMOVE BACK DOOR SIDE GARNISH RH

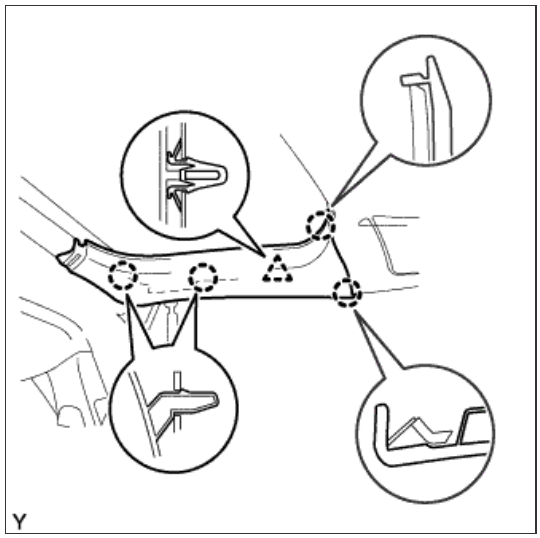
a. w/o Power Back Door:

HINT:

Use the same procedure described for the LH side.

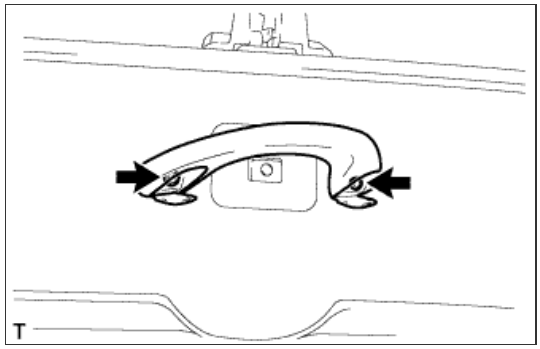
b. w/ Power Back Door:

i. Detach the clip and 4 claws, and remove the back door side garnish RH.



6. REMOVE ASSIST GRIP (for Face to Face Seat Type)

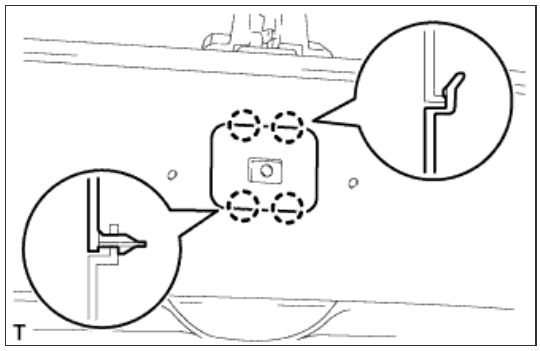
a. Remove the 2 screws and assist grip.



7. REMOVE NO. 2 BACK DOOR SERVICE HOLE COVER (for Face to Face Seat Type)

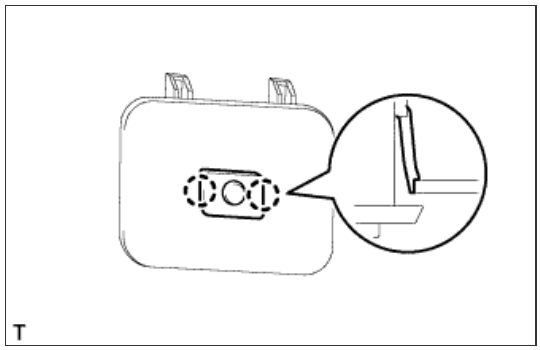
a. Using a screwdriver, detach the 4 claws and remove the No. 2 back door service hole cover.

b. Disconnect connector.



8. REMOVE DOOR OPENING SWITCH SUB-ASSEMBLY (for Face to Face Seat Type)

a. Detach the 2 claws and remove the door opening switch sub-assembly.

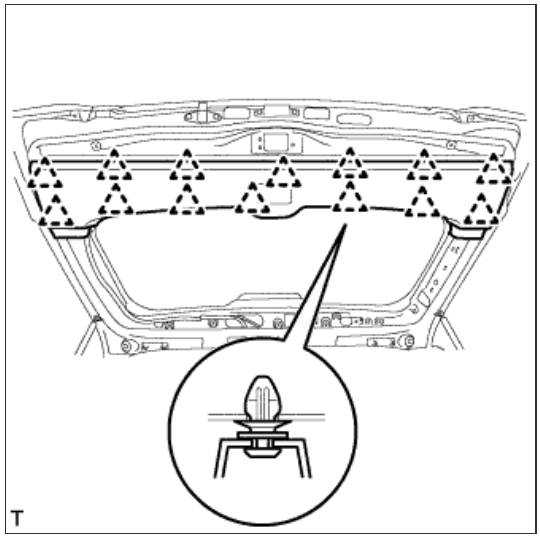


9. REMOVE BACK DOOR TRIM PANEL ASSEMBLY

a. Using a screwdriver, detach the 14 clips and remove the back door garnish.

HINT:

Tape the screwdriver tip before use.



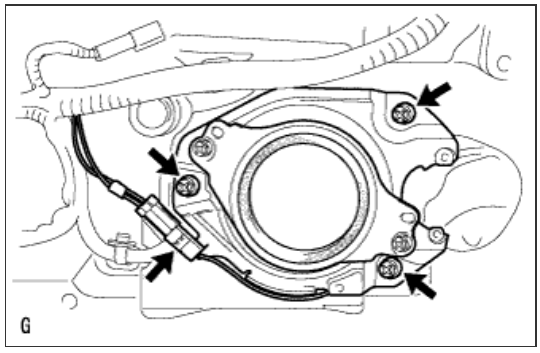
10. REMOVE REAR HEADER SPEAKER ASSEMBLY

HINT:

Use the same procedure as for the opposite side.

a. Remove the 3 screws.

b. Disconnect the connector and remove the rear header speaker assembly.



for Preparation Click here

1. INSPECT REAR HEADER SPEAKER ASSEMBLY

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

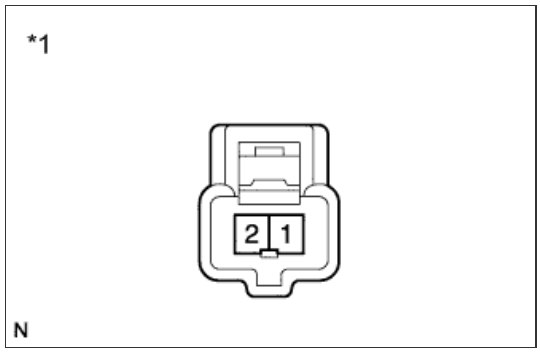
Text in Illustration

*1	Component without harness connected (Rear Header Speaker)

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	1.5 to 2.5 Ω

If the result is not as specified, replace the speaker assembly.

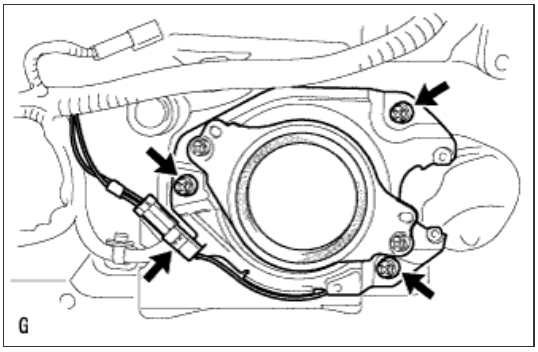


for Preparation Click here

1. INSTALL REAR HEADER SPEAKER ASSEMBLY

a. Connect the connector.

b. Install the rear header speaker assembly with the 3 screws.



2. INSTALL BACK DOOR TRIM PANEL ASSEMBLY

a. Attach the 14 clips to install the back door garnish.

3. INSTALL DOOR OPENING SWITCH SUB-ASSEMBLY (for Face to Face Seat Type)

a. Attach the 2 claws to install the door opening switch sub-assembly.

4. INSTALL NO. 2 BACK DOOR SERVICE HOLE COVER (for Face to Face Seat Type)

a. Connect the connector.

b. Attach the 4 claws to install the No. 2 back door service hole cover.

5. INSTALL ASSIST GRIP (for Face to Face Seat Type)

a. Install the assist grip with the 2 screws.

6. INSTALL BACK DOOR SIDE GARNISH RH

a. w/o Power Back Door:

HINT:

Use the same procedure described for the LH side.

b. w/ Power Back Door:

i. Attach the clip and 4 claws to install the back door side garnish RH.

7. INSTALL BACK DOOR SIDE GARNISH LH

a. Attach the 3 clips and 2 claws to install the back door side garnish LH.

8. INSTALL CENTER BACK DOOR GARNISH

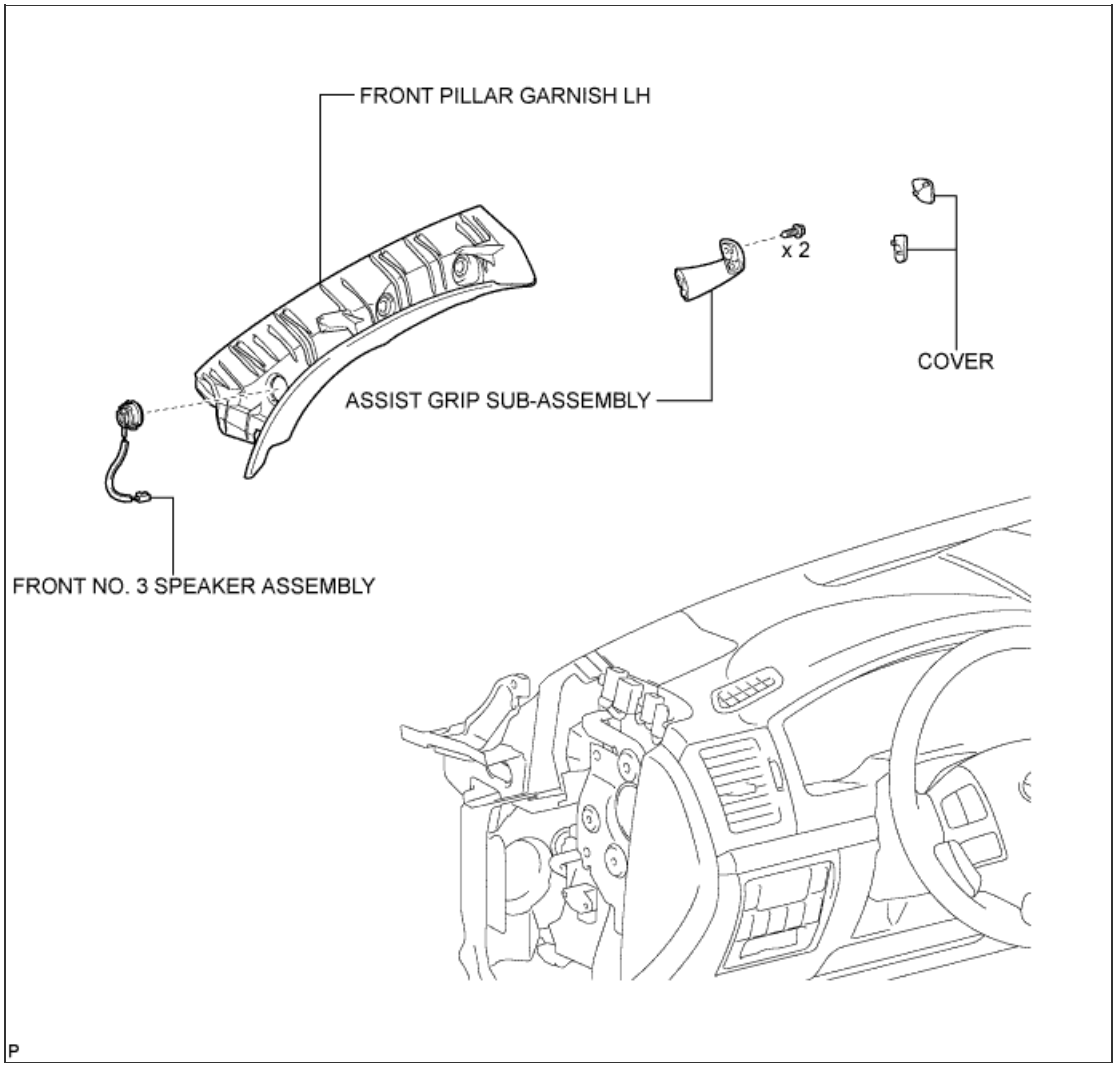
a. Attach the 5 clips and 4 claws to install the center back door garnish.

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).

for Preparation Click here



for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

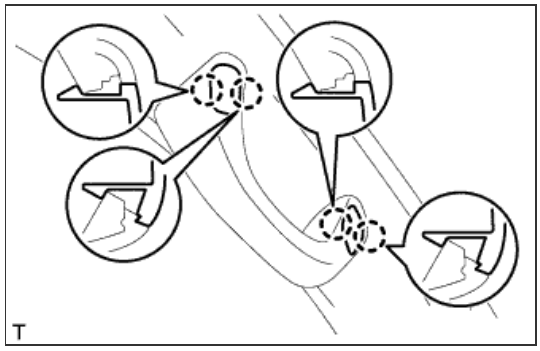
When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE FRONT ASSIST GRIP SUB-ASSEMBLY

HINT:

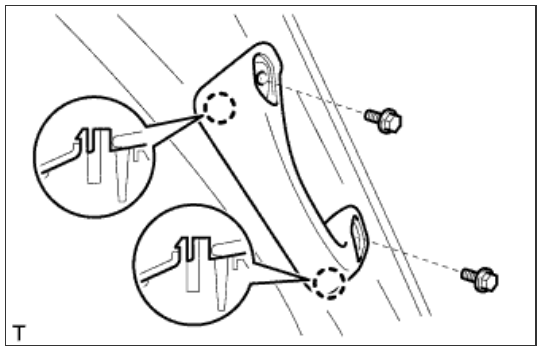
Use the same procedure to remove the front assist grip on the other side.

a. Detach the 4 claws and remove the 2 assist grip plugs.



b. Remove the 2 bolts.

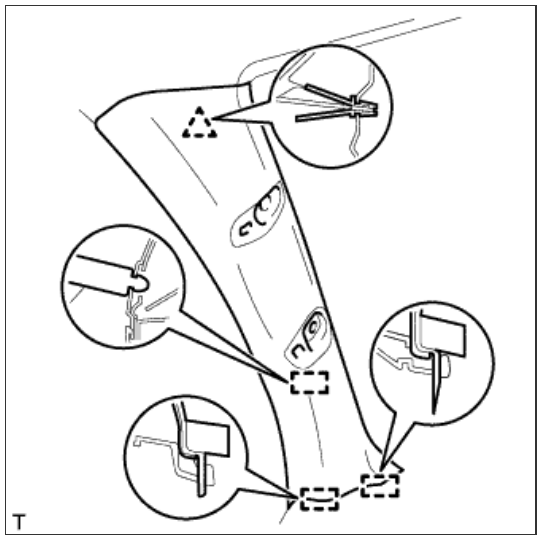
c. Detach the 2 claws and remove the front assist grip.



4. REMOVE FRONT PILLAR GARNISH LH

a. Detach the clip and 3 guides, and remove the front pillar garnish.

b. for 9, 14 Speakers:
Disconnect the speaker connector and then remove the front pillar garnish.

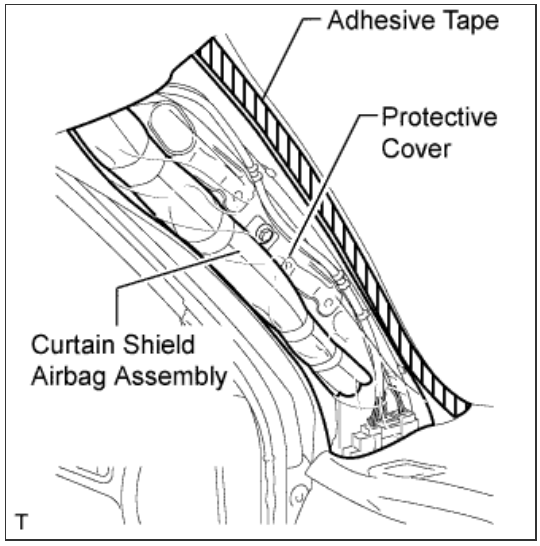


c. Protect the curtain shield airbag.

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.

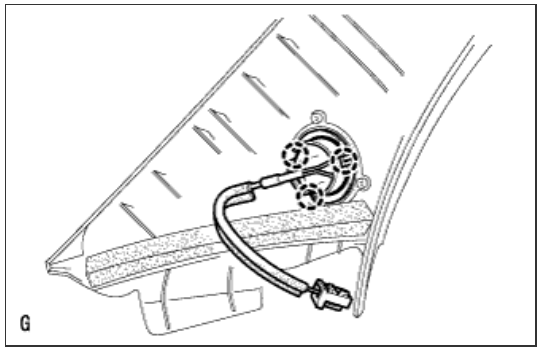
NOTICE:

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.



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.

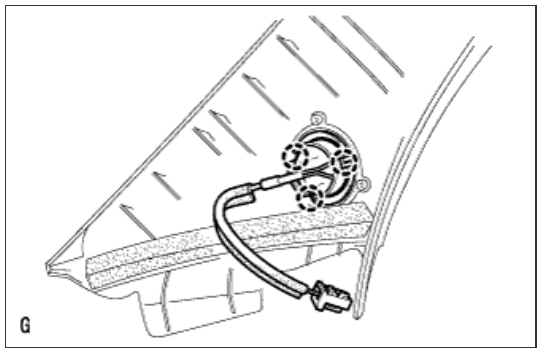
HINT:

- **Connect all the connectors to the front No. 3 speakers.**
- **When there is a possibility that either the right or left 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

1. INSTALL FRONT NO. 3 SPEAKER ASSEMBLY

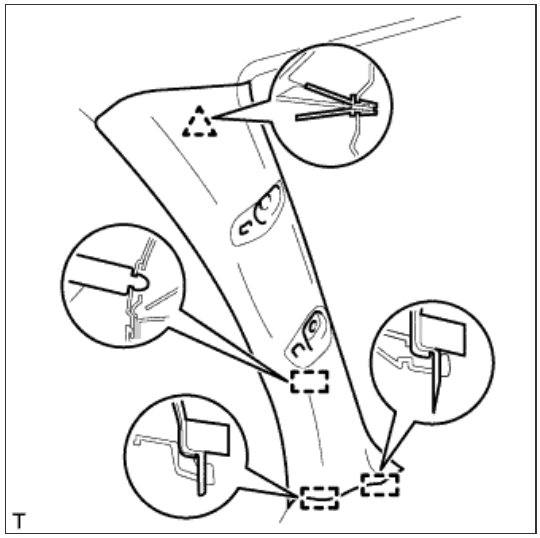
a. Attach the 3 claws to install the speaker.



2. INSTALL FRONT PILLAR GARNISH LH

a. for 9, 14 Speakers:
Connect the speaker connector.

b. Attach the clip and 3 guides to install the front pillar garnish.



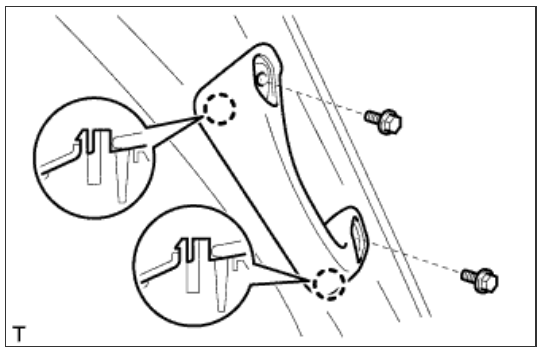
3. INSTALL FRONT ASSIST GRIP SUB-ASSEMBLY

HINT:

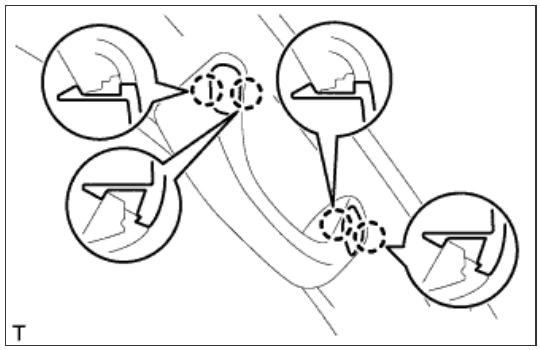
Use the same procedure to install the front assist grip on the other side.

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.

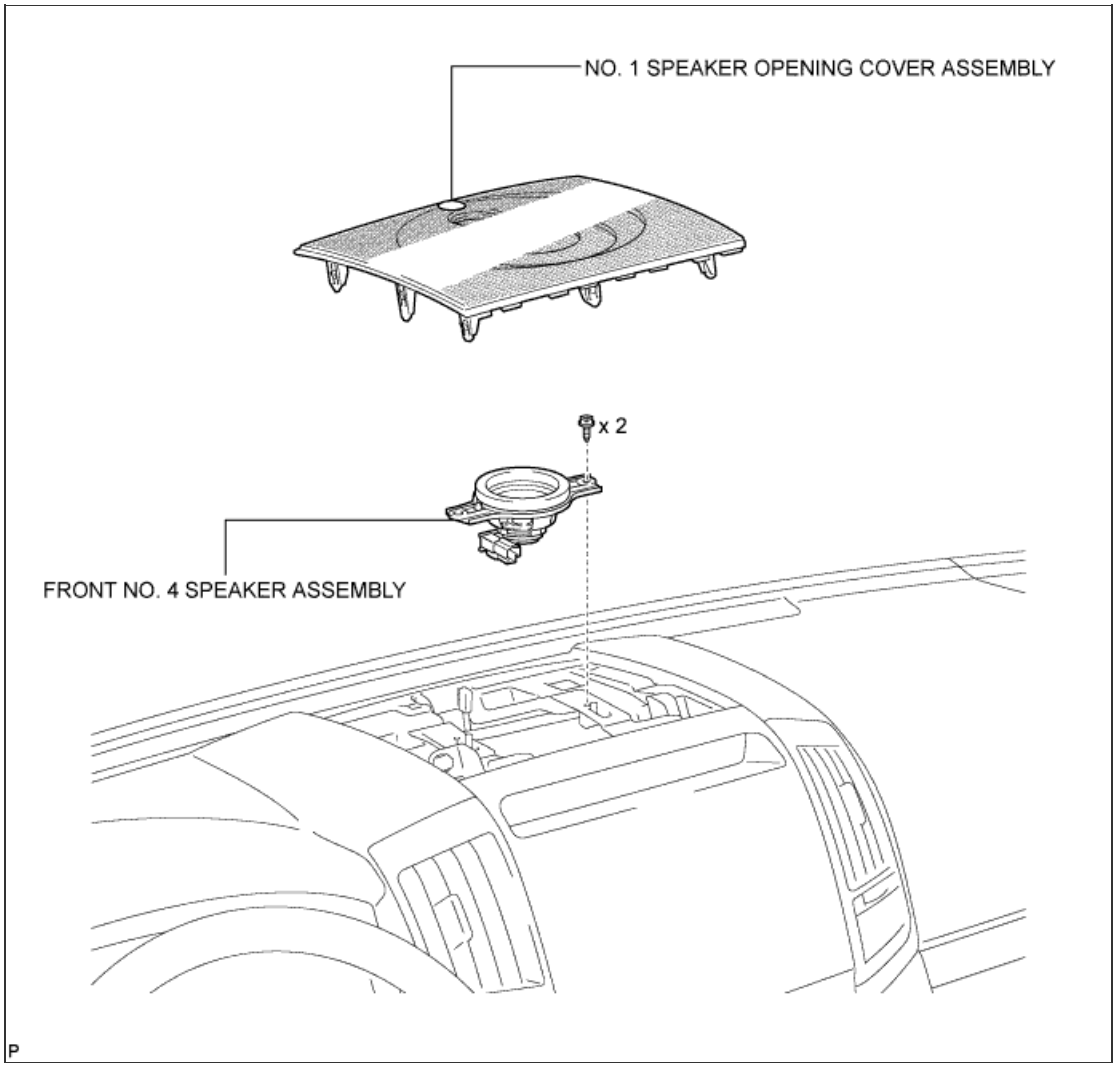


4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

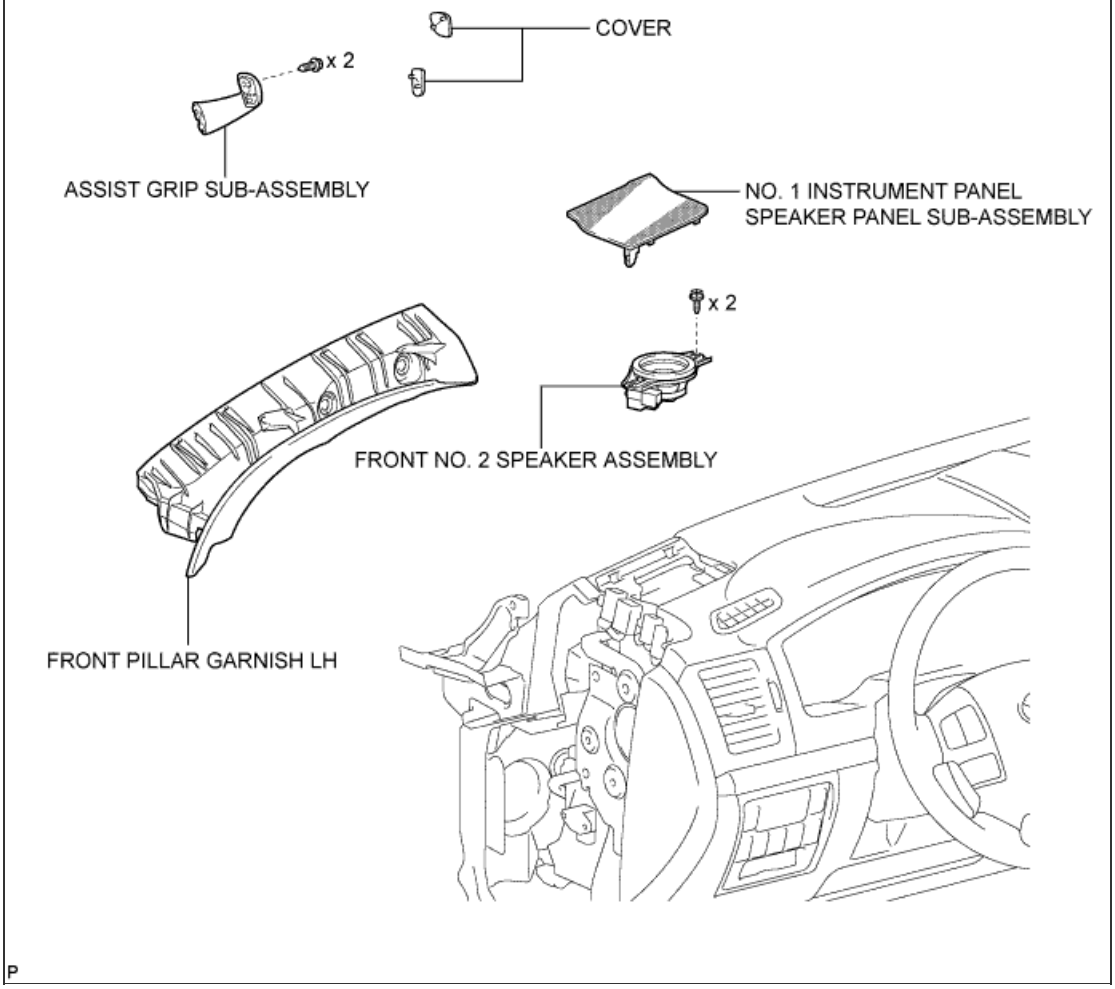
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

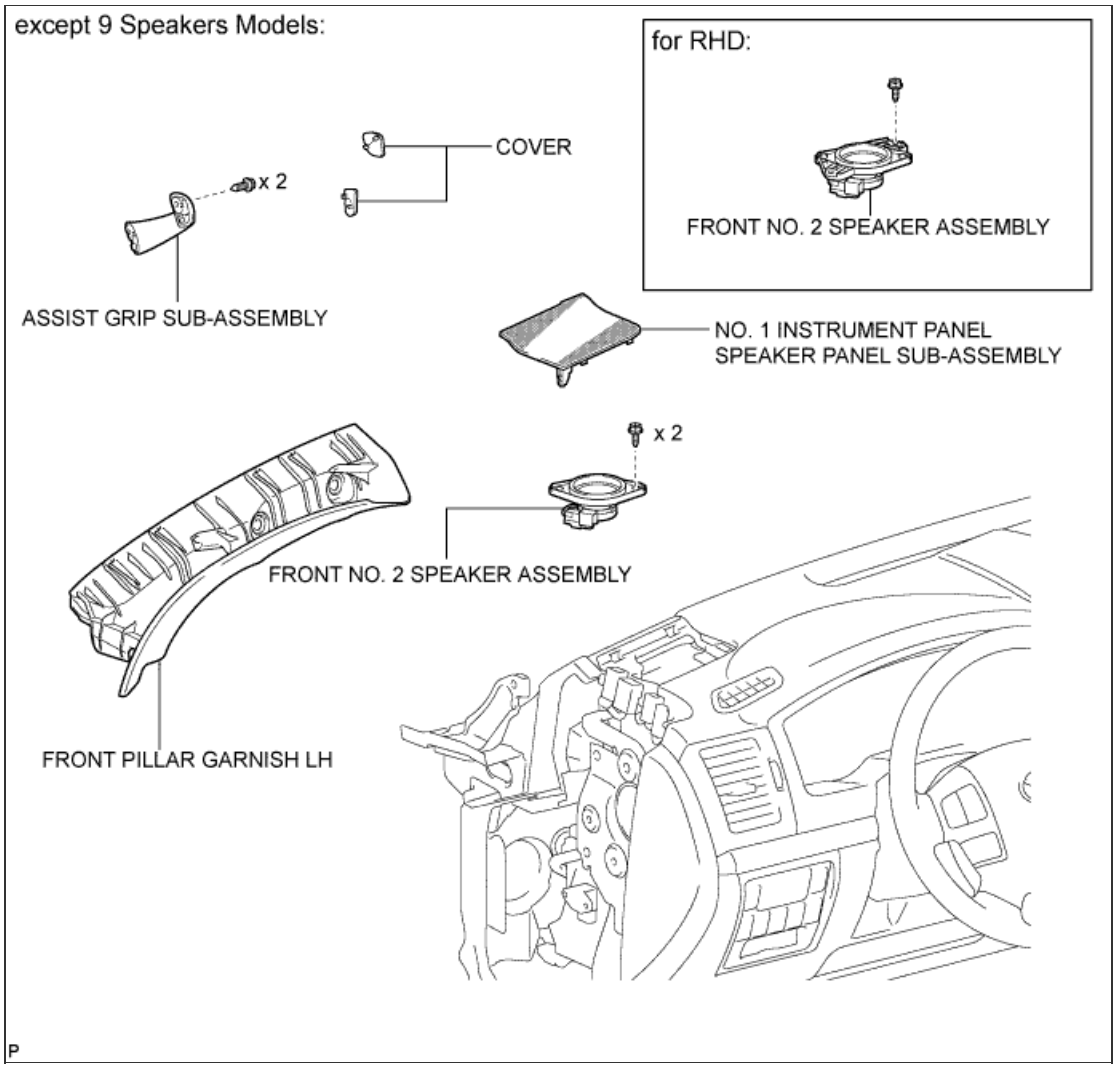
for Preparation Click here



for 9 Speakers Models:



P


except 9 Speakers Models:
for RHD:
FRONT NO. 2 SPEAKER ASSEMBLY
COVER
x 2
ASSIST GRIP SUB-ASSEMBLY
NO. 1 INSTRUMENT PANEL
SPEAKER PANEL SUB-ASSEMBLY
x 2
FRONT NO. 2 SPEAKER ASSEMBLY
FRONT PILLAR GARNISH LH
P

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. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

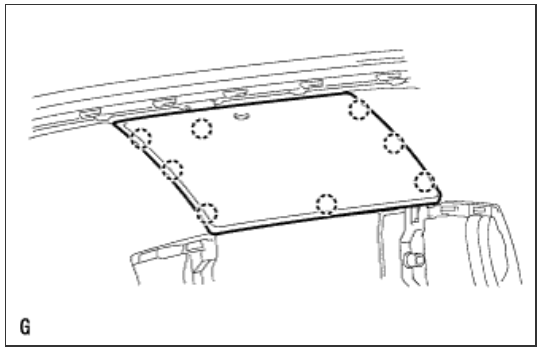
2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Detach the 8 claws and remove the opening cover.



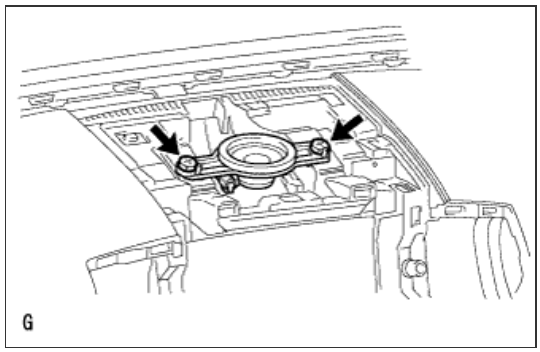
4. REMOVE FRONT NO. 4 SPEAKER ASSEMBLY

a. Remove the 2 bolts.

b. Remove the speaker and then disconnect the speaker connector.

NOTICE:

Do not touch the cone part of the speaker.

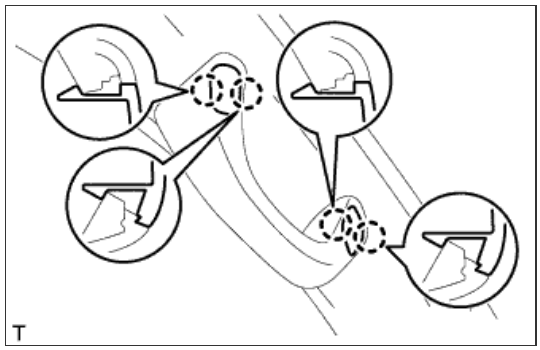


5. REMOVE FRONT ASSIST GRIP SUB-ASSEMBLY

HINT:

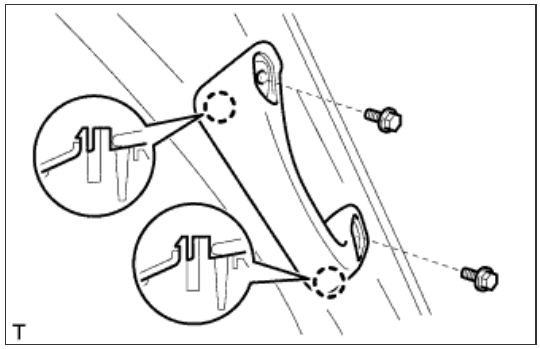
Use the same procedure to remove the front assist grip on the other side.

a. Detach the 4 claws and remove the 2 assist grip plugs.



b. Remove the 2 bolts.

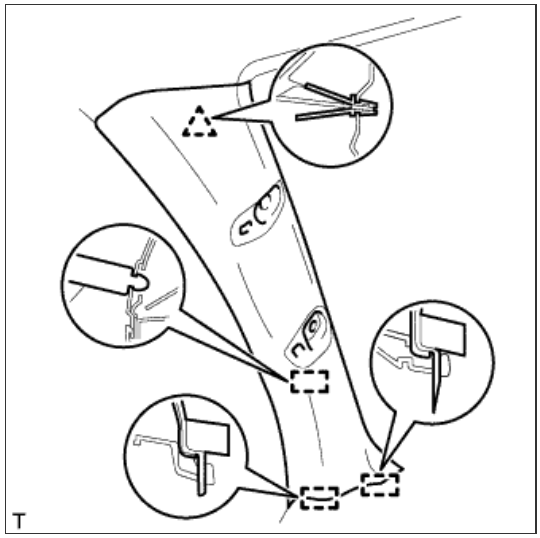
c. Detach the 2 claws and remove the front assist grip.



6. REMOVE FRONT PILLAR GARNISH LH

a. Detach the clip and 3 guides, and remove the front pillar garnish.

b. for 9, 14 Speakers:
Disconnect the speaker connector and then remove the front pillar garnish.

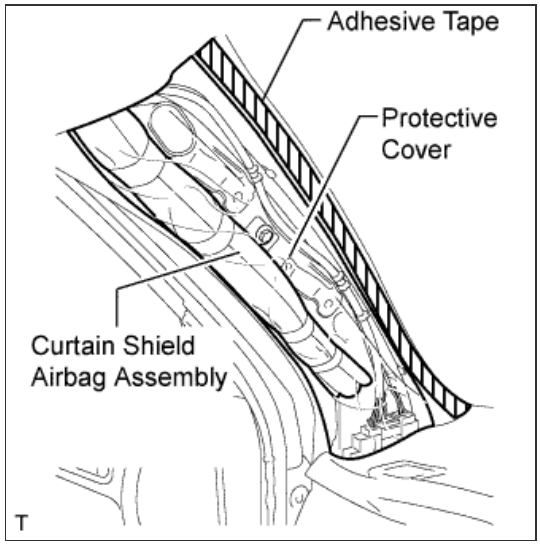


c. Protect the curtain shield airbag.

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.

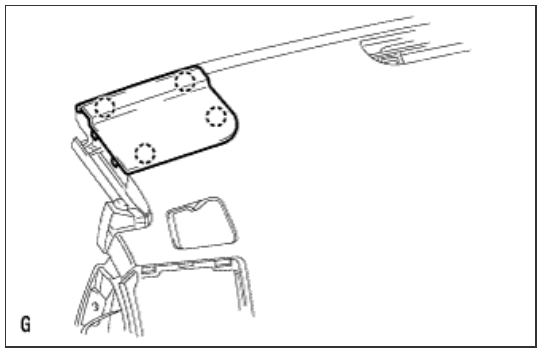
NOTICE:

Cover the curtain shield airbag with a protective cover as soon as the front pillar garnish is removed.



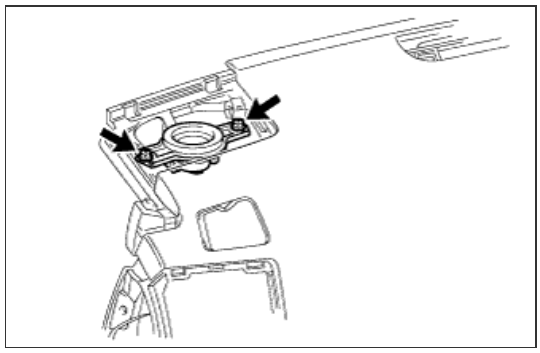
7. REMOVE NO. 1 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY

a. Detach the 4 claws and remove the speaker panel.



8. REMOVE FRONT NO. 2 SPEAKER ASSEMBLY

a. for 9 Speakers Models:



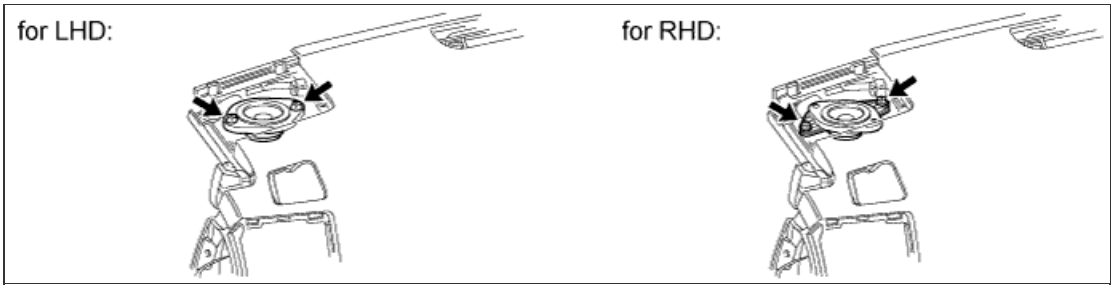
i. Remove the 2 bolts.

ii. Remove the speaker and then disconnect the speaker connector.

NOTICE:

Do not touch the cone part of the speaker.

b. except 9 Speakers Models:



i. Remove the 2 bolts.

ii. Remove the speaker and then 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:

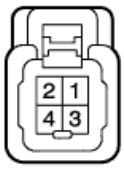
Tester Connection	Condition	Specified Condition
1 - 2	Always	Below 1 Ω*1
3 - 4	Always	Below 1 Ω*1
2 - 4	Always	4 Ω*1
1 - 2	Always	Below 1 Ω*2
3 - 4	Always	Below 1 Ω*2
2 - 4	Always	8 Ω*2

HINT:

- ***1: for 9 Speakers Models**
- ***2: except 9 Speakers Models**

If the result is not as specified, replace the 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 Ω

If the result is not as specified, replace the speaker assembly.

Component without harness connected:
(Front No. 4 Speaker)



N

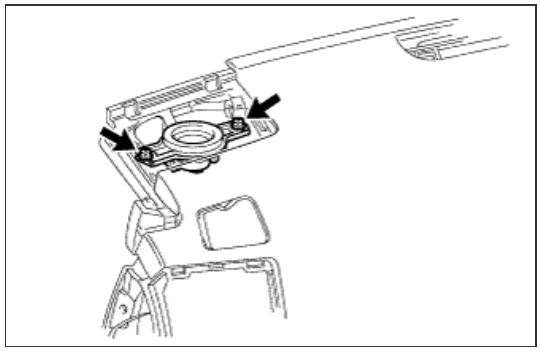
for Preparation Click here

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. for 9 Speakers Models:



i. Connect the connector.

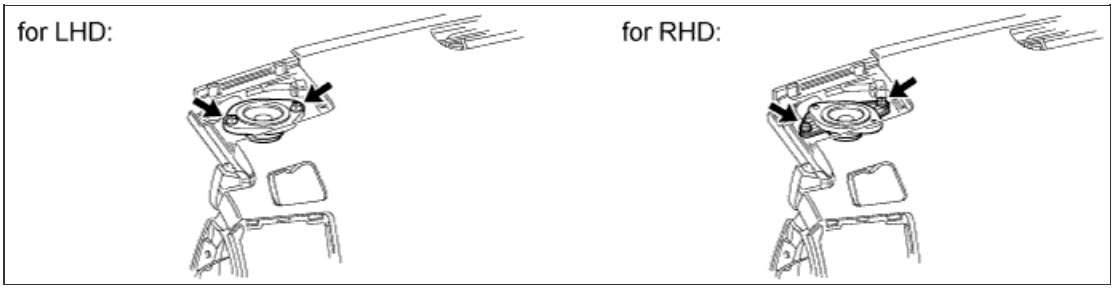
ii. Temporarily install the speaker by aligning the positioning pins of the speaker with the instrument panel.

iii. 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 the parts.**

b. except 9 Speakers Models:



i. Connect the connector.

ii. Temporarily install the speaker by aligning the positioning pins of the speaker with the instrument panel.

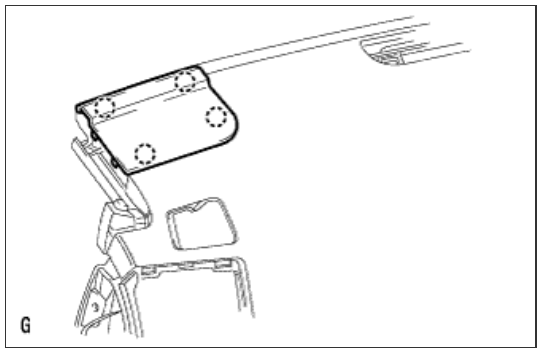
iii. Install the speaker with the 2 bolts.

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 the parts.**

2. INSTALL NO. 1 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY

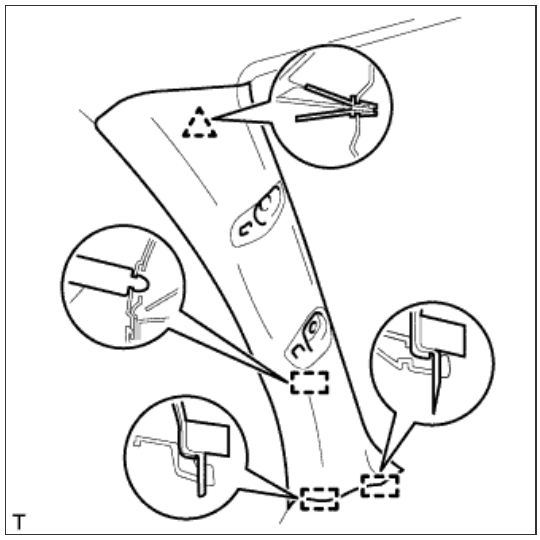
a. Attach the 4 claws to install the panel.



3. INSTALL FRONT PILLAR GARNISH LH

a. for 9, 14 Speakers:
Connect the speaker connector.

b. Attach the clip and 3 guides to install the front pillar garnish.



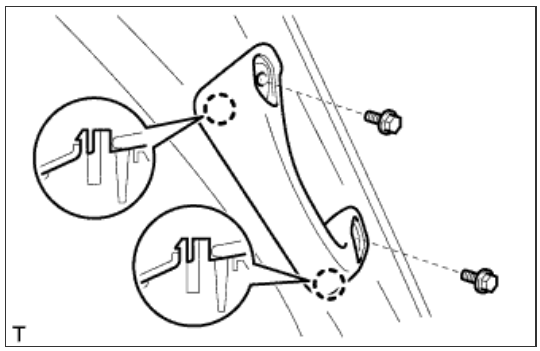
4. INSTALL FRONT ASSIST GRIP SUB-ASSEMBLY

HINT:

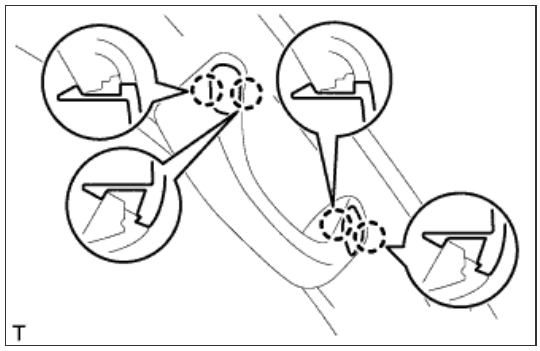
Use the same procedure to install the front assist grip on the other side.

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

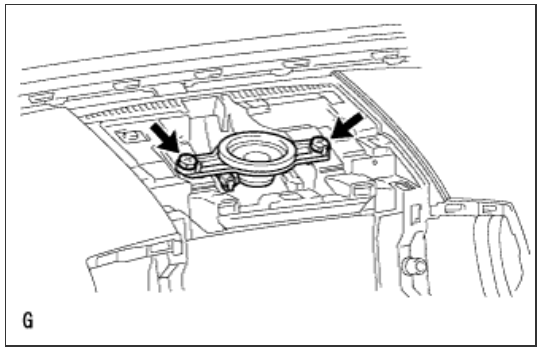
a. Connect the speaker connector.

b. Temporarily install the speaker by aligning the positioning pins of the speaker with the instrument panel.

c. Install the speaker with the 2 bolts.

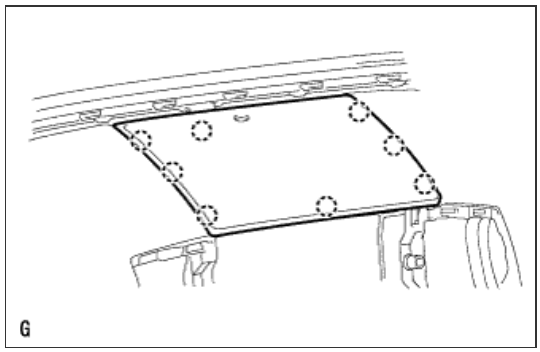
NOTICE:

- **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 the parts.**



6. INSTALL NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Attach the 8 claws to install the opening cover.

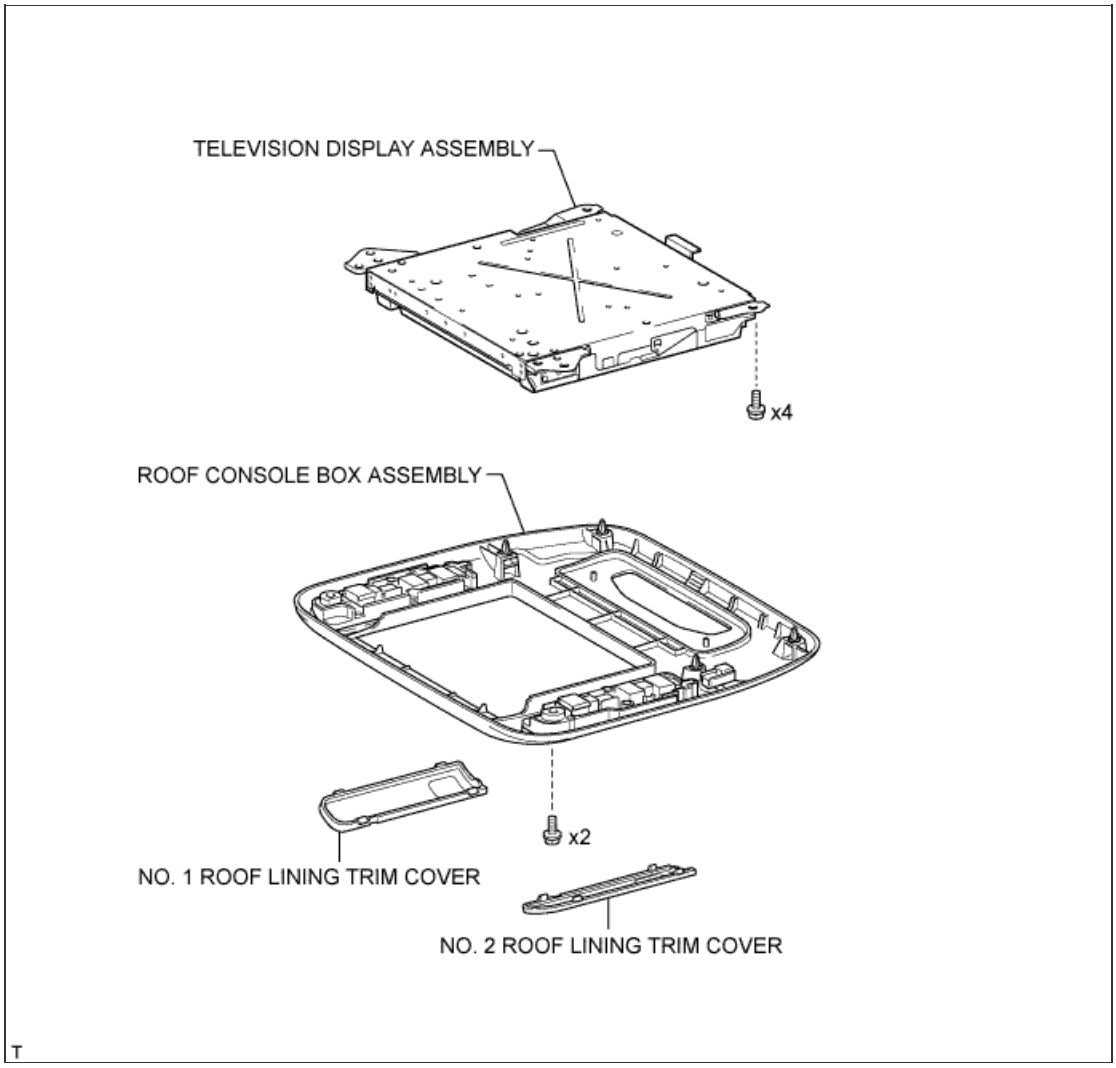


7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

for Preparation Click here

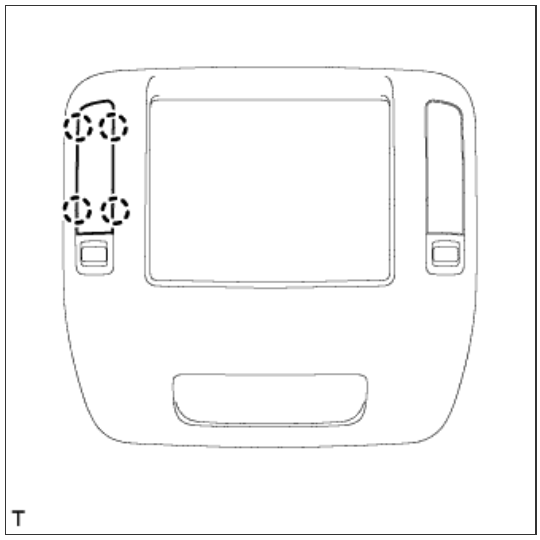


for Preparation Click here

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

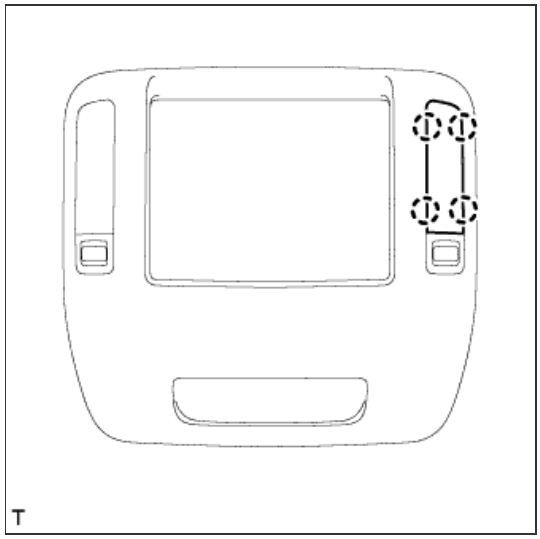
2. REMOVE NO. 1 ROOF LINING TRIM COVER

a. Detach the 4 claws and remove the cover.



3. REMOVE NO. 2 ROOF LINING TRIM COVER

a. Detach the 4 claws and remove the cover.

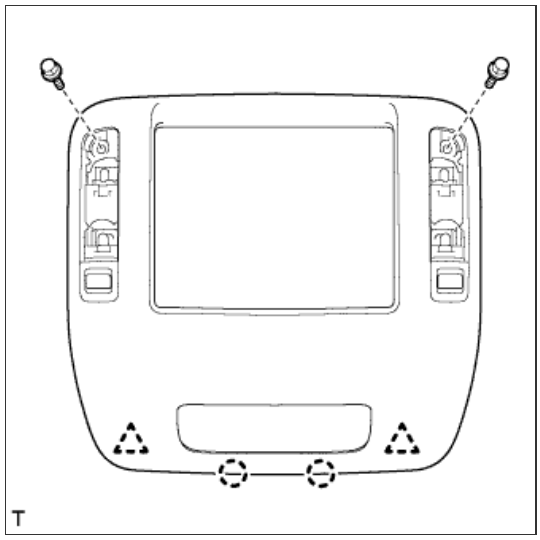


4. REMOVE ROOF CONSOLE BOX ASSEMBLY

a. Remove the 2 bolts.

b. Detach the 2 clips and 2 claws.

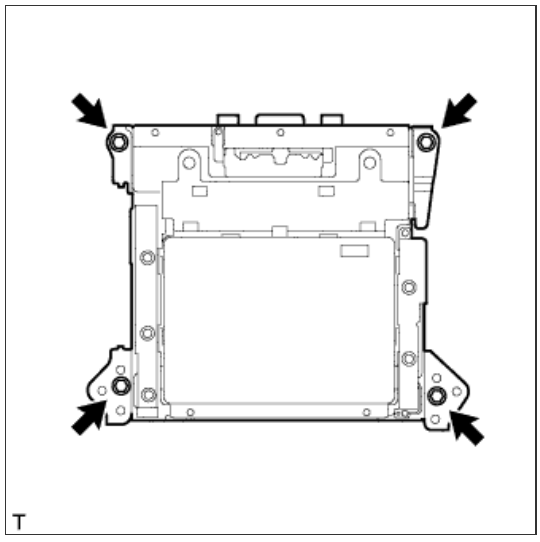
c. Disconnect the connector and remove the roof console box.



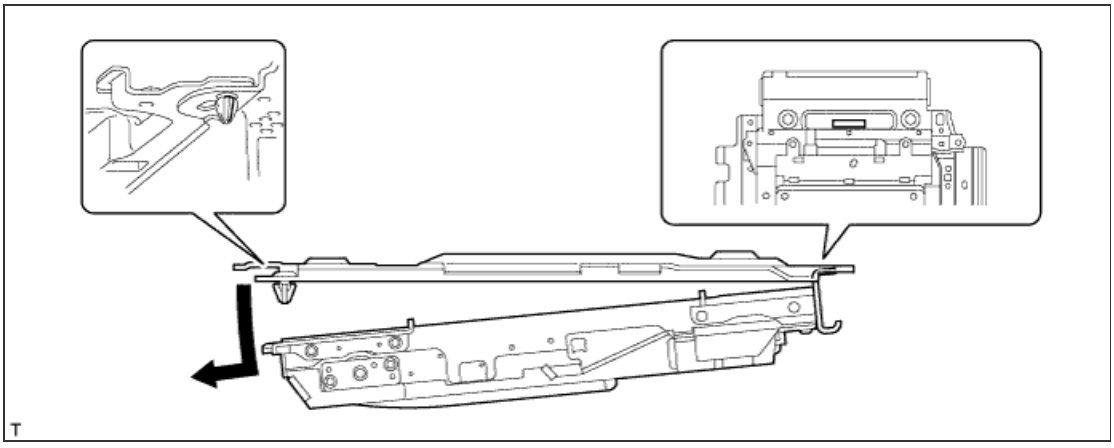
5. REMOVE TELEVISION DISPLAY ASSEMBLY

a. Disconnect the connectors.

b. Remove the 4 bolts.



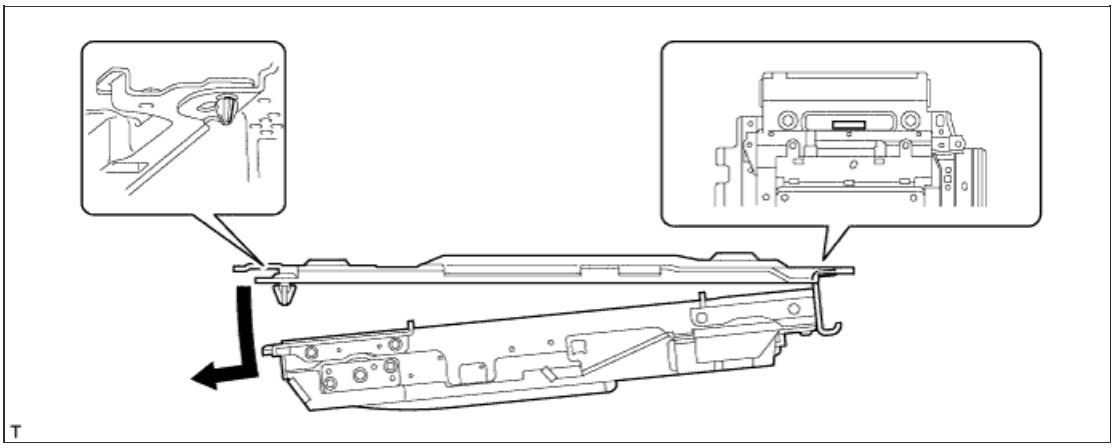
c. Detach the clips and claws to remove the television display as shown in the illustration.



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.

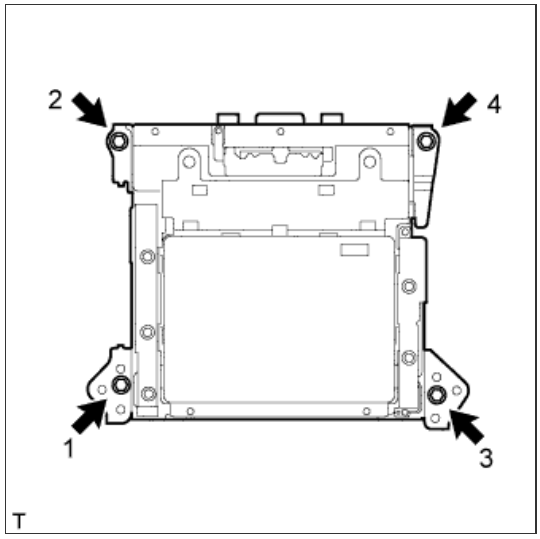


b. Install the television display with the 4 bolts.

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

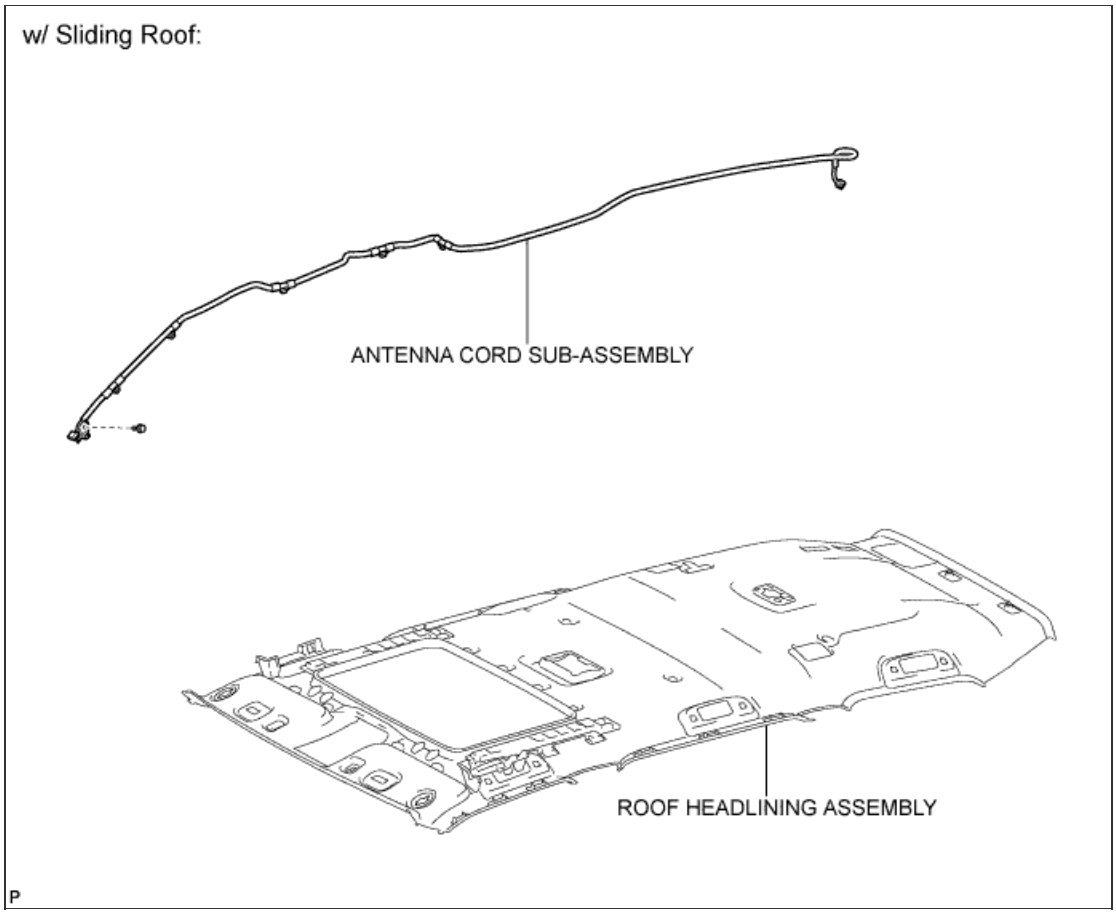
a. Attach the 4 claws to install the cover.

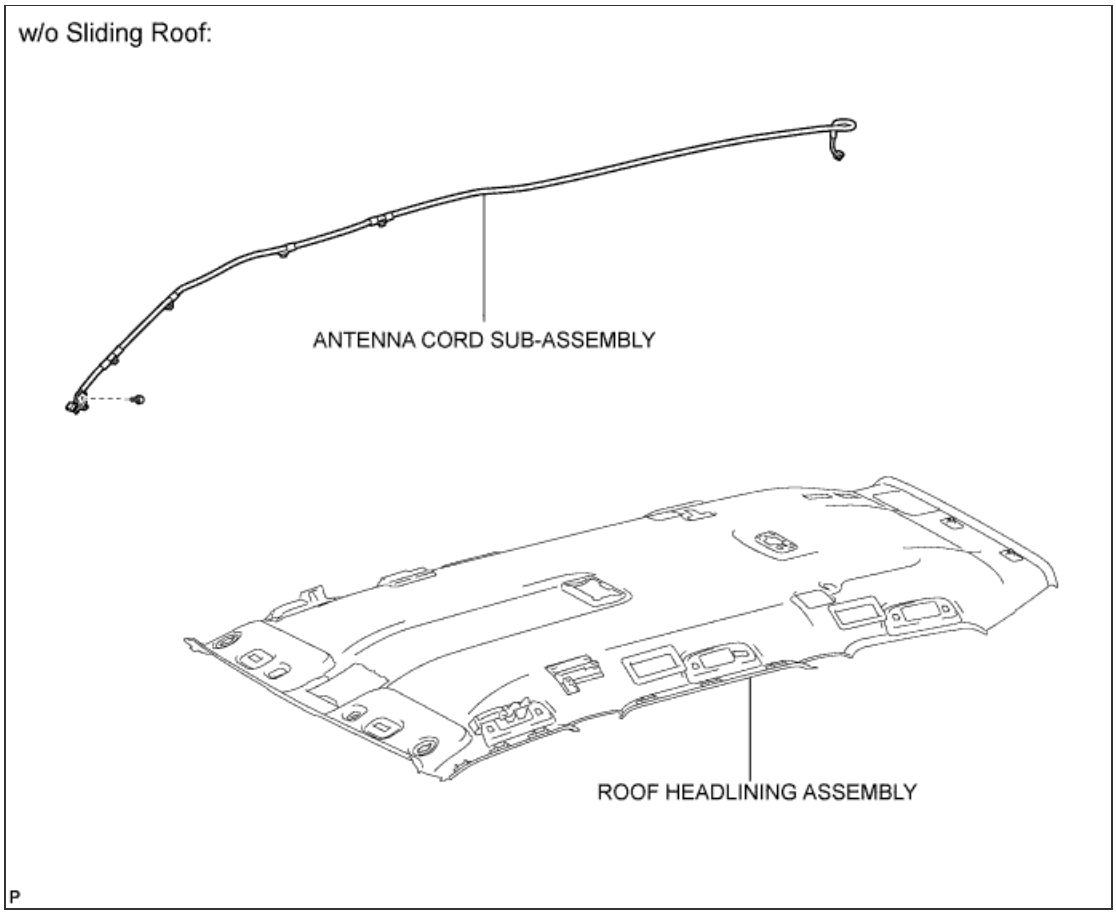
4. INSTALL NO. 1 ROOF LINING TRIM COVER

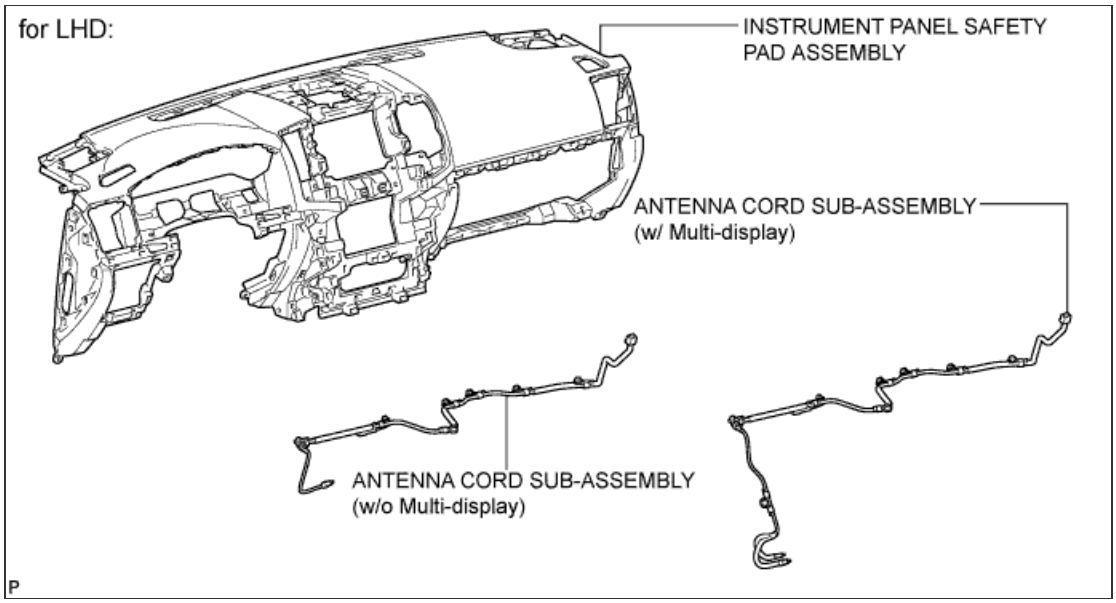
a. Attach the 4 claws to install the cover.

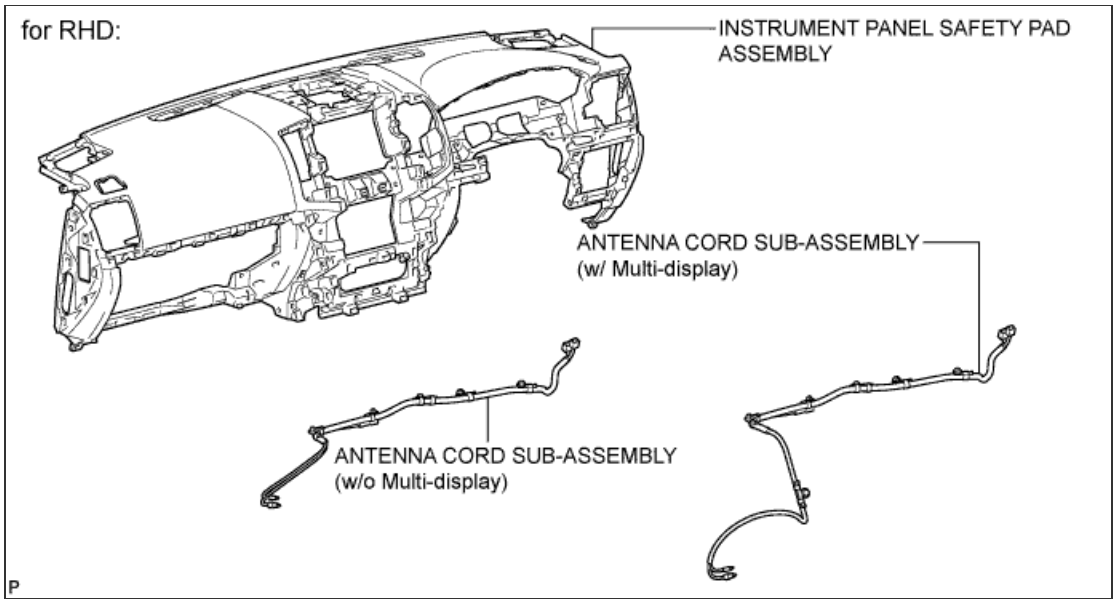
5. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

for Preparation Click here




w/o Sliding Roof:
ANTENNA CORD SUB-ASSEMBLY
ROOF HEADLINING ASSEMBLY
P


for LHD:
INSTRUMENT PANEL SAFETY PAD ASSEMBLY
ANTENNA CORD SUB-ASSEMBLY (w/ Multi-display)
ANTENNA CORD SUB-ASSEMBLY (w/o Multi-display)
P


for RHD:
INSTRUMENT PANEL SAFETY PAD ASSEMBLY
ANTENNA CORD SUB-ASSEMBLY (w/ Multi-display)
ANTENNA CORD SUB-ASSEMBLY (w/o Multi-display)
P

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

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

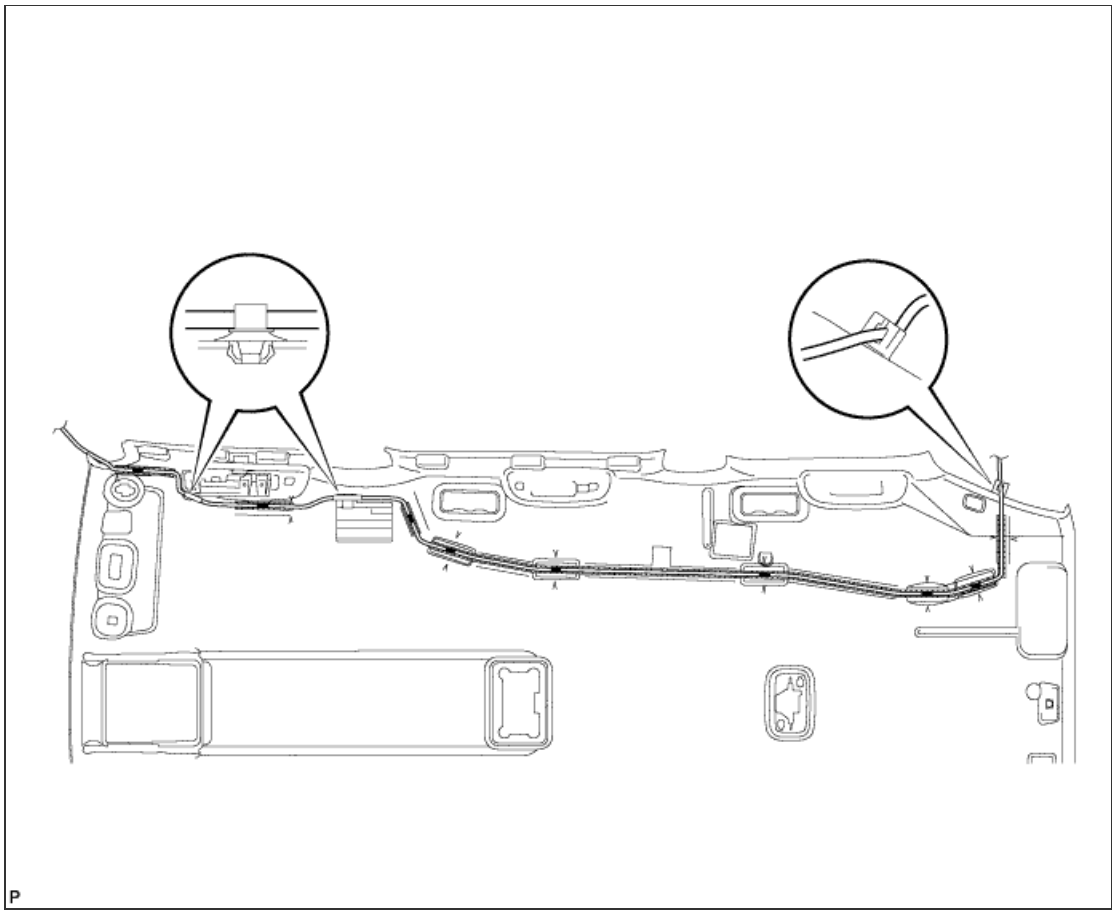
a. w/o Sliding Roof:
Remove the roof headlining assembly (Click here).

b. w/ Sliding Roof:
Remove the roof headlining assembly (Click here).

4. REMOVE ANTENNA CORD SUB-ASSEMBLY

a. w/o Sliding Roof:

i. Detach the 2 clamps and remove the antenna from the notch on the rear of the roof headlining.

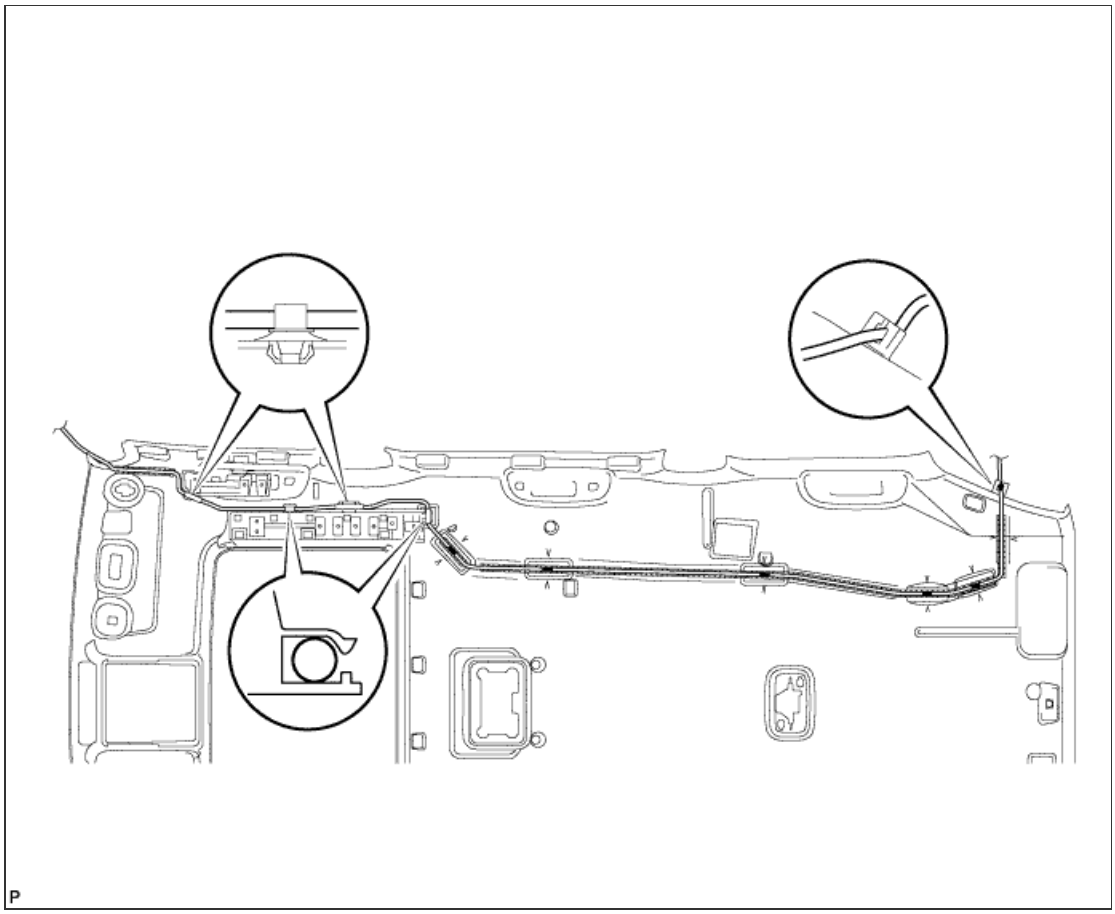


ii. Remove the antenna cord from the roof headlining.

iii. Remove the double-sided tape from the roof headlining.

b. w/ Sliding Roof:

i. Detach the 4 clamps and remove the antenna from the notch on the rear of the roof headlining.



ii. Remove the antenna cord from the roof headlining.

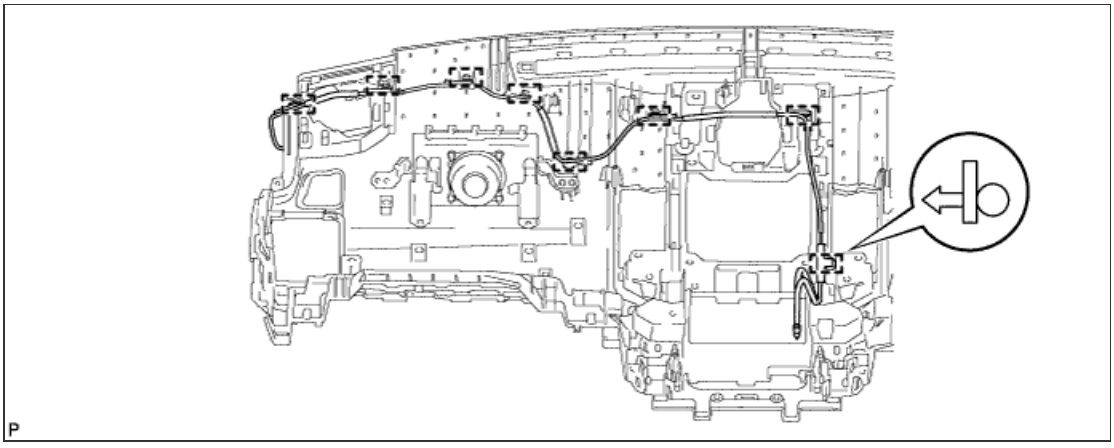
iii. Remove the double-sided tape from the roof headlining.

5. REMOVE INSTRUMENT PANEL SAFETY PAD ASSEMBLY

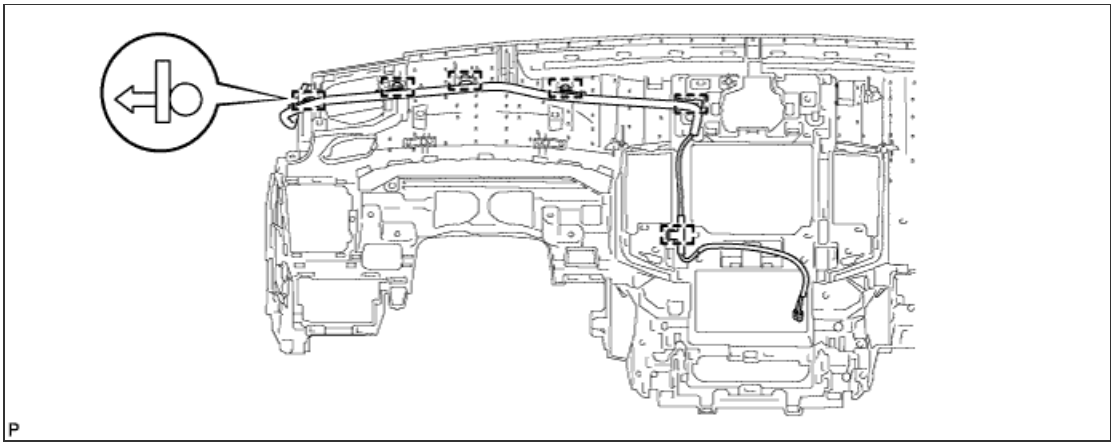
a. Remove the instrument panel safety pad (Click here).

6. REMOVE ANTENNA CORD SUB-ASSEMBLY (w/ Multi-display)

a. for LHD:
Detach the 8 clamps and remove the antenna cord.

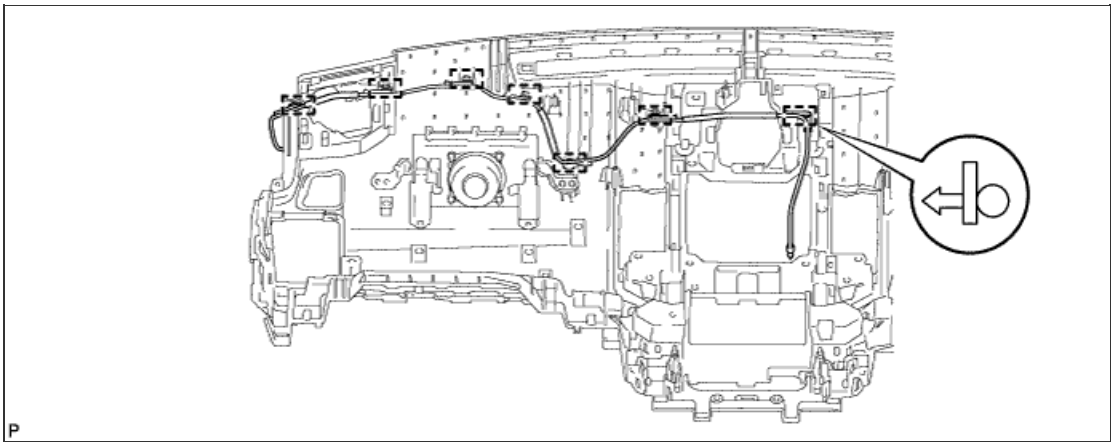


b. for RHD:
Detach the 6 clamps and remove the antenna cord.

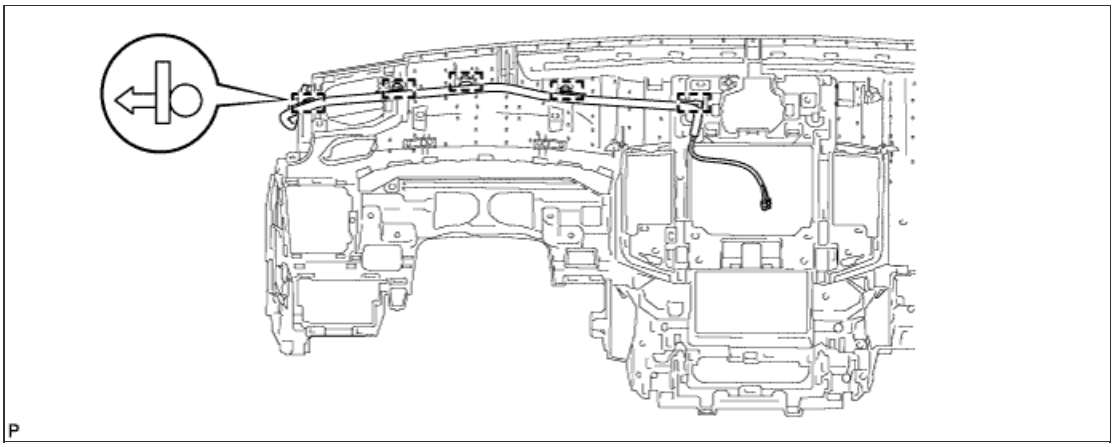


7. REMOVE ANTENNA CORD SUB-ASSEMBLY (w/o Multi-display)

a. for LHD:
Detach the 7 clamps and remove the antenna cord.



b. for RHD:
Detach the 5 clamps and remove the antenna cord.

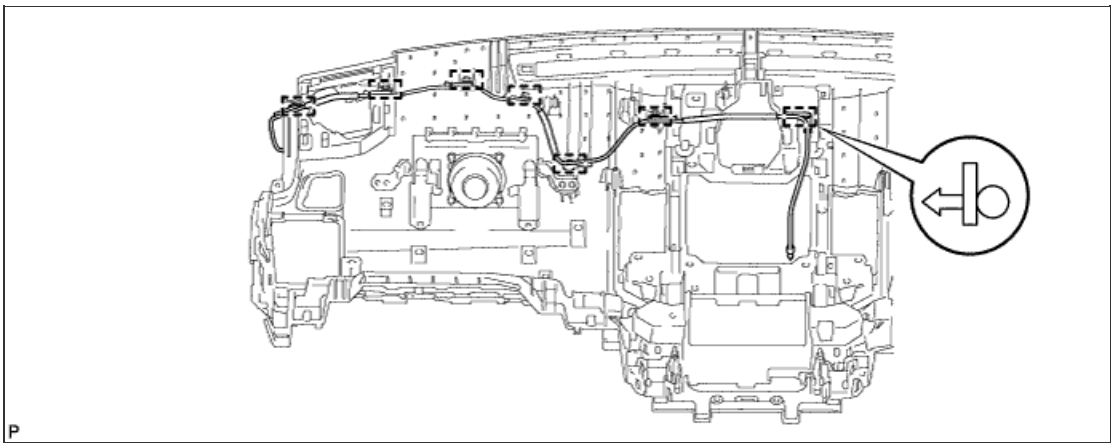


P

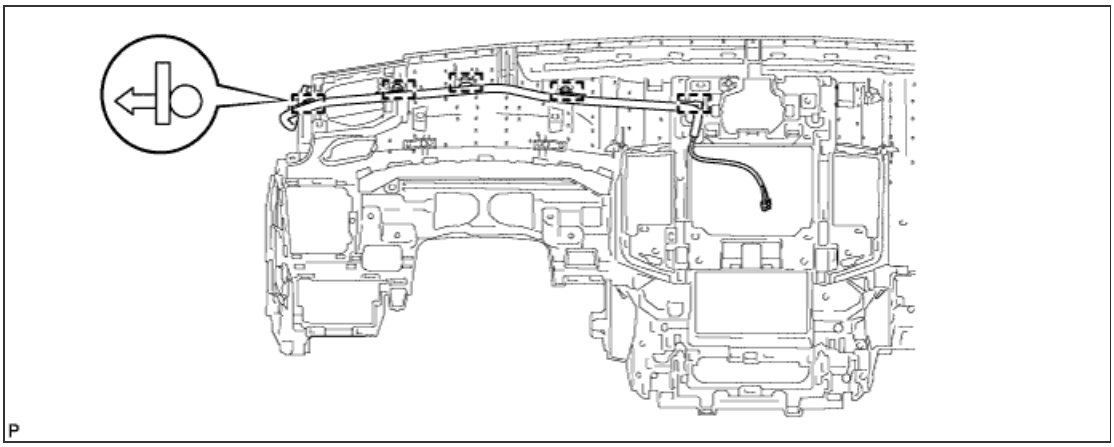
for Preparation Click here

1. INSTALL ANTENNA CORD SUB-ASSEMBLY (w/o Multi-display)

a. for LHD:
Attach the 7 clamps to install the antenna cord.

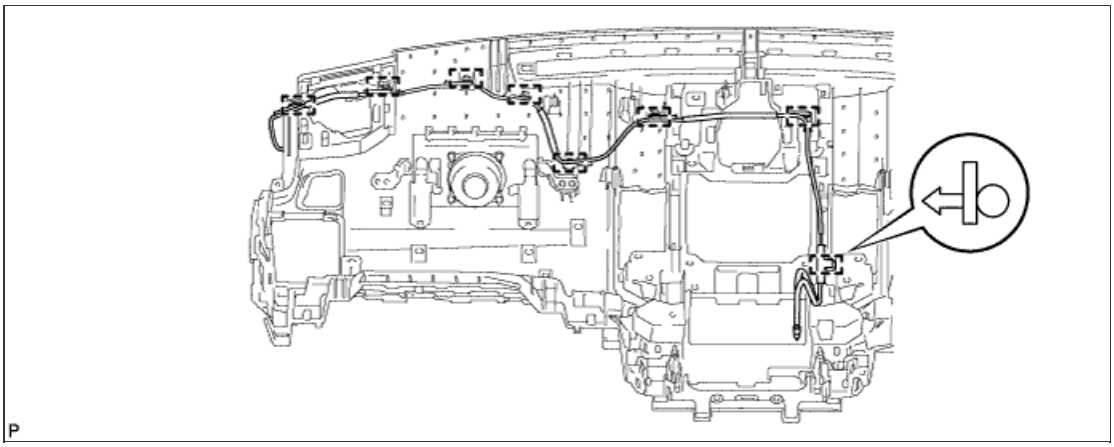


b. for RHD:
Attach the 5 clamps to install the antenna cord.

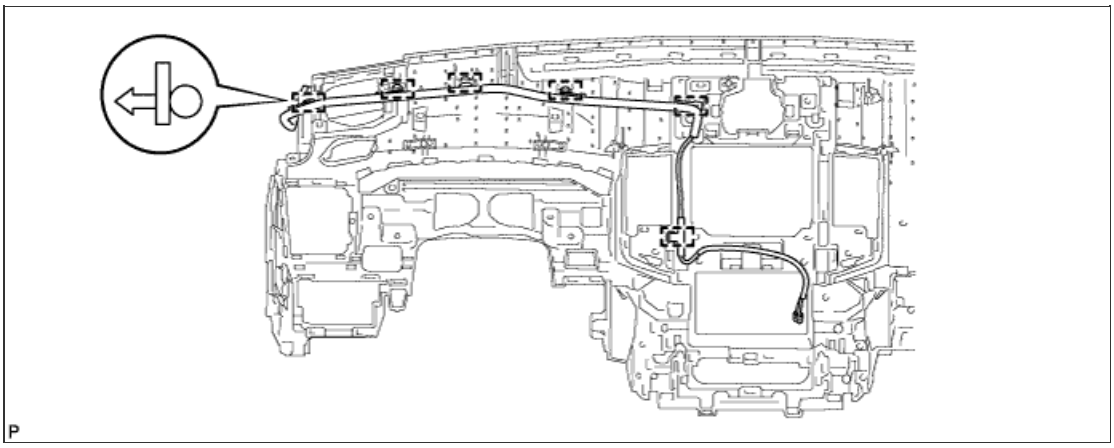


2. INSTALL ANTENNA CORD SUB-ASSEMBLY (w/ Multi-display)

a. for LHD:
Attach the 8 clamps to install the antenna cord.



b. for RHD:
Attach the 6 clamps to install the antenna cord.



3. INSTALL INSTRUMENT PANEL SAFETY PAD ASSEMBLY

a. Install the instrument panel safety pad (Click here).

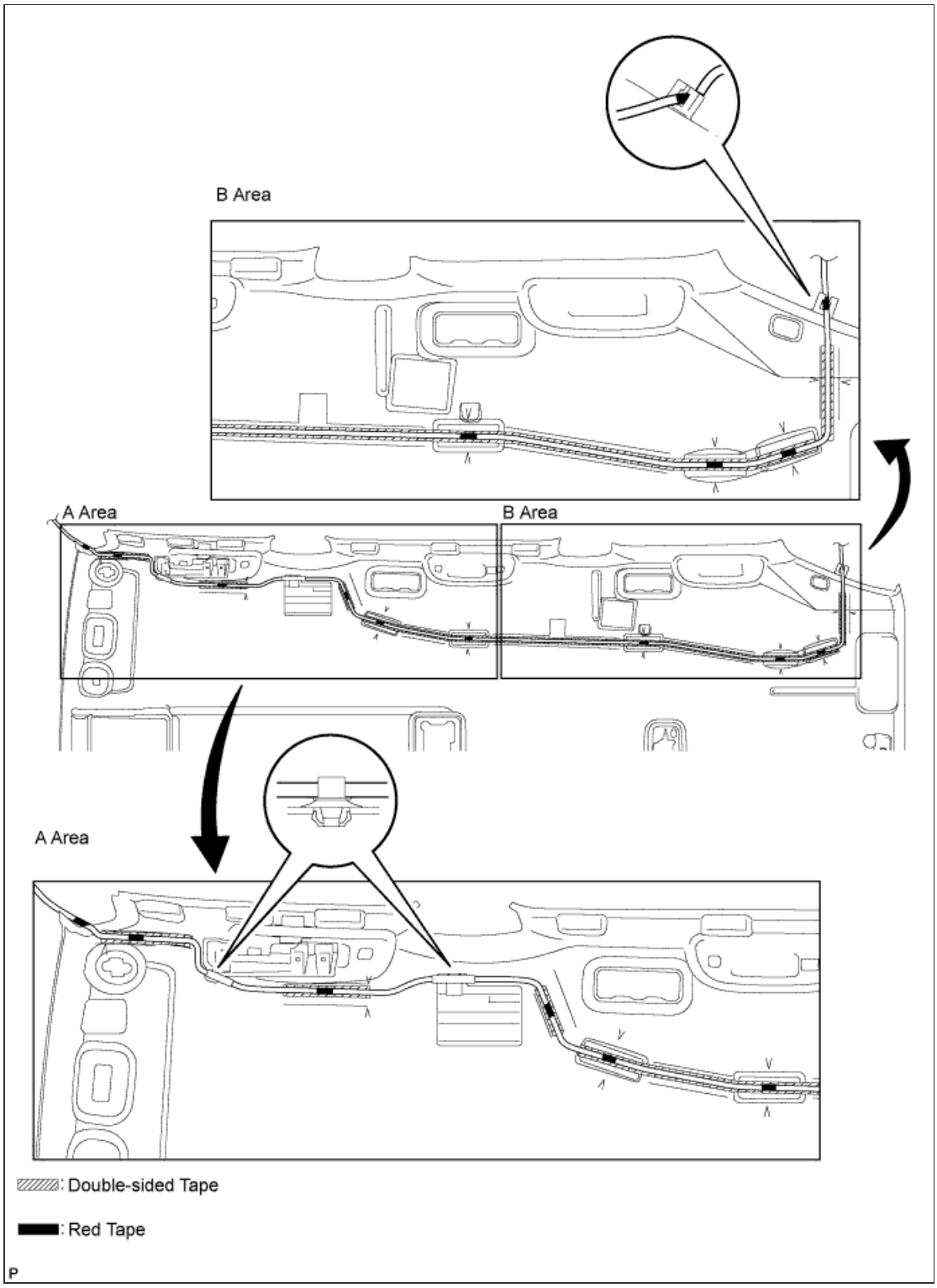
4. INSTALL ANTENNA CORD SUB-ASSEMBLY

a. w/o Sliding Roof:

i. Apply new double-sided tape as shown in the illustration.

HINT:

Attach double-sided tape to the hatched areas shown in the illustration below.



ii. 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.

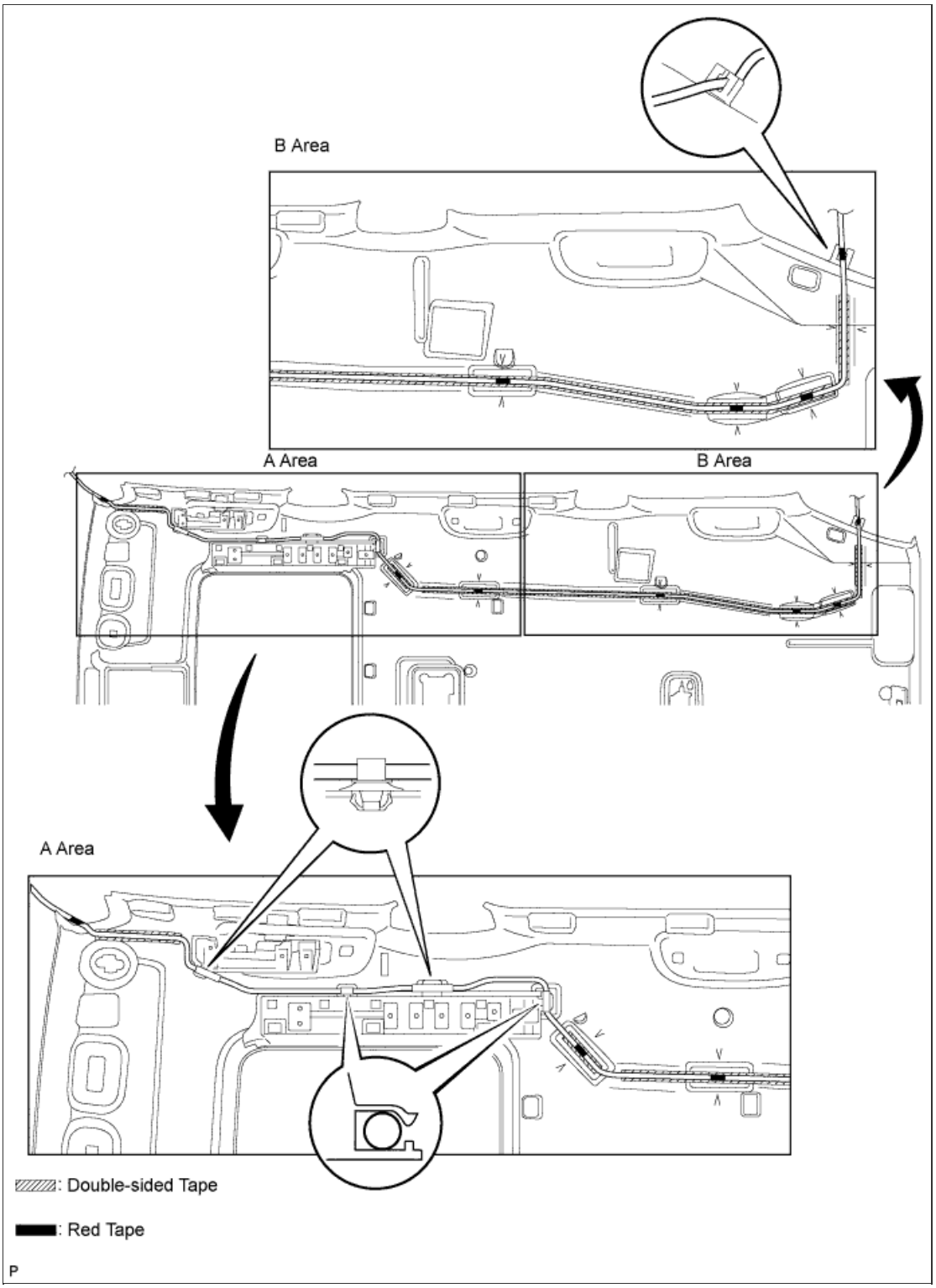
iii. Attach the 2 clamps and fit the antenna into the notch.

b. w/ Sliding Roof:

i. Apply new double-sided tape as shown in the illustration.

HINT:

Attach double-sided tape to the hatched areas shown in the illustration below.



ii. 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.

iii. Attach the 4 clamps and fit the antenna into the notch.

5. INSTALL ROOF HEADLINING ASSEMBLY

a. w/o Sliding Roof:
Install the roof headlining (Click here).

b. w/ Sliding Roof:
Install the roof headlining (Click here).

6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

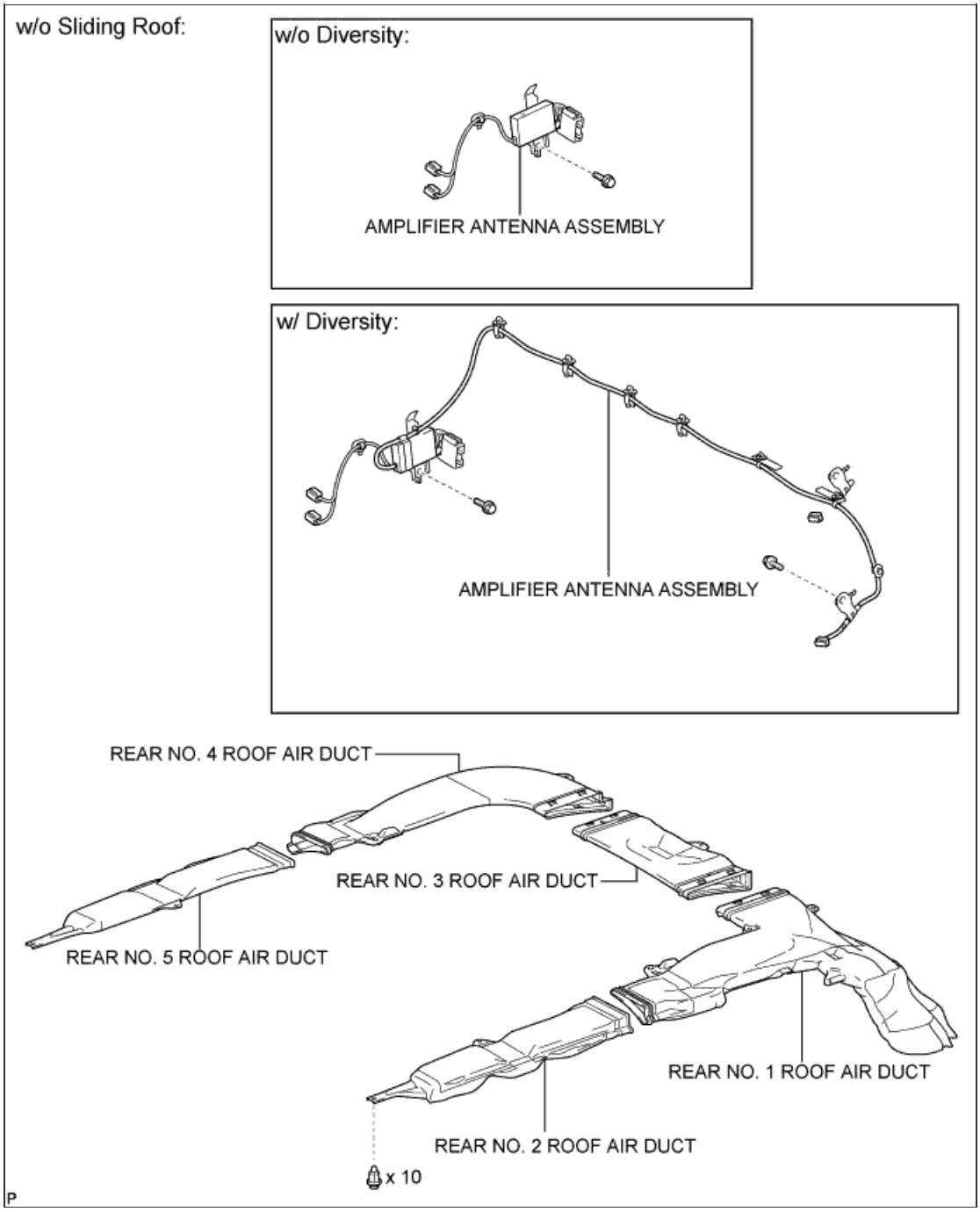
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

7. CHECK SRS WARNING LIGHT

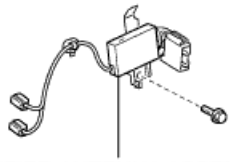
a. Check the SRS warning light (Click here).

for Preparation Click here



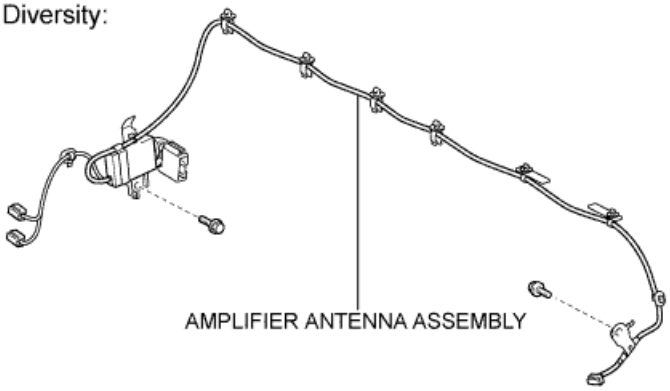
w/ Sliding Roof:

w/o Diversity:

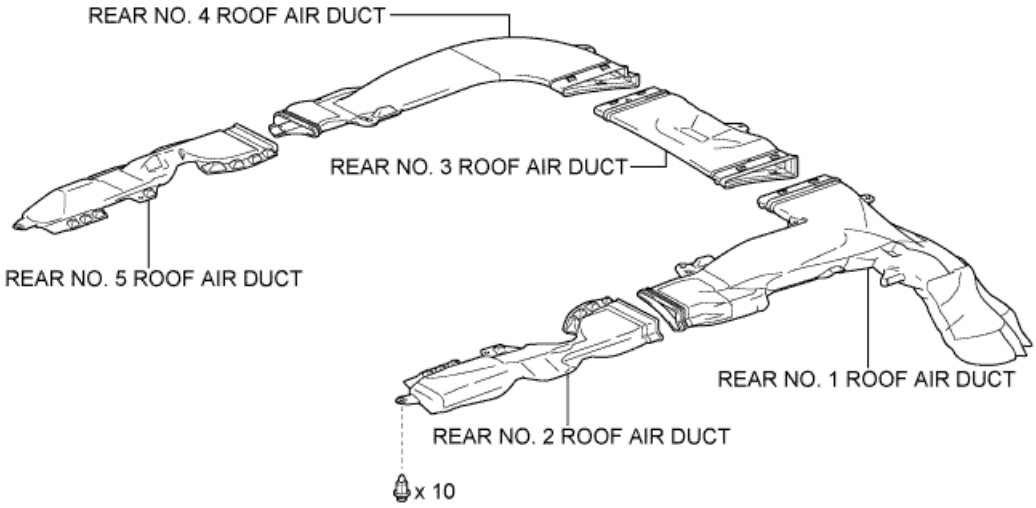


AMPLIFIER ANTENNA ASSEMBLY

w/ Diversity:



AMPLIFIER ANTENNA ASSEMBLY



P

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

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).

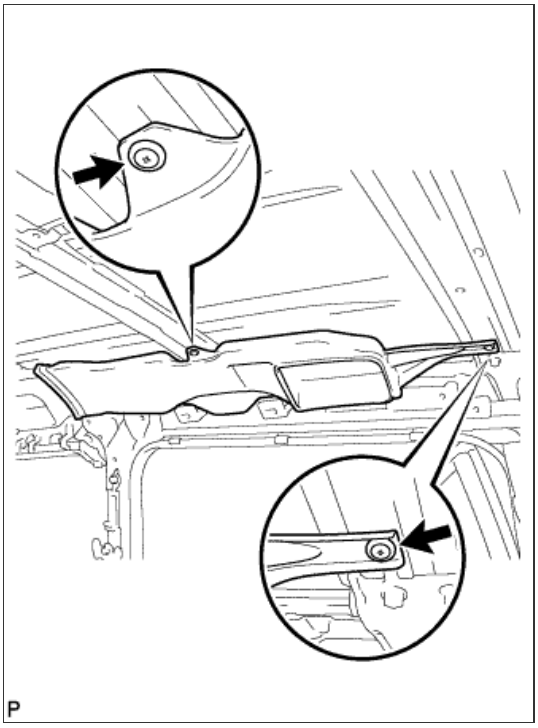
3. REMOVE ROOF HEADLINING ASSEMBLY (w/ Diversity)

a. w/o Sliding Roof:
Remove the roof headlining (Click here).

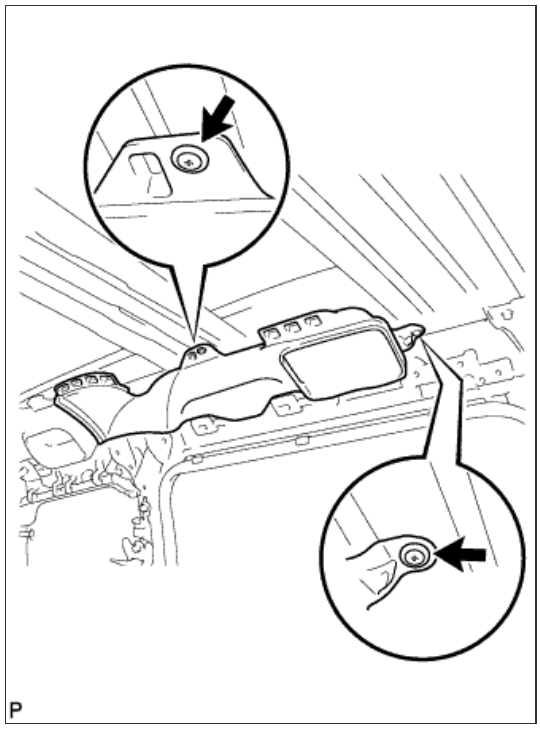
b. w/ Sliding Roof:
Remove the roof headlining (Click here).

4. REMOVE REAR NO. 2 ROOF AIR DUCT (w/ Diversity)

a. w/o Sliding Roof:
Remove the 2 clips and duct.

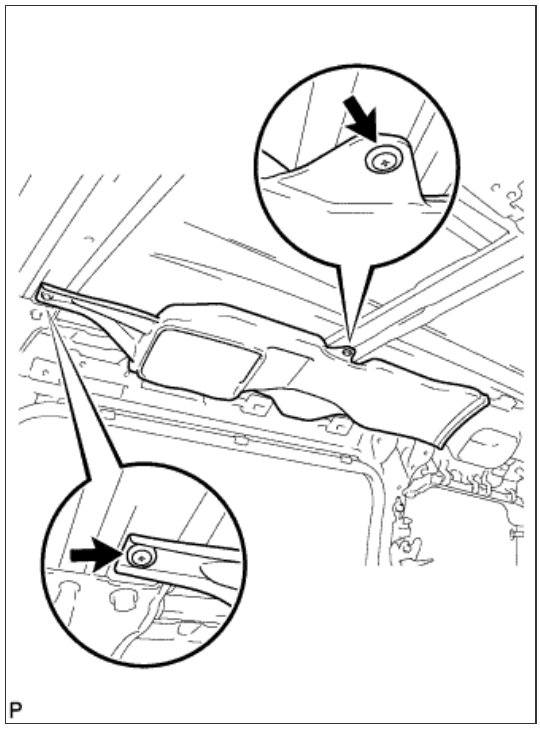


b. w/ Sliding Roof:
Remove the 2 clips and duct.

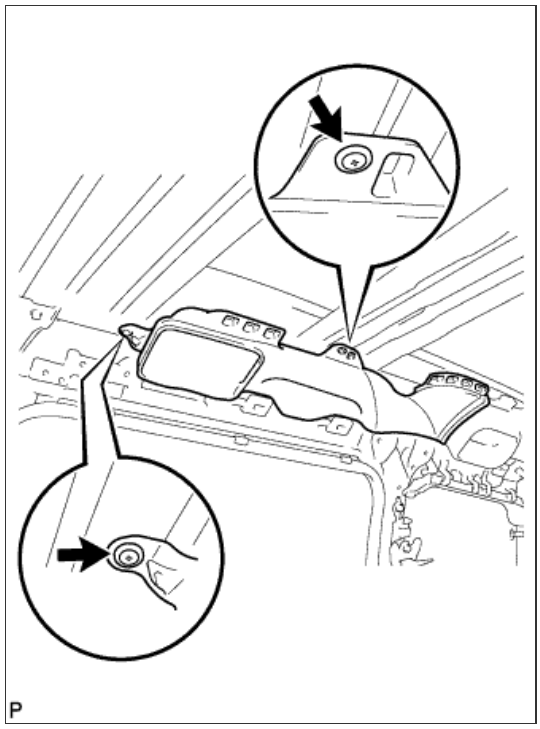


5. REMOVE REAR NO. 5 ROOF AIR DUCT (w/ Diversity)

a. w/o Sliding Roof:
Remove the 2 clips and duct.



b. w/ Sliding Roof:
Remove the 2 clips and duct.



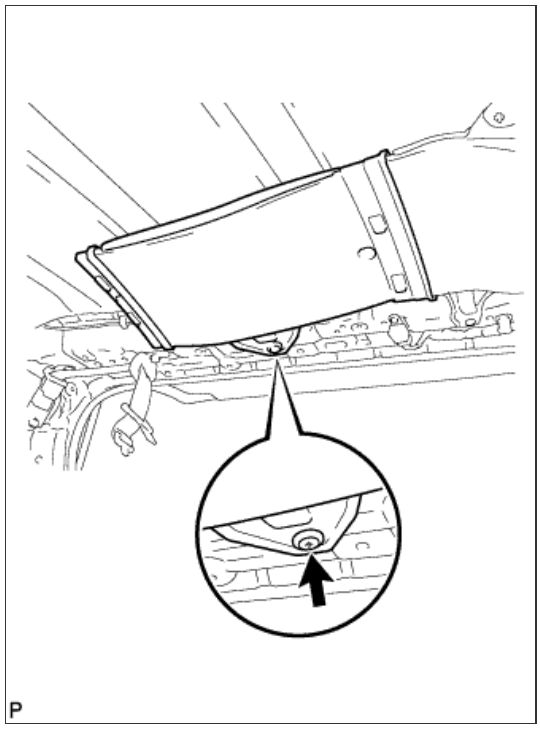
6. REMOVE REAR NO. 4 ROOF AIR DUCT (w/ Diversity)

a. Remove the 2 clips and duct.



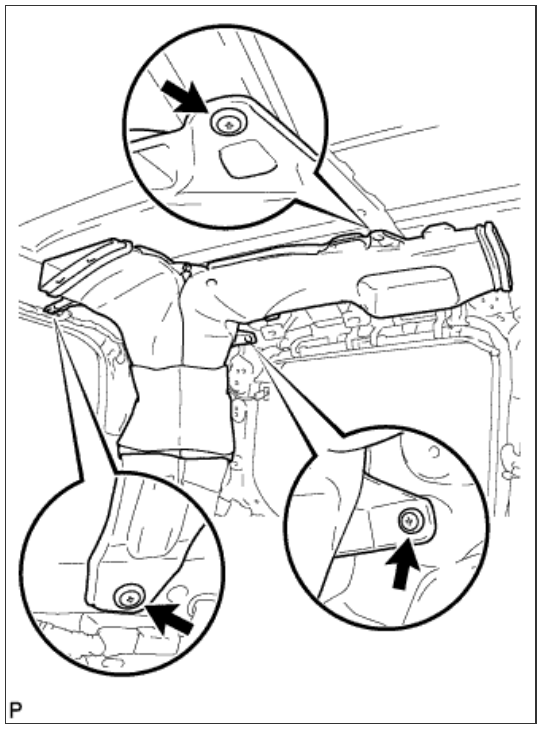
7. REMOVE REAR NO. 3 ROOF AIR DUCT (w/ Diversity)

a. Remove the clip and duct.



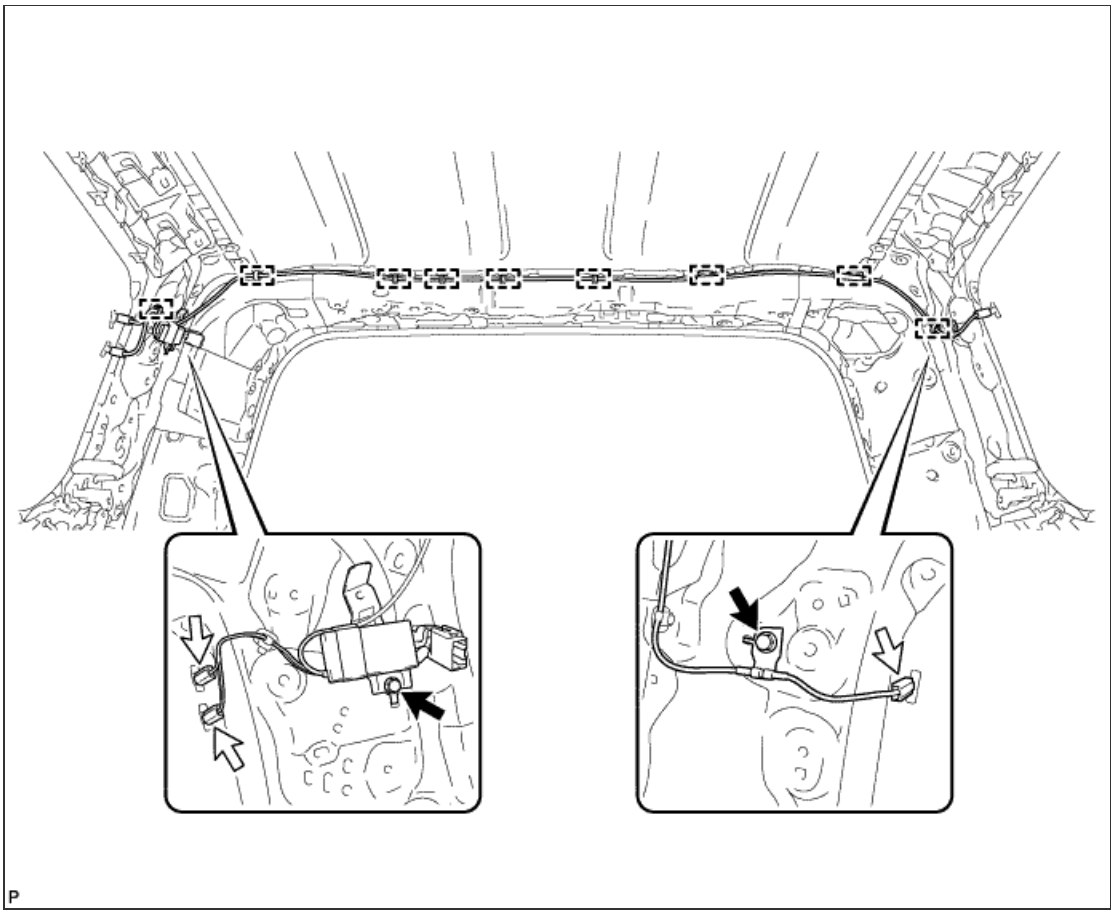
8. REMOVE REAR NO. 1 ROOF AIR DUCT (w/ Diversity)

a. Remove the 3 clips and duct.



9. REMOVE AMPLIFIER ANTENNA ASSEMBLY (w/ Diversity)

a. Disconnect the 3 connectors and remove the 2 bolts.

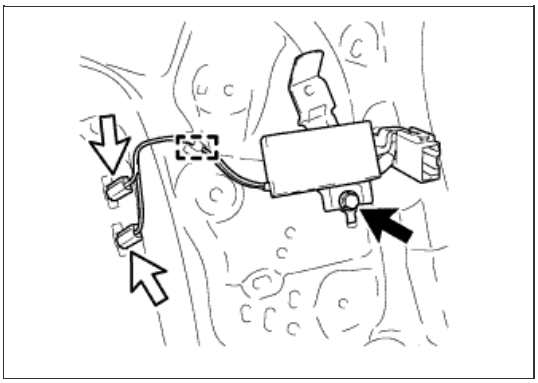


b. Detach the 9 clamps and remove the antenna.

10. REMOVE AMPLIFIER ANTENNA ASSEMBLY (w/o Diversity)

a. Disconnect the 2 connectors and detach the clamp.

b. Remove the bolt and amplifier antenna.

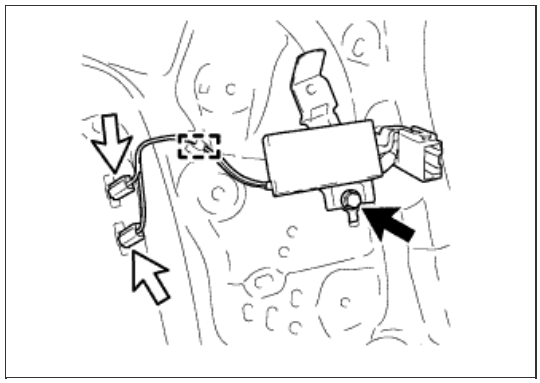


for Preparation Click here

1. INSTALL AMPLIFIER ANTENNA ASSEMBLY (w/o Diversity)

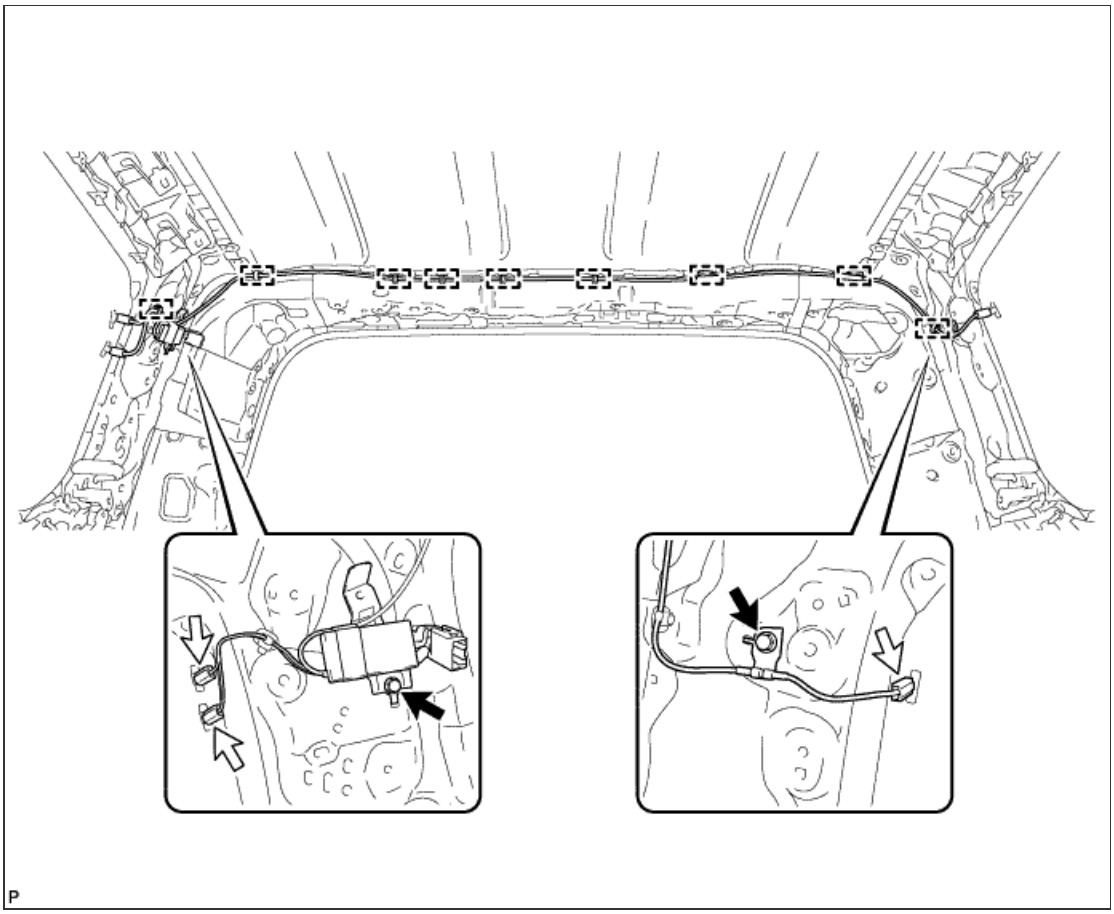
a. Install the amplifier antenna with the bolt.

b. Attach the clamp and connect the 2 connectors.



2. INSTALL AMPLIFIER ANTENNA ASSEMBLY (w/ Diversity)

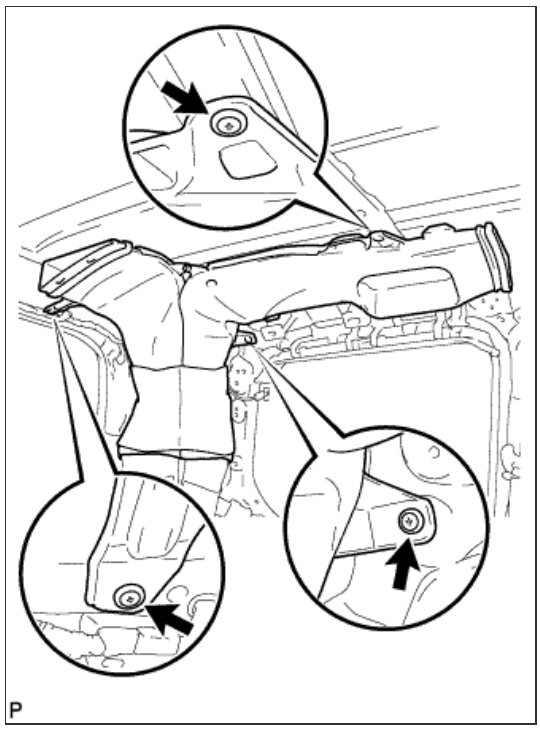
a. Attach the 9 clamps to install antenna.



b. Connect the 3 connectors and install the 2 bolts.

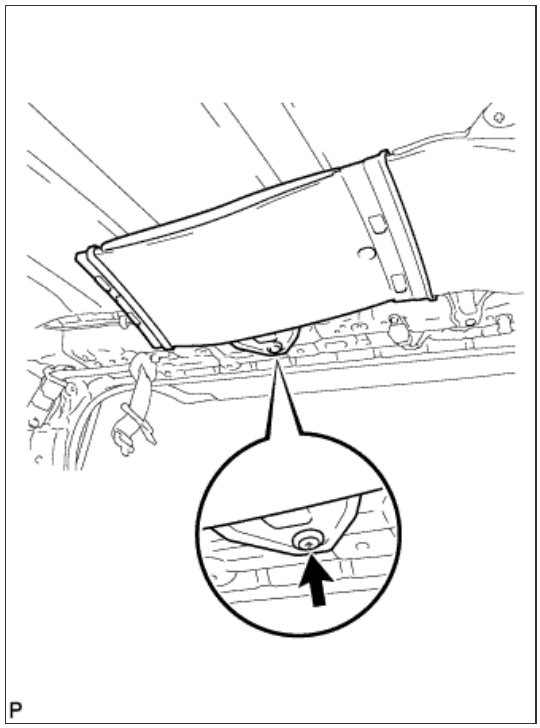
3. INSTALL REAR NO. 1 ROOF AIR DUCT (w/ Diversity)

a. Install the duct with the 3 clips.



4. INSTALL REAR NO. 3 ROOF AIR DUCT (w/ Diversity)

a. Install the duct with the clip.



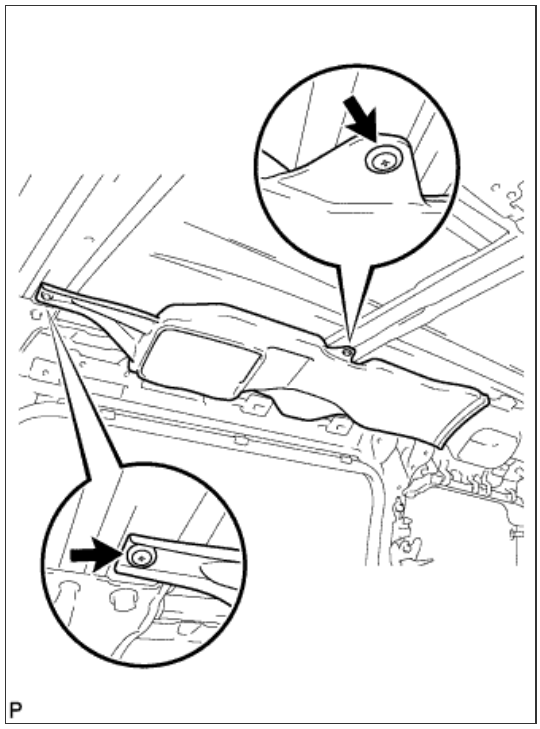
5. INSTALL REAR NO. 4 ROOF AIR DUCT (w/ Diversity)

a. Install the duct with the 2 clips.

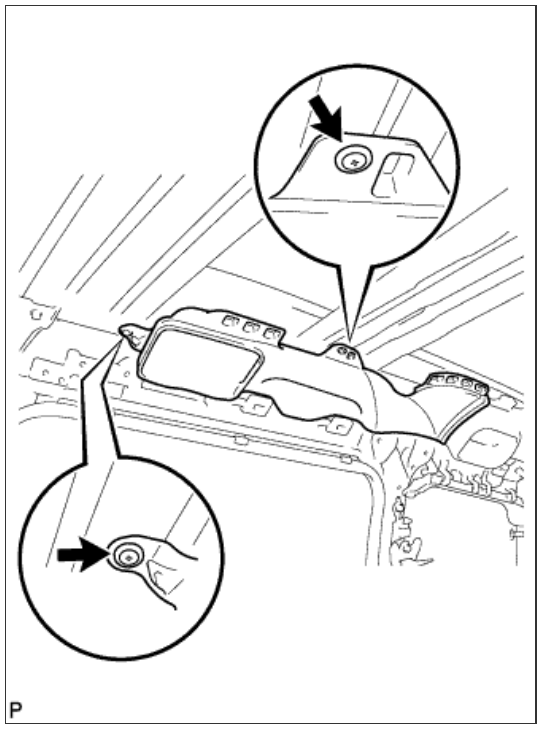


6. INSTALL REAR NO. 5 ROOF AIR DUCT (w/ Diversity)

a. w/o Sliding Roof:
Install the duct with the 2 clips.

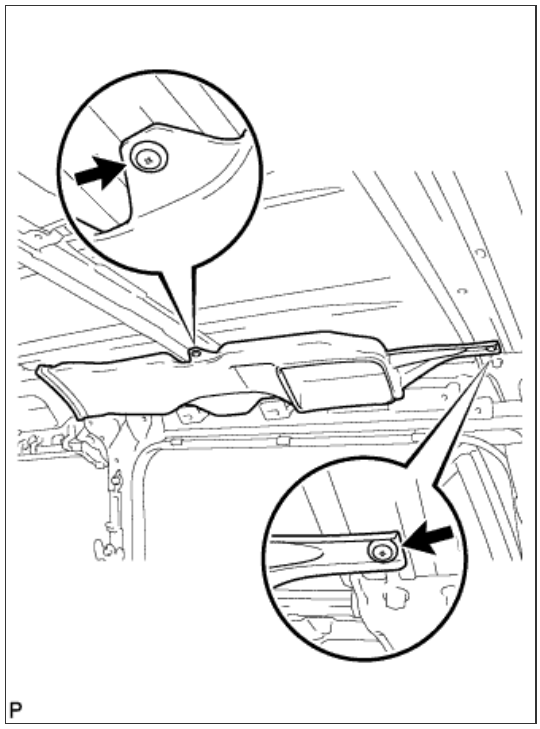


b. w/ Sliding Roof:
Install the duct with the 2 clips.

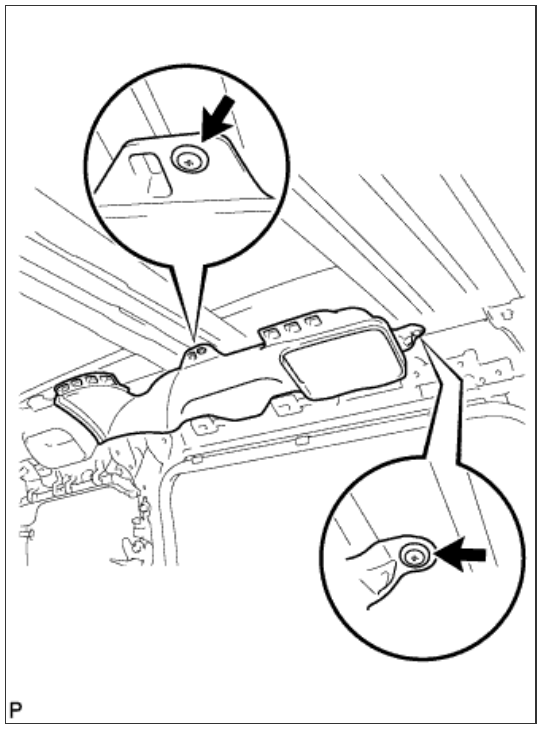


7. INSTALL REAR NO. 2 ROOF AIR DUCT (w/ Diversity)

a. w/o Sliding Roof:
Install the duct with the 2 clips.



b. w/ Sliding Roof:
Install the duct with the 2 clips.



8. INSTALL ROOF HEADLINING ASSEMBLY (w/ Diversity)

a. w/o Sliding Roof:
Install the roof headlining (Click here).

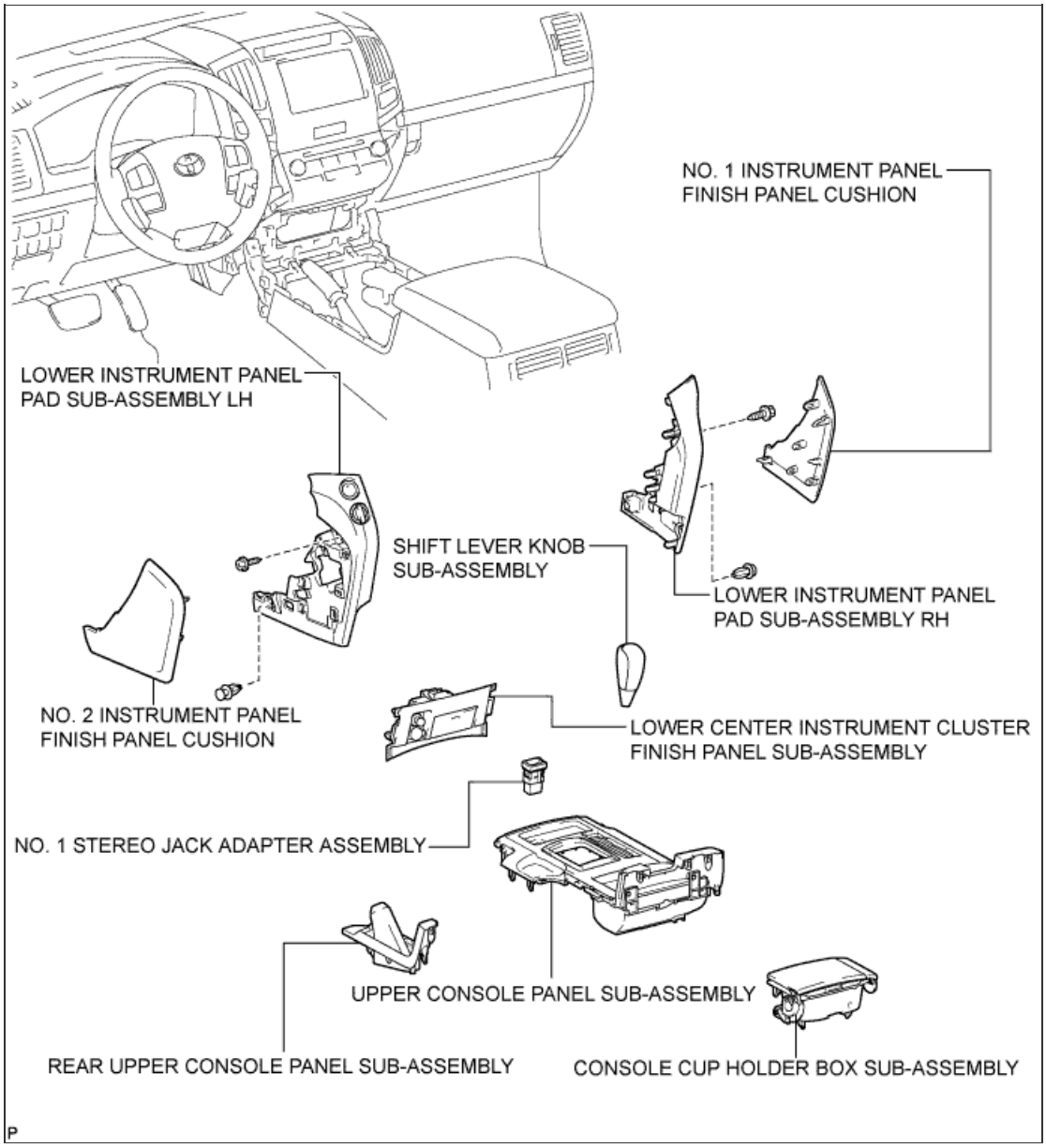
b. w/ Sliding Roof:
Install the roof headlining (Click here).

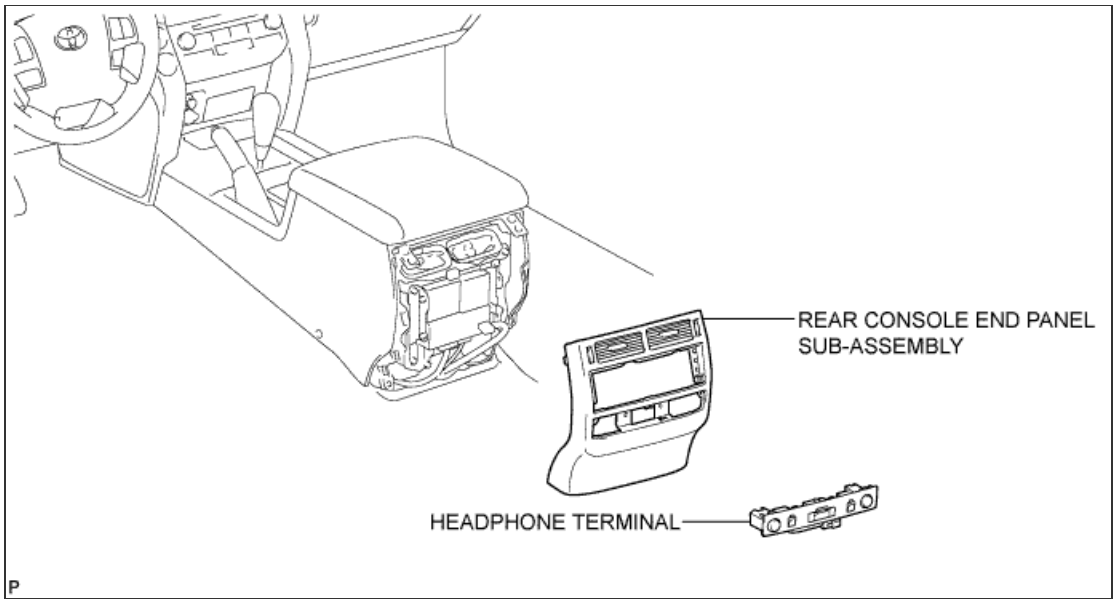
9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

for Preparation Click here




REAR CONSOLE END PANEL
SUB-ASSEMBLY
HEADPHONE TERMINAL
P

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

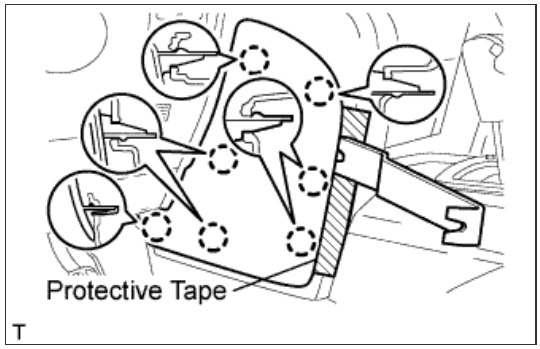
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 7 claws and remove the panel cushion.



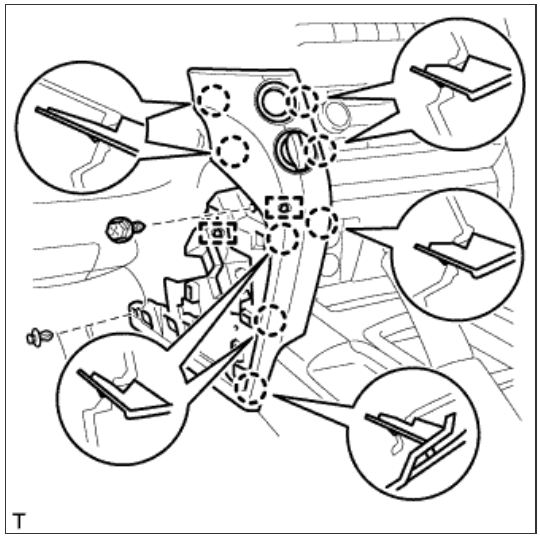
4. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Remove the clip.

b. Remove the screw.

c. Detach the 8 claws.

d. Remove the panel pad and disconnect the connectors and 2 clamps.



5. REMOVE NO. 1 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 7 claws and remove the panel cushion.

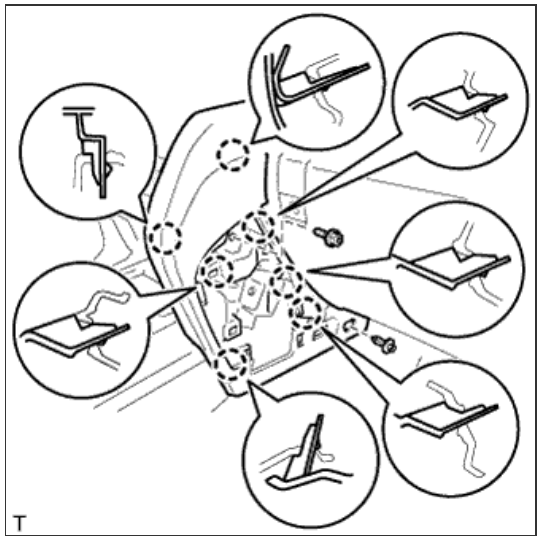


6. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

a. Remove the clip.

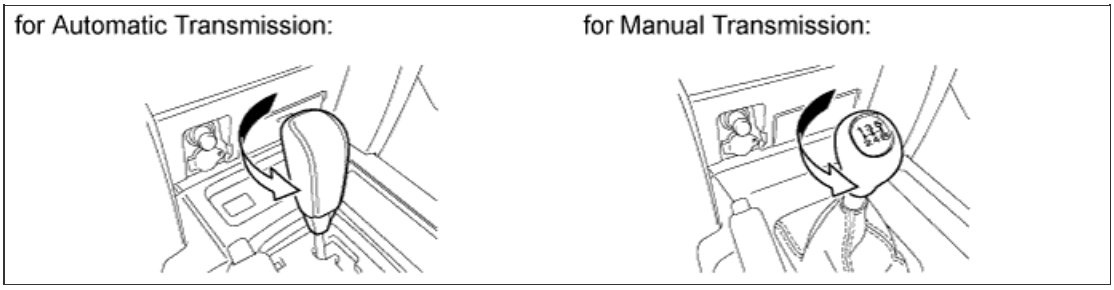
b. Remove the screw.

c. Detach the 7 claws and remove the panel.



7. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY

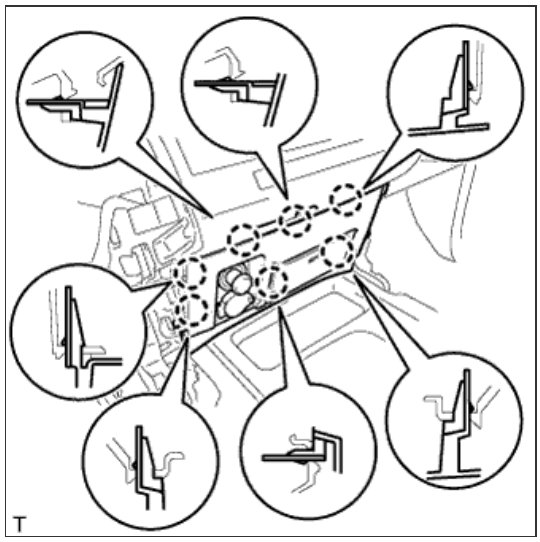
a. Twist the shift lever knob in the direction indicated by the arrow and remove it.



8. REMOVE LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

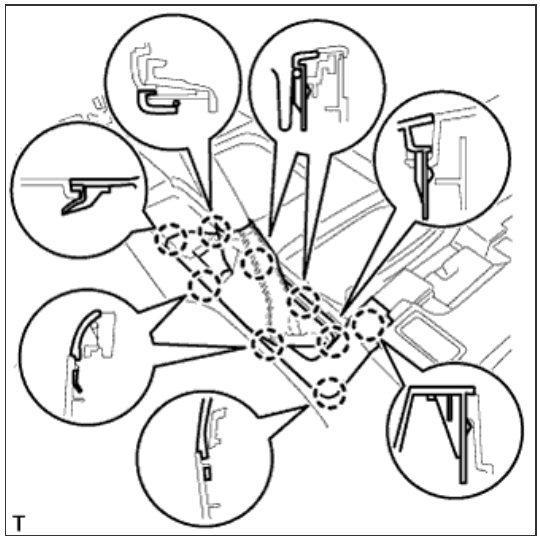
a. Detach the 7 claws.

b. Disconnect the connectors and remove the panel.



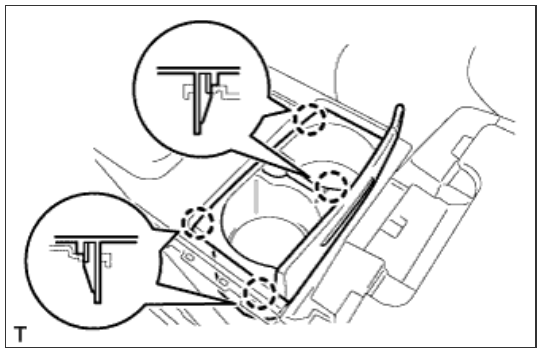
9. REMOVE REAR UPPER CONSOLE PANEL SUB-ASSEMBLY

a. Detach the 9 claws and remove the panel.



10. REMOVE CONSOLE CUP HOLDER BOX SUB-ASSEMBLY

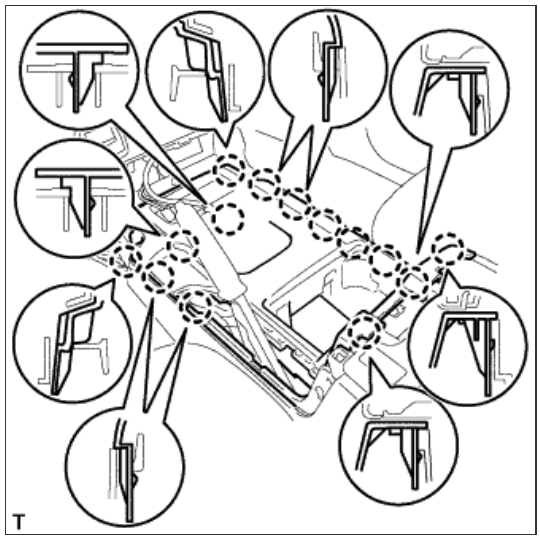
a. Detach the 4 claws and remove the box.



11. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY

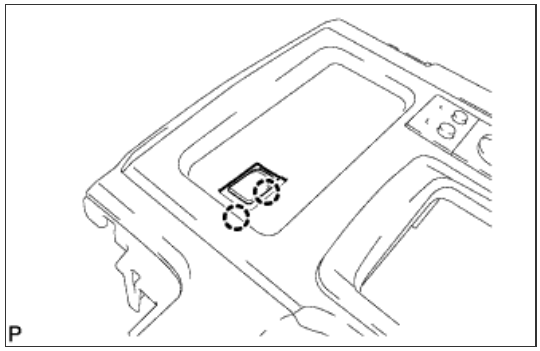
a. Detach the 14 claws.

b. Disconnect the connectors and remove the console panel.



12. REMOVE NO. 1 STEREO JACK ADAPTER ASSEMBLY

a. Detach the 2 claws and remove the stereo jack adapter.

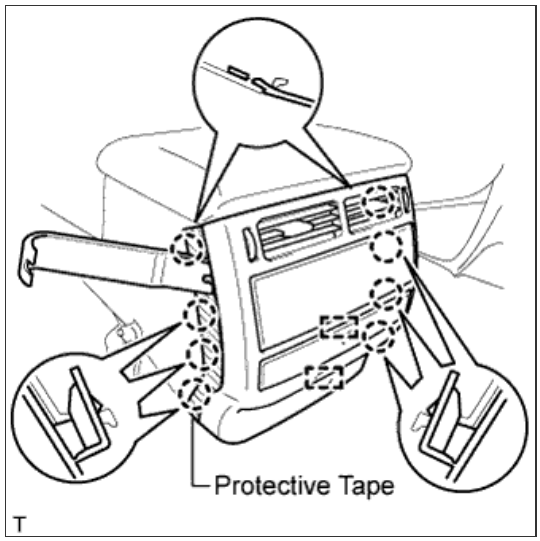


13. REMOVE REAR CONSOLE END PANEL SUB-ASSEMBLY

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 8 claws.

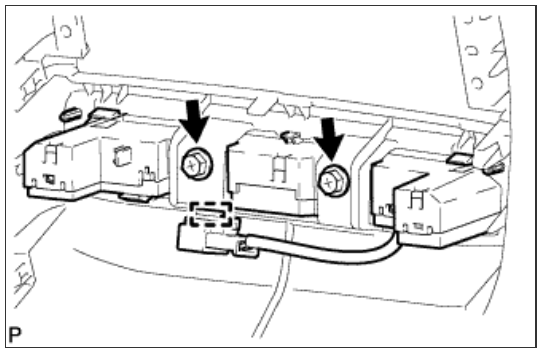
c. Remove the end panel and disconnect the connectors and 2 clamps.



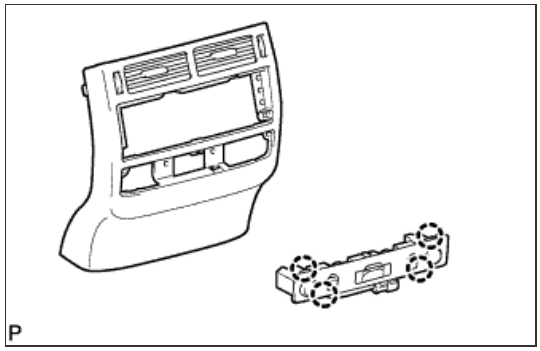
14. REMOVE HEADPHONE TERMINAL

a. Remove the 2 screws.

b. Detach the connector clamp.



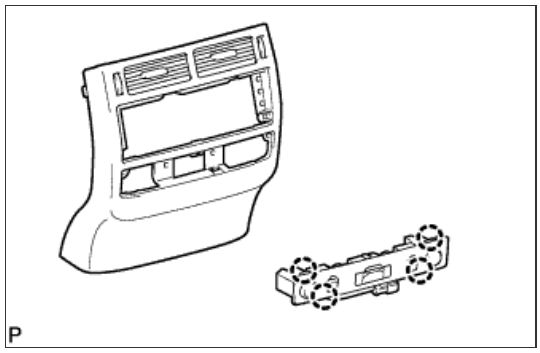
c. Detach the 4 claws and remove the terminal.



for Preparation Click here

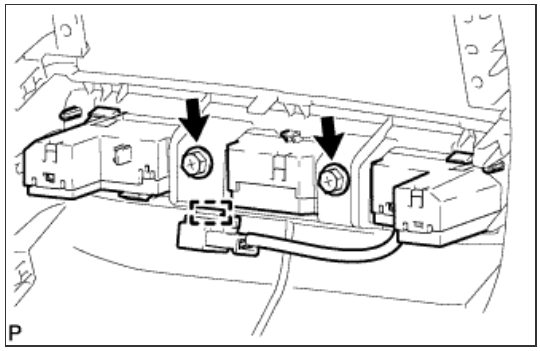
1. INSTALL HEADPHONE TERMINAL

a. Attach the 4 claws to install the headphone terminal.



b. Install the 2 screws.

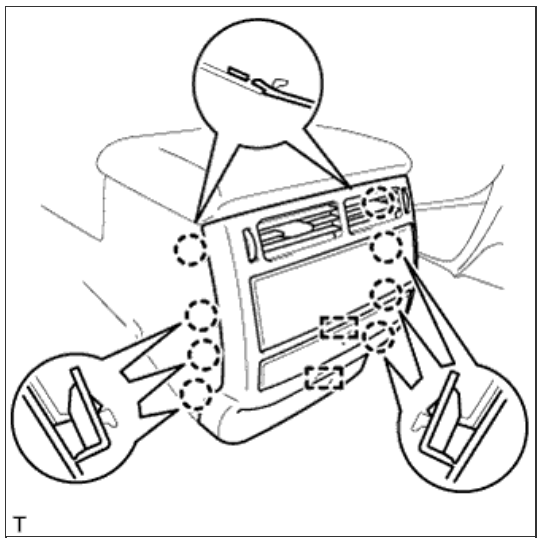
c. Attach the connector clamp.



2. INSTALL REAR CONSOLE END PANEL SUB-ASSEMBLY

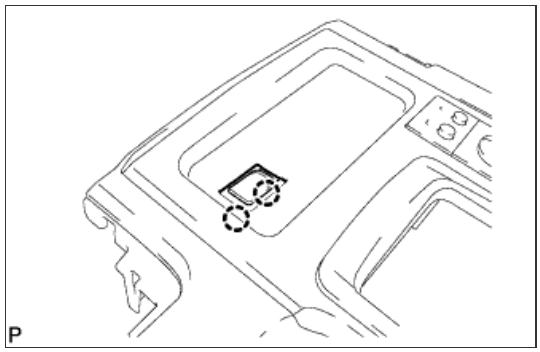
a. Connect the connectors and 2 clamps.

b. Attach the 8 claws to install the end panel.



3. INSTALL NO. 1 STEREO JACK ADAPTER ASSEMBLY

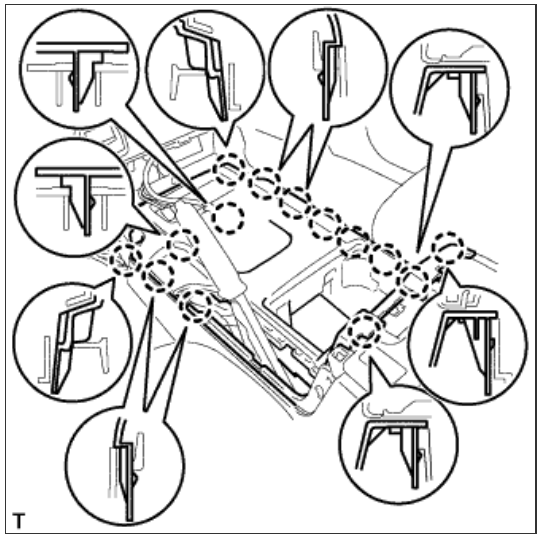
a. Attach the 2 claws to install the stereo jack adapter.



4. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY

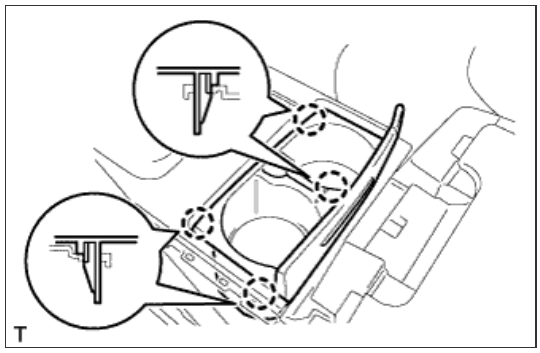
a. Connect the connectors.

b. Attach the 14 claws to install the console panel.



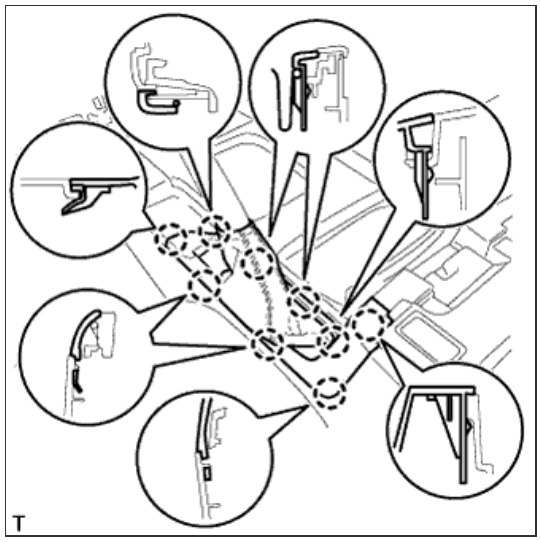
5. INSTALL CONSOLE CUP HOLDER BOX SUB-ASSEMBLY

a. Attach the 4 claws to install the box.



6. INSTALL REAR UPPER CONSOLE PANEL SUB-ASSEMBLY

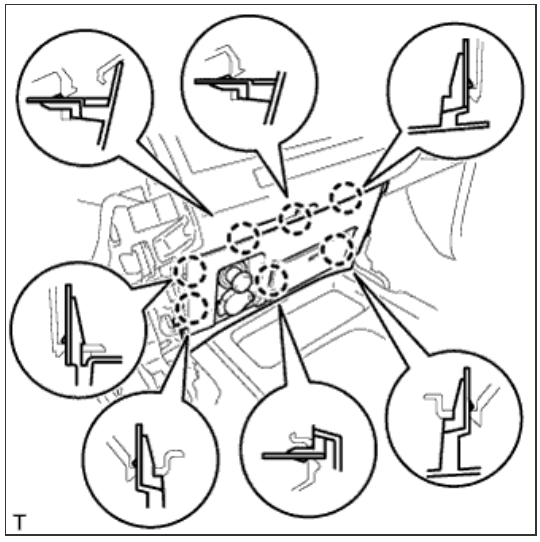
a. Attach the 9 claws to install the panel.



7. INSTALL LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

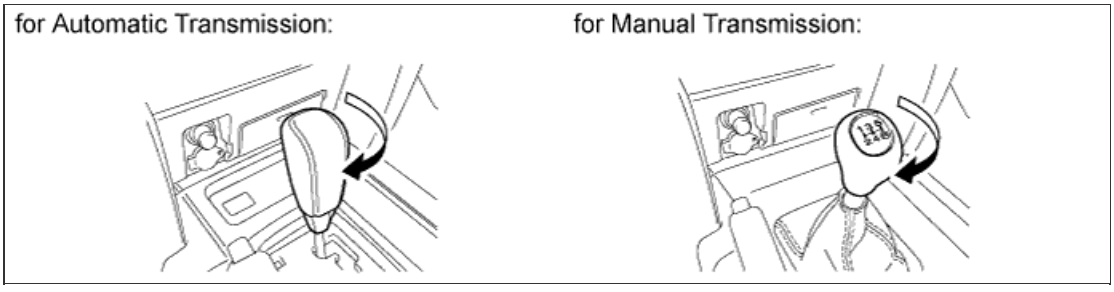
a. Connect the connectors.

b. Attach the 7 claws to install the panel.



8. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY

a. Install the shift lever knob and twist it in the direction indicated by the arrow.

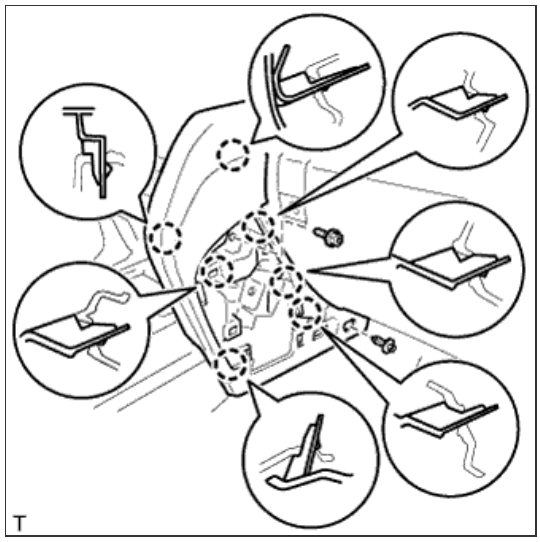


9. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

a. Attach the 7 claws to install the panel pad.

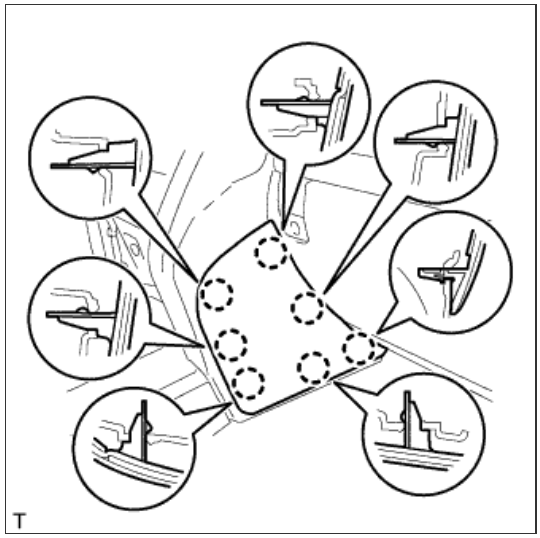
b. Install the screw.

c. Install the clip.



10. INSTALL NO. 1 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Attach the 7 claws to install the panel cushion.



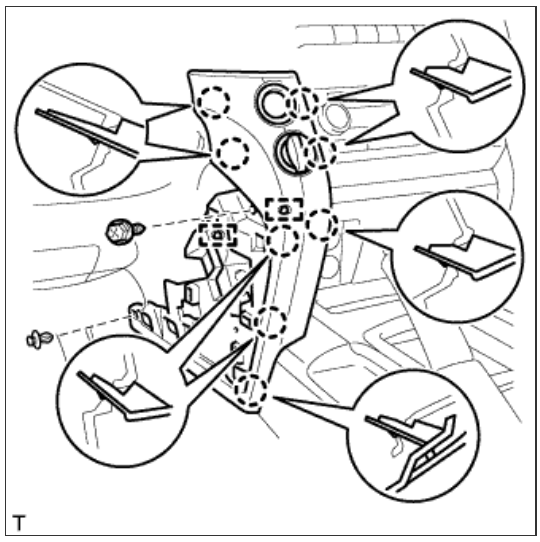
11. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connectors and 2 clamps.

b. Attach the 8 claws to install the panel pad.

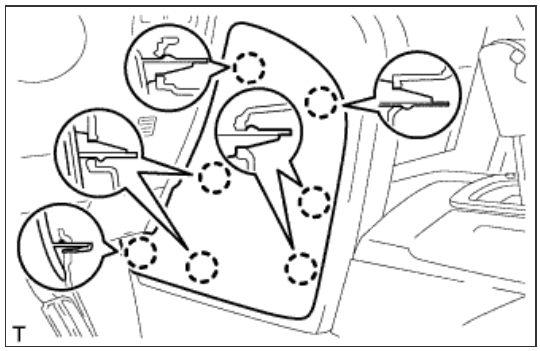
c. Install the screw.

d. Install the clip.



12. INSTALL NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Attach the 7 claws to install the panel cushion.

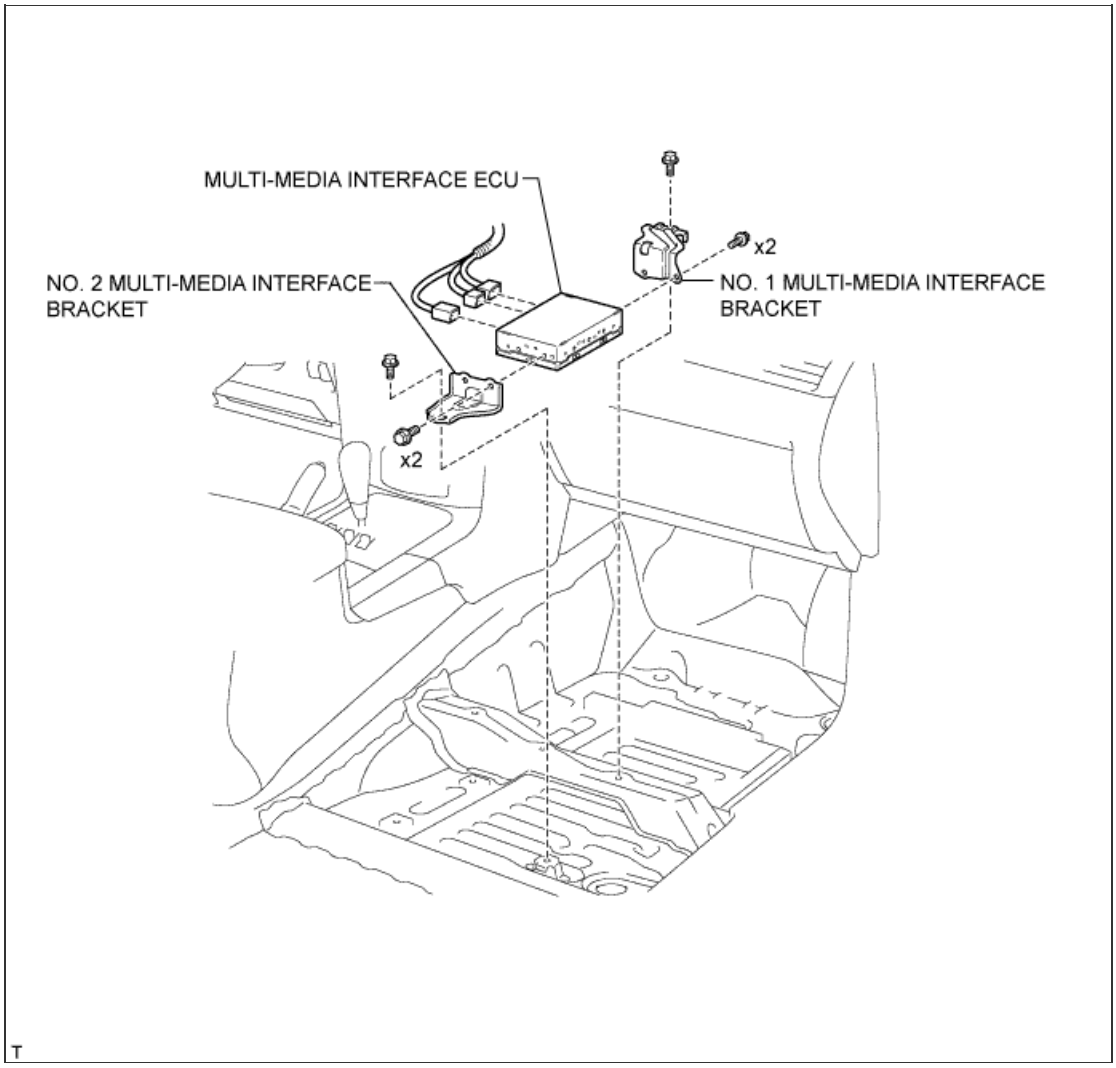


13. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

for Preparation Click here



for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

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 (for Manual Seat)

a. Remove the front seat assembly RH (Click here).

4. REMOVE FRONT SEAT ASSEMBLY RH (for Power Seat)

a. Remove the front seat assembly RH (Click here).

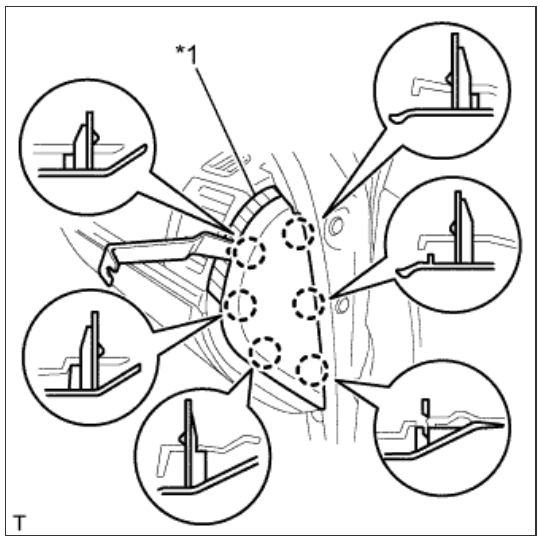
5. REMOVE INSTRUMENT SIDE PANEL RH (w/o Airbag Cut Off Switch)

a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 6 claws and remove the instrument side panel.



6. REMOVE INSTRUMENT SIDE PANEL RH (w/ Airbag Cut Off Switch)

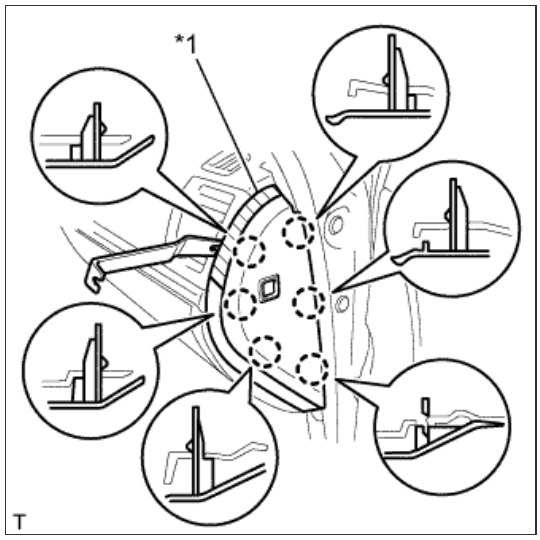
a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 6 claws.

c. Disconnect the connector and remove the instrument side panel.



7. REMOVE FRONT DOOR SCUFF PLATE RH

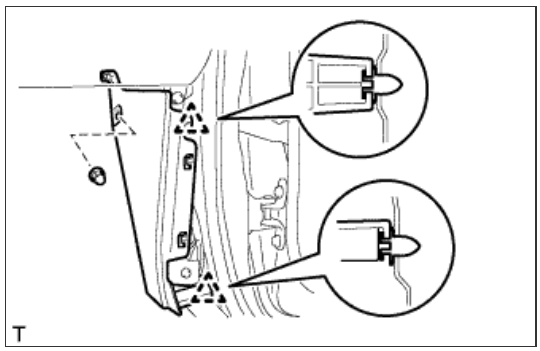
HINT:

Use the same procedures described for the LH side.

8. REMOVE COWL SIDE TRIM BOARD RH

a. Remove the cap nut.

b. Detach the 2 clips and remove the cowl side trim board.



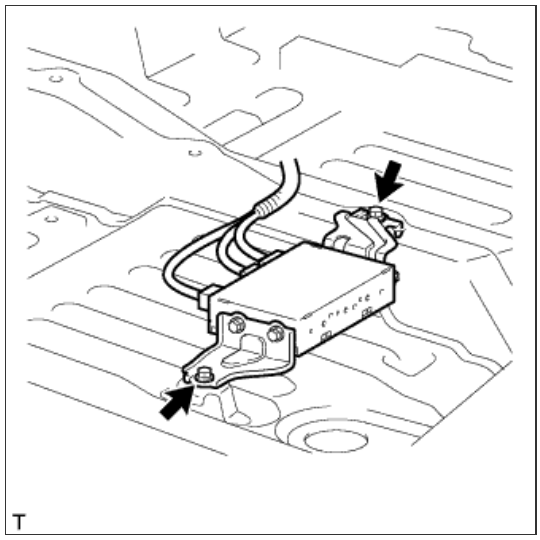
9. REMOVE FRONT FLOOR CARPET ASSEMBLY

a. Pull back the carpet far enough so that the selector can be removed. For further details, refer to the removal procedure (Click here).

10. REMOVE MULTI-MEDIA INTERFACE ECU

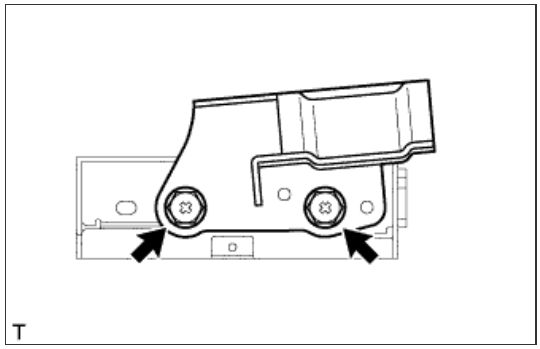
a. Disconnect the connectors.

b. Remove the 2 bolts and multi-media interface ECU.



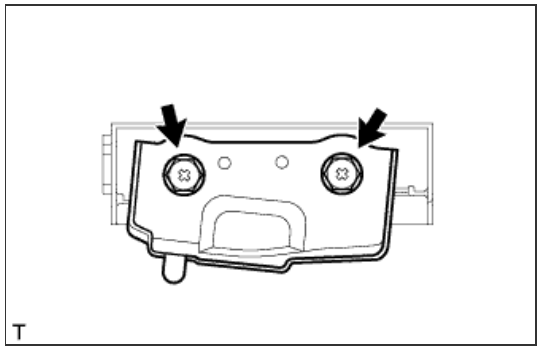
11. REMOVE NO. 1 MULTI-MEDIA INTERFACE BRACKET

a. Remove the 2 bolts and bracket.



12. 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

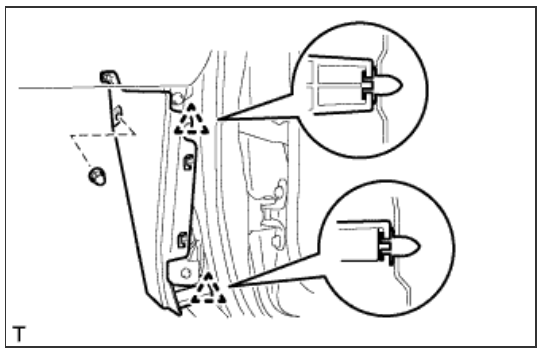
HINT:

Use the same procedures described for the LH side.

6. INSTALL COWL SIDE TRIM BOARD RH

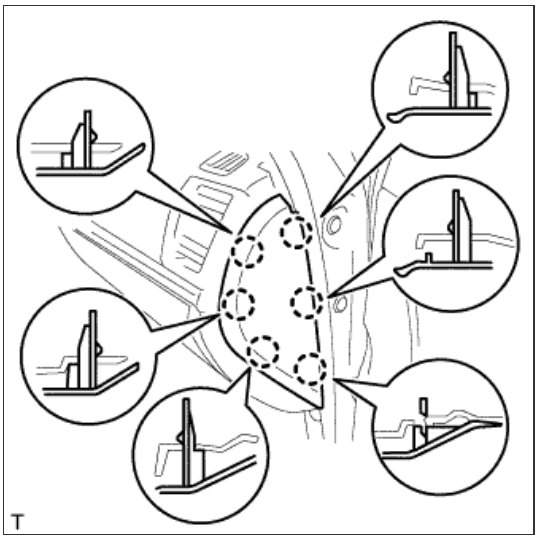
a. Attach the 2 clips to install the cowl side trim board.

b. Install the cap nut.



7. INSTALL INSTRUMENT SIDE PANEL RH (w/o Airbag Cut Off Switch)

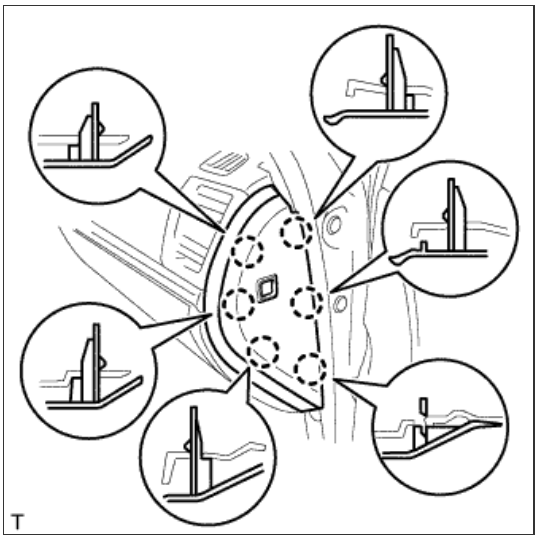
a. Attach the 6 claws to install the instrument side panel.



8. INSTALL INSTRUMENT SIDE PANEL RH (w/ Airbag Cut Off Switch)

a. Connect the connector.

b. Attach the 6 claws to install the instrument side panel.



9. INSTALL FRONT SEAT ASSEMBLY RH (for Manual Seat)

a. Install the front seat assembly RH (Click here).

10. INSTALL FRONT SEAT ASSEMBLY RH (for Power Seat)

a. Install the front seat assembly RH (Click here).

11. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

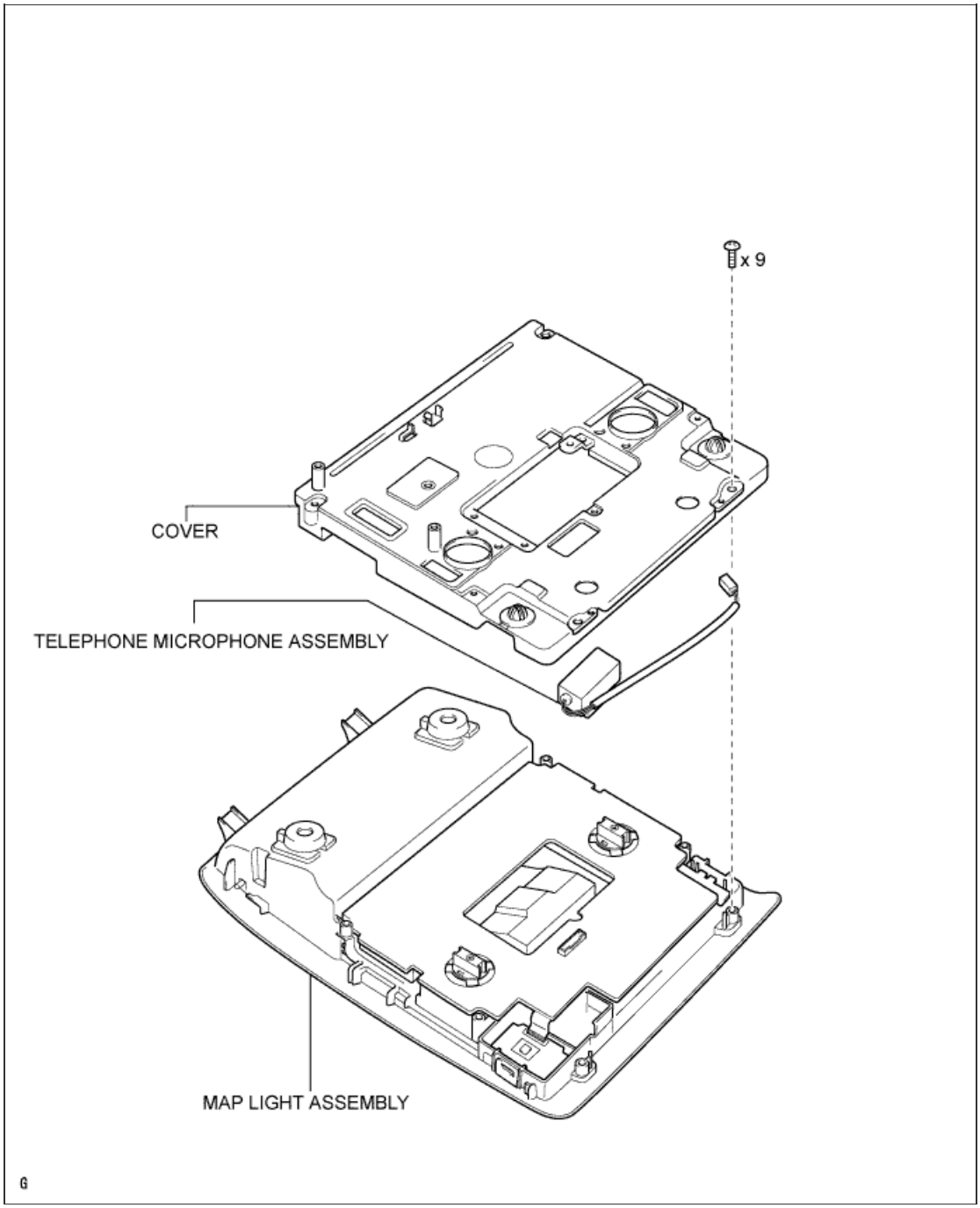
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

12. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

for Preparation Click here



for Preparation Click here

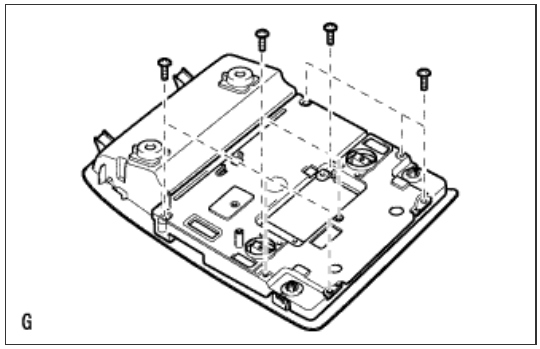
1. REMOVE MAP LIGHT ASSEMBLY

a. w/o Sliding Roof:
Remove the map light (Click here).

b. w/ Sliding Roof:
Remove the map light (Click here).

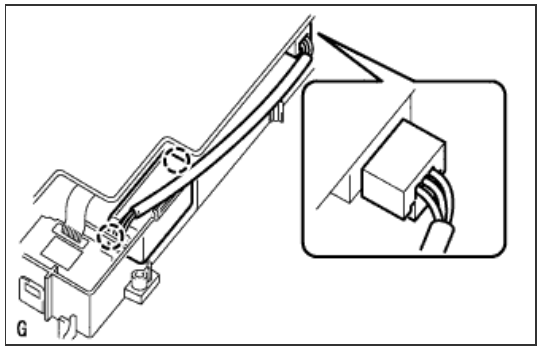
2. REMOVE TELEPHONE MICROPHONE ASSEMBLY

a. Remove the 9 screws and cover.



b. Disconnect the connector.

c. Detach the 2 claws and remove the microphone.

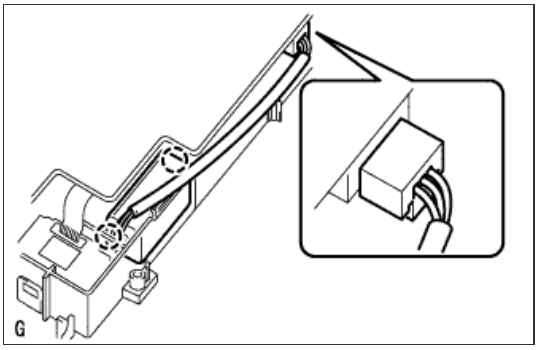


for Preparation Click here

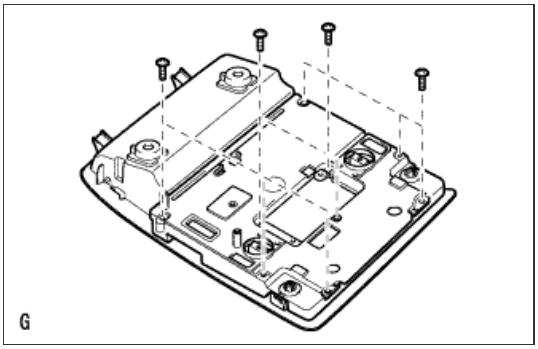
1. INSTALL TELEPHONE MICROPHONE ASSEMBLY

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. w/o Sliding Roof:
Install the map light (Click here).

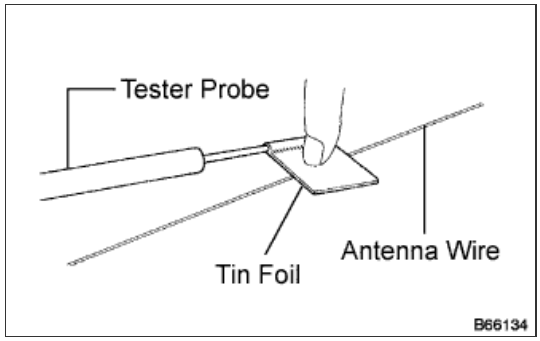
b. w/ Sliding Roof:
Install the map light (Click here).

for Preparation Click here

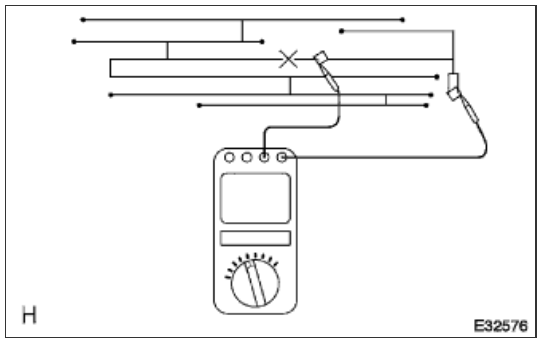
1. INSPECT WINDOW GLASS ANTENNA WIRE

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.

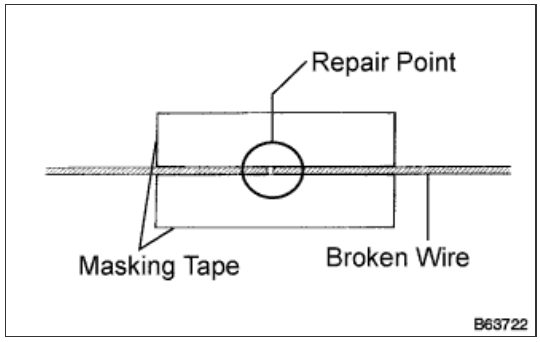


2. REPAIR WINDOW GLASS ANTENNA WIRE

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).

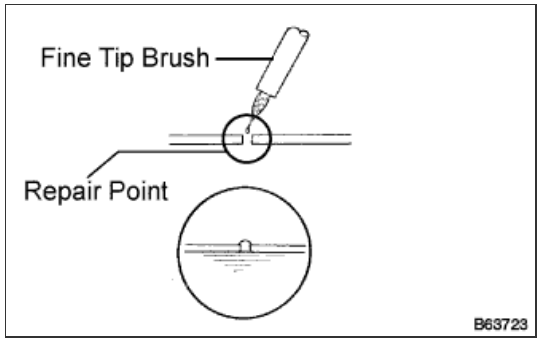


d. Using a fine tip brush, apply a small amount of the repair agent to the wire.

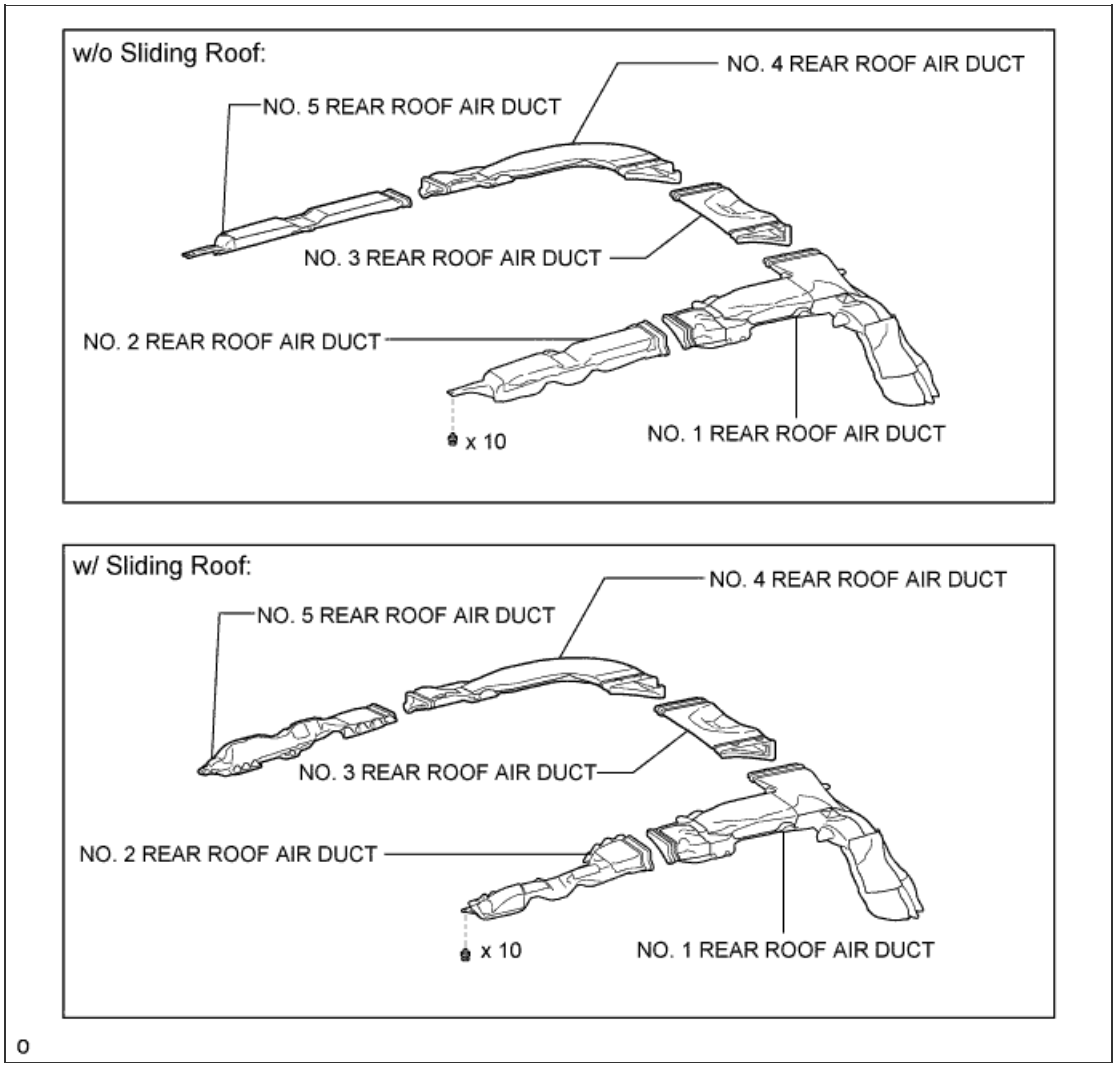
e. After a few minutes, remove the masking tape.

NOTICE:

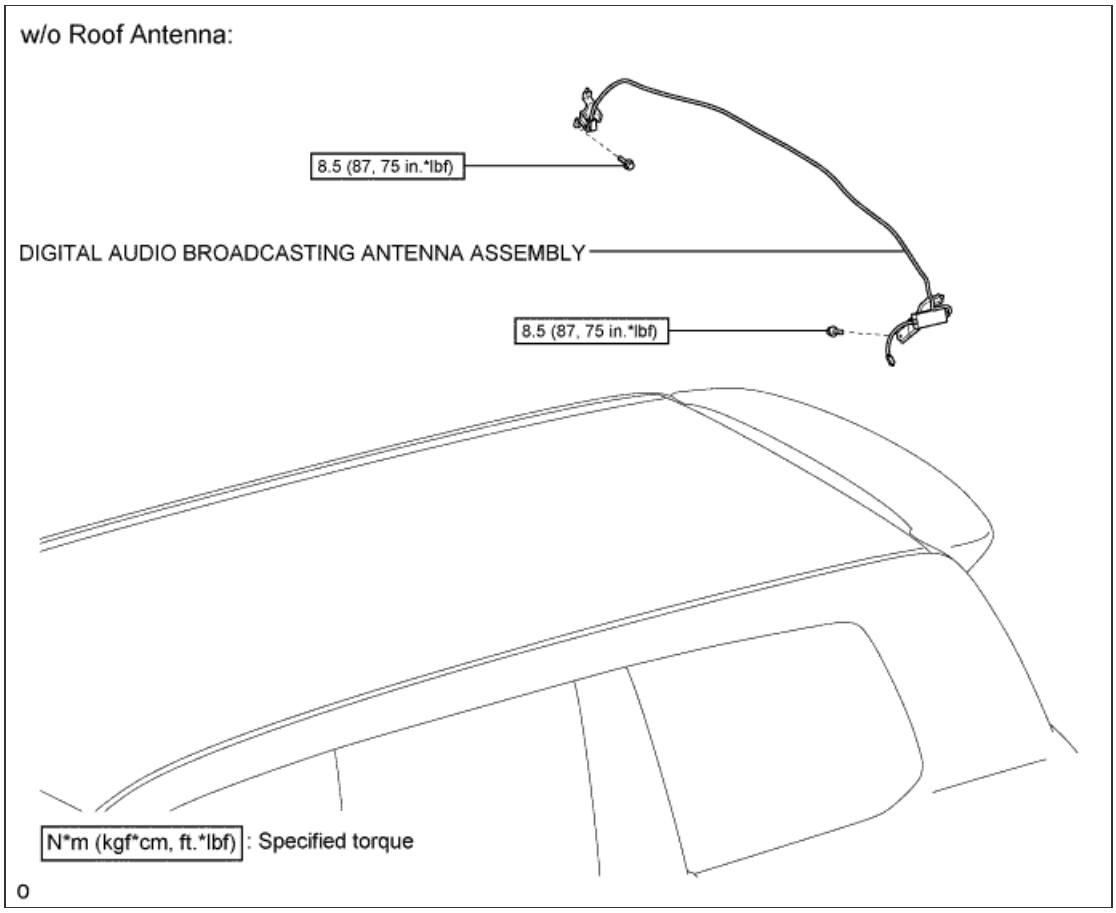
Do not allow electricity to flow in the antenna wire for at least 24 hours.

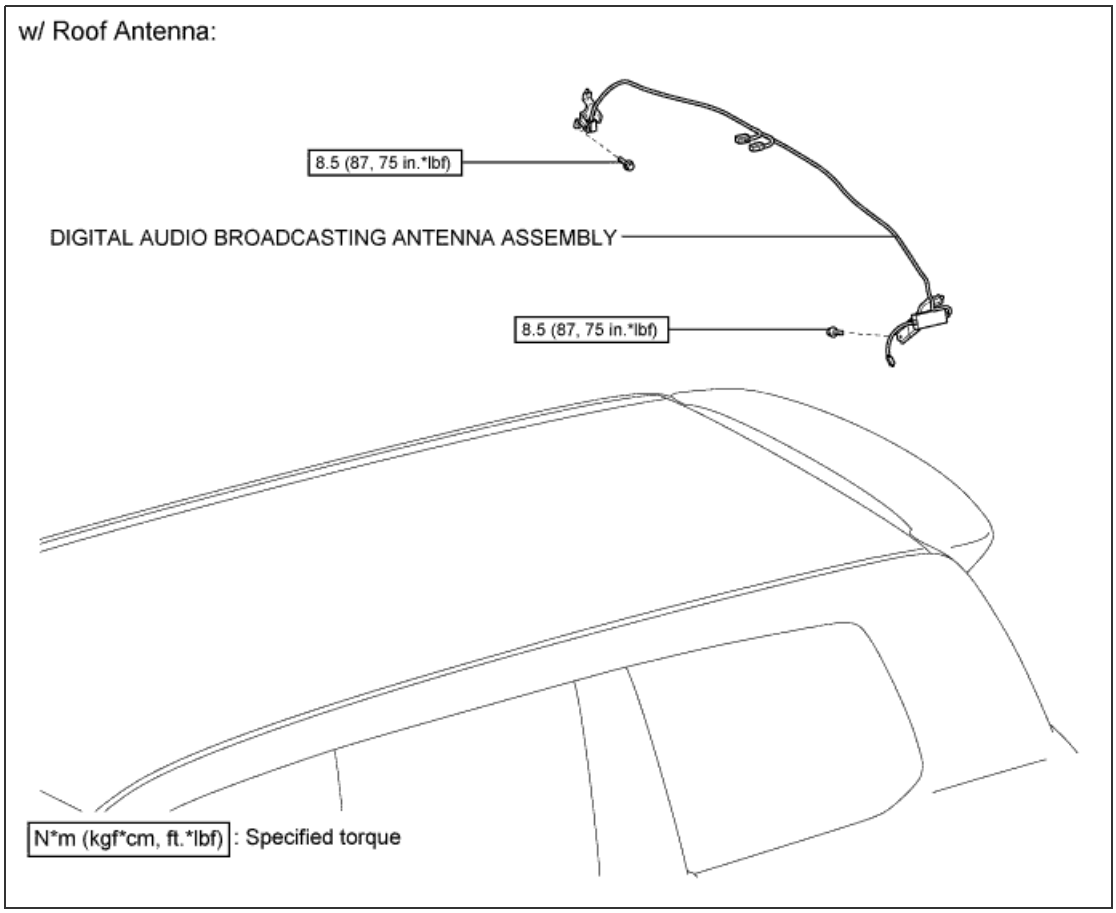


for Preparation Click here



o


w/o Roof Antenna:
8.5 (87, 75 in.*lbf)
DIGITAL AUDIO BROADCASTING ANTENNA ASSEMBLY
8.5 (87, 75 in.*lbf)
N*m (kgf*cm, ft.*lbf) : Specified torque
o


w/ Roof Antenna:
8.5 (87, 75 in.*lbf)
DIGITAL AUDIO BROADCASTING ANTENNA ASSEMBLY
8.5 (87, 75 in.*lbf)
N*m (kgf*cm, ft.*lbf) : Specified torque

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

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).

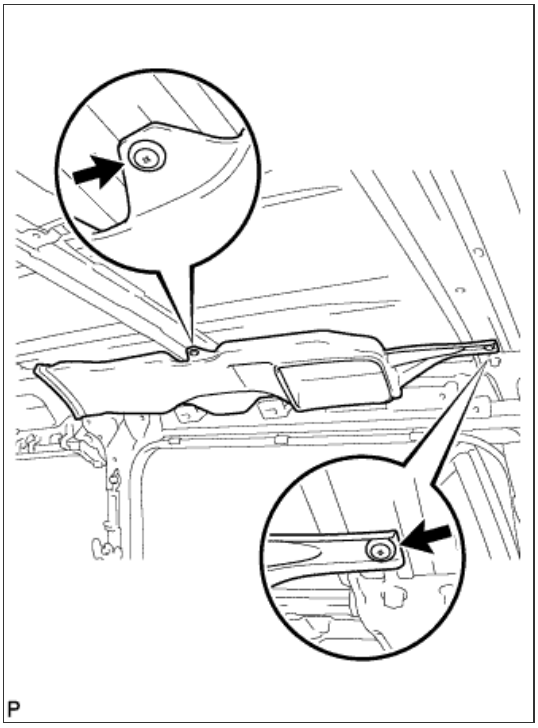
3. REMOVE ROOF HEADLINING ASSEMBLY

a. w/ Sliding Roof:
(Click here)

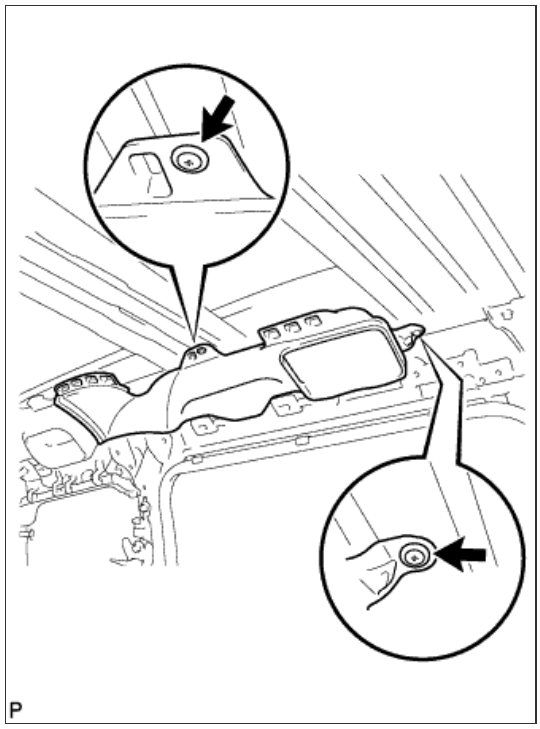
b. w/o Sliding Roof:
(Click here)

4. REMOVE NO. 2 REAR ROOF AIR DUCT

a. w/o Sliding Roof:
Remove the 2 clips and duct.

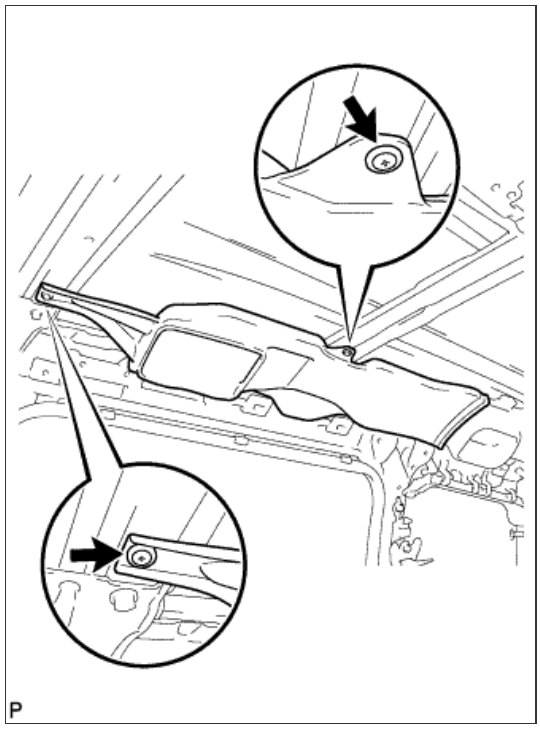


b. w/ Sliding Roof:
Remove the 2 clips and duct.

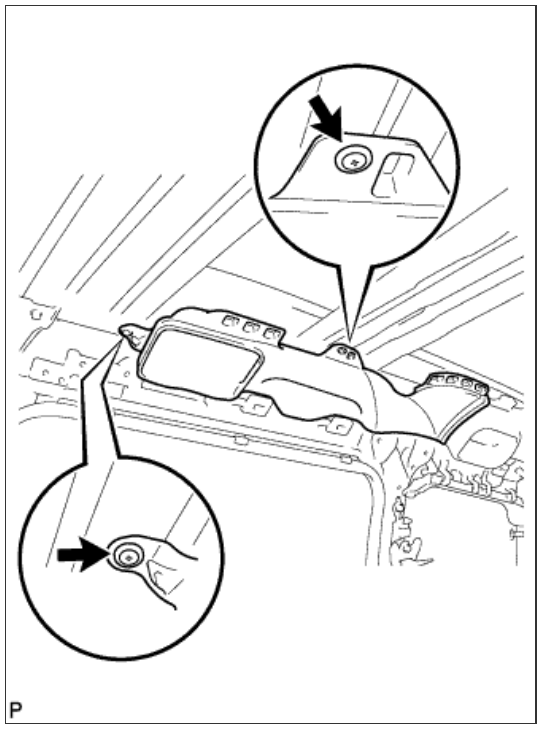


5. REMOVE NO. 5 REAR ROOF AIR DUCT

a. w/o Sliding Roof:
Remove the 2 clips and duct.



b. w/ Sliding Roof:
Remove the 2 clips and duct.



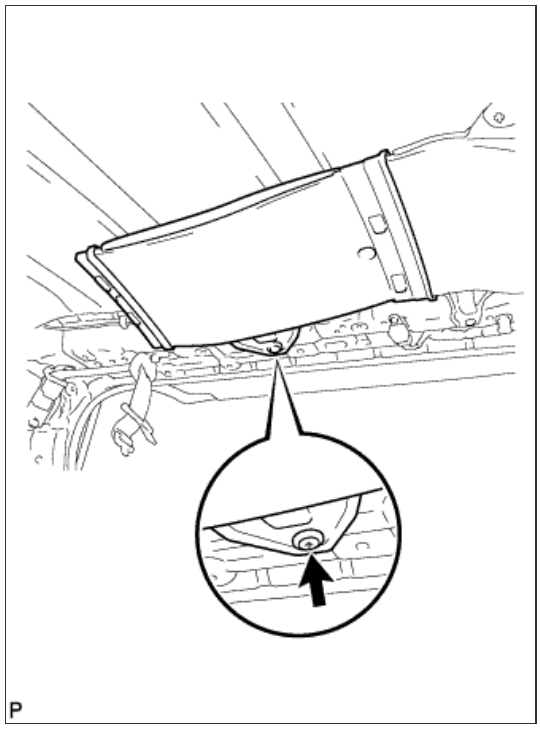
6. REMOVE NO. 4 REAR ROOF AIR DUCT

a. Remove the 2 clips and duct.



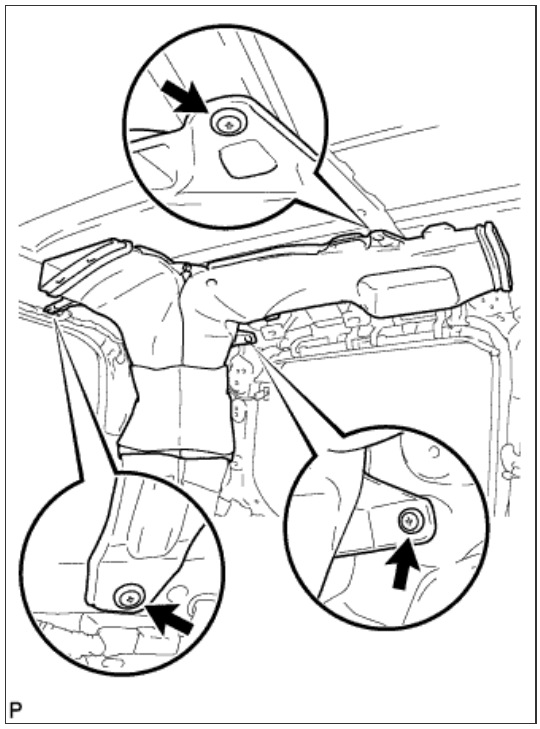
7. REMOVE NO. 3 REAR ROOF AIR DUCT

a. Remove the clip and duct.



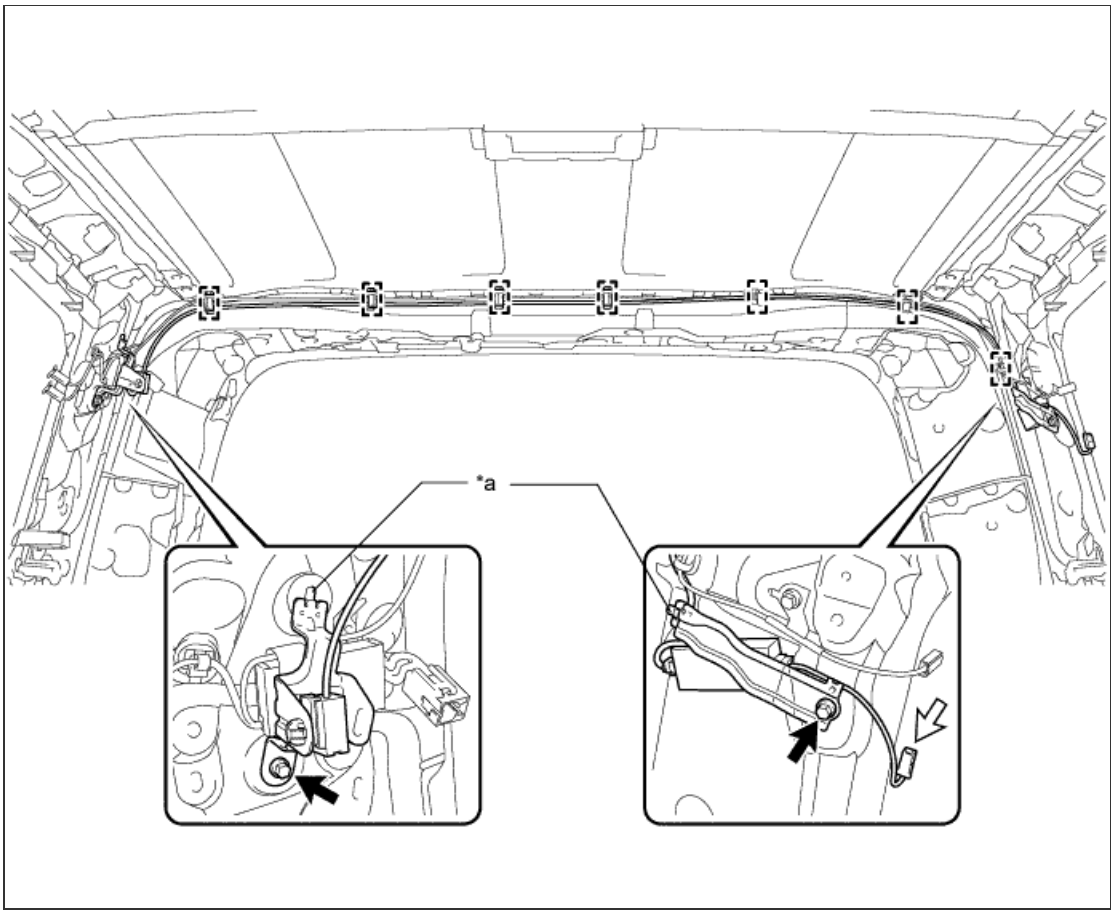
8. REMOVE NO. 1 REAR ROOF AIR DUCT

a. Remove the 3 clips and duct.



9. REMOVE DIGITAL AUDIO BROADCASTING ANTENNA ASSEMBLY

a. w/o Roof Antenna:

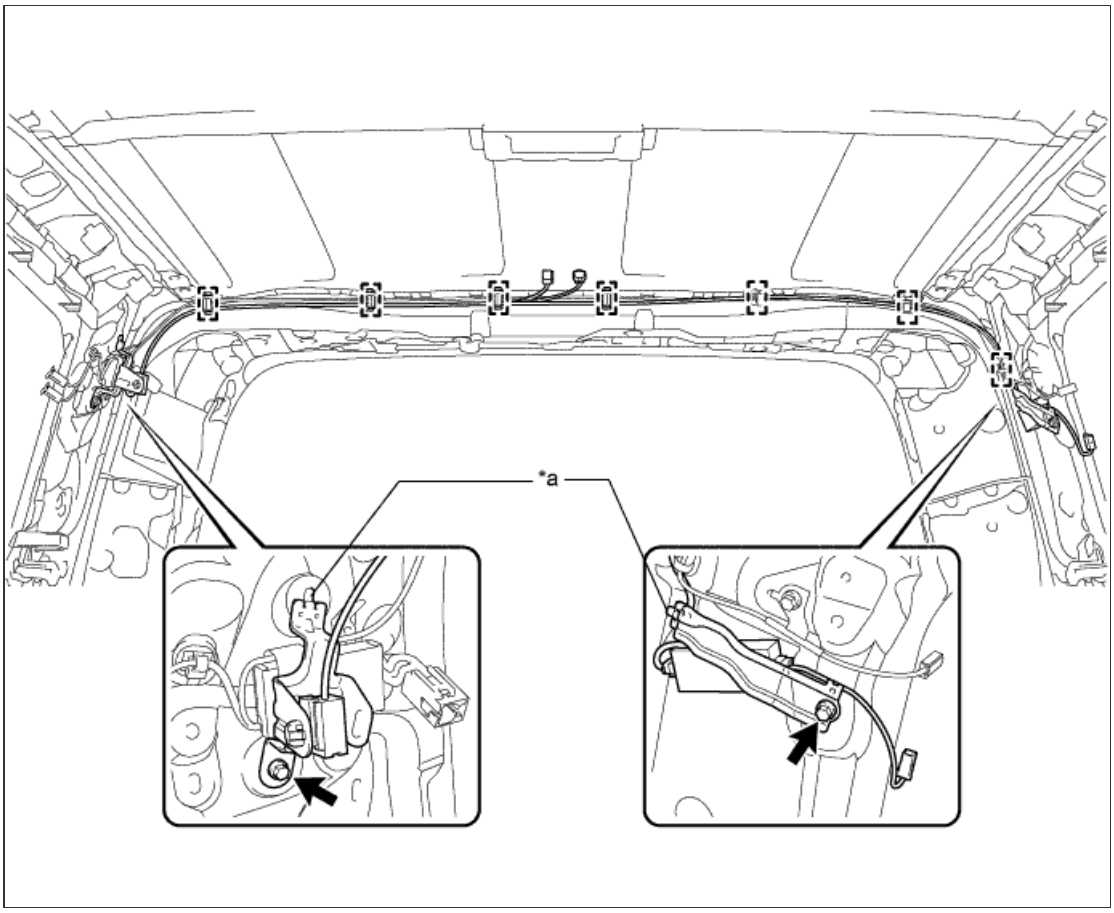


Text in Illustration

*a	Guide	-	-

1. Disconnect the connector and remove the 2 bolts.
2. Detach the 7 clamps and 2 guides and remove the digital audio broadcasting antenna assembly.

b. w/ Roof Antenna:



Text in Illustration

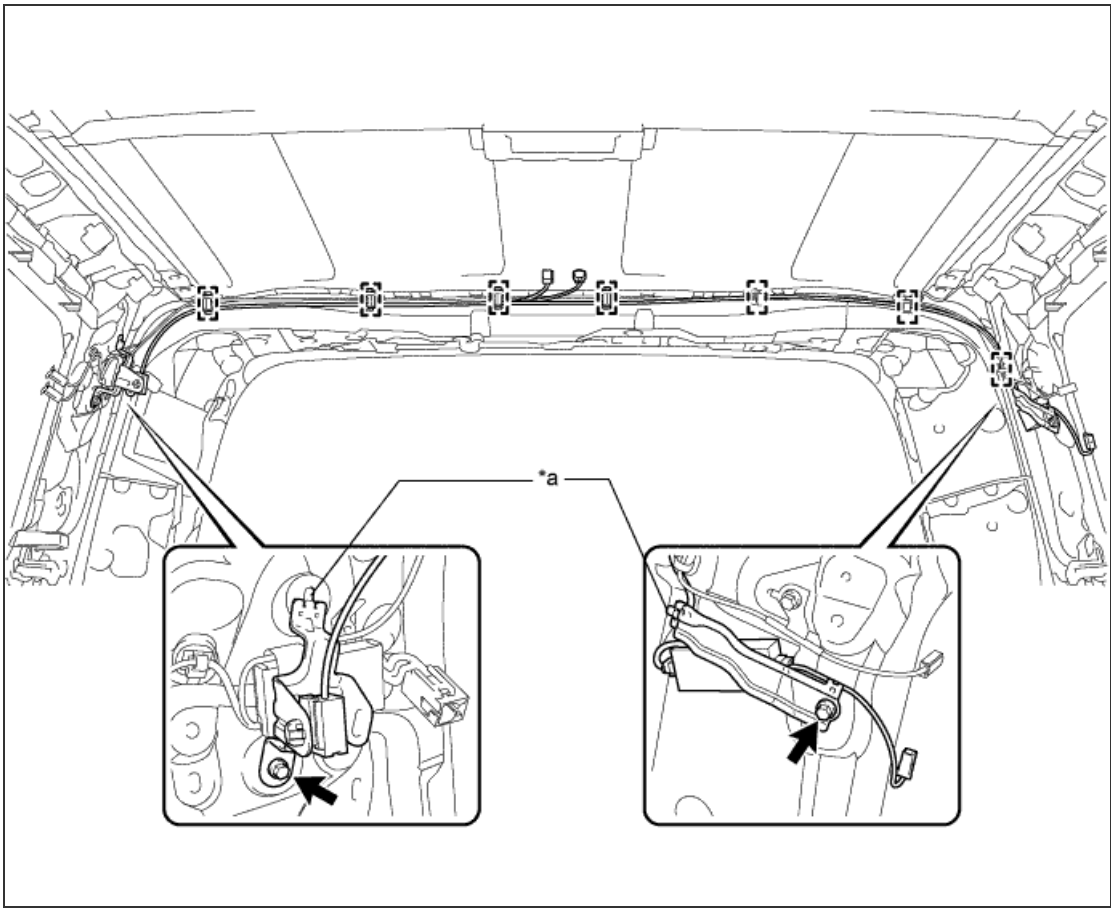
*a	Guide	-	-

1. Disconnect each connector and remove the 2 bolts.
2. Detach the 7 clamps and 2 guides and remove the digital audio broadcasting antenna assembly.

for Preparation Click here

1. INSTALL DIGITAL AUDIO BROADCASTING ANTENNA ASSEMBLY

a. w/ Roof Antenna:



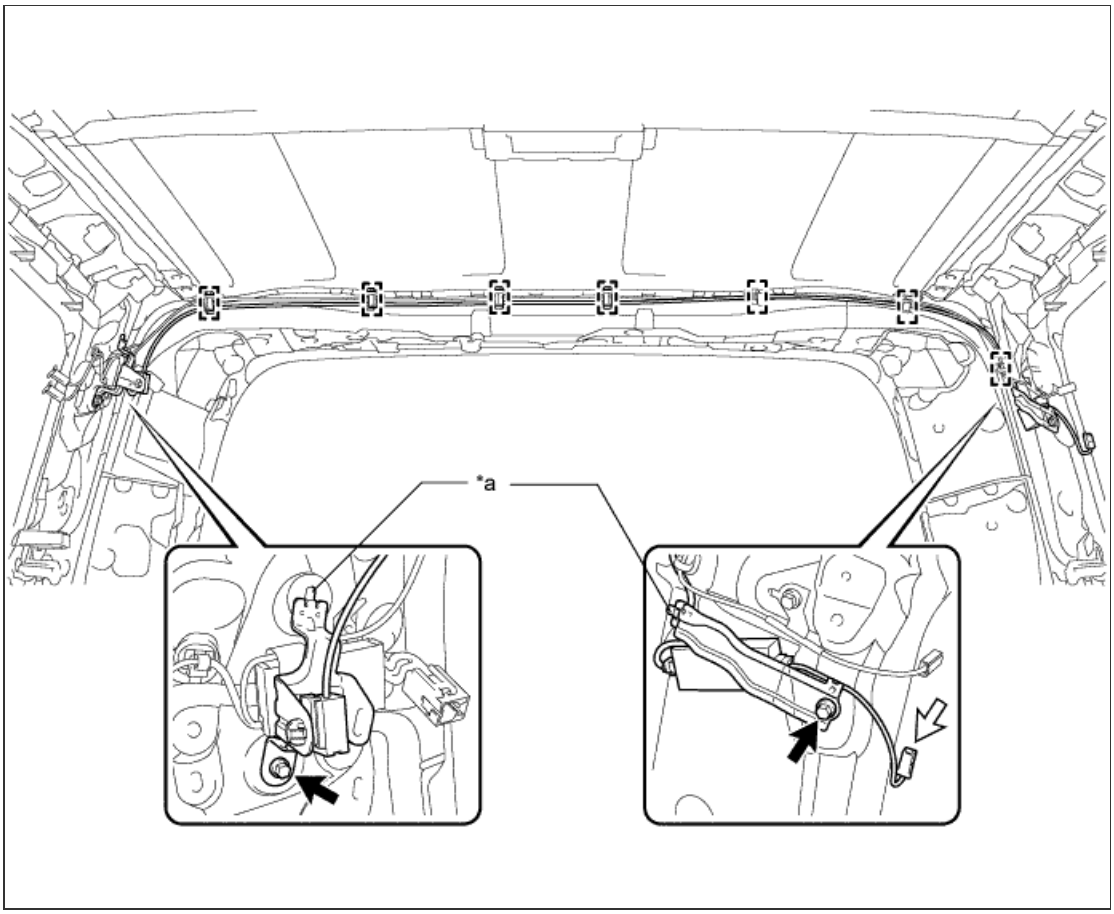
Text in Illustration

*a	Guide	-	-

1. Attach the 7 clamps.
2. Connect each connector and attach the 2 guides.
3. Install the digital audio broadcasting antenna assembly with the 2 bolts.

Torque:
8.5 N*m{ 87 kgf*cm , 75 in.*lbf }

b. w/o Roof Antenna:



Text in Illustration

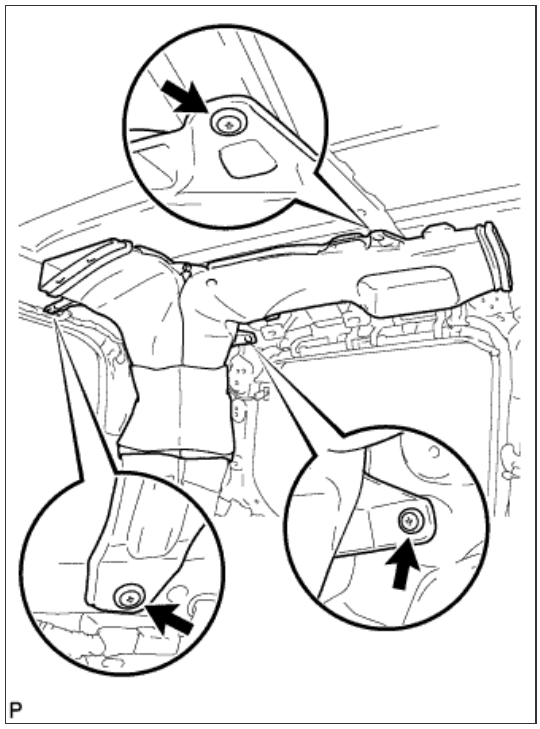
*a	Guide	-	-

1. Attach the 7 clamps.
2. Connect the connector and attach the 2 guides.
3. Install the digital audio broadcasting antenna assembly with the 2 bolts.

Torque:
8.5 N*m{ 87 kgf*cm , 75 in.*lbf }

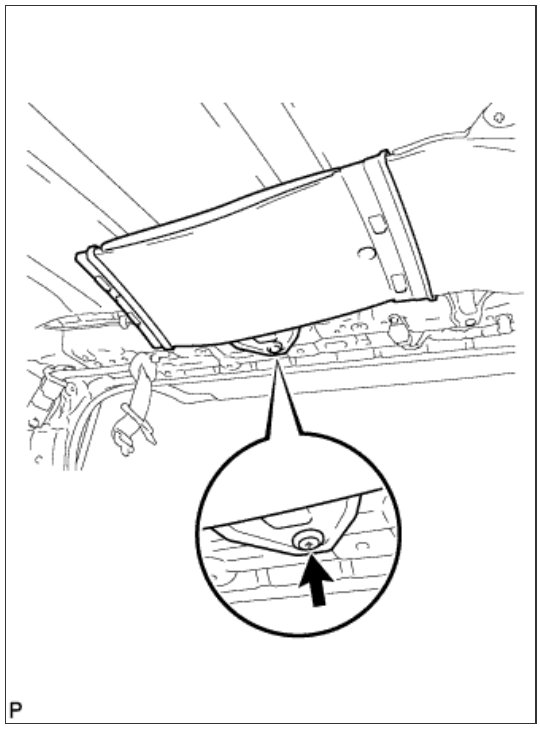
2. INSTALL NO. 1 REAR ROOF AIR DUCT

a. Install the duct with the 3 clips.



3. INSTALL NO. 3 REAR ROOF AIR DUCT

a. Install the duct with the clip.



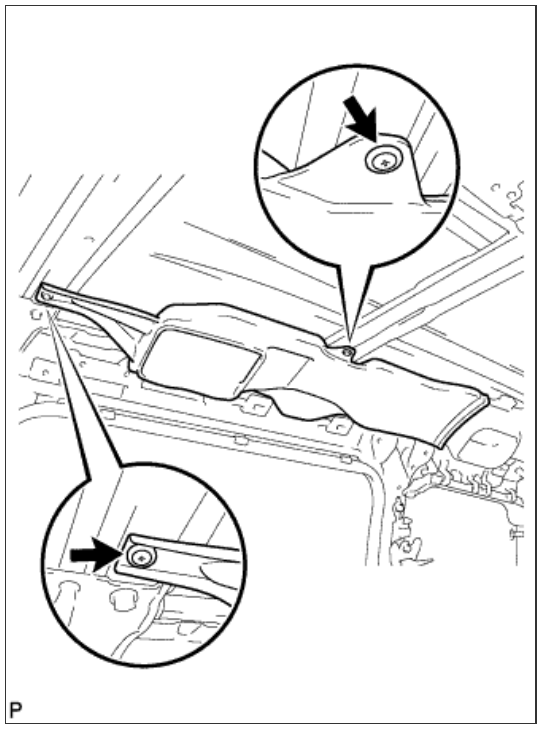
4. INSTALL NO. 4 REAR ROOF AIR DUCT

a. Install the duct with the 2 clips.

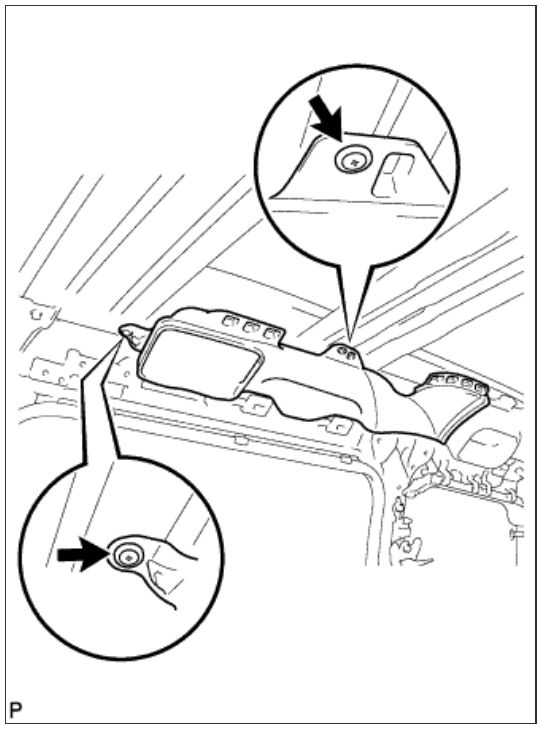


5. INSTALL NO. 5 REAR ROOF AIR DUCT

a. w/o Sliding Roof:
Install the duct with the 2 clips.

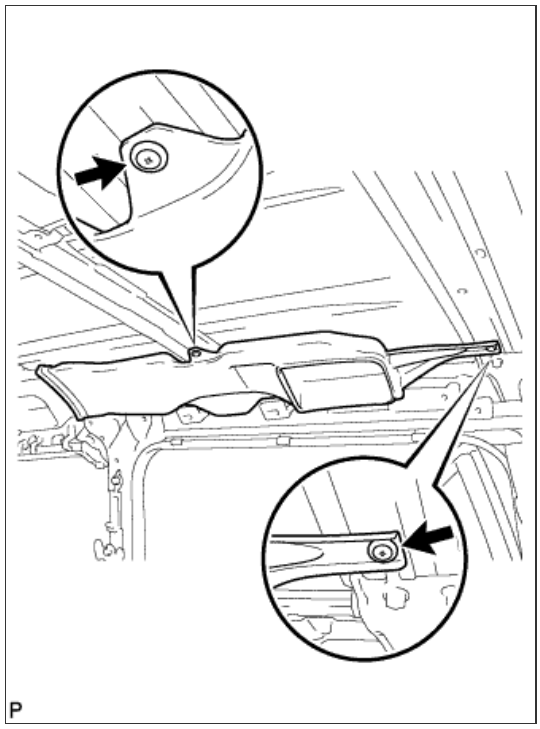


b. w/ Sliding Roof:
Install the duct with the 2 clips.

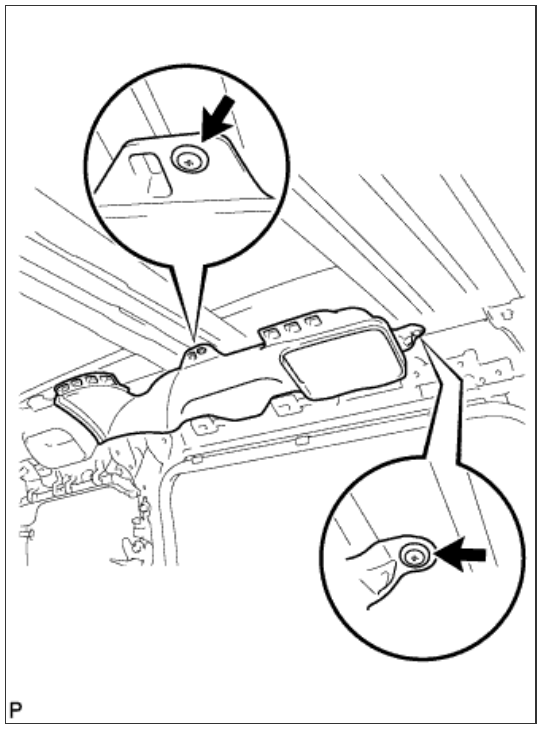


6. INSTALL NO. 2 REAR ROOF AIR DUCT

a. w/o Sliding Roof:
Install the duct with the 2 clips.



b. w/ Sliding Roof:
Install the duct with the 2 clips.



7. INSTALL ROOF HEADLINING ASSEMBLY

a. w/ Sliding Roof:
(Click here)

b. w/o Sliding Roof:
(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).

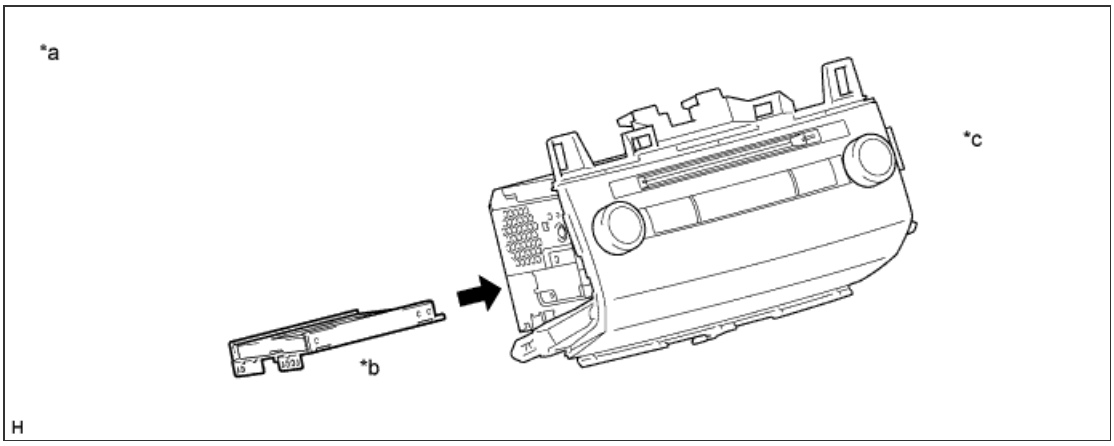
for Preparation Click here

1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

a. After the engine switch is turned off, the multi-media module receiver assembly requires approximately a minute to record various types of memory and settings. As a result, after turning the engine switch off, wait a minute or more before disconnecting the cable from the negative (-) battery terminal.

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 DISC (HDD [HARD DISK DRIVE])

a. Map and other data for the navigation system is stored on the hard disc. 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.

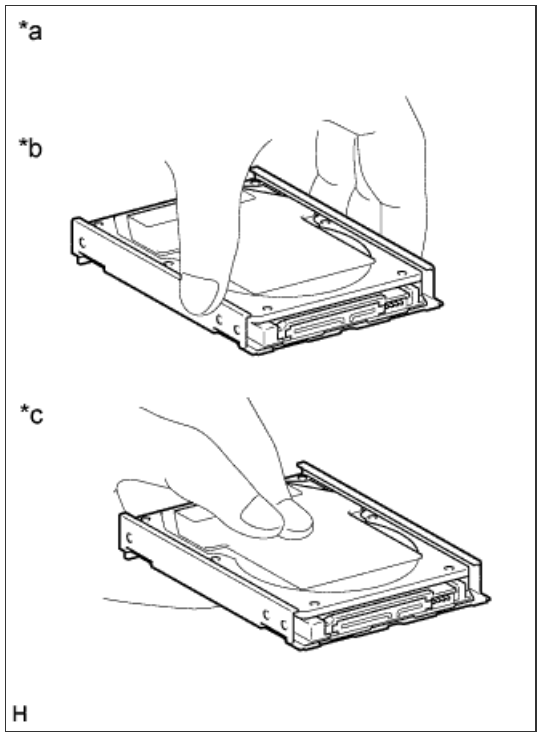
ii. Do not touch the HDD cover.

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.

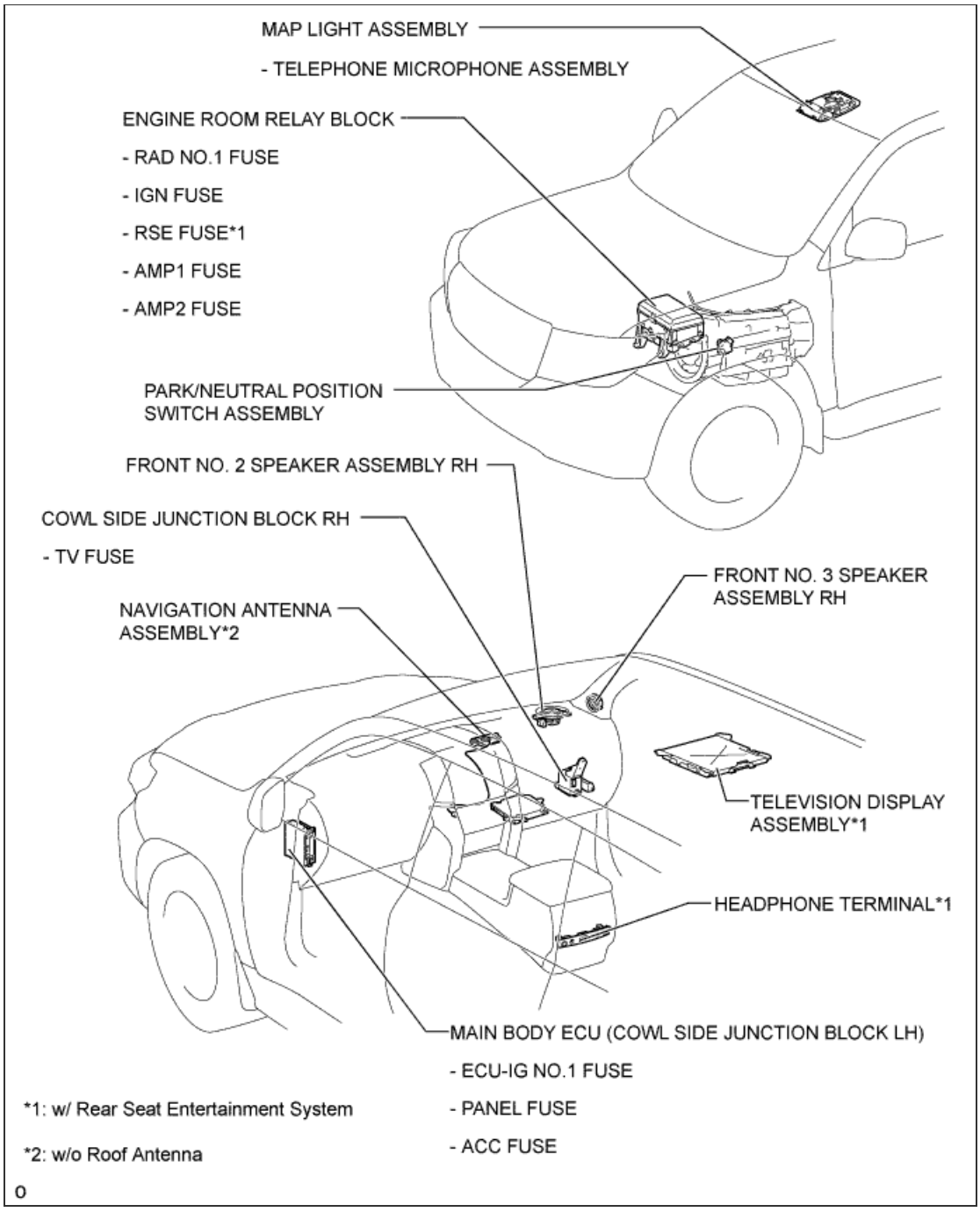
vii. Inspect after HDD replacement.

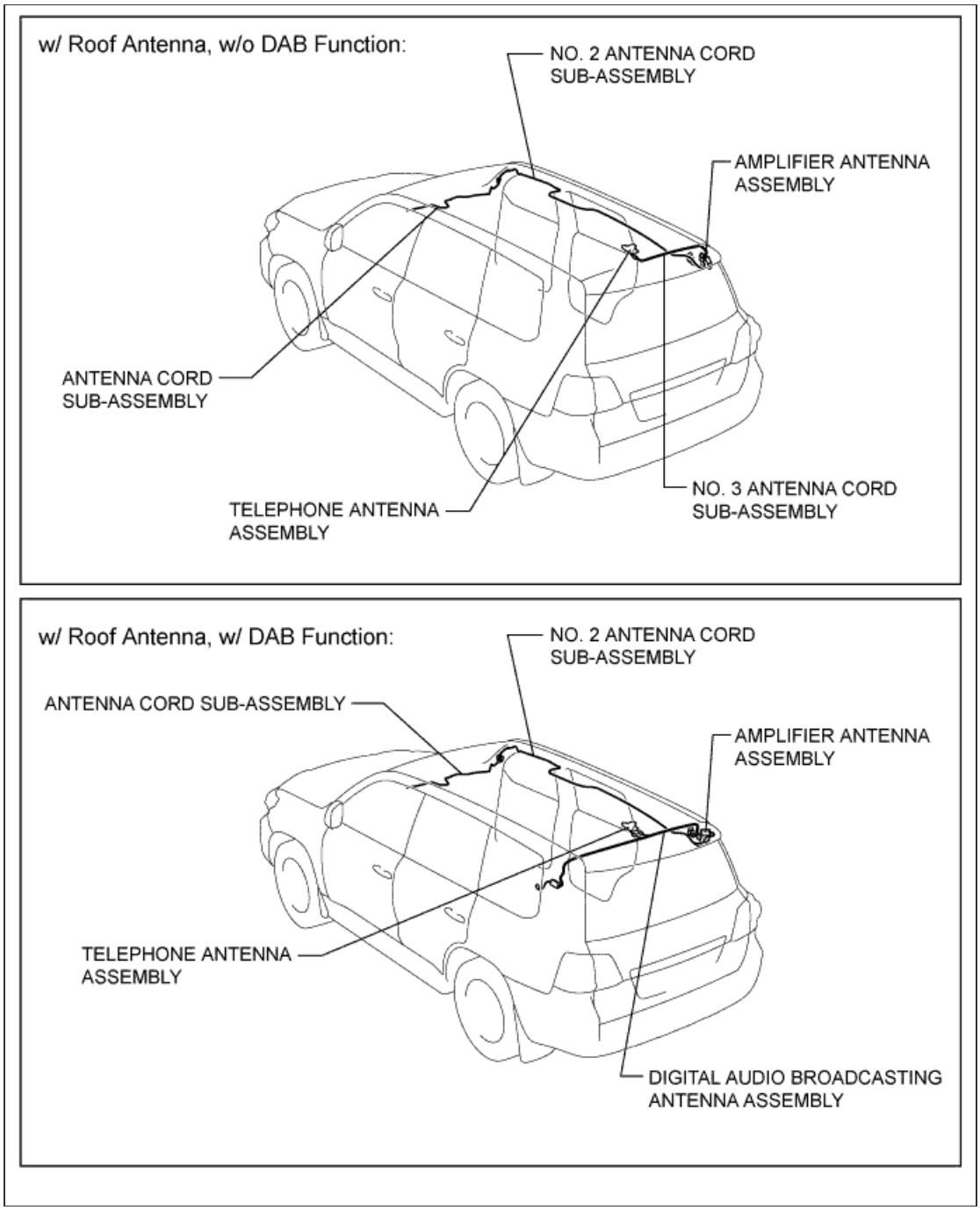
NOTICE:

Make sure to perform Check Hard Disc in Operation Check to confirm that there are no HDD abnormalities after removal or

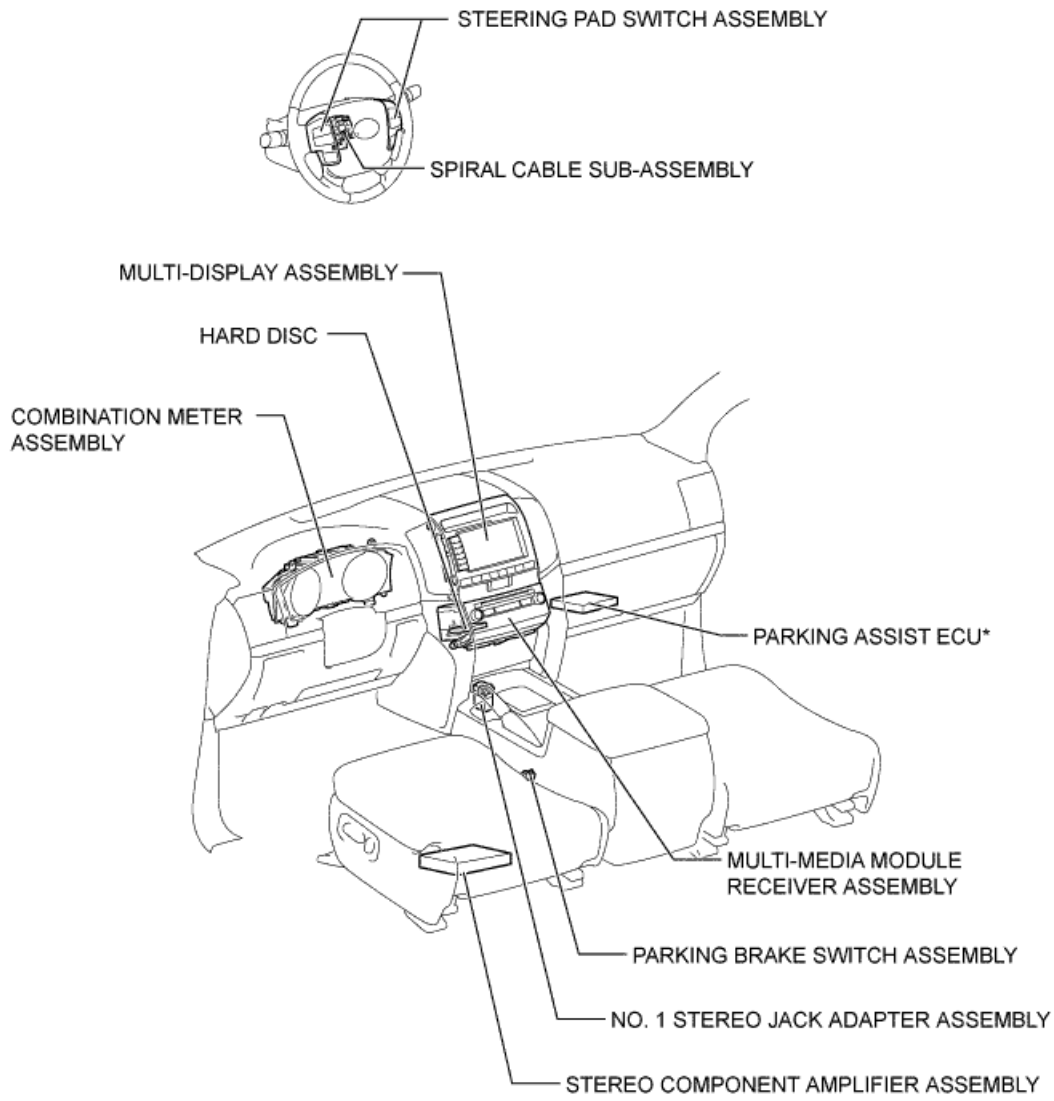
installation (Click here).

for Preparation Click here




w/ Roof Antenna, w/o DAB Function:
NO. 2 ANTENNA CORD SUB-ASSEMBLY
AMPLIFIER ANTENNA ASSEMBLY
ANTENNA CORD SUB-ASSEMBLY
TELEPHONE ANTENNA ASSEMBLY
NO. 3 ANTENNA CORD SUB-ASSEMBLY
w/ Roof Antenna, w/ DAB Function:
NO. 2 ANTENNA CORD SUB-ASSEMBLY
ANTENNA CORD SUB-ASSEMBLY
AMPLIFIER ANTENNA ASSEMBLY
TELEPHONE ANTENNA ASSEMBLY
DIGITAL AUDIO BROADCASTING ANTENNA ASSEMBLY

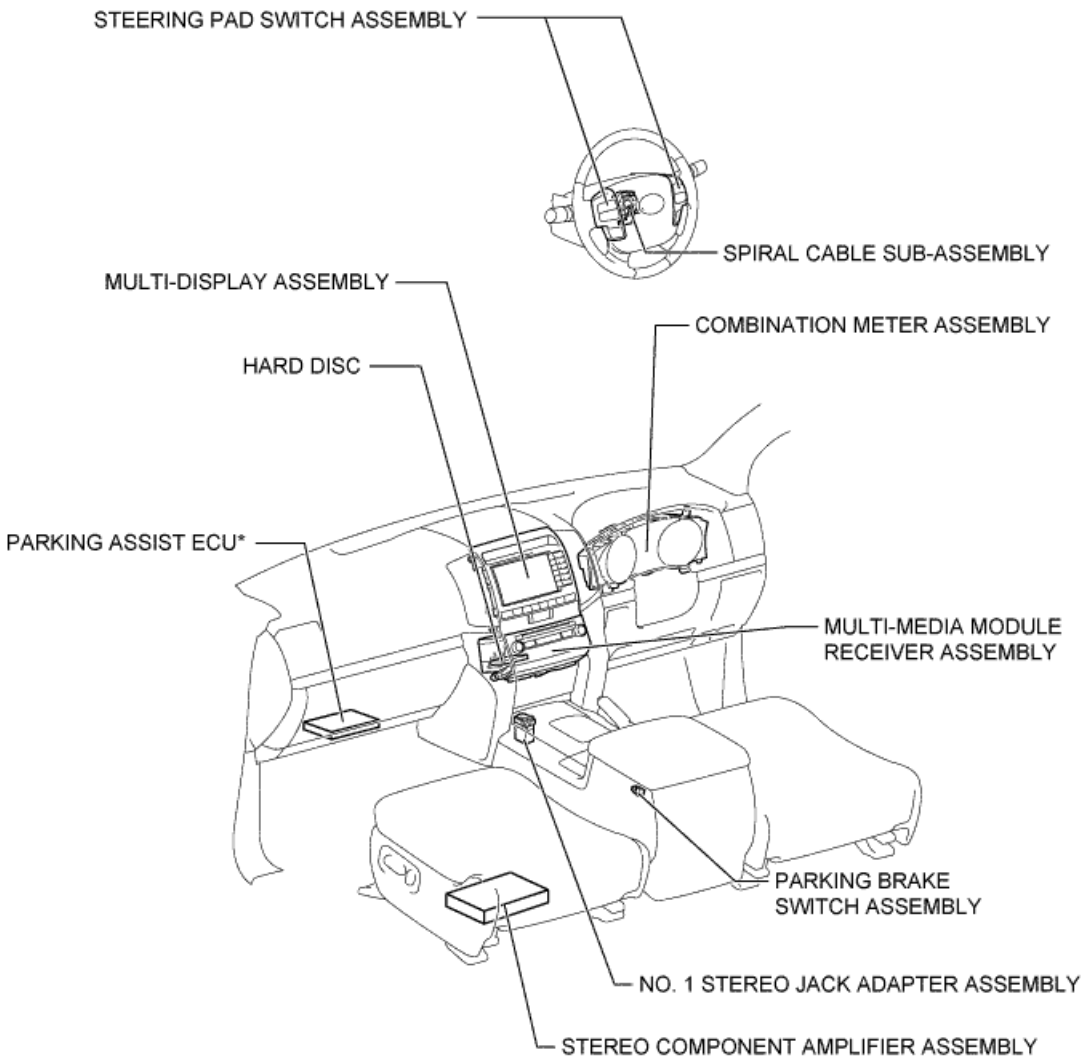
for LHD:



*: w/ Side Monitor System

o

for RHD:

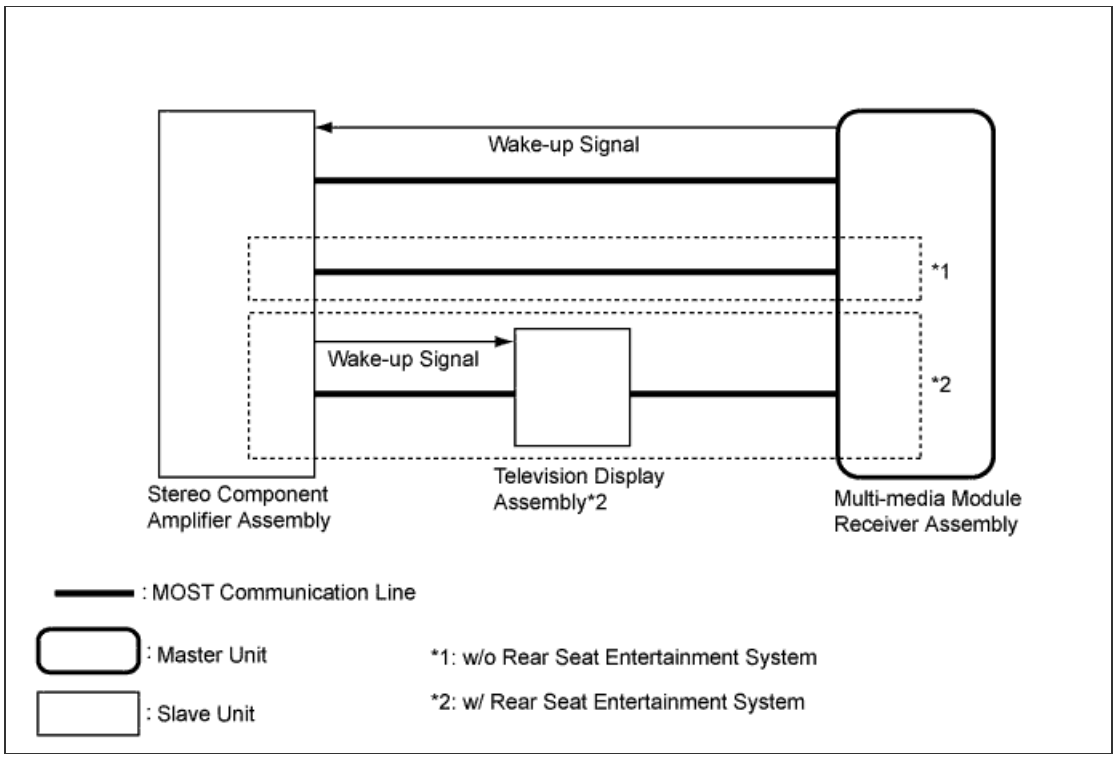


*: w/ Side Monitor System

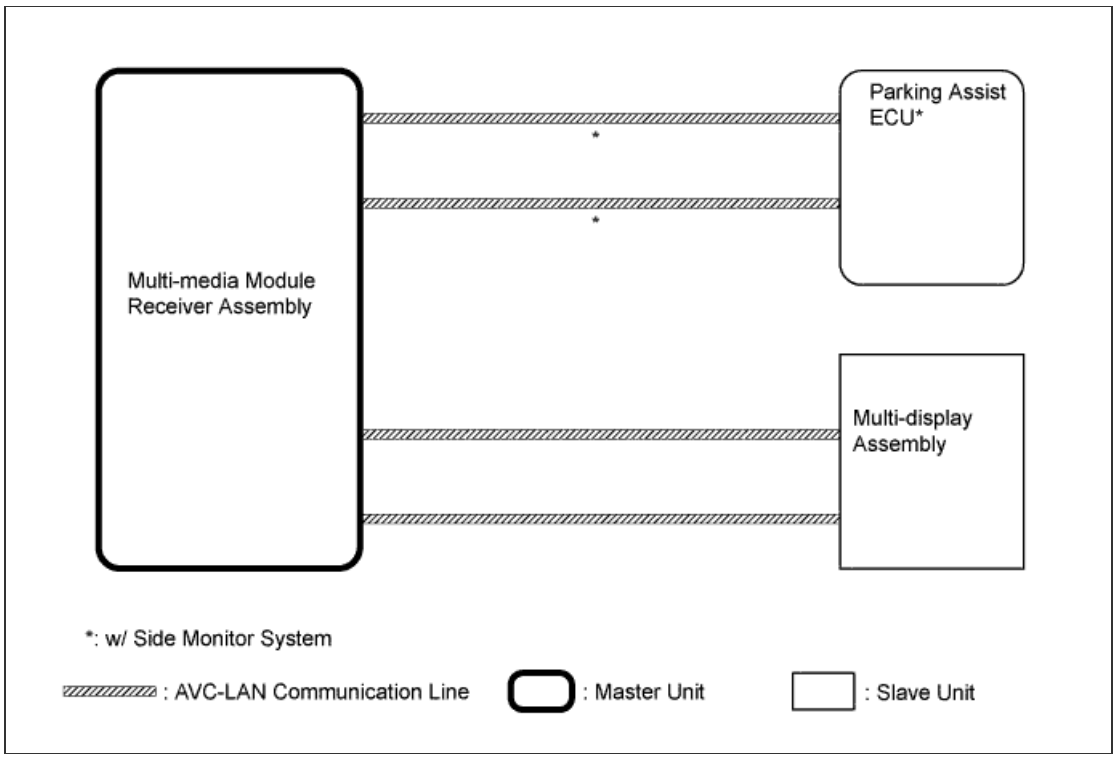
o

for Preparation Click here

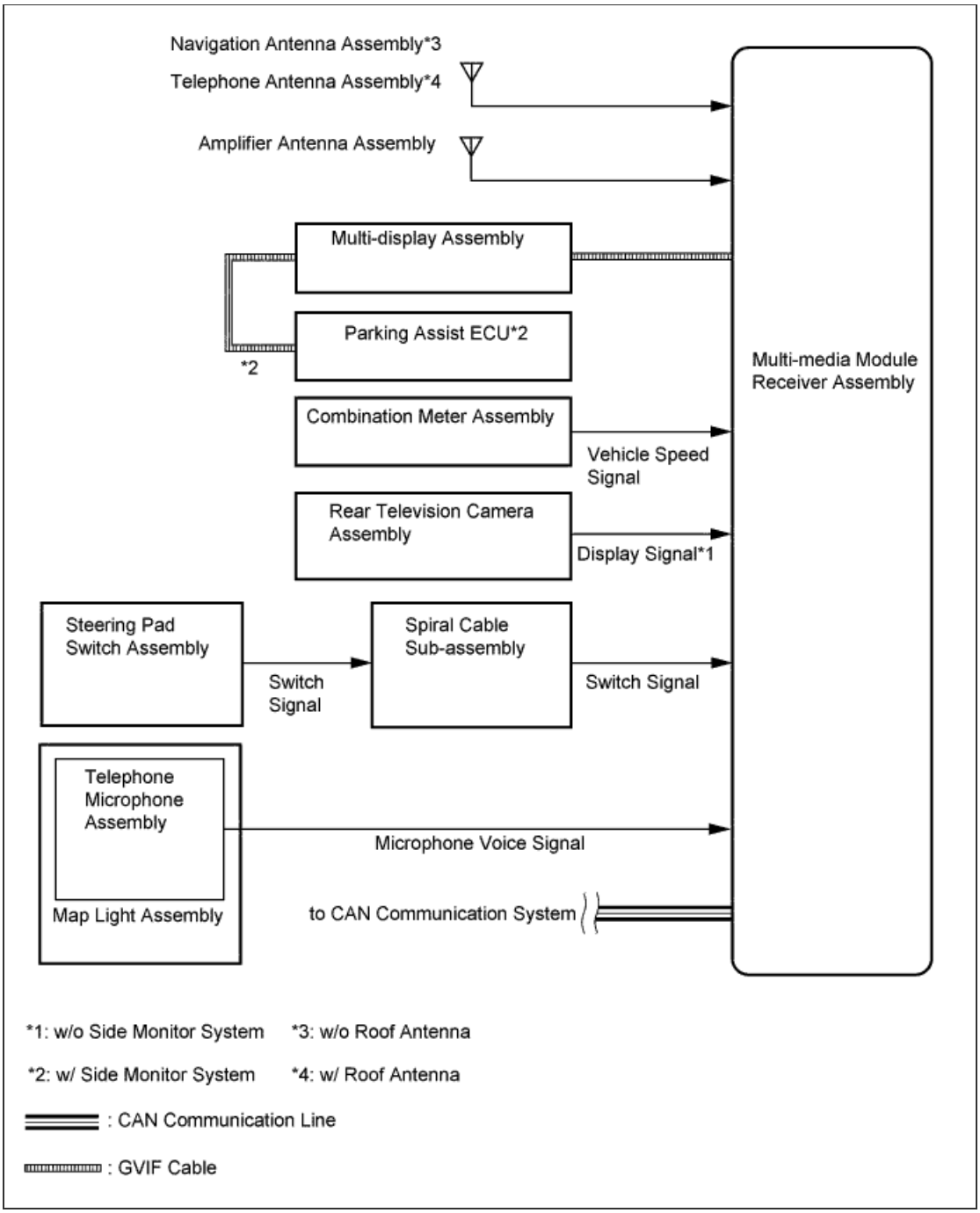
MOST NETWORK COMMUNICATION LINE



AVC-LAN COMMUNICATION LINE



OTHERS



*1: w/o Side Monitor System *3: w/o Roof Antenna

*2: w/ Side Monitor System *4: w/ Roof Antenna

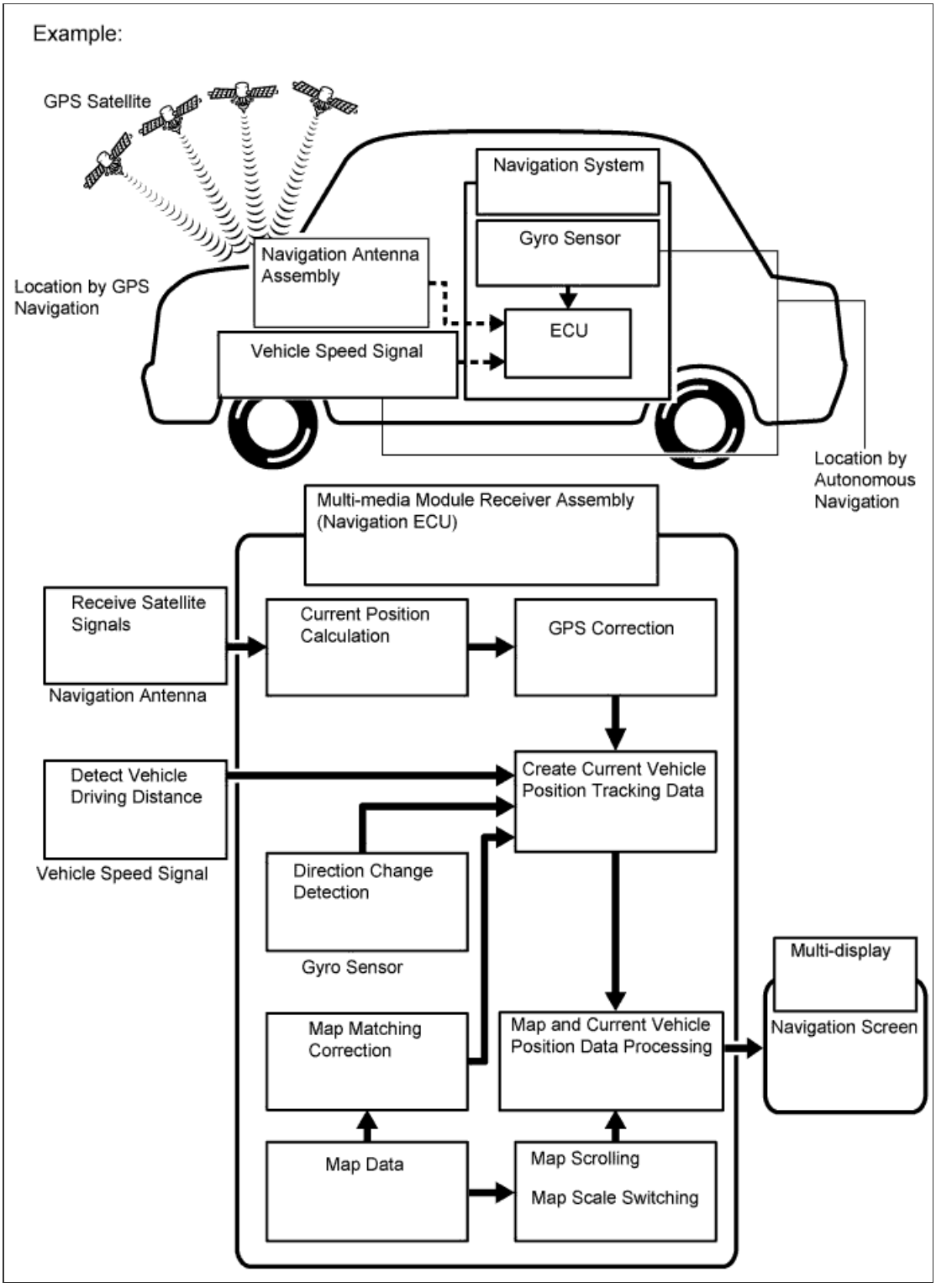
: CAN Communication Line

: GVIF Cable

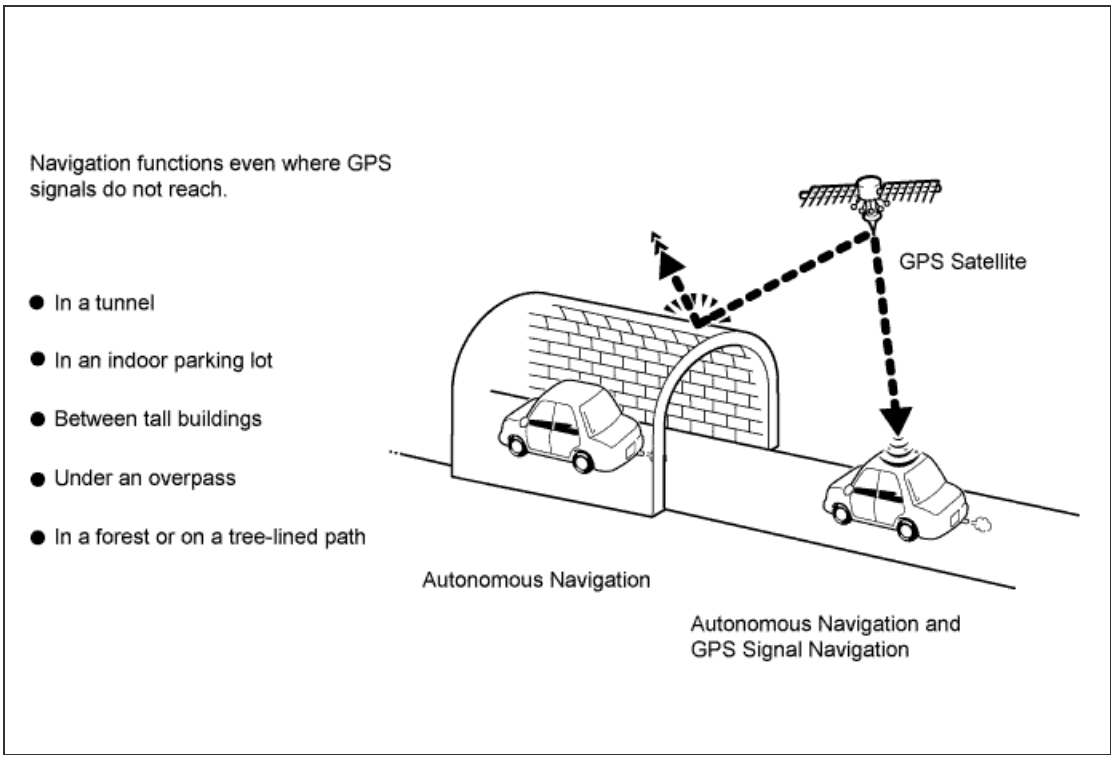
for Preparation Click here

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 disc.
Map Matching	The map data from the hard disc 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.

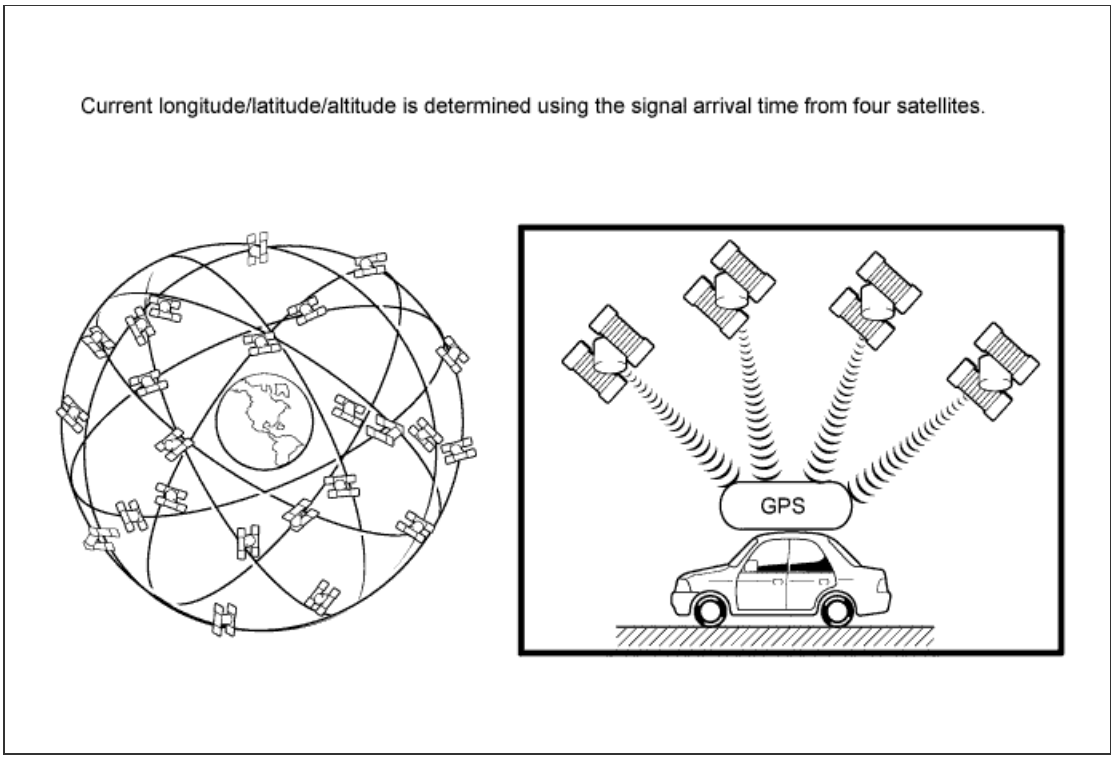
b. Autonomous navigation
This method determines the relative vehicle position based on the driving track determined by the gyro located in the multi-media module receiver assembly and the vehicle speed signal.

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.

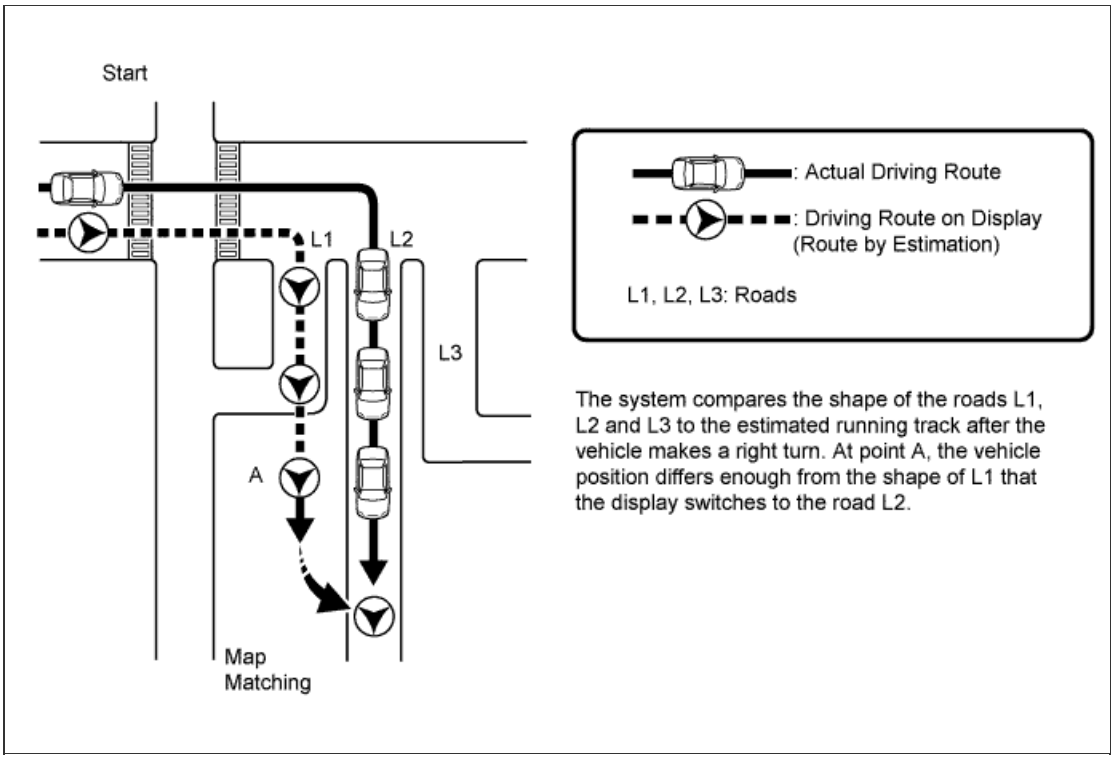
*: GPS satellites were launched by the U.S. Department of Defense for military purposes.



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.

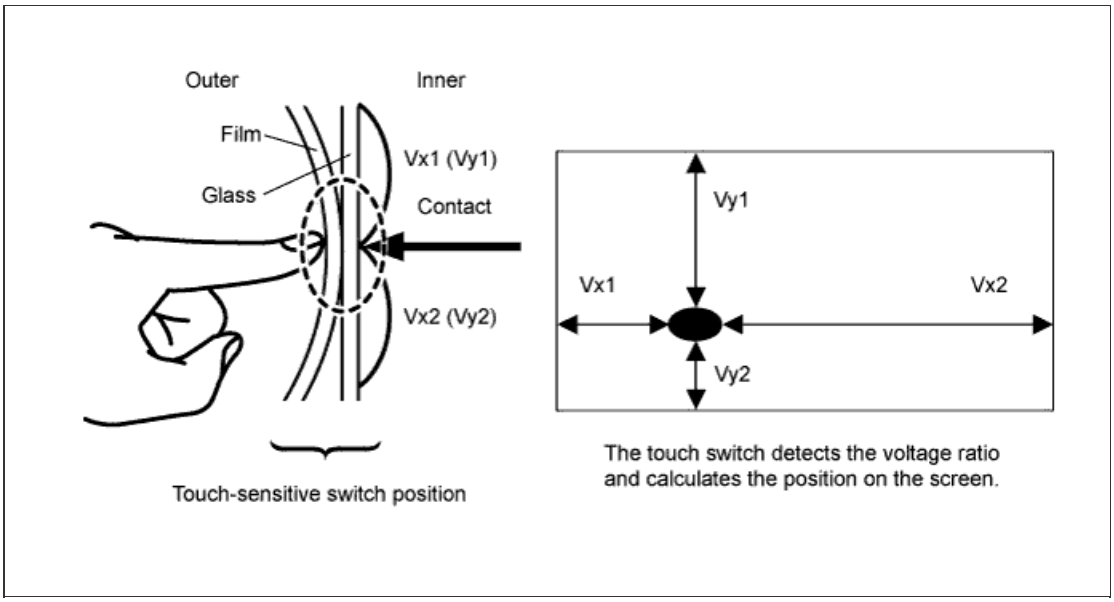
d. Map matching

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 disc 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.

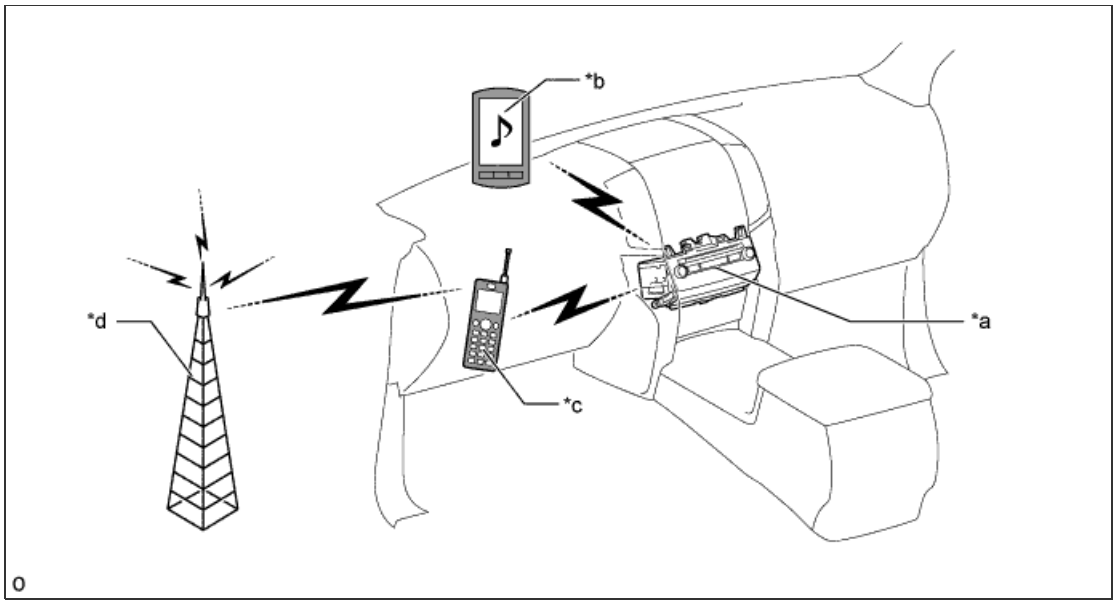
- Video CD
- DVD+R
- DVD+RW
- DVD-RAM

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 (Built-in "Bluetooth" receiver antenna)	*b	Portable Audio Player ("Bluetooth" compatible type)
*c	Cellular Phone ("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 • OPP (Object Push Profile) Ver.1.1 or higher*1 • PBAP (Phone Book Access Profile) Ver.1.0 or higher*1 • MAP (Message Access Profile) Ver.1.0 or higher*2 • 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 Toyota'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.toyota.eu.**
- **It is necessary to agree to the terms of service for the search engine on www.my.toyota.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* that is received, traffic events near the current position or the cursor position can be viewed as a list.
- Traffic prediction*

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*
  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.
  *: 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

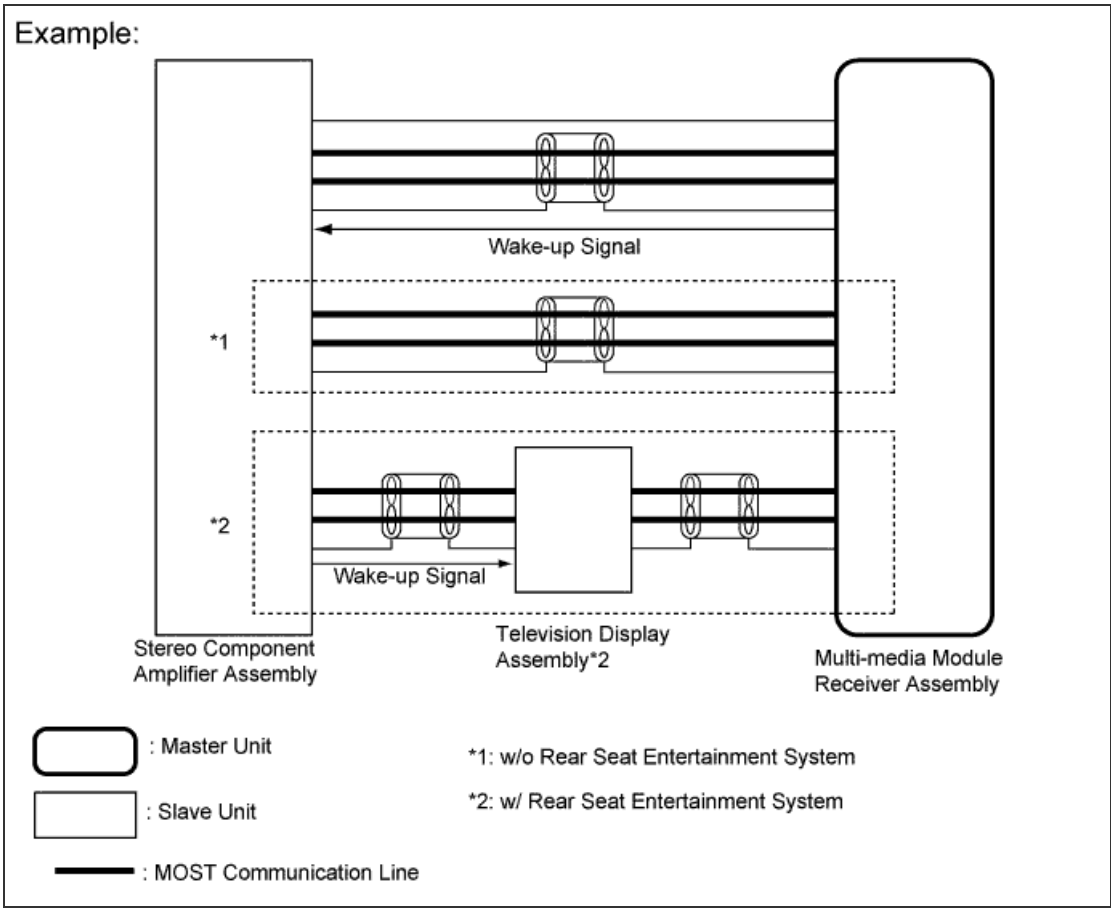
Customization of functions can be performed on the multi-display screen. Refer to the owner's manual for further information on customizable items for the navigation system.

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.

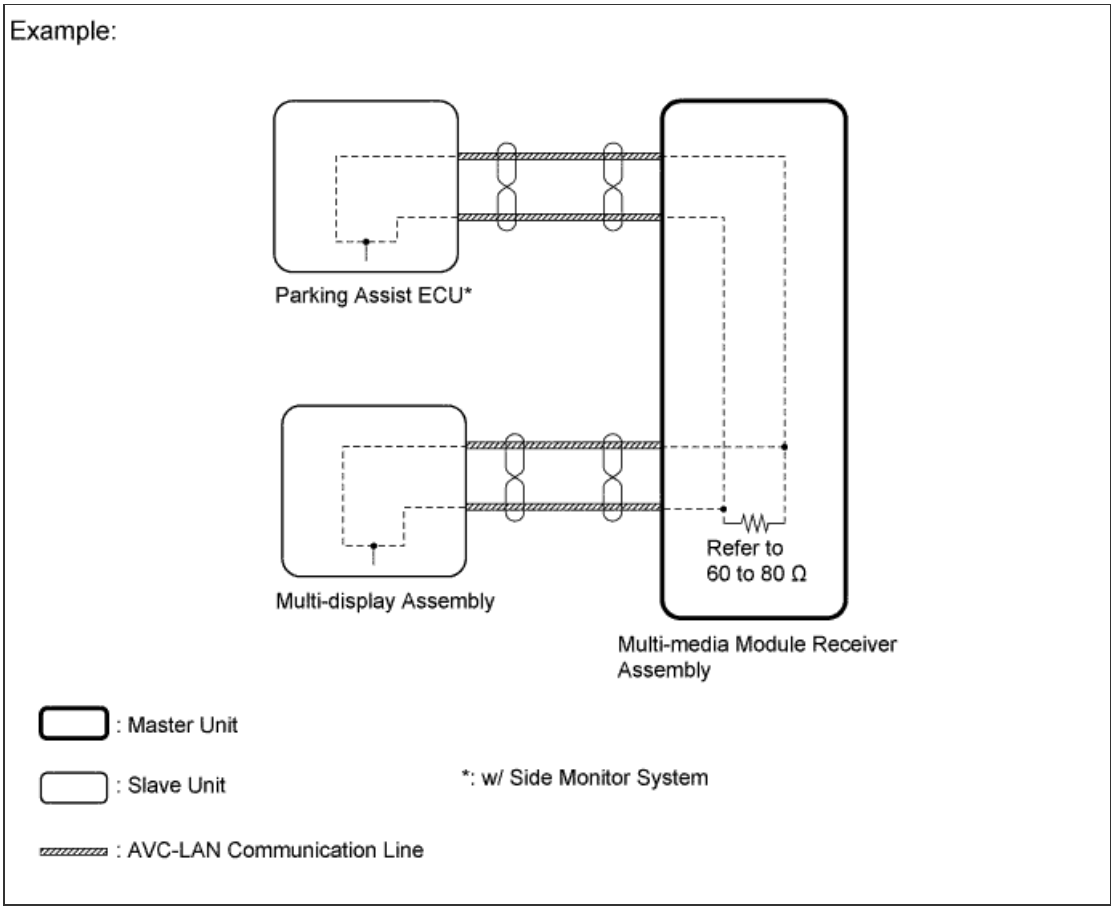
iv. MOST communication lines connect each slave unit centering around the master unit to form a MOST network ring.

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 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. (The multi-display displays content.)	B
DTCs are not output. (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 (w/ Navigation 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 (w/ Navigation System) are output.	B
DTCs for the rear seat entertainment system..	C

A.	Go to step 14
B.	GO TO AUDIO AND VISUAL SYSTEM (w/ Navigation 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 Disc 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

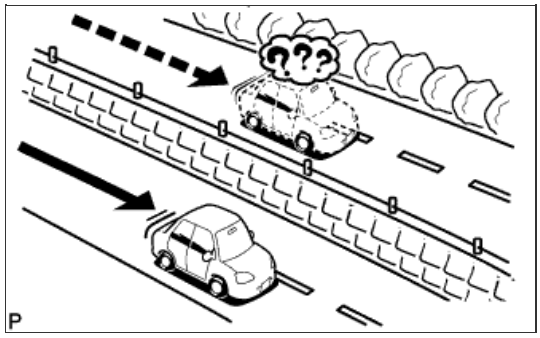
CHECK SYSTEM NORMAL CONDITION

a. If the symptom is applicable to any of the following, it is intended behavior, and not a malfunction.

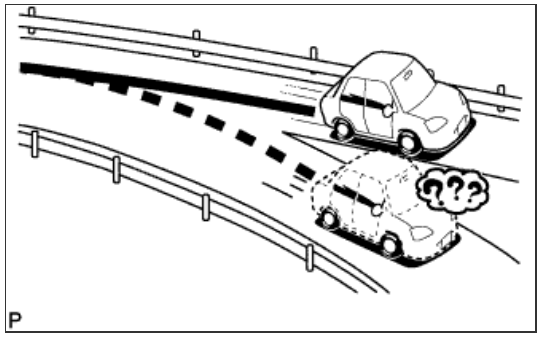
Symptom	Answer
A longer route than expected is chosen.	Depending on the road conditions, the multi-media module receiver assembly may determine that a longer route is quicker.
Even when distance priority is high, the shortest route is not shown.	Some routes may not be advised due to safety concerns.
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 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 multi-media module receiver assembly.

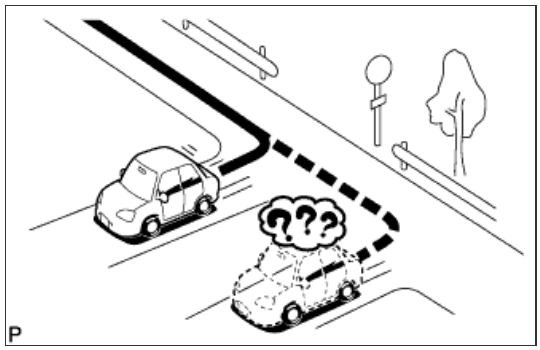
i. The current position mark may be displayed on a nearby parallel road.



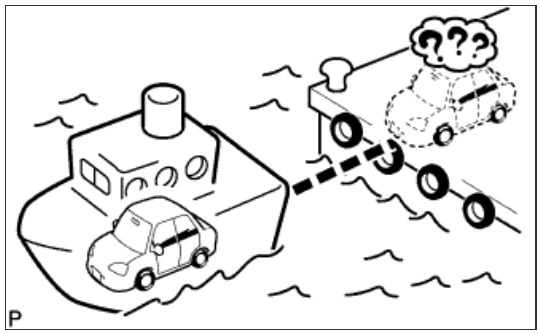
ii. Immediately after a fork in the road, the current vehicle position mark may be displayed on the wrong road.



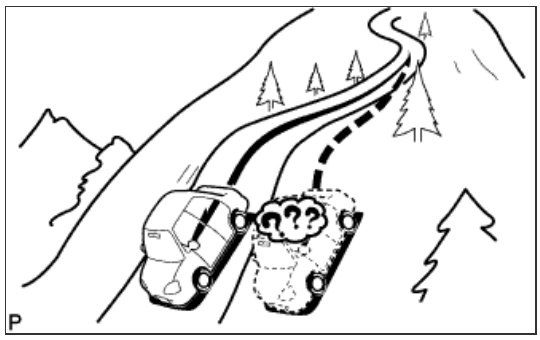
iii. When the vehicle turns right or left at an intersection, the current vehicle position mark may be displayed on a nearby parallel road.



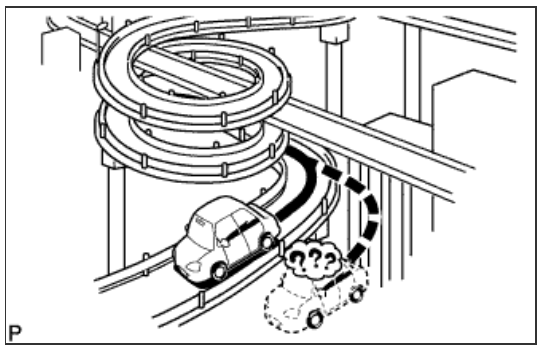
iv. When the vehicle is carried, such as on a ferry, and the vehicle itself is not being driven, the current vehicle position mark may be displayed in the position where the vehicle was until a measurement can be performed by the GPS.



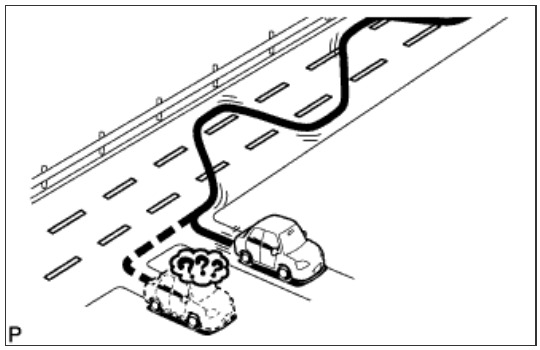
v. When the vehicle travels on a steep hill, the current vehicle position mark may deviate from the correct position.



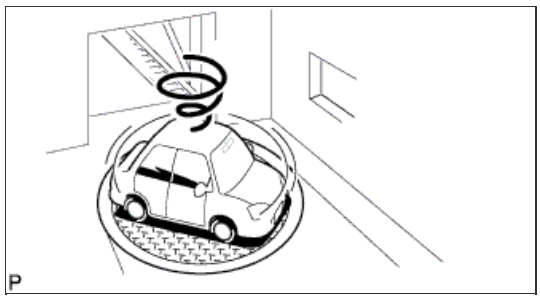
vi. When the vehicle makes a continuous turn (e.g. 360, 720, 1080 degrees), the current vehicle position mark may deviate from the correct position.



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.



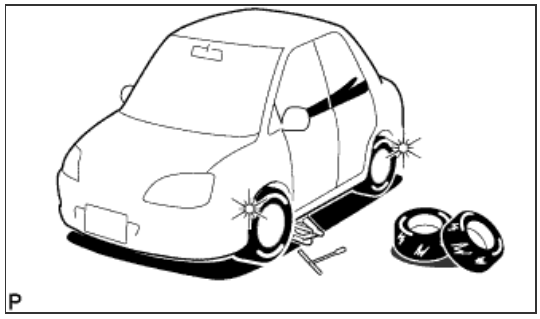
ix. When the vehicle travels on a snowy road or a mountain path with tire chains installed or using a spare tire, the current vehicle position mark may deviate from the correct position.



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.**



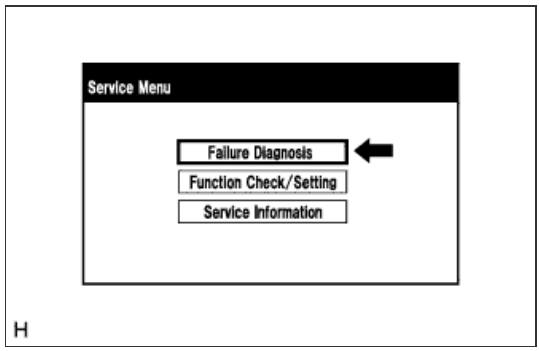
CHECK HARD DISC

HINT:

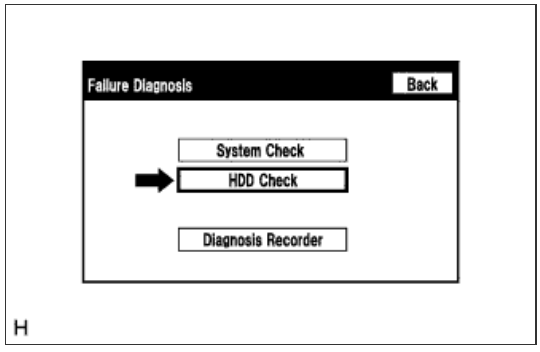
- **Check the hard disc built into the multi-media module receiver assembly.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

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.

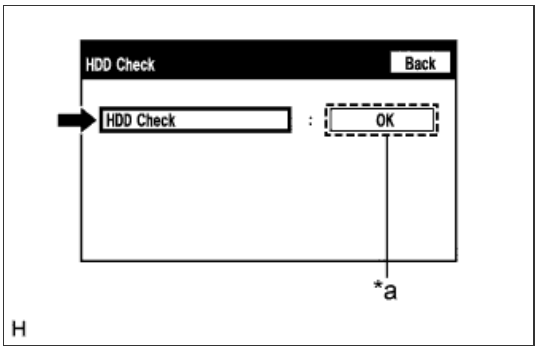
ii. Check that the result is displayed when the HDD check is completed.

Screen Description

Result	Description
Checking	While the check is in progress
OK	Hard disc is normal
NG	Hard disc 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.**

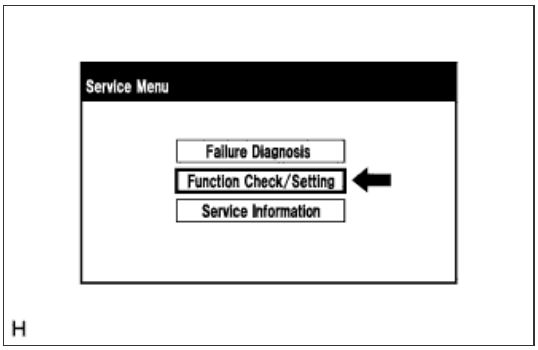
CHECK PANEL&STEERING SWITCH

HINT:

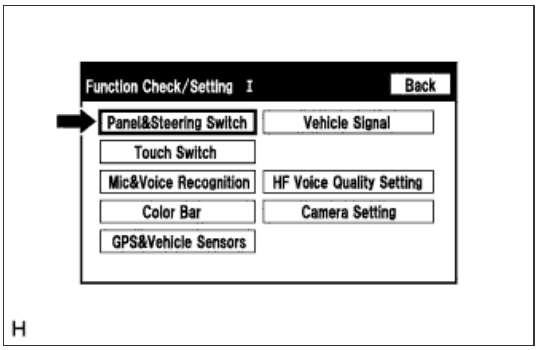
- **The multi-media module receiver assembly panel switches and steering switch are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the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

a. Enter diagnostic mode (Click here).

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



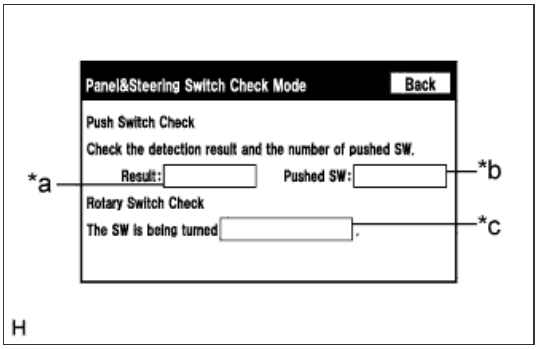
c. Select "Panel&Steering Switch" from the "Function Check/Setting I" screen.



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 • 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.

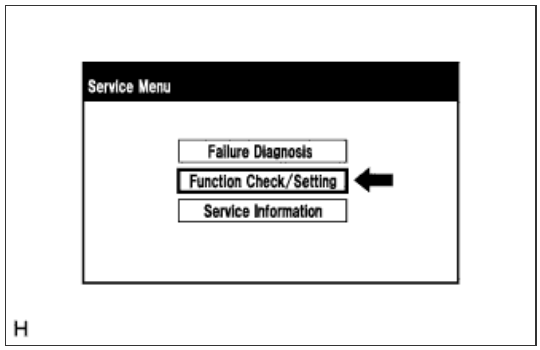
CHECK TOUCH SWITCH

HINT:

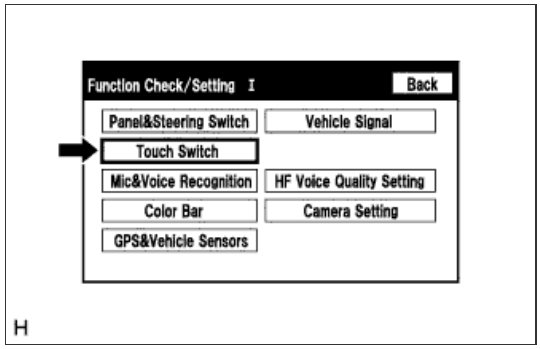
- **The touch switches on the screen are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

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.

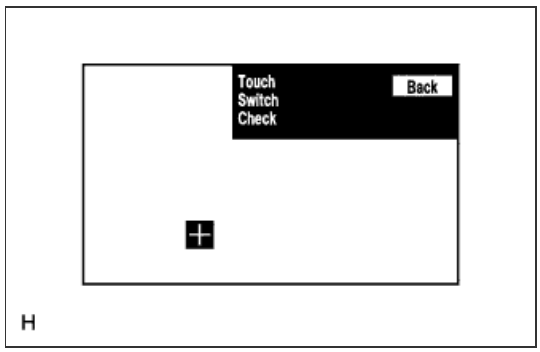


d. Touch Switch Check

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.**



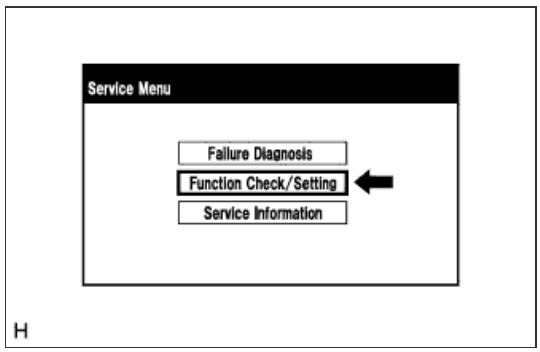
CHECK MIC&VOICE RECOGNITION

HINT:

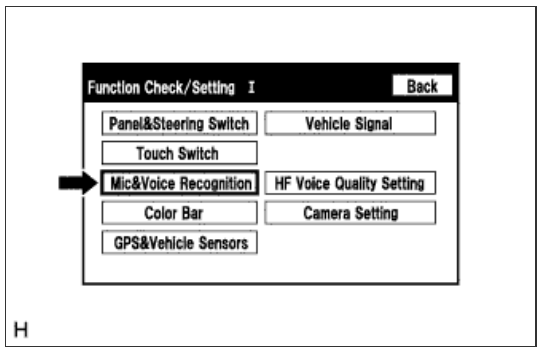
- **The microphone and microphone input level are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

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



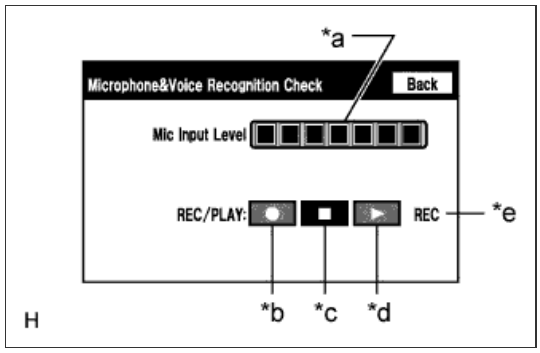
c. Select "Mic&Voice Recognition" from the "Function Check/Setting I" screen.



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

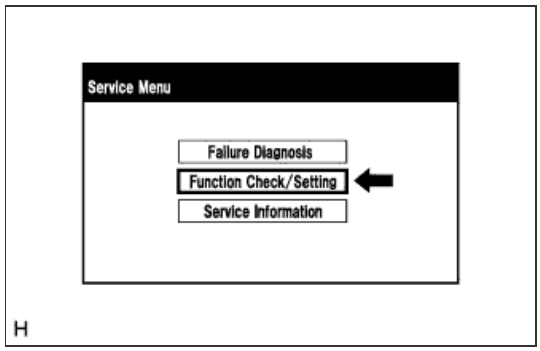
HINT:

- **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**

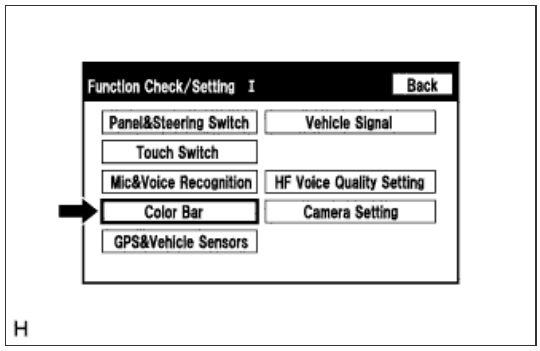
areas may not be shown exactly the same as on the actual vehicle screen.

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.



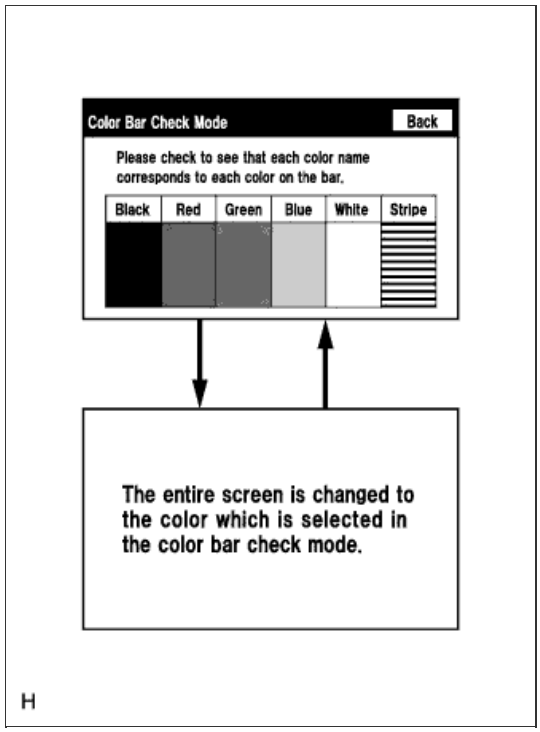
d. Color Bar Check Mode

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.**



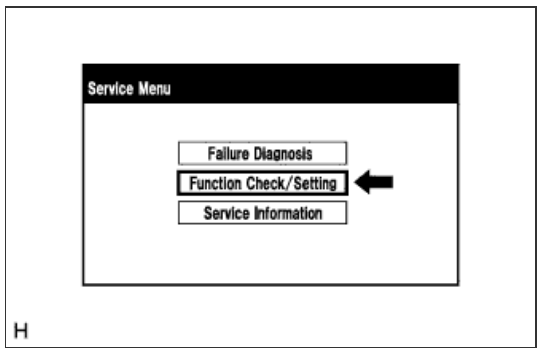
CHECK GPS&VEHICLE SENSORS

HINT:

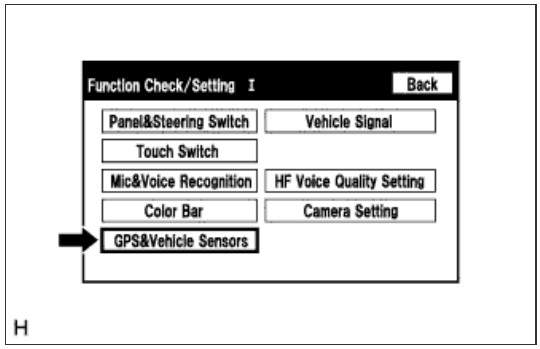
- **GPS information, vehicle signals and sensor signals are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

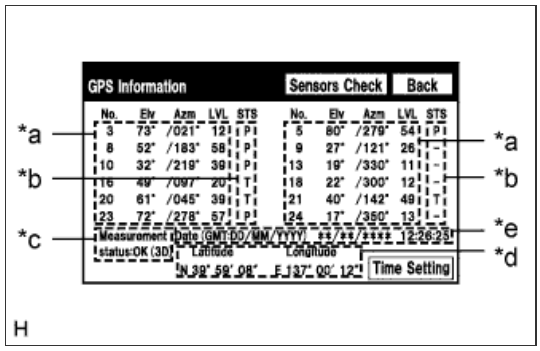
b. Select "Function Check/Setting" from the "Service Menu" screen.



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.

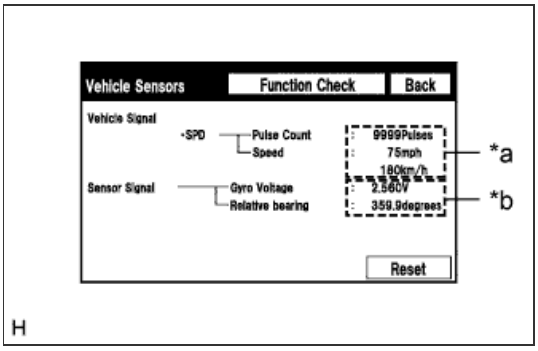
f. Vehicle Sensors

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.

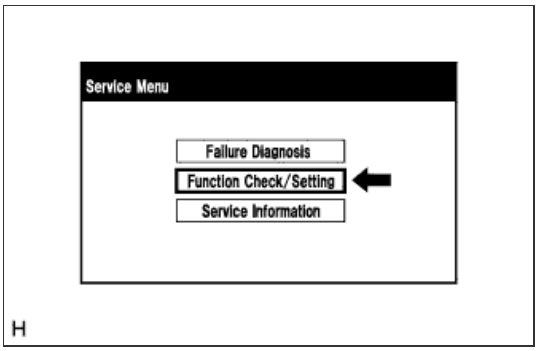
CHECK VEHICLE SIGNALS

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.**

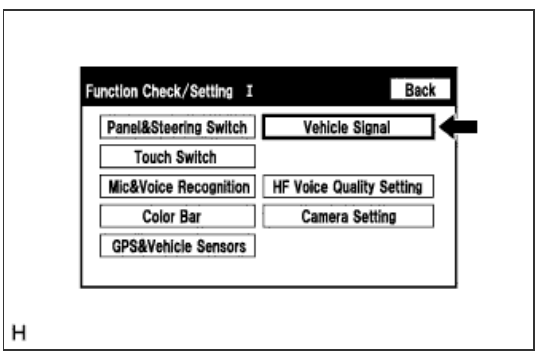
a. Enter diagnostic mode (Click here).

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.

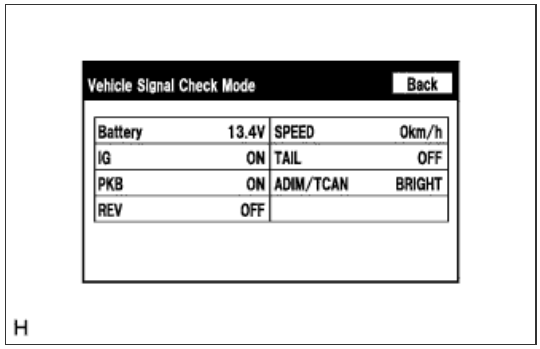


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d. Vehicle Signal Check Mode

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).**

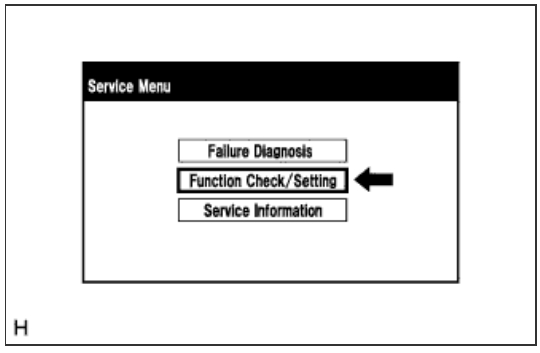
CHECK HANDS-FREE VOICE QUALITY AND VOLUME SETTING

HINT:

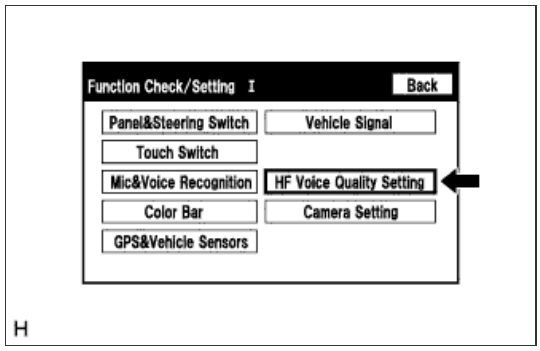
- **The hands-free volume of a "Bluetooth" compatible phone can be adjusted using the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle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

a. Enter diagnostic mode (Click here).

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



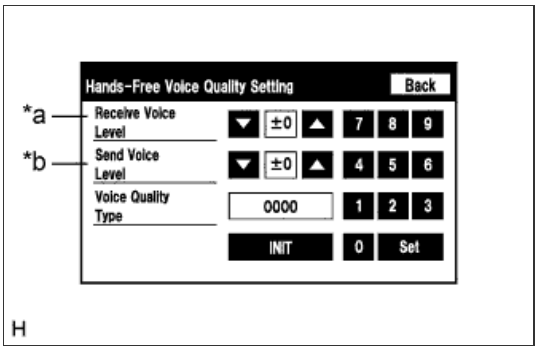
c. Select "HF Voice Quality Setting" from the "Function Check/Setting I" screen.



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.

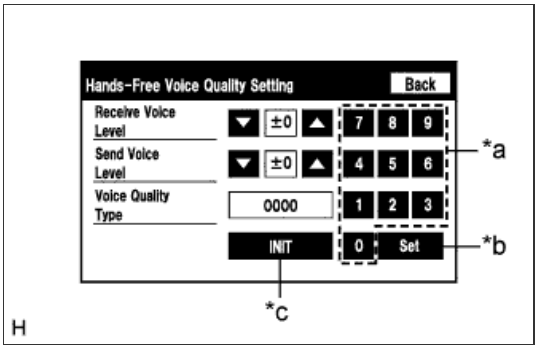
HINT:

- **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. • 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. • The amount of echo is reduced (high level).	• Background noise when not talking becomes large. • 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. • The amount of echo is reduced (low level).	• The volume of voice may drop temporarily. • 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. • The amount of echo is reduced (high level).	• The volume of voice may drop temporarily. • 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). • Sound the other party hears becomes soft.	• Sound quality of the other party deteriorates (low level). • 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). • Sound you hear becomes soft.	• Sound quality of the other party deteriorates (low level). • 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: • The disc cannot be read. • The disc cannot be read because of dirt or	

side down/dirty	scratches. • 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. • 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. • 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.

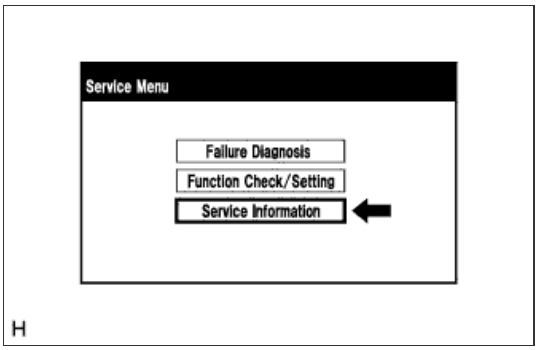
CLEAR PASSWORD OF EXPORT/IMPORT MEMORY POINT FUNCTION

HINT:

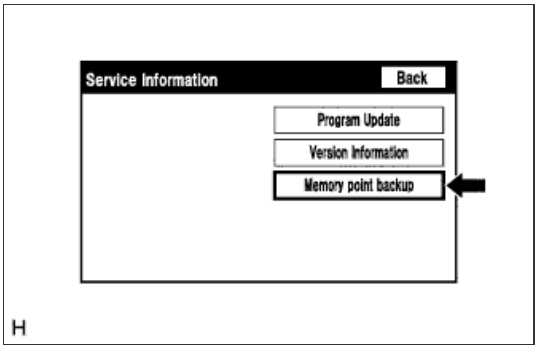
- **This function allows the initialization of a password which was set on the multi-media module receiver assembly when exporting/importing memory points.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

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



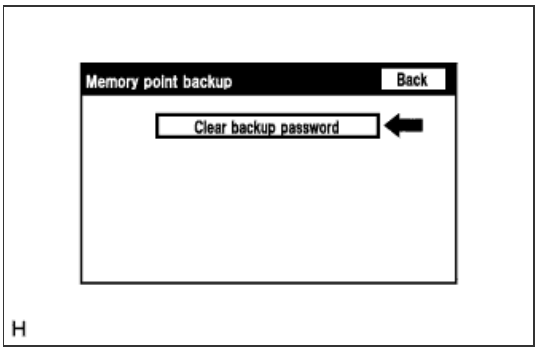
c. Select "Memory point backup" from the "Service Information" screen.



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.**
- **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 Navigation ECU 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 Navigation ECU 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 (w/o Roof Antenna)	Click here
	Telephone antenna assembly (w/ Roof Antenna)	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 (w/o Roof Antenna)	Click here
	Telephone antenna assembly (w/ Roof Antenna)	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
Vehicle position mark deviates from and returns to correct position repeatedly even though GPS mark is displayed.	Proceed to "GPS Mark is not Displayed"	Click here
	Drive the vehicle for sensor learning. (At a place where GPS signals can be received, drive the vehicle clockwise and counterclockwise in at least a 200 meter square 2 times or more.)	-
	Navigation antenna assembly (w/o Roof Antenna)	Click here
	Telephone antenna assembly (w/ Roof Antenna)	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 (w/o Roof Antenna)	Click here
	Telephone antenna assembly (w/ Roof Antenna)	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
	Proceed to "Panel Switches do not Function"	Click here

Voice menu screen is not displayed.	Proceed to "Steering Pad Switch Circuit"	Click here
	Multi-media module receiver assembly	Click here
Voice is not recognized.	Proceed to "Panel Switches do not Function"	Click here
	Proceed to "Steering Pad Switch Circuit"	Click here
	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
"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
	Check the automatic download contract setting	-
	When transferring phonebook data, OBEX authentication may be required. Enter "1234" into the "Bluetooth" phone.	-

Phonebook data cannot be transferred manually or automatically.	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
	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.	-

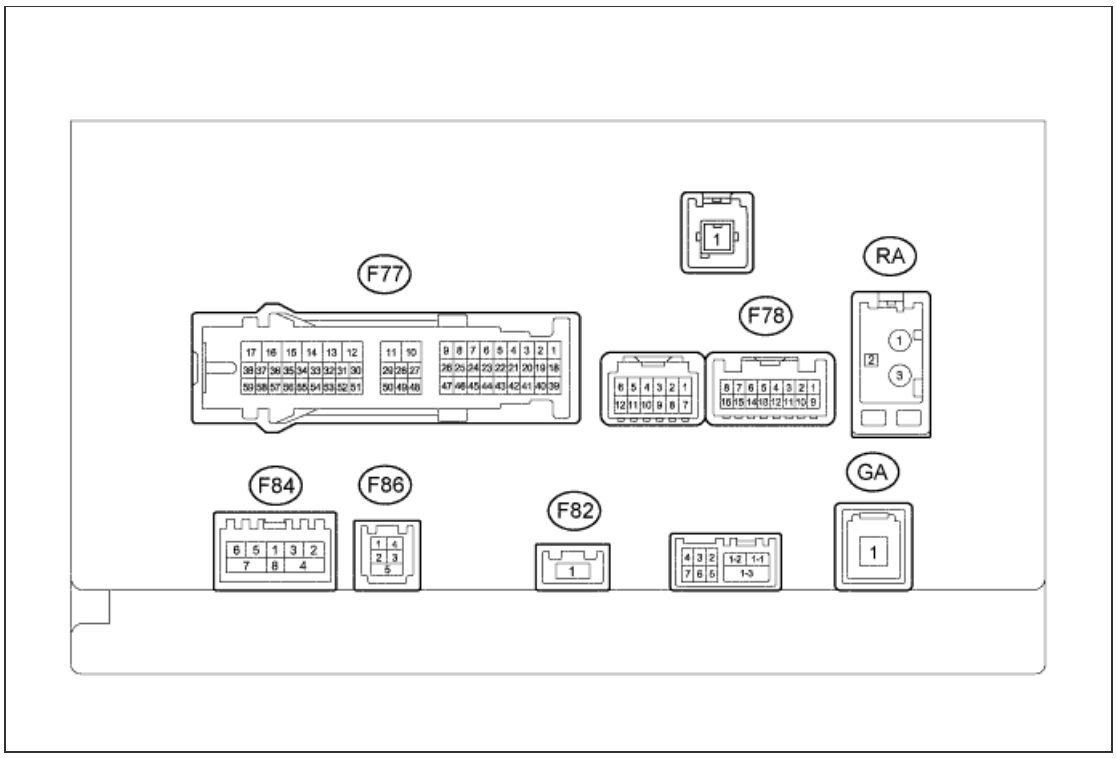
POIs are not displayed on the list. (When using a USB device)	Check that the file size of POIs is not 400 kb or more.	-
	Check that nothing has been changed for downloaded POIs other than renaming them.	-
	Multi-media module receiver assembly	Click here
POIs cannot be registered to the navigation system.	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

MULTI-MEDIA MODULE RECEIVER ASSEMBLY



Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
F77-1 (CANH)	B	CAN communication signal	-	-
F77-2 (CANL)	W	CAN communication signal	-	-
F77-7 (TX1+)	W	AVC-LAN communication signal	-	-
F77-8 (TX1-)	L	AVC-LAN communication signal	-	-
F77-10 (VMTF) - F77-12 (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
F77-12 (GND1) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
F77-13 (ILL-) - F77-12 (GND1)	W - W-B	Illumination signal	Engine switch on (IG), light control switch off → tail or head position	Below 1 V → Pulse generation
F77-14 (ILL+) - F77-12 (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
F77-15 (IG) - F77-12 (GND1)	G - W-B	Power source (IG)	Engine switch on (IG)	11 to 14 V
			Engine switch off	Below 1 V
F77-16 (ACC1) - F77-12 (GND1)	GR - W-B	Power source (ACC)	Engine switch on (ACC)	11 to 14 V
			Engine switch off	Below 1 V
F77-17 (+B1) - F77-12 (GND1)	R - W-B	Power source	Always	11 to 14 V
F77-18 (V+) - F77-19 (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)
F77-19 (V-) - F77-12 (GND1)	W - W-B	Ground	Always	Below 1 V
			See "Microphone & Voice	

F77-27 (MIN+) - F77-12 (GND1)	B - W-B	Microphone voice signal	Recognition Check" in Operation Check (Click here)	-
F77-28 (SGND) - F77-12 (GND1)	Shield - W-B	Shield ground	Always	Below 1 V
F77-29 (MACC) - F77-12 (GND1)	W - W-B	Telephone microphone assembly power supply	Engine switch off	Below 1 V
			Engine switch on (ACC)	4 to 6 V
F77-30 (SW1) - F77-32 (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
F77-31 (SW2) - F77-32 (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
F77-32 (SWG) - Body ground	W - Body ground	Steering pad switch signal	Always	Below 1 V
F77-35 (UIND)	R	UART communication signal	-	-
F77-36 (UPSW)	P	UART communication signal	-	-
F77-39 (CA+) - F77-12 (GND1)	B - W-B	Television camera power supply	Engine switch on (IG), reverse (R) selected	5.5 to 7.05 V
F77-40 (CGND) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
F77-45 (TX3+)	B	AVC-LAN communication signal	-	-
F77-46 (TX3-)	W	AVC-LAN communication signal	-	-
F77-48 (MIN-) - Body ground	R - Body ground	Microphone voice signal	See "Microphone & Voice Recognition Check" in Operation Check (Click here)	-
F77-49 (SNS2) - F77-12 (GND1)	GR - W-B	Microphone connection detection signal	Always	Below 1 V
F77-55 (PKB) - F77-12 (GND1)	Y - W-B	Parking brake switch signal	See "Vehicle Signal Check Mode" in Operation Check (Click here)	-
F77-56 (SPD) - F77-12 (GND1)	V - W-B	Speed signal from combination meter assembly	See "Vehicle Signal Check Mode" in Operation Check (Click here)	-
F77-57 (REV) - F77-12 (GND1)	L - W-B	Receiver signal	See "Vehicle Signal Check Mode" in Operation Check (Click here)	-
F84-1 (WUO) - F77-12 (GND1)	W - W-B	MOST communication signal	Engine switch on (ACC)	4.5 V or higher
			Engine switch off	Below 1 V
F84-2 (MI+)	B	MOST communication signal	-	-
F84-3 (MI-)	B	MOST communication signal	-	-
F84-4 (SLDI) - F77-12 (GND1)	Shield - W-B	Shield ground	Always	Below 1 V
F84-5 (MO+)	B	MOST communication signal	-	-
F84-6 (MO-)	B	MOST communication signal	-	-
F84-7 (SLDO) - F77-12 (GND1)	Shield - W-B	Shield ground	Always	Below 1 V
F86-1 (USV1)	#	Power source	-	-
F86-2 (US1-)	#	Data signal	-	-
F86-3 (US1+)	#	Data signal	-	-
F86-4 (UGD1)	#	Ground	-	-
F86-5 (UESS)	Shield	Shield ground	-	-
F78-1 (NTSO) - F77-12 (GND1)*2	B - W-B	Display signal	RSE playing	A waveform synchronized with sound is output.

F78-2 (NTSG) - F77-12 (GND1)*2	W - W-B	Display signal ground	Always	Below 1 V
F78-3 (SLD2) - F77-12 (GND1)*2	Shield - W-B	Shield ground	Always	Below 1 V
F78-4 (VMTR) - F77-12 (GND1)*2	G - W-B	Mute signal	RSE playing → Source chanyed	4 V or higher → Below 0.7 V → 4 V or higher
F78-5 (AGND) - F77-12 (GND1)	Shield - Body ground	Shield ground	Always	Below 1 V
F78-6 (VV+) - F77-12 (GND1)*2	B - W-B	Display signal	DVD is playing	A waveform synchronized with display signal is output. (Refer to waveform 1)
F78-7 (VAR+) - F78-15 (VA-)	W - R	Sound signal (Right)	AUX audio device playing (When stereo jack adapter used)*1 Rear audio device playing (When headphone terminal used)*2	A waveform synchronized with sound is output.
F78-8 (VAL+) - F78-15 (VA-)	B - R	Sound signal (Left)	AUX audio device playing (When stereo jack adapter used)*1 Rear audio device playing (When headphone terminal used)*2	A waveform synchronized with sound is output.
F78-13 (SG) - Body ground*2	Shield - Body ground	Shield ground	Always	Below 1 V
F78-14 (VV-) - F77-12 (GND1)*2	W - W-B	Ground	Always	Below 1 V
F78-15 (VA-) - F77-12 (GND1)	R - W-B	Sound signal ground	Always	Below 1 V
F78-16 (ADPG) - F77-12 (GND1)	R - W-B	External device connector detection signal	External device connected	Below 1 V
			External device not connected	2.1 to 3 V

*1: w/o Rear Seat Entertainment System
*2: w/ Rear Seat Entertainment System

a. Reference (Oscilloscope waveform):

i. Waveform 1

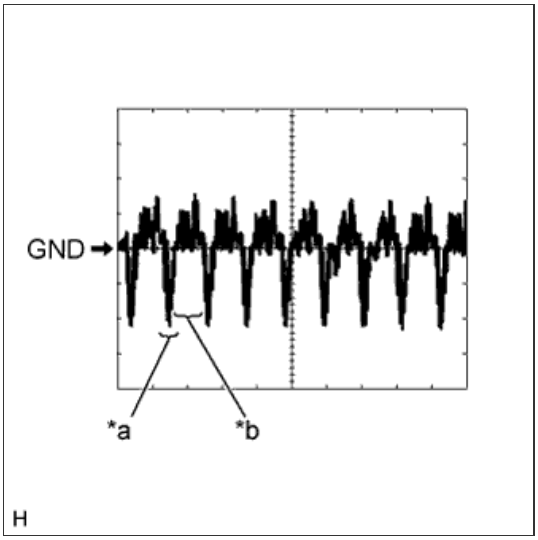
Item	Content
Measurement Terminal	F78-6 (VV+) - F77-12 (GND1)
Measurement Setting	200 mV/DIV., 10 µs/DIV.
Condition	DVD is playing

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	F77-18 (V+) - F77-19 (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:

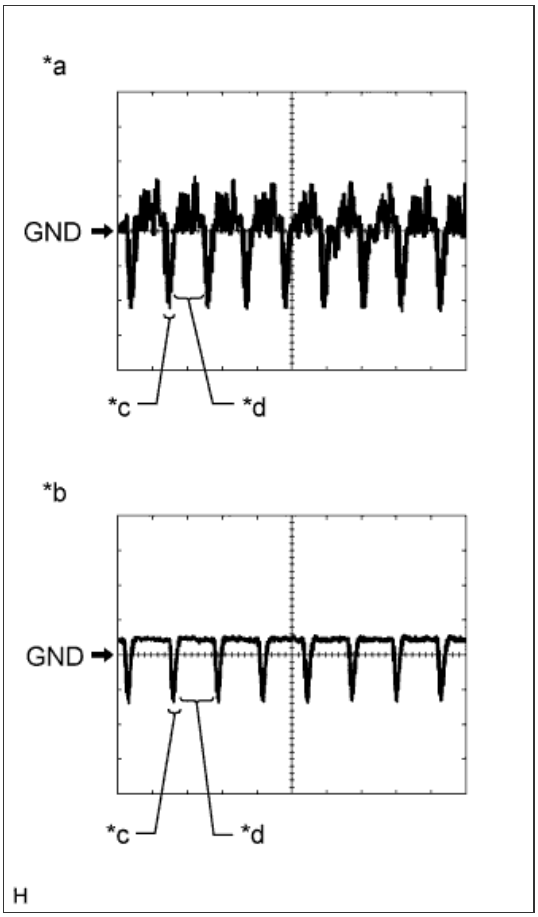
The video waveform changes according to the image from the rear television camera assembly.

ii. Waveform 3 (camera lens is covered, blacking out the screen)

Item	Content
Measurement terminal	F77-18 (V+) - F77-19 (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:

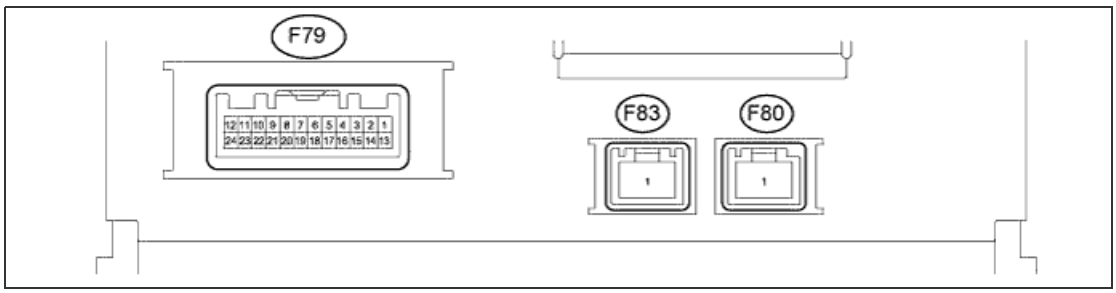
The video waveform changes according to the image from the rear television camera assembly.



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
F79-2 (ILL) - F79-13 (GND1)	G - BR	Illumination signal	Engine switch on (IG), light control switch off → tail or head position	Below 1 V → 11 to 14 V
F79-3 (UPSW)	P	UART communication signal	-	-
F79-4 (UIND)	R	UART communication signal	-	-
F79-7 (TX+)	B	AVC-LAN communication signal	-	-
F79-11 (VMTI) - F79-13 (GND1)	V - BR	Visual mute signal	When image on display switches	3.5 V or higher → Below 1 V → 3.5 V or higher
F79-12 (+B2) - F79-13 (GND1)	R - BR	Power source	Always	11 to 14 V
F79-13 (GND1) - Body ground	BR - Body ground	Ground	Always	Below 1 Ω
F79-14 (ILL-) - F79-13 (GND1)	W - BR	Illumination signal	Engine switch on (IG), light control switch off → tail or head position	Below 1 V → Pulse generation
F79-19 (TX-)	W	AVC-LAN communication signal	-	-
F79-23 (IG) - F79-13 (GND1)	G - BR	Power source (IG)	Engine switch on (IG)	11 to 14 V
			Engine switch off	Below 1 V

F79-24 (ACC) - F79-13 (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 (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 / 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 (w/ Navigation System)	Click here
Rear Seat Entertainment 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 / 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.**

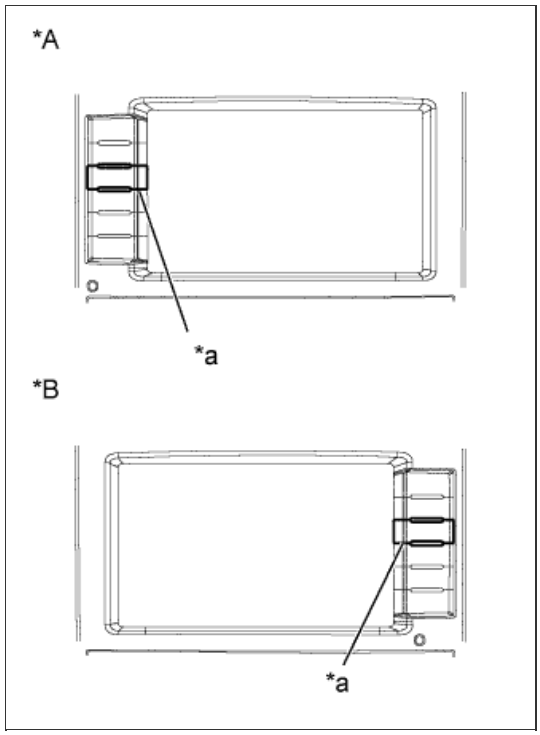
a. Start the engine.

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

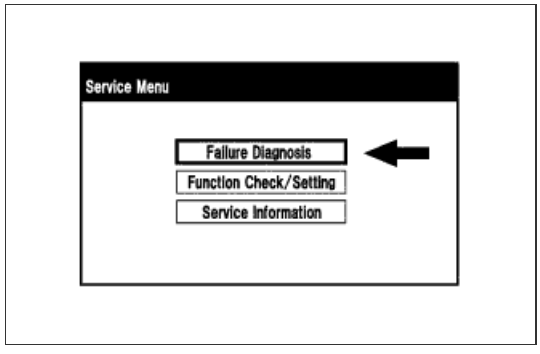
   i. Turn the engine switch off.

c. Method 2

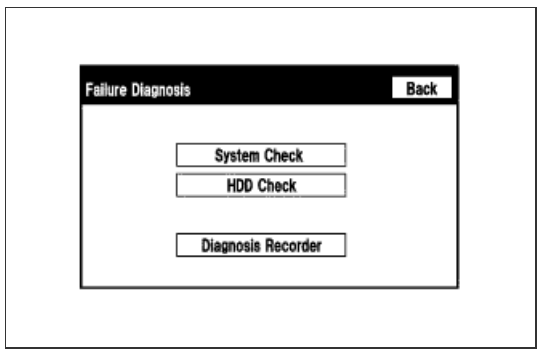
   i. Press and hold the "SETUP" switch for 3 seconds or more.

FAILURE DIAGNOSIS

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

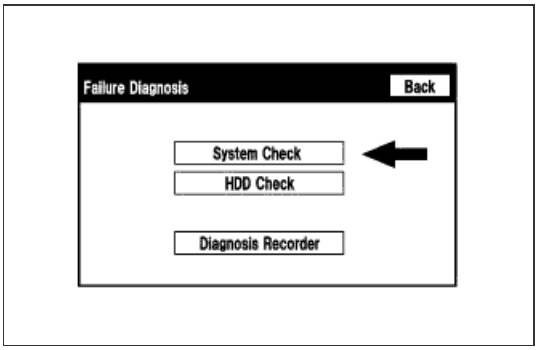


b. The "Failure Diagnosis" will be displayed.

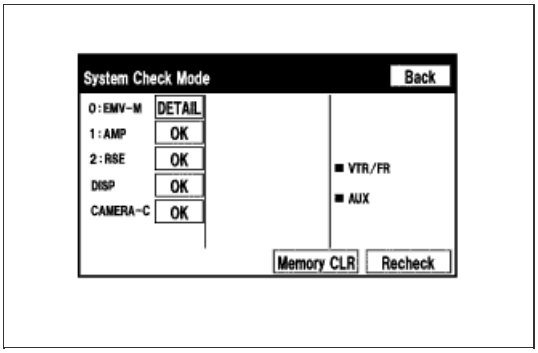


SYSTEM CHECK

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

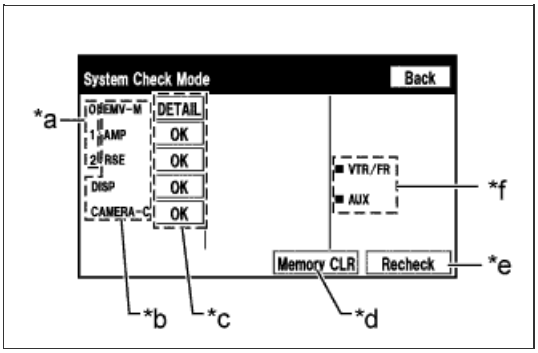


b. The "System Check Mode" screen will be displayed.



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. • 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. • Press the "Memory CLR" switch for 3 seconds.
*e: Recheck	• A system check will be performed again after the memory is cleared. • 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. • 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

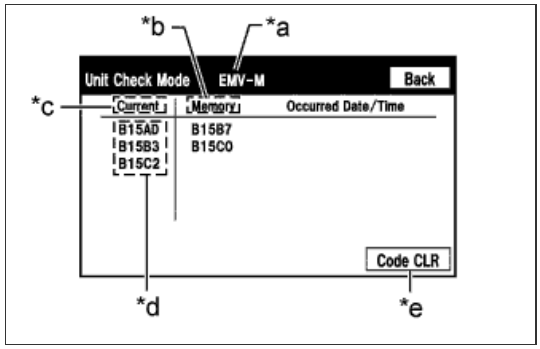
***c: Check Result Description**

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. • 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. • Check the AVC-LAN of the device.

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

Name	Component	Connection Method
VTR/FR	Headphone terminal	Vehicle wire harness
AUX	No. 1 stereo jack adapter assembly	Vehicle wire harness

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:

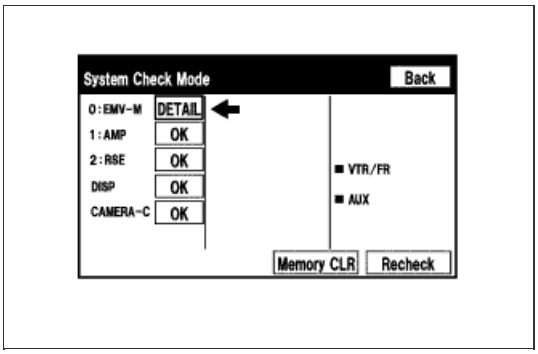
- **This screen is updated once per second.**
- **A maximum of 6 DTCs can be displayed for history and present DTCs.**

c. Read the system check result.

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

HINT:

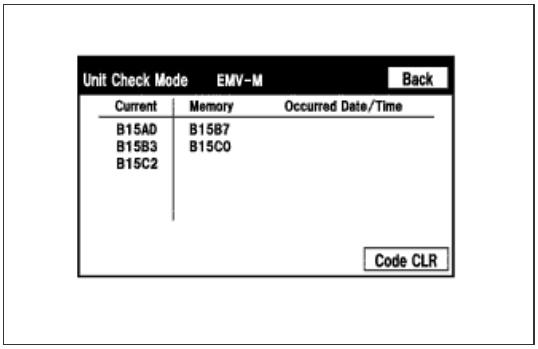
When all results are "OK", this means that no DTCs are stored.



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.

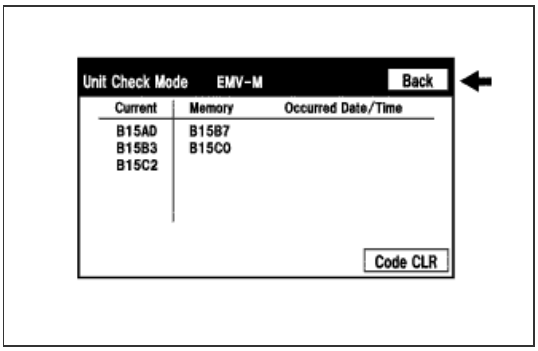
HINT:

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 (w/ Navigation System)	Click here
Rear Seat Entertainment System	Click here

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

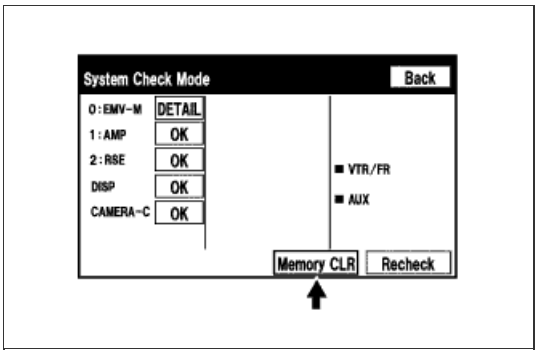
a. Clear DTC

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

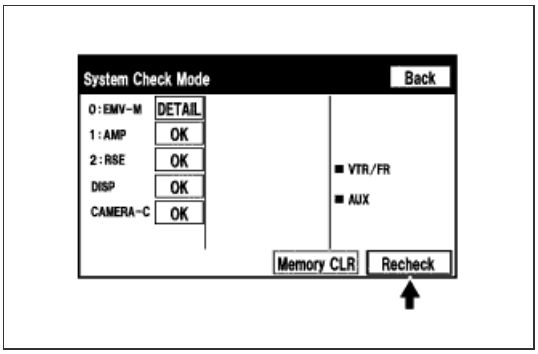
ii. Confirm that the check results are cleared.

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.**

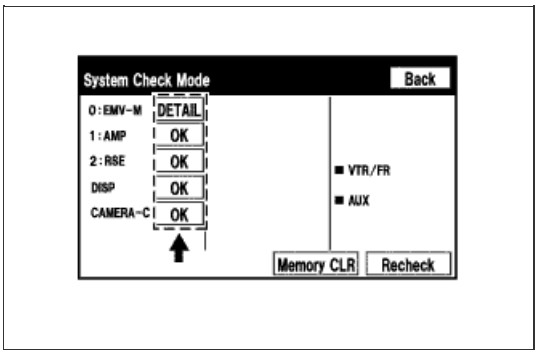


b. Recheck DTC



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 OFF: Active dimmer function off	-
Tail Light SW	Taillight switch / ON or OFF	ON: Light control switch in tail or head position OFF: Light control switch off	-
Reverse Signal	Reverse signal / ON or OFF	ON: Shift lever in R OFF: Shift lever in any position other than R	-
Parking Brake	Parking brake switch / ON or OFF	ON: Parking brake applied OFF: Parking brake released	-
Ignition	Engine switch / ON or OFF	ON: Engine switch on (IG) 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

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
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 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) • 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 B15D8 Monitor Disconnected

for Preparation Click here

DESCRIPTION

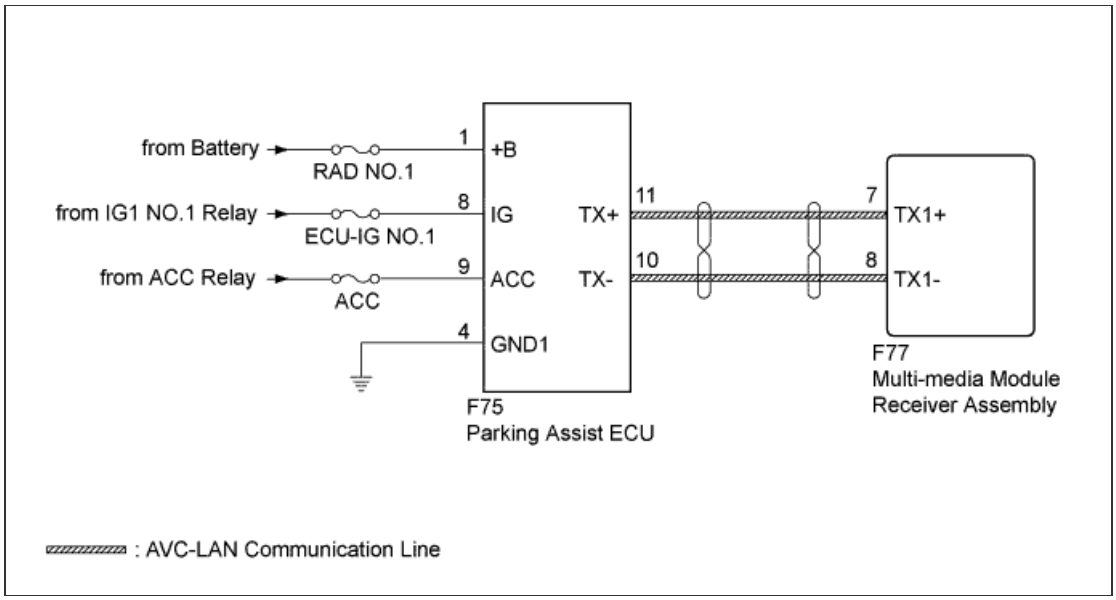
The parking assist ECU and multi-media module receiver assembly are connected by an AVC-LAN communication line. When an AVC-LAN communication error occurs between the multi-media module receiver assembly and parking assist ECU, these DTCs will be stored.

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 • AVC-LAN circuit • Parking assist ECU • 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.

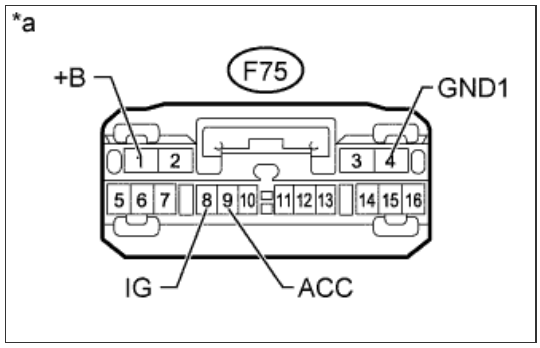
Standard Resistance:

Tester Connection	Condition	Specified Condition
F75-4 (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
F75-1 (+B) - F75-4 (GND1)	Always	11 to 14 V
F75-8 (IG) - F75-4 (GND1)	Engine switch on (IG)	11 to 14 V
F75-9 (ACC) - F75-4 (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

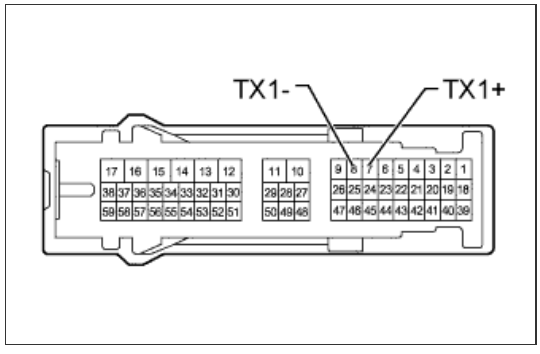
4.INSPECT MULTI-MEDIA MODULE RECEIVER ASSEMBLY

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 F77 multi-media module receiver assembly 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
F77-7 (TX1+) - F75-11 (TX+)	Always	Below 1 Ω
F77-8 (TX1-) - F75-10 (TX-)	Always	Below 1 Ω
F77-7 (TX1+) - Body ground	Always	10 kΩ or higher
F77-8 (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 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) • 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 B15E5 Electric Throttle Malfunction

for Preparation Click here

DESCRIPTION

DTC Code	DTC Detection Condition	Trouble Area
B15E5	Electric throttle malfunction	• CAN communication system • SFI system (1GR-FE, 3UR-FE, 1UR-FE) • ECD system (1VD-FTV) • 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 OR ECD SYSTEM)

a. Check for DTCs and check if the same DTCs are output.

HINT:

Refer to SFI system or ECD system.

- **SFI system (1GR-FE): Click here**
- **SFI system (1UR-FE): Click here**
- **SFI system (3UR-FE): Click here**
- **ECD system (1VD-FTV [w/ DPF]): Click here**
- **ECD system (1VD-FTV [w/o DPF]): Click here**

OK:
No DTCs are output.

NG → GO TO SFI SYSTEM OR ECD SYSTEM

OK

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 B1579 Voice Recognition Microphone Disconnected

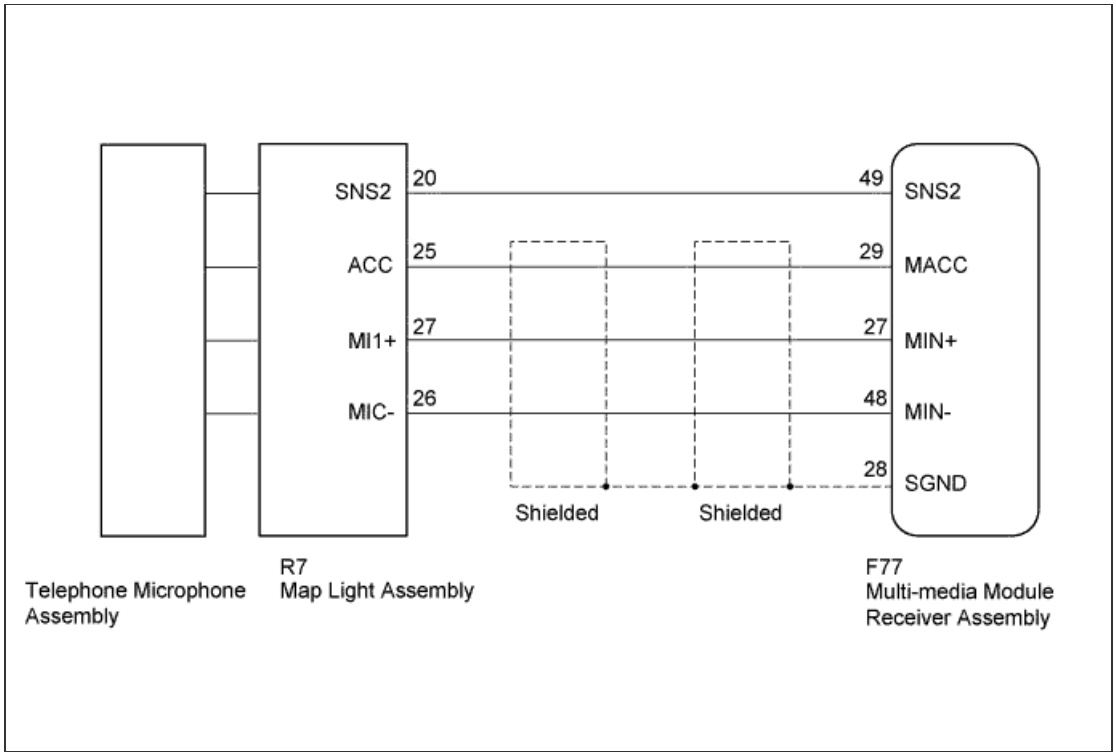
for Preparation Click here

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 • Map light assembly • Telephone microphone assembly • Harness or connector

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MAP LIGHT ASSEMBLY)

a. Disconnect the F77 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
F77-49 (SNS2) - R7-20 (SNS2)	Always	Below 1 Ω
F77-29 (MACC) - R7-25 (ACC)	Always	Below 1 Ω
F77-27 (MIN+) - R7-27 (MI1+)	Always	Below 1 Ω
F77-48 (MIN-) - R7-26 (MIC-)	Always	Below 1 Ω
F77-49 (SNS2) - Body ground	Always	10 kΩ or higher

F77-29 (MACC) - Body ground	Always	10 kΩ or higher
F77-27 (MIN+) - Body ground	Always	10 kΩ or higher
F77-48 (MIN-) - Body ground	Always	10 kΩ or higher
F77-28 (SGND) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

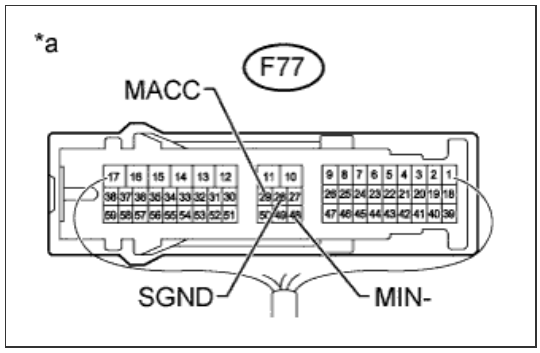
OK

2.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F77-28 (SGND) - Body ground	Always	Below 1 Ω
F77-48 (MIN-) - Body ground	Always	Below 1 Ω



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

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F77-29 (MACC) - Body ground	Engine switch on (ACC)	4 to 6 V

Text in Illustration

*a	Component with harness connected (Multi-media Module Receiver Assembly)

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

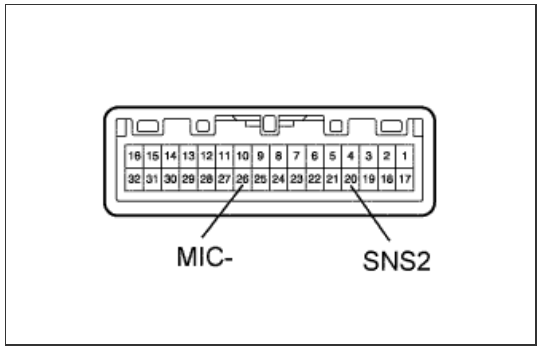
3.INSPECT MAP LIGHT ASSEMBLY

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
26 (MIC-) - 20 (SNS2)	Always	Below 1 Ω



NG → Go to step 5

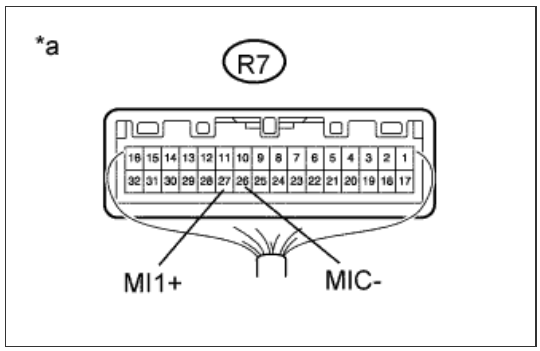
OK

4.CHECK MAP LIGHT ASSEMBLY

a. Turn the engine switch on (ACC).

b. Connect an oscilloscope to terminals R7-27 (MI1+) and R7-26 (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 not output.	A
A waveform synchronized with the voice input to the map light assembly is output.	B

B → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

A

5.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 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 disc 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 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: • Bus malfunction • Sub-microprocessor malfunction • EEPROM error	Multi-media module receiver assembly
B15AD	When either of the conditions below is met: • A short to ground, short to +B or open occurs in the gyro signal circuit • Gyro sensor 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 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 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 disc 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 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: • Bus malfunction • Sub-microprocessor malfunction • EEPROM error	Multi-media module receiver assembly
B15AD	When either of the conditions below is met: • A short to ground, short to +B or open occurs in the gyro signal circuit • Gyro sensor 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 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 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 • Air conditioning system • Air conditioning amplifier assembly • 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 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: • Internal power supply malfunction • DSP error • 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 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 • Power door lock control system • Wireless door lock control system • Lighting system • Main body ECU (cowl side junction block LH) • 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 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: • RAM error • Drawing controller malfunction • 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 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 • Entry and start system (for entry function) • Certification ECU • Multi-media module receiver assembly

INSPECTION PROCEDURE

NOTICE:

Before replacing the certification ECU, refer to the entry and start system (for entry function) precaution (Click here).

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 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 B15F9 UART Communication Malfunction(for A/C)

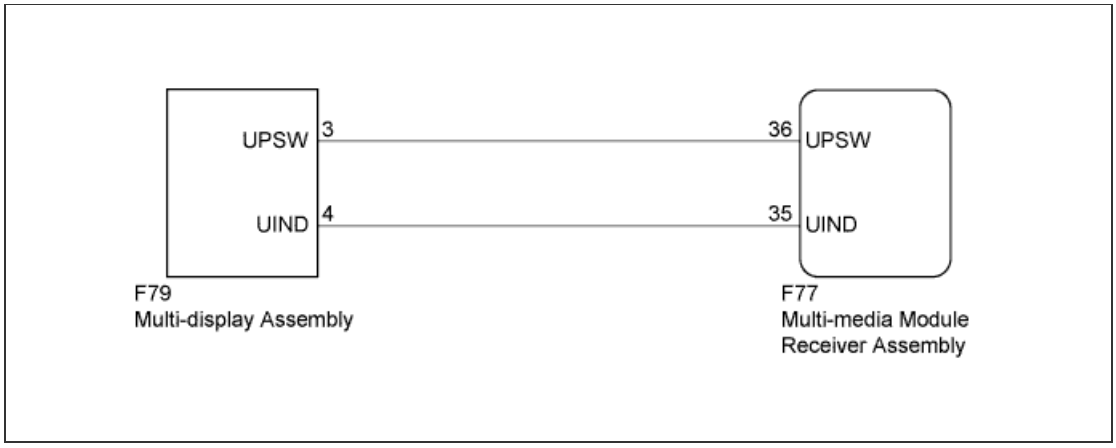
for Preparation Click here

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 • Multi-display assembly • 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 F77 multi-media module receiver assembly connector.

b. Disconnect the F79 multi-display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition

F77-36 (UPSW) - F79-3 (UPSW)	Always	Below 1 Ω
F77-35 (UIND) - F79-4 (UIND)	Always	Below 1 Ω
F77-36 (UPSW) - Body ground	Always	10 kΩ or higher
F77-35 (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 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 disc malfunction	Hard disc

INSPECTION PROCEDURE

1.CHECK HARD DISC (OPERATION CHECK)

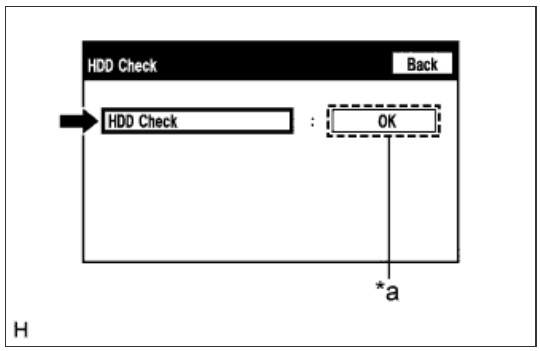
a. Enter the "Failure Diagnosis" screen. Refer to Check Hard disc in Operation Check (Click here).

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 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) • Wide view front monitor system • 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 B15C0 Short in GPS Antenna

DTC B15C1 Open in GPS Antenna

for Preparation Click here

DESCRIPTION

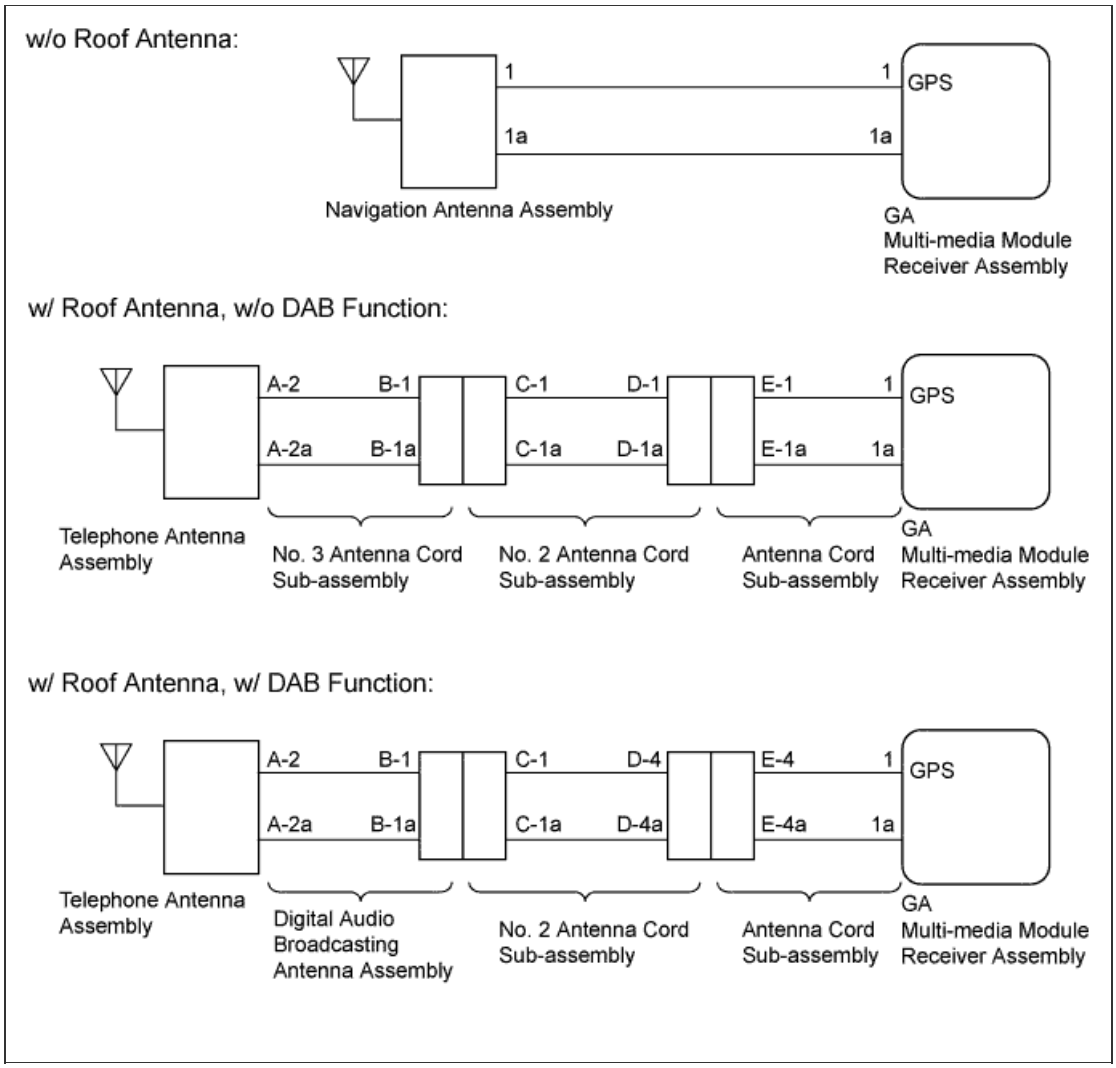
These DTCs are stored when a malfunction occurs in the navigation antenna assembly (w/o Roof Antenna) or telephone antenna assembly (w/ Roof Antenna).

DTC Code	DTC Detection Condition	Trouble Area

B15C0	Navigation antenna error	• w/o Roof Antenna
		  • Navigation antenna assembly
		  • Multi-media module receiver assembly
		• w/ Roof Antenna, w/o DAB Function
		  • Telephone antenna assembly
		  • No. 3 antenna cord sub-assembly
		  • No. 2 antenna cord sub-assembly
		  • Antenna cord sub-assembly
		  • Multi-media module receiver assembly
		• w/ Roof Antenna, w/ DAB Function
		  • Telephone antenna assembly
		  • Digital audio broadcasting antenna assembly
		  • No. 2 antenna cord sub-assembly
		  • Antenna cord sub-assembly
		  • Multi-media module receiver assembly

B15C1	Error of the power source to the navigation antenna	

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK VEHICLE TYPE

a. Select the vehicle setting.

Result

Result	Proceed to
w/o Roof Antenna	A
w/ Roof Antenna, w/o DAB Function	B
w/ Roof Antenna, w/ DAB Function	C

B → Go to step 6

C → Go to step 12

A

2.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

3.REPLACE NAVIGATION ANTENNA ASSEMBLY

a. Replace the navigation antenna assembly with a normally functioning one (Click here).

NEXT

4.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

5.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)

6.CHECK NO. 3 ANTENNA CORD SUB-ASSEMBLY

a. Disconnect the No. 3 antenna cord sub-assembly from telephone antenna assembly connector.

b. Disconnect the No. 3 antenna cord sub-assembly from No. 2 antenna cord sub-assembly.

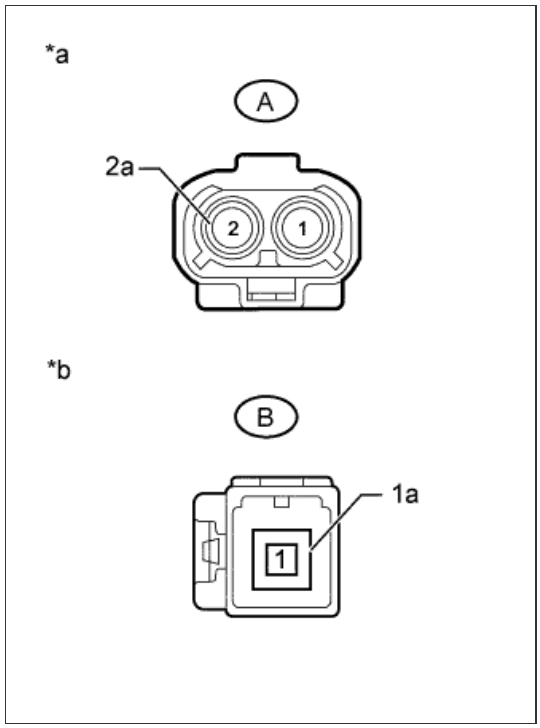
c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
A-2 - B-1	Always	Below 1 Ω
A-2a - B-1a	Always	Below 1 Ω
A-2 - Body ground	Always	10 kΩ or higher
A-2a - Body ground	Always	10 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to Telephone Antenna Assembly)
*b	Front view of wire harness connector (to No. 2 Antenna Cord Sub-assembly)



NG → REPLACE NO. 3 ANTENNA CORD SUB-ASSEMBLY (**Click here**)

OK

7.CHECK NO. 2 ANTENNA CORD SUB-ASSEMBLY

a. Disconnect the No. 2 antenna cord sub-assembly from No. 3 antenna cord sub-assembly.

b. Disconnect the No. 2 antenna cord sub-assembly from antenna cord sub-assembly.

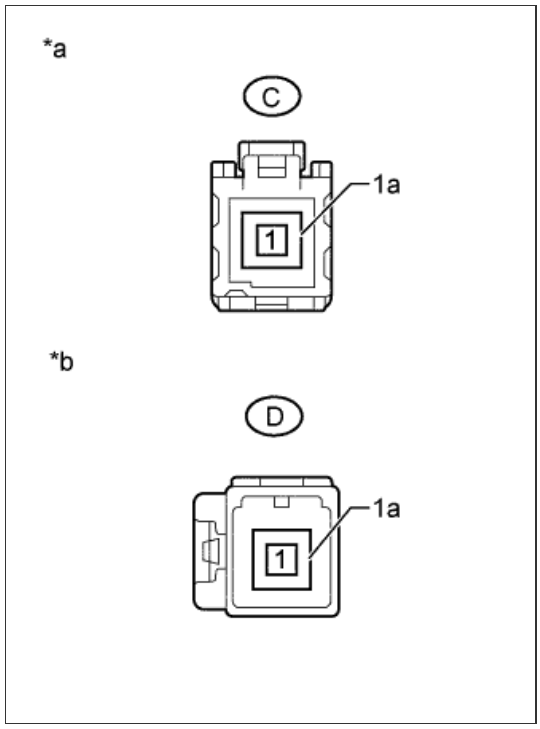
c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
C-1 - D-1	Always	Below 1 Ω
C-1a - D-1a	Always	Below 1 Ω
C-1 - Body ground	Always	10 kΩ or higher
C-1a - Body ground	Always	10 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to No. 3 Antenna Cord Sub-assembly)
*b	Front view of wire harness connector (to Antenna Cord Sub-assembly)



NG → REPLACE NO. 2 ANTENNA CORD SUB-ASSEMBLY (Click here)

OK

8.CHECK ANTENNA CORD SUB-ASSEMBLY

a. Disconnect the antenna cord sub-assembly from No. 2 antenna cord sub-assembly.

b. Disconnect the antenna cord sub-assembly from multi-media module receiver assembly.

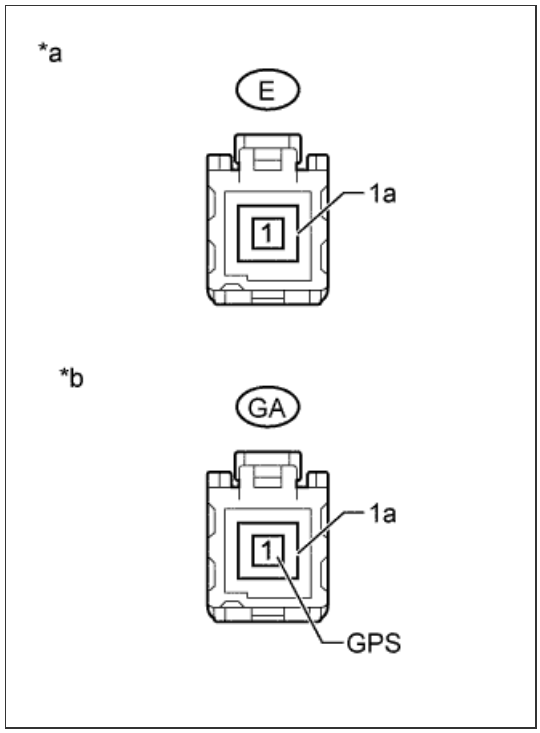
c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
E-1 - GA-1 (GPS)	Always	Below 1 Ω
E-1a - GA-1a	Always	Below 1 Ω
E-1 - Body ground	Always	10 kΩ or higher
E-1a - Body ground	Always	10 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to No. 2 Antenna Cord Sub-assembly)
*b	Front view of wire harness connector (to Multi-media Module Receiver Assembly)



NG → REPLACE ANTENNA CORD SUB-ASSEMBLY (Click here)

OK

9.REPLACE TELEPHONE ANTENNA ASSEMBLY

a. Replace the telephone antenna assembly with a normally functioning one (Click here).

NEXT

10.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

11.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 (TELEPHONE ANTENNA ASSEMBLY IS DEFECTIVE)

12.CHECK DIGITAL AUDIO BROADCASTING ANTENNA ASSEMBLY

a. Disconnect the digital audio broadcasting antenna assembly from telephone antenna assembly connector.

b. Disconnect the digital audio broadcasting antenna assembly from No. 2 antenna cord sub-assembly.

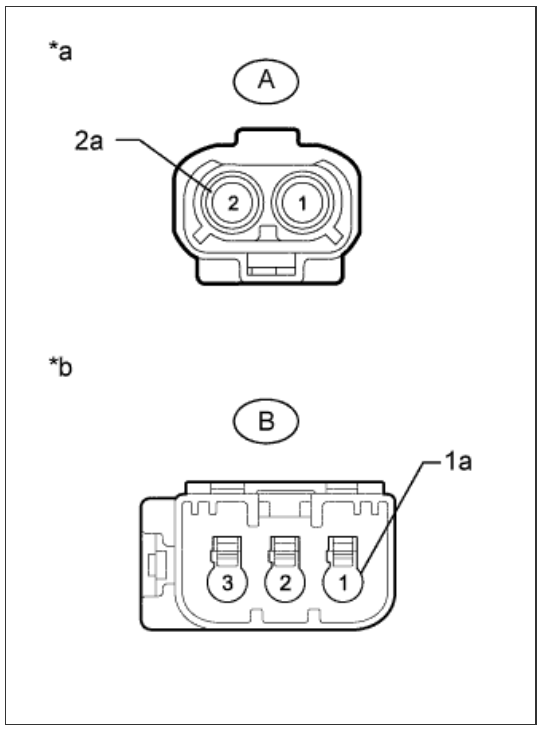
c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
A-2 - B-1	Always	Below 1 Ω
A-2a - B-1a	Always	Below 1 Ω
A-2 - Body ground	Always	10 kΩ or higher
A-2a - Body ground	Always	10 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to Telephone Antenna Assembly)
*b	Front view of wire harness connector (to No. 2 Antenna Cord Sub-assembly)



NG → REPLACE DIGITAL AUDIO BROADCASTING ANTENNA ASSEMBLY (**Click here**)

OK

13.CHECK NO. 2 ANTENNA CORD SUB-ASSEMBLY

a. Disconnect the No. 2 antenna cord sub-assembly from digital audio broadcasting antenna assembly.

b. Disconnect the No. 2 antenna cord sub-assembly from antenna cord sub-

assembly.

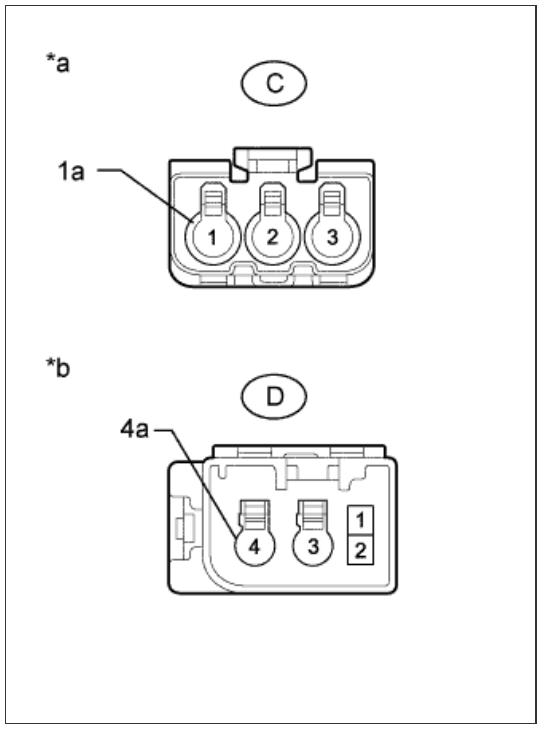
c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
C-1 - D-4	Always	Below 1 Ω
C-1a - D-4a	Always	Below 1 Ω
C-1 - Body ground	Always	10 kΩ or higher
C-1a - Body ground	Always	10 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to Digital Audio Broadcasting Antenna Assembly)
*b	Front view of wire harness connector (to Antenna Cord Sub-assembly)



NG → REPLACE NO. 2 ANTENNA CORD SUB-ASSEMBLY (Click here)

OK

14.CHECK ANTENNA CORD SUB-ASSEMBLY

a. Disconnect the antenna cord sub-assembly from No. 2 antenna cord sub-assembly.

b. Disconnect the antenna cord sub-assembly from multi-media module receiver assembly.

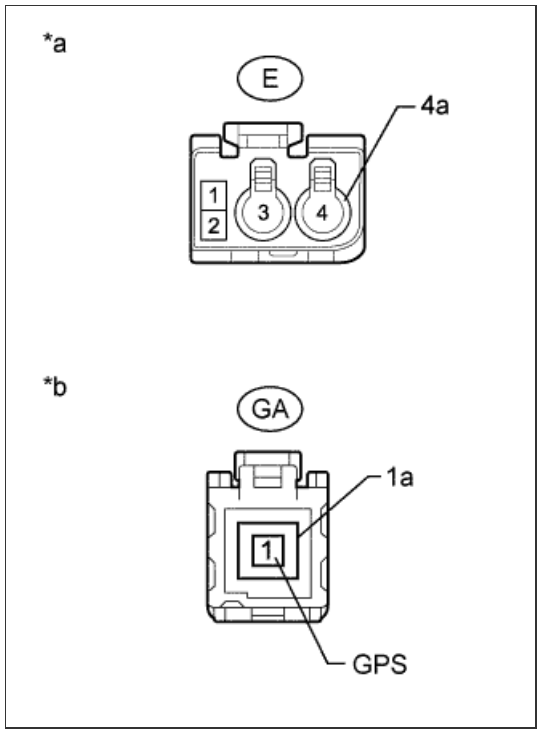
c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
E-4 - GA-1 (GPS)	Always	Below 1 Ω
E-4a - GA-1a	Always	Below 1 Ω
E-4 - Body ground	Always	10 kΩ or higher
E-4a - Body ground	Always	10 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to No. 2 Antenna Cord Sub-assembly)
*b	Front view of wire harness connector (to Multi-media Module Receiver Assembly)



NG → REPLACE ANTENNA CORD SUB-ASSEMBLY (Click here)

OK

15.REPLACE TELEPHONE ANTENNA ASSEMBLY

a. Replace the telephone antenna assembly with a 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 DTCs are output again (Click here).

OK:
No DTCs are output.

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

CHECK CONNECTION OF NAVIGATION ANTENNA ASSEMBLY

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 B15C0 Short in GPS Antenna

DTC B15C1 Open in GPS Antenna

for Preparation Click here

DESCRIPTION

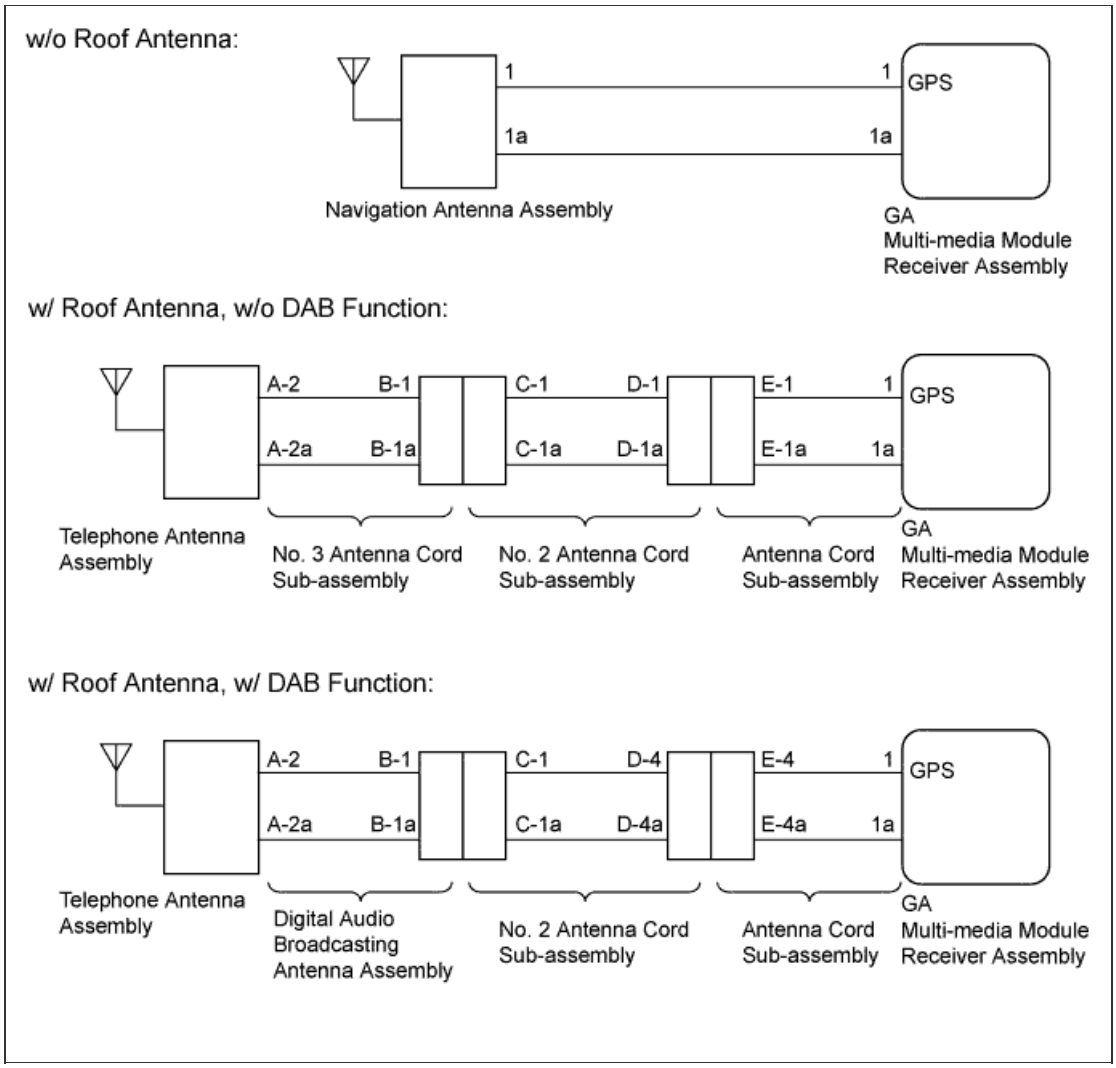
These DTCs are stored when a malfunction occurs in the navigation antenna assembly (w/o Roof Antenna) or telephone antenna assembly (w/ Roof Antenna).

DTC Code	DTC Detection Condition	Trouble Area

B15C0	Navigation antenna error	• w/o Roof Antenna
		  • Navigation antenna assembly
		  • Multi-media module receiver assembly
		• w/ Roof Antenna, w/o DAB Function
		  • Telephone antenna assembly
		  • No. 3 antenna cord sub-assembly
		  • No. 2 antenna cord sub-assembly
		  • Antenna cord sub-assembly
		  • Multi-media module receiver assembly
		• w/ Roof Antenna, w/ DAB Function
		  • Telephone antenna assembly
		  • Digital audio broadcasting antenna assembly
		  • No. 2 antenna cord sub-assembly
		  • Antenna cord sub-assembly
		  • Multi-media module receiver assembly

B15C1	Error of the power source to the navigation antenna	

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK VEHICLE TYPE

a. Select the vehicle setting.

Result

Result	Proceed to
w/o Roof Antenna	A
w/ Roof Antenna, w/o DAB Function	B
w/ Roof Antenna, w/ DAB Function	C

B → Go to step 6

C → Go to step 12

A

2.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

3.REPLACE NAVIGATION ANTENNA ASSEMBLY

a. Replace the navigation antenna assembly with a normally functioning one (Click here).

NEXT

4.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

5.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)

6.CHECK NO. 3 ANTENNA CORD SUB-ASSEMBLY

a. Disconnect the No. 3 antenna cord sub-assembly from telephone antenna assembly connector.

b. Disconnect the No. 3 antenna cord sub-assembly from No. 2 antenna cord sub-assembly.

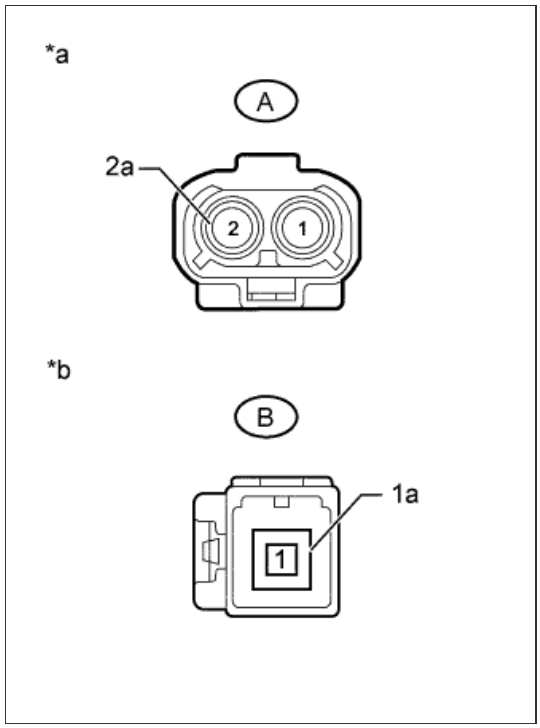
c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
A-2 - B-1	Always	Below 1 Ω
A-2a - B-1a	Always	Below 1 Ω
A-2 - Body ground	Always	10 kΩ or higher
A-2a - Body ground	Always	10 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to Telephone Antenna Assembly)
*b	Front view of wire harness connector (to No. 2 Antenna Cord Sub-assembly)



NG → REPLACE NO. 3 ANTENNA CORD SUB-ASSEMBLY (**Click here**)

OK

7.CHECK NO. 2 ANTENNA CORD SUB-ASSEMBLY

a. Disconnect the No. 2 antenna cord sub-assembly from No. 3 antenna cord sub-assembly.

b. Disconnect the No. 2 antenna cord sub-assembly from antenna cord sub-assembly.

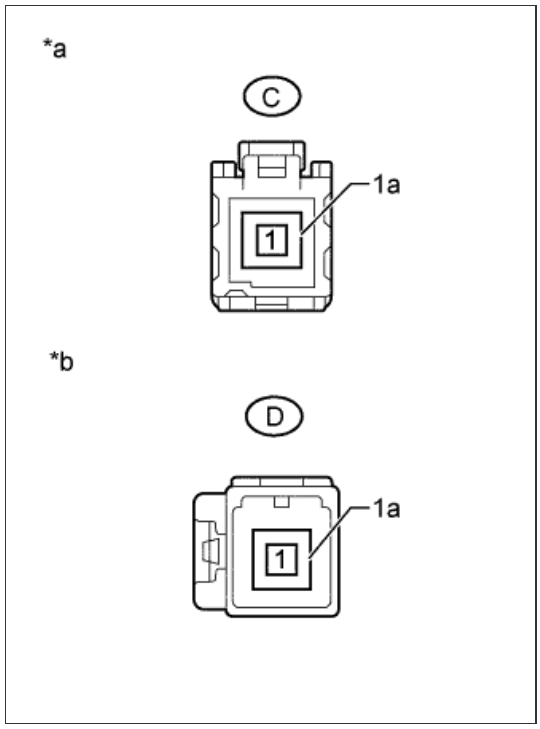
c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
C-1 - D-1	Always	Below 1 Ω
C-1a - D-1a	Always	Below 1 Ω
C-1 - Body ground	Always	10 kΩ or higher
C-1a - Body ground	Always	10 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to No. 3 Antenna Cord Sub-assembly)
*b	Front view of wire harness connector (to Antenna Cord Sub-assembly)



NG → REPLACE NO. 2 ANTENNA CORD SUB-ASSEMBLY (Click here)

OK

8.CHECK ANTENNA CORD SUB-ASSEMBLY

a. Disconnect the antenna cord sub-assembly from No. 2 antenna cord sub-assembly.

b. Disconnect the antenna cord sub-assembly from multi-media module receiver assembly.

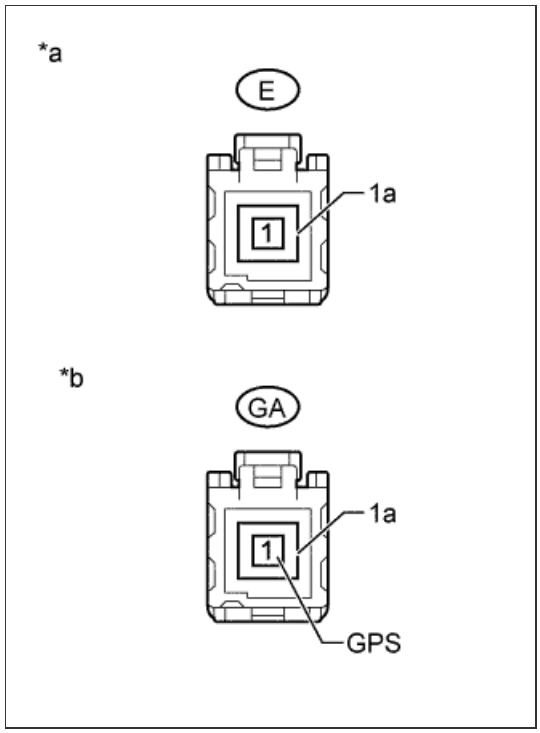
c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
E-1 - GA-1 (GPS)	Always	Below 1 Ω
E-1a - GA-1a	Always	Below 1 Ω
E-1 - Body ground	Always	10 kΩ or higher
E-1a - Body ground	Always	10 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to No. 2 Antenna Cord Sub-assembly)
*b	Front view of wire harness connector (to Multi-media Module Receiver Assembly)



NG → REPLACE ANTENNA CORD SUB-ASSEMBLY (Click here)

OK

9.REPLACE TELEPHONE ANTENNA ASSEMBLY

a. Replace the telephone antenna assembly with a normally functioning one (Click here).

NEXT

10.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

11.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 (TELEPHONE ANTENNA ASSEMBLY IS DEFECTIVE)

12.CHECK DIGITAL AUDIO BROADCASTING ANTENNA ASSEMBLY

a. Disconnect the digital audio broadcasting antenna assembly from telephone antenna assembly connector.

b. Disconnect the digital audio broadcasting antenna assembly from No. 2 antenna cord sub-assembly.

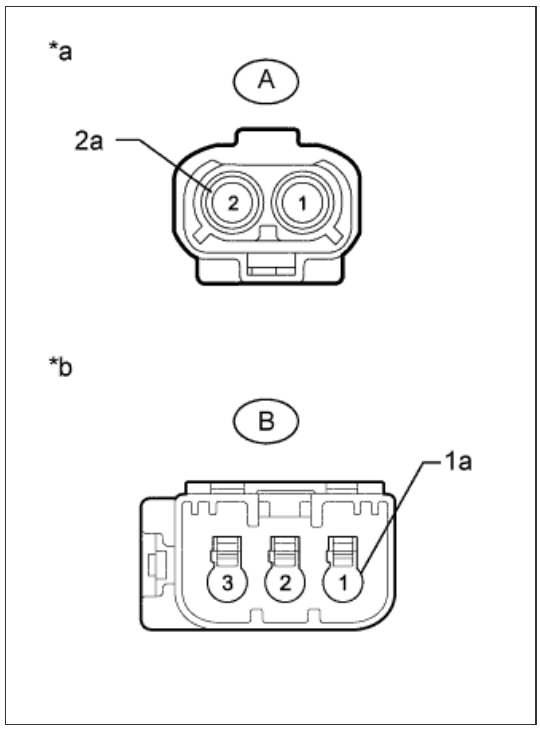
c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
A-2 - B-1	Always	Below 1 Ω
A-2a - B-1a	Always	Below 1 Ω
A-2 - Body ground	Always	10 kΩ or higher
A-2a - Body ground	Always	10 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to Telephone Antenna Assembly)
*b	Front view of wire harness connector (to No. 2 Antenna Cord Sub-assembly)



NG → REPLACE DIGITAL AUDIO BROADCASTING ANTENNA ASSEMBLY (**Click here**)

OK

13.CHECK NO. 2 ANTENNA CORD SUB-ASSEMBLY

a. Disconnect the No. 2 antenna cord sub-assembly from digital audio broadcasting antenna assembly.

b. Disconnect the No. 2 antenna cord sub-assembly from antenna cord sub-

assembly.

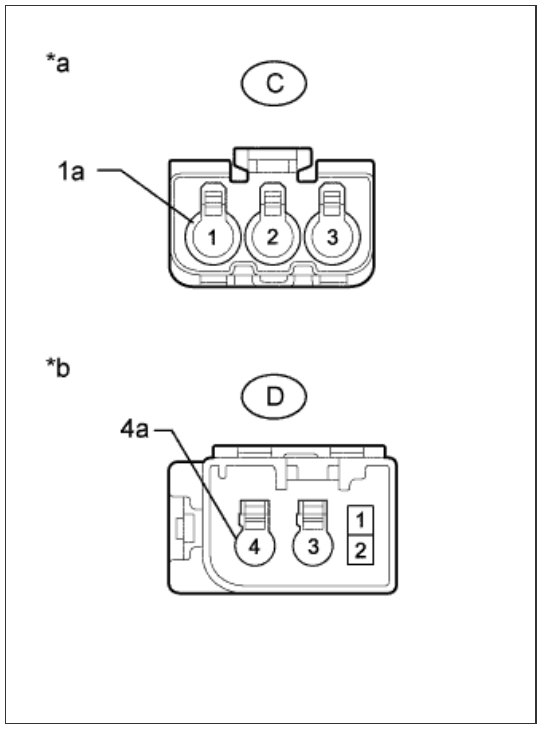
c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
C-1 - D-4	Always	Below 1 Ω
C-1a - D-4a	Always	Below 1 Ω
C-1 - Body ground	Always	10 kΩ or higher
C-1a - Body ground	Always	10 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to Digital Audio Broadcasting Antenna Assembly)
*b	Front view of wire harness connector (to Antenna Cord Sub-assembly)



NG → REPLACE NO. 2 ANTENNA CORD SUB-ASSEMBLY (Click here)

OK

14.CHECK ANTENNA CORD SUB-ASSEMBLY

a. Disconnect the antenna cord sub-assembly from No. 2 antenna cord sub-assembly.

b. Disconnect the antenna cord sub-assembly from multi-media module receiver assembly.

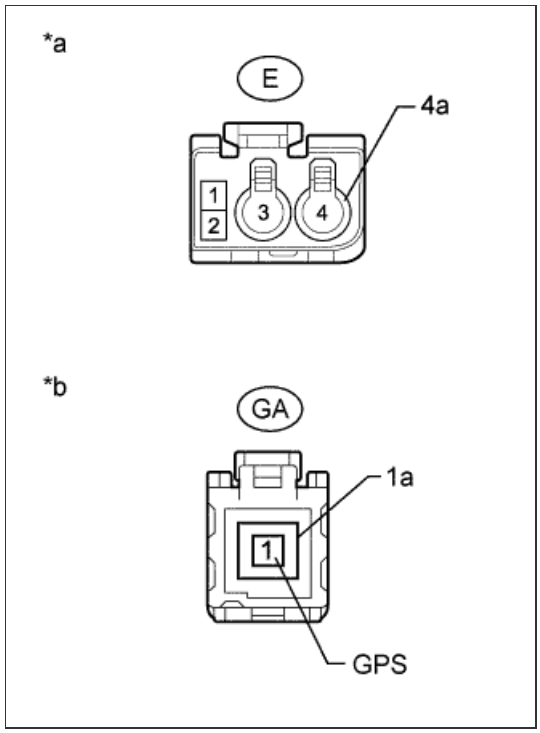
c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
E-4 - GA-1 (GPS)	Always	Below 1 Ω
E-4a - GA-1a	Always	Below 1 Ω
E-4 - Body ground	Always	10 kΩ or higher
E-4a - Body ground	Always	10 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to No. 2 Antenna Cord Sub-assembly)
*b	Front view of wire harness connector (to Multi-media Module Receiver Assembly)



NG → REPLACE ANTENNA CORD SUB-ASSEMBLY (Click here)

OK

15.REPLACE TELEPHONE ANTENNA ASSEMBLY

a. Replace the telephone antenna assembly with a 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 DTCs are output again (Click here).

OK:
No DTCs are output.

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

CHECK CONNECTION OF NAVIGATION ANTENNA ASSEMBLY

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 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*1 or telephone antenna assembly*2 receives and the SPD pulse received from the combination meter assembly becomes large.

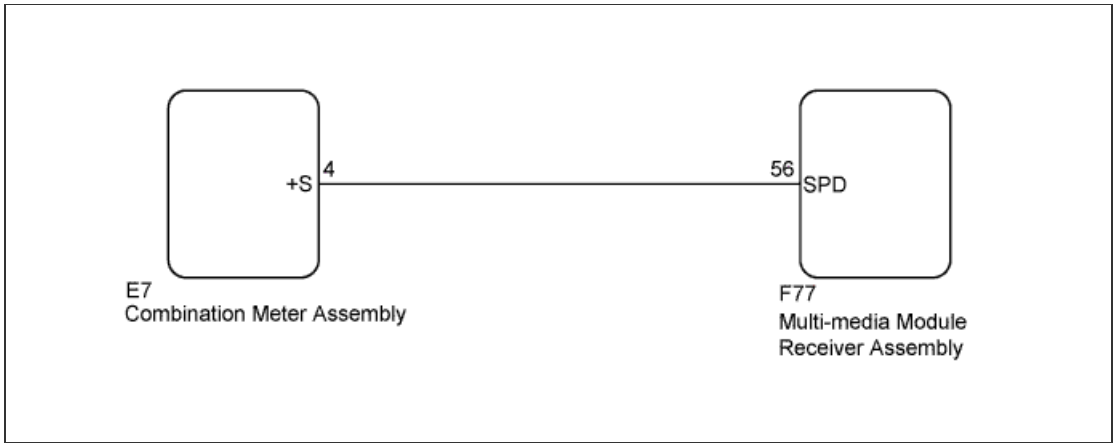
*1: w/o Roof Antenna
*2: w/ Roof Antenna

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 • 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

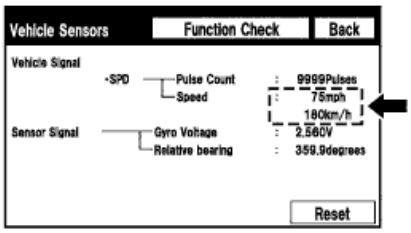
OK

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.



H

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 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 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:

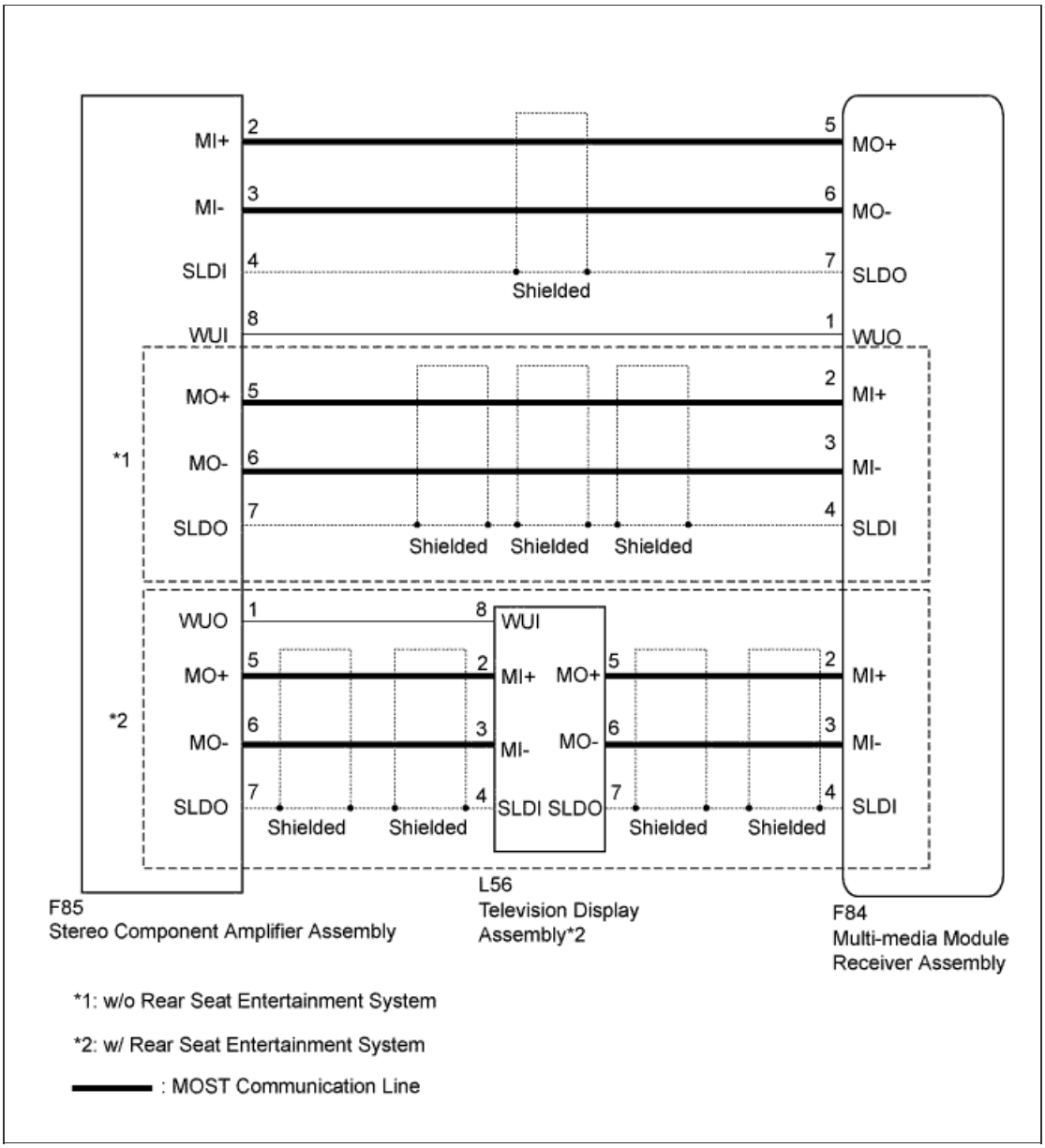
- **If a short occurs in a speaker circuit, the sound from the corresponding speaker will be low or almost impossible to hear. If the volume is turned up in this situation, to prevent excessive current flow due to the short circuit, the stereo component amplifier assembly stops operating when its output 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 • MOST communication line connector • MOST communication line • Television display assembly (w/ Rear Seat Entertainment System) • Stereo component amplifier assembly • 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. 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

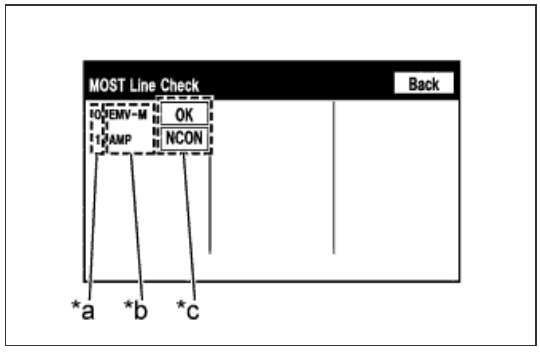
C → GO TO AUDIO AND VISUAL SYSTEM (Click here)

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.

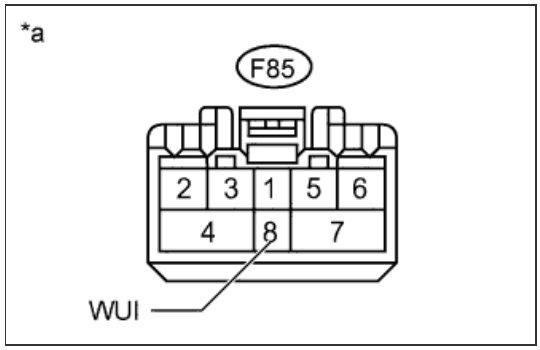
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F85-8 (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 F84 multi-media module receiver assembly connector.

b. Disconnect the F85 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
F84-1 (WUO) - F85-8 (WUI)	Always	Below 1 Ω
F84-1 (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 F84 multi-media module receiver assembly connector.

b. Disconnect the F85 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
F85-2 (MI+) - F84-5 (MO+)	Always	Below 1 Ω
F85-3 (MI-) - F84-6 (MO-)	Always	Below 1 Ω
F85-4 (SLDI) - F84-7 (SLDO)	Always	Below 1 Ω
F85-5 (MO+) - F84-2 (MI+)	Always	Below 1 Ω
F85-6 (MO-)- F84-3 (MI-)	Always	Below 1 Ω
F85-7 (SLDO) - F84-4 (SLDI)	Always	Below 1 Ω
F85-2 (MI+) - Body ground	Always	10 kΩ or higher
F85-3 (MI-) - Body ground	Always	10 kΩ or higher
F85-4 (SLDI) - Body ground	Always	10 kΩ or higher
F85-5 (MO+) - Body ground	Always	10 kΩ or higher
F85-6 (MO-) - Body ground	Always	10 kΩ or higher
F85-7 (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)

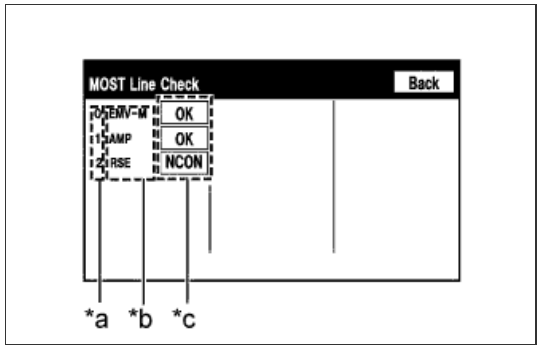
OK

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 18

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.

a. Disconnect the stereo component amplifier assembly connector.

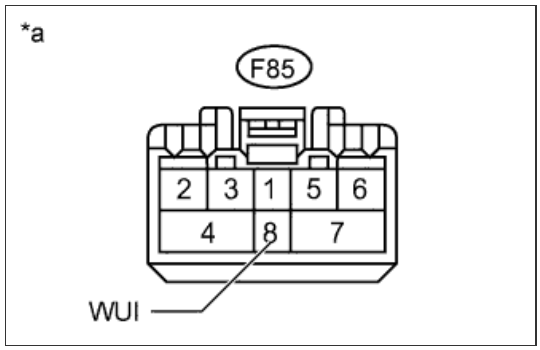
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F85-8 (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 F84 multi-media module receiver assembly connector.

b. Disconnect the F85 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
F84-1 (WUO) - F85-8 (WUI)	Always	Below 1 Ω
F84-1 (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".	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 →

16.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY Wake Up LINE)

a. Disconnect the television display assembly connector.

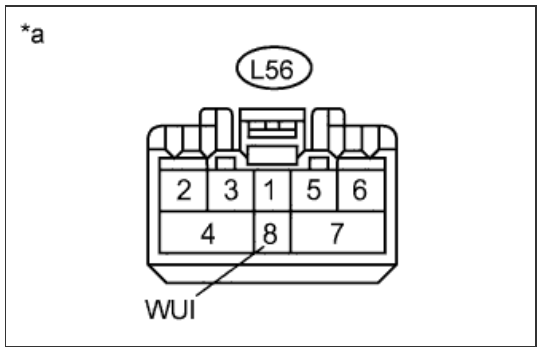
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L56-8 (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 F85 stereo component amplifier assembly connector.

b. Disconnect the L56 television display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F85-1 (WUO) - L56-8 (WUI)	Always	Below 1 Ω
F85-1 (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-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the F84 multi-media module receiver assembly connector.

b. Disconnect the F85 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
F85-2 (MI+) - F84-5 (MO+)	Always	Below 1 Ω
F85-3 (MI-) - F84-6 (MO-)	Always	Below 1 Ω
F85-4 (SLDI) - F84-7 (SLDO)	Always	Below 1 Ω
F85-2 (MI+) - Body ground	Always	10 kΩ or higher
F85-3 (MI-) - Body ground	Always	10 kΩ or higher
F85-4 (SLDI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

19.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the F85 stereo component amplifier assembly connector.

b. Disconnect the L56 television display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F85-5 (MO+) - L56-2 (MI+)	Always	Below 1 Ω
F85-6 (MO-) - L56-3 (MI-)	Always	Below 1 Ω
F85-7 (SLDO) - L56-4 (SLDI)	Always	Below 1 Ω
F85-5 (MO+) - Body ground	Always	10 kΩ or higher
F85-6 (MO-) - Body ground	Always	10 kΩ or higher
F85-7 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

20.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - TELEVISION DISPLAY ASSEMBLY)

a. Disconnect the F84 multi-media module receiver assembly connector.

b. Disconnect the L56 television display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F84-2 (MI+) - L56-5 (MO+)	Always	Below 1 Ω
F84-3 (MI-) - L56-6 (MO-)	Always	Below 1 Ω
F84-4 (SLDI) - L56-7 (SLDO)	Always	Below 1 Ω
F84-2 (MI+) - Body ground	Always	10 kΩ or higher
F84-3 (MI-) - Body ground	Always	10 kΩ or higher
F84-4 (SLDI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

21.REPLACE TELEVISION DISPLAY ASSEMBLY

a. Replace the television display 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).

OK:
No DTCs are output.

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

OK

END (TELEVISION DISPLAY ASSEMBLY IS DEFECTIVE)

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 B15D3 Stereo Component Amplifier Disconnected

for Preparation Click here

DESCRIPTION

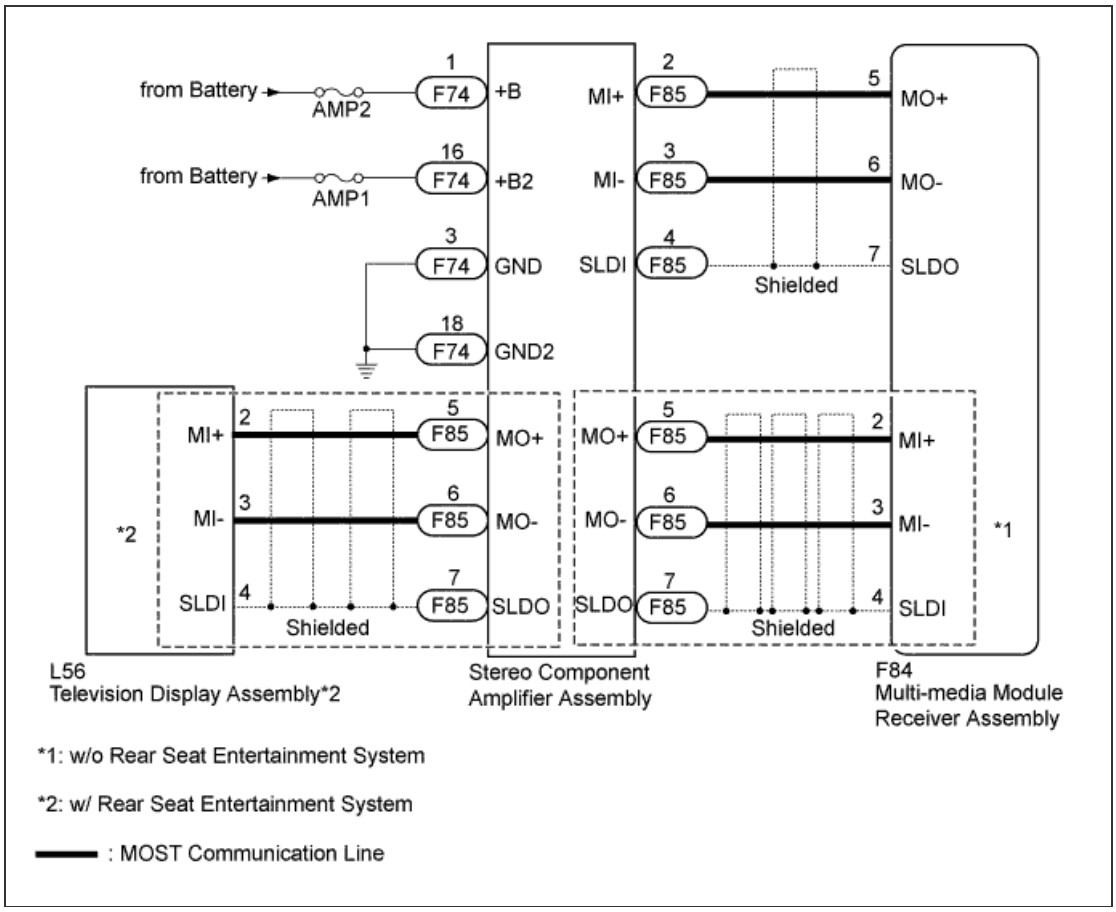
The multi-media module receiver assembly and stereo component amplifier assembly are connected by the MOST communication line.
When a MOST communication error occurs between the multi-media module receiver assembly and stereo component amplifier assembly, these DTCs will be stored.

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 • MOST circuit between multi-media module receiver assembly and stereo component amplifier assembly • Stereo component amplifier assembly • 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).

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)

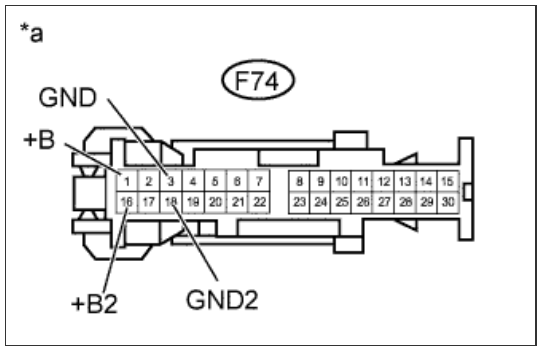
a. Disconnect the stereo component amplifier assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F74-3 (GND) - Body ground	Always	Below 1 Ω
F74-18 (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
F74-1 (+B) - F74-3 (GND)	Always	11 to 14 V
F74-16 (+B2) - F74-3 (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)	B
NG	C

B → Go to step 10

C → REPAIR OR REPLACE HARNESS OR CONNECTOR

A

6.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - STEREO COMPONENT AMPLIFIER ASSEMBLY)

a. Disconnect the F84 multi-media module receiver assembly connector.

b. Disconnect the F85 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
F84-2 (MI+) - F85-5 (MO+)	Always	Below 1 Ω
F84-3 (MI-) - F85-6 (MO-)	Always	Below 1 Ω
F84-4 (SLDI) - F85-7 (SLDO)	Always	Below 1 Ω
F84-5 (MO+) - F85-2 (MI+)	Always	Below 1 Ω
F84-6 (MO-) - F85-3 (MI-)	Always	Below 1 Ω
F84-7 (SLDO) - F85-4 (SLDI)	Always	Below 1 Ω
F84-2 (MI+) - Body ground	Always	10 kΩ or higher
F84-3 (MI-) - Body ground	Always	10 kΩ or higher
F84-4 (SLDI) - Body ground	Always	10 kΩ or higher
F84-5 (MO+) - Body ground	Always	10 kΩ or higher
F84-6 (MO-) - Body ground	Always	10 kΩ or higher
F84-7 (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 F84 multi-media module receiver assembly connector.

b. Disconnect the F85 stereo component amplifier assembly connector.

c. Disconnect the L56 television assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F84-5 (MO+) - F85-2 (MI+)	Always	Below 1 Ω
F84-6 (MO-) - F85-3 (MI-)	Always	Below 1 Ω
F84-7 (SLDO) - F85-4 (SLDI)	Always	Below 1 Ω
F85-5 (MO+) - L56-2 (MI+)	Always	Below 1 Ω
F85-6 (MO-) - L56-3 (MI-)	Always	Below 1 Ω
F85-7 (SLDO) - L56-4 (SLDI)	Always	Below 1 Ω
F85-2 (MI+) - Body ground	Always	10 kΩ or higher
F85-3 (MI-) - Body ground	Always	10 kΩ or higher
F85-4 (SLDI) - Body ground	Always	10 kΩ or higher
F85-5 (MO+) - Body ground	Always	10 kΩ or higher
F85-6 (MO-) -		

Body ground	Always	10 kΩ or higher
F85-7 (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)

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 B15D5 Rear Seat Entertainment System Disconnected

for Preparation Click here

DESCRIPTION

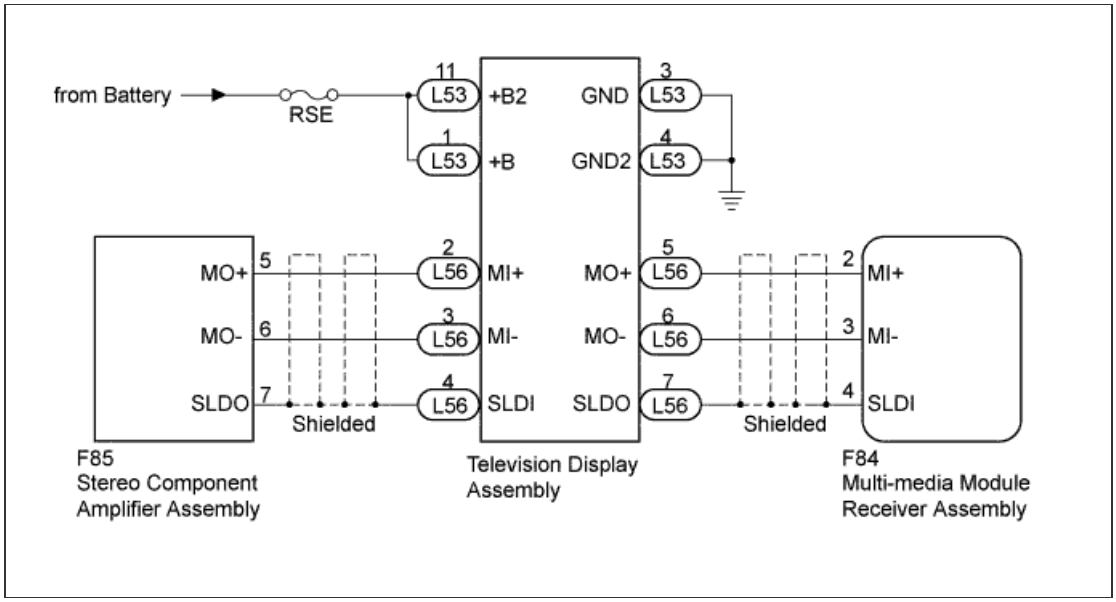
The multi-media module receiver assembly and television display assembly are connected by the MOST communication line.
When a MOST communication error occurs between the multi-media module receiver assembly and television display assembly, these DTCs will be stored.

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 • MOST circuit between stereo component amplifier assembly and television display assembly • MOST circuit between television display assembly and multi-media module receiver assembly • Television display assembly • 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).

OK:
No DTCs are output.

NG → **Go to step 5**

OK

END (COMMUNICATION MALFUNCTION DUE TO NOISE)

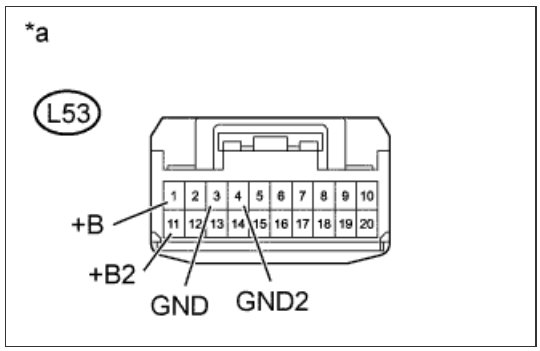
5.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY - BATTERY AND BODY GROUND)

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
L53-3 (GND) - Body ground	Always	Below 1 Ω
L53-4 (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
L53-11 (+B2) - L53-3 (GND)	Always	11 to 14 V
L53-1 (+B) - L53-3 (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 L56 television display assembly connector.

b. Disconnect the F85 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
L56-2 (MI+) - F85-5 (MO+)	Always	Below 1 Ω
L56-3 (MI-) - F85-6 (MO-)	Always	Below 1 Ω
L56-4 (SLDI) - F85-7 (SLDO)	Always	Below 1 Ω
L56-2 (MI+) - Body ground	Always	10 kΩ or higher
L56-3 (MI-) - Body ground	Always	10 kΩ or higher
L56-4 (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 L56 television display assembly connector.

b. Disconnect the F84 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
L56-5 (MO+) - F84-2 (MI+)	Always	Below 1 Ω
L56-6 (MO-) - F84-3 (MI-)	Always	Below 1 Ω
L56-7 (SLDO) - F84-4 (SLDI)	Always	Below 1 Ω
L56-5 (MO+) - Body ground	Always	10 kΩ or higher
L56-6 (MO-) - Body ground	Always	10 kΩ or higher
L56-7 (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)

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 B15D6 Display Disconnected

for Preparation Click here

DESCRIPTION

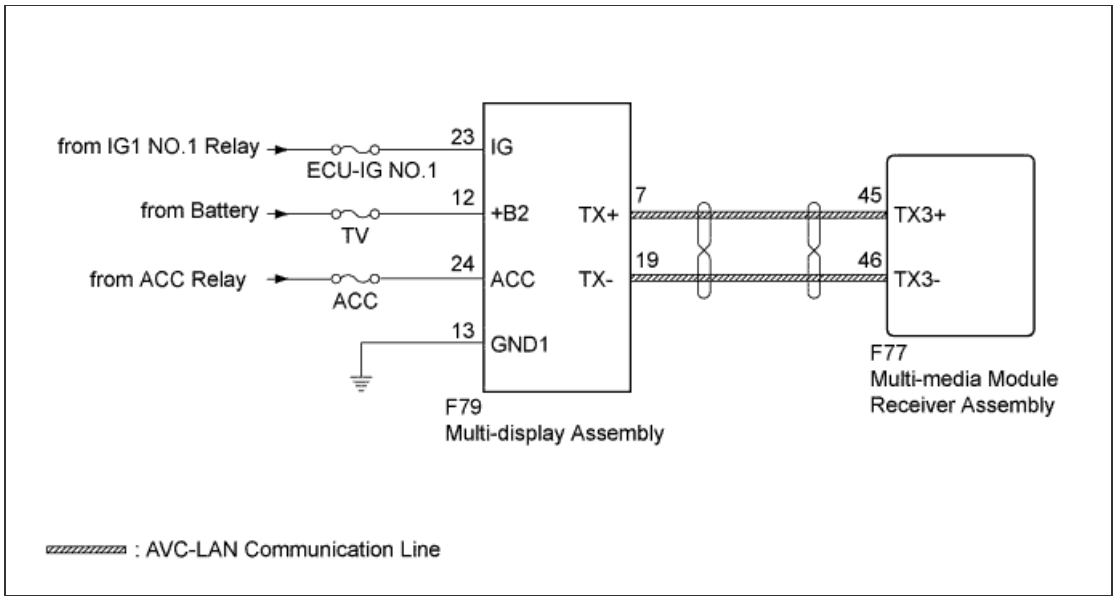
The multi-display assembly and multi-media module receiver assembly are connected by an AVC-LAN communication line.
When an AVC-LAN communication error occurs between the multi-media module receiver assembly and multi-display assembly, these DTCs will be stored.

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 • AVC-LAN circuit • Multi-display assembly • 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.

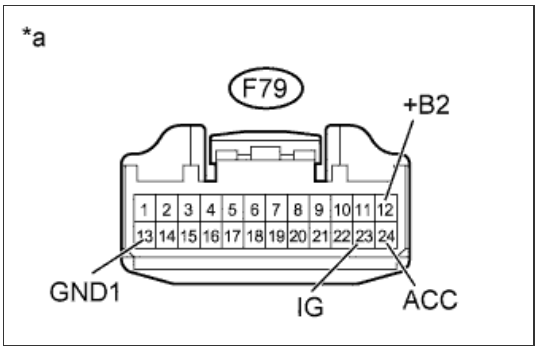
Standard Resistance:

Tester Connection	Condition	Specified Condition
F79-13 (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
F79-12 (+B2) - F79-13 (GND1)	Always	11 to 14 V
F79-23 (IG) - F79-13 (GND1)	Engine switch on (IG)	11 to 14 V
F79-24 (ACC) - F79-13 (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

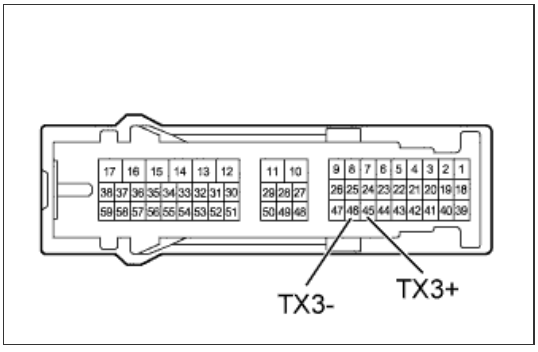
4.INSPECT MULTI-MEDIA MODULE RECEIVER ASSEMBLY

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 F77 multi-media module receiver assembly connector.

b. Disconnect the F79 multi-display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F77-45 (TX3+) - F79-7 (TX+)	Always	Below 1 Ω
F77-46 (TX3-) - F79-19 (TX-)	Always	Below 1 Ω
F77-45 (TX3+) - Body ground	Always	10 kΩ or higher
F77-46 (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)

for Preparation Click here

INSPECTION PROCEDURE

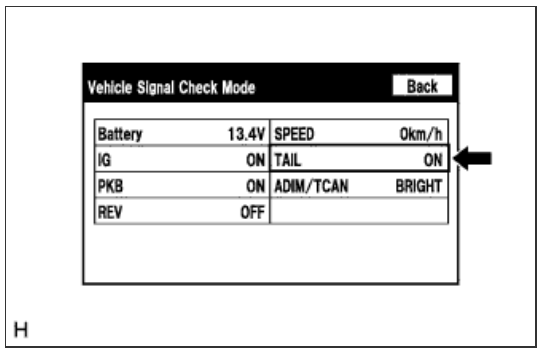
1.CHECK VEHICLE SIGNAL (OPERATION CHECK)

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

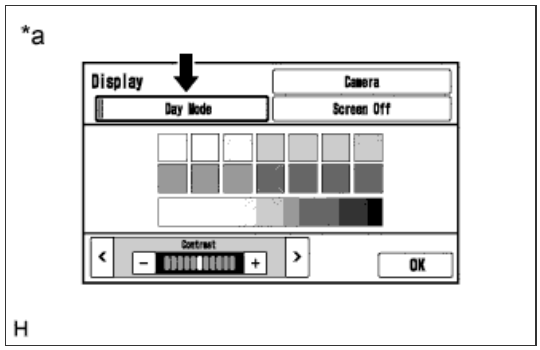
INSPECTION PROCEDURE

1.CHECK IMAGE QUALITY SETTING

a. 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

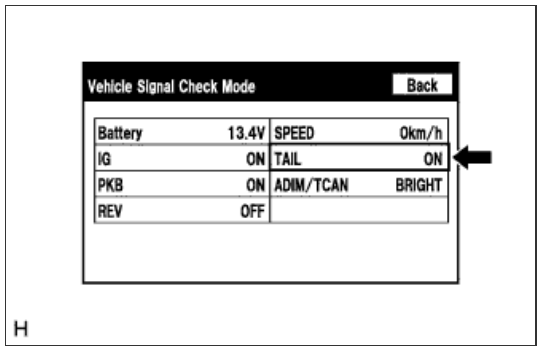
A

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 switches that might prevent operation.

OK:
No foreign matter is found.

NG → REMOVE ANY FOREIGN MATTER FOUND

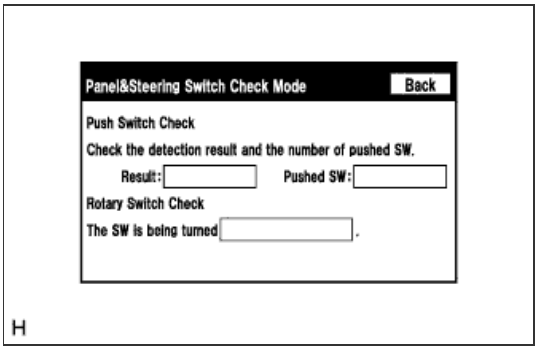
OK ↓

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 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

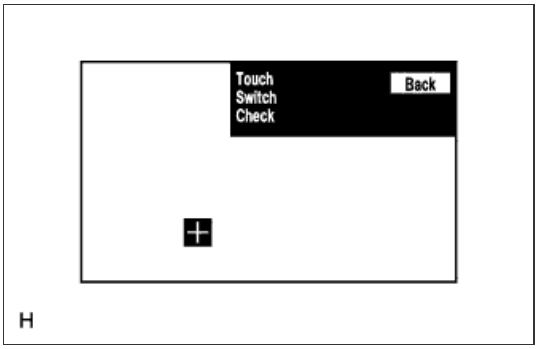
OK ↓

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

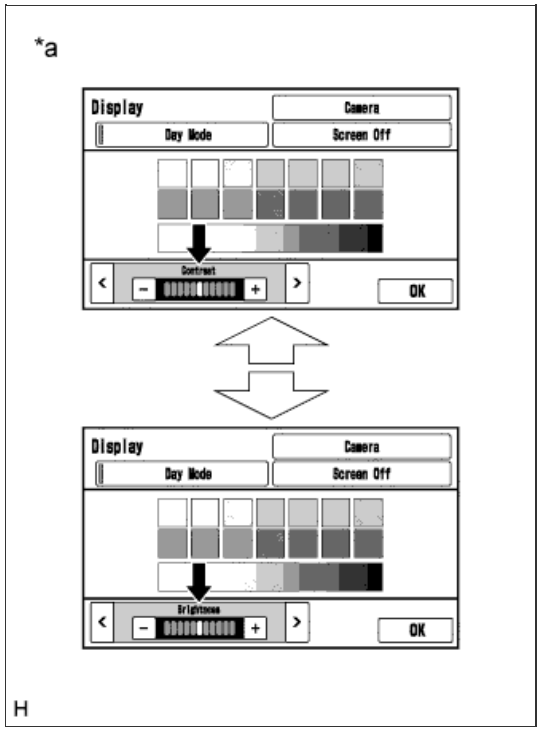
INSPECTION PROCEDURE

1.CHECK DISPLAY SETTING

a. 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

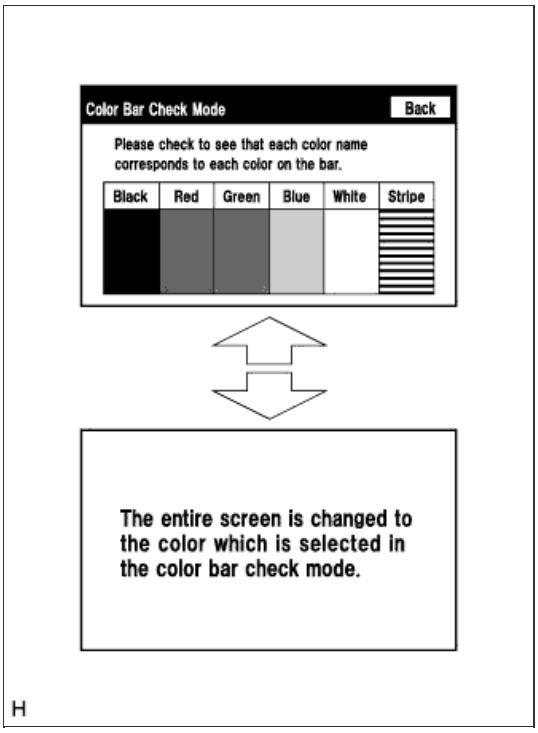
END

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 CONDITION

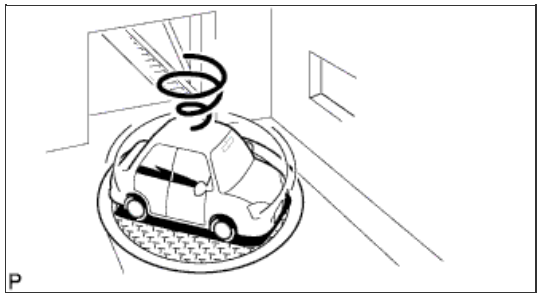
a. Check with the customer if the vehicle has been turned by a turntable.

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 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

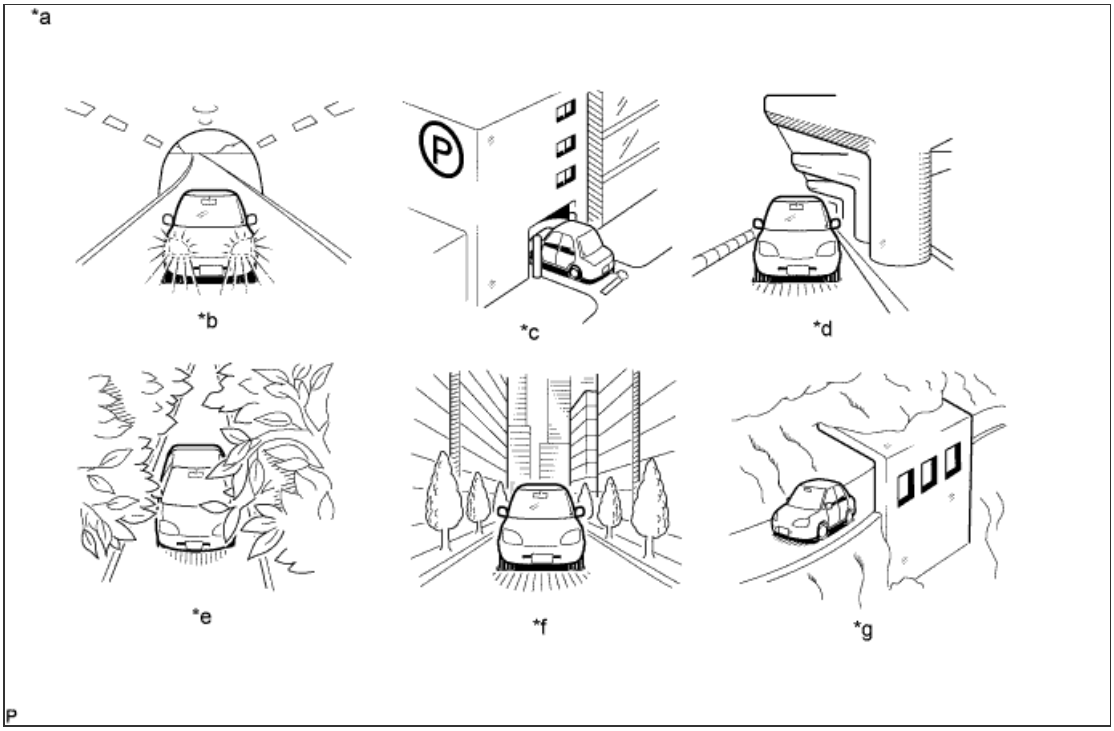
NORMAL OPERATION

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)

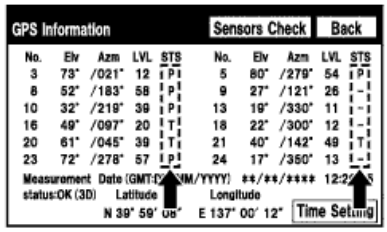
a. Enter the "GPS Information" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

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 SETTING

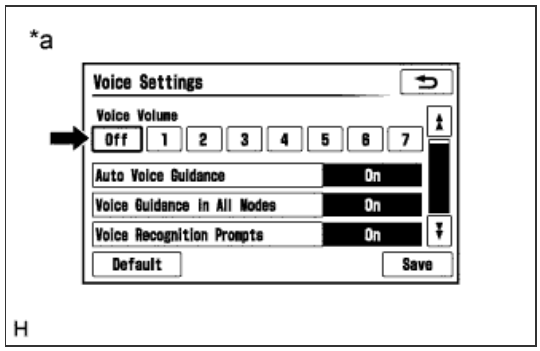
a. Display the "Voice Settings" screen.

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

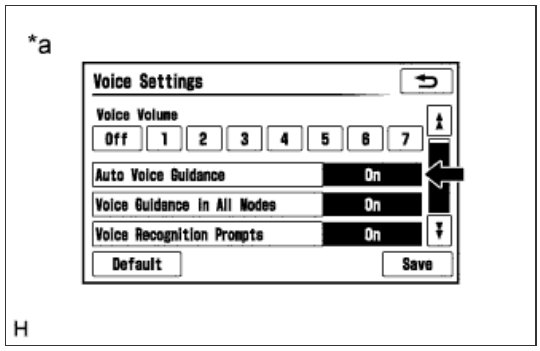
a. Display the "Voice Settings" screen.

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

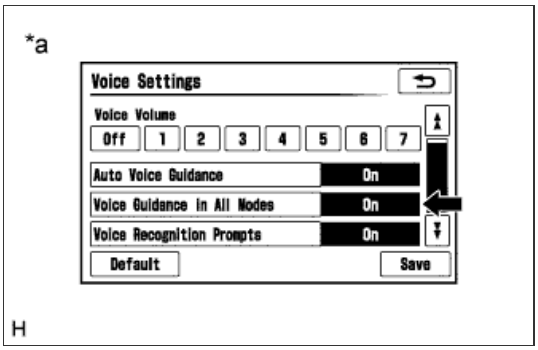
a. Display the "Voice Settings" screen.

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.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 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)

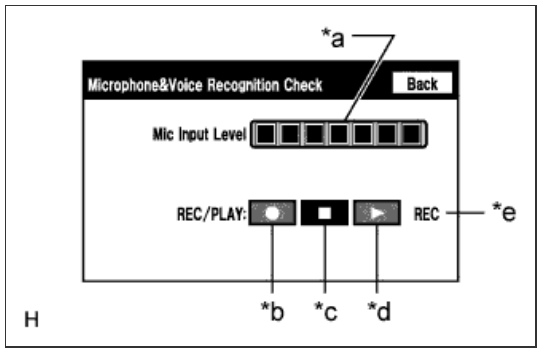
a. Enter the "Microphone & Voice Recognition Check" screen. Refer to Check Mic & Voice Recognition in Operation Check (Click here).

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 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" 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 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

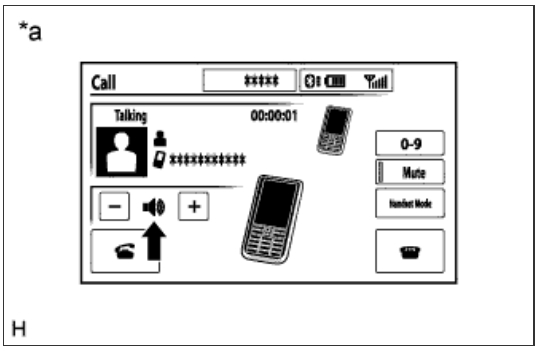
a. Display the "Call" screen.

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

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

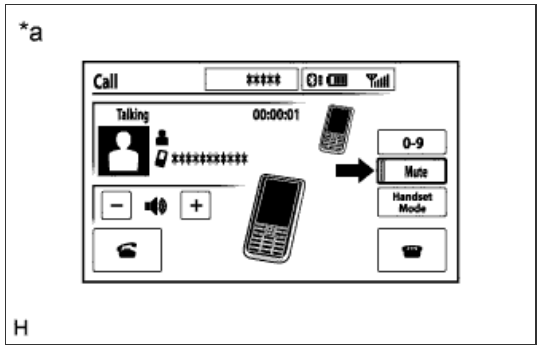
a. Display the "Call" screen.

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).

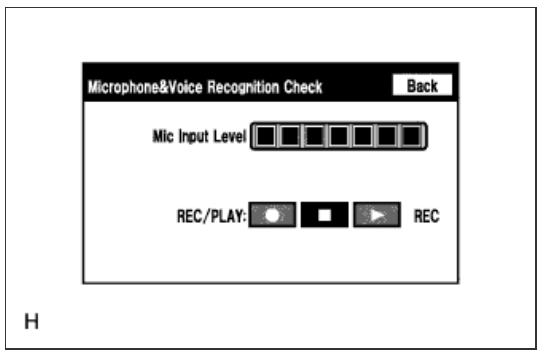
b. When voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

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

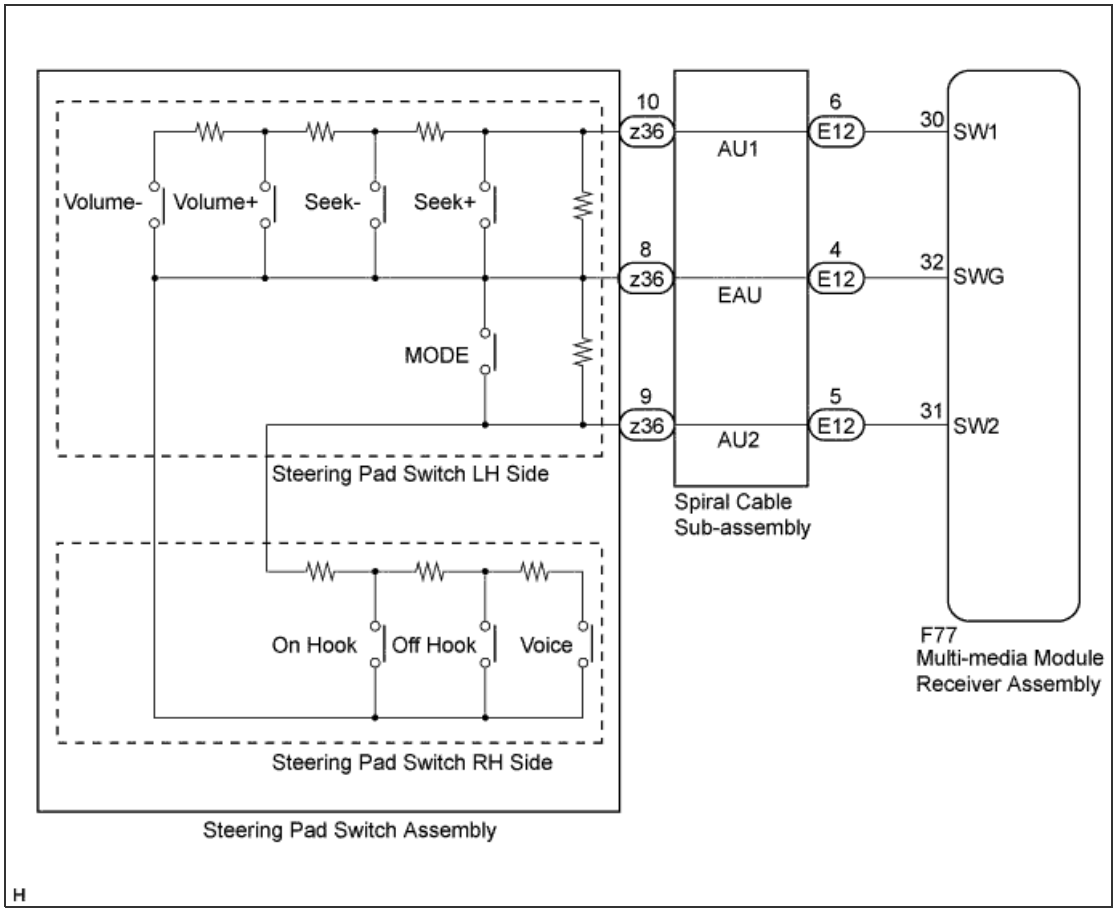
SET SCREEN COLOR QUALITY TO NORMAL

for Preparation Click here

DESCRIPTION

This circuit sends 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.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

2.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

3.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA NODULE RECEIVER ASSEMBLY - SPIRAL CABLE SUB-ASSEMBLY)

a. Disconnect the F77 multi-media module receiver assembly connector.

b. Disconnect the E12 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
F77-30 (SW1) - E12-6 (AU1)	Always	Below 1 Ω
F77-31 (SW2) - E12-5 (AU2)	Always	Below 1 Ω
F77-32 (SWG) - E12-4 (EAU)	Always	Below 1 Ω
F77-30 (SW1) - Body ground	Always	10 kΩ or higher
F77-31 (SW2) - Body ground	Always	10 kΩ or higher
F77-32 (SWG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

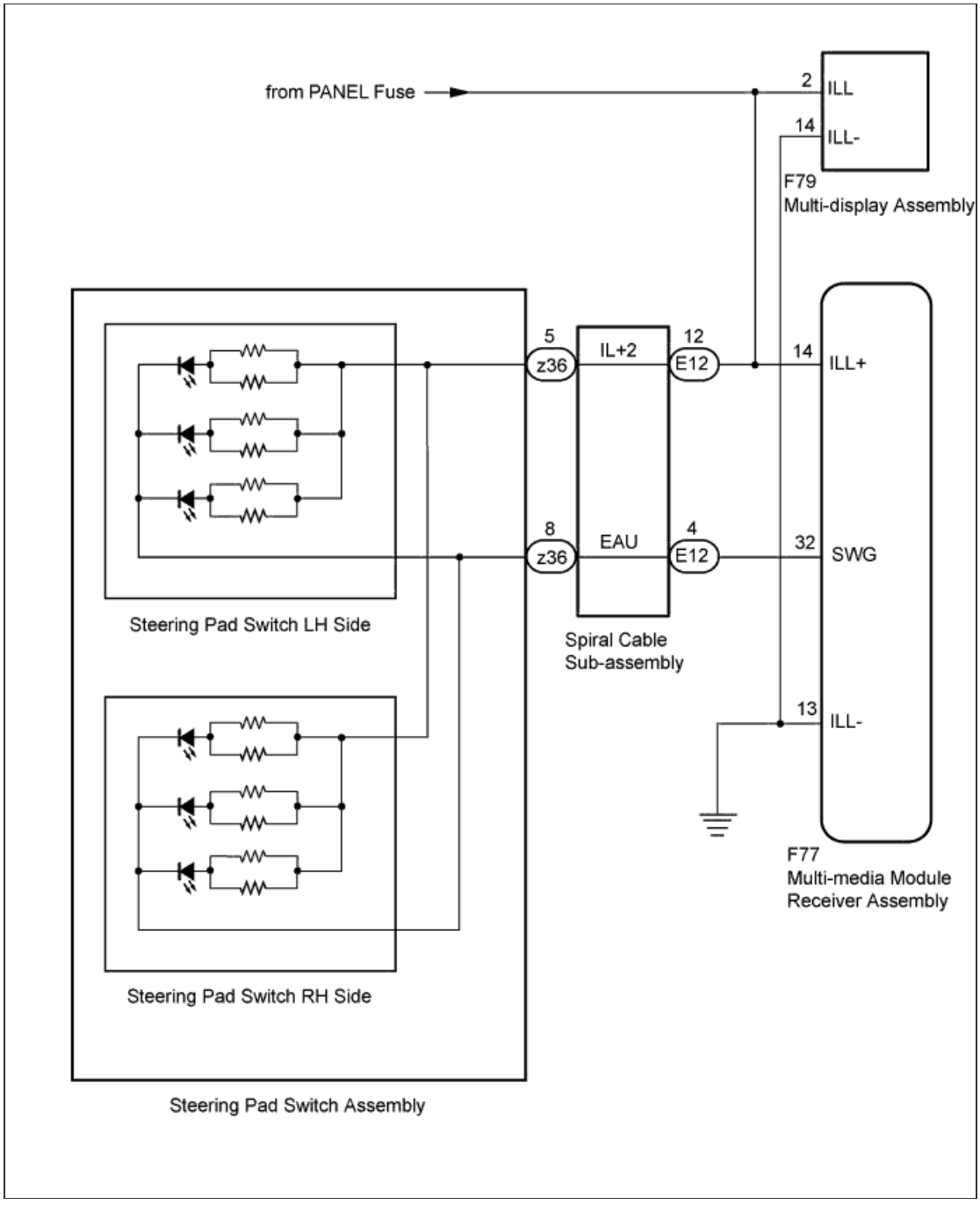
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

Power is supplied to the 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

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 6

C → Go to step 7

D → GO TO LIGHTING SYSTEM (Click here)

A

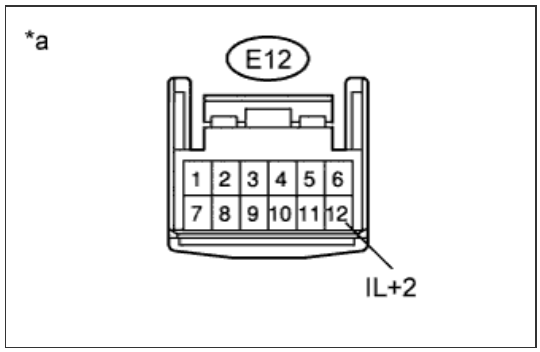
2.CHECK HARNESS AND CONNECTOR (ILLUMINATION SIGNAL)

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
E12-12 (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.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

5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY, MULTI-DISPLAY ASSEMBLY - SPIRAL CABLE SUB-ASSEMBLY)

a. Disconnect the F77 multi-media module receiver assembly connector.

b. Disconnect the F79 multi-display assembly connector.

c. Disconnect the E12 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
F77-14 (ILL+) - E12-12 (IL+2)	Always	Below 1 Ω
F77-32 (SWG) - E12-4 (EAU)	Always	Below 1 Ω
F79-2 (ILL) - E12-12 (IL+2)	Always	Below 1 Ω
F77-14 (ILL+) - Body ground	Always	10 kΩ or higher
F77-32 (SWG) - Body ground	Always	10 kΩ or higher
F79-2 (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)

6.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.

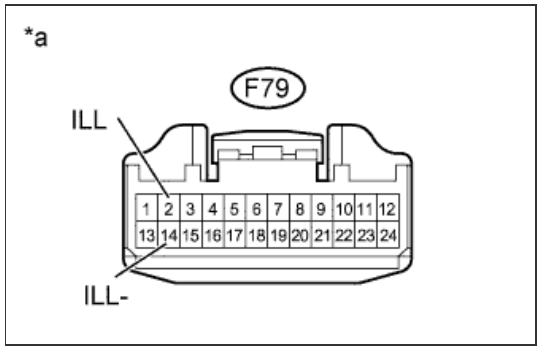
Standard Resistance:

Tester Connection	Condition	Specified Condition
F79-14 (ILL-) - 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
F79-2 (ILL) - 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 Multi-display Assembly)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE MULTI-DISPLAY ASSEMBLY (Click here)

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

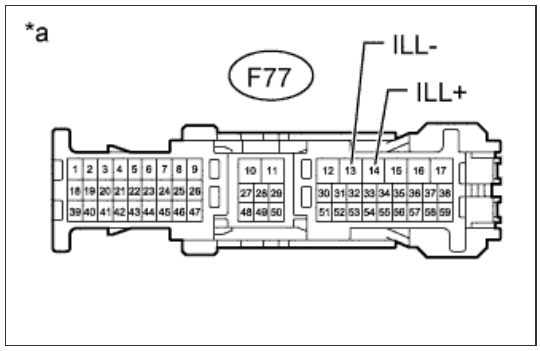
Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F77-14 (ILL+) - Body ground	Light control switch in the tail or head position	11 to 14 V

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F77-13 (ILL-) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Multi-media Module Receiver Assembly)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

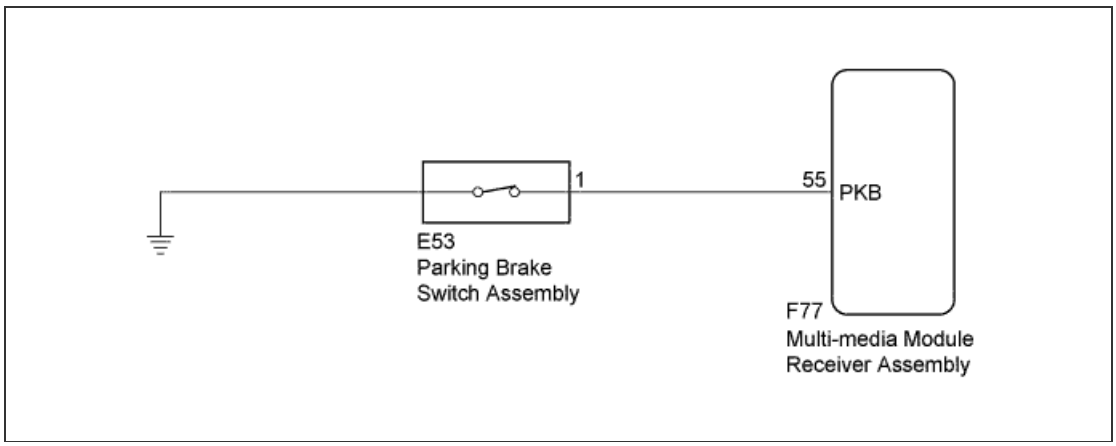
REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

for Preparation Click here

DESCRIPTION

This circuit is from the parking brake switch assembly to the multi-media module receiver assembly.

WIRING DIAGRAM

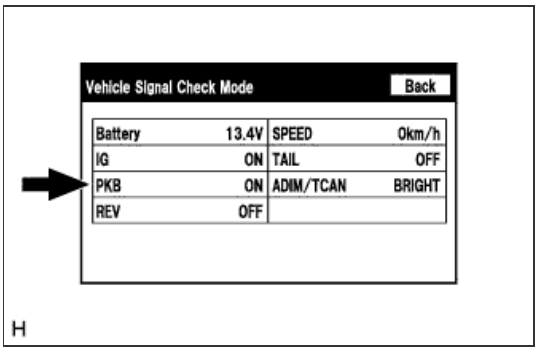


INSPECTION PROCEDURE

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 F77 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
F77-55 (PKB) - E53-1	Always	Below 1 Ω
F77-55 (PKB) - Body ground	Always	10 kΩ or higher

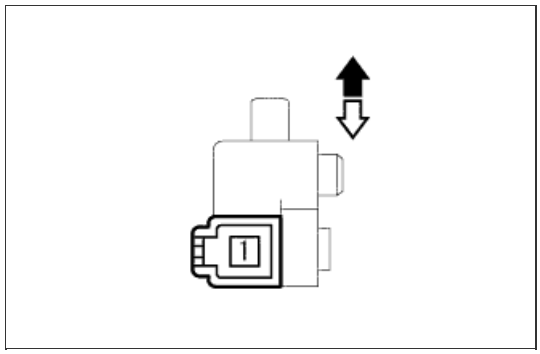
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

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

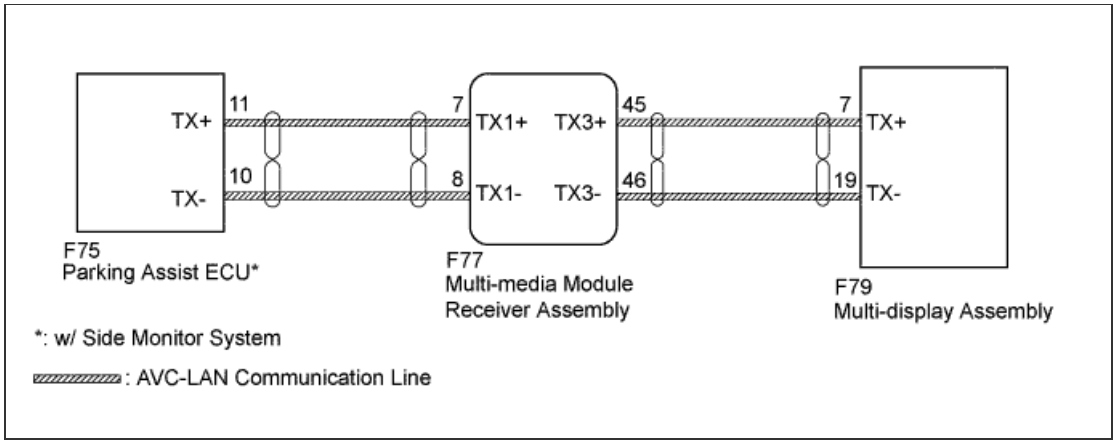
REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

for Preparation Click here

DESCRIPTION

Each 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

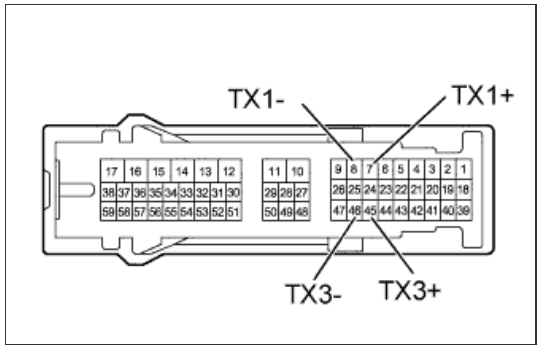
1.INSPECT MULTI-MEDIA MODULE RECEIVER ASSEMBLY

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 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

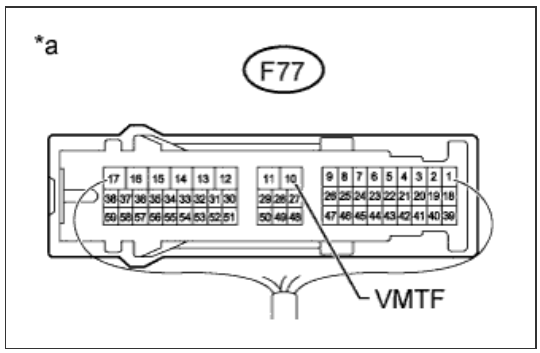
a. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
F77-10 (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 F79 multi-display assembly connector.

b. Disconnect the F77 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
F79-11 (VMTI) - F77-10 (VMTF)	Always	Below 1 Ω

F79-11 (VMTI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

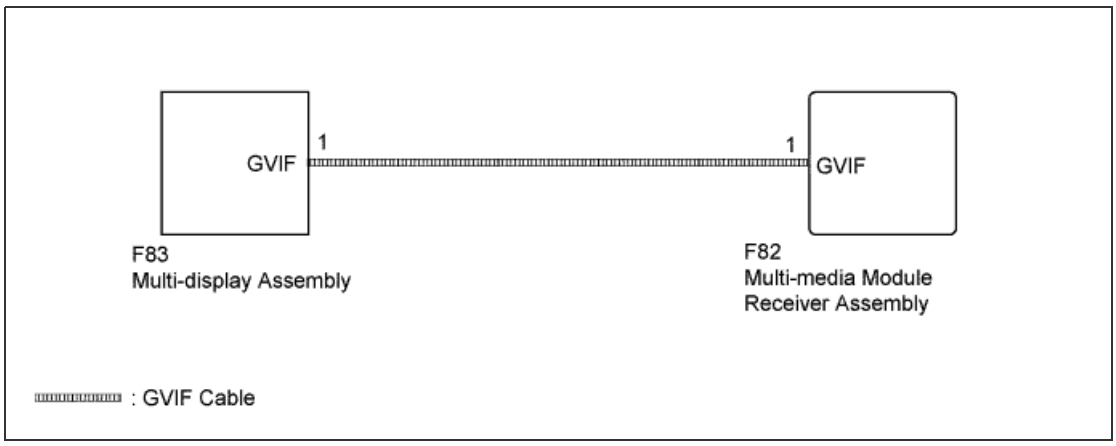
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

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 →

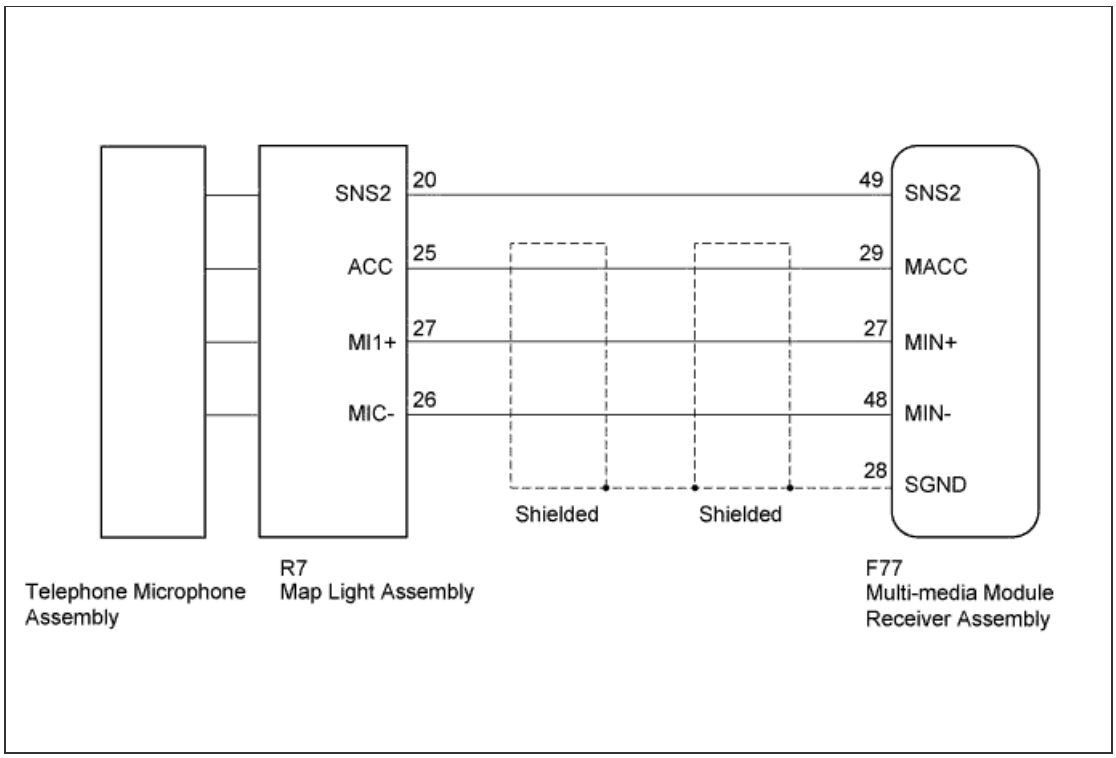
END (MULTI-DISPLAY ASSEMBLY IS DEFECTIVE)

for Preparation Click here

DESCRIPTION

- 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.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER ASSEMBLY - MAP LIGHT ASSEMBLY)

a. Disconnect the F77 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
F77-49 (SNS2) - R7-20 (SNS2)	Always	Below 1 Ω
F77-29 (MACC) - R7-25 (ACC)	Always	Below 1 Ω
F77-27 (MIN+) - R7-27 (MI1+)	Always	Below 1 Ω
F77-48 (MIN-) - R7-26 (MIC-)	Always	Below 1 Ω
F77-49 (SNS2) - Body ground	Always	10 kΩ or higher
F77-29 (MACC) - Body ground	Always	10 kΩ or higher
F77-27 (MIN+) - Body ground	Always	10 kΩ or higher
F77-48 (MIN-) -	Always	10 kΩ or higher

Body ground		
F77-28 (SGND) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.INSPECT MULTI-MEDIA MODULE RECEIVER ASSEMBLY

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

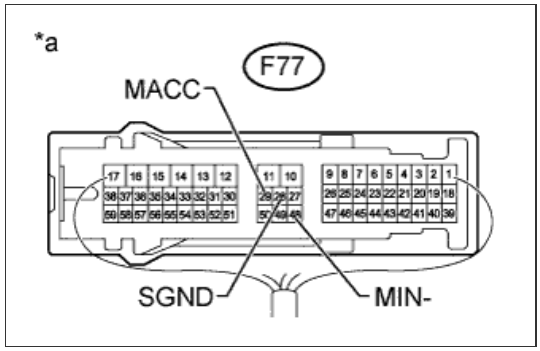
Standard Resistance:

Tester Connection	Condition	Specified Condition
F77-28 (SGND) - Body ground	Always	Below 1 Ω
F77-48 (MIN-) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F77-29 (MACC) - Body ground	Engine switch on (ACC)	4 to 6 V



Text in Illustration

*a	Component with harness connected (Multi-media Module Receiver Assembly)

NG → MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK

Go to step 5

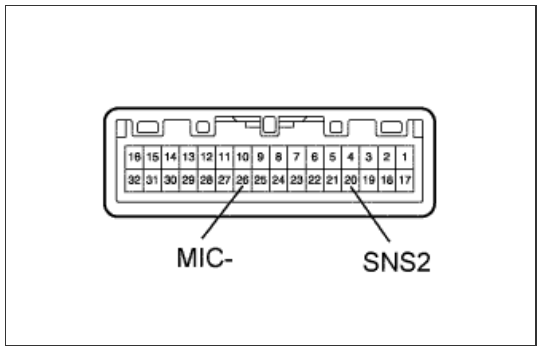
3.INSPECT MAP LIGHT ASSEMBLY

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	Condition	Specified Condition
26 (MIC-) - 20 (SNS2)	Always	Below 1 Ω



NG → Go to step 5

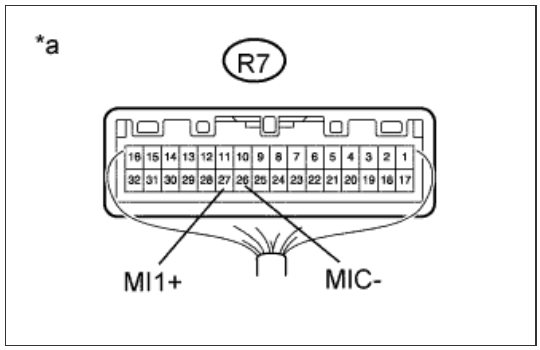
OK

4.CHECK MAP LIGHT ASSEMBLY

a. Turn the engine switch on (ACC).

b. Connect an oscilloscope to terminals R7-27 (MI1+) and R7-26 (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 not output.	A
A waveform synchronized with the voice input to the map light assembly is output.	B

B → Go to step 5

A

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

5.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

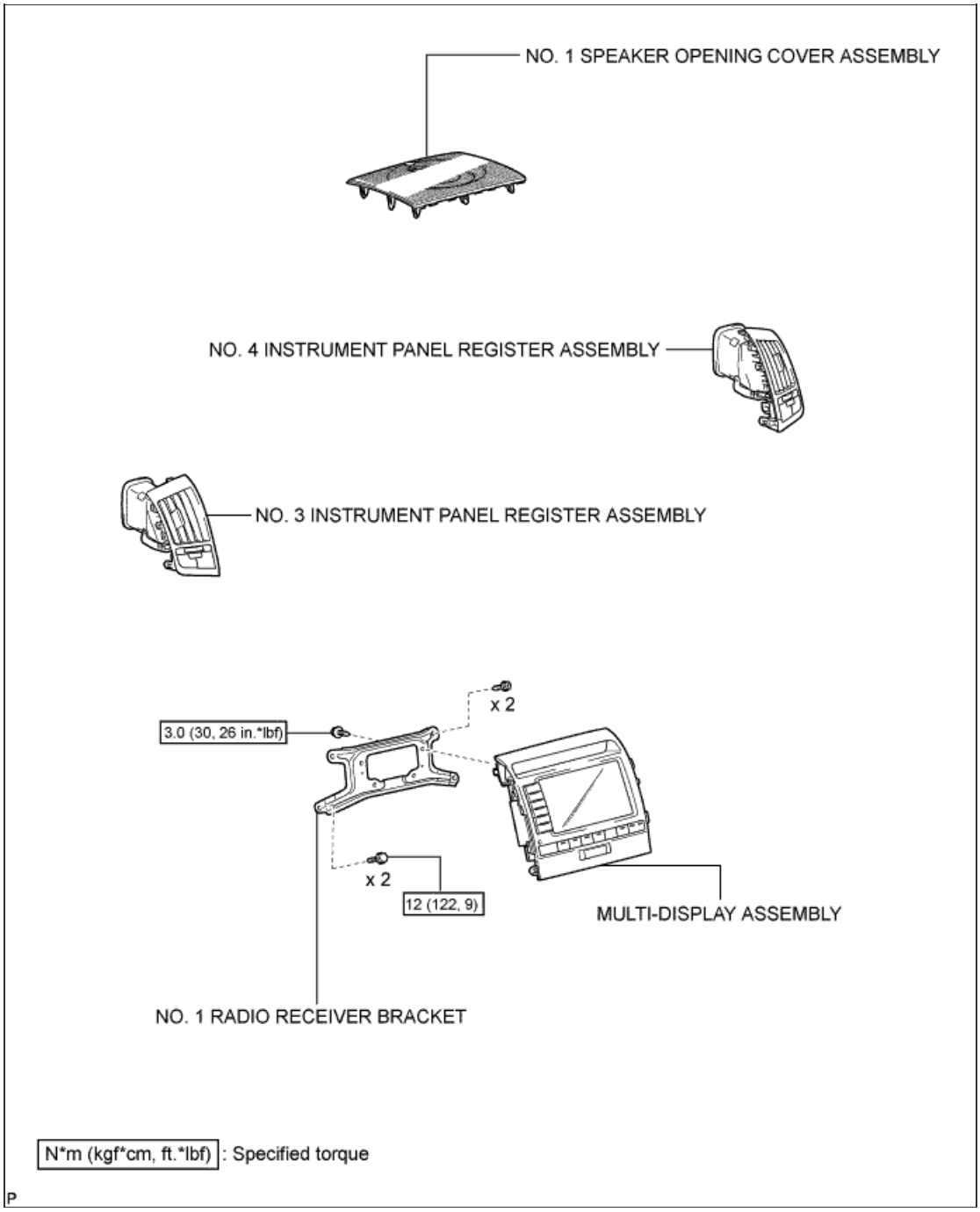
Result	Proceed to
Malfunction does not recur (returns to normal).	A
Malfunction recurs.	B

B → REPLACE MAP LIGHT ASSEMBLY (Click here)

A

END (TELEPHONE MICROPHONE ASSEMBLY IS DEFECTIVE)

for Preparation Click here



for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

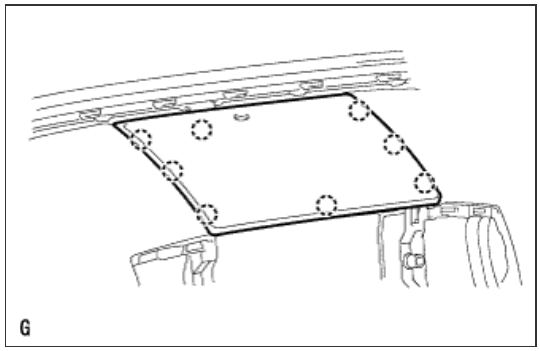
2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Detach the 8 claws and remove the opening cover.



4. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

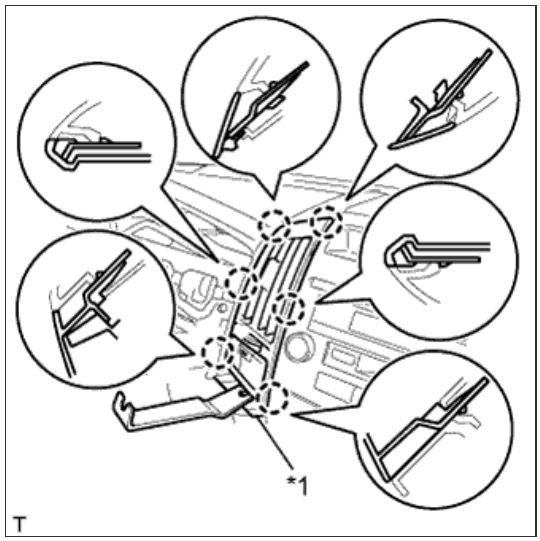
a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 6 claws.

c. Disconnect the connector and remove the No. 3 instrument panel register.



5. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

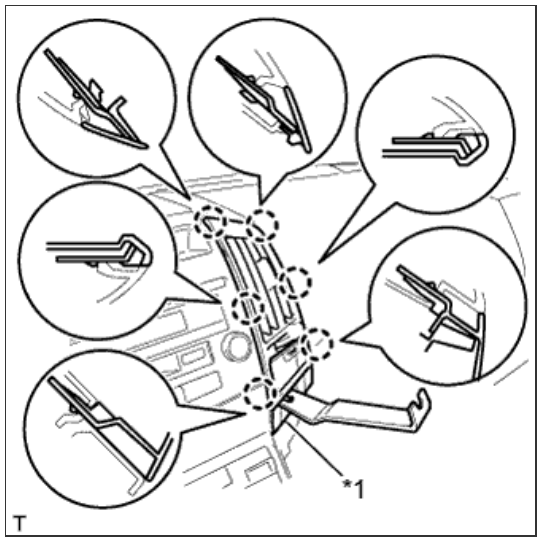
a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

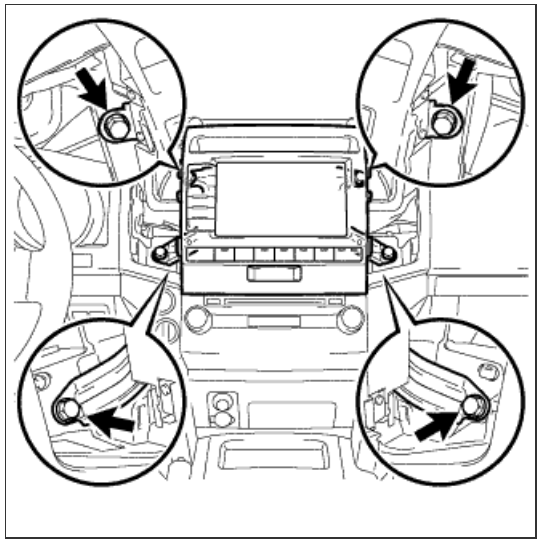
b. Using a moulding remover, detach the 6 claws.

c. Disconnect the connector and remove the No. 4 instrument panel register.



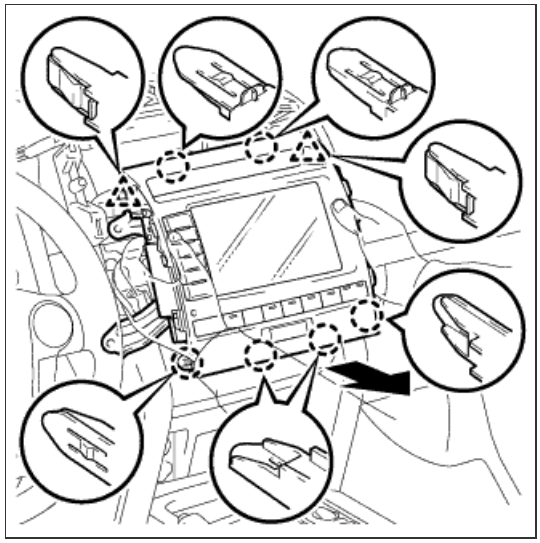
6. REMOVE MULTI-DISPLAY ASSEMBLY

a. Remove the 2 screws and 2 bolts.



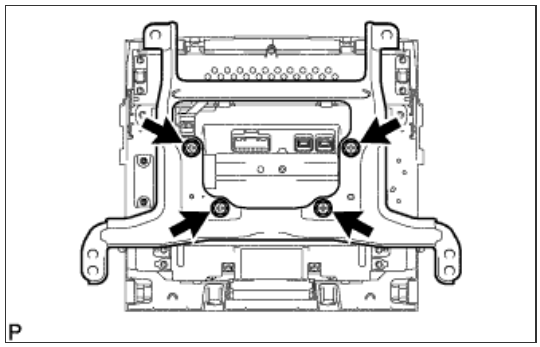
b. Pull the multi-display assembly to detach the 2 clips and 6 claws on the backside of the multi-display assembly.

c. Disconnect the connectors and remove the multi-display assembly.



7. 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. 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 }

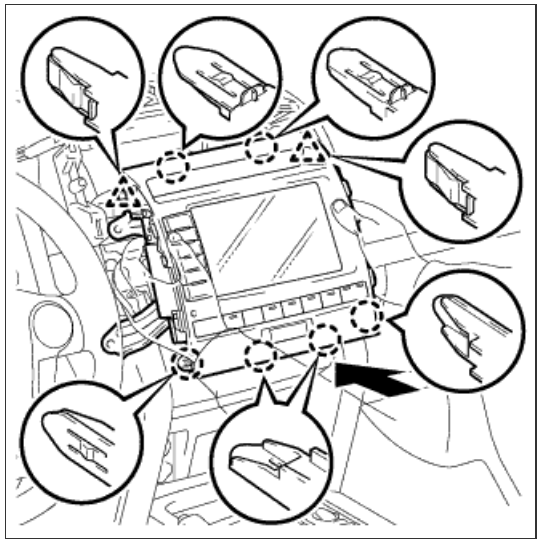
2. INSTALL MULTI-DISPLAY ASSEMBLY

a. Connect the connectors.

b. Insert the multi-display assembly and attach the 2 clips and 6 claws on its backside.

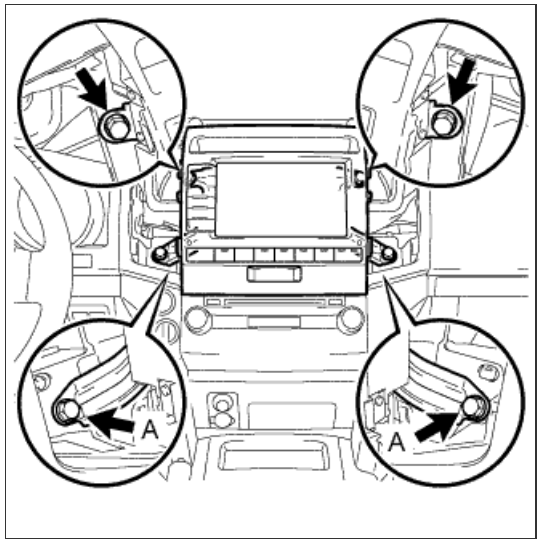
NOTICE:

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.

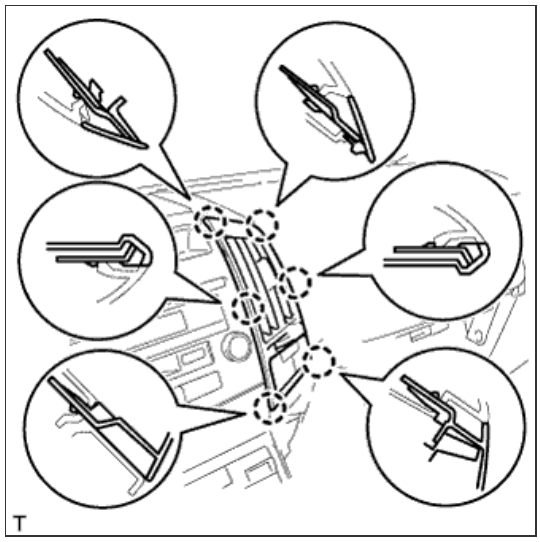
Torque:
Bolt A:
12 N*m{ 122 kgf*cm , 9 ft.*lbf }



3. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Connect the connector.

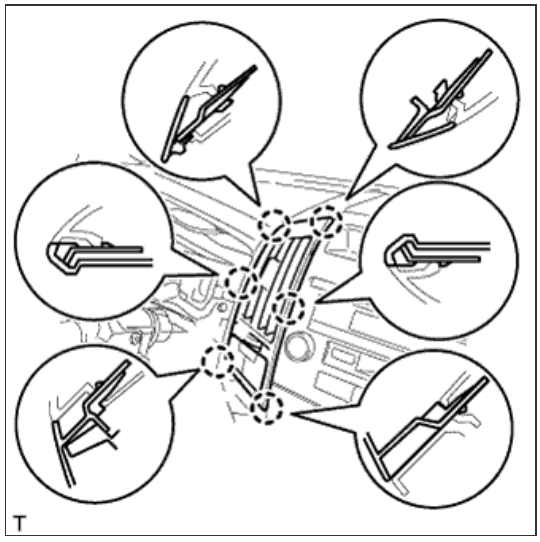
b. Attach the 6 claws to install the No. 4 instrument panel register.



4. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

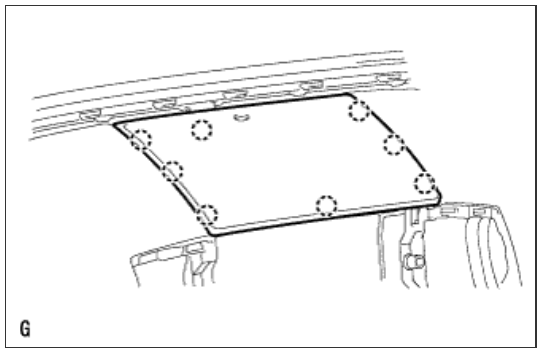
a. Connect the connector.

b. Attach the 6 claws to install the No. 3 instrument panel register.



5. INSTALL NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Attach the 8 claws to install the opening cover.



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).

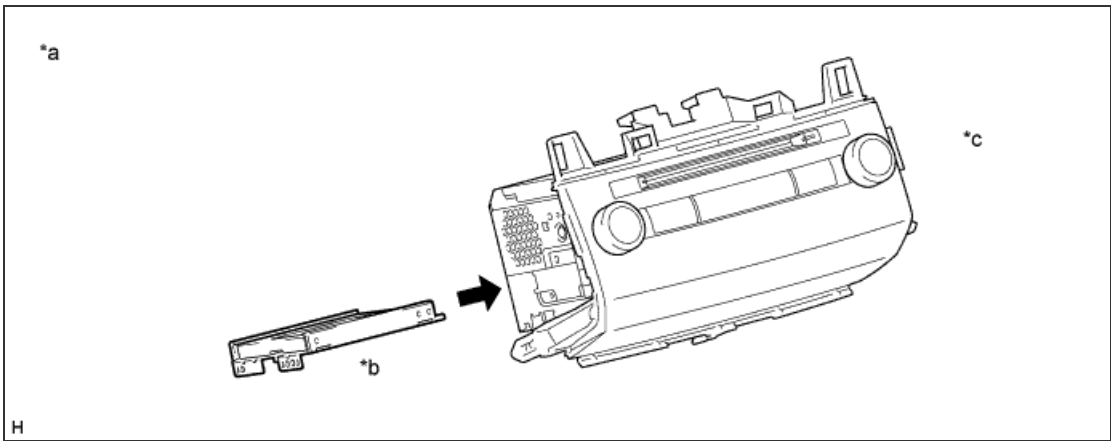
for Preparation Click here

1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

a. After the engine switch is turned off, the multi-media module receiver assembly requires approximately 60 seconds to record various types of memory and settings. As a result, after turning the engine switch off, wait a minute or more before disconnecting the cable from the negative (-) battery terminal.

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.

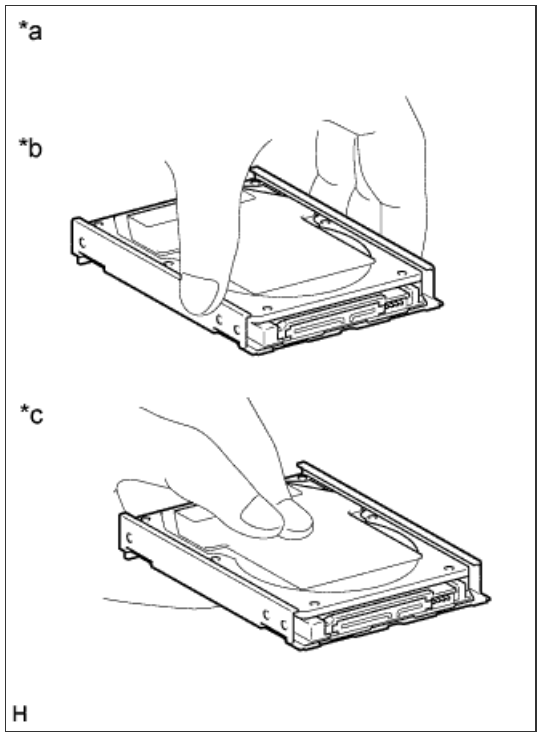
ii. Do not touch the HDD cover.

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.

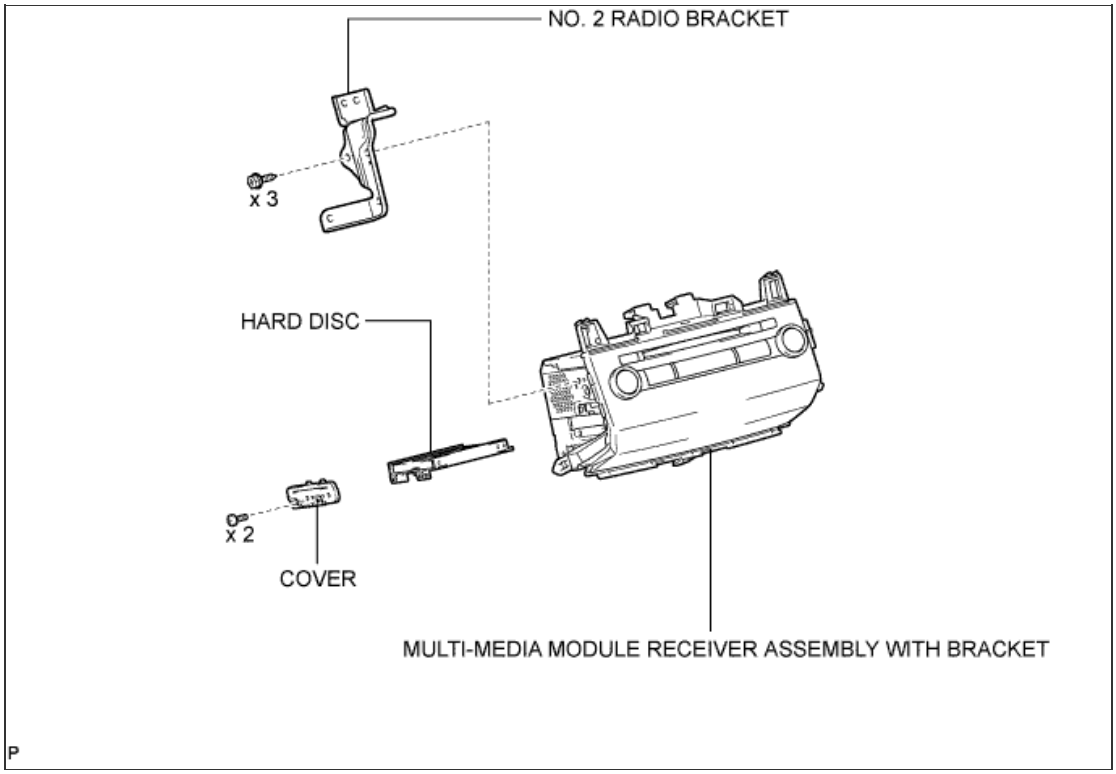
vii. Inspect after HDD replacement.

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 Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

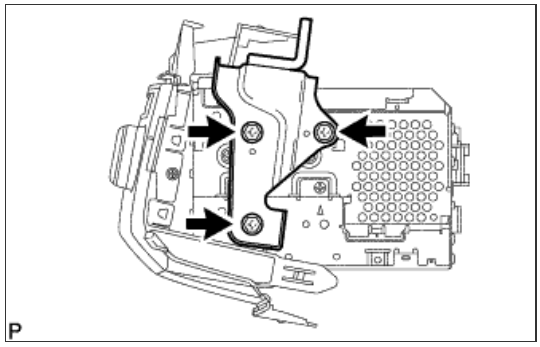
When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE MULTI-MEDIA MODULE RECEIVER ASSEMBLY WITH BRACKET

(Click here)

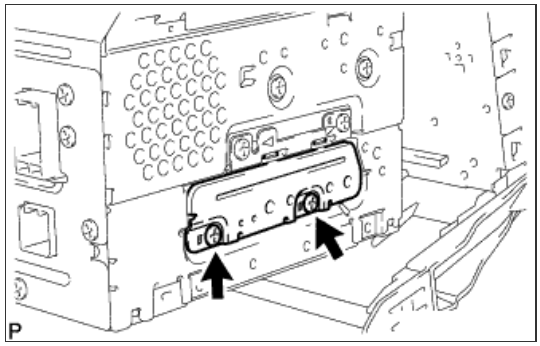
4. REMOVE NO. 2 RADIO BRACKET

a. Remove the 3 bolts and No. 2 radio bracket.

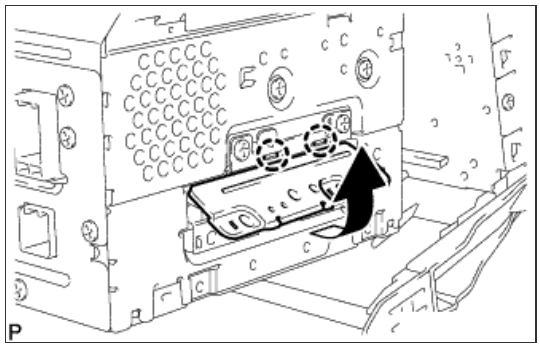


5. REMOVE HARD DISC

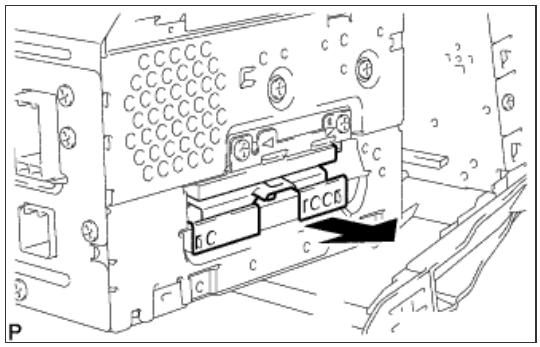
a. Remove the 2 screws.



b. Move the cover in the direction of the arrow shown in the illustration to remove it.



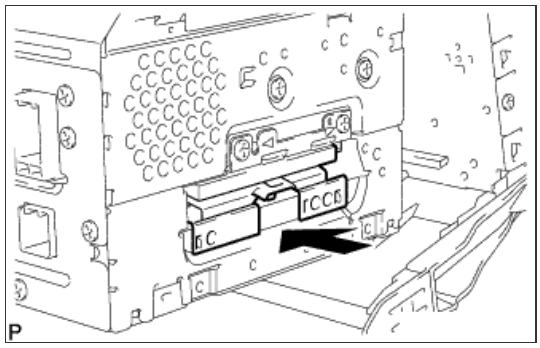
c. Remove the hard disc in the direction of the arrow shown in the illustration.



for Preparation Click here

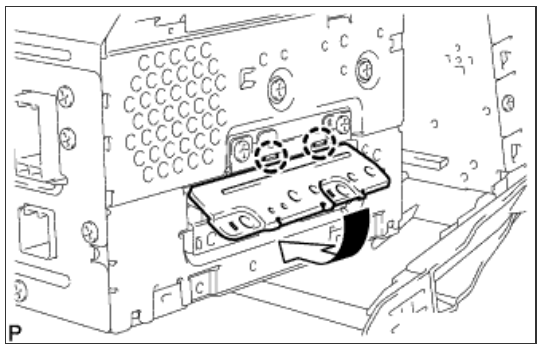
1. INSTALL HARD DISC

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

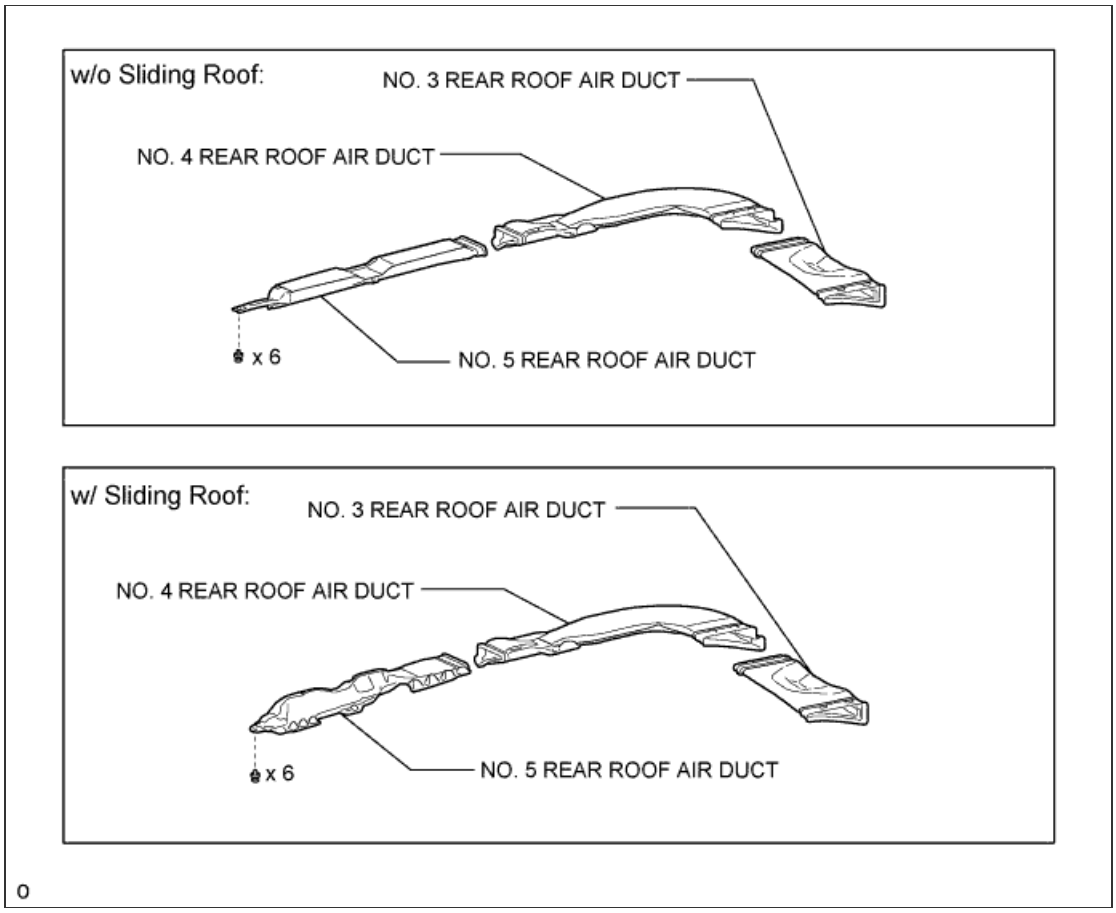
(Click here)

4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

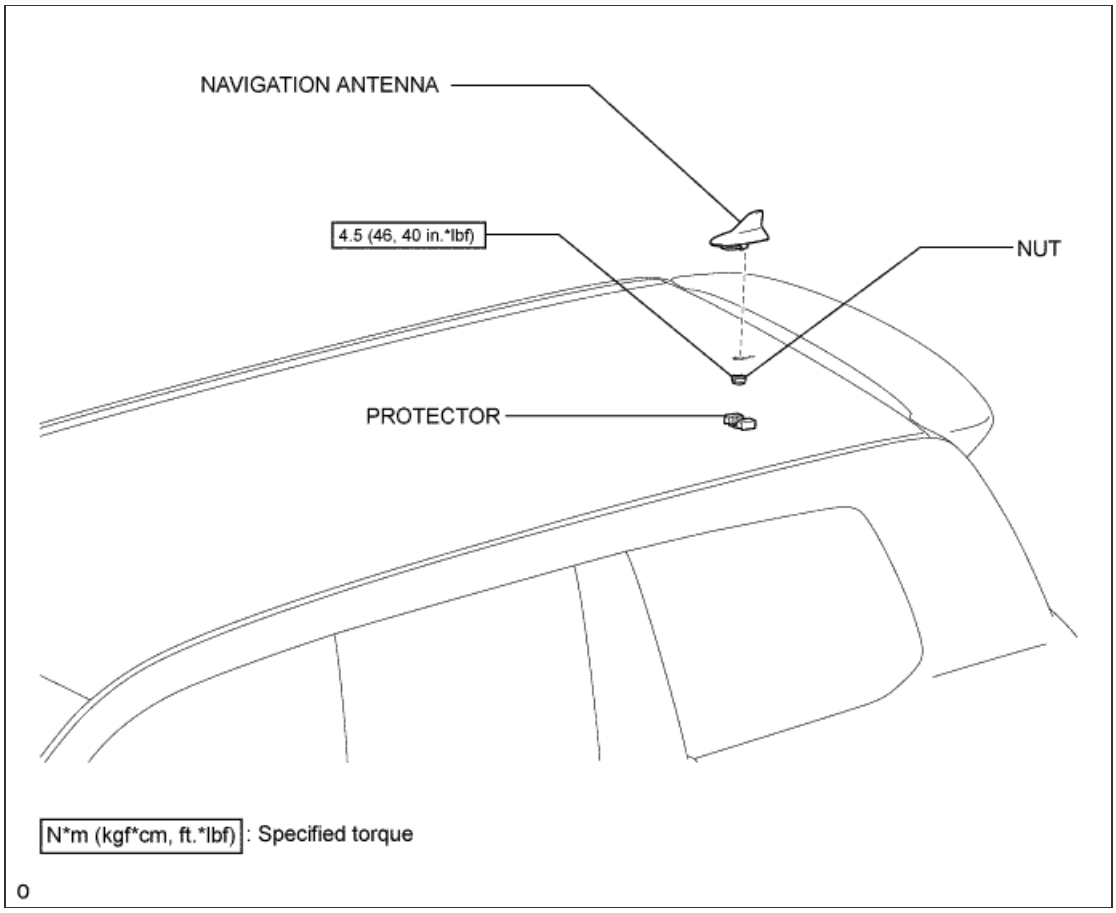
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

for Preparation Click here



o


NAVIGATION ANTENNA
4.5 (46, 40 in.*lbf)
NUT
PROTECTOR
N*m (kgf*cm, ft.*lbf) : Specified torque

o

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

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).

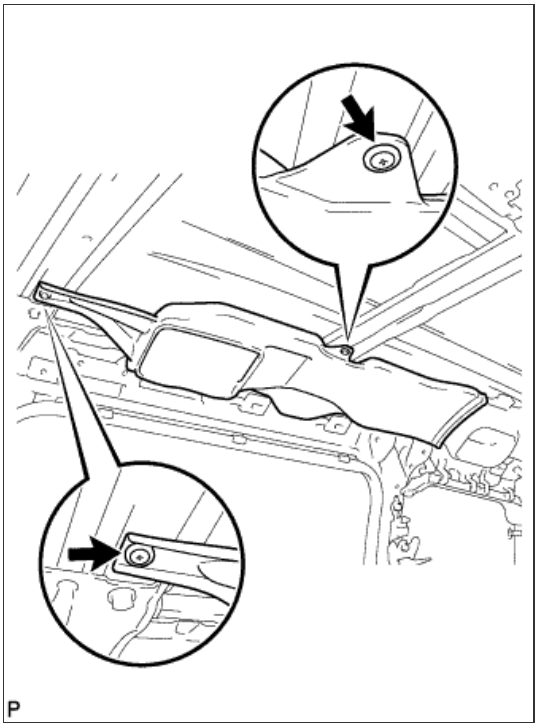
3. REMOVE ROOF HEADLINING ASSEMBLY

a. w/ Sliding Roof:
(Click here)

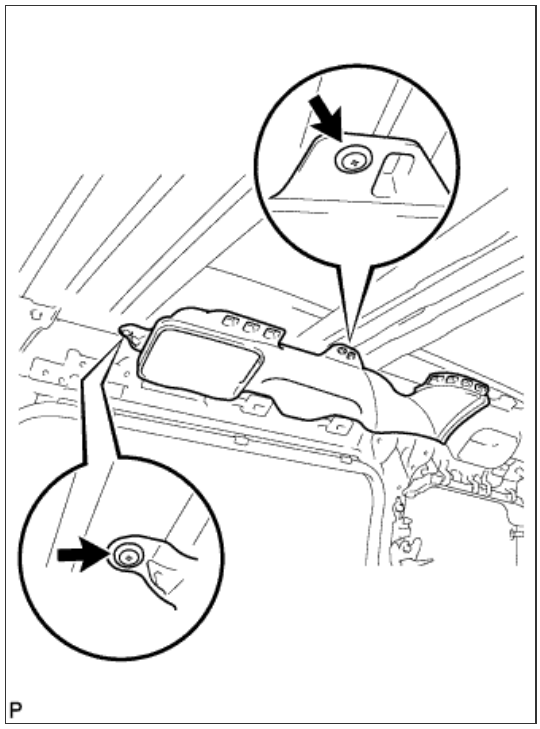
b. w/o Sliding Roof:
(Click here)

4. REMOVE NO. 5 REAR ROOF AIR DUCT

a. w/o Sliding Roof:
Remove the 2 clips and duct.



b. w/ Sliding Roof:
Remove the 2 clips and duct.



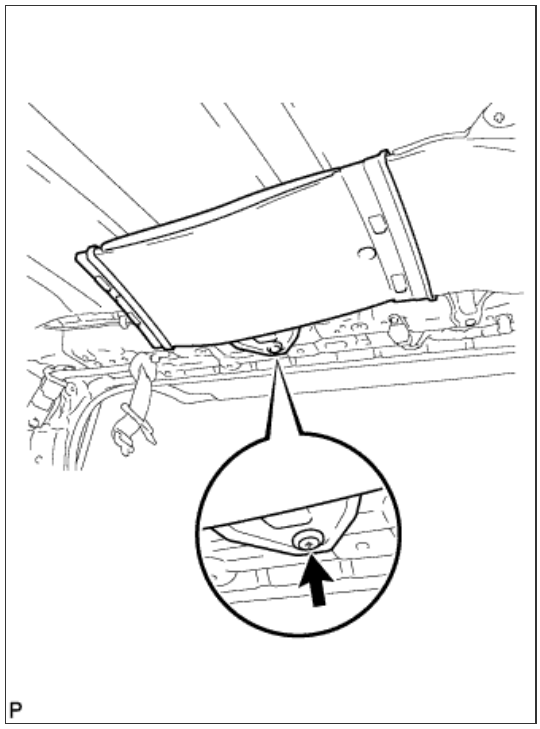
5. REMOVE NO. 4 REAR ROOF AIR DUCT

a. Remove the 2 clips and duct.



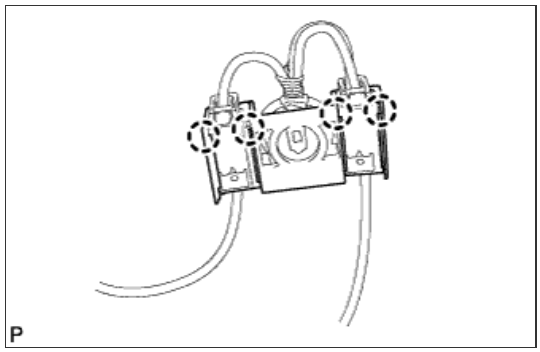
6. REMOVE NO. 3 REAR ROOF AIR DUCT

a. Remove the clip and duct.

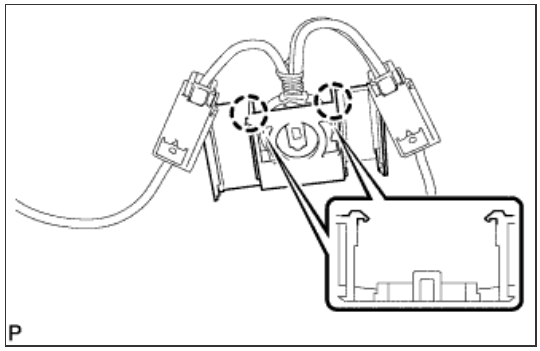


7. REMOVE NAVIGATION ANTENNA

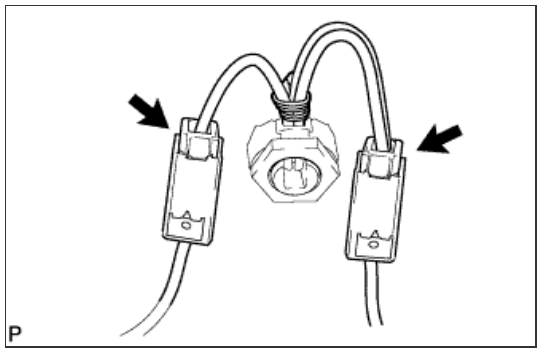
a. Detach the 4 claws and remove the 2 navigation antenna connectors from the protector.



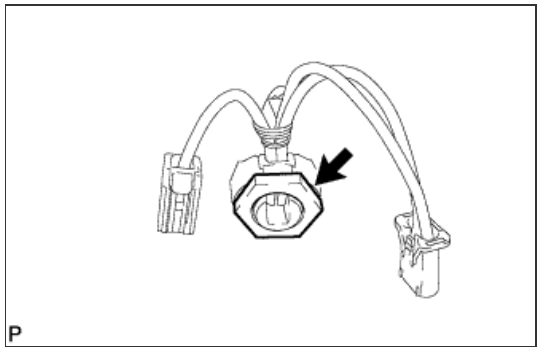
b. Detach the 2 claws and remove the protector.



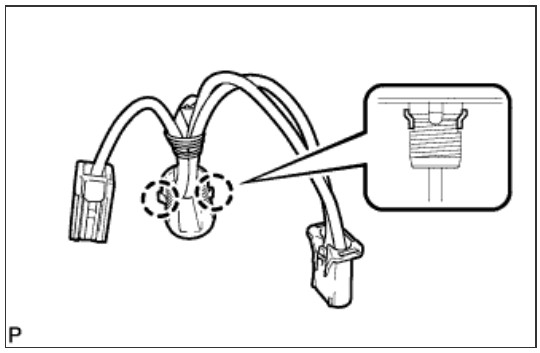
c. Disconnect the 2 navigation antenna connectors.



d. Remove the navigation antenna nut.



e. Detach the 2 claws and remove the navigation antenna.



for Preparation Click here

1. INSTALL NAVIGATION ANTENNA

a. Align the positioning pin of the navigation antenna and set the antenna on the vehicle.

b. Attach the 2 claws to install the navigation antenna.

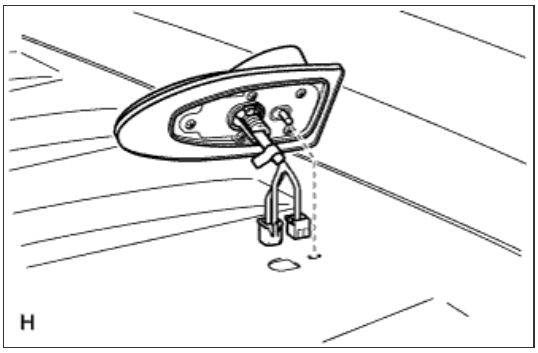
c. Install the navigation antenna nut.

Torque:
4.5 N*m{ 46 kgf*cm , 40 in.*lbf }

d. Connect the 2 navigation antenna connectors.

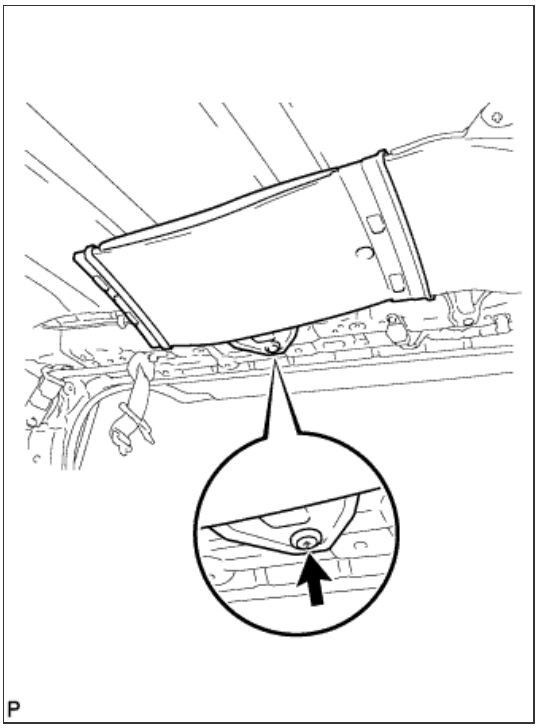
e. Attach the 2 claws to install the protector.

f. Attach the 4 claws to install the 2 navigation antenna connectors.



2. INSTALL NO. 3 REAR ROOF AIR DUCT

a. Install the duct with the clip.



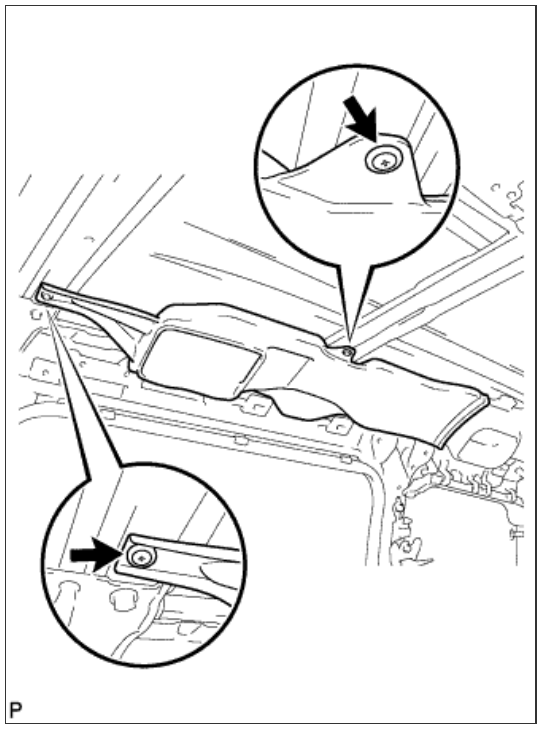
3. INSTALL NO. 4 REAR ROOF AIR DUCT

a. Install the duct with the 2 clips.

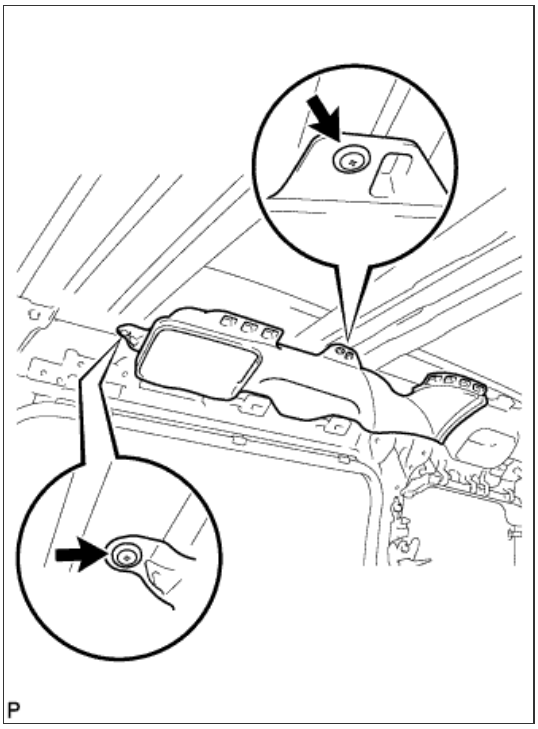


4. INSTALL NO. 5 REAR ROOF AIR DUCT

a. w/o Sliding Roof:
Install the duct with the 2 clips.



b. w/ Sliding Roof:
Install the duct with the 2 clips.



5. INSTALL ROOF HEADLINING ASSEMBLY

a. w/ Sliding Roof:
(Click here)

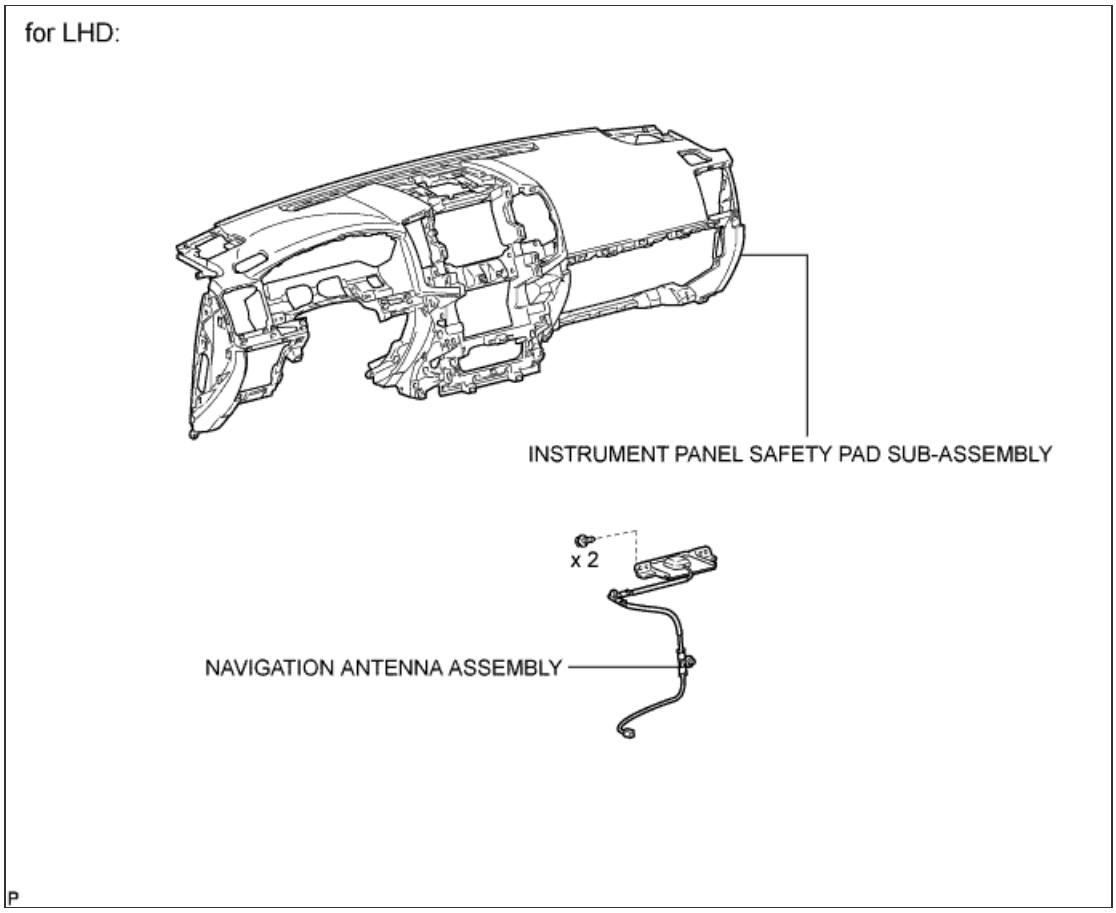
b. w/o Sliding Roof:
(Click here)

6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

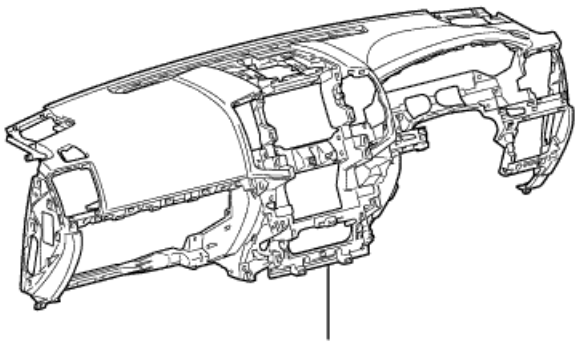
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

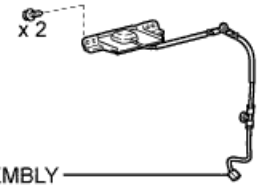
for Preparation Click here



for RHD:



INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY



NAVIGATION ANTENNA ASSEMBLY

P

NAVIGATION ANTENNA (for Instrument Panel Side) > REMOVAL

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

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

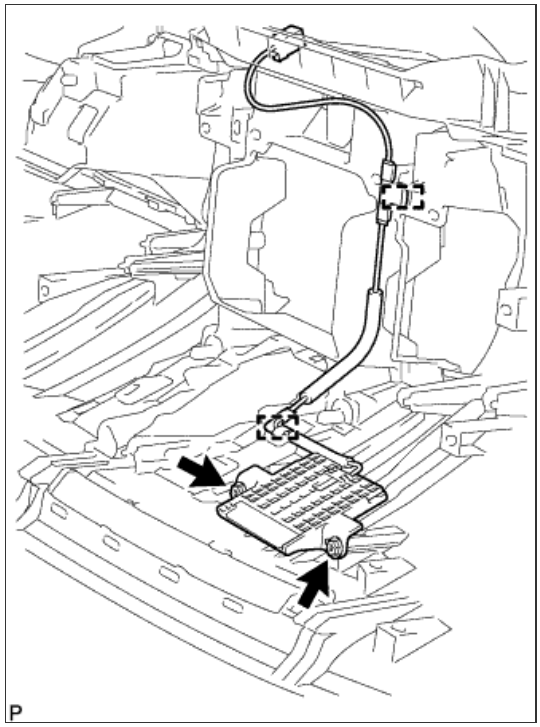
(Click here)

4. REMOVE NAVIGATION ANTENNA ASSEMBLY

a. for LHD:

i. Detach the 2 clamps.

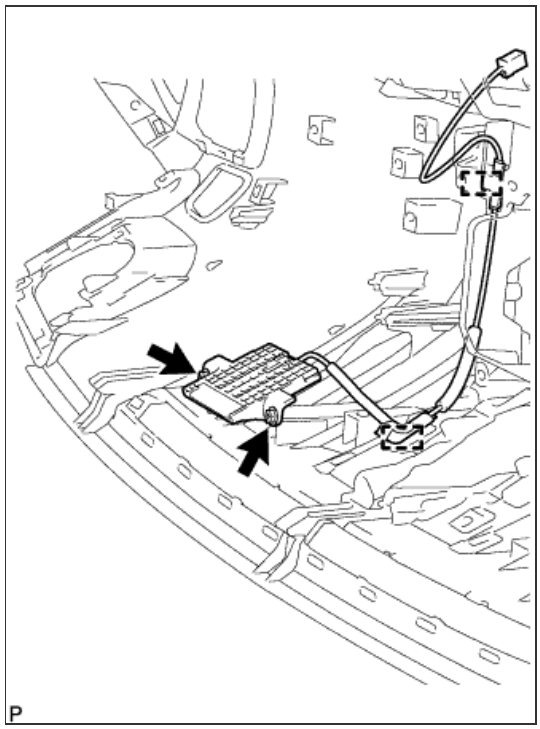
ii. Remove the 2 screws and navigation antenna assembly.



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

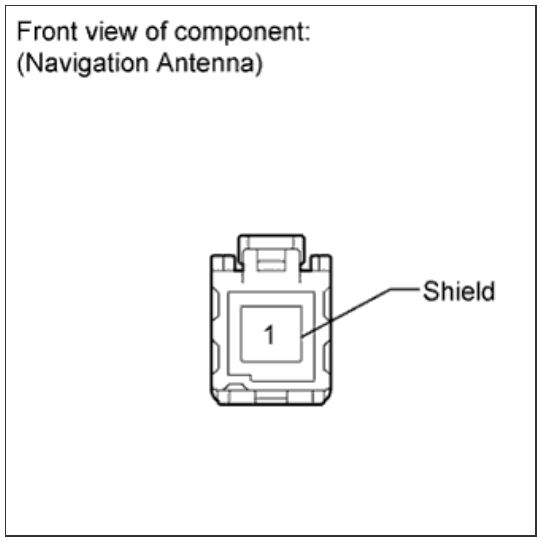
a. Disconnect the navigation antenna connector.

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

Standard Resistance:

Tester Condition	Condition	Specified Condition
1 - Shield	Always	50 to 500 Ω

If the result is not as specified, replace the navigation antenna.



for Preparation Click here

1. INSTALL NAVIGATION ANTENNA ASSEMBLY

a. for LHD:

i. Install the navigation antenna assembly with the 2 screws.

ii. Attach the 2 clamps.

b. for RHD:

i. Install the navigation antenna assembly with the 2 screws.

ii. Attach the 2 clamps.

2. INSTALL INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY

(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. CHECK SRS WARNING LIGHT

(Click here)

1.PRECAUTIONS FOR G-BOOK

a. After replacing the multi-media module receiver assembly and performing vehicle contract setting, perform the vehicle contract setting to resume the G-BOOK 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 a 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 (Click here).

e. If an accidental operation is made, the customer may be charged a fee for the phone call.

2.IN THE FOLLOWING SITUATIONS, IT IS NOT POSSIBLE TO CONNECT TO THE G-BOOK SERVICE

a. "Bluetooth" connection is interrupted.

b. A "Bluetooth" connection setting has not been performed.

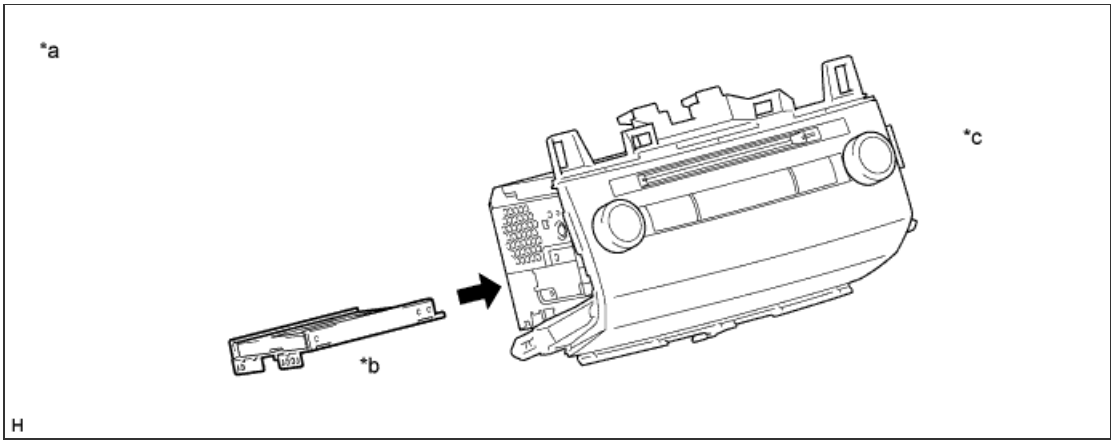
c. Services that limit receiving/making a call, such as drive mode, dial lock, call prohibition, voice mail or select call are used.

d. The cellular phone cannot be used due to non-payment of the cellular phone, etc.

e. A cellular phone that cannot access the Internet is being used.

3.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.

4.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.

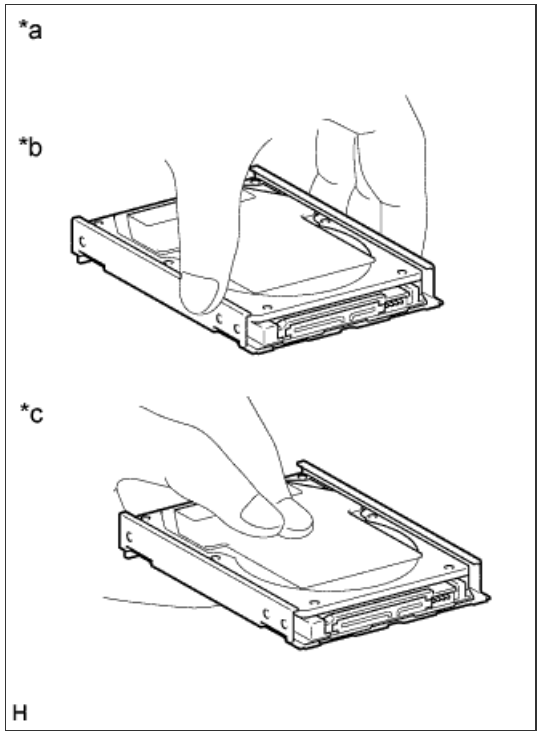
ii. Do not touch the HDD cover.

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.

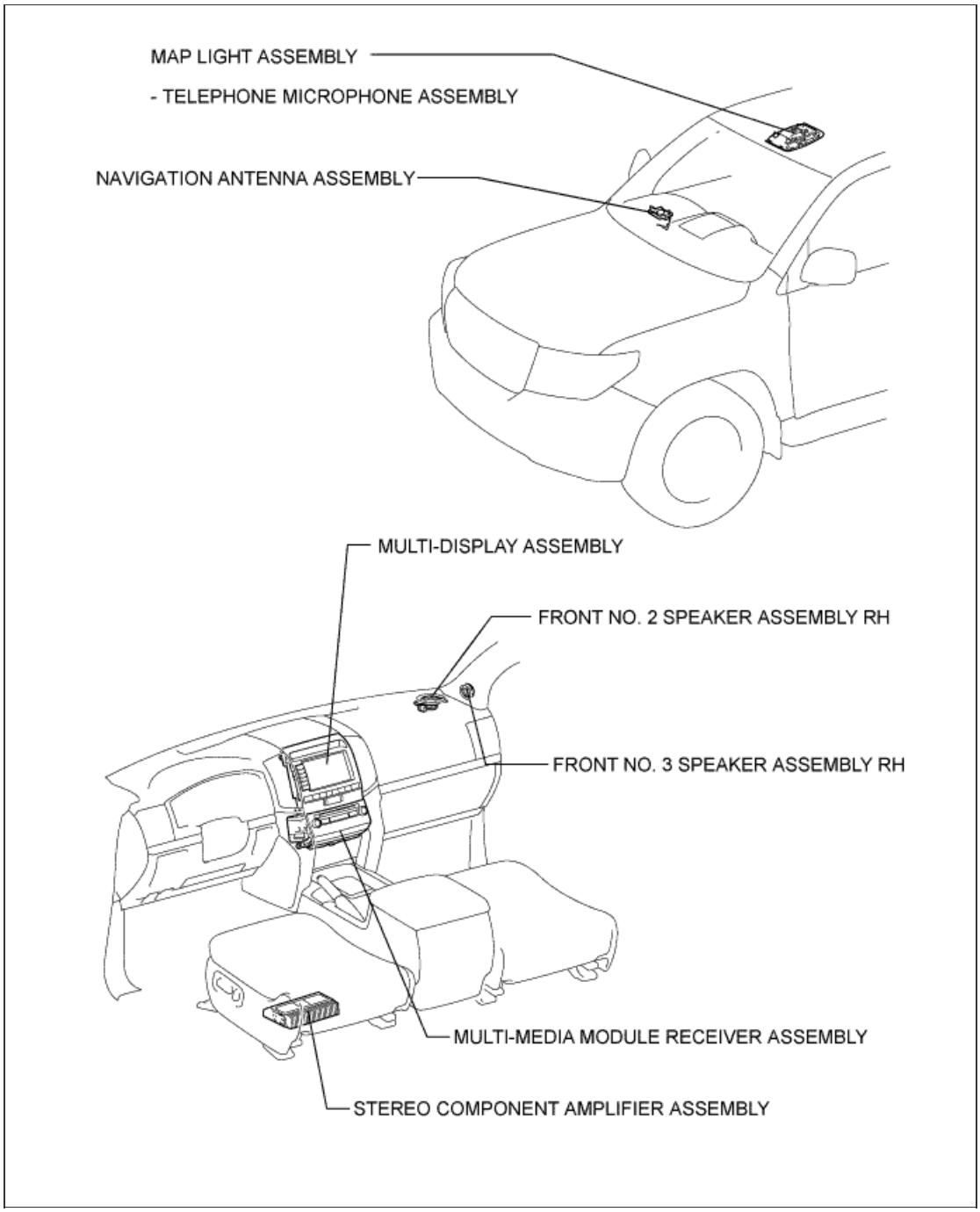
NOTICE:

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

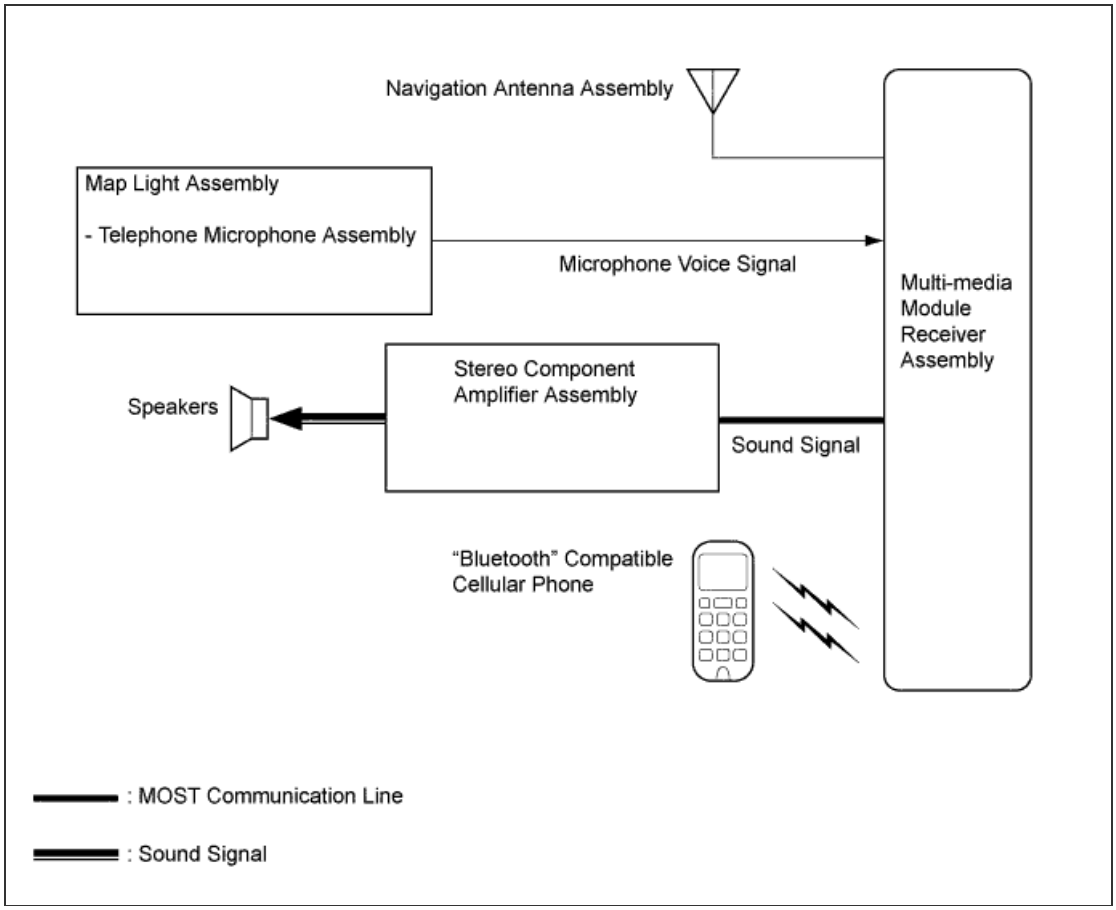
vii. Inspect after HDD replacement.

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).


MAP LIGHT ASSEMBLY
- TELEPHONE MICROPHONE ASSEMBLY
NAVIGATION ANTENNA ASSEMBLY
MULTI-DISPLAY ASSEMBLY
FRONT NO. 2 SPEAKER ASSEMBLY RH
FRONT NO. 3 SPEAKER ASSEMBLY RH
MULTI-MEDIA MODULE RECEIVER ASSEMBLY
STEREO COMPONENT AMPLIFIER ASSEMBLY

SYSTEM DIAGRAM

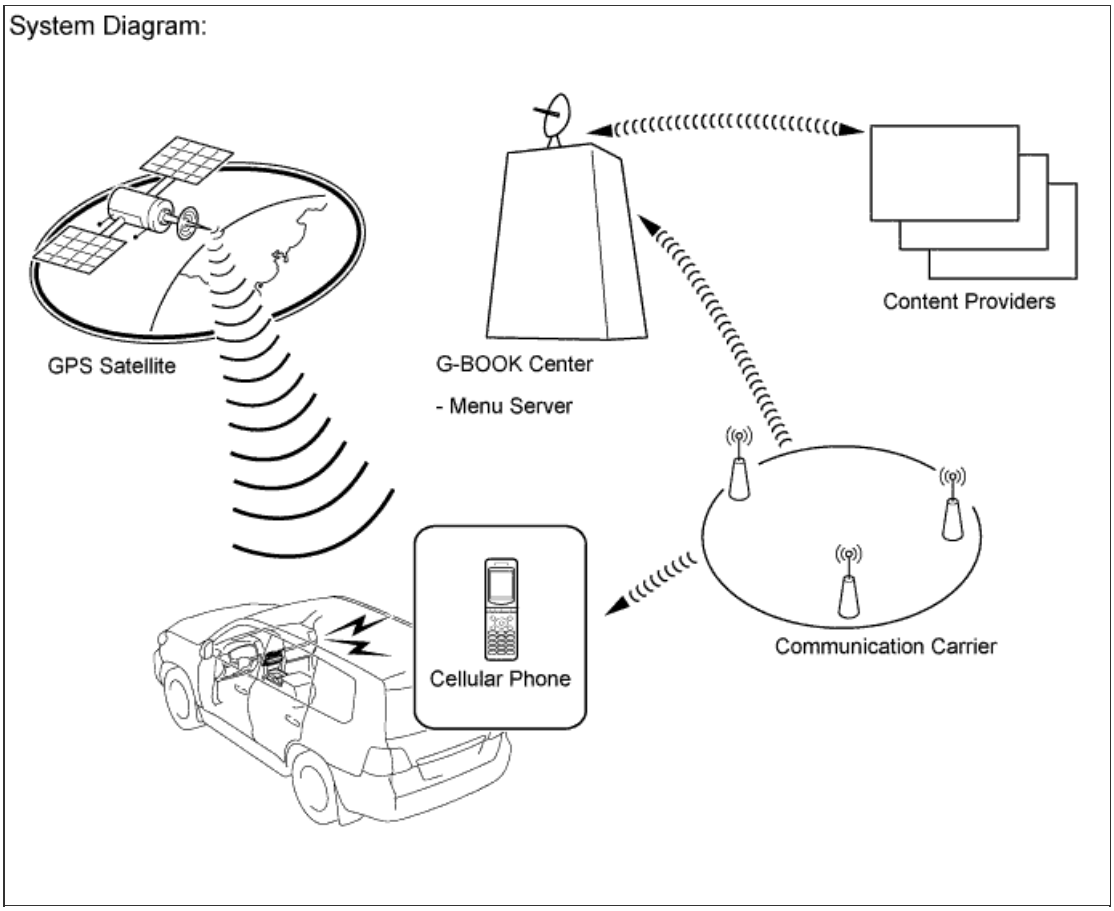


G-BOOK SYSTEM OUTLINE

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 a "Bluetooth" cellular phone 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
Telephone Microphone Assembly	When the operator service is used: Sends the microphone voice signal to the multi-media module receiver assembly.
Navigation Antenna Assembly	Receives GPS radio waves and sends them to the multi-media module receiver assembly.

Multi-media Module Receiver Assembly	• Uses a "Bluetooth" cellular phone to send and receive the data and voice signals used for the G-BOOK service through a communication network.
	• Sends and receives the data used for the G-BOOK service to and from a cellular phone using a cellular phone data signal.
	  • When the operator service is used: Sends the "sent voice signal" from the telephone microphone assembly to a cellular phone.
	  • When the operator service is used: Sends the "received voice signal" from a cellular phone.
	  • When the operator service is used: Sends the "received voice signal" from the "Bluetooth" cellular phone to the stereo component amplifier assembly using MOST communication, and then to the vehicle speakers.

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.

Cellular Phone	Has "Bluetooth" connection function and internet connection function to send and receive data and voice signals.

DEVICE USED FOR G-BOOK SYSTEM COMMUNICATION

a. The multi-media module receiver assembly is used for data communication or operator service telephone calls.

b. Perform the following if the device used for G-BOOK system communication is replaced.

HINT:

If the multi-media module receiver assembly is replaced on vehicles that do not have a contract for the G-BOOK service, perform vehicle contract setting.

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.

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 procedures 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	Performing procedures for re-registration when the G-BOOK device is replaced

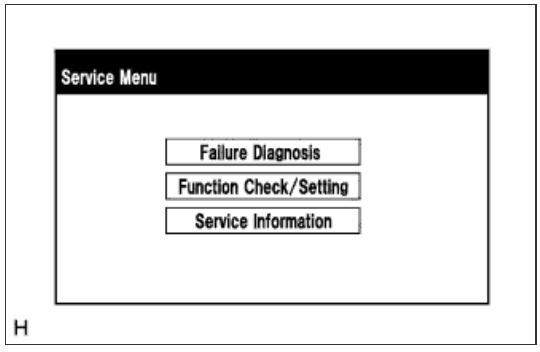
DIAGNOSIS DISPLAY DETAILED DESCRIPTION

HINT:

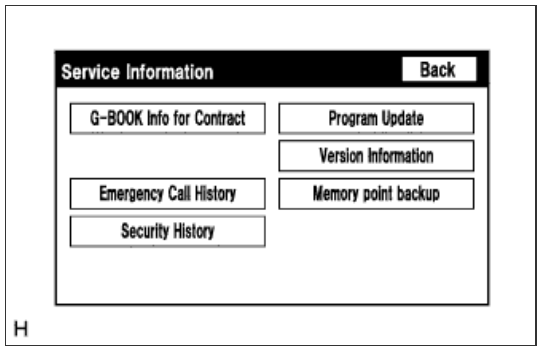
This section contains a detailed description of displays in diagnostic mode.

a. Enter diagnostic mode (Click here).

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



c. Service Information Screen

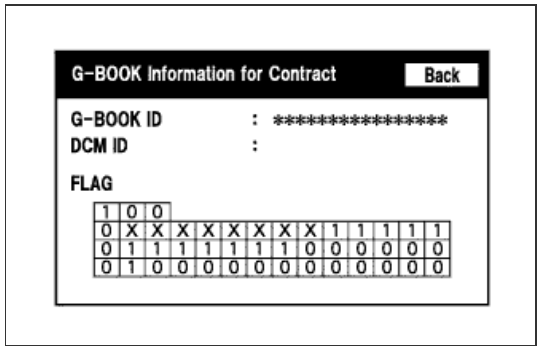


H

Screen Description

Display	Content
G-BOOK Info for Contract	The G-BOOK ID, flag information, etc. are displayed.
Emergency Call History	-
Security History	-

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	-
FLAG	The G-BOOK contract flag or service flag of the multi-media module receiver assembly is displayed.

HINT:

- **Use the following procedure to troubleshoot the G-BOOK system.**
- ***: Use the GTS.**

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 signal condition caused the malfunction.

Displayed Message and Problem Symptom	Cause
A message is displayed temporarily indicating to try again after moving the vehicle because the center cannot be accessed, as the screen cannot be displayed due to a busy line, etc.	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 (inform the customer that this is not a malfunction and ask them to use the system as is).
A message is displayed temporarily indicating to try again after waiting for a while because the information cannot be retrieved due to a busy line, etc.	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 (inform the customer that this is not a malfunction and ask them to use the system as is).
A message is displayed temporarily indicating to try again after waiting for a while because the lines are busy.	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 (inform the customer that this is not a malfunctions and ask them to use the system as is).

NEXT

3.INSPECT BATTERY VOLTAGE

a. Measure 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

4.CHECK CAN COMMUNICATION SYSTEM*

a. Use the GTS to check if the CAN communication system is functioning normally (Click here).

Result

Result	Proceed to
CAN communication system DTC is not output.	A
CAN communication system DTC is output.	B

B. GO TO CAN COMMUNICATION SYSTEM (**Click here**)

A

5.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. CAN communication system DTC is output.	B

HINT:

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

B. → Go to step 7

A

6.PERFORM TROUBLESHOOTING BASED ON MALFUNCTION SYMPTOM

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

NEXT

7.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

NOTICE:

If the multi-media module receiver assembly is replaced, perform the vehicle contract setting (Click here).

NEXT

8.PERFORM CONFIRMATION TEST

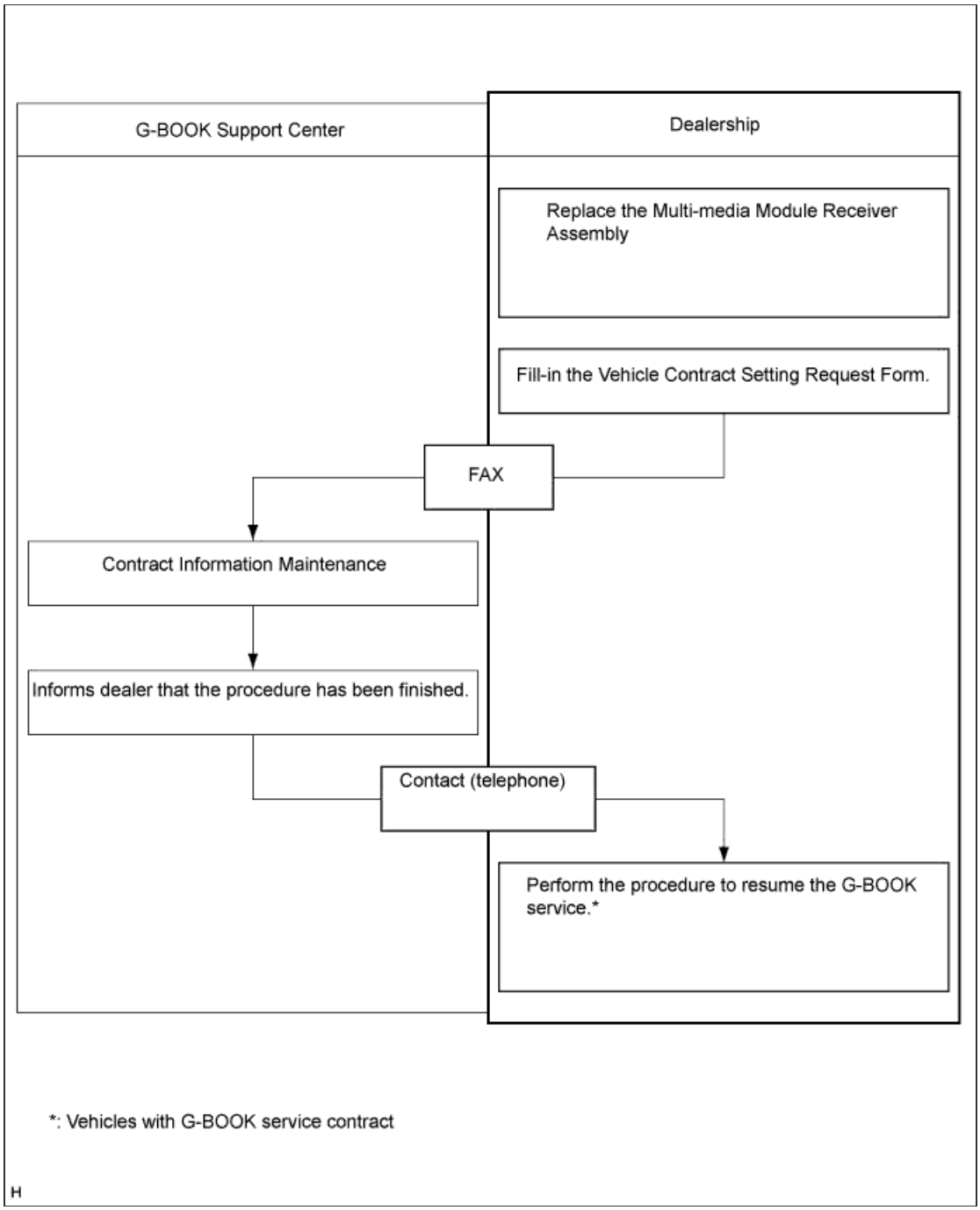
NEXT

END

1. VEHICLE CONTRACT SETTING

HINT:

If the multi-media module receiver assembly is replaced on vehicles that do not have a contract for the G-BOOK service, perform the vehicle contract setting.



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.

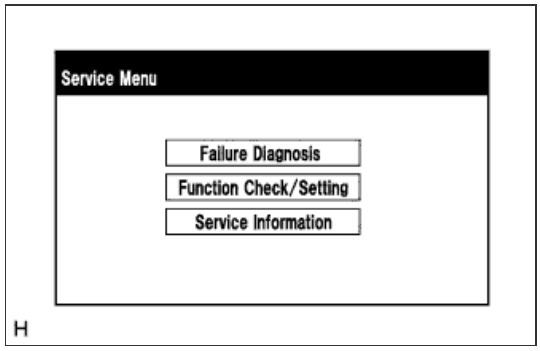
b. Check the ID before replacement (when diagnosis can be activated).

HINT:

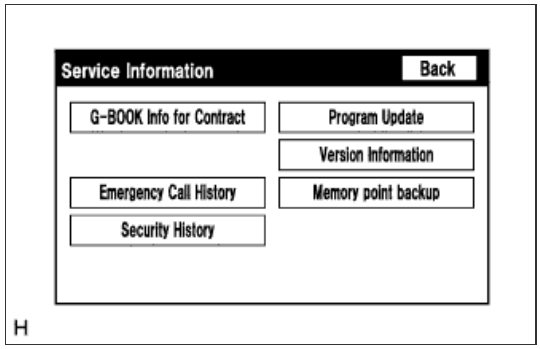
If the multi-media module receiver assembly is replaced, check the G-BOOK ID.

i. Enter diagnostic mode (Click here).

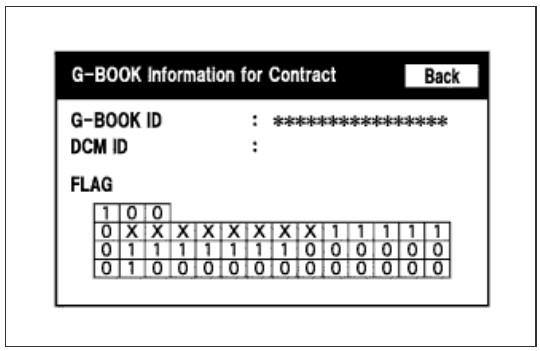
ii. Select "Service Information" on the "Service Menu" screen.



iii. Select "G-BOOK Info for Contract" on the "Service Information" screen.



iv. Check the G-BOOK ID.



c. Replace the multi-media module receiver assembly.

i. Replace the multi-media module receiver assembly at a dealership.

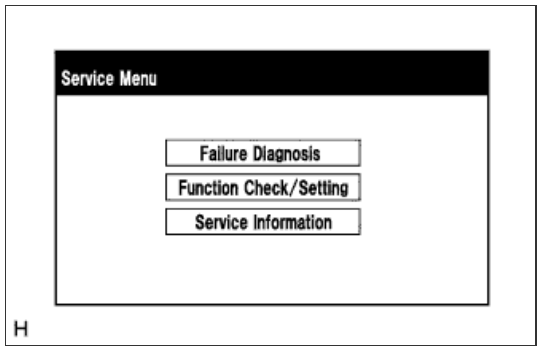
d. Check the ID after replacement.

HINT:

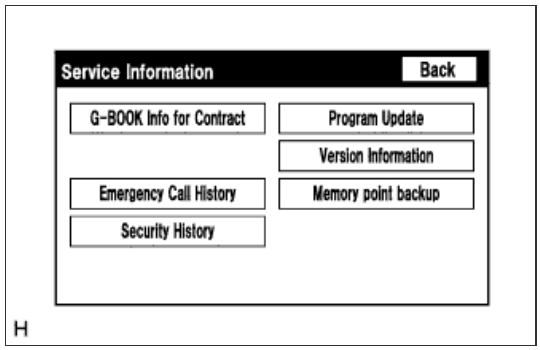
If the multi-media module receiver assembly is replaced, check the G-BOOK ID.

i. Enter diagnostic mode (Click here).

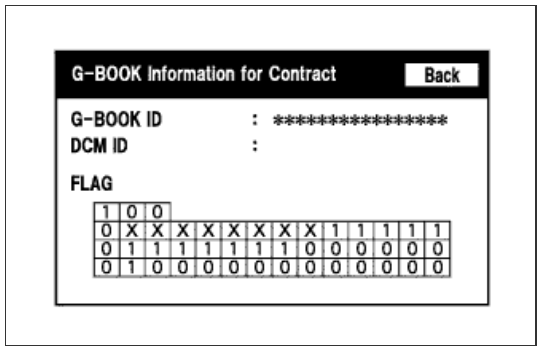
ii. Select "Service Information" on the "Service Menu" screen.



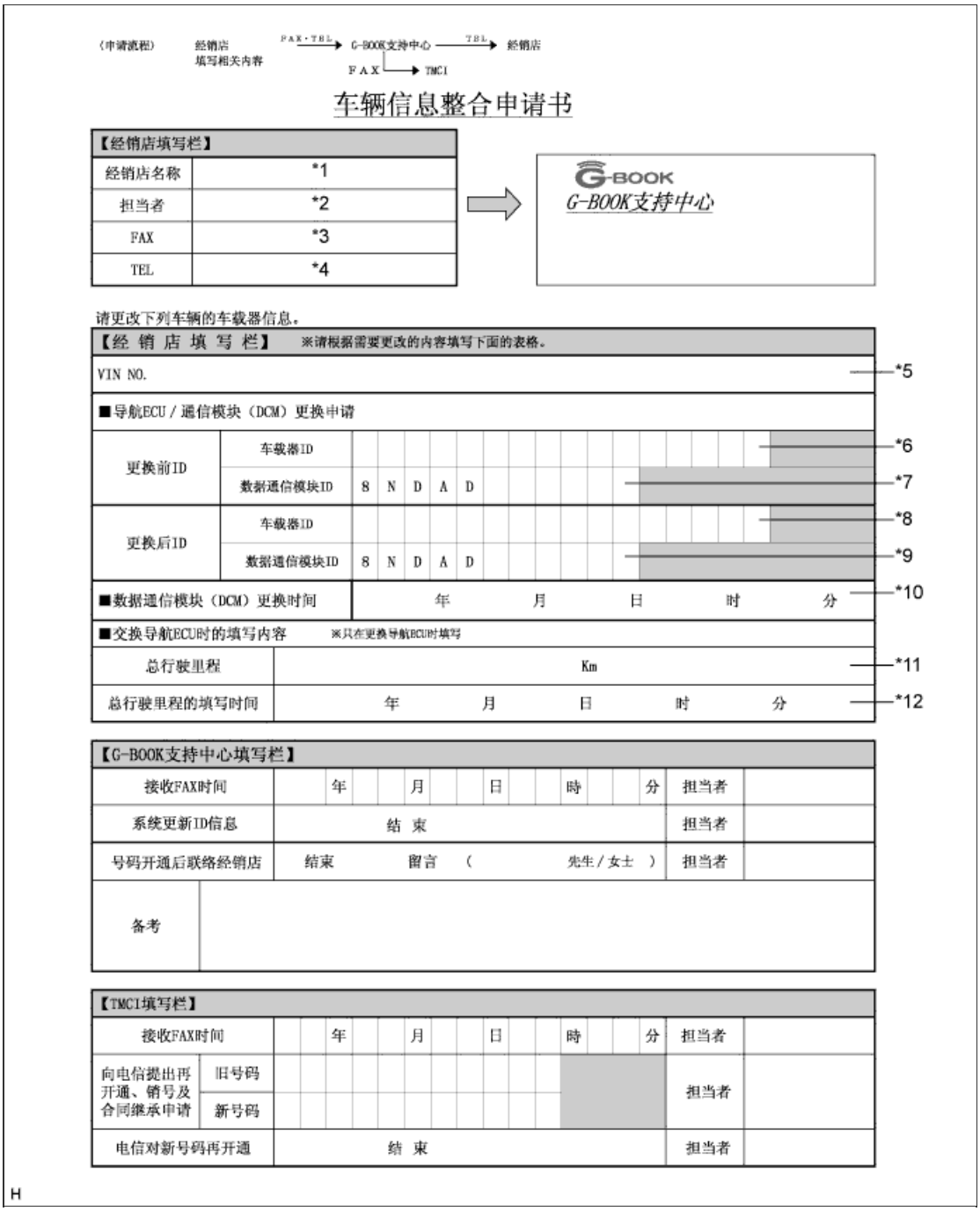
iii. Select "G-BOOK Info for Contract" on the "Service Information" screen.



iv. Check the G-BOOK ID.



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.	Dealership information
*4	Enter the phone number of the dealership.	Dealership information
*5	Enter the VIN of the vehicle.	Vehicle information
*6	• Enter the G-BOOK ID of the old unit. • Left-align the number. • 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	-	-
*8	• Enter the G-BOOK ID of the new unit installed to the vehicle. • Left-align the number. • 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
*9	-	-

*10	-	-
*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

f. Perform the procedure to resume the G-BOOK service.

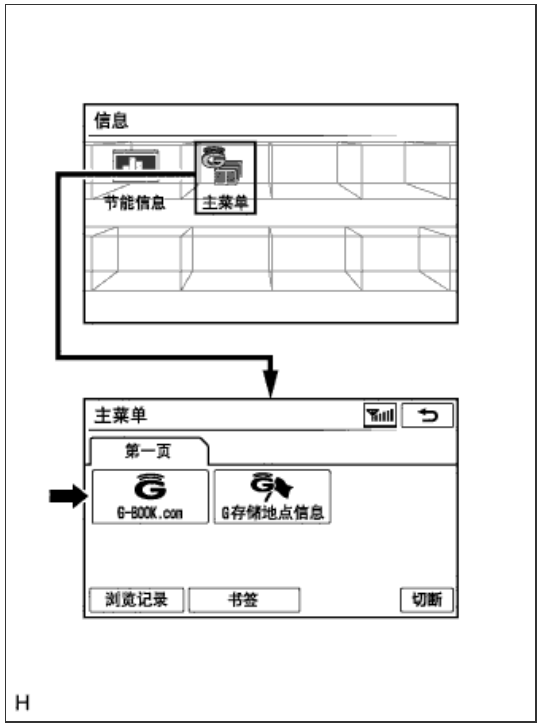
HINT:

The screen illustrations provided are samples only and may be different from actual screens.

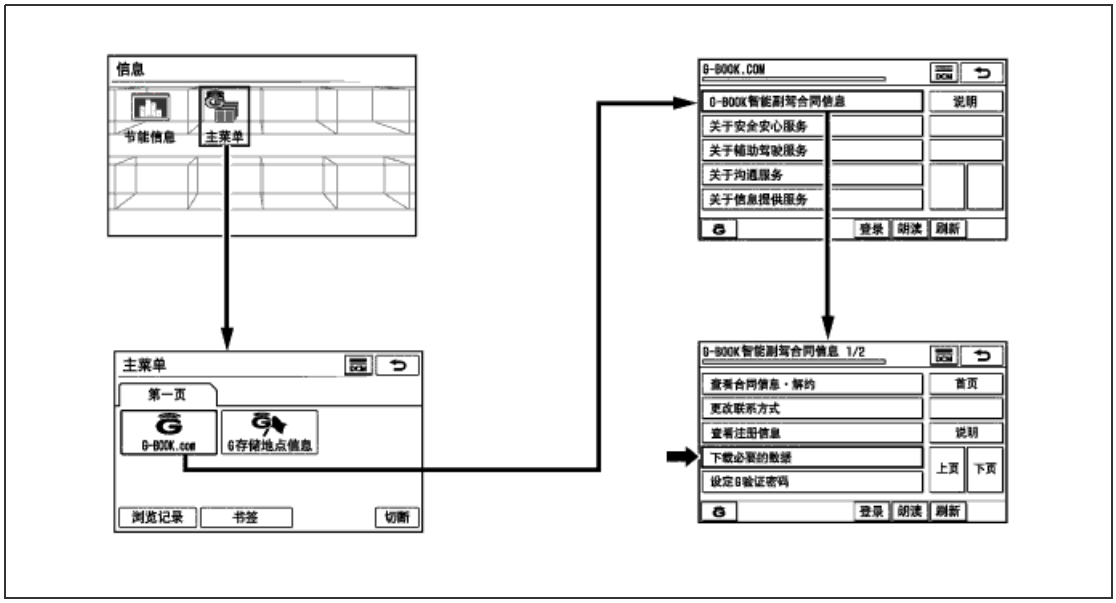
i. Perform the operations shown in the illustration and select G-BOOK.com.

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.



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.

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
A message is displayed indicating to check the cellular phone every time the phone is connected. (When connecting via Bluetooth.)	Ask the customer to confirm if the cellular phone is G-BOOK compatible as there is a high possibility that it is not.	-
A message is displayed indicating to check the cellular phone. (When connecting via Bluetooth.)	Proceed to "Communication Access Failed".	Click here
	Multi-media module receiver assembly	Click here
A message is displayed indicating that a cellular phone is not connected. (When connecting via Bluetooth.)	Proceed to "Communication Access Failed".	Click here
	Multi-media module receiver assembly	Click here
A message is displayed temporarily indicating to try again after waiting for a while because the lines are busy.	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 (inform the customer that this is not a malfunction and ask them to use the system as is).	-
A message is displayed indicating to try again after waiting for a while because the lines are busy.	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.	-
A message is displayed temporarily indicating to try again after moving the vehicle because the center cannot be accessed, as the screen cannot be displayed due to a busy line, etc.	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 (inform the customer that this is not a malfunction and ask them to use the system as is).	-
A message is displayed continuously indicating to try again after moving the vehicle because the center cannot be accessed, as the screen cannot be displayed due to a busy line, etc.	Proceed to "Communication Access Failed".	Click here
A message is displayed indicating to try again after waiting for a while because the information cannot be retrieved due to a busy line, etc.	Wait for a while and perform the operation again in a different location.	-
	Proceed to "Communication Access Failed".	Click here
A message is displayed indicating to try again because the information was not able to be retrieved.	Proceed to "Communication Access Failed".	Click here
A message is displayed indicating to move the vehicle to a communication service area as it is outside a service area.	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
A message is displayed indicating to move the vehicle to where a GPS signal can be received because the time data is old as communication is impossible.	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
A message is displayed indicating that G-BOOK is not available as a microphone is not connected, which is required to use G-BOOK.	Proceed to "Microphone Circuit between Microphone and Radio Receiver" of the Navigation System section.	Click here
A message is displayed indicating that bookmark registration failed.	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
A message is displayed indicating that bookmark deletion failed.	Proceed to Operation Check (Check Hard Disk Drive) of the Navigation System section.	Click here
	Multi-media module receiver assembly	Click here
		Click

	Hard disc	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
A message is displayed indicating to apply for G-BOOK via G-BOOK.com on the main menu screen.	Explain to the customer that the appropriate G-BOOK setup must be performed in order to use the G-BOOK service. Ask the customer to perform the appropriate G-BOOK setup by referring to the owner's manual.	-
A message is displayed indicating that it is necessary to apply for G-BOOK.	Explain to the customer that the appropriate G-BOOK setup must be performed in order to use the G-BOOK service. Ask the customer to perform the appropriate G-BOOK setup by referring to the owner's manual.	-
A message is displayed indicating to ask the dealer about applying for the service as it is necessary to create a contract before using the service.	Fill in the vehicle contract setting request form and contact the G-BOOK support center.	-
A message is displayed indicating to perform communication setting via G-BOOK on the setting/editing screen as the communication settings of the cellular phone are required.	As this message may be displayed when G-BOOK.com is selected just after the cancellation procedure is completed, select G-BOOK.com again after waiting for 6 minutes or more or after turning the engine switch off.	-

My Request On-screen Message

Symptom	Suspected Area	See page
A message is displayed indicating that the service is not available now.	Proceed to "G-BOOK Service cannot be Used".	Click here

MULTI-MEDIA MODULE RECEIVER ASSEMBLY (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
A message is displayed indicating to try again after waiting for a while because the information cannot be retrieved due to a busy line, etc.	• Other communication error • Cellular phone carrier is different from the setting • Excessive number of retries to access • PPP certification error • Error other than PPP certification • No available sockets • No response from the G-BOOK center for a certain period of time after a request is sent • HTTP error	Wait for a while, perform the operation again and check if the problem symptom recurs.*
A message is displayed continuously indicating to try again after moving the vehicle because the center cannot be accessed, as the screen cannot be displayed due to a busy line, etc.		
A message is displayed indicating to check the cellular phone every time the phone is connected.	• Improper setting of the cellular phone • No available cellular phone number (e.g. no SIM card installed)	Check that a call can be made using the cellular phone, perform the operation again and check if the problem symptom recurs.
A message is displayed indicating that a cellular phone is not connected.	No cellular phone is connected	Reregister the cellular phone, perform the operation again and check if the problem symptom recurs.
A message is displayed indicating to move the vehicle to a communication service area as it is outside a service area.	• Vehicle is outside the communication service area • 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 does not return to normal.	A
System returns to normal.	B

B → **END**

A

3.CHECK CELLULAR PHONE MODEL

a. Check the cellular phone model.

i. Check that the cellular phone has both "Bluetooth" and Internet connection functions.

OK:

The cellular phone has both "Bluetooth" and Internet connection functions.

HINT:

If the cellular phone does not have either a "Bluetooth" function or an Internet connection function, inform the customer about it.

NG → REPLACE CELLULAR PHONE

OK

4.CHECK "Bluetooth" SETTING PROCEDURE

a. Check "Bluetooth" setting procedure.

i. Check that the "Bluetooth" cellular phone has been registered correctly.

OK:

The "Bluetooth" cellular phone has been registered correctly.

HINT:

When using the hands-free function of a "Bluetooth" phone, it is necessary to register the phone as a "Bluetooth" phone. Although the audio function of a cellular phone with the "Bluetooth" portable audio function may have already been registered, separate hands-free registration is required.

NG → CONFIRM SETTING

OK

5.REPLACE CELLULAR PHONE AND RECHECK

a. Obtain the customer's consent and connect another "Bluetooth" compatible cellular phone.

HINT:

Register and connect the "Bluetooth" cellular phone referring to the owner's manual.

i. Check the connection to G-BOOK.com.

Result

Result	Proceed to
G-BOOK.com cannot be accessed.	A
G-BOOK.com can be accessed.	B

HINT:

- **If the customer's cellular phone has a problem, ask the customer to check the phone.**
- **After this step has been completed, clear the cellular phone registered in this step.**

B → REPLACE CELLULAR PHONE

A

CONTACT G-BOOK SUPPORT CENTER

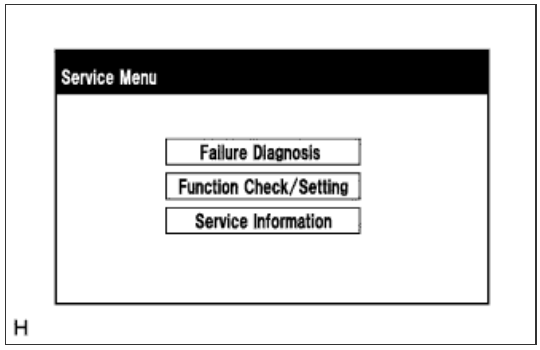
INSPECTION PROCEDURE

1.CHECK CONTRACT FLAG

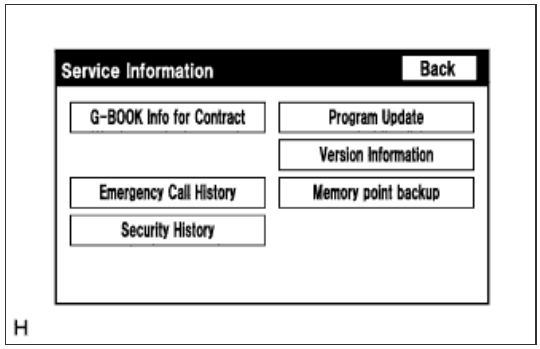
a. Check the contract flag.

i. Enter diagnostic mode (Click here).

ii. Select the "Service Information" on the "Service Menu" screen.



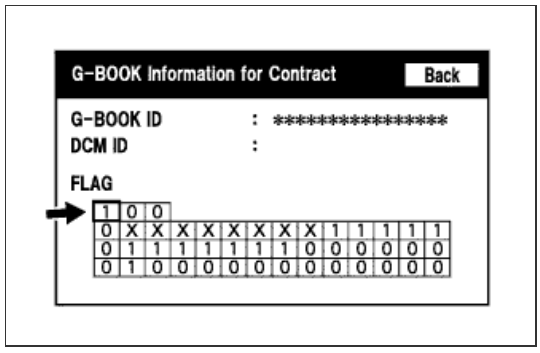
iii. Select "G-BOOK Info for Contract" on the "Service Information" screen.



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 → CONTACT G-BOOK SUPPORT CENTER

A

2.PERFORM OPERATION AGAIN

a. Perform the contract procedure again.

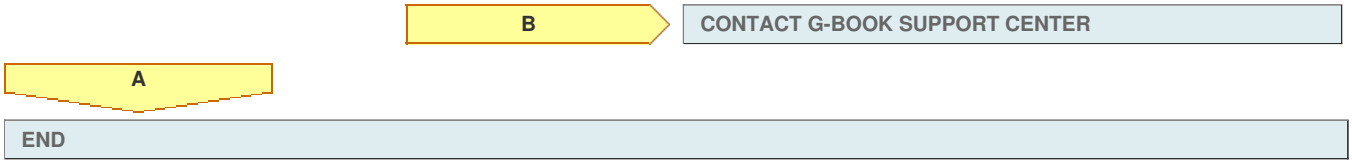
i. Select G-BOOK.com and perform the contract procedure again.

ii. Check for the problem symptom.

Result

Result	Proceed to
System returns to normal.	A

System does not return to normal.	B



for Preparation Click here

1.PRECAUTION FOR TOYOTA 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.

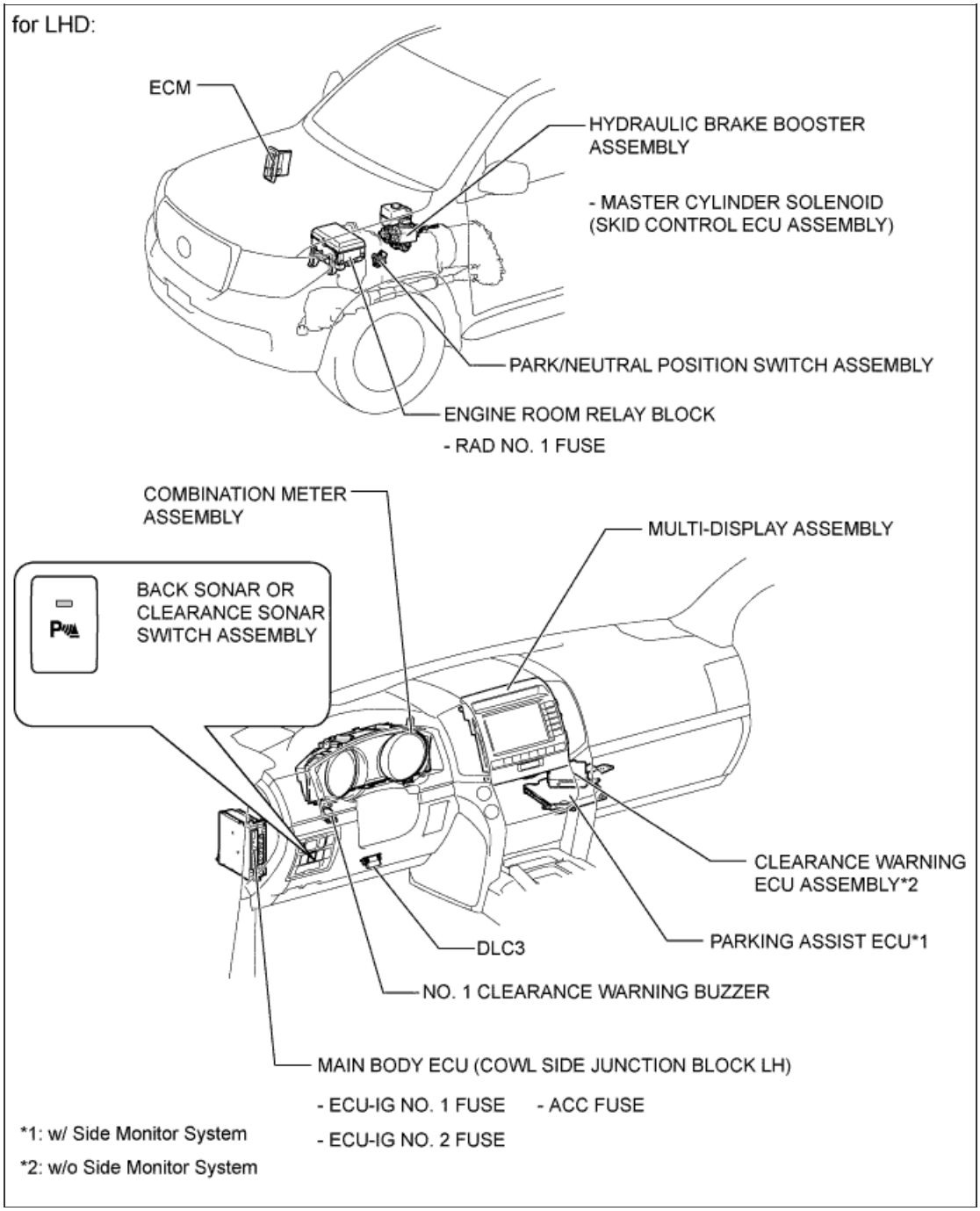
e. Other notices:

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).

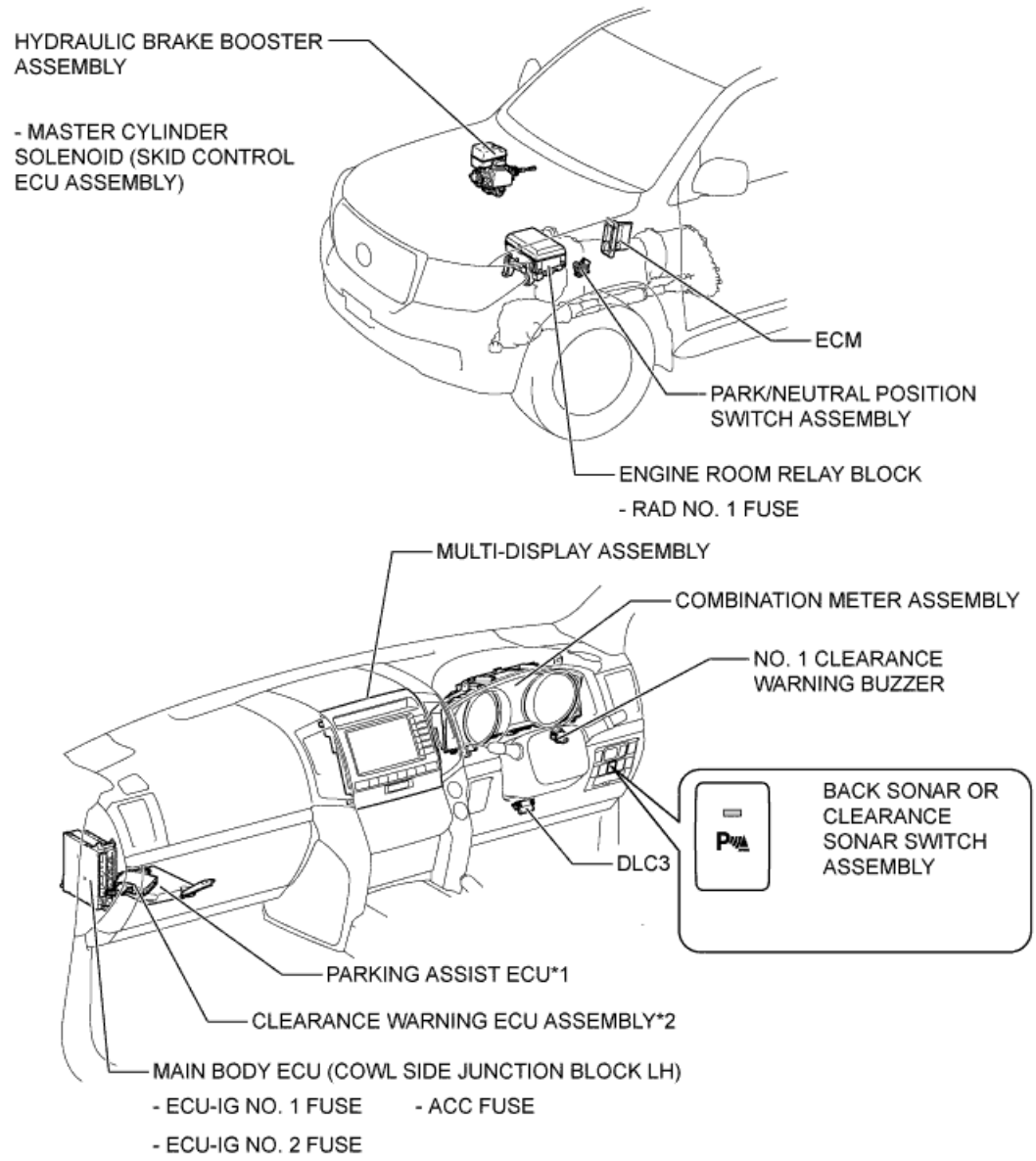
ii. The sensor may be unable to detect obstacles that are too close to the sensor.

iii. The sensor may be unable to detect obstacles if it is dropped or subjected to a strong impact.

for Preparation Click here

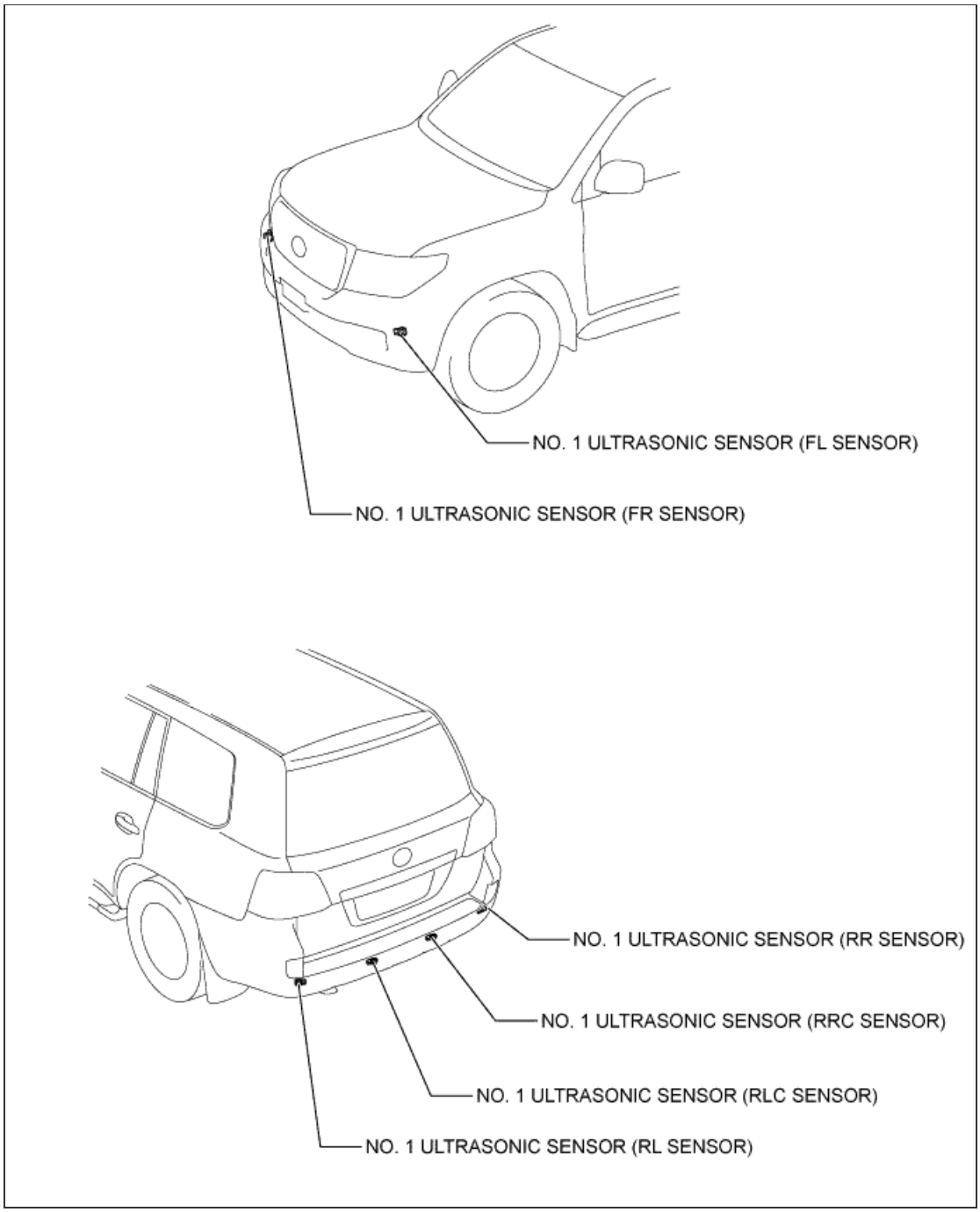


for RHD:

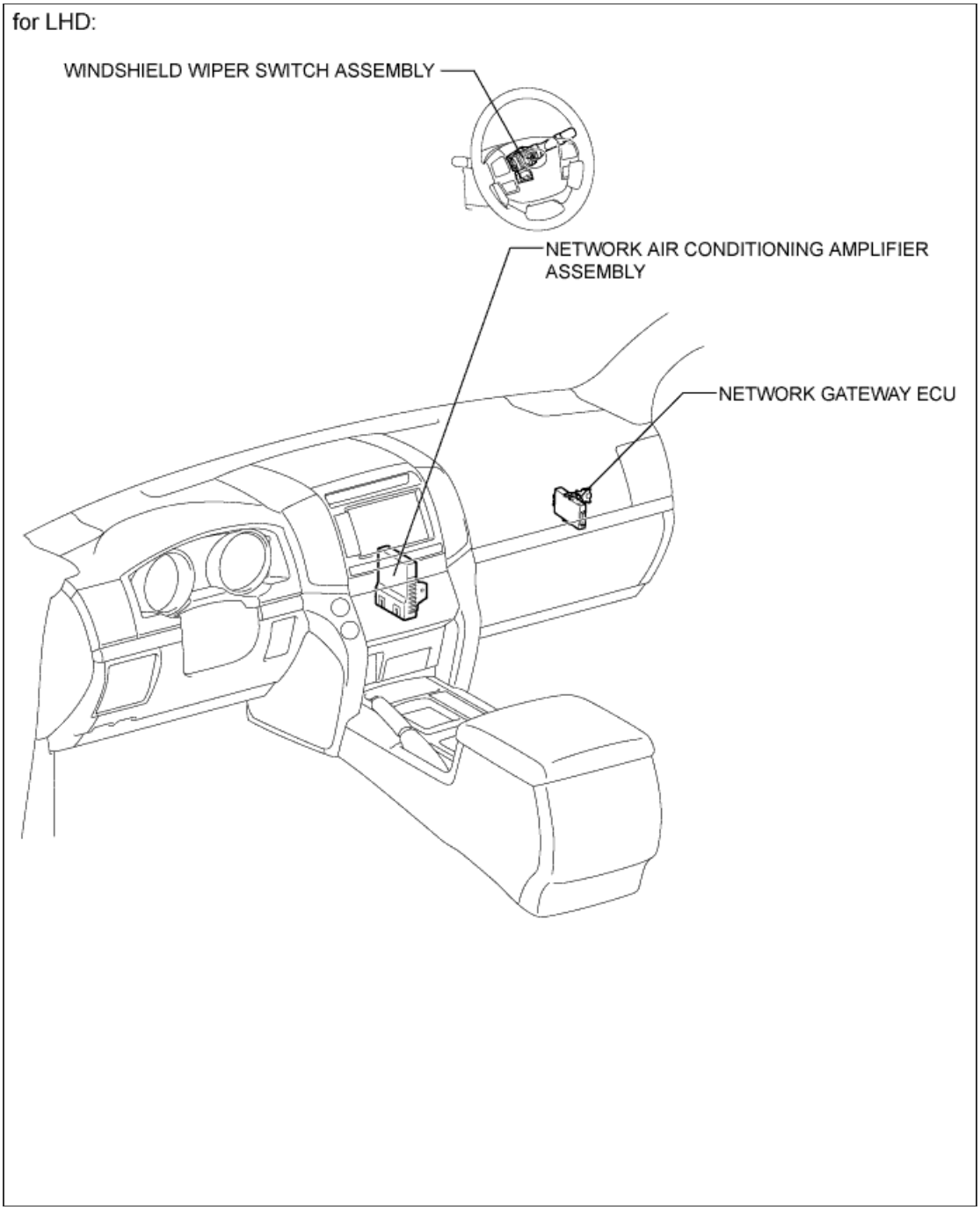


*1: w/ Side Monitor System

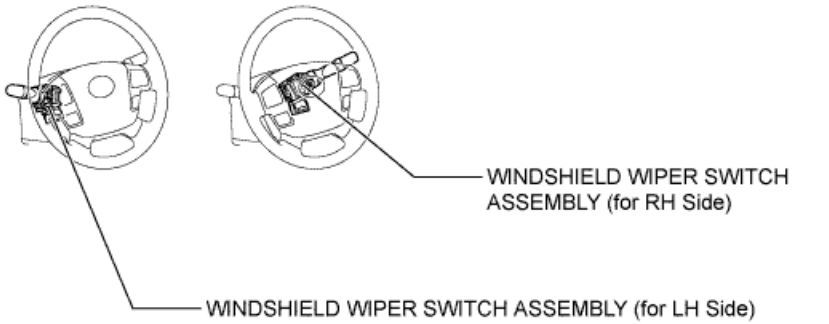
*2: w/o Side Monitor System

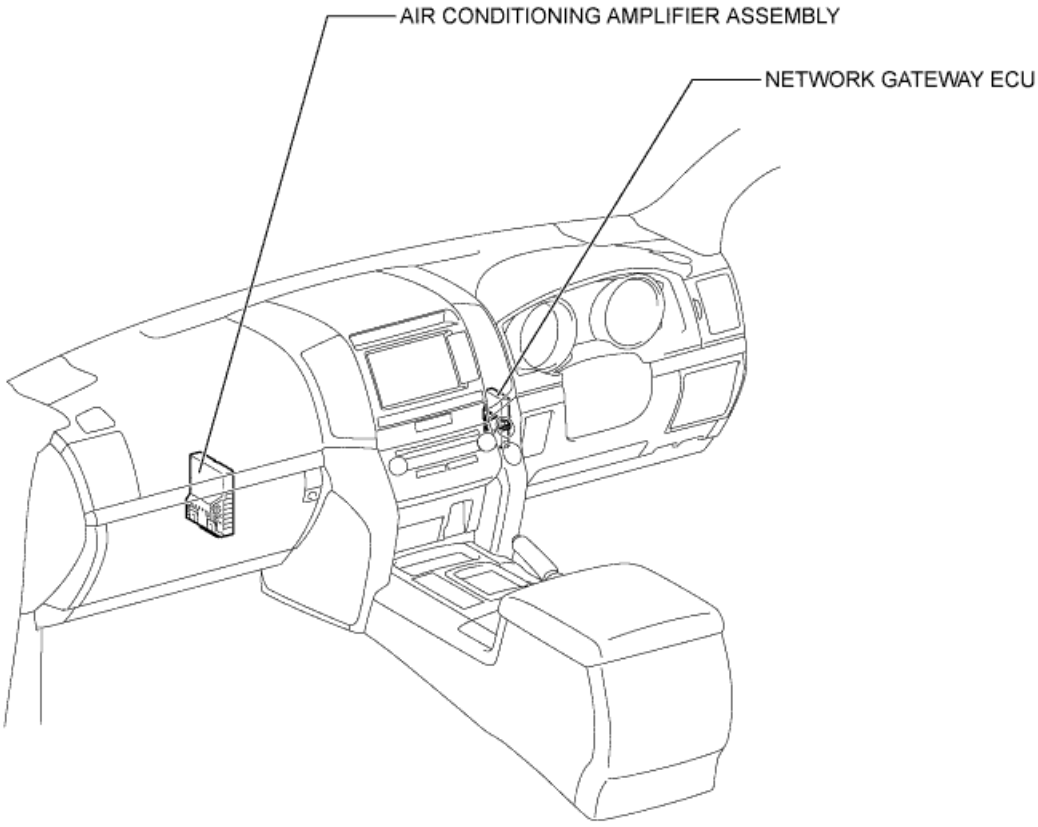

NO. 1 ULTRASONIC SENSOR (FL SENSOR)
NO. 1 ULTRASONIC SENSOR (FR SENSOR)
NO. 1 ULTRASONIC SENSOR (RR SENSOR)
NO. 1 ULTRASONIC SENSOR (RRC SENSOR)
NO. 1 ULTRASONIC SENSOR (RLC SENSOR)
NO. 1 ULTRASONIC SENSOR (RL SENSOR)

for LHD:

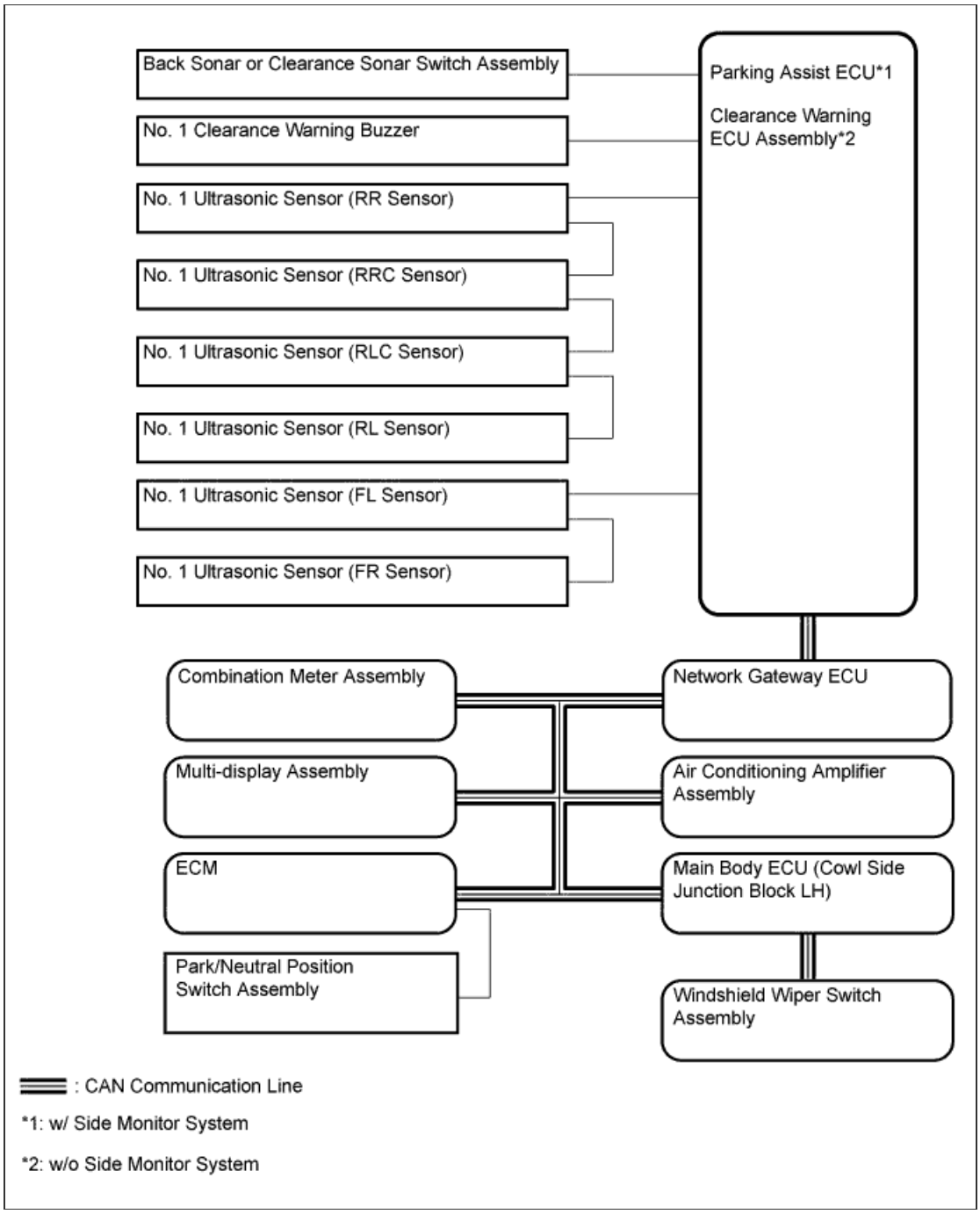

WINDSHIELD WIPER SWITCH ASSEMBLY
NETWORK AIR CONDITIONING AMPLIFIER ASSEMBLY
NETWORK GATEWAY ECU

for RHD:


WINDSHIELD WIPER SWITCH ASSEMBLY (for RH Side)
WINDSHIELD WIPER SWITCH ASSEMBLY (for LH Side)


AIR CONDITIONING AMPLIFIER ASSEMBLY
NETWORK GATEWAY ECU

for Preparation Click here



Communication Table

Sender ECU	Receiver ECU	Signal	Line
Combination Meter Assembly	• Parking assist ECU*1 • Clearance warning ECU Assembly*2	Vehicle speed signal	CAN
ECM	• Parking assist ECU*1 • Clearance warning ECU Assembly*2	Shift position signal	CAN
Air Conditioning Amplifier Assembly	• Parking assist ECU*1 • Clearance warning ECU Assembly*2	Outside temperature	CAN
Main Body ECU (Cowl Side Junction Block LH)	• Parking assist ECU*1 • Clearance warning ECU Assembly*2	• Dimmer signal • Destination information • Steering information	CAN

Windshield Wiper Switch Assembly	Parking assist ECU*1	Wiper status signal	CAN
• Parking assist ECU*1 • Clearance warning ECU Assembly*2	Combination Meter 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
No. 1 ultrasonic sensor	No. 1 ultrasonic sensor sends and receives ultrasonic waves. Based on received wave, sensor calculates the approximate distance value between vehicle and obstacle, and sends distance value as a signal to parking assist ECU*1 or clearance warning ECU assembly*2.
Combination meter assembly	• Displays the location of an obstacle and the approximate distance between the vehicle and obstacle. Turns the intuitive parking assist system on and off. • Emits an intermittent sound to inform the driver that ECU has detected an obstacle within prescribed ranges.
Back sonar or clearance sonar switch assembly	Outputs system ON/OFF signals to parking assist ECU*1 or clearance warning ECU aswsembly*2.
• Parking assist ECU*1 • Clearance warning ECU assembly*2	• Receives signals from the No. 1 ultrasonic sensors and sends the display signal to the combination meter assembly and multi-display assembly. • Receives signals from the No. 1 ultrasonic sensors and sends buzzer signal to No. 1 clearance warning buzzer.
Park/neutral position switch assembly	Sends a signal that activates the TOYOTA 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, and then displays the detection information.
No. 1 clearance warning buzzer	Sounds the buzzer to inform the driver according to the distance to the obstacle.
Main body ECU (cowl side junction block LH)	Transmits destination symbol, dimmer signal and steering wheel symbol to parking assist ECU*1 or clearance warning ECU assembly*2.
Air conditioning amplifier assembly	Transmits ambient temperature to parking assist ECU*1 or clearance warning ECU assembly*2.
Windshield wiper switch assembly	Transmits wiper status signal to parking assist ECU*1.
ECM	Transmits shift position signal to parking assist ECU*1 or clearance warning ECU assembly*2.

*1: w/ Side Monitor System
*2: w/o Side Monitor System

OPERATION EXPLANATION

a. The ECU determines whether the TOYOTA 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 sensors' ranges, 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 TOYOTA 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 DTC OUTPUT*

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

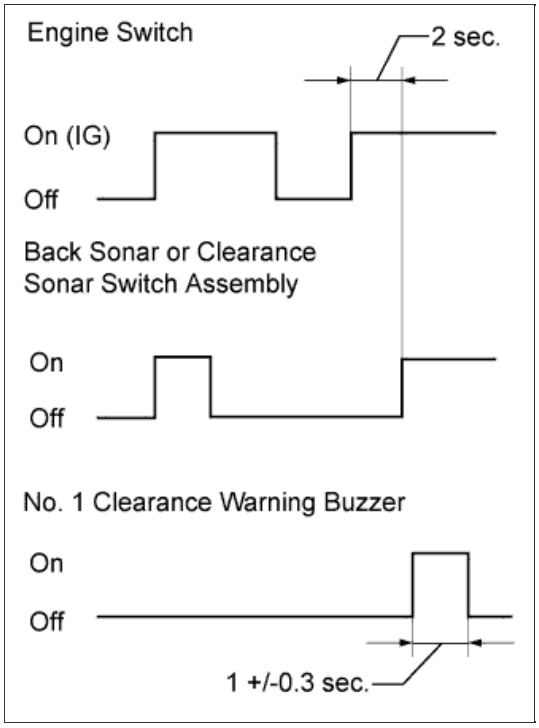
NEXT

8.CONFIRMATION TEST

NEXT

END

for Preparation Click here



INITIAL CHECK FUNCTION

a. Turn the engine switch on (IG).

b. After 2 sec. 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 sec.

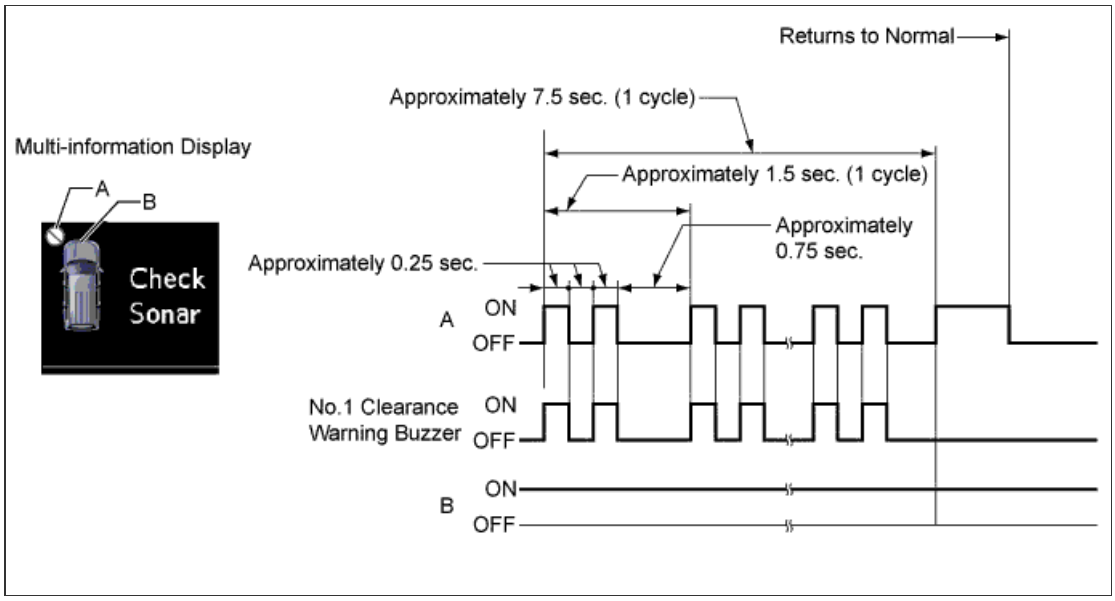
HINT:

- **If a malfunction is detected in the ultrasonic sensor circuits, the location of the malfunctioning sensor blinks on the display's 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 ultrasonic sensor and the ECU or a sensor is malfunctioning, the malfunction is displayed as shown in the illustration.

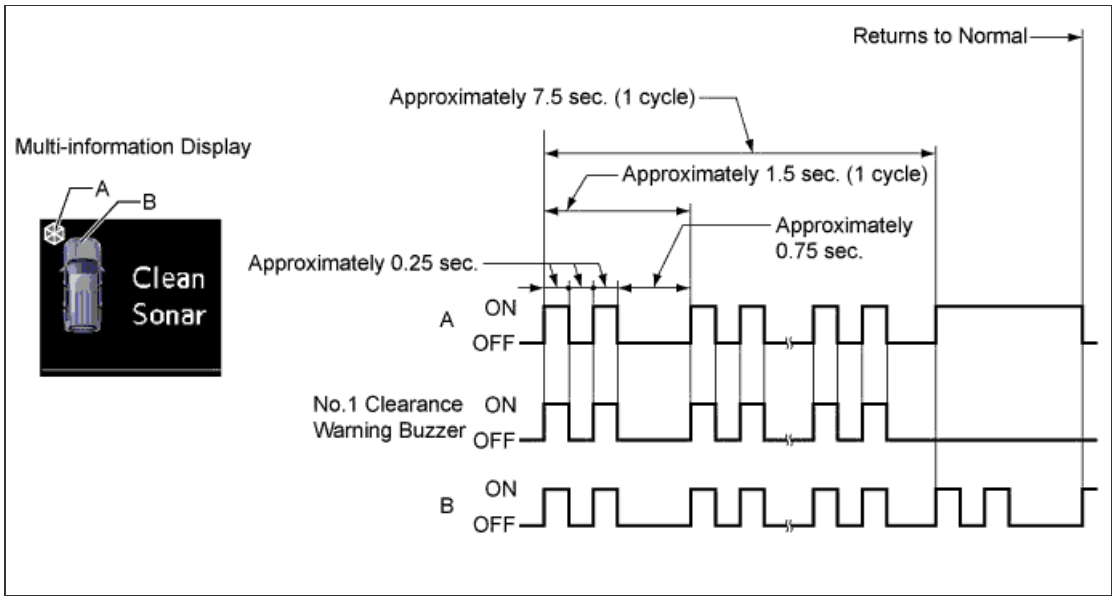


HINT:

- **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.



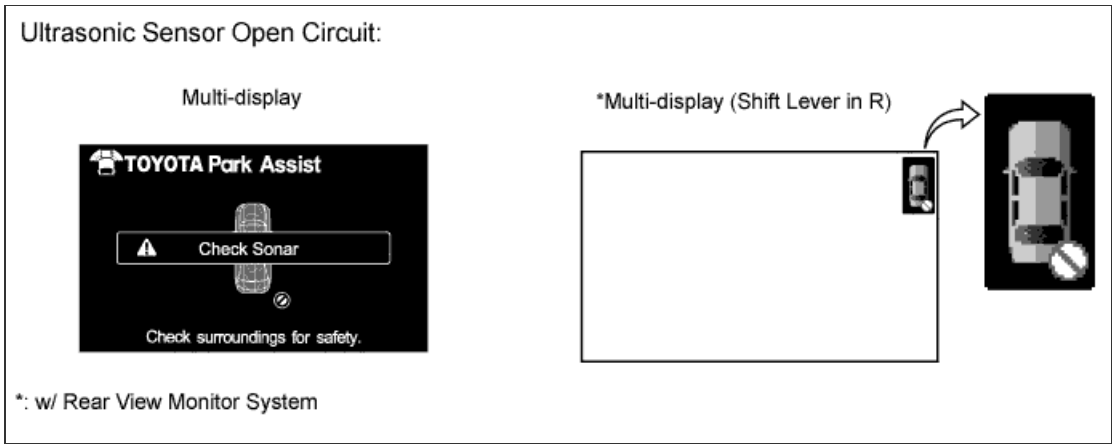
HINT:

- **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 ultrasonic sensor and the ECU or a sensor is malfunctioning, the malfunction is displayed as shown in the illustration.

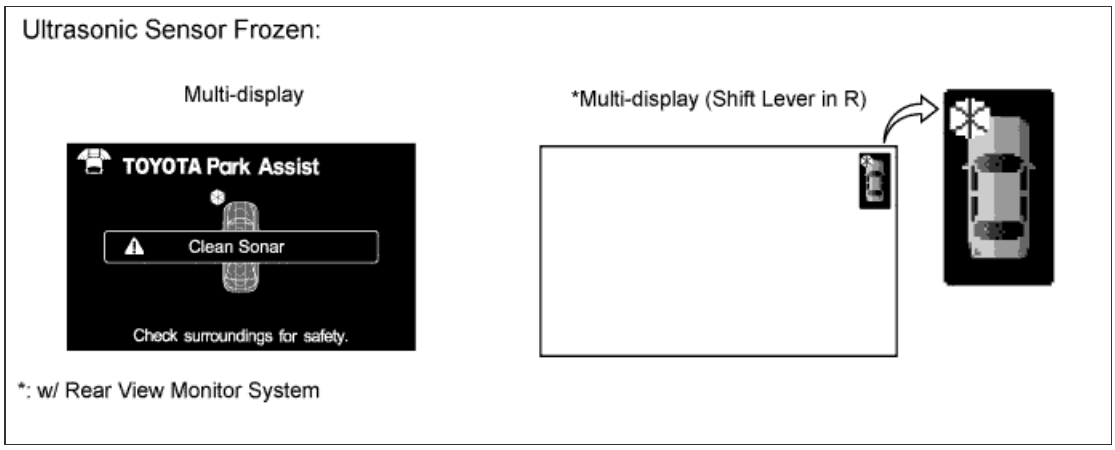


HINT:

- **This example shows an open circuit in the No. 2 ultrasonic sensor (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. Move the shift lever to R to check the No. 1 ultrasonic sensors.

c. Move the shift lever to D and N to check the No. 1 ultrasonic sensors.

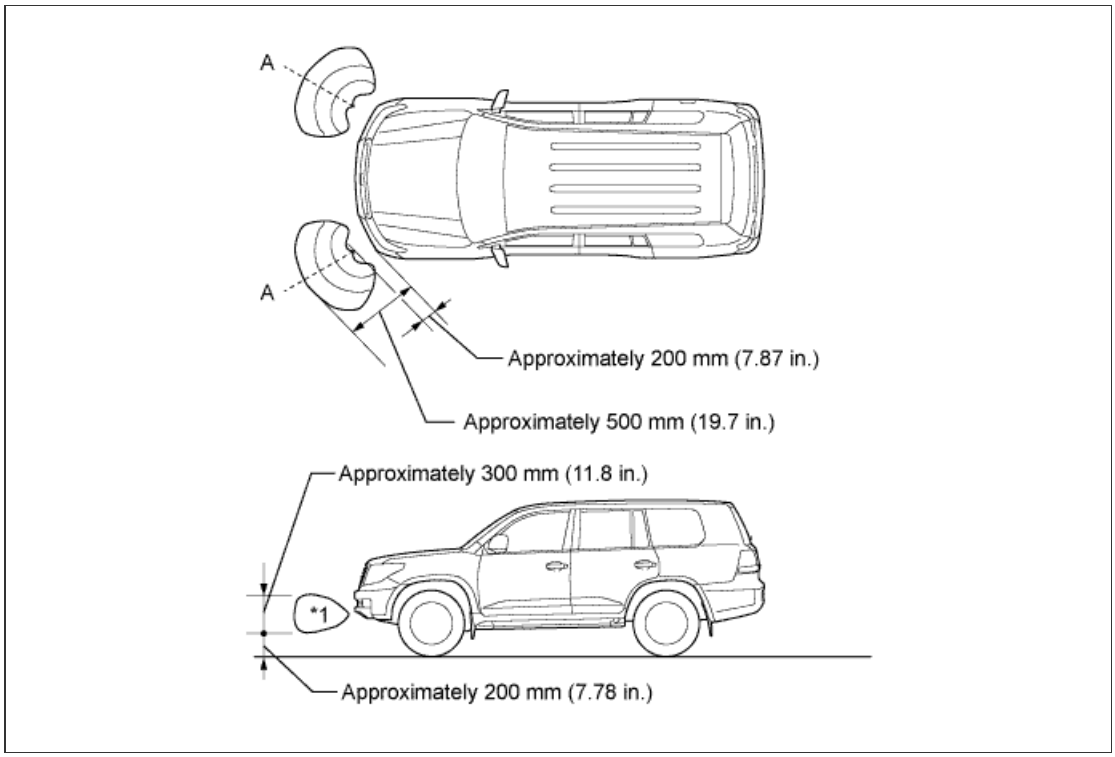
d. Turn the back sonar or clearance sonar switch assembly on.

e. Move the 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 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.**

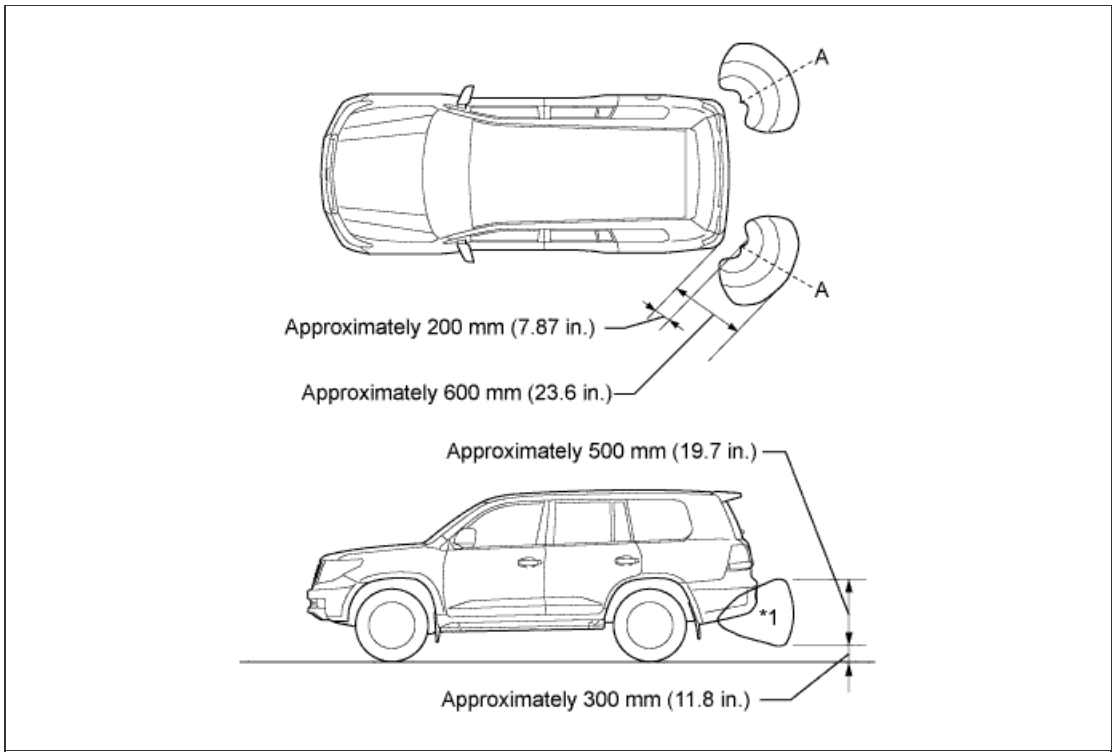
i. No. 1 ultrasonic sensors (FL, FR sensor) detection range



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.

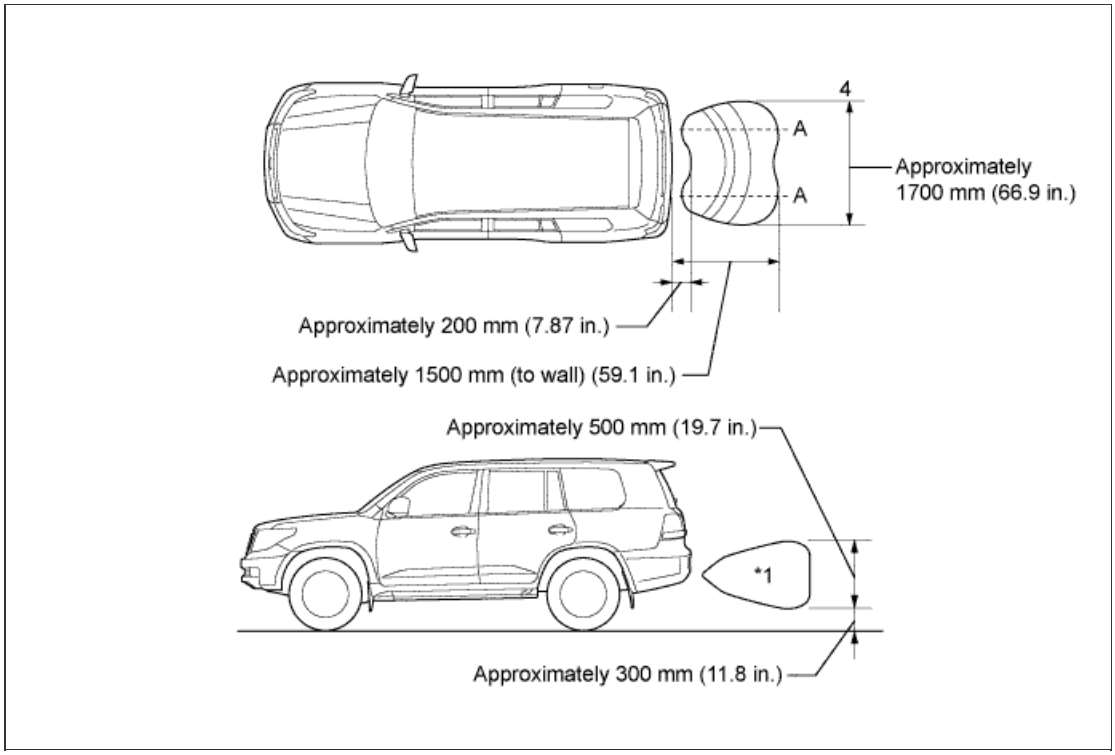
ii. No. 1 ultrasonic sensor (RL, RR sensor) detection range



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:

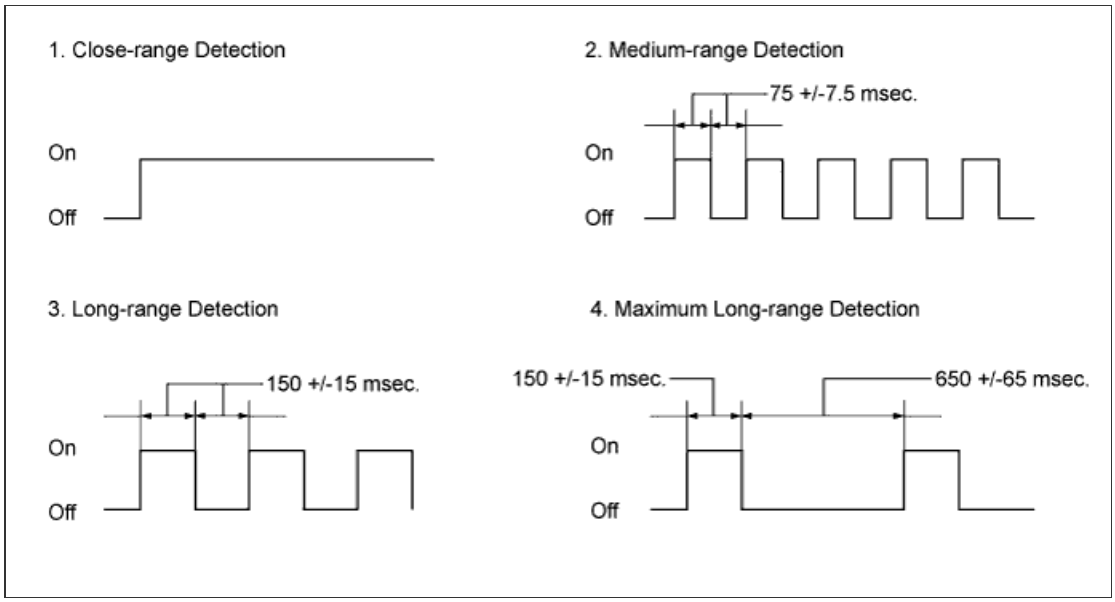
The area (labeled*1) which represents a side view of the No. 1 ultrasonic sensor (RLC, RRC sensor) detection range is a cross section of the detection range at the position labeled A which is shown in the top view. The area (labeled*1) does not represent the entire detection range.

f. When the ultrasonic sensors have detected an obstacle, check the multi-display, multi-information display and that the No. 1 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 (RLC, RRC Sensor)	No. 1 Ultrasonic Sensor (RL, RR 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.) 800 +/-80 to 1500 +/-150 mm (31.5 +/-3.15 to 59.1 +/-5.91 in.)

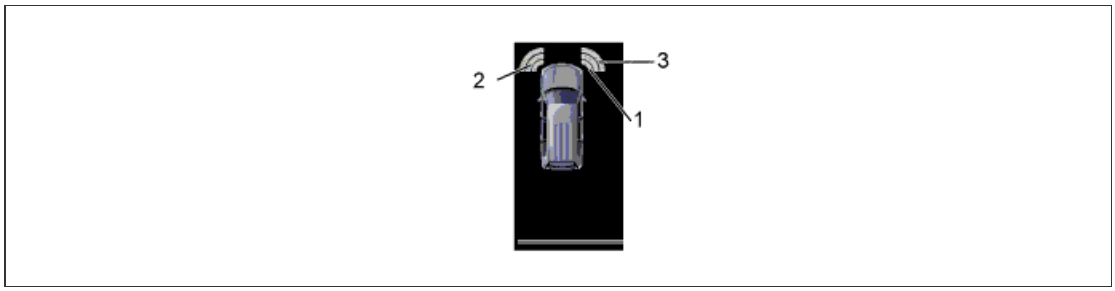
HINT:

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.

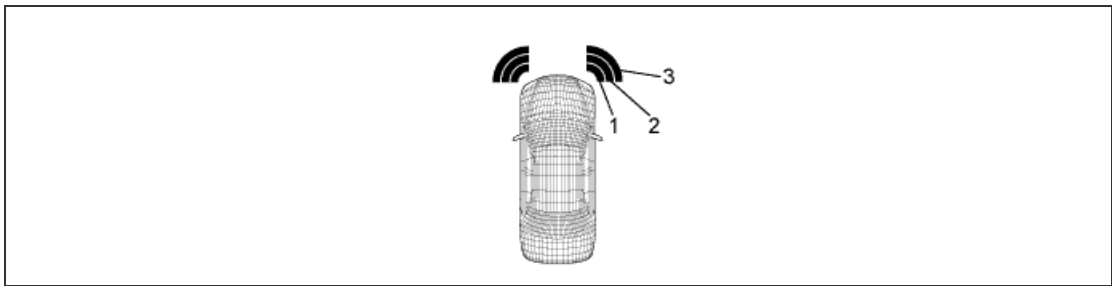
Operation Condition

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 (On: 75 msec., Off: 75 msec.)	2 (yellow illuminated)
3. Long-range detection	Sounds intermittently (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 (On: 75 msec., Off: 75 msec.)	2 (yellow illumination)
3. Long-range detection	Sounds intermittently (On: 150 msec., Off: 150 msec.)	3 (yellow illumination)

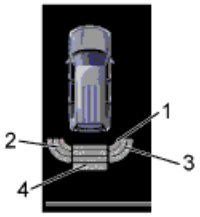
HINT:

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.

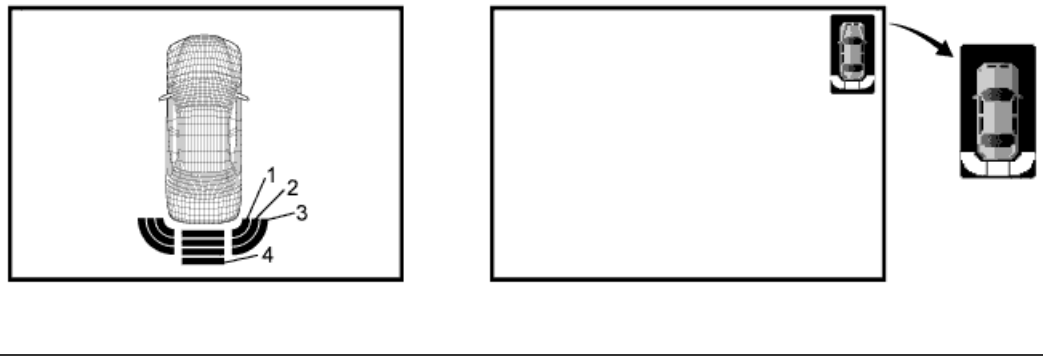
Operation Condition

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 (On: 75 msec., Off: 75 msec.)	2 (yellow illuminated)
3. Long-range detection	Sounds intermittently (On: 150 msec., Off: 150 msec.)	3 (yellow illuminated)
4. Maximum long-range detection (for rear center sensors)	Sounds intermittently (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 (On: 75 msec., Off: 75 msec.)	2 (yellow illumination)
3. Long-range detection	Sounds intermittently (On: 150 msec., Off: 150 msec.)	3 (yellow illumination)
4. Maximum long-range detection (for rear center sensors)	Sounds intermittently (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

CUSTOMIZING FUNCTION WITH INTELLIGENT TESTER

HINT:

The following items can be customized.

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
Front Side Dist Sensor	Long	Sets the buzzer activation range for the front sensors.	Short or Long
Reverse Range Front Sensor	Fsde	Changes the operation setting for the vehicle front sensors when the shift lever is in R.	F, Fs,Fc, Fsde 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 intuitive parking assist system is normal).	All or Undisp

CUSTOMIZING FUNCTION WITH MULTI-DISPLAY (w/ Multi-display)

HINT:

The following items can be customized.

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. Turn the engine switch on (IG).

b. Enter the following menus: Setup / Vehicle / TOYOTA park assist.

c. Select the setting by referring to the table below.

Warning

Display	Default	Contents	Setting
Alert volume	3	Sets the buzzer activation range for the rear center sensors.	1, 2, 3, 4 or 5
Display	On	The display mode setting (when the TOYOTA 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)	Parking assist ECU power source circuit (w/ Side Monitor System)	Click here
	Clearance warning ECU power source circuit (w/o Side Monitor System)	Click here
	Clearance sonar main switch 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
	Clearance sonar main switch circuit	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	Front left sensor malfunction	Click here
	Front right 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	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 (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

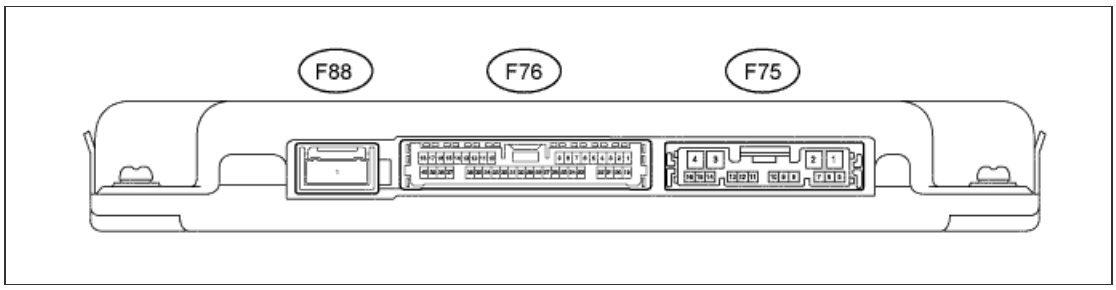
Symptom	Suspected Area	See page
Detection operation is normal but sonar displays do not appear on multi-information display	CAN communication system (for LHD)	Click here
	CAN communication system (for RHD)	Click here
	Parking assist ECU (w/ Side Monitor System)	Click here
	Clearance warning ECU assembly (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	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 (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	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

for Preparation Click here

CHECK PARK ASSIST ECU (w/ Side Monitor System)



a. Disconnect the F75 and F76 parking assist ECU connectors.

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

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
F75-1 (+B) - F75-4 (GND1)	L - W-B	Power source signal	Always	11 to 14 V
F75-4 (GND1) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
F76-25 (CSSW) - F75-4 (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
F75-8 (IG) - F75-4 (GND1)	G - W-B	IG power source signal	Engine switch on (IG)	11 to 14 V
			Engine switch off	Below 1 V
F75-9 (ACC) - F75-4 (GND1)	GR - W-B	ACC power source signal	Engine switch on (ACC)	11 to 14 V
			Engine switch off	Below 1 V

c. Reconnect the F75 and F76 parking assist ECU connectors.

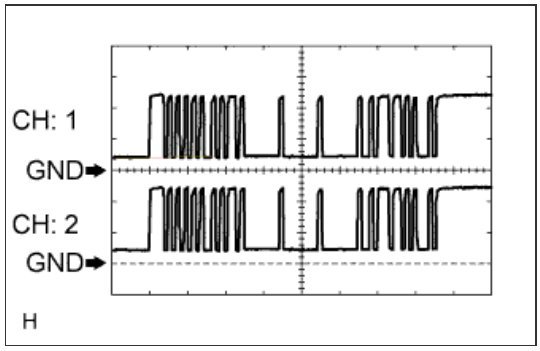
d. Measure the voltage and waveform according to value(s) in the table below.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
F76-3 (LIN2) - F76-4 (CSG2)	LG - GR	Rear sensor circuit power source	Engine switch on (IG), back sonar or clearance sonar switch assembly on	Waveform 1
F76-5 (CSB1) - F76-6 (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
F75-6 (EF) - F75-7 (BBZ)	L - G	No. 1 clearance warning buzzer signal	Buzzer does not sound	Below 1 V
			Buzzer sounding	Waveform 2
F76-20 (CSB2) - F76-4 (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
F76-23 (LIN1) - F76-6 (CSG1)	LG - R	Front sensor circuit power source	Engine switch on (IG), back sonar or clearance sonar switch assembly on	Waveform 1

e. Using an oscilloscope, check waveform 1.

Waveform 1 (Reference)

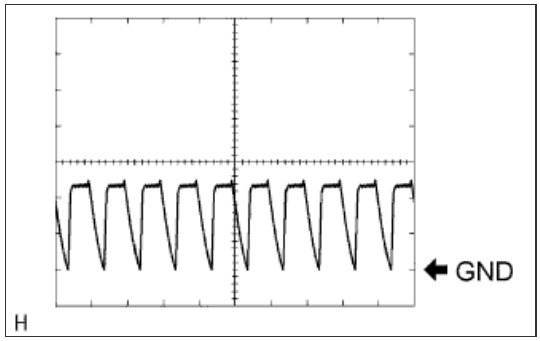
Item	Content
Terminal No. (Symbol)	• F76-3 (LIN2) - F76-4 (CSG2) • F76-23 (LIN1) - F76-6 (CSG1)
Tool Setting	2 V/DIV., 1 msec./DIV.
Condition	Engine switch on (IG), back sonar or clearance sonar switch assembly on



f. Using an oscilloscope, check waveform 2.

Waveform 2 (Reference)

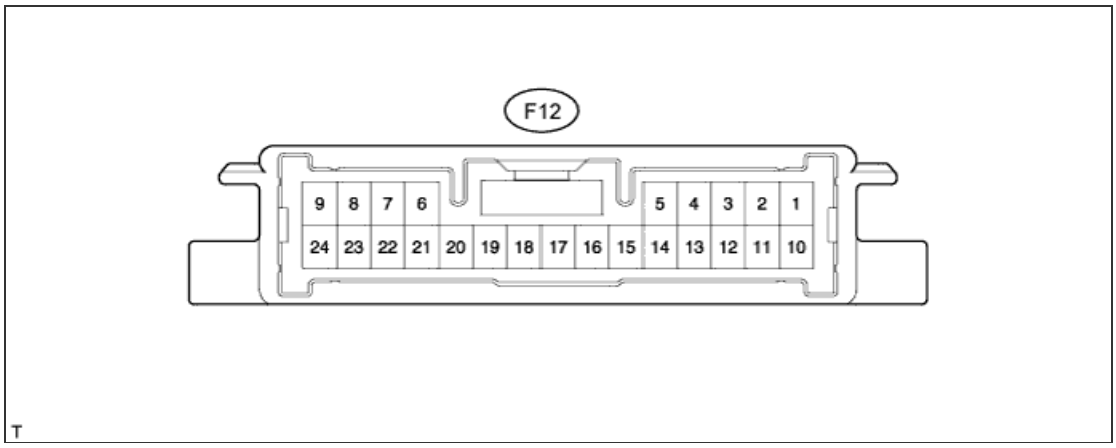
Item	Content
Terminal No. (Symbol)	F75-6 (EF) - F75-7 (BBZ)
Tool Setting	5 V/DIV., 1 msec./DIV.
Condition	Engine switch on (IG), shift lever moved to R



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 value(s) in the table below.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
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
F12-15 (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
F12-17 (GND1) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

c. Reconnect the F12 clearance warning ECU assembly connector.

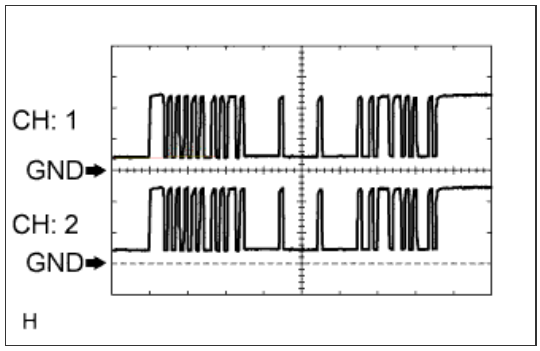
d. Measure the voltage and waveform according to value(s) in the table below.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
F12-7 (CSB2) - F12-18 (CSG2)	R - GR	Rear 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	Front sensor circuit power source	Engine switch on (IG), back sonar or clearance sonar switch assembly on	Waveform 1
F12-10 (BBZ) - F12-11 (EF)	G - L	No. 1 clearance warning buzzer signal	Buzzer not sounding	Below 1 V
			Buzzer sounding	Waveform 2
F12-21 (CSB1) - F12-9 (LIN1)	GR - LG	Front 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 sensor circuit power source	Engine switch on (IG), back sonar or clearance sonar switch assembly on	Waveform 1

e. Using an oscilloscope, check waveform 1.

Waveform 1 (Reference)

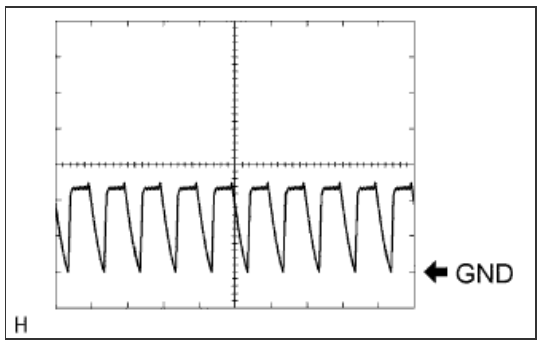
Item	Content
Terminal No. (Symbol)	• F12-9 (LIN1) - F12-19 (CSG1) • F12-24 (LIN2) - F12-18 (CSG2)
Tool Setting	2 V/DIV., 1 msec./DIV.
Condition	Engine switch on (IG), back sonar or clearance sonar switch assembly on



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	Engine switch on (IG), shift lever moved to R



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	Back sonar or clearance sonar switch assembly / OFF or ON	OFF: Back sonar or clearance sonar switch assembly off ON: Back sonar or clearance sonar switch assembly on	-
Clearance Sonar ECU Type	Type of clearance warning ECU / Normal or Steer	Normal: Normal clearance sonar type Steer: Steering sensing type	-
Rr Sensor Onset Range	Buzzer activation range (for rear sensors) / Narrow or Wide	Narrow: Buzzer activation range narrow Wide: Buzzer activation range wide	-
Keep Sense Buzzer	Buzzer operation / Not Avail or Avail	Not Avail: Buzzer sounds continuously 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 M1: Buzzer volume medium low M2: Buzzer volume medium M3: Buzzer volume medium high H: Buzzer volume high	-
Sensor Condition N	Sensor operation / Not Avail or Avail	Not Avail: Sensor does not operate 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 Avail: Display displays	When moving away from a previously detected obstacle.
Display Mode	Display mode setting / All or Updisp	All: Display displays all sensors Updisp: Display does not display	When the intuitive parking assist system is normal.
		F: All front sensors operate Fs,Fc: Front side and	

Reverse Range Front Sensor	Operation setting for vehicle front sensors (front center, front corner, front side) / F, Fs,Fc, Fsde or F Stop	front corner sensors operate Fsde: Front side sensors operate F Stop: All front sensors stop	When the shift lever is in R.
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 Rcrn: Rear corner sensors operate 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 Close R: Detected (Close-range) [Red] Mid G: Detected (Medium-range) [Green] Mid L G: Detected (Long-range) [Green] Long G: Detected (Maximum long-range) [Green] Mid Y: Detected (Medium-range) [Yellow] Mid L Y: Detected (Long-range) [Yellow] Long Y: Detected (Maximum long-range) [Yellow] Freeze: Sensor frozen Open: Open in sensor 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 Close R: Detected (Close-range) [Red] Mid G: Detected (Medium-range) [Green] Mid L G: Detected (Long-range) [Green] Long G: Detected (Maximum long-range) [Green] Mid Y: Detected (Medium-range) [Yellow] Mid L Y: Detected (Long-range) [Yellow] Long Y: Detected (Maximum long-range) [Yellow] Freeze: Sensor frozen Open: Open in sensor 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 Close R: Detected (Close-range) [Red] Mid G: Detected (Medium-range) [Green] Mid L G: Detected (Long-range) [Green] Long G: Detected (Maximum long-range) [Green] Mid Y: Detected (Medium-range) [Yellow]	-

		Mid L Y: Detected (Long-range) [Yellow] Long Y: Detected (Maximum long-range) [Yellow] Freeze: Sensor frozen Open: Open in sensor 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 Close R: Detected (Close-range) [Red] Mid G: Detected (Medium-range) [Green] Mid L G: Detected (Long-range) [Green] Long G: Detected (Maximum long-range) [Green] Mid Y: Detected (Medium-range) [Yellow] Mid L Y: Detected (Long-range) [Yellow] Long Y: Detected (Maximum long-range) [Yellow] Freeze: Sensor frozen Open: Open in sensor 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 Close R: Detected (Close-range) [Red] Mid G: Detected (Medium-range) [Green] Mid L G: Detected (Long-range) [Green] Long G: Detected (Maximum long-range) [Green] Mid Y: Detected (Medium-range) [Yellow] Mid L Y: Detected (Long-range) [Yellow] Long Y: Detected (Maximum long-range) [Yellow] Freeze: Sensor frozen Open: Open in sensor 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, Freeze, Open or Blink	Undetect: Not detected Close R: Detected (Close-range) [Red] Mid G: Detected (Medium-range) [Green] Mid L G: Detected (Long-range) [Green] Long G: Detected (Maximum long-range) [Green] Mid Y: Detected (Medium-range) [Yellow] Mid L Y: Detected (Long-range) [Yellow] Long Y: Detected (Maximum long-	-

		range) [Yellow] Freeze: Sensor frozen Open: Open in sensor Blink: All displays blinking	
Parking Signal	Parking signal / OFF or ON	OFF: Shift lever not in P ON: Shift lever in P	-
Reverse Signal	Reverse signal / OFF or ON	OFF: Shift lever not in R 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 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 WORK: Sonar detection operating	-
Clearance Sonar ECU	ECU information / Abnormal or Normal	Abnormal: ECU not normal Normal: ECU normal	-
Rr Right Freezed History	Rear corner sensor RH frozen history / Not Rec or Recorded	Not Rec: No record history Recorded: Record history	-
Rr Right Center Freezed History	Rear center sensor RH frozen history / Not Rec or Recorded	Not Rec: No record history Recorded: Record history	-
Rr Left Center Freezed History	Rear center sensor LH frozen history / Not Rec or Recorded	Not Rec: No record history Recorded: Record history	-
Rr Left Freezed History	Rear corner sensor LH frozen history / Not Rec or Recorded	Not Rec: No record history Recorded: Record history	-
Fr Right Freezed History	Front corner sensor RH frozen history / Not Rec or Recorded	Not Rec: No record history Recorded: Record history	-
Fr Right Center Freezed History	Front center sensor RH frozen history / Not Rec or Recorded	Not Rec: No record history Recorded: Record history	-
Fr Left Center Freezed History	Front center sensor LH frozen history / Not Rec or Recorded	Not Rec: No record history Recorded: Record history	-
Fr Left Freezed History	Front corner sensor LH frozen history / Not Rec or Recorded	Not Rec: No record history Recorded: Record history	-
# Codes	Number of stored trouble codes / min.: 0, max.: 255	Number of DTCs will be 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
Front Buzzer	No. 1 clearance warning buzzer	Operate or Stop	-
Rear Buzzer	No. 1 clearance warning buzzer	Operate or Stop	-
Front/Rear 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.

TOYOTA 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 (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) • Parking assist ECU*1 • 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) • Parking assist ECU*1 • Clearance warning ECU assembly*2

*1: w/ Side Mode System
*2: w/o Side Mode 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 Mode System)	B
DTC C1AE9 is output (w/o Side Mode 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 (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) • Parking assist ECU*1 • 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

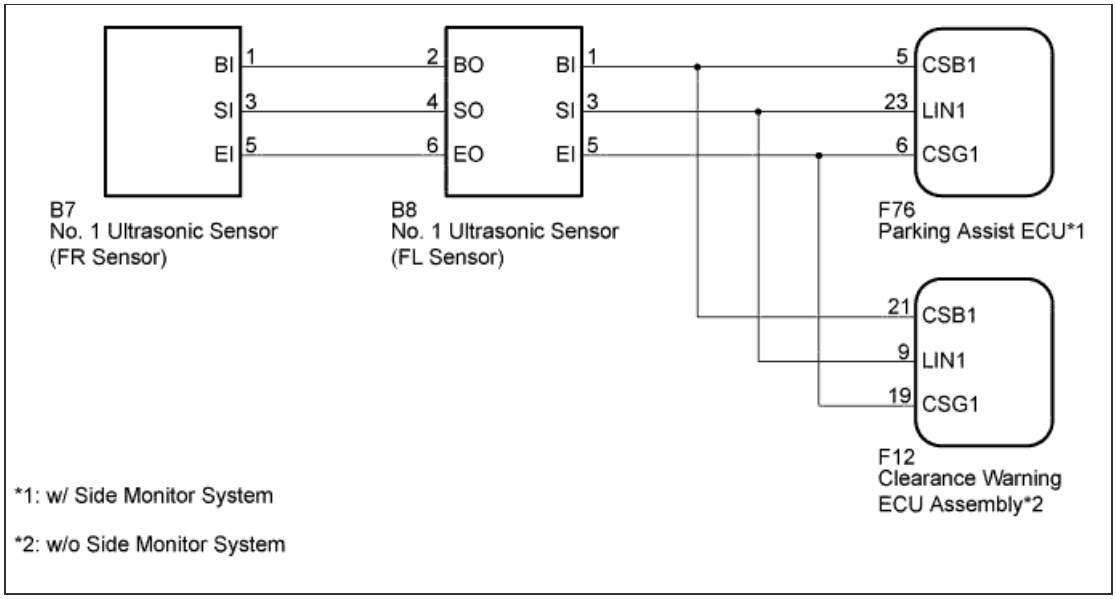
DESCRIPTION

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) • Harness or connector • Parking assist ECU*1 • 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 B8 No. 1 ultrasonic sensor (FL sensor) connector.

b. Disconnect the F76 parking assist ECU connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
B8-1 (BI) - F76-5 (CSB1)	Always	Below 1 Ω
B8-3 (SI) - F76-23 (LIN1)	Always	Below 1 Ω
B8-5 (EI) - F76-6 (CSG1)	Always	Below 1 Ω
B8-1 (BI) - Body ground	Always	10 kΩ or higher
B8-3 (SI) - Body ground	Always	10 kΩ or higher
B8-5 (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 B8 No. 1 ultrasonic sensor (FL sensor) connector.

b. Disconnect the B7 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
B8-2 (BO) - B7-1 (BI)	Always	Below 1 Ω
B8-4 (SO) - B7-3 (SI)	Always	Below 1 Ω
B8-6 (EO) - B7-5 (EI)	Always	Below 1 Ω
B8-2 (BO) - Body ground	Always	10 kΩ or higher
B8-4 (SO) - Body ground	Always	10 kΩ or higher
B8-6 (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
F76-5 (CSB1) - Body ground	Engine switch on (IG)	7.2 to 8.8 V

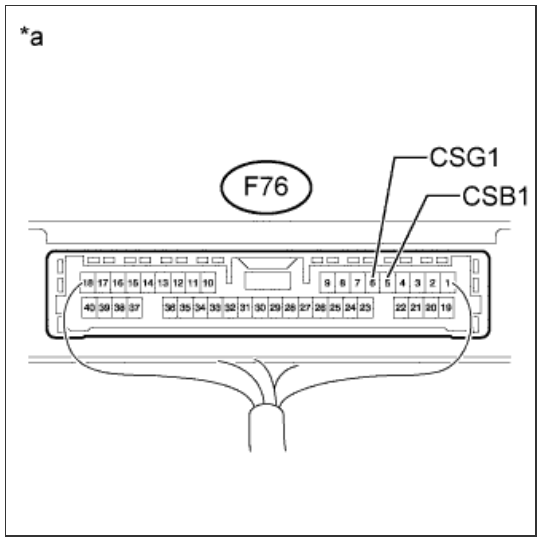
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F76-6 (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 ASSEMBLY)

a. Disconnect the B8 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
B8-1 (BI) - F12-21 (CSB1)	Always	Below 1 Ω
B8-3 (SI) - F12-9 (LIN1)	Always	Below 1 Ω
B8-5 (EI) - F12-19 (CSG1)	Always	Below 1 Ω
B8-1 (BI) - Body ground	Always	10 kΩ or higher
B8-3 (SI) - Body ground	Always	10 kΩ or higher
B8-5 (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 B8 No. 1 ultrasonic sensor (FL sensor) connector.

b. Disconnect the B7 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
B8-2 (BO) - B7-1 (BI)	Always	Below 1 Ω
B8-4 (SO) - B7-3 (SI)	Always	Below 1 Ω
B8-6 (EO) - B7-5 (EI)	Always	Below 1 Ω
B8-2 (BO) - Body ground	Always	10 kΩ or higher
B8-4 (SO) - Body ground	Always	10 kΩ or higher
B8-6 (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.

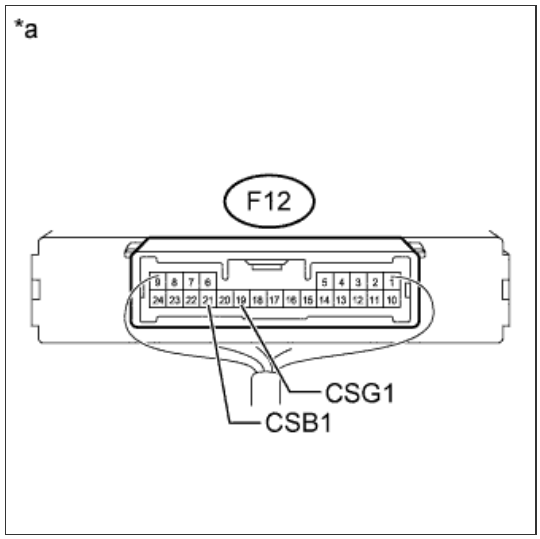
Standard Voltage:

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 4

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 normally 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. 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) • Parking assist ECU*1 • 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

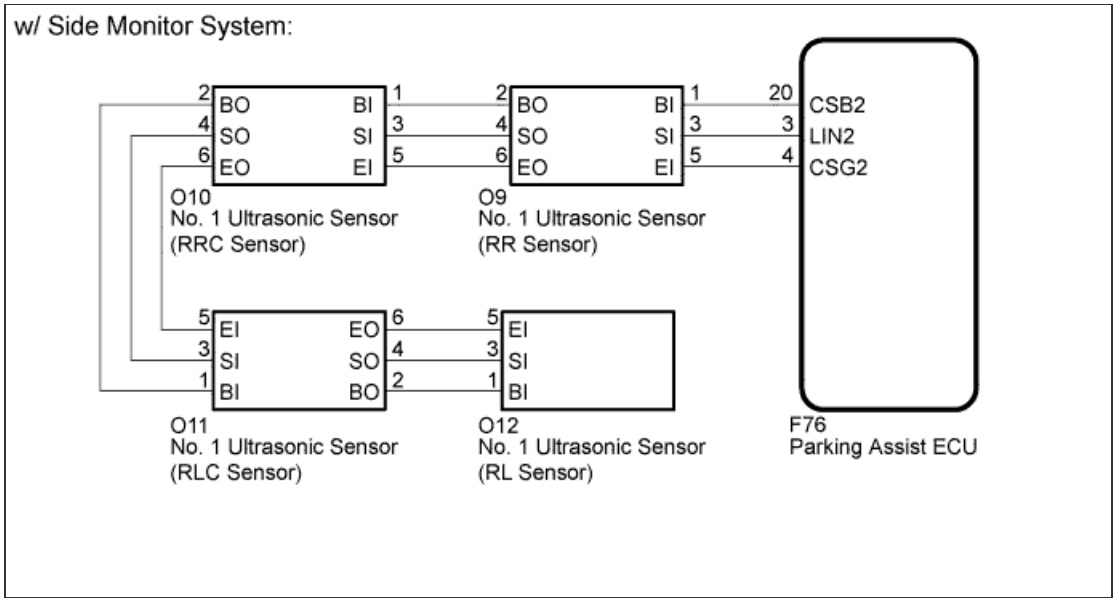
DESCRIPTION

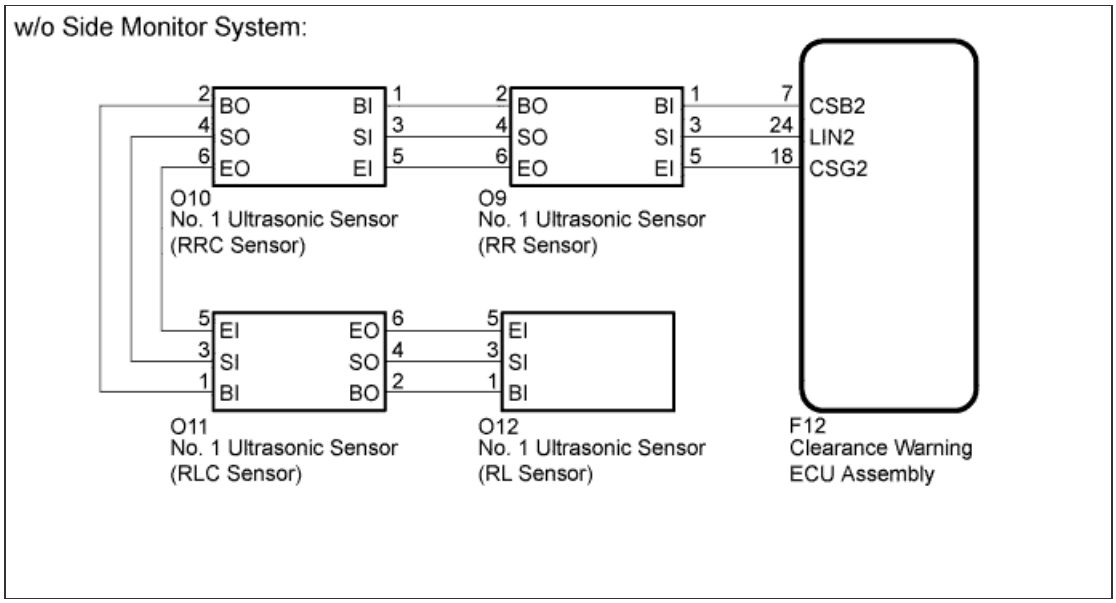
This DTC is stored when there is an open or short circuit in the communication line between the rear sensors and the ECU, or when there is a malfunction in a rear sensor.

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) • Harness or connector • Parking assist ECU*1 • 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 O9 No. 1 ultrasonic sensor (RR sensor) connector.

b. Disconnect the F76 parking assist ECU connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
O9-1 (BI) - F76-20 (CGB2)	Always	Below 1 Ω
O9-3 (SI) - F76-3 (LIN2)	Always	Below 1 Ω
O9-5 (EI) - F76-4 (CSG2)	Always	Below 1 Ω
O9-1 (BI) - Body ground	Always	10 kΩ or higher
O9-3 (SI) - Body ground	Always	10 kΩ or higher
O9-5 (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 [RR SENSOR] - NO. 1 ULTRASONIC SENSOR [RRC SENSOR])

a. Disconnect the O9 No. 1 ultrasonic sensor (RR sensor) connector.

b. Disconnect the O10 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
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

4.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR [RRC SENSOR] - NO. 1 ULTRASONIC SENSOR [RLC SENSOR])

a. Disconnect the O10 No. 1 ultrasonic sensor (RRC sensor) connector.

b. Disconnect the O11 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
O10-2 (BO) - O11-1 (BI)	Always	Below 1 Ω
O10-4 (SO) - O11-3 (SI)	Always	Below 1 Ω
O10-6 (EO) - O11-5 (EI)	Always	Below 1 Ω
O10-2 (BO) - Body ground	Always	10 kΩ or higher
O10-4 (SO) - Body ground	Always	10 kΩ or higher
O10-6 (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 O11 No. 1 ultrasonic sensor (RLC sensor) connector.

b. Disconnect the O12 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
O11-2 (BO) - O12-1 (BI)	Always	Below 1 Ω
O11-4 (SO) - O12-3 (SI)	Always	Below 1 Ω
O11-6 (EO) - O12-5 (EI)	Always	Below 1 Ω
O11-2 (BO) - Body ground	Always	10 kΩ or higher
O11-4 (SO) - Body ground	Always	10 kΩ or higher
O11-6 (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.

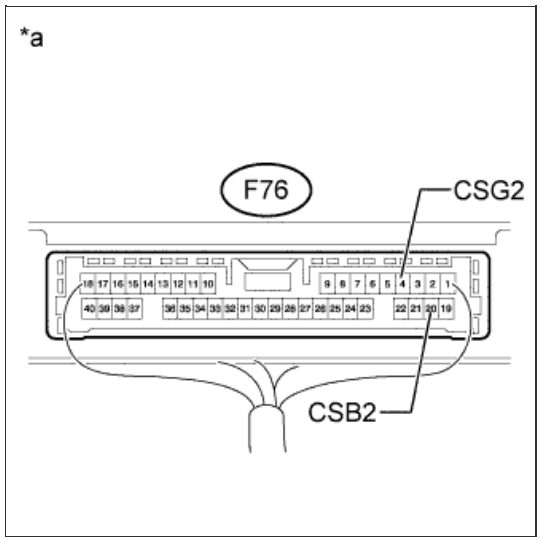
Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F76-4 (CGB2) - 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
F76-20 (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

Go to step 3

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 (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 ASSEMBLY)

a. Disconnect the O9 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
O9-1 (BI) - F12-7 (CGB2)	Always	Below 1 Ω
O9-3 (SI) - F12-24 (LIN2)	Always	Below 1 Ω
O9-5 (EI) - F12-18 (CSG2)	Always	Below 1 Ω
O9-1 (BI) - Body ground	Always	10 kΩ or higher
O9-3 (SI) - Body ground	Always	10 kΩ or higher
O9-5 (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 O9 No. 1 ultrasonic sensor (RR sensor) connector.

b. Disconnect the O10 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
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

18.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR [RRC SENSOR] - NO. 1 ULTRASONIC SENSOR [RLC SENSOR])

a. Disconnect the O10 No. 1 ultrasonic sensor (RRC sensor) connector.

b. Disconnect the O11 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
O10-2 (BO) - O11-1 (BI)	Always	Below 1 Ω
O10-4 (SO) - O11-3 (SI)	Always	Below 1 Ω
O10-6 (EO) - O11-5 (EI)	Always	Below 1 Ω
O10-2 (BO) - Body ground	Always	10 kΩ or higher
O10-4 (SO) - Body ground	Always	10 kΩ or higher
O10-6 (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 O11 No. 1 ultrasonic sensor (RLC sensor) connector.

b. Disconnect the O12 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
O11-2 (BO) - O12-1 (BI)	Always	Below 1 Ω
O11-4 (SO) - O12-3 (SI)	Always	Below 1 Ω
O11-6 (EO) - O12-5 (EI)	Always	Below 1 Ω
O11-2 (BO) - Body ground	Always	10 kΩ or higher
O11-4 (SO) - Body ground	Always	10 kΩ or higher

O11-6 (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.

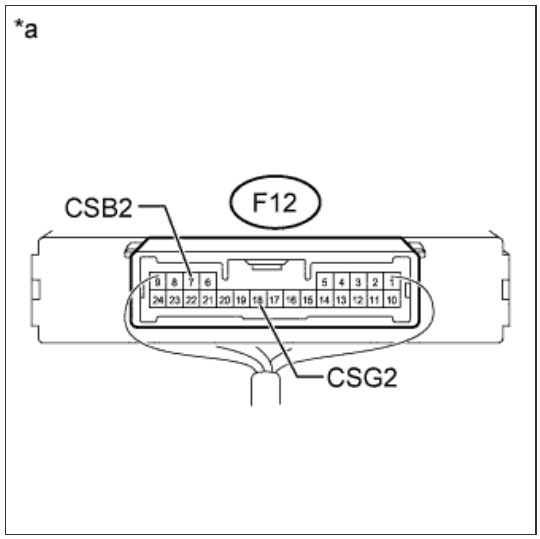
Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F12-7 (CGB2) - 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 one (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.REPLACE 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. 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) • Parking assist ECU*1 • 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 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 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. 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) • Parking assist ECU*1 • 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)

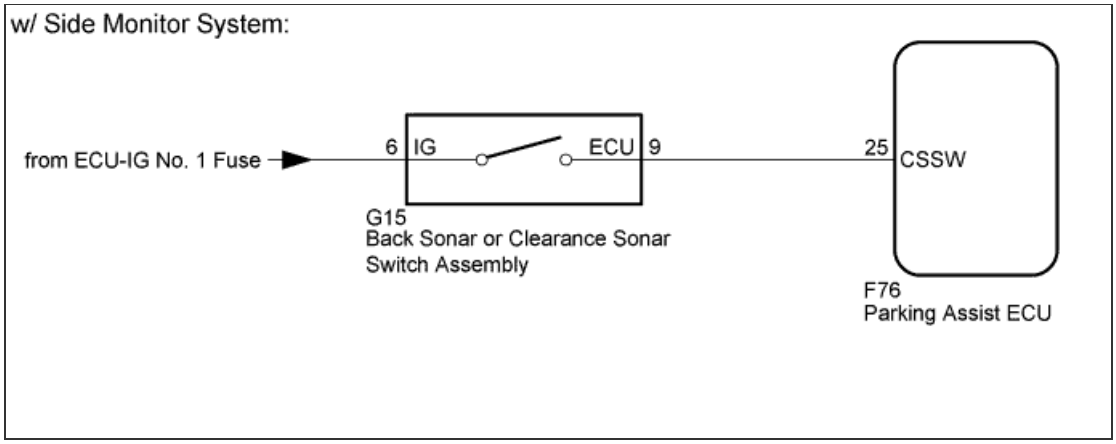
for Preparation Click here

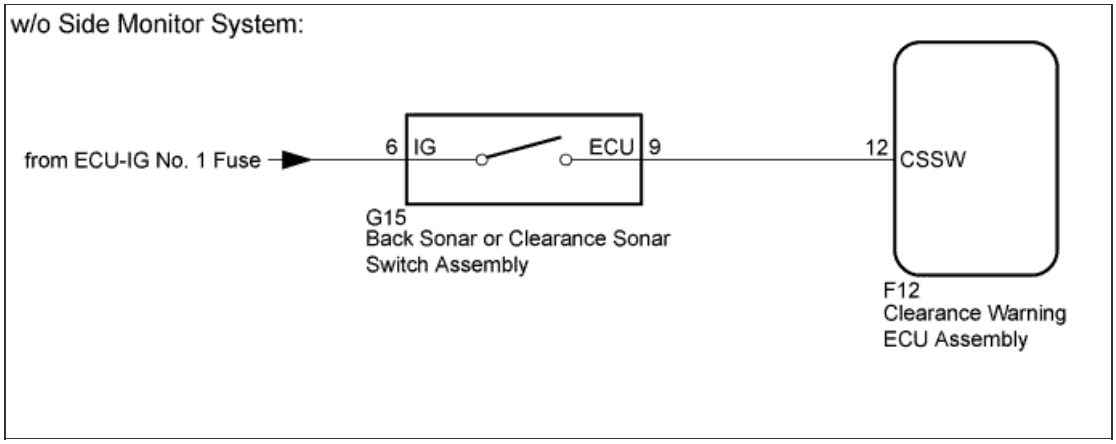
DESCRIPTION

When the 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 main 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 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 ASSEMBLY - PARKING ASSIST ECU AND BATTERY)

a. Disconnect the G15 back sonar or clearance sonar switch assembly connector.

b. Disconnect the F76 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
G15-6 (IG) - Body ground	Engine switch on (IG)	11 to 14 V
	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
G15-9 (ECU) - F76-25 (CSSW)	Always	Below 1 Ω
G15-9 (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 ASSEMBLY - CLEARANCE WARNING ECU ASSEMBLY AND BATTERY)

a. Disconnect the G15 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
G15-6 (IG) - Body ground	Engine switch on (IG)	11 to 14 V

	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
G15-9 (ECU) - F12-12 (CSSW)	Always	Below 1 Ω
G15-9 (ECU) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

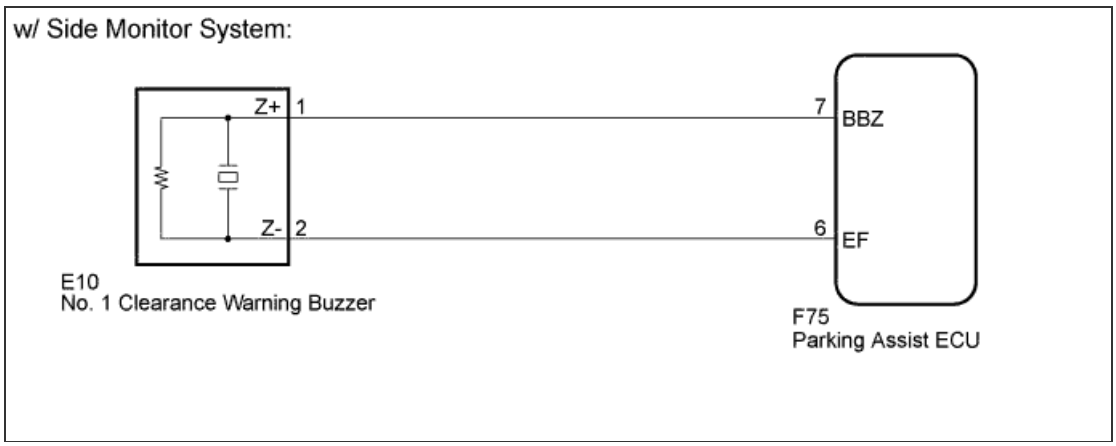
REPLACE CLEARANCE WARNING ECU ASSEMBLY (Click here)

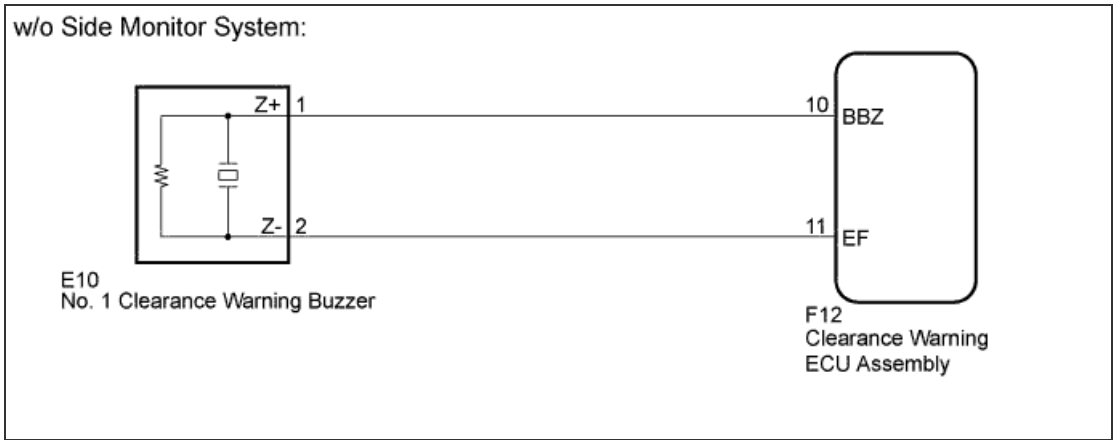
for Preparation Click here

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 (Click here).

Clearance Sonar

Tester Display	Test Part	Control Range	Diagnostic Note
Front 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 F75 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
F75-7 (BBZ) - E10-1 (Z+)	Always	Below 1 Ω
F75-6 (EF) - E10-2 (Z-)	Always	Below 1 Ω
F75-7 (BBZ) - Body ground	Always	10 kΩ or higher
F75-6 (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 ASSEMBLY - NO. 1 CLEARANCE WARNING BUZZER)

a. Disconnect the F12 clearance warning 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
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

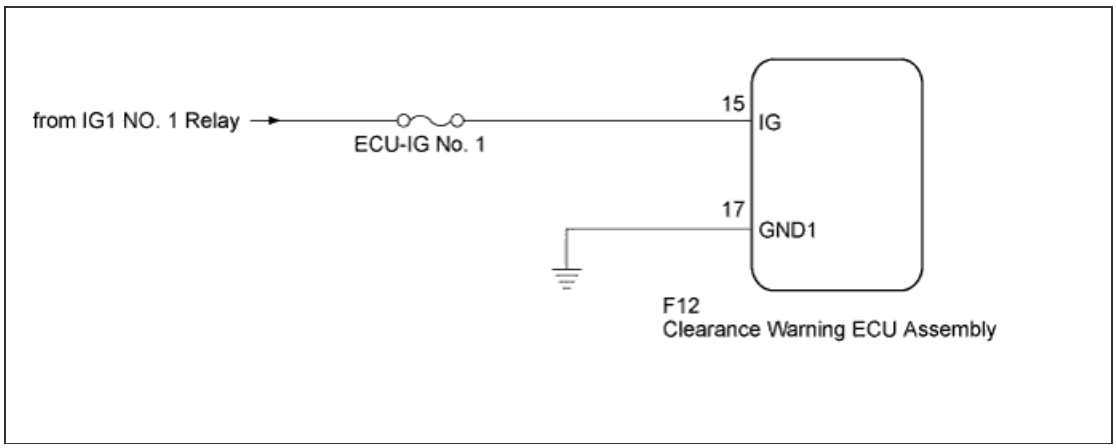
REPLACE NO. 1 CLEARANCE WARNING BUZZER (Click here)

for Preparation Click here

DESCRIPTION

This circuit is the power source circuit to operate the clearance warning ECU 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 (CLEARANCE WARNING ECU ASSEMBLY- BATTERY AND BODY GROUND)

a. Disconnect the clearance warning ECU assembly connector.

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

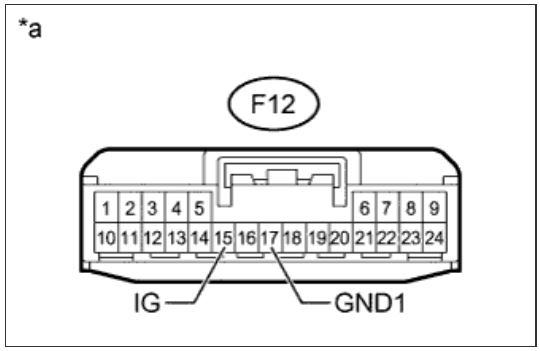
Standard Resistance:

Tester Connection	Condition	Specified Condition
F12-17 (GND1) - Body ground	Always	Below 1Ω

c. 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



Text in Illustration

*a	Front view of wire harness connector (to Clearance Warning ECU Assembly)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

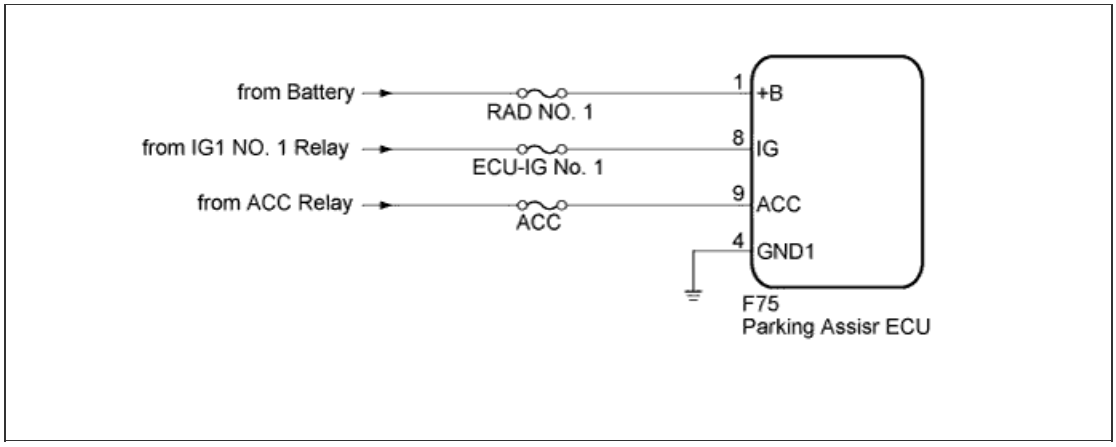
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This circuit is the power source circuit to operate the parking assist ECU. The parking assist ECU controls the TOYOTA parking assist-sensor system, parking assist monitor system (w/ Side Monitor System), side monitor system and wide view front monitor system. When a malfunction occurs in this circuit, each system will be abnormal.

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 parking assist ECU connector.

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

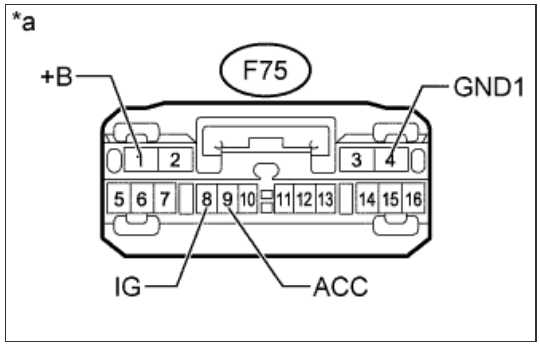
Standard Resistance:

Tester Connection	Condition	Specified Condition
F75-4 (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
F75-1 (+B) - F75-4 (GND1)	Always	11 to 14 V
F75-8 (IG) - F75-4 (GND1)	Engine switch on (IG)	11 to 14 V
F75-9 (ACC) - F75-4 (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. 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.

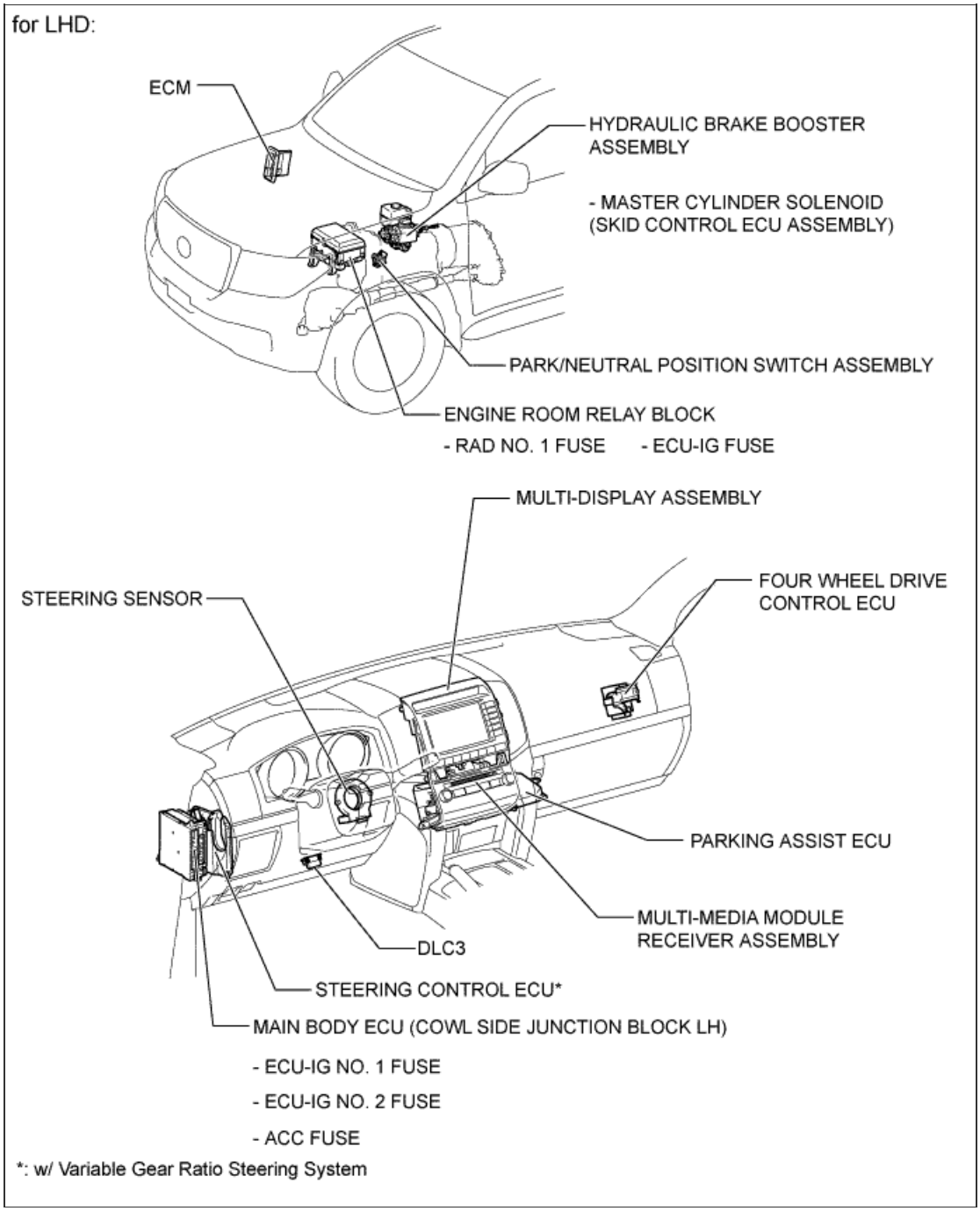
xi. The rear television camera assembly lens is scratched.

xii. The rear television camera assembly lens has drops of water on it or the humidity is high.

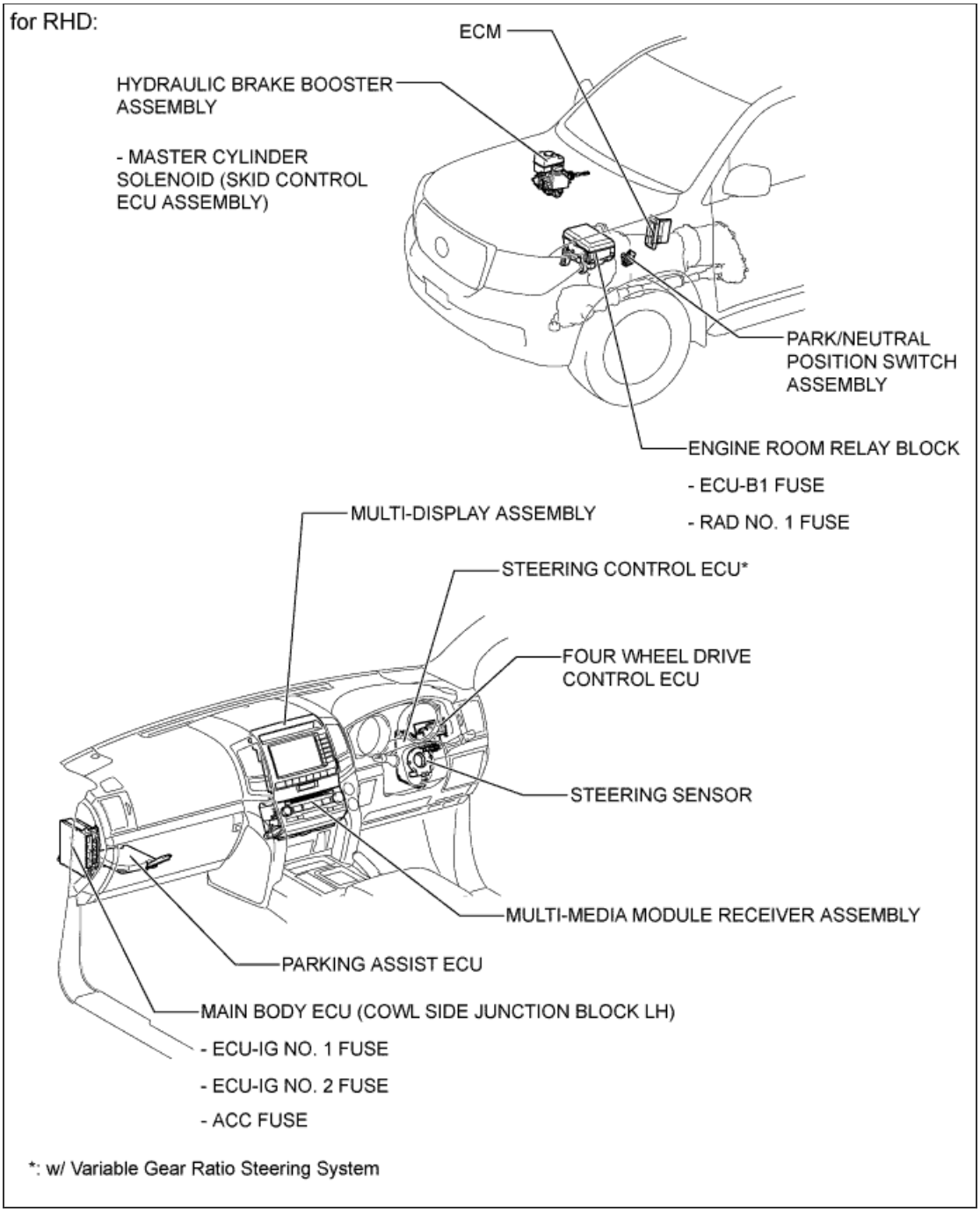
xiii. When the camera is used under fluorescent lights, sodium lights, or mercury lights etc., the lights and the illuminated area may appear to flicker.

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.)

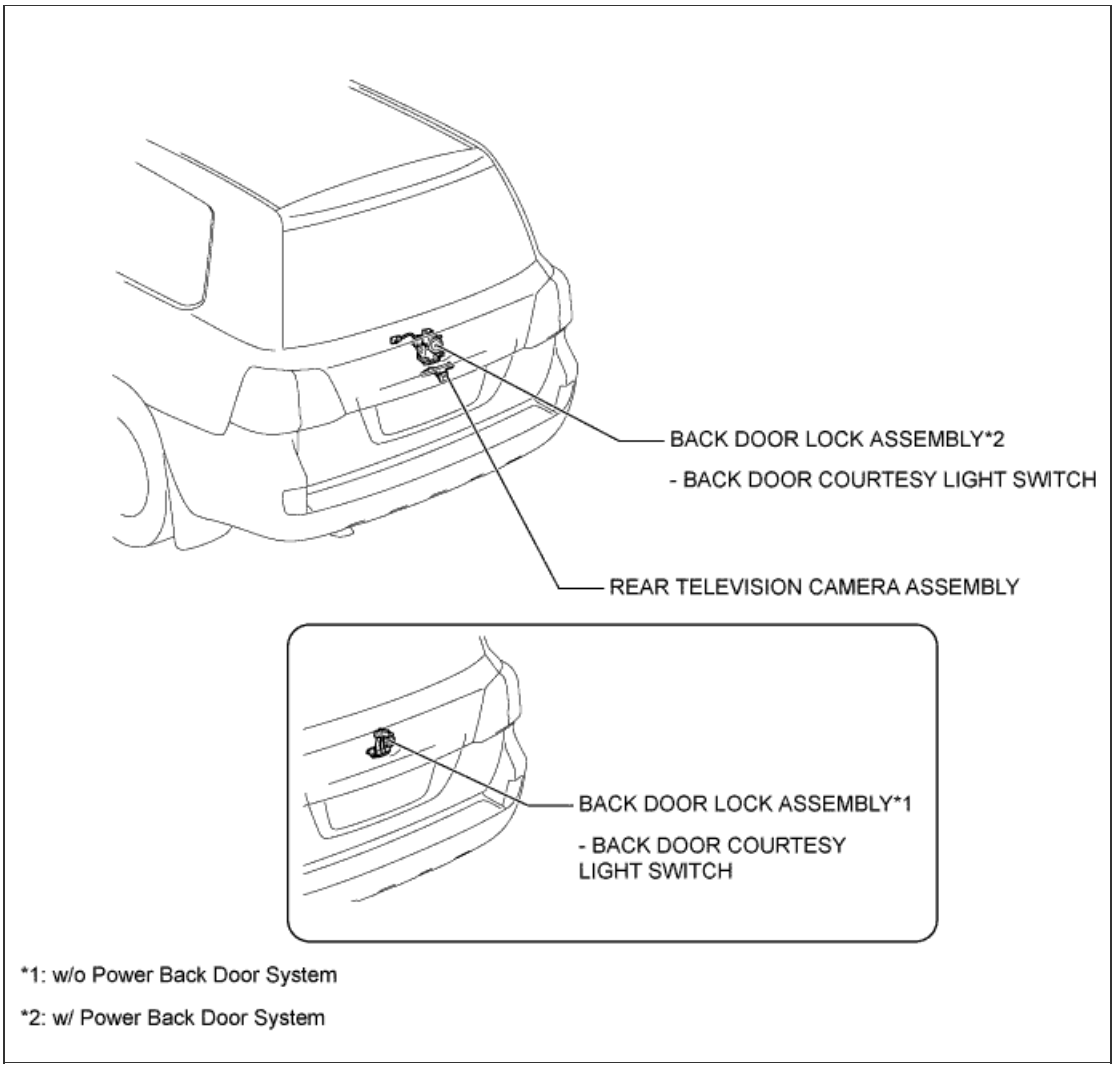
for Preparation Click here



for RHD:



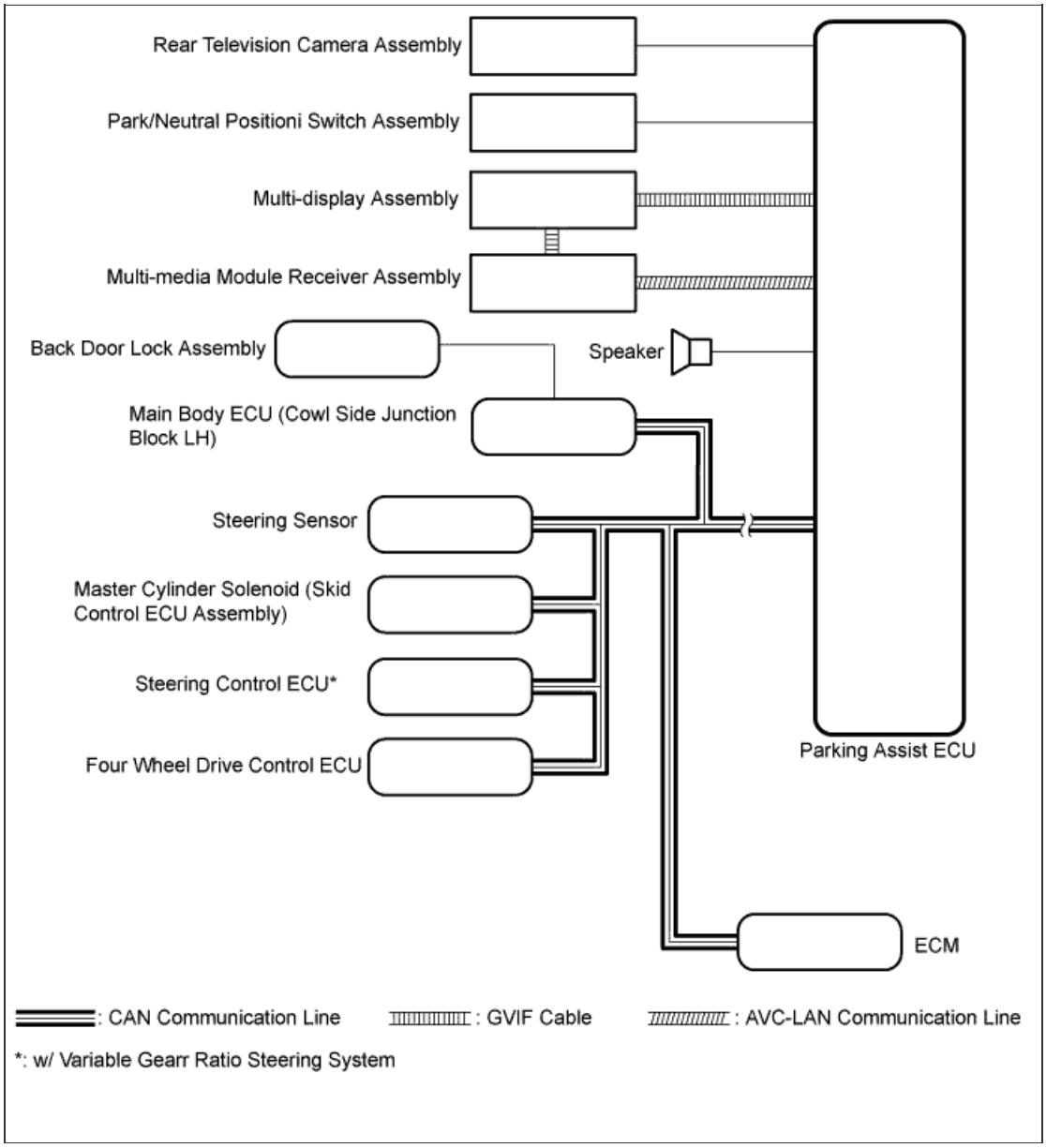
*: w/ Variable Gear Ratio Steering System



*1: w/o Power Back Door System

*2: w/ Power Back Door System

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 • Vehicle information	CAN
Master Cylinder Solenoid (Skid Control ECU Assembly)	Parking Assist ECU	• Inner brake information • ABS ACT information	CAN
Four Wheel Drive Control ECU	Parking Assist ECU	L4 Condition signal	CAN
ECM	Parking Assist ECU	• Shift position information • 2WD/4WD information • Vehicle information	CAN
Main Body ECU (Cowl Side Junction Block LH)	Parking Assist ECU	• Vehicle information • Back door courtesy light switch	CAN

*: w/ Variable Gear Ratio Steering System

for Preparation Click here

*: w/ Variable Gear Ratio Steering System

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. Speaker

vi. Steering sensor

vii. Steering control ECU*

viii. Master cylinder solenoid (skid control ECU assembly)

ix. Four wheel drive control ECU

x. ECM

xi. 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. • 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. • Performs overall control of the system by receiving signals from the sensors. • Allows operation via the touch panel of the display when the park assist monitor screen or diagnosis screen is displayed. • Creates images and displays adjustment screens performed on the diagnosis screen. • Stops displaying the guide line and buttons displays "Check surrounding for safety" when an open signal is received for the back door. • 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*1	Sends the VGRS relative angle and vehicle condition to the parking assist ECU through CAN communication.
Master Cylinder Solenoid (Skid Control ECU	Sends the inner brake information and ABS ACT information to the parking

Assembly)	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..
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

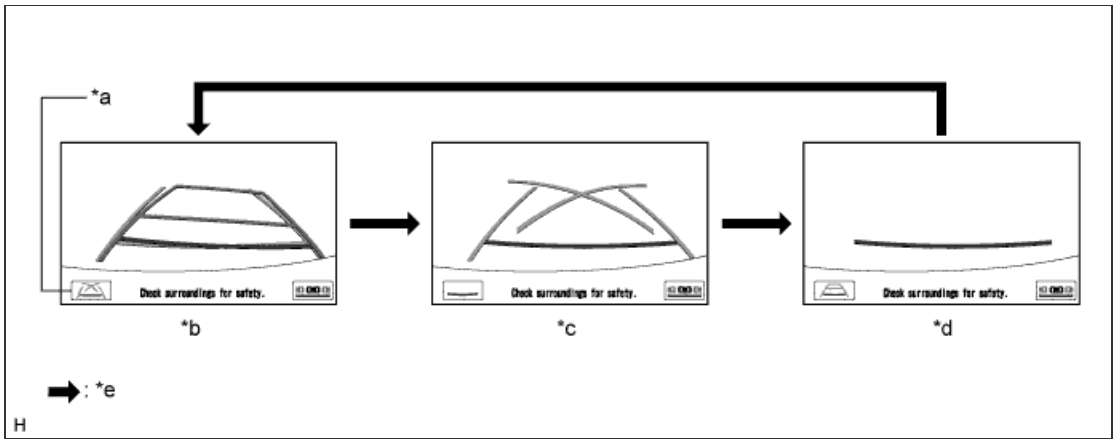
a. The reverse position signal is sent from the shift lever position switch to the parking assist ECU when the shift lever is moved to R.

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 (w/ Side 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 • 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 • 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

NOTICE:

After the engine switch is turned off, the multi-media module receiver assembly requires approximately a minute to record various types of memory and settings. As a result, after turning the engine switch off, wait a minute or more before disconnecting the cable from the negative (-) battery terminal.

HINT:

The adjustment values stored while performing parking assist monitor system (w/ Side Monitor System) calibration are stored in the parking assist ECU.

PARKING ASSIST ECU INITIALIZATION (Procedure 1)

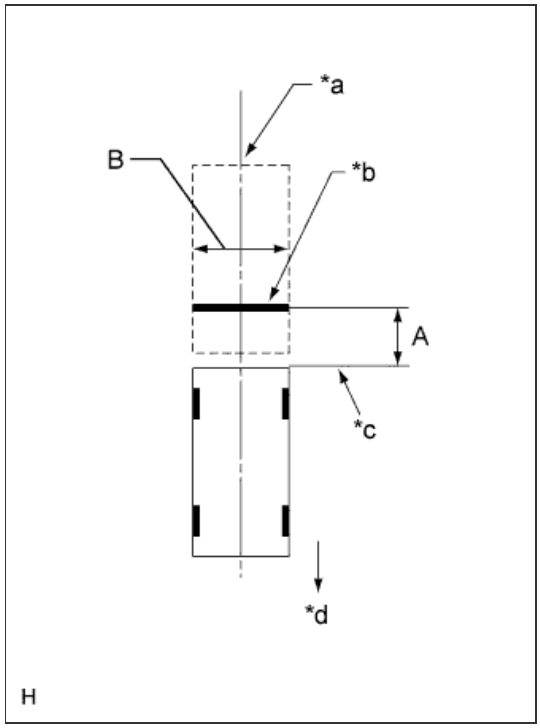
HINT:

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.



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 (6.55 to 6.58 ft.)

Text in Illustration

*a	Vehicle Center
*b	Target Bar for Back Camera Adjustment
*c	Vehicle End
*d	Front Side

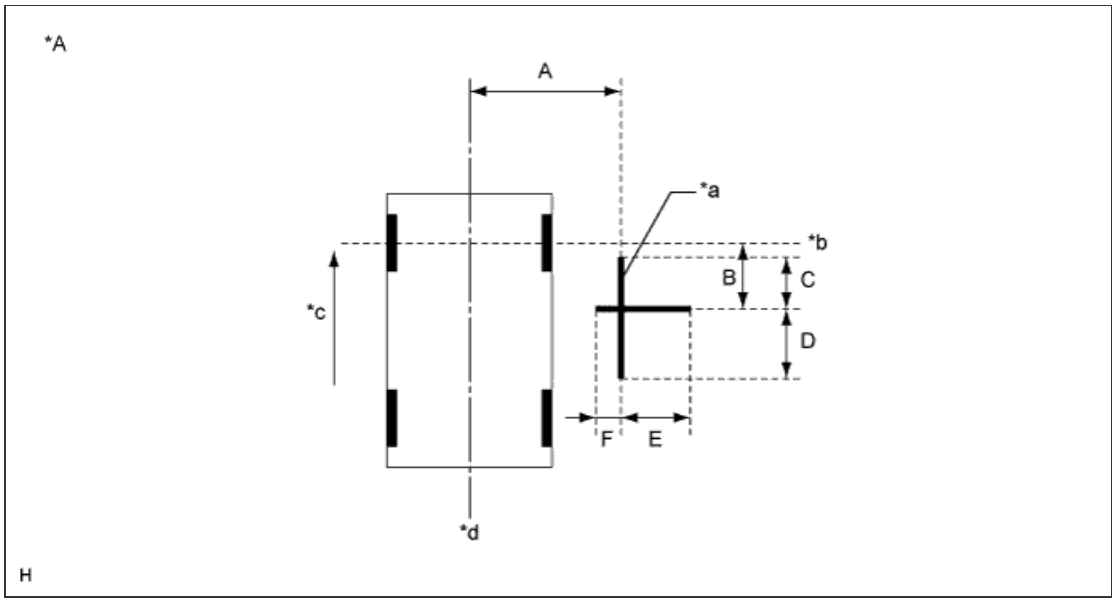
HINT:

- **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-media module receiver 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.

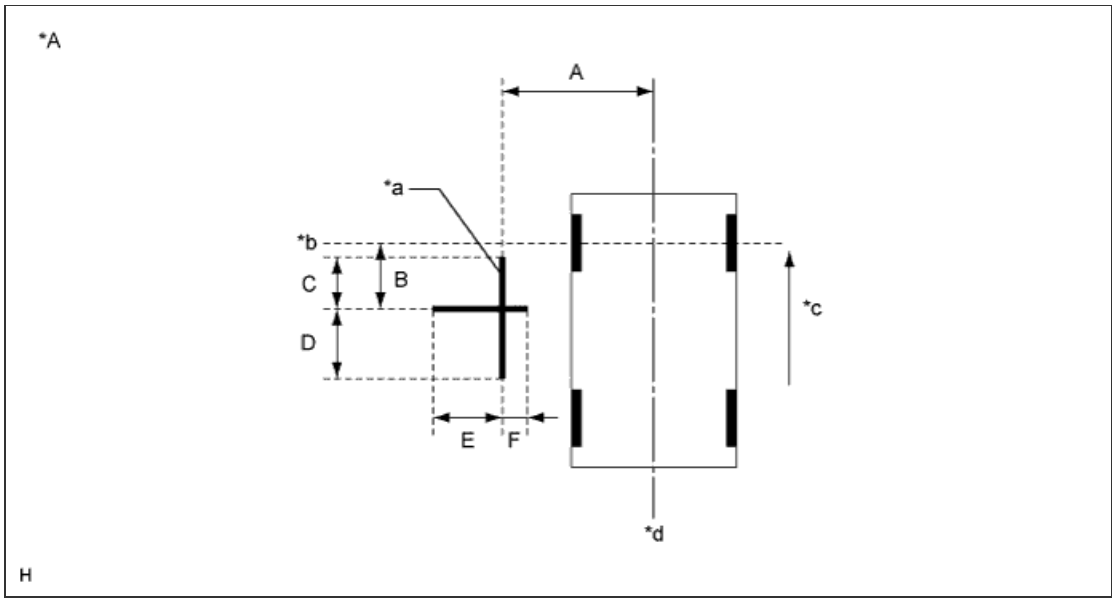
HINT:

Only when adjusting the optical axis of the camera, 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).

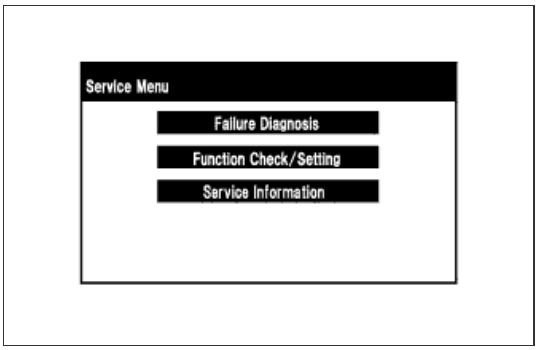
NOTICE:

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.

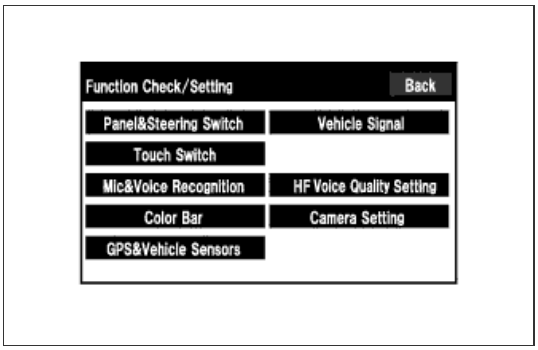
HINT:

The displayed items may differ depending on vehicle specifications.

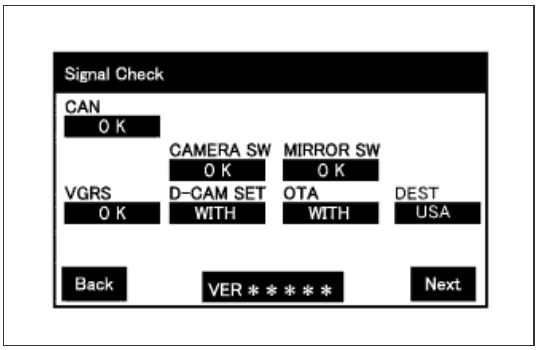
i. Select "Function Check/Setting" on the [Service Menu] screen.



ii. Select "Camera Setting" on the [Function Check/Setting] screen.



iii. Select "Next" on the [Signal Check] screen.



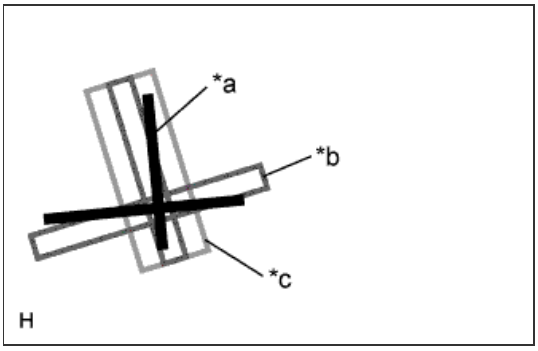
NOTICE:

- **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

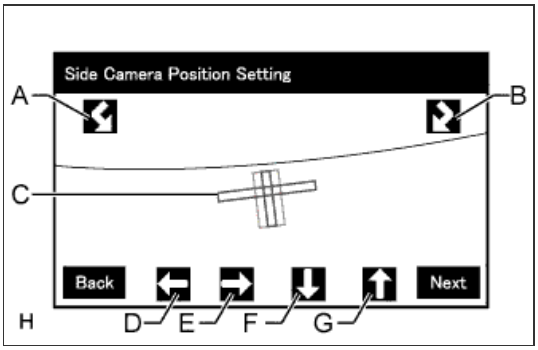
i. Perform the roll angle adjustment.

- 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].



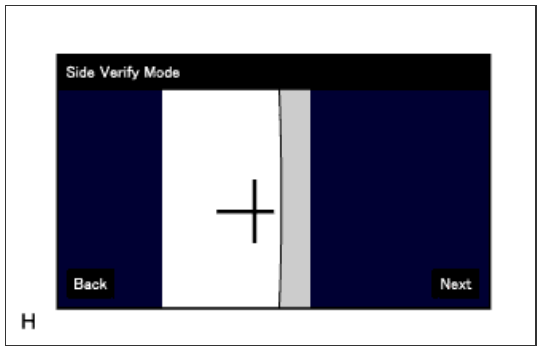
d. Side Verify Mode:

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].

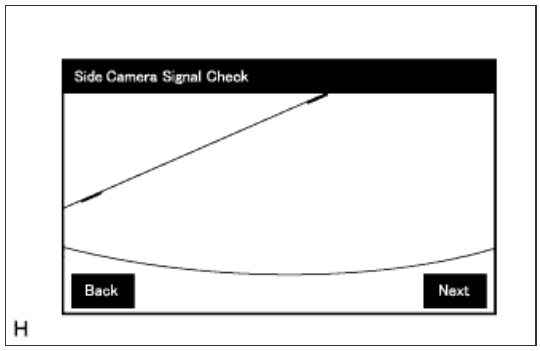


e. Side Camera Signal Check:

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:

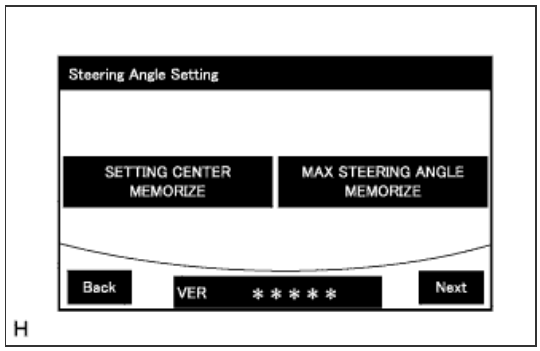
i. Perform the "STEERING CENTER MEMORIZE" operation.

- 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.

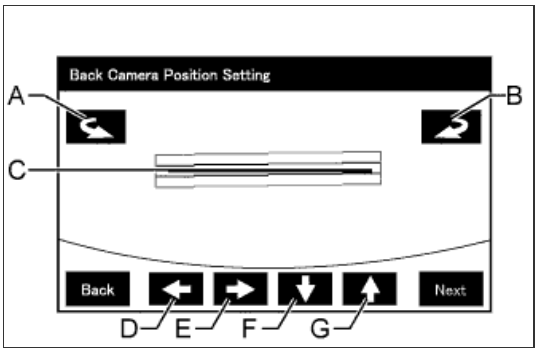
HINT:

- **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.

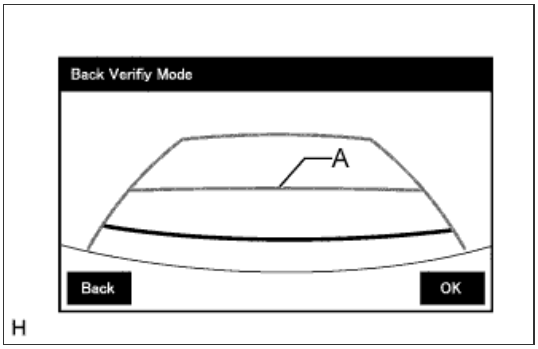
- Select the directional switches D, E, F and G to move C so that the target adjustment bar is centered in C.

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).

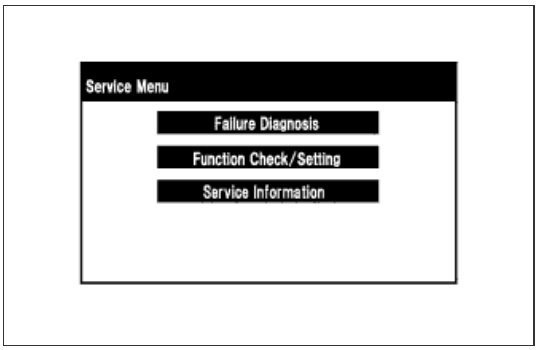
NOTICE:

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.

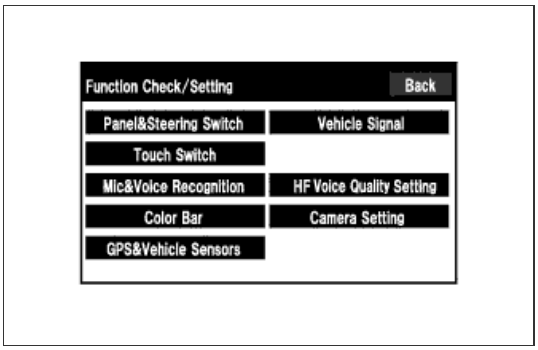
HINT:

The displayed items may differ depending on vehicle specifications.

i. Select "Function Check/Setting" on the [Service Menu] screen.



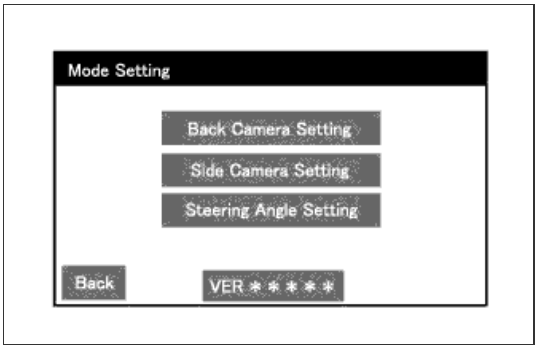
ii. Select "Camera Setting" on the [Function Check/Setting] screen.



iii. Select "Steering Angle Setting" on the [Mode Setting] screen.

HINT:

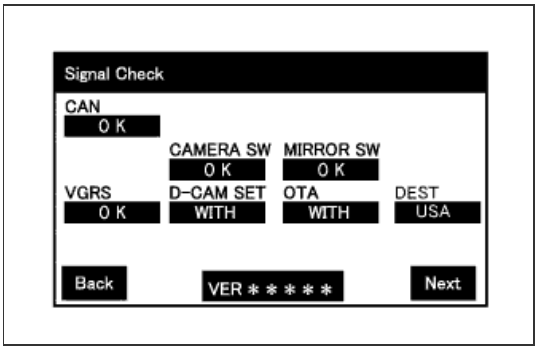
To select a grayed out item, select and hold the item for 2 seconds or more.



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.

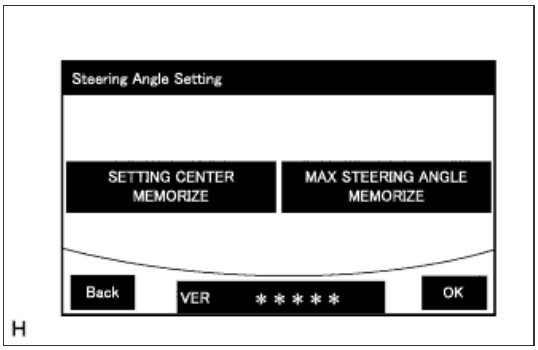
Check that the steering wheel is centered, and then select "STEERING CENTER MEMORIZE".

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:

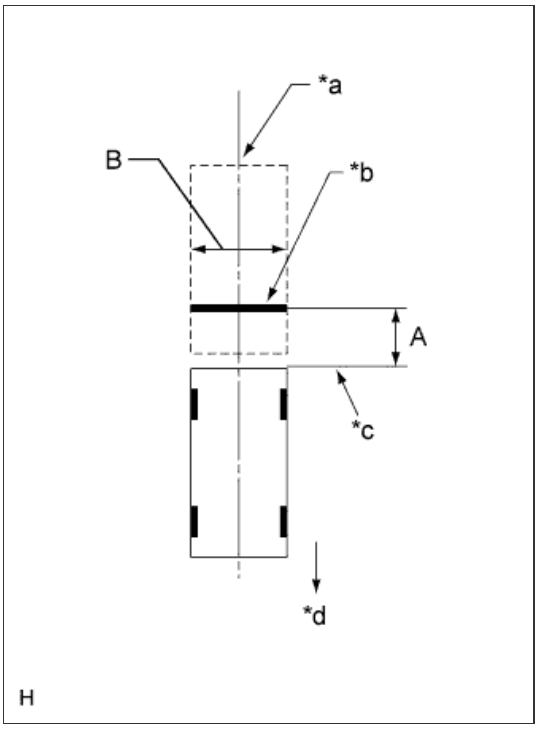
Only when adjusting the optical axis of the camera, create a target bar for adjustment.

Dimension:

Area	Specification
A	825 to 835 mm (2.71 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 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).

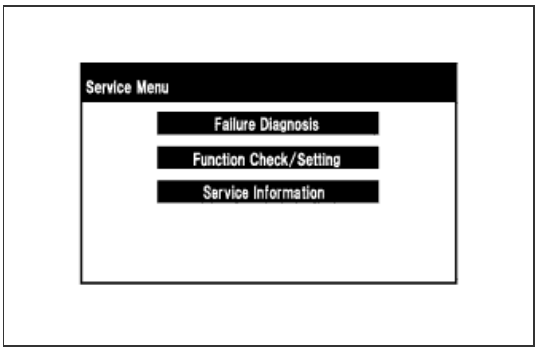
NOTICE:

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.

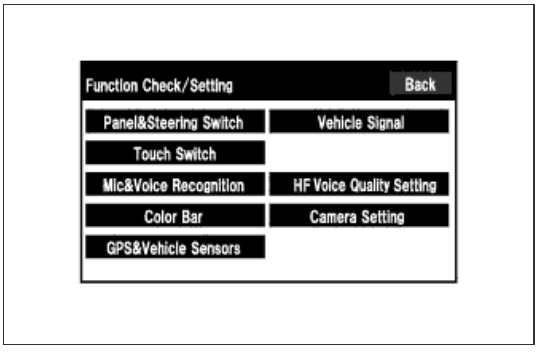
HINT:

The displayed items may differ depending on vehicle specifications.

i. Select "Function Check/Setting" on the [Service Menu] screen.



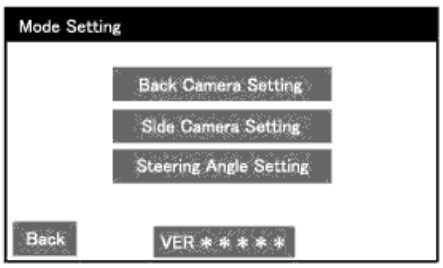
ii. Select "Camera Setting" on the [Function Check/Setting] screen.



iii. Select "Back Camera Setting" on the [Mode Setting] screen.

HINT:

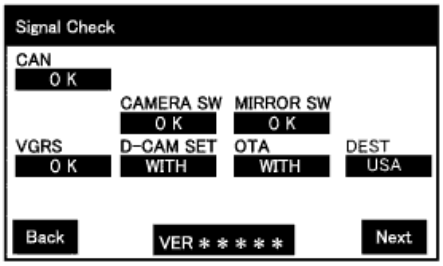
To select a grayed out item, select and hold the item for 2 seconds or more.



iv. Select "Next" on the [Signal Check] screen.

NOTICE:

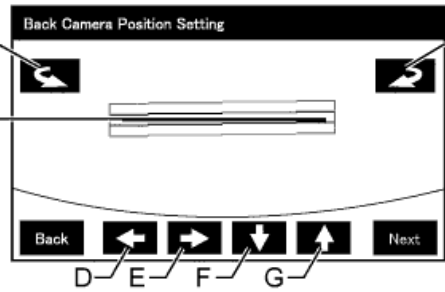
- **When "CHK" (red) is displayed for any items on the [Signal Check] screen, selecting "Next" will not change the screen to the [Back Camera Position Setting] screen.**
- **When "CHK" (red) is displayed for any items on the [Signal Check] screen, perform inspections using the [Signal Check] screen (Click 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.

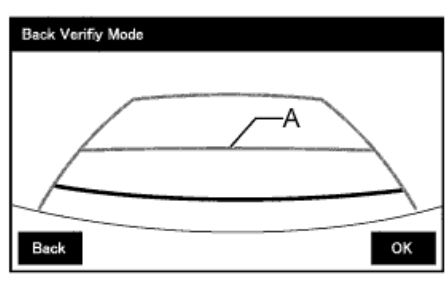
iii. Select the "Next" button on the [Back Camera Position Setting] screen.

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 (w/ 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 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

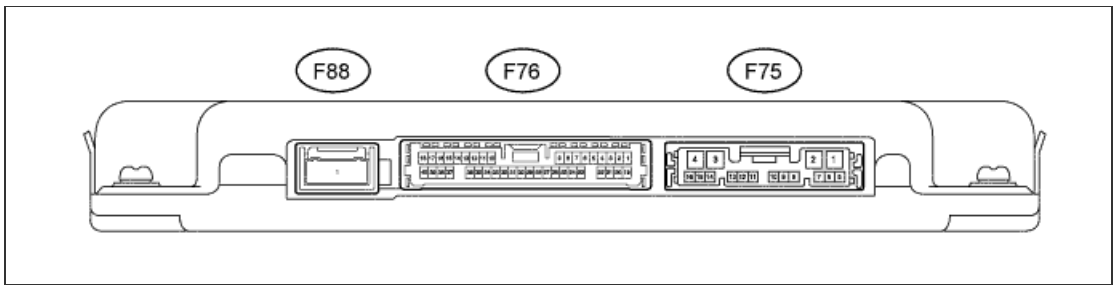
Parking Assist Monitor System Malfunction

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 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.	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 F75 and F76 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
F75-1 (+B) - F75-4 (GND1)	L - W-B	Power source signal	Always	11 to 14 V
F75-4 (GND1) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
F75-8 (IG) - F75-4 (GND1)	G - W-B	IG power source signal	Engine switch on (IG)	11 to 14 V
			Engine switch off	Below 1 V
F75-9 (ACC) - F75-4 (GND1)	GR - W-B	ACC power source signal	Engine switch on (ACC)	11 to 14 V
			Engine switch off	Below 1 V
F76-7 (BLSW) - F75-4 (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 F75 and F76 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
F75-10 (TX-)	L	AVC-LAN communication signal	-	-
F75-11 (TX+)	W	AVC-LAN communication signal	-	-
F76-38 (CV-) - F75-37 (CGND)	W - Shielded	Rear television camera ground	Always	Below 1 V
F76-15 (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)
F76-37 (CGND) - F75-4 (GND1)	Shielded - W-B	Rear television camera ground (shield)	Always	Below 1 V
F76-14 (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

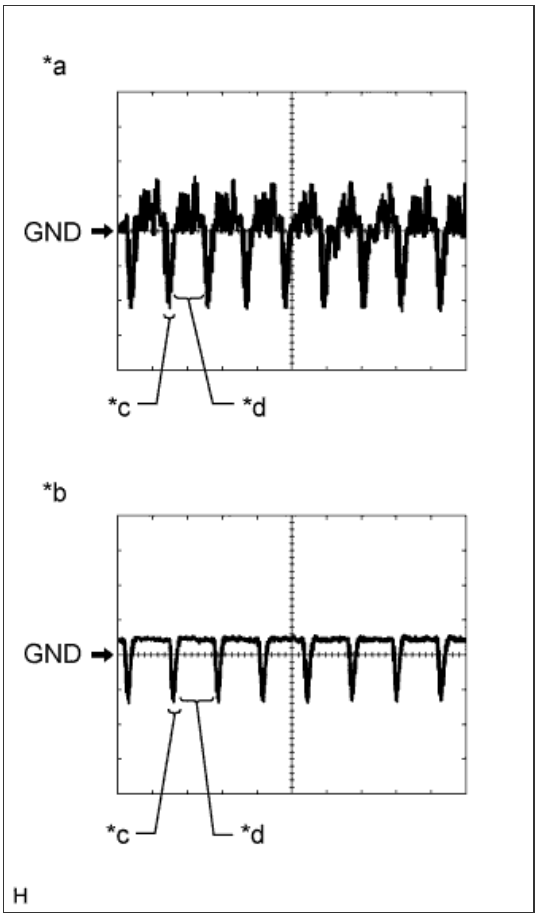
*a	Waveform A (camera lens not covered, displaying an image)
*b	Waveform B (camera lens covered, blacking out the screen)
*c	Synchronized Signal
*d	Video Waveform

HINT:

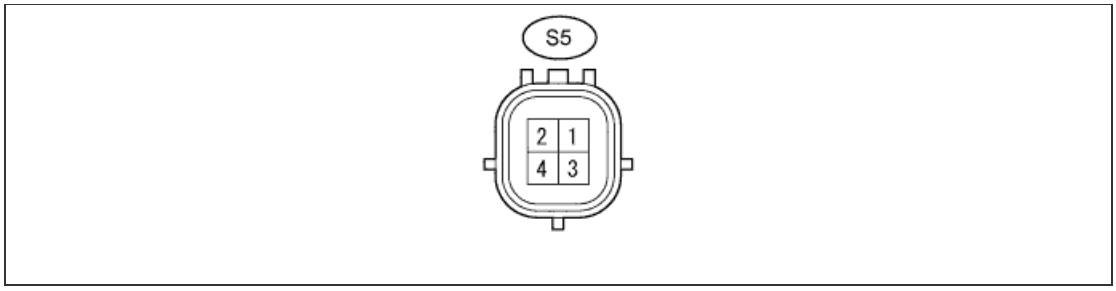
The video waveform changes according to the image sent by the rear television camera assembly.

i. Waveform

Item	Content
Terminal No. (Symbol)	F76-15 (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. • 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

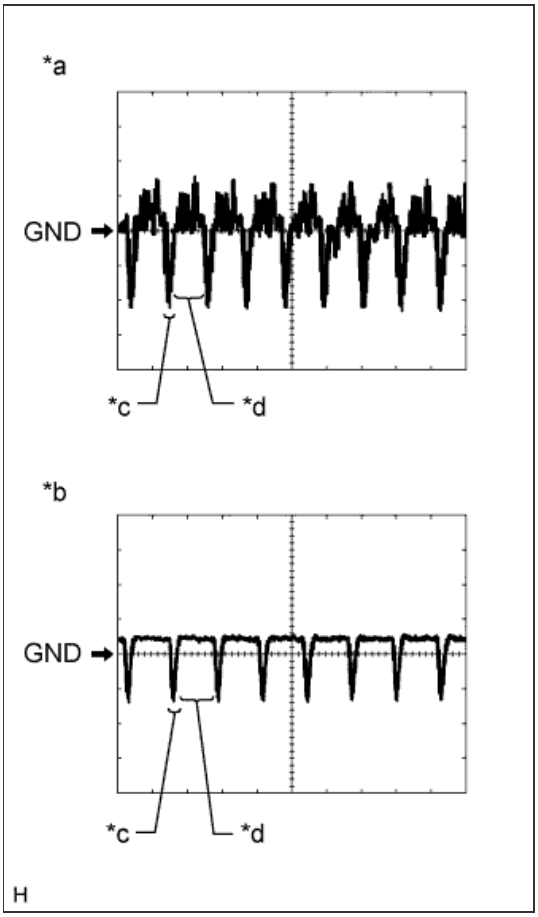
*a	Waveform A (camera lens not covered, displaying an image)
*b	Waveform B (camera lens covered, blacking out the screen)
*c	Synchronized Signal
*d	Video Waveform

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. • 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)

MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH) [w/o Power Back Door System] (Click here)

POWER BACK DOOR UNIT ASSEMBLY [w/ Power Back Door System] (Click here)

for Preparation Click here

PARKING ASSIST MONITOR DIAGNOSIS SYSTEM (w/ Side Monitor System)

a. For parking assist monitor system (w/ Side Monitor System) 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 assembly.

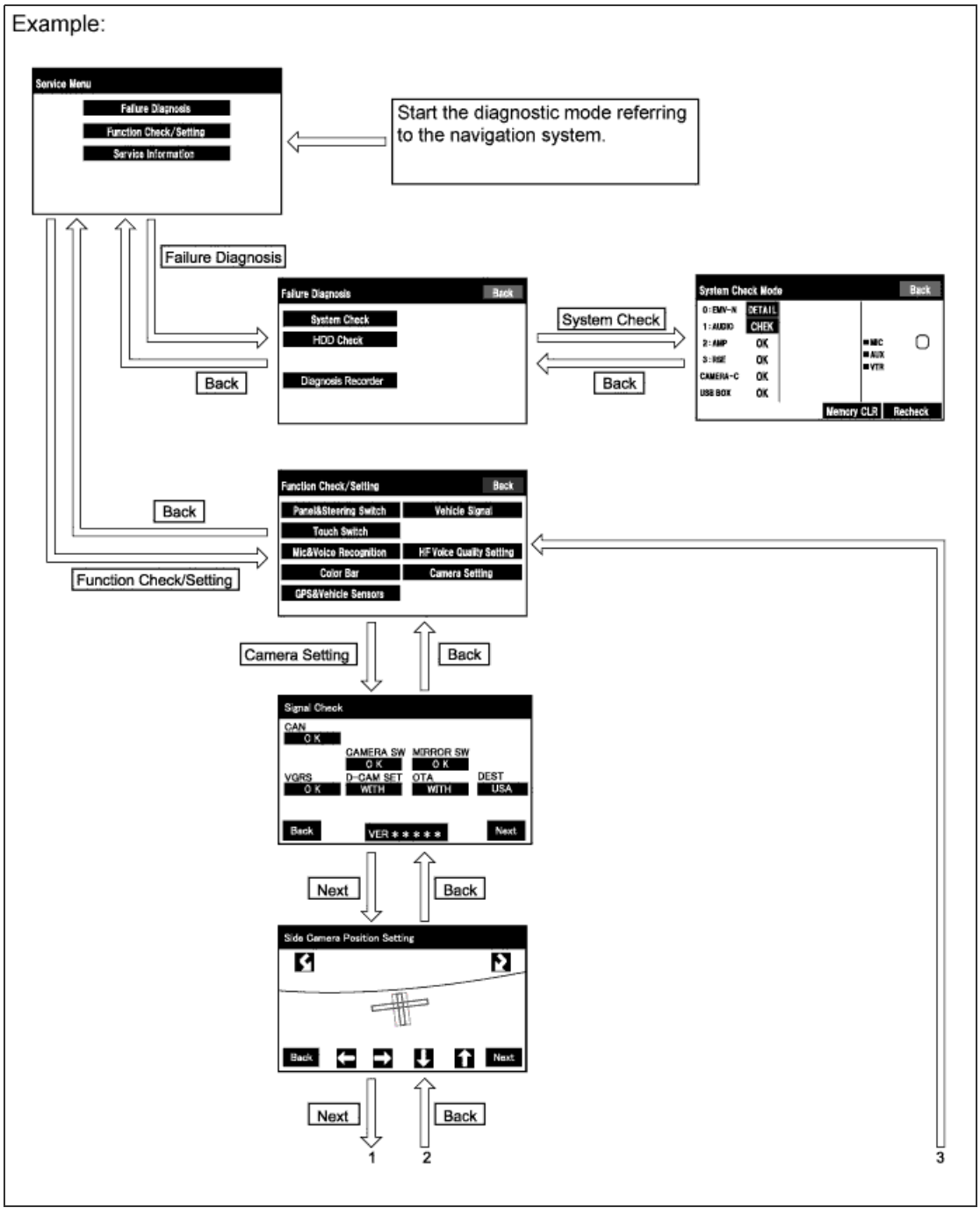
NOTICE:

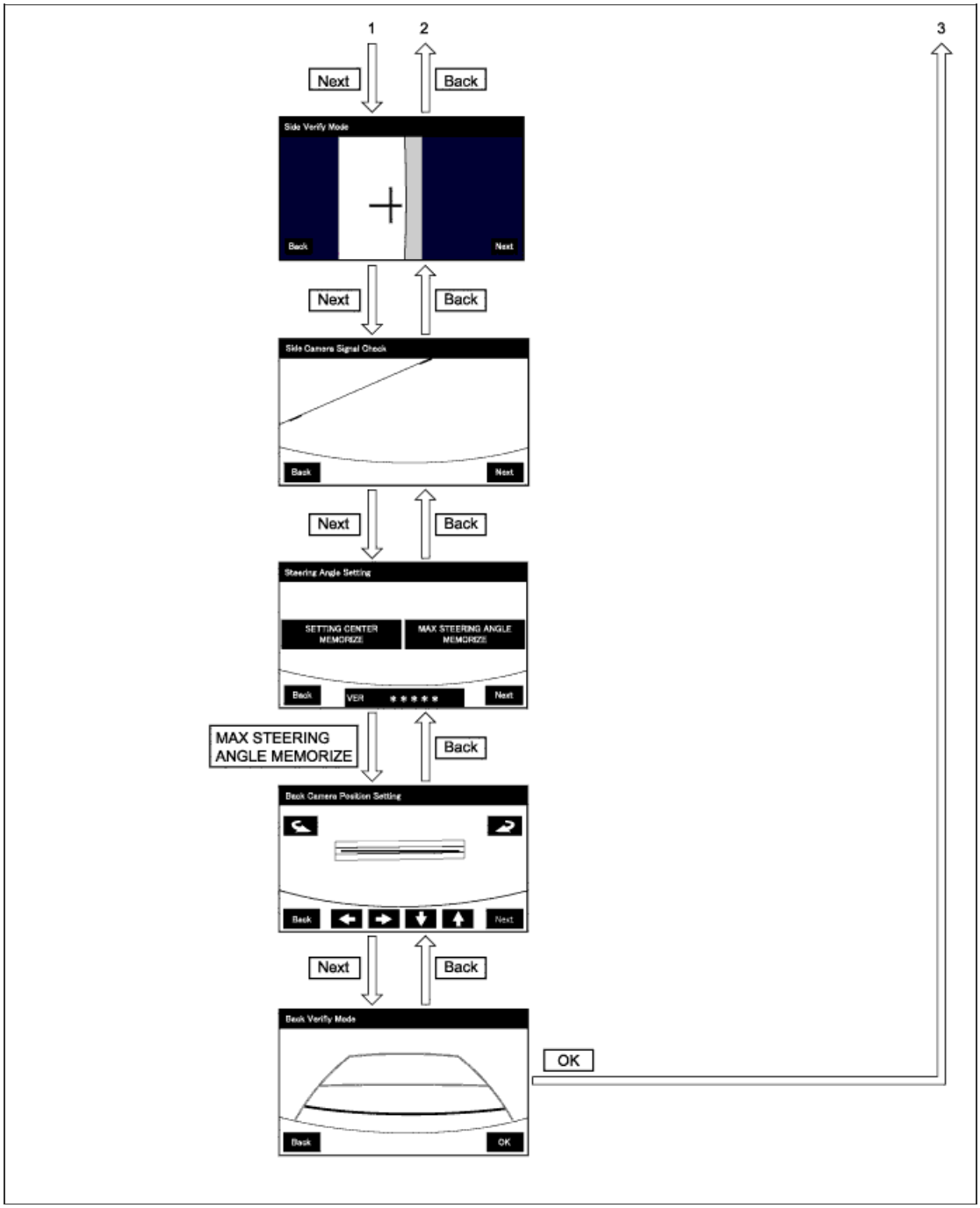
Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/ Side Monitor System) may be needed (Click here).

HINT:

The displayed screens and items may differ depending on vehicle specifications.

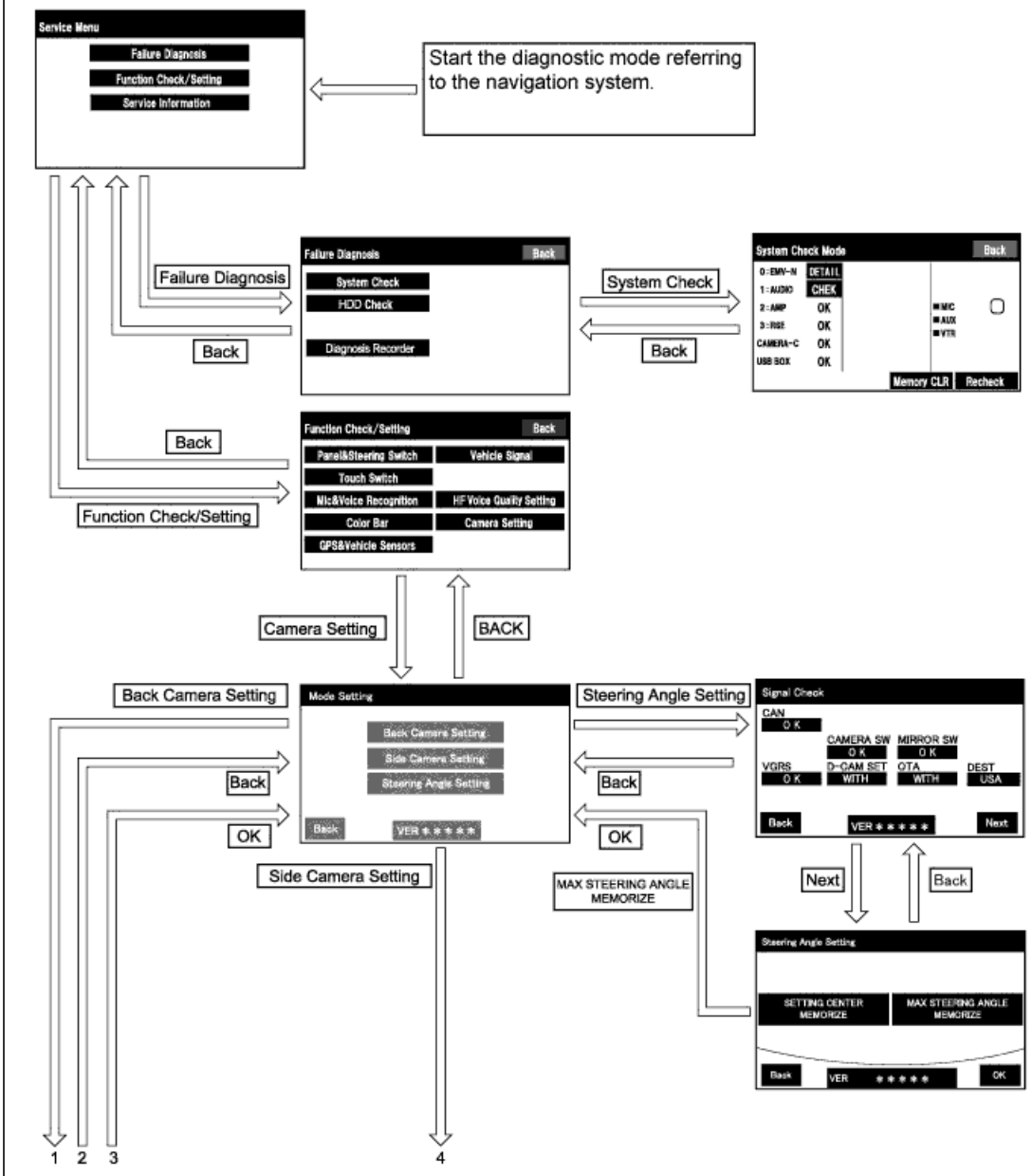
DIAGNOSIS SCREEN TRANSITION (during parking assist ECU initialization)

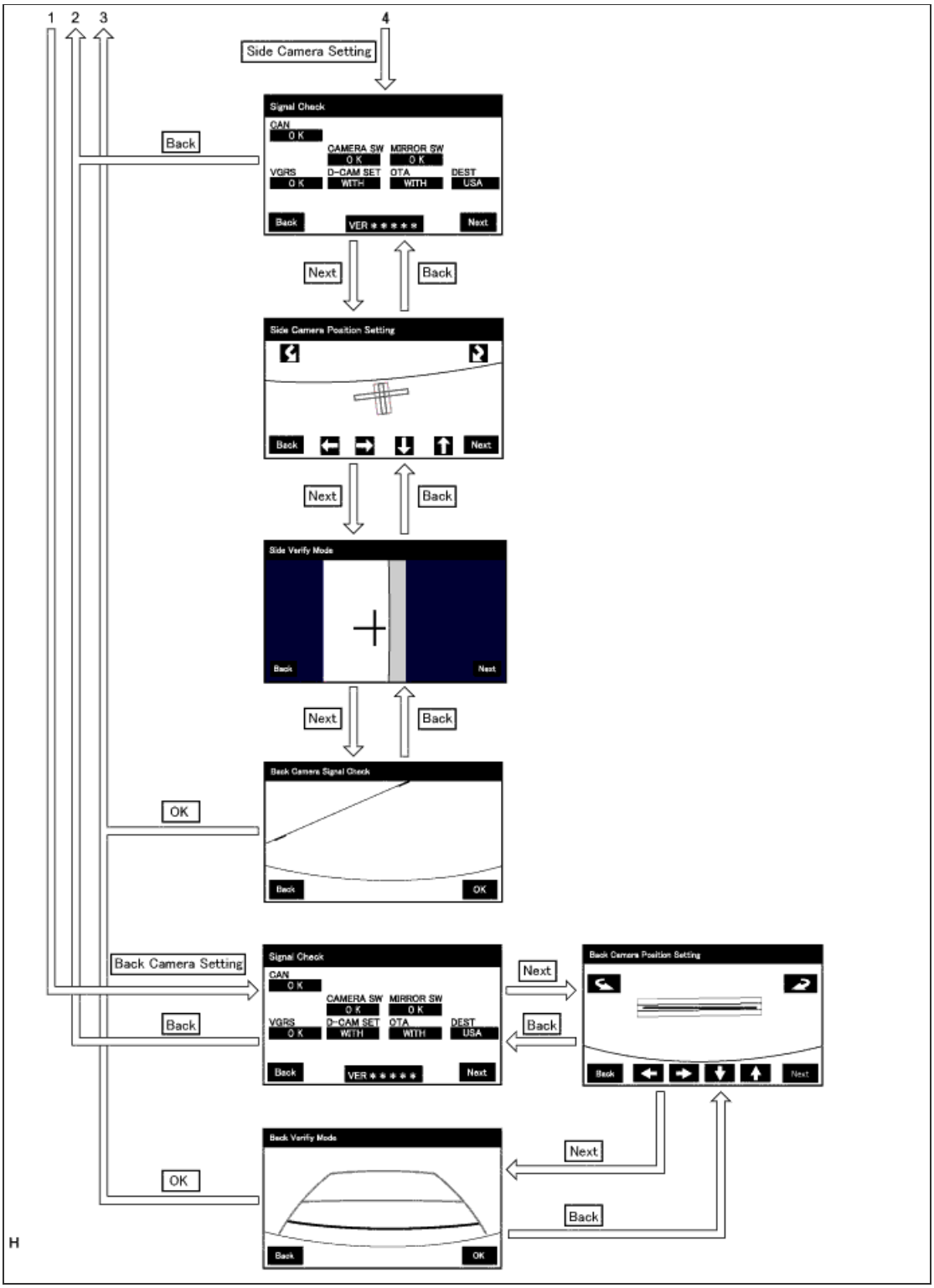




DIAGNOSIS SCREEN TRANSITION (after parking assist ECU initialization)

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



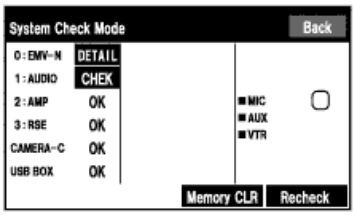
DIAGNOSTIC MODE

a. Start diagnostic mode (Click here).

b. Failure diagnosis (Click here).

c. System check (check using system check mode screen) (Click here).

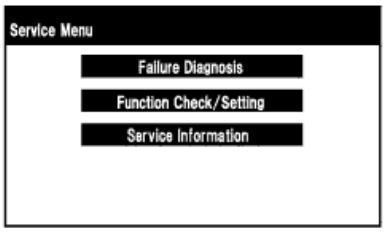
d. Finish diagnostic mode (Click here).



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.

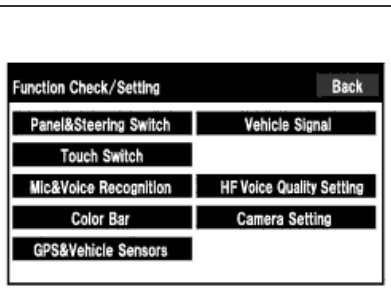


ii. Select "Camera Setting" on the [Function Check/Setting] screen.

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.

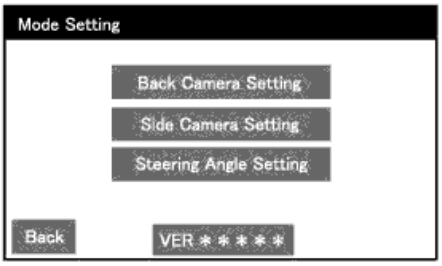
Parking Assist ECU Initialization	Screen Transition
Not performed	[Signal Check] screen
Performed	[Mode Setting] screen



iii. When the screen changes to the [Mode Setting] screen, select "Back Camera Setting" to display the [Signal Check] screen.

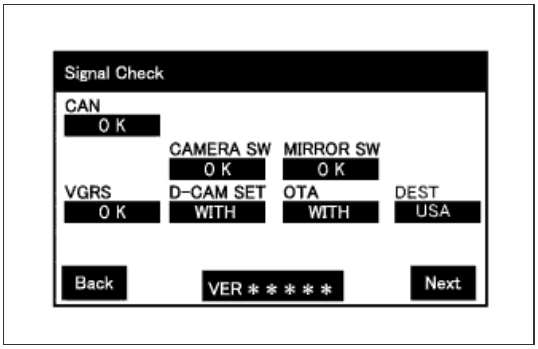
HINT:

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	-

*: w/ Variable Gear Ratio Steering System

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) (Click here).

f. VGRS inspection (w/ Variable Gear Ratio Steering System):

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 (w/ Side 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 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 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 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 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 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 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 NG: Data Verification Abnormal	-

Destination Data Check	Verification of Destination Data / OK or NG	OK: Data Verification Normal NG: Data Verification Abnormal	-
EEPROM Status (Initial read)	Parking assist ECU information / OK or NG	OK: Parking assist ECU is normal 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 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 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 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 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 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 NG: VGRS abnormal	-
Wheel Speed Sensor (4wheel)	Effectivity of speed signal from speed signal sensor / OK or NG	OK: Speed signal is effective 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 OFF: Back door closed	-

for Preparation Click here

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
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
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) • AISIC Output Status	• Parking assist ECU initialization (not initialized parking assist ECU) • Back camera position setting (initialized parking assist ECU) • Side camera position setting (initialized parking assist ECU) • Steering Angle setting (initialized parking assist ECU) • 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 (PARKING ASSIST ECU STATUS)

a. Use the Data List to check if the parking assist ECU status is functioning properly (Click here).

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 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 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) • Steering angle setting (Click here) • 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 • 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

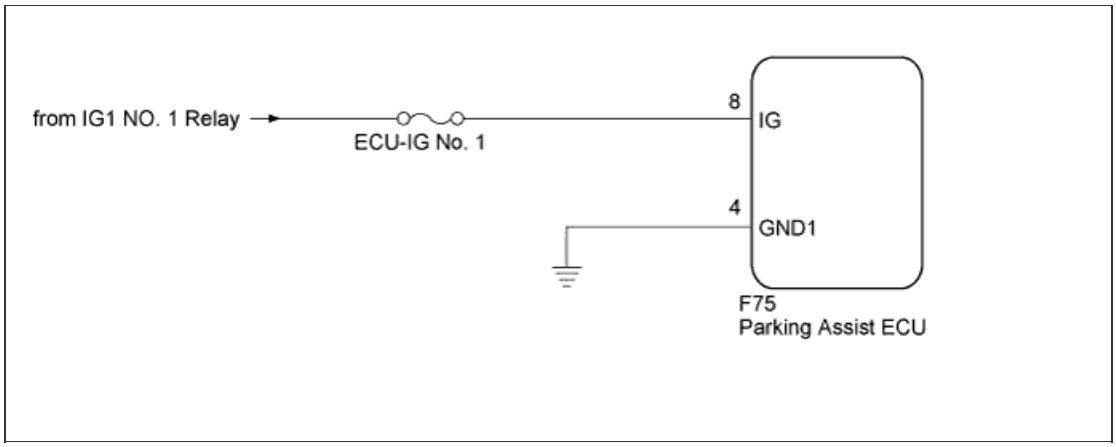
for Preparation Click here

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 • IG voltage is high	• Harness or connector • 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.

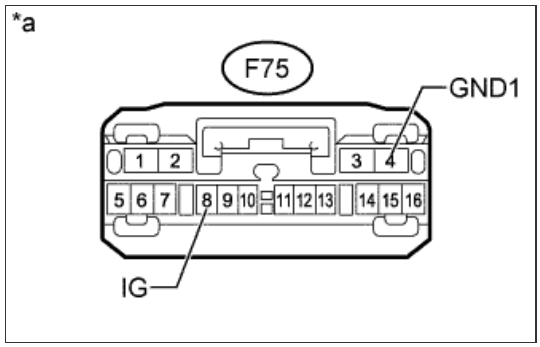
Standard Resistance:

Tester Connection	Condition	Specified Condition
F75-4 (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
F75-8 (IG) - F75-4 (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 • 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

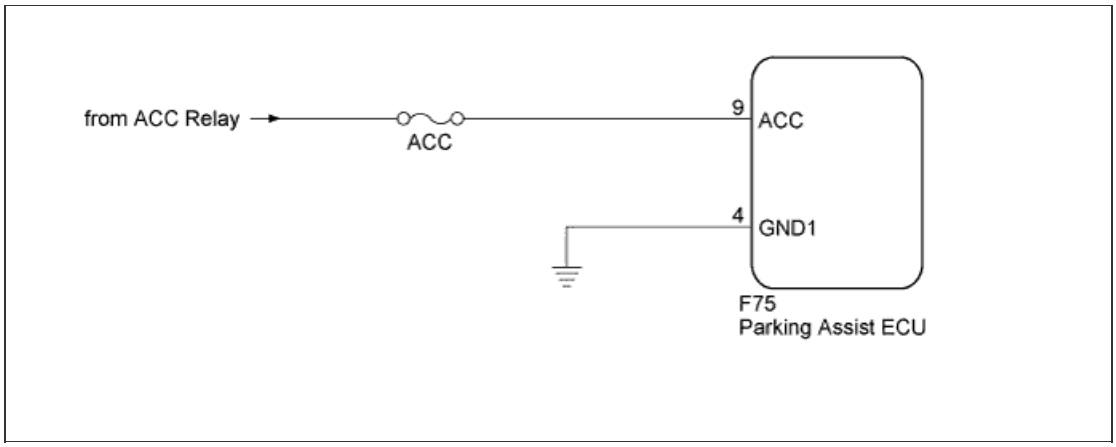
for Preparation Click here

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 • ACC voltage is high	• Harness or connector • 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.

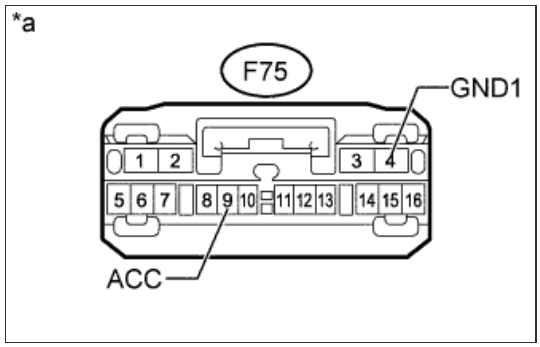
Standard Resistance:

Tester Connection	Condition	Specified Condition
F75-4 (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
F75-9 (ACC) - F75-4 (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 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	
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
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.**
  - **for LHD: Click here**
  - **for RHD: 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 C1622 Open or Short Circuit in Back Camera Signal

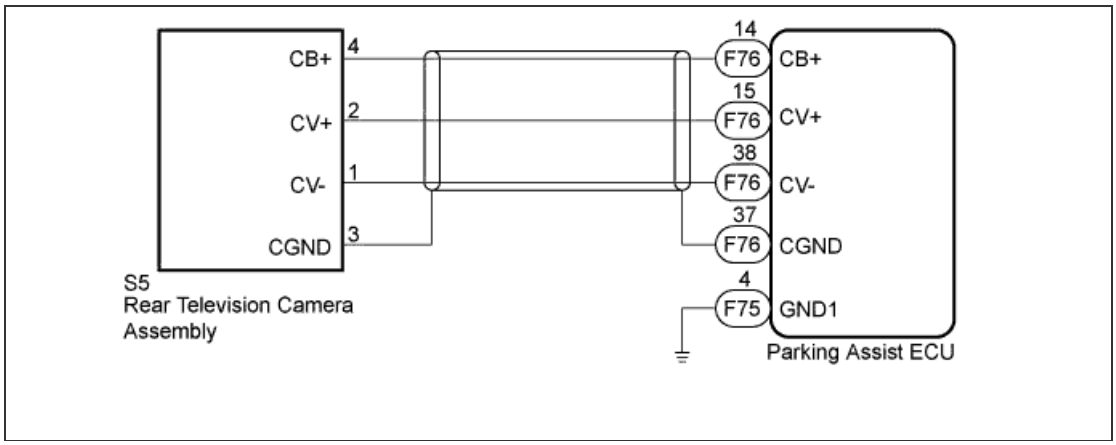
for Preparation Click here

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 Code	DTC Detection Condition	Trouble Area
C1622	An open or short in the rear television camera signal circuit	• Harness or connector • Rear television camera assembly • 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).**

1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - REAR TELEVISION CAMERA AND BODY GROUND)

a. Disconnect the F75 and F76 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
F76-38 (CV-) - S5-1 (CV-)	Always	Below 1 Ω
F76-15 (CV+) - S5-2 (CV+)	Always	Below 1 Ω
F76-14 (CB+) - S5-4 (CB+)	Always	Below 1 Ω
F76-37 (CGND) - S5-3 (CGND)	Always	Below 1 Ω
F75-4 (GND1) - Body ground	Always	Below 1 Ω
F76-38 (CV-) - Body ground	Always	10 kΩ or higher
F76-15 (CV+) - Body ground	Always	10 kΩ or higher
F76-14 (CB+) -		

Body ground	Always	10 kΩ or higher
F76-37 (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 F75 and F76 parking assist ECU connectors.

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

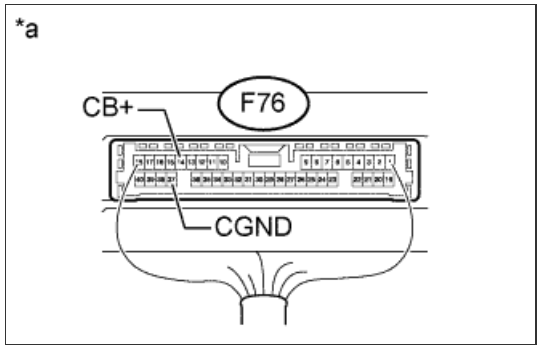
Standard Resistance:

Tester Connection	Condition	Specified Condition
F76-37 (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
F76-14 (CB+) - F76-37 (CGND)	Engine switch on (IG), shift lever in R	5.5 to 7.05 V



Text in Illustration

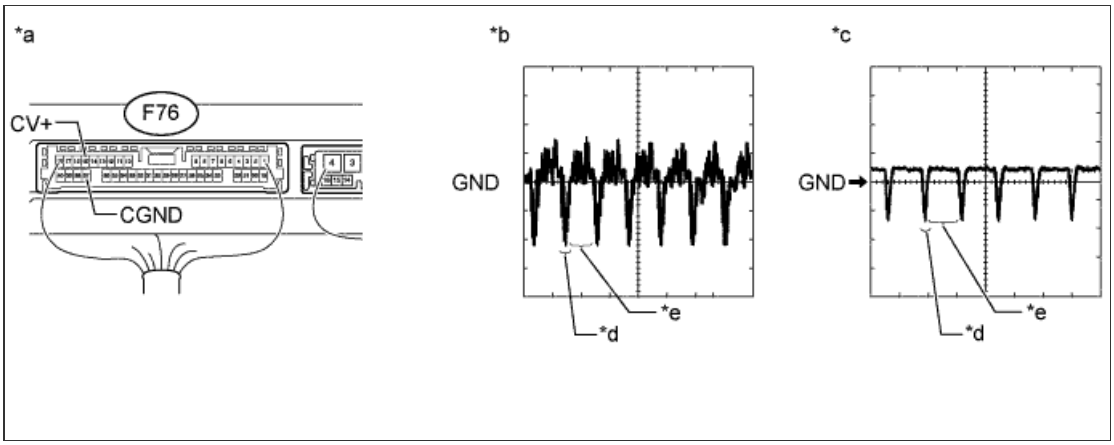
*a	Component with harness connected (Parking Assist ECU)

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 (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)	F76-15 (CV+) - F76-37 (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 • 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 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	
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
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.**
  - **for LHD: Click here**
  - **for RHD: 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

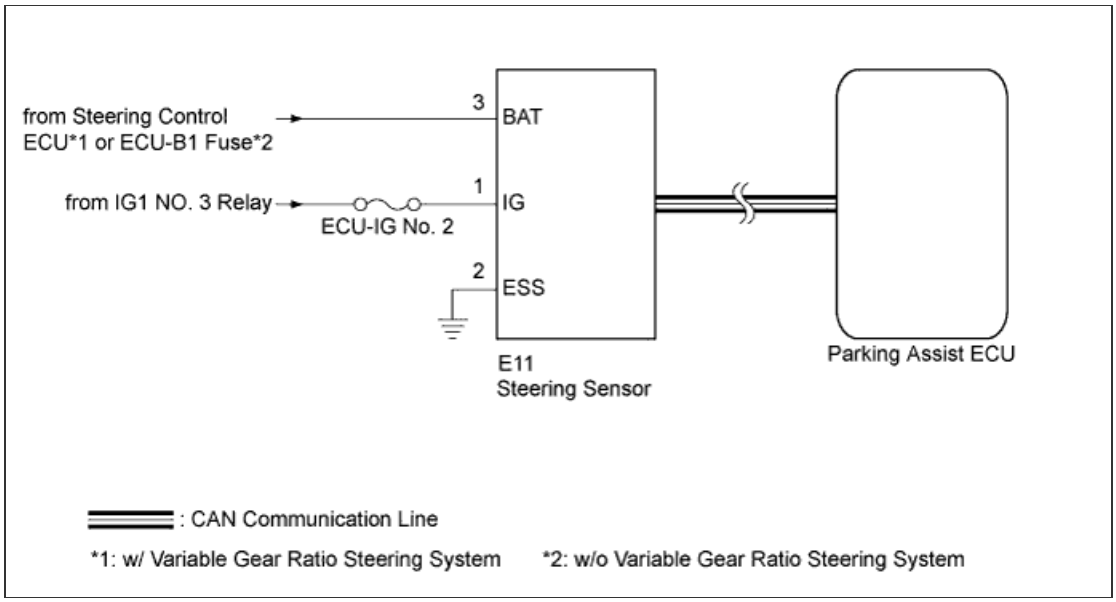
for Preparation Click here

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 • 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.

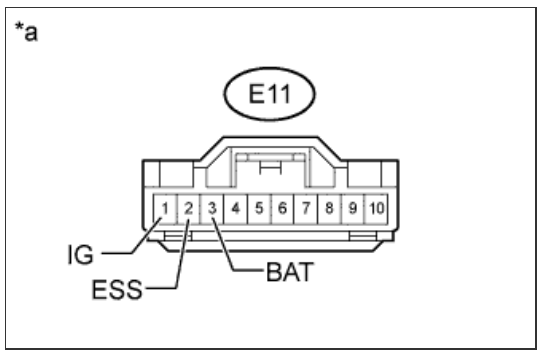
Standard Resistance:

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	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 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	
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
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.**
  - **for LHD: Click here**
  - **for RHD: 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 • 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 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	
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
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.**
  - **for LHD: Click here**
  - **for RHD: 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 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	
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
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.**
  - **for LHD: Click here**
  - **for RHD: 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 • Steering angle setting • Side camera position setting • 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 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	
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
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.**
  - **for LHD: Click here**
  - **for RHD: Click here**

B → Go to CAN COMMUNICATION SYSTEM (Click here)

C → Go to CAN COMMUNICATION SYSTEM (Click here)

A

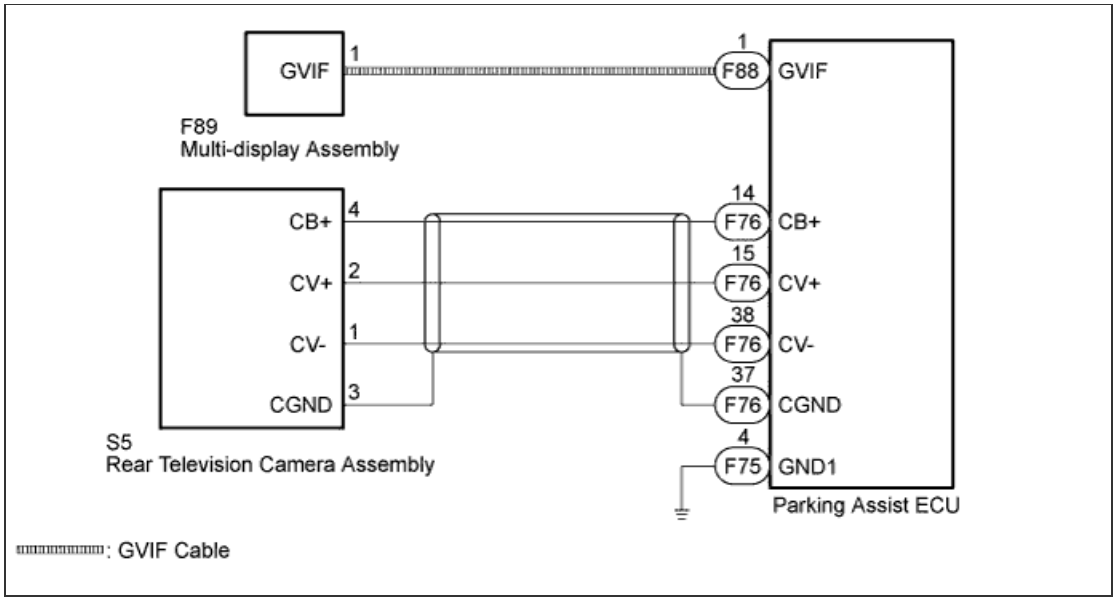
USE SIMULATION METHOD TO CHECK (Click here)

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 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, 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 F75 and F76 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
F76-38 (CV-) - S5-1 (CV-)	Always	Below 1 Ω
F76-15 (CV+) - S5-2 (CV+)	Always	Below 1 Ω
F76-14 (CB+) - S5-4 (CB+)	Always	Below 1 Ω
F76-37 (CGND) - S5-3 (CGND)	Always	Below 1 Ω
F75-4 (GND1) - Body ground	Always	Below 1 Ω
F76-38 (CV-) - Body ground	Always	10 kΩ or higher
F76-15 (CV+) - Body ground	Always	10 kΩ or higher
F76-14 (CB+) - Body ground	Always	10 kΩ or higher
F76-37 (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 F75 and F76 parking assist ECU connectors.

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

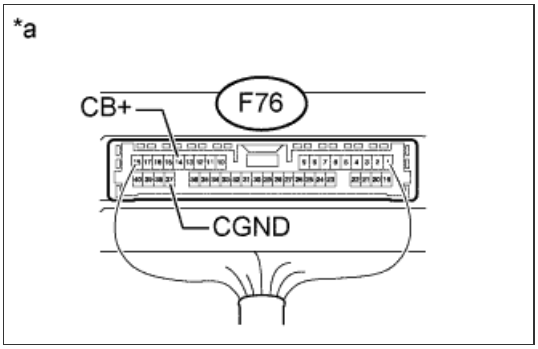
Standard Resistance:

Tester Connection	Condition	Specified Condition
F76-37 (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
F76-14 (CB+) - F76-37 (CGND)	Engine switch on (IG), shift lever in R	5.5 to 7.05 V



Text in Illustration

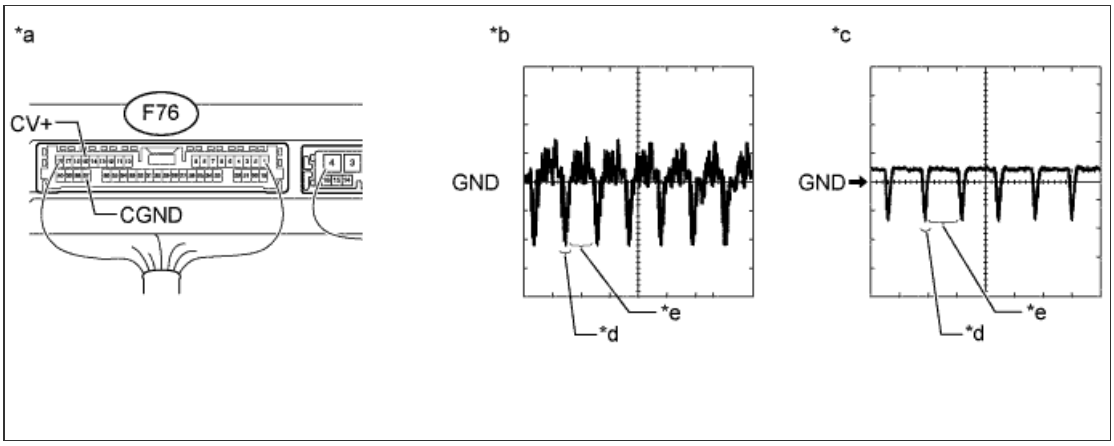
*a	Component with harness connected (Parking Assist ECU)

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)	F76-15 (CV+) - F76-37 (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 • 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 a 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

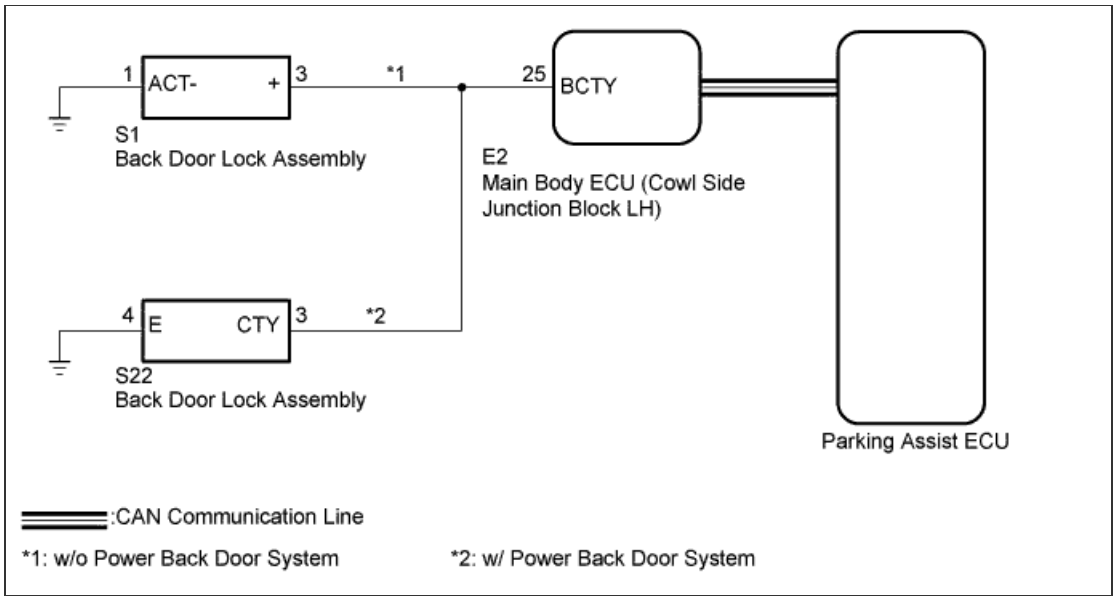
DESCRIPTION

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:

- **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 (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 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 S22*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
S22-3 (CTY) - E2-25 (BCTY)	Always	Below 1 Ω
S22-3 (CTY) - Body ground	Always	10 kΩ or higher
S22-4 (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 may be needed (Click here).

HINT:

Each adjusted value for the calibration of the parking assist 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.

v. When washing the vehicle with a high-pressure washer, do not spray water on the rear television camera assembly or surrounding area. High-pressure water can damage the camera.

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 ignition switch ON 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.

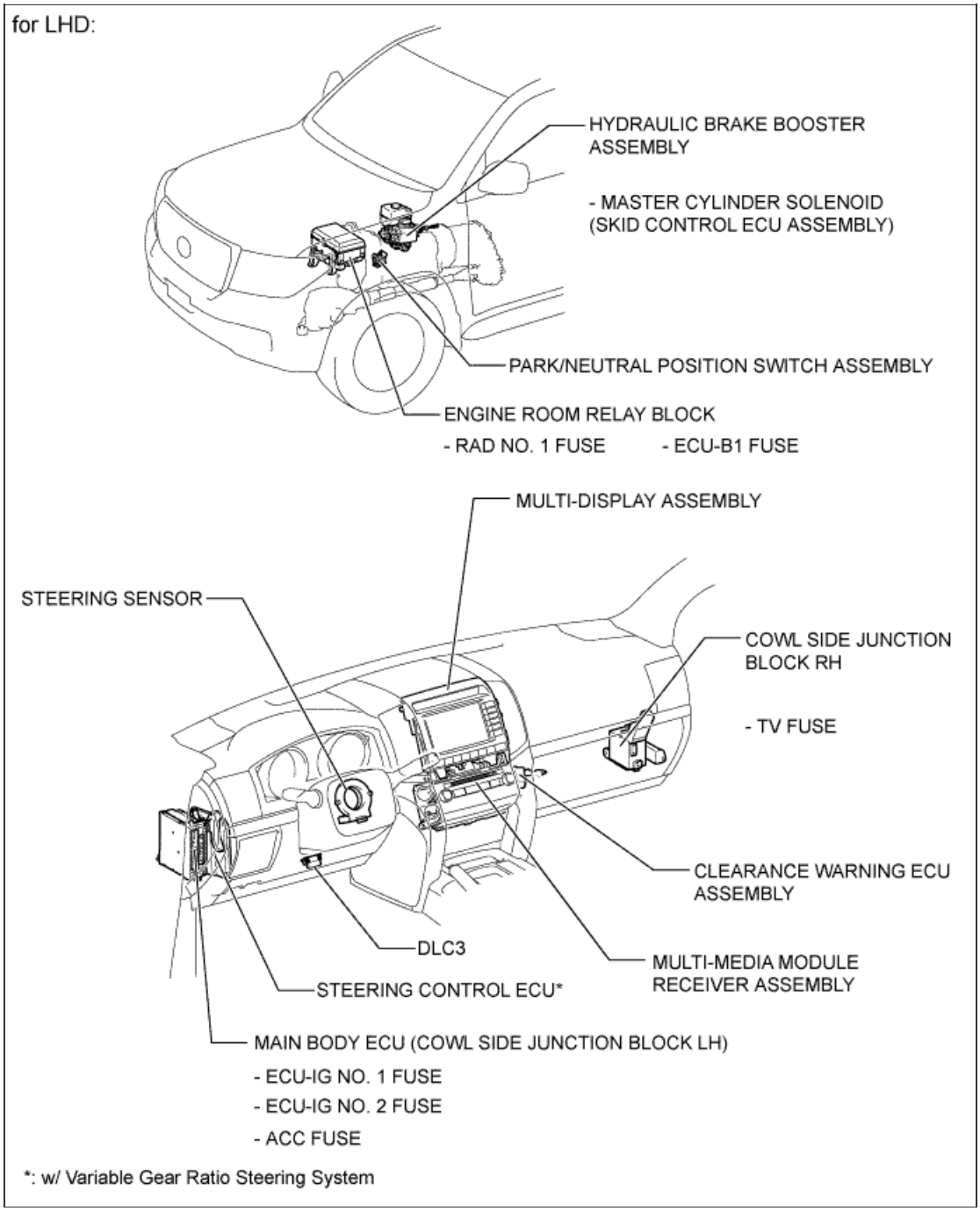
xi. The rear television camera assembly lens is scratched.

xii. The rear television camera assembly lens has drops of water on it or the humidity is high.

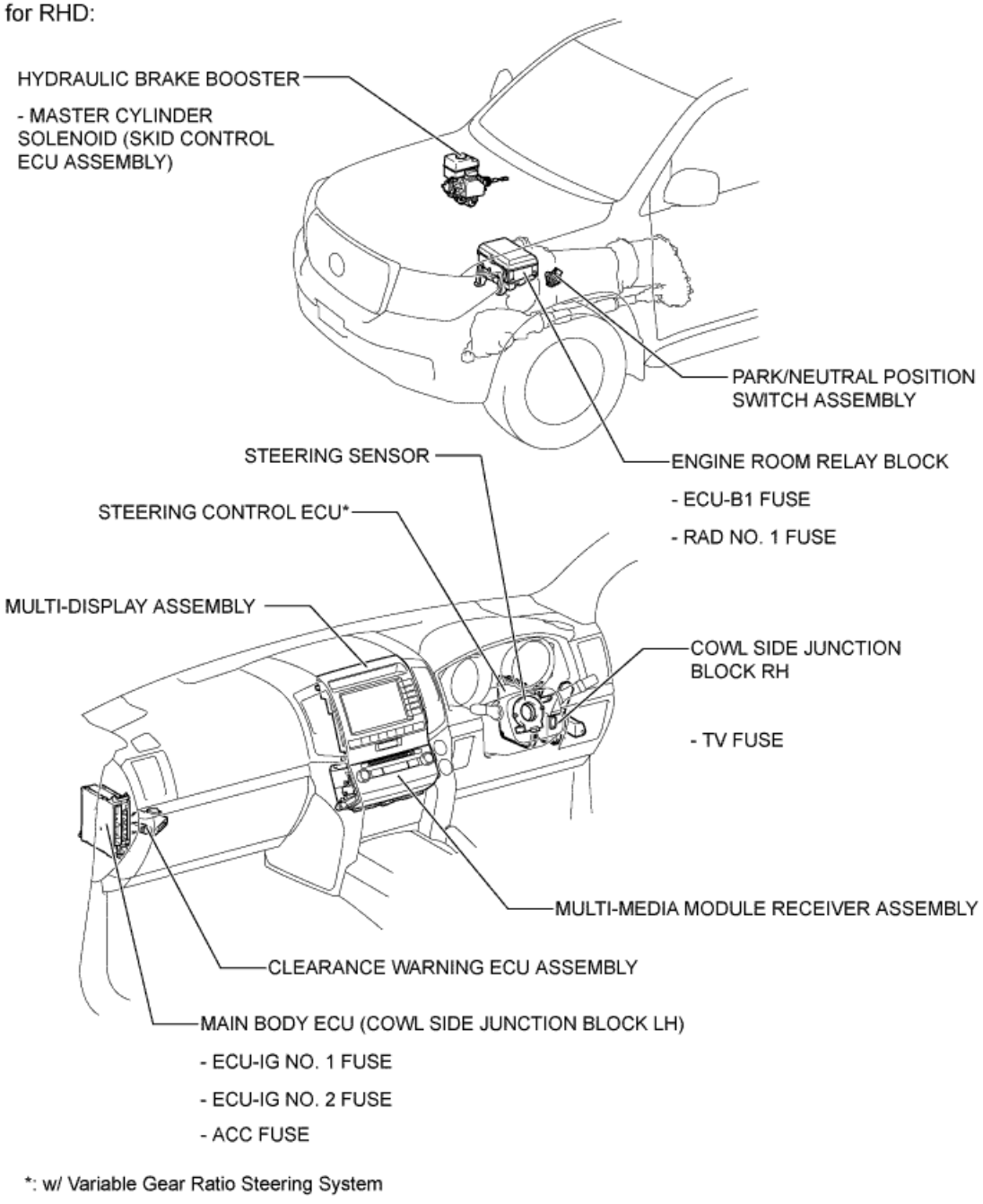
xiii. When the camera is used under fluorescent lights, sodium lights, or mercury lights etc., the lights and the illuminated area may appear to flicker.

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.)

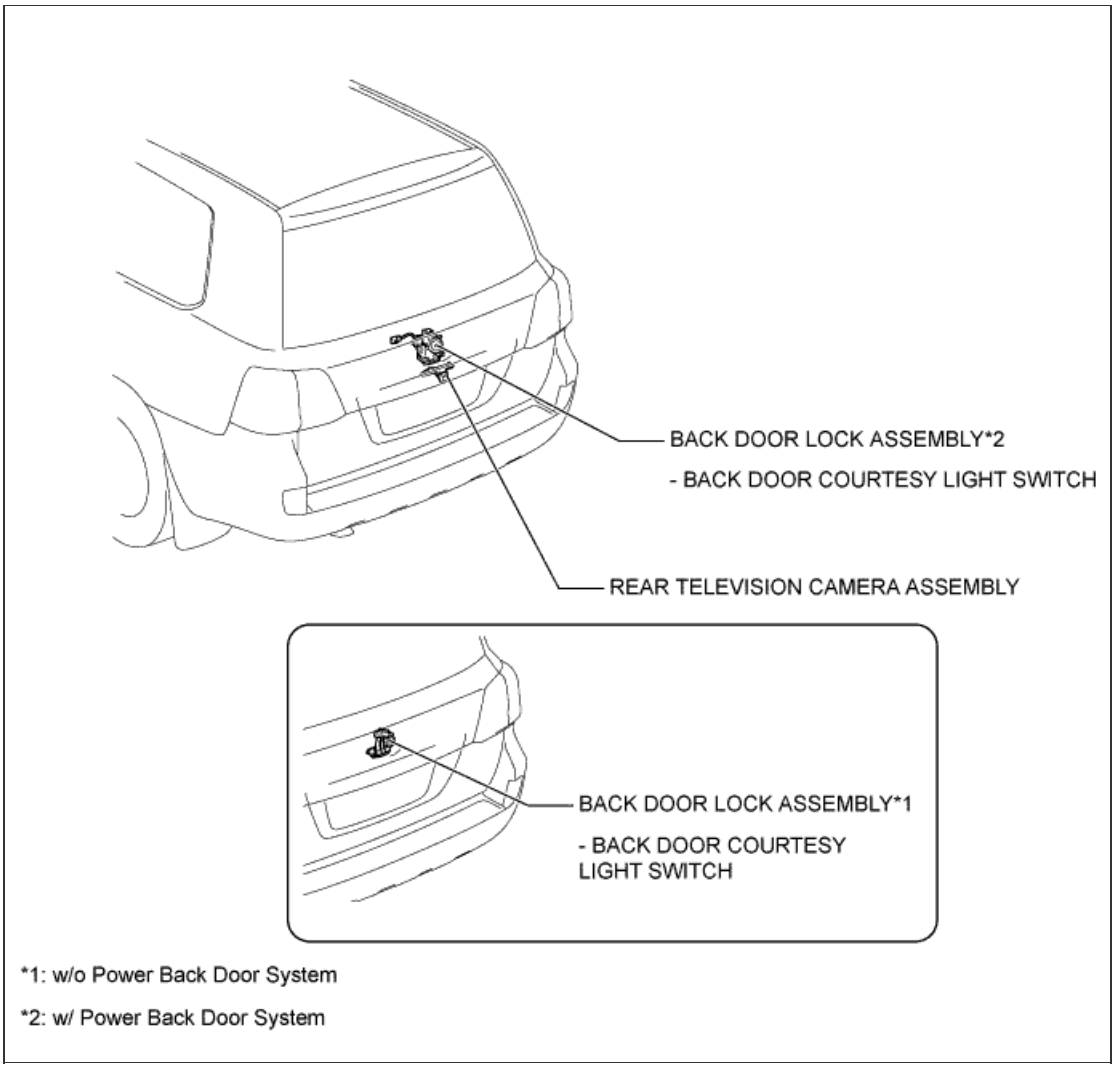
for Preparation Click here



for RHD:



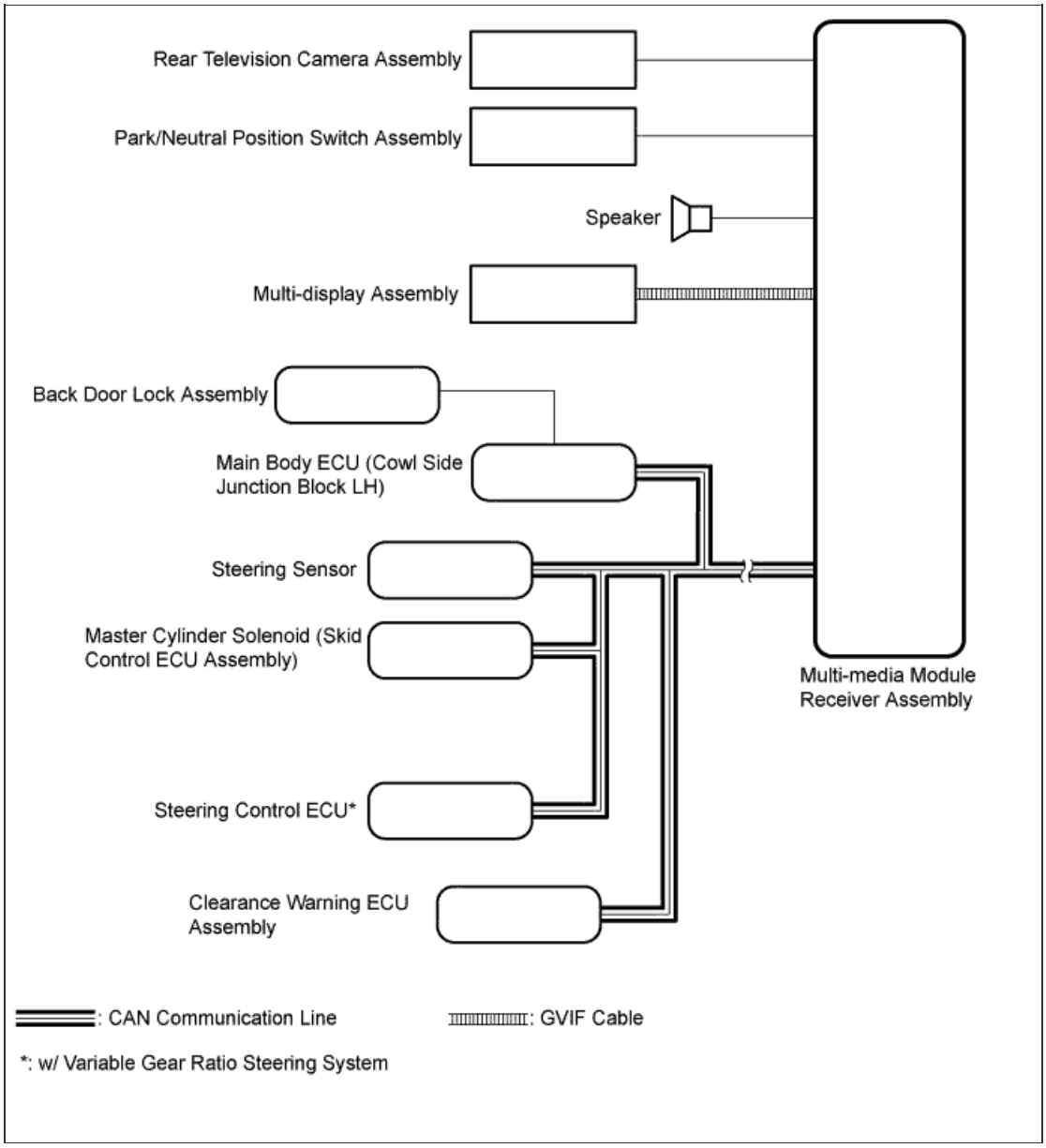
*: w/ Variable Gear Ratio Steering System



*1: w/o Power Back Door System

*2: w/ Power Back Door System

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 • 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 • Luggage compartment door courtesy light switch	CAN

*: w/ Variable Gear Ratio Steering System

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

x. Speaker

*: w/ Variable Gear Ratio Steering 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 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. • 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, and sends them on the multi-display assembly (display panel).. • Performs overall control of the system by receiving signals from the sensors. • Allows operation via the touch panel of the display when the park assist monitor screen or diagnosis screen is displayed. • Creates images and displays adjustment screens performed on the diagnosis screen. • Stops displaying the guide line and buttons displays "Check surrounding for safety" when an open signal is received for the back door. • 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 multi-media 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.

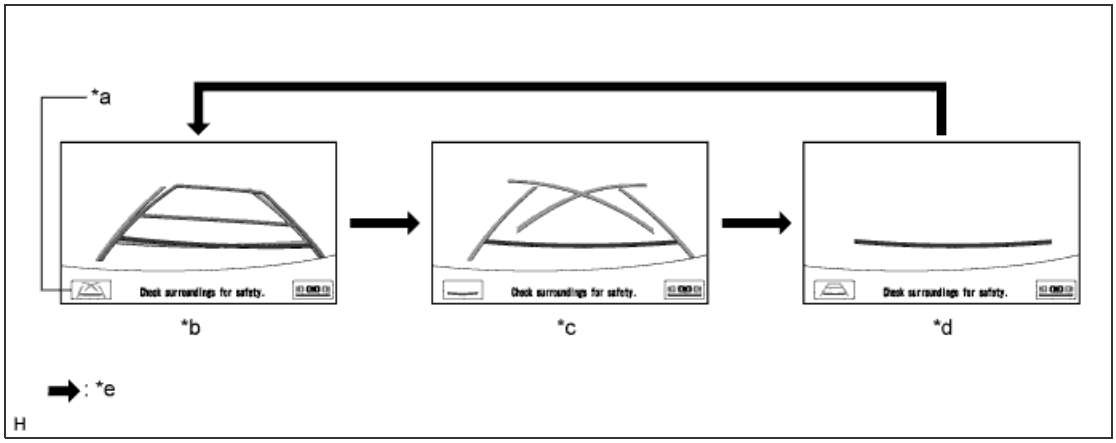
Main Body ECU (Cowl Side Junction Block LH)	Transmits a back door courtesy light switch signal to the multi-media module receiver assembly through CAN communication.

*: w/ Variable Gear Ratio Steering System

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 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 communication system DTCs are not output	A
CAN communication system DTCs are output (for LHD)	B
CAN communication system DTCs are 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 DTCs (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 (w/o Side Monitor System) are output, refer to Diagnostic Trouble Code Chart for the applicable system.

Result	Proceed to
Audio and Visual System (w/ Navigation System)	Click here
Navigation System	Click here

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 (w/o Side 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/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 • 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 • 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:

After the engine switch is turned off, the multi-media module receiver assembly requires approximately 60 seconds to record various types of memory and settings. As a result, after turning the engine switch off, wait a minute or more before disconnecting the cable from the negative (-) battery terminal.

HINT:

The adjustment values stored while performing parking assist monitor system calibration are stored in the multi-media module receiver assembly.

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:

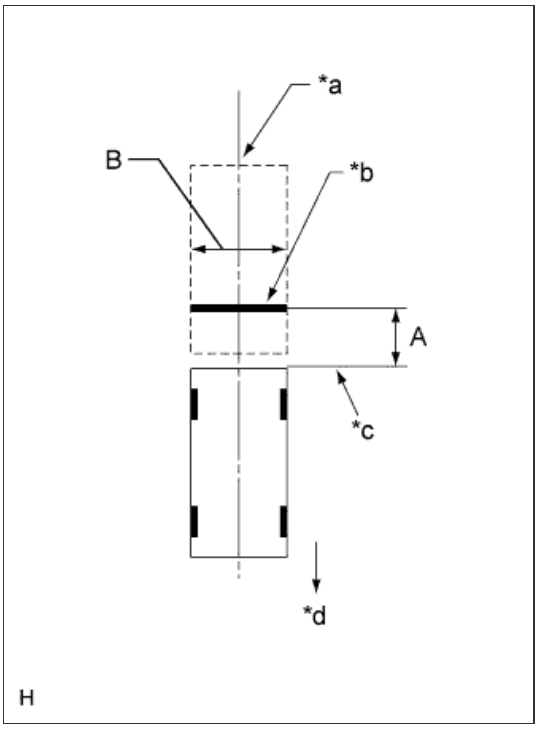
Only when adjusting the optical axis of the camera, create a target bar for adjustment.

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:

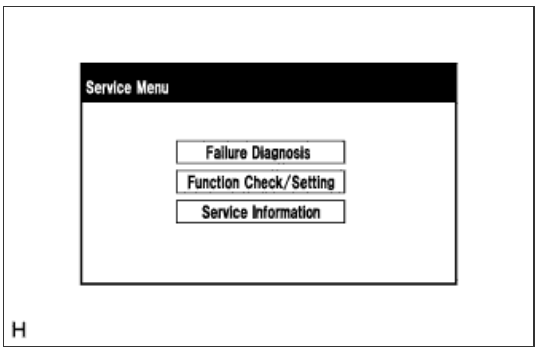
- **Set a piece of tape on the ground as the target bar for adjustment. Its width and length should be 20 to 30 mm (0.787 to 1.18 in.) and 1995 to 2005 mm (6.55 to 6.58 ft.), respectively. Check the color on the display and choose a tape color which can be easily seen.**
- **Before parking the vehicle, 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).

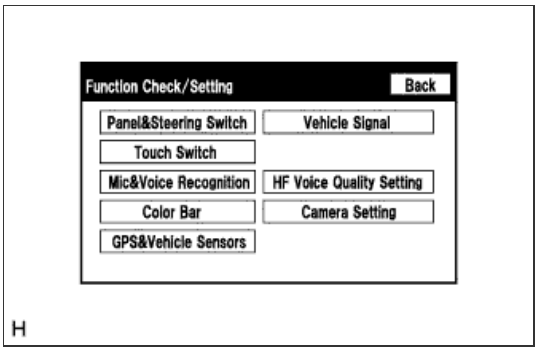
NOTICE:

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.

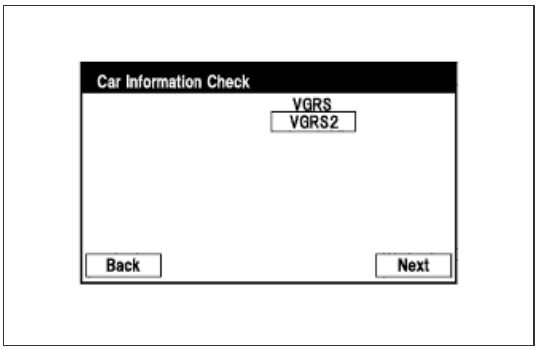
i. Select "Function Check/Setting" on the [Service Menu] screen.



ii. Select "Camera Setting" on the [Function Check/Setting] screen.



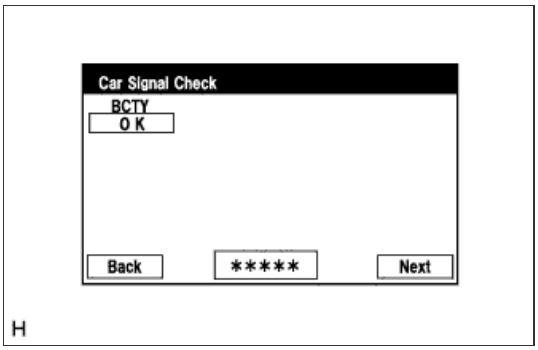
iii. Select "Next" on the [Car Information Check] screen.



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).**



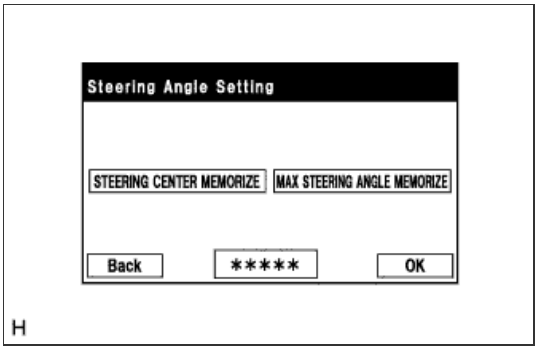
c. Steering Angle Setting:

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:

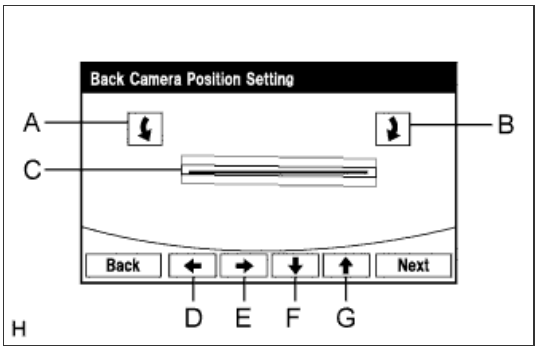
The "Next" button does not respond until the system memorizes the steering center and maximum steering wheel angle.

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.

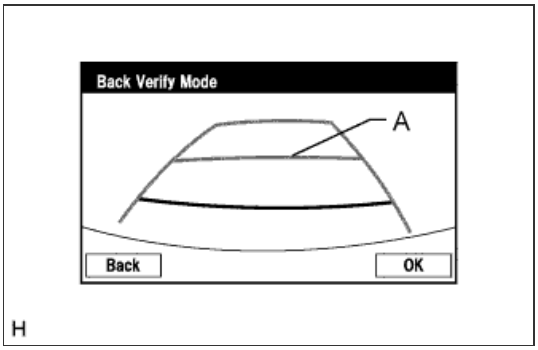
- Use switches A and B to rotate C so that it is parallel to the target adjustment bar.

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 Verify Mode] 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)

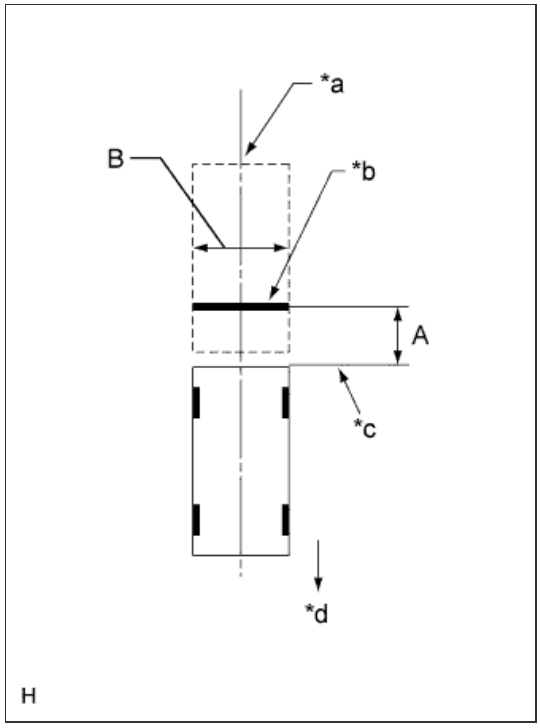
HINT:

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:

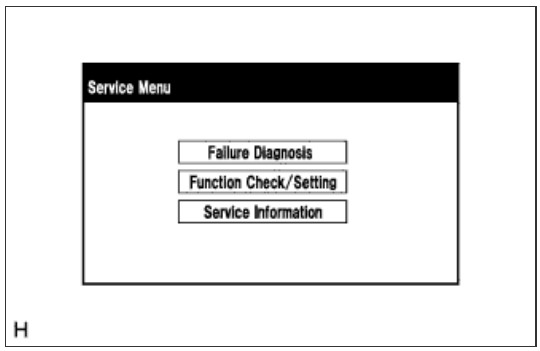
- **Set a piece of tape on the ground as the target bar for adjustment. Its width and length should be 20 to 30 mm (0.787 to 1.18 in.) and 1995 to 2005 mm (6.55 to 6.58 ft.), respectively. Check the color on the multi-media module receiver assembly and choose a tape color which can be easily seen.**
- **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).

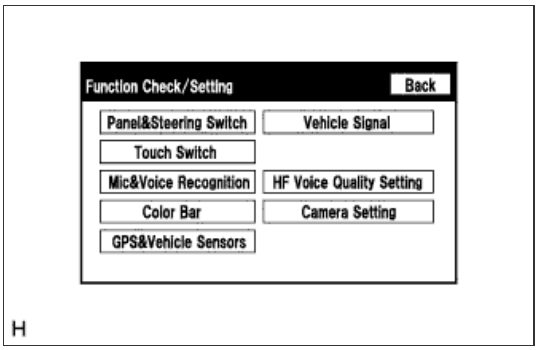
NOTICE:

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.

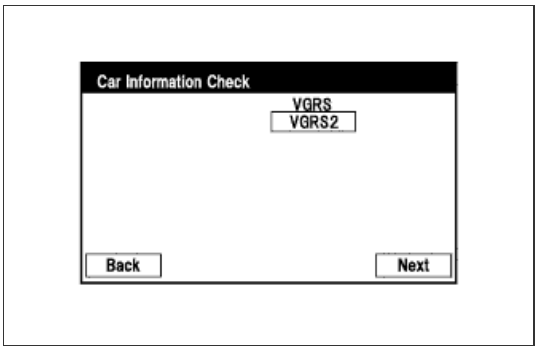
i. Select "Function Check/Setting" on the [Service Menu] screen.



ii. Select "Camera Setting" on the [Function Check/Setting] screen.



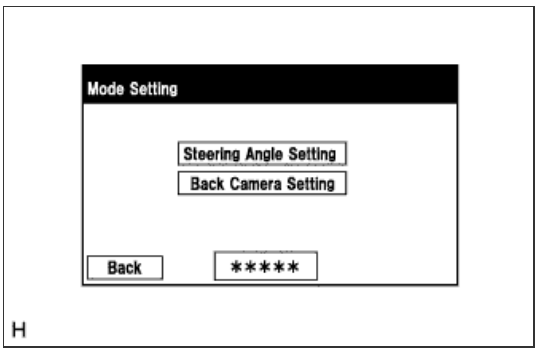
iii. Select "Next" on the [Car Information Check] screen.



iv. Select "Back Camera Setting" on the [Mode Setting] screen.

HINT:

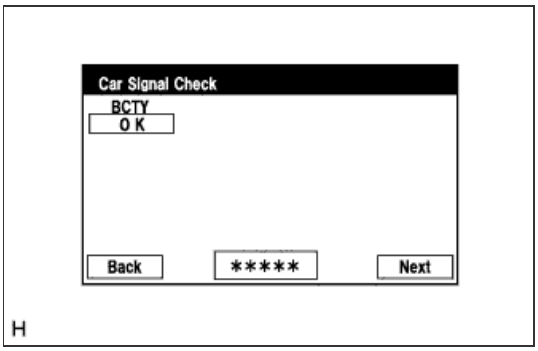
To select a grayed out item, select and hold the item for 2 seconds or more.



v. Select "Next" on the [Car Signal Check] screen.

HINT:

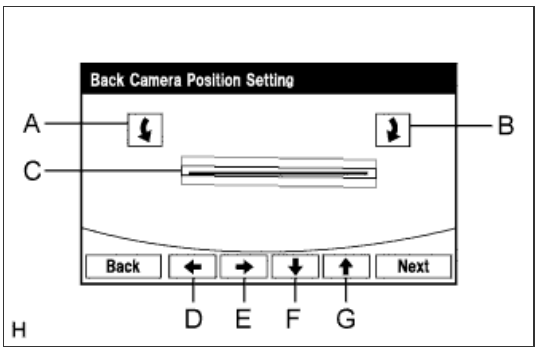
- **When "CHK" (red) is displayed for any items on the [Car Signal Check] screen, selecting "Next" will not change the screen to the [Back Camera Position Setting] screen.**
- **When "CHK" (red) is displayed for any items on the [Car Signal Check] screen, perform inspections using the [Car Signal Check] 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.

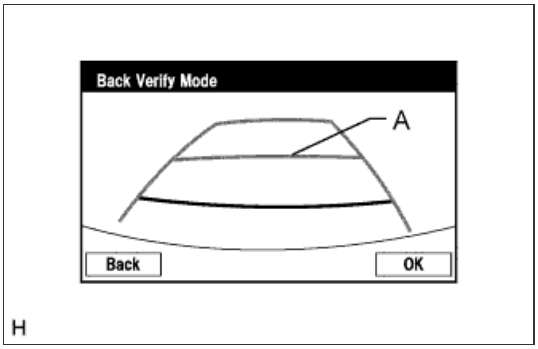
- Use switches A and B to rotate C so that it is parallel to the target adjustment bar.

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 Verify Mode] 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.

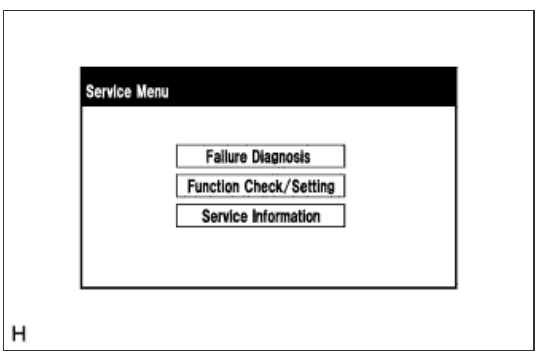
a. Center the steering wheel and stop the vehicle.

b. Start diagnostic mode (Click here).

NOTICE:

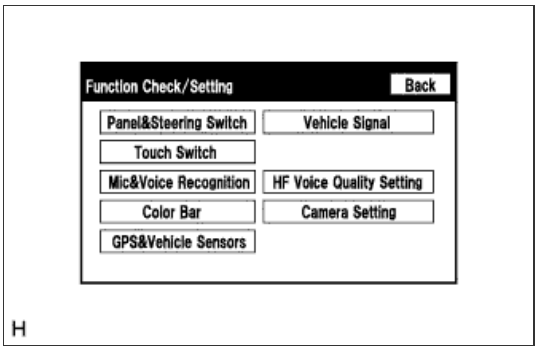
The following must be carried out with the engine started. Apply the parking brake, depress the brake pedal, check that the shift lever is in P, and ensure that the vehicle is not moving.

i. Select "Function Check/Setting" on the [Service Menu] screen.

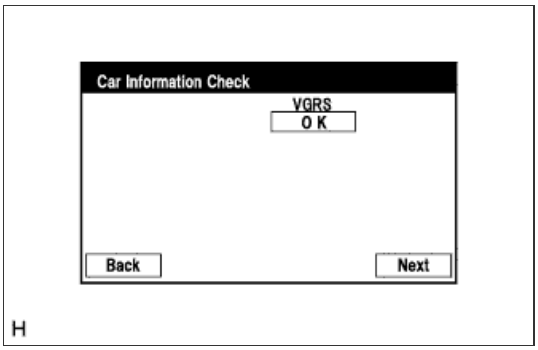


H

ii. Select "Camera Setting" on the [Function Check/Setting] screen.



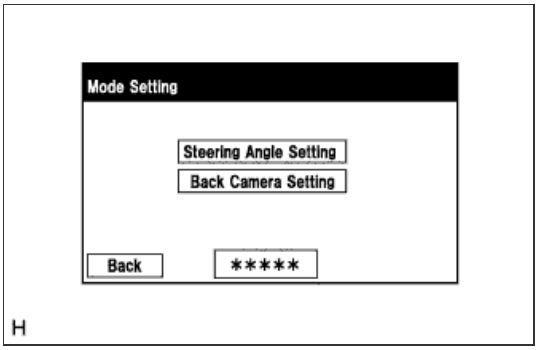
iii. Select "Next" on the [Car Information Check] screen.



iv. Select "Steering Angle Setting" on the [Mode Setting] screen.

HINT:

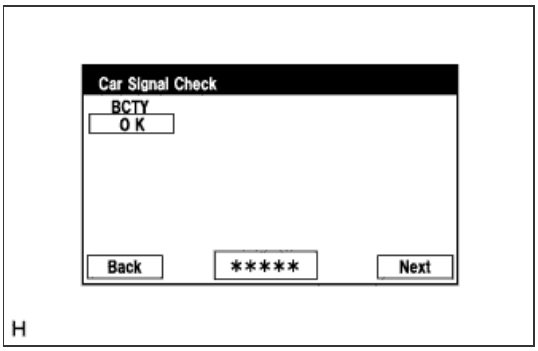
To select a grayed out item, select and hold the item for 2 seconds or more.



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).**



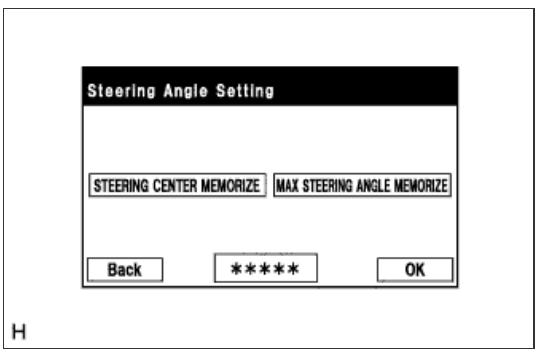
c. Steering Angle Setting:

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 Setting"s 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 navigation system is normal. If the navigation system has any malfunctions, first proceed with troubleshooting the navigation 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

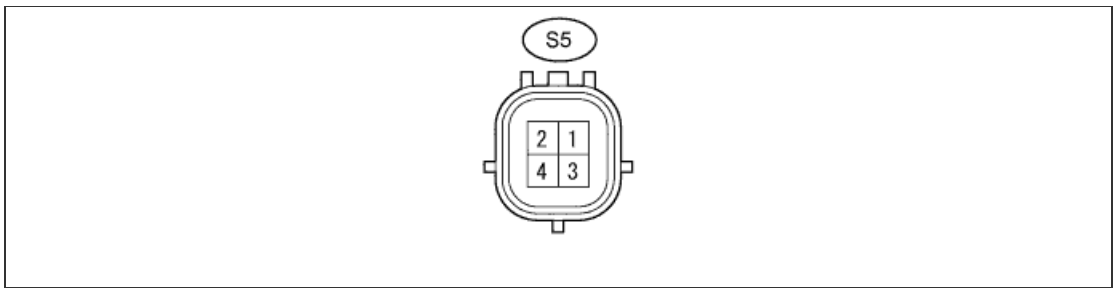
Parking Assist Monitor System Malfunction

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 navigation 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 reversing 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 luggage compartment door is open.	CAN communication system (for LHD)	Click here
	CAN communication system (for RHD)	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 resistance and voltage according to the value(s) in the table below.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
S5-4 (CB+) - S5-3 (CGND)	B - BR	Power source	Engine switch on (IG), shift lever in R	5.5 to 7.05 V
S5-3 (CGND) - Body ground	BR - Body ground	Ground	Always	Below 1 Ω

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.

d. Measure the waveform 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.

HINT:

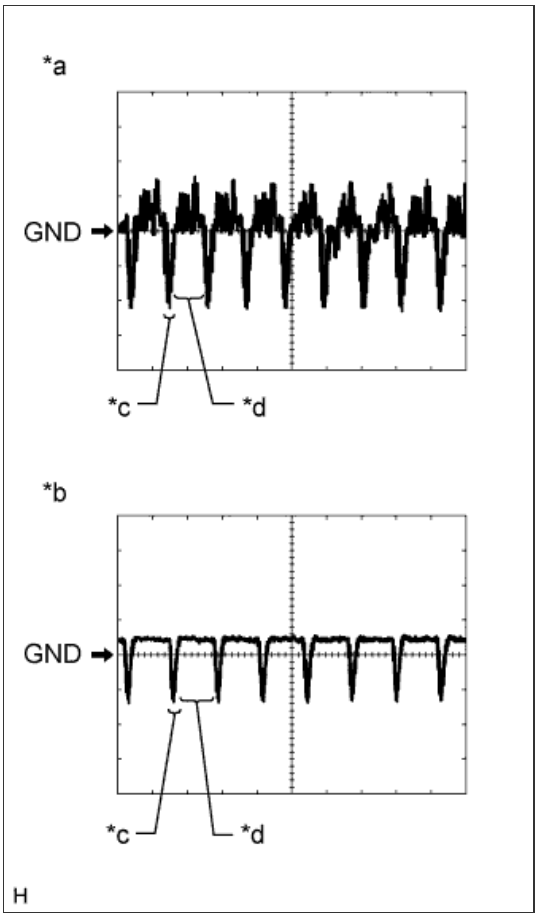
- **A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the navigation receiver assembly with the connector connected.**
- **The video waveform changes according to the image sent by the rear television camera assembly.**

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 Waveform B: Engine switch on (IG), shift lever in R and camera lens is covered, blacking out the screen

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



MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

POWER BACK DOOR UNIT ASSEMBLY [w/ Power Back Door System] (Click here)

INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY AND MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU) [w/o Power Back Door System] (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.

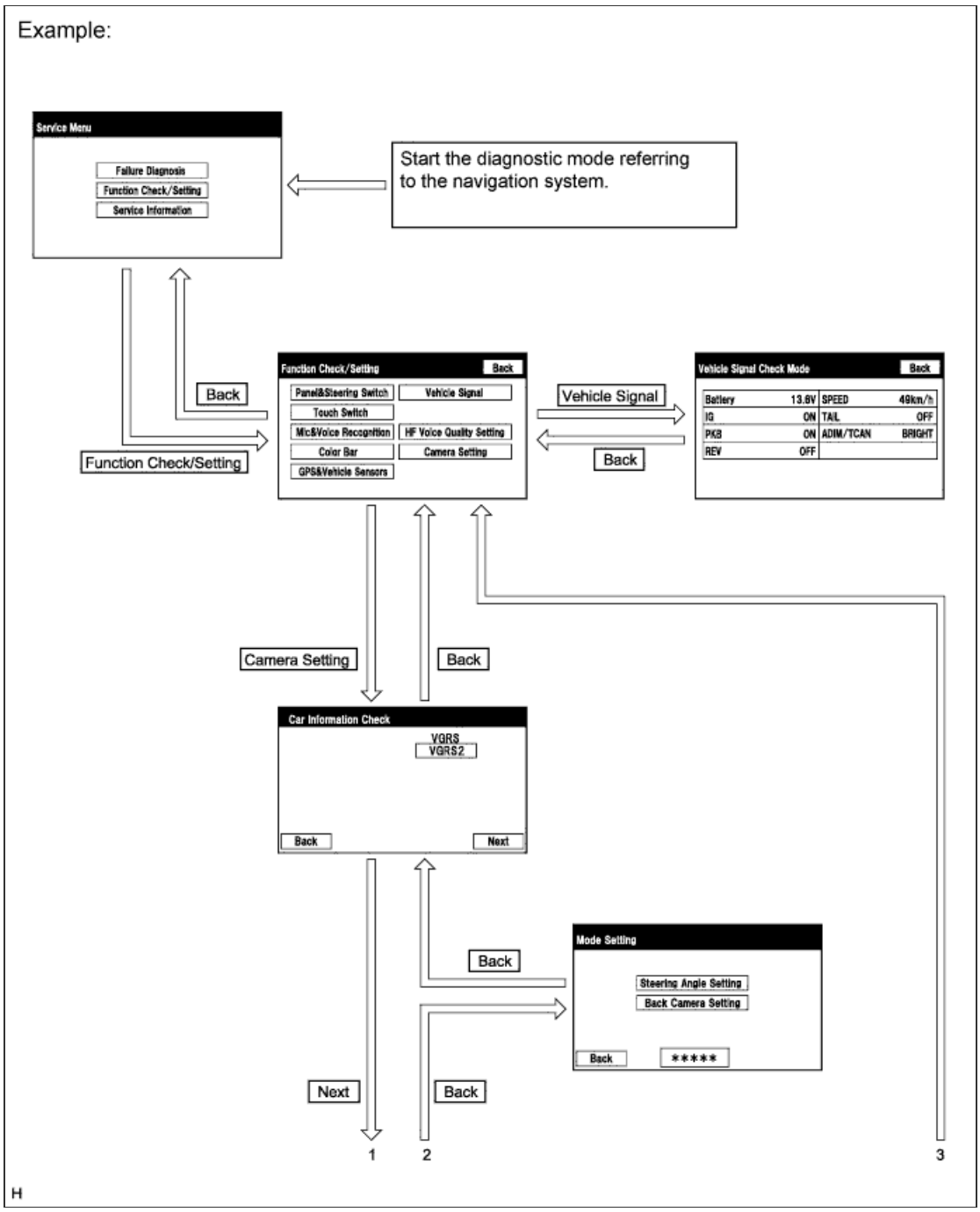
NOTICE:

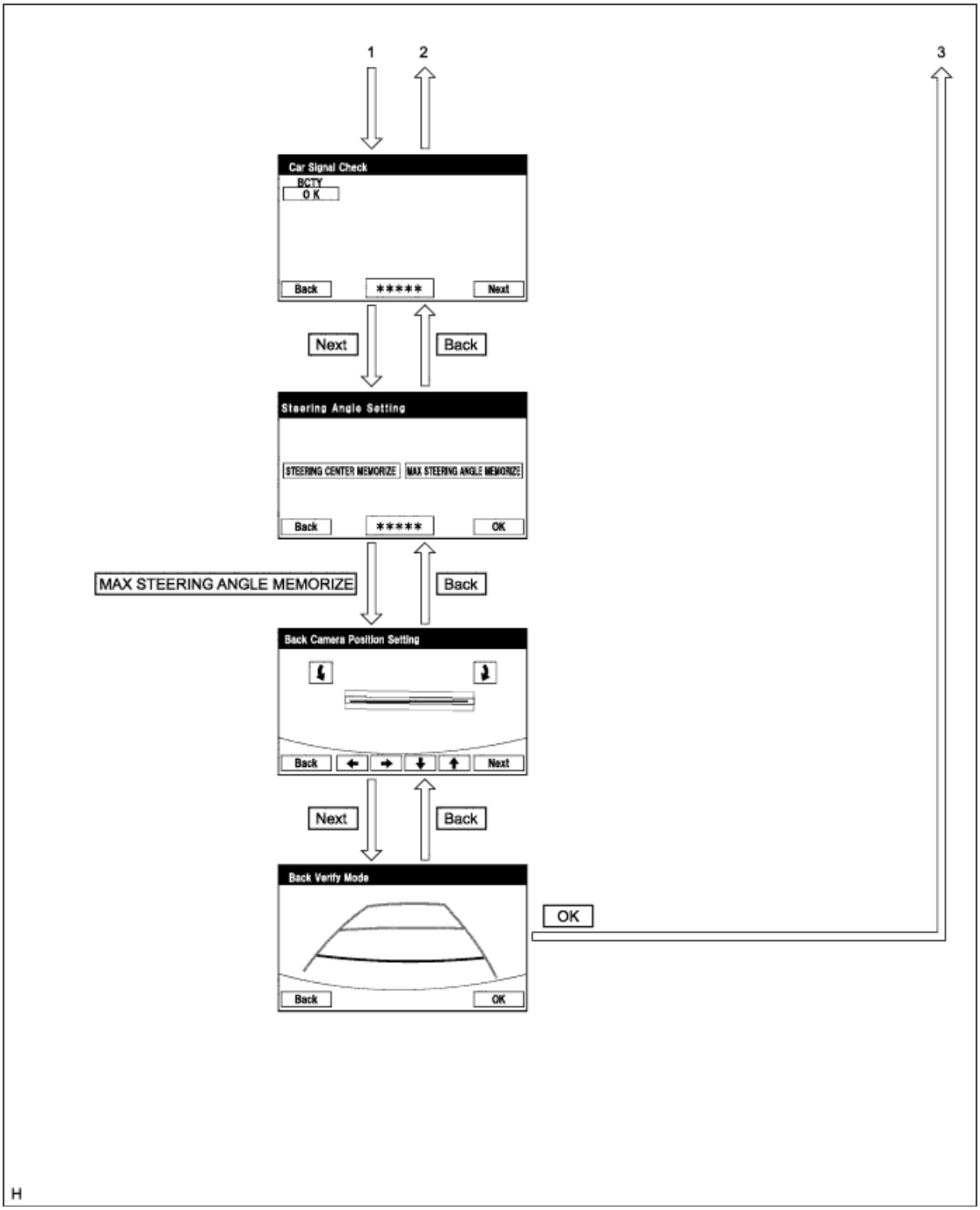
Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system (w/o Side Monitor System) may be needed (Click here).

HINT:

The displayed items may differ depending on vehicle specifications.

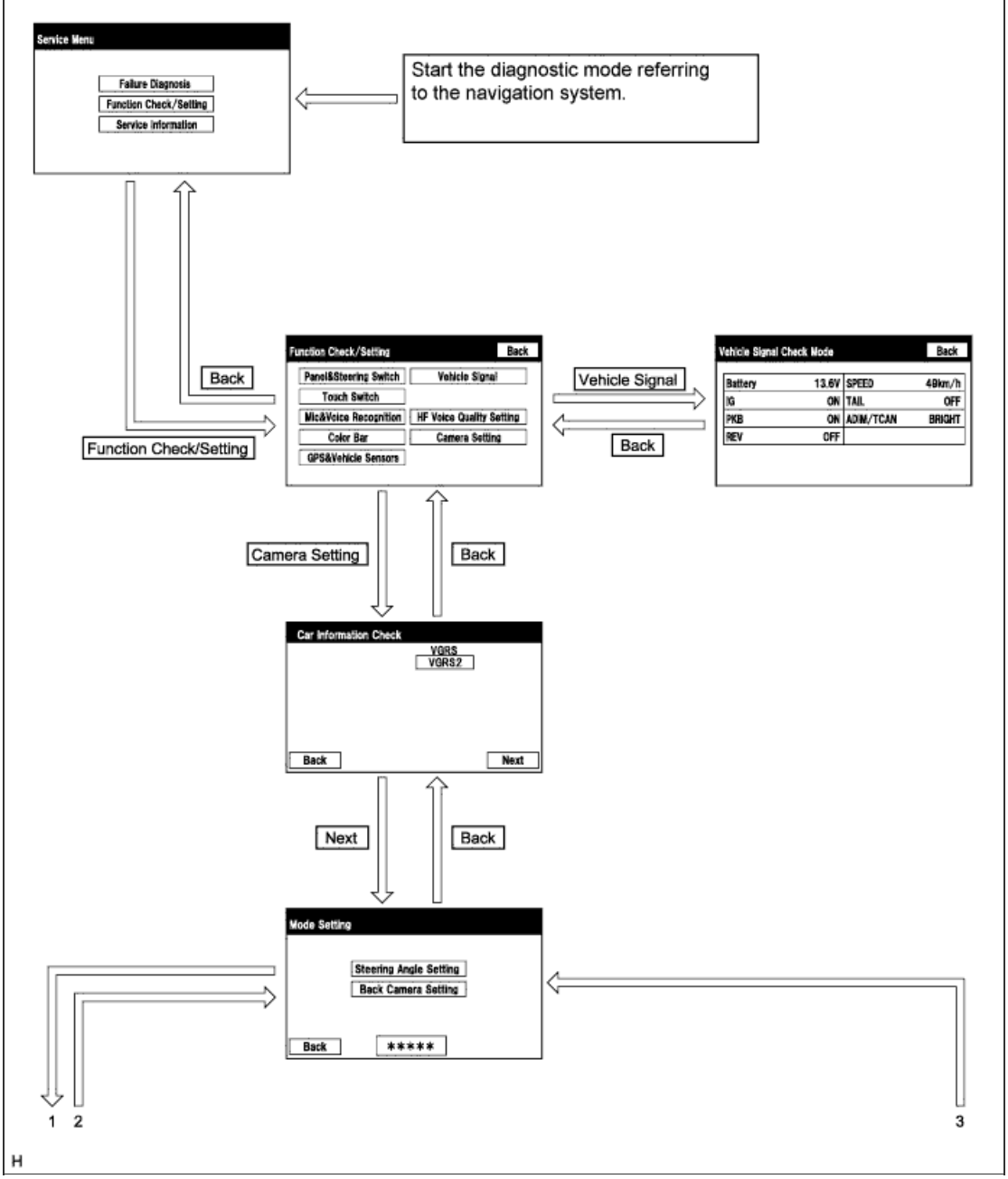
DIAGNOSIS SCREEN TRANSITION (during parking assist ECU initialization)



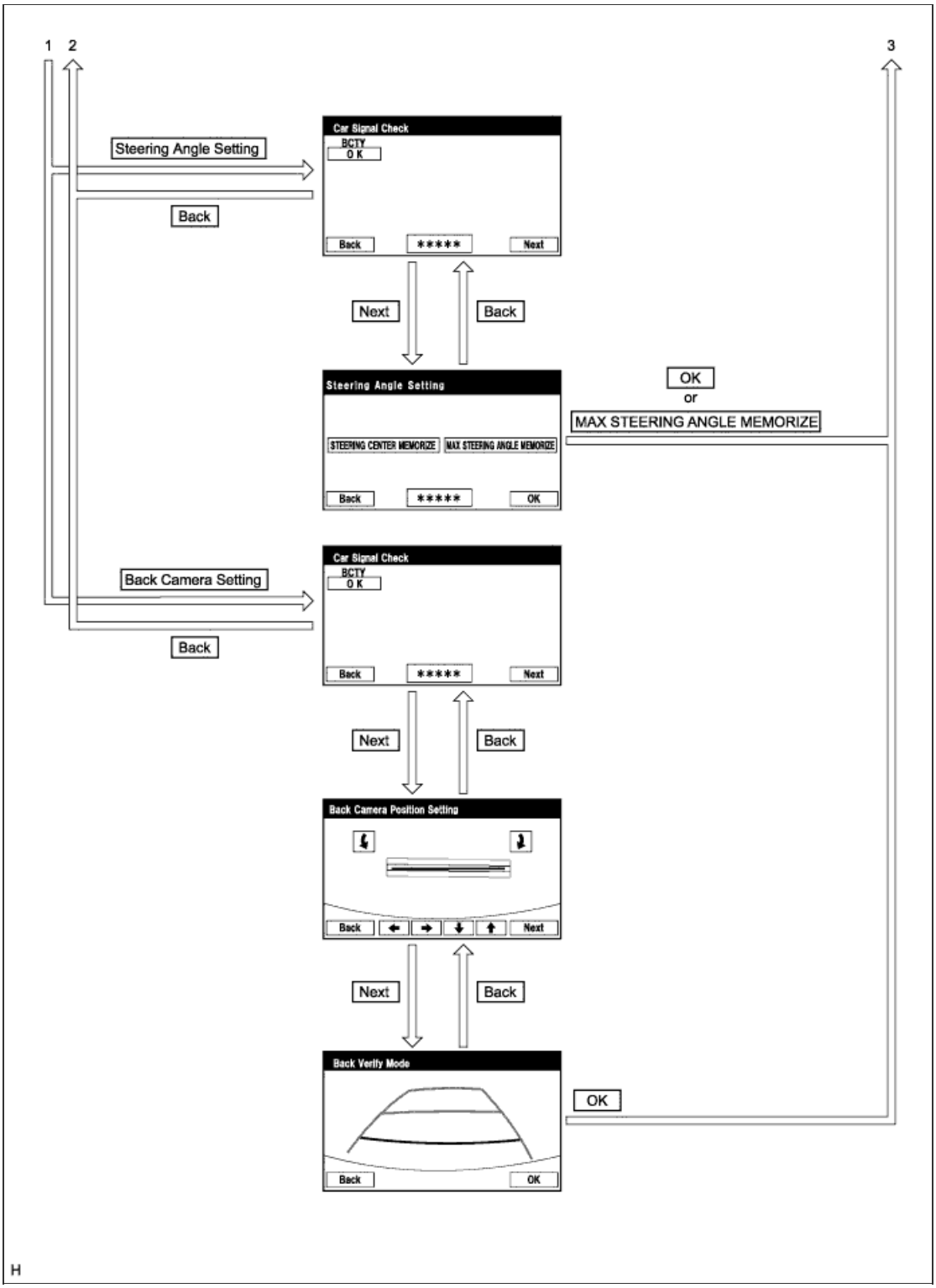


DIAGNOSIS SCREEN TRANSITION (after parking assist ECU initialization)

Example:


Service Menu
Failure Diagnosis
Function Check/Setting
Service Information
Start the diagnostic mode referring to the navigation system.
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

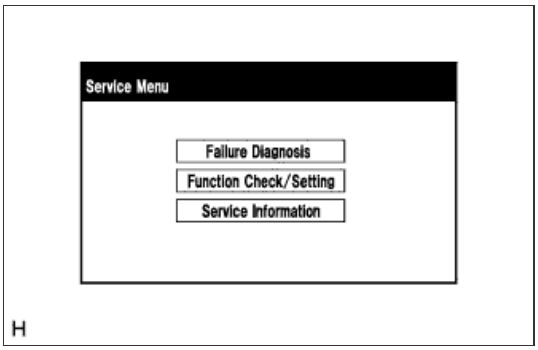
H



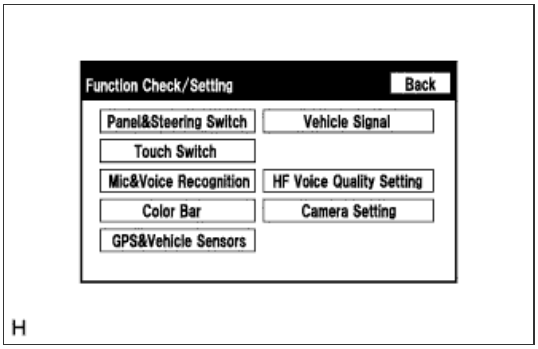
VEHICLE SIGNAL CHECK

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.

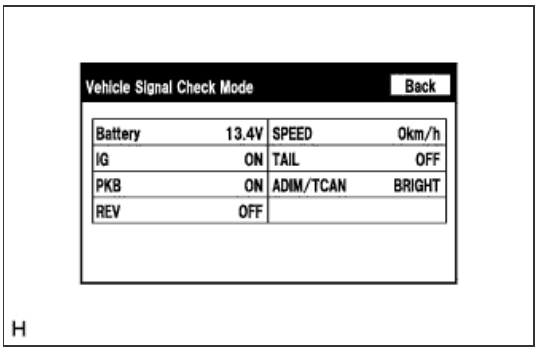


d. Vehicle Signal Check Mode:

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)**

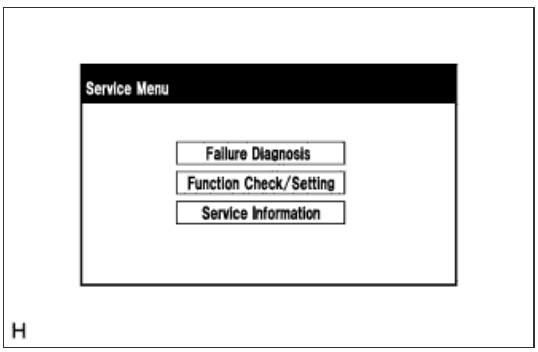


e. Finish diagnostic mode (Click here).

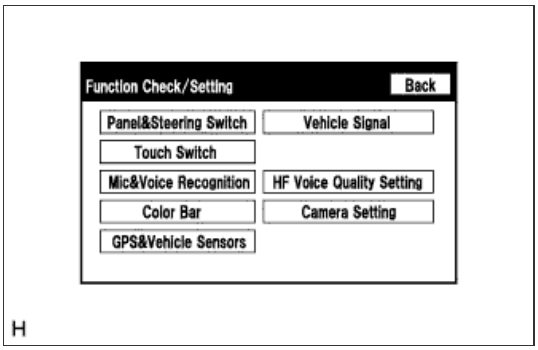
CAR SIGNAL CHECK (parking assist ECU input signals)

a. Start diagnostic mode (Click here).

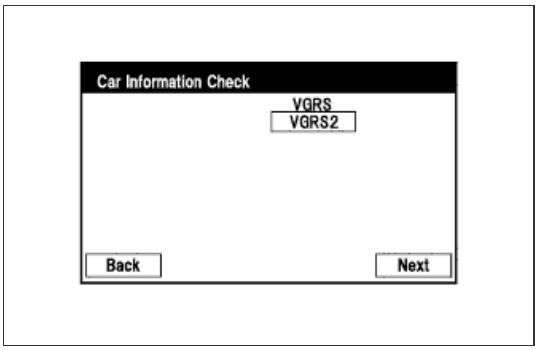
i. Select "Function Check/Setting" on the [Service Menu] screen to display the [Function Check/Setting] screen.



ii. Select "Camera Setting" on the [Function Check/Setting] screen.



iii. Select "Next" on the [Car Information Check] screen.

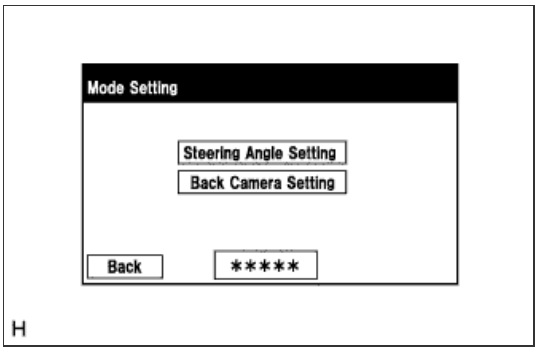


HINT:

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 ECU Initialization	Screen Transition
Not performed	[Car Signal Check] screen
Performed	[Mode Setting] screen

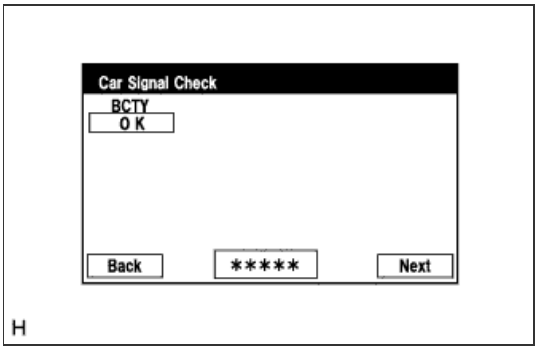
iv. When the screen changes to the [Mode Setting] screen, select "Back Camera Setting" to display the [Car Signal Check] screen.



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 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
Navigation 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: 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
Luggage Courtesy SW	Back door courtesy switch signal / ON or OFF	ON: Back door courtesy switch on OFF: Back door courtesy switch off	-

for Preparation Click here

Parking Assist Monitor System (w/o Side Monitor System)

DTC Code	Detection Item	See page
C1622	Back Camera Disconnected	Click here
C1625	Open or Short in Steering Angle Sensor +B	Click here
C1626	Steering Sensor Malfunction	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
U0126	Steering Sensor Communication	Click here
U0129	Lost Communication with Brake System Control Module	Click here
U0130	Lost Communication with Steering Effort Control Module	Click here
U0140	Lost Communication with Body Control Module	Click here

DTC C1622 Back Camera Disconnected

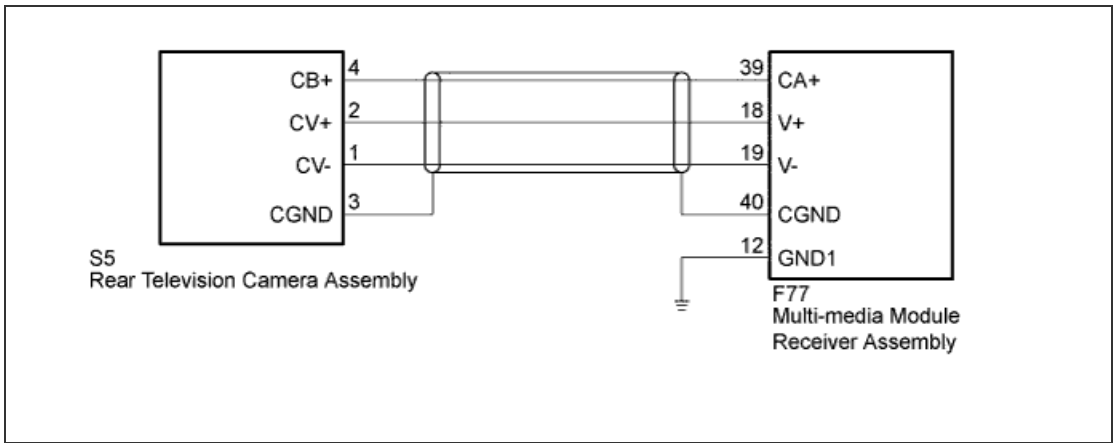
for Preparation Click here

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 • Rear television camera assembly • 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 - REAR TELEVISION CAMERA AND BODY GROUND)

a. Disconnect the F77 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
F77-18 (V+) - S5-2 (CV+)	Always	Below 1 Ω
F77-19 (V-) - S5-1 (CV-)	Always	Below 1 Ω
F77-39 (CA+) - S5-4 (CB+)	Always	Below 1 Ω
F77-40 (CGND) - S5-3 (CGND)	Always	Below 1 Ω
F77-12 (GND1) - Body ground	Always	Below 1 Ω
F77-18 (V+) - Body ground	Always	10 kΩ or higher
F77-19 (V-) - Body ground	Always	10 kΩ or higher
F77-39 (CA+) -		

Body ground	Always	10 kΩ or higher
F77-40 (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.

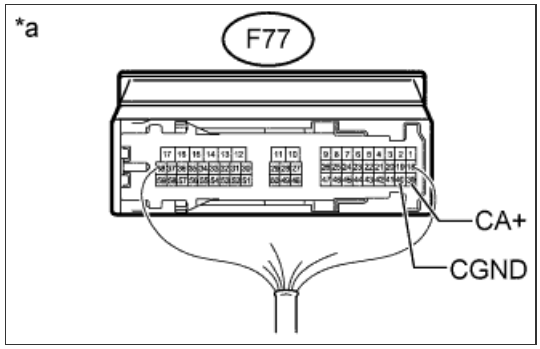
Standard Resistance:

Tester Connection	Condition	Specified Condition
F77-40 (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
F77-39 (CA+) - F77-40 (CGND)	Engine switch on (IG), shift lever in R	5.5 to 7.05 V



Text in Illustration

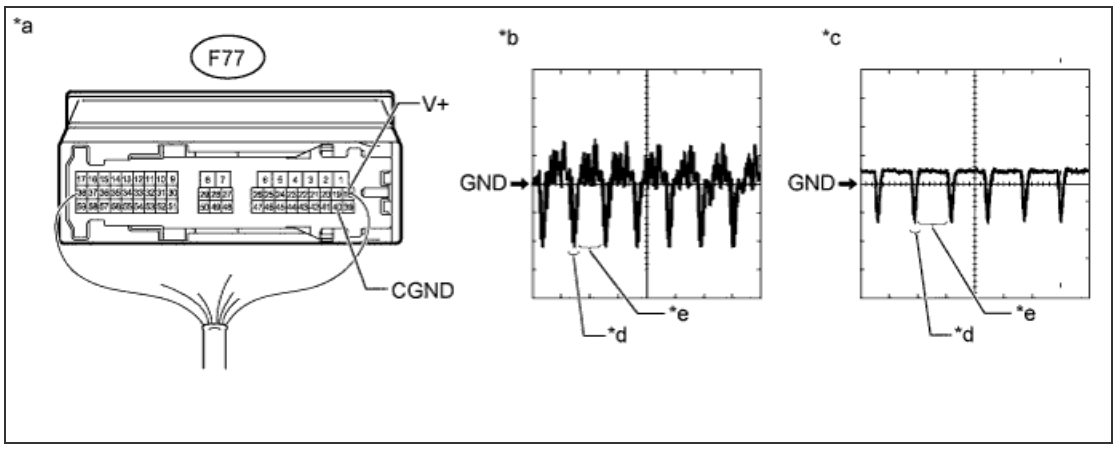
*a	Component with harness connected (Multi-media Module Receiver Assembly)

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 A	*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.**

Measurement Condition

Item	Content
Tester No. (Symbol)	F77-18 (V+) - F77-40 (CGND)
Tool Setting	0.2 V/DIV., 50 µS/DIV
Condition	Waveform A: Engine starts, shift lever in R (camera lens is not covered, displaying an image) Waveform B: Engine starts, shift lever in R (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 C1694 Steering Angle Initialization Incomplete

for Preparation Click here

SYSTEM 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 • 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

a. Perform the following to steering angle setting into the multi-media module receiver assembly.

i. Refer to steering angle setting (Click here).

NEXT

2.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

OK:
DTC 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 (STEERING ANGLE SETTING IS DEFECTIVE)

DTC C1625 Open or Short in Steering Angle Sensor +B

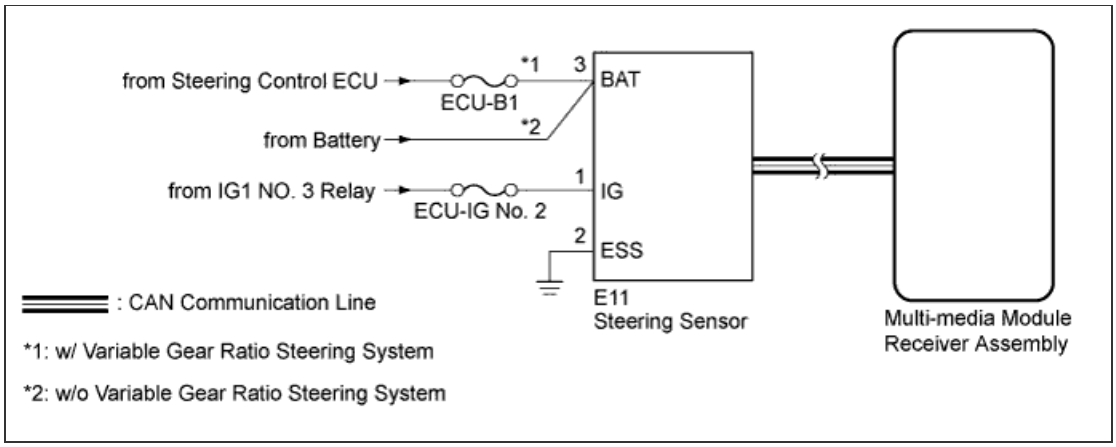
for Preparation Click here

DESCRIPTION

This DTC is stored if the navigation 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 • 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 navigation 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 E11 connector from the steering sensor.

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

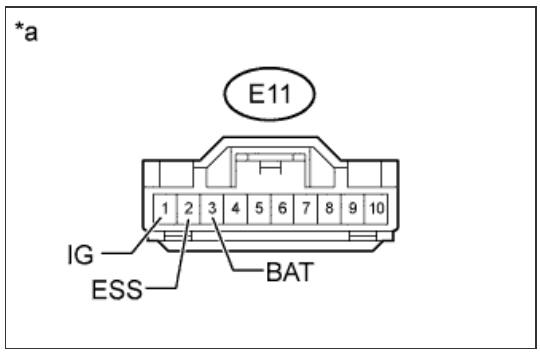
Standard Resistance:

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	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 U0126 Steering Sensor Communication

DTC U0129 Lost Communication with Brake System Control 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
U0129	Lost communication with brake system control module	
U0130	Lost communication with steering effect control module	
U0140	Lost communication with body control module	

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 DTCs are not output	A
DTCs are output (for LHD)	B
DTCs are 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.**
  - **for LHD: Click here**
  - **for RHD: 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 Sensor Malfunction

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 • 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 Steering Sensor Communication

DTC U0129 Lost Communication with Brake System Control 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
U0129	Lost communication with brake system control module	
U0130	Lost communication with steering effect control module	
U0140	Lost communication with body control module	

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 DTCs are not output	A
DTCs are output (for LHD)	B
DTCs are 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.**
  - **for LHD: Click here**
  - **for RHD: 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 multi-media module receiver assemblies 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 U0126 Steering Sensor Communication

DTC U0129 Lost Communication with Brake System Control 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
U0129	Lost communication with brake system control module	
U0130	Lost communication with steering effect control module	
U0140	Lost communication with body control module	

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 DTCs are not output	A
DTCs are output (for LHD)	B
DTCs are 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.**
  - **for LHD: Click here**
  - **for RHD: 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 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 • Steering angle setting • Side camera position setting • Multi-media module receiver assembly

INSPECTION PROCEDURE

NOTICE:

- **When "System initializing" is displayed on the multi-media module receiver assembly 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, SIDE 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 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 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 Steering Sensor Communication

DTC U0129 Lost Communication with Brake System Control 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
U0129	Lost communication with brake system control module	
U0130	Lost communication with steering effect control module	
U0140	Lost communication with body control module	

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 DTCs are not output	A
DTCs are output (for LHD)	B
DTCs are 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.**
  - **for LHD: Click here**
  - **for RHD: 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 C1691 Back Camera Initialization Incomplete

for Preparation Click here

SYSTEM 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 • 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

a. Perform the following procedure depending on the memory conditions to register the vehicle information into the multi-media module receiver assembly.

i. 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

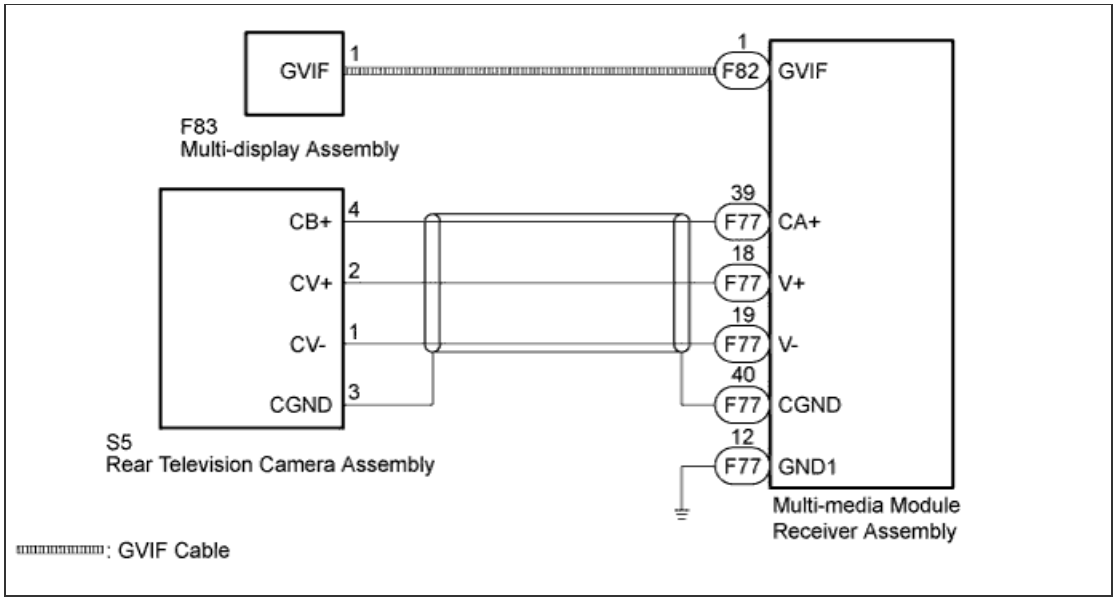
END (REAR TELEVISION CAMERA OPTICAL AXIS ADJUSTMENT IS DEFECTIVE)

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 screen is frosted over (the image immediately after turning the ignition switch to ON 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.**

1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER - REAR TELEVISION CAMERA AND BODY GROUND)

a. Disconnect the F77 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
F77-18 (V+) - S5-2 (CV+)	Always	Below 1 Ω
F77-19 (V-) - S5-1 (CV-)	Always	Below 1 Ω
F77-39 (CA+) - S5-4 (CB+)	Always	Below 1 Ω
F77-40 (CGND) - S5-3 (CGND)	Always	Below 1 Ω
F77-12 (GND1) - Body ground	Always	Below 1 Ω
F77-18 (V+) - Body ground	Always	10 kΩ or higher
F77-19 (V-) - Body ground	Always	10 kΩ or higher
F77-39 (CA+) - Body ground	Always	10 kΩ or higher
F77-40 (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.

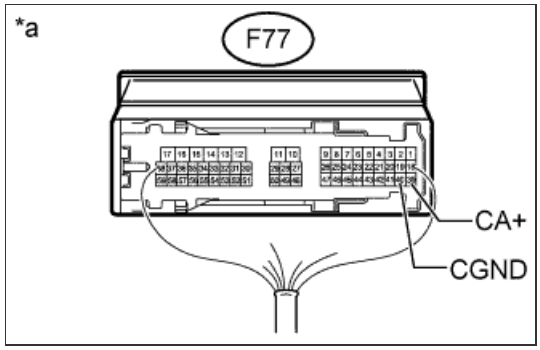
Standard Resistance:

Tester Connection	Condition	Specified Condition
F77-40 (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
F77-39 (CA+) - F77-40 (CGND)	Engine switch on (IG), shift lever in R	5.5 to 7.05 V



Text in Illustration

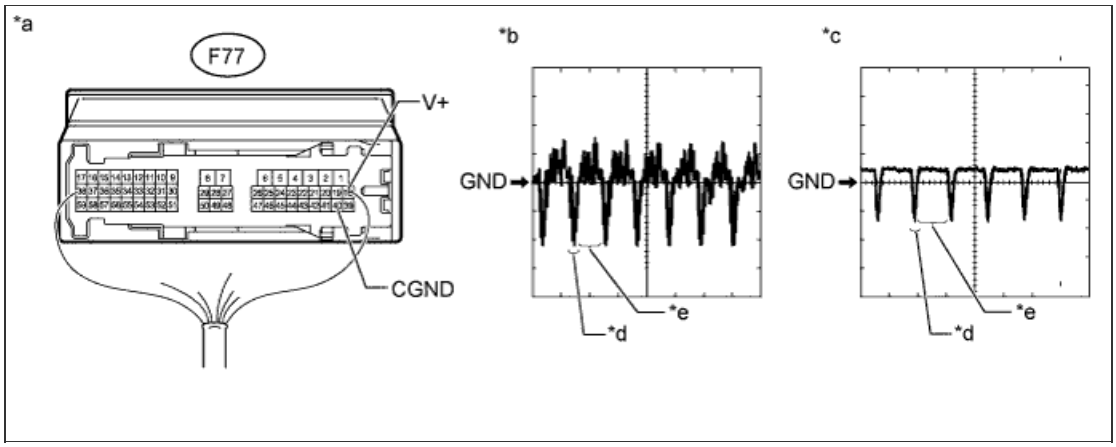
*a	Component with harness connected (Multi-media Module Receiver Assembly)

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 A	*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.**

Measurement Condition

Item	Content
Tester No. (Symbol)	F77-18 (V+) - F77-40 (CGND)
Tool Setting	0.2 V/DIV., 50 µS/DIV
Condition	Waveform A: Engine starts, shift lever in R (camera lens is not covered, displaying an image) Waveform B: Engine starts, shift lever in R (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 harness and connector (GVIF cable) with a normally functioning one.

NEXT ↓

5.CHECK PARKING ASSIST MONITOR SYSTEM (w/o Side Monitor System)

a. Check if the same malfunction recurs when the parking assist monitor screen is displayed.

OK:

Malfunction does not reoccur (returns to normal).

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

OK ↓

END (GVIF CABLE IS DEFECTIVE) (Click here)

for Preparation Click here

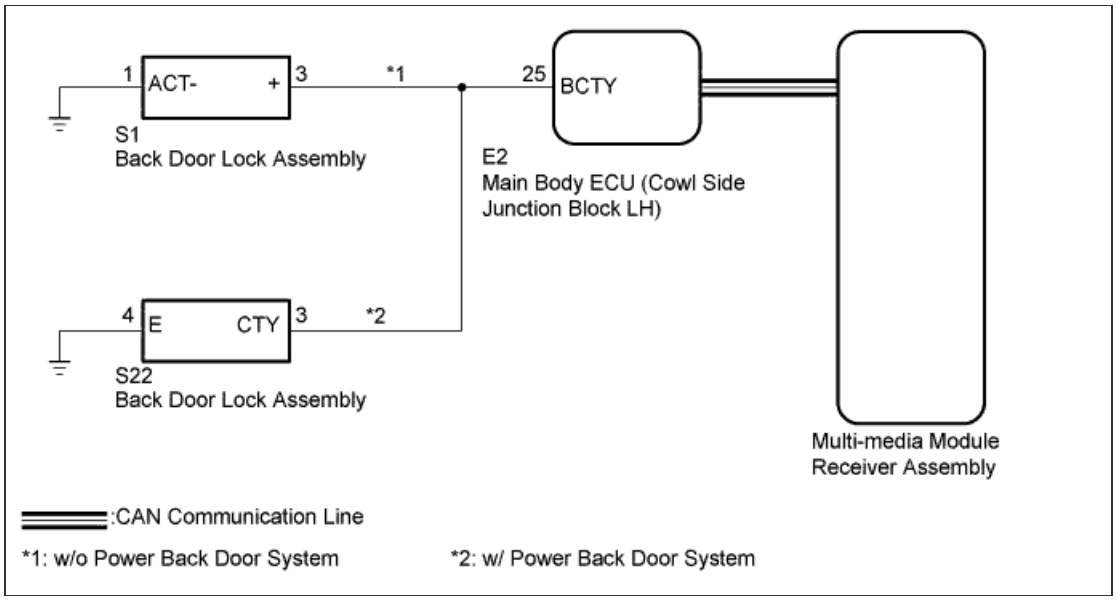
DESCRIPTION

The multi-media module receiver assembly receives luggage compartment door lock assembly open/close signals from the main body ECU (cowl side junction block LH) via CAN communication. When the luggage compartment door is open, the camera aiming cannot be adjusted correctly because the rear television camera assembly is installed on the luggage compartment 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:

- **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 door lock positions are functioning properly (Click here).

Main Body

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Back Door Courtesy SW	Back door courtesy switch signal / ON or OFF	ON: Back door courtesy switch on OFF: Back door courtesy switch off	-

OK:

The back door courtesy switch functions as specified in the normal condition column.

NG → Go to step 2

OK

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 S22*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
S22-3 (CTY) - E2-25 (BCTY)	Always	Below 1 Ω
S22-4 (E) - Body ground	Always	10 kΩ or higher
S22-3 (CTY) - 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-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

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.

2.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.).

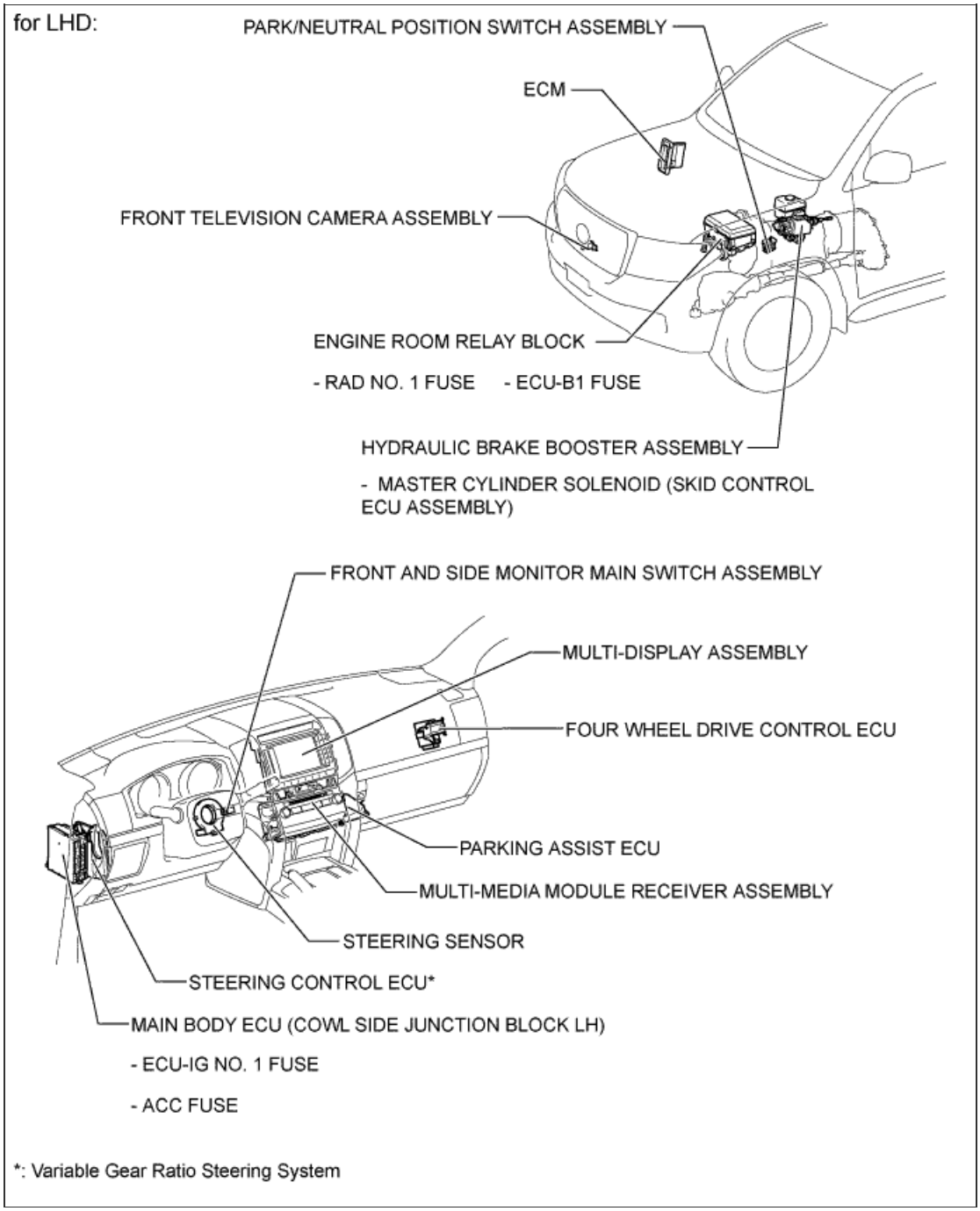
vii. The ambient temperature around the camera is either too high or too low.

viii. The vehicle is tilted at a steep angle.

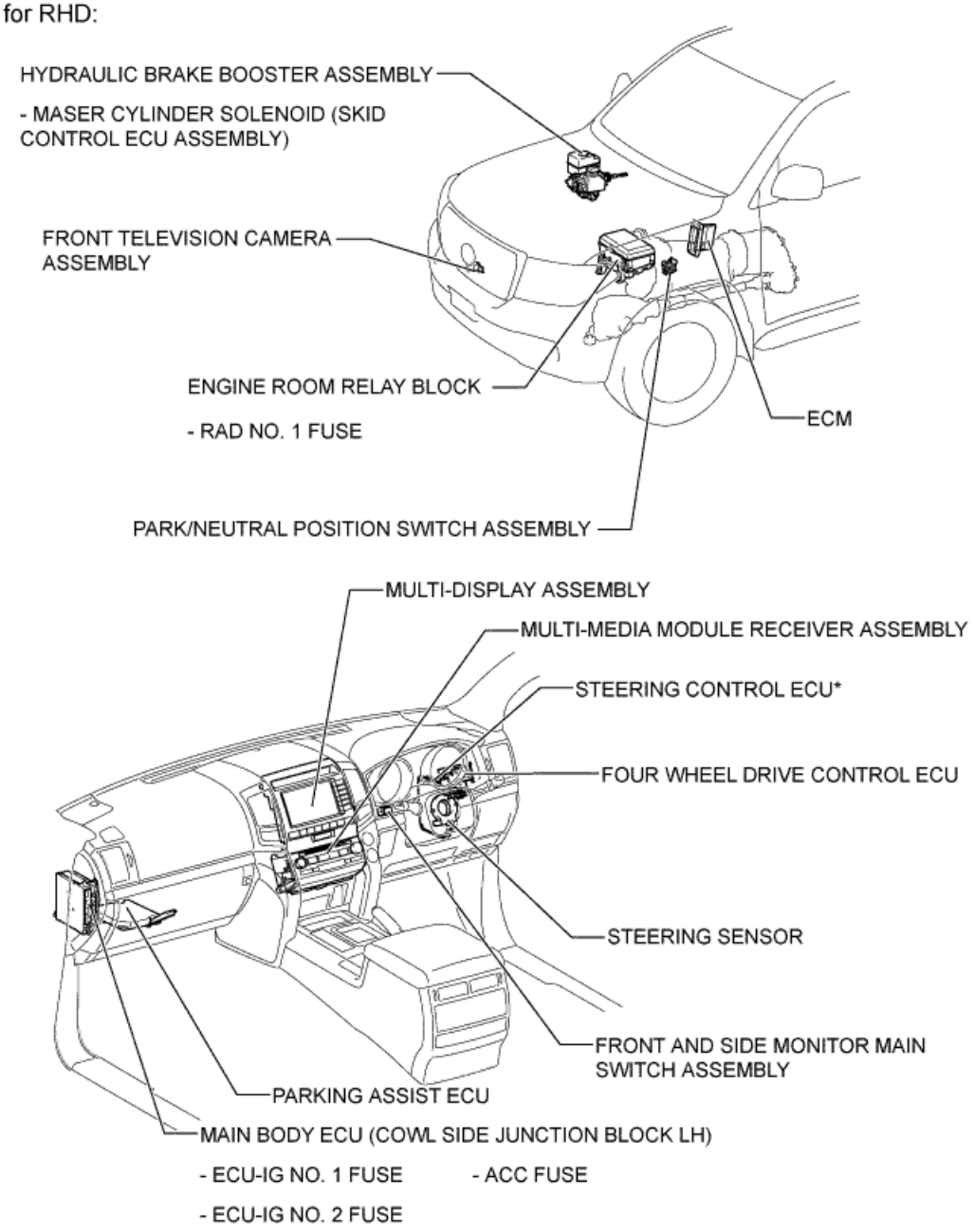
ix. The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, particular to the CCD camera.)

x. The camera lens is damaged by plying stones.

for Preparation [Click here]

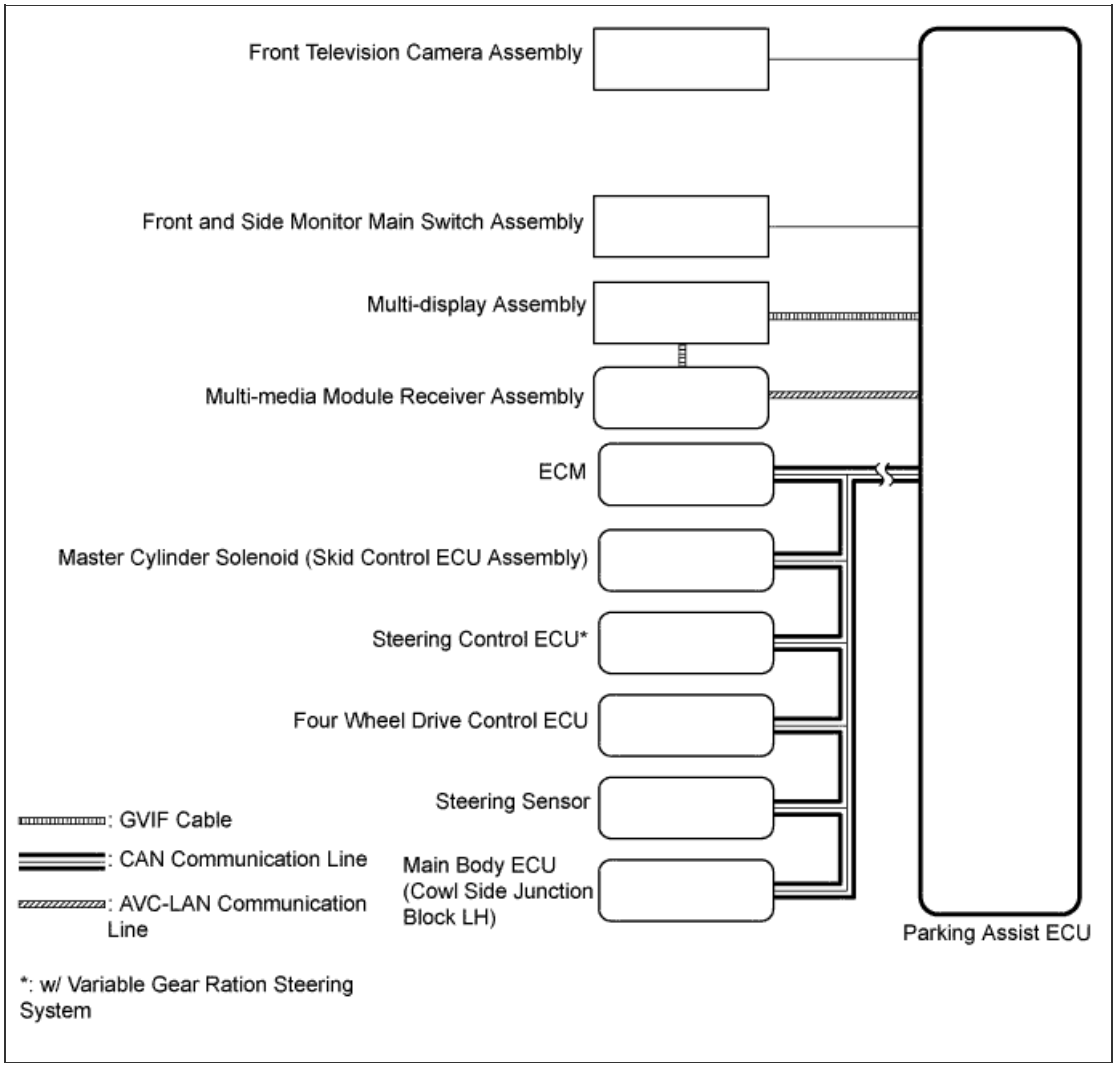


for RHD:



*: w/ Variable Gear Ratio Steering 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 • Vehicle information	CAN
Master Cylinder Solenoid (Skid Control ECU Assembly)	Parking Assist ECU	• Inner brake information • ABS ACT information	CAN
Four Wheel Drive Control ECU	Parking Assist ECU	L4 Condition signal	CAN
ECM	Parking Assist ECU	• Shift position information • 2WD/4WD information • Vehicle information	CAN

*: w/ Variable Gear Ratio Steering System

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

x. Multi-display assembly

*: w/ Variable Gear Ratio Steering 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
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. • 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. • 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. • 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.

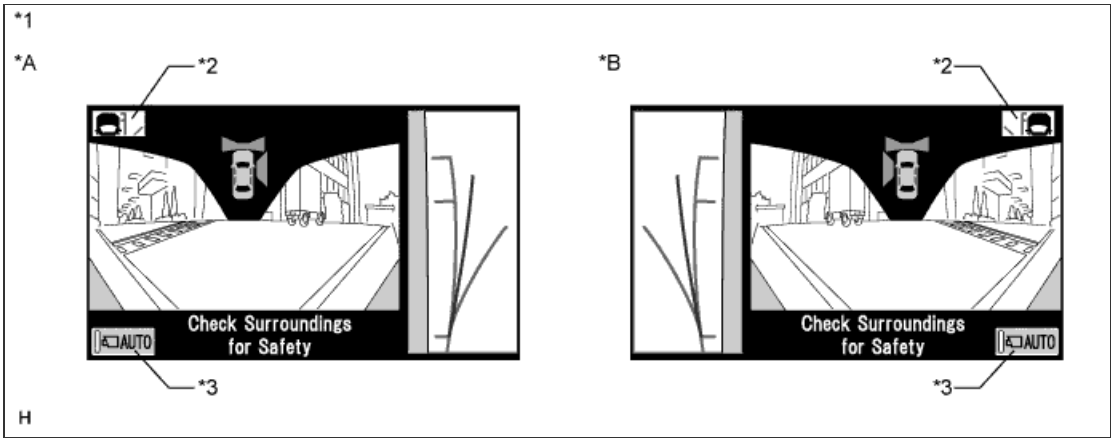
*: w/ Variable Gear Ratio Steering System

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 multi-display assembly 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 (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:

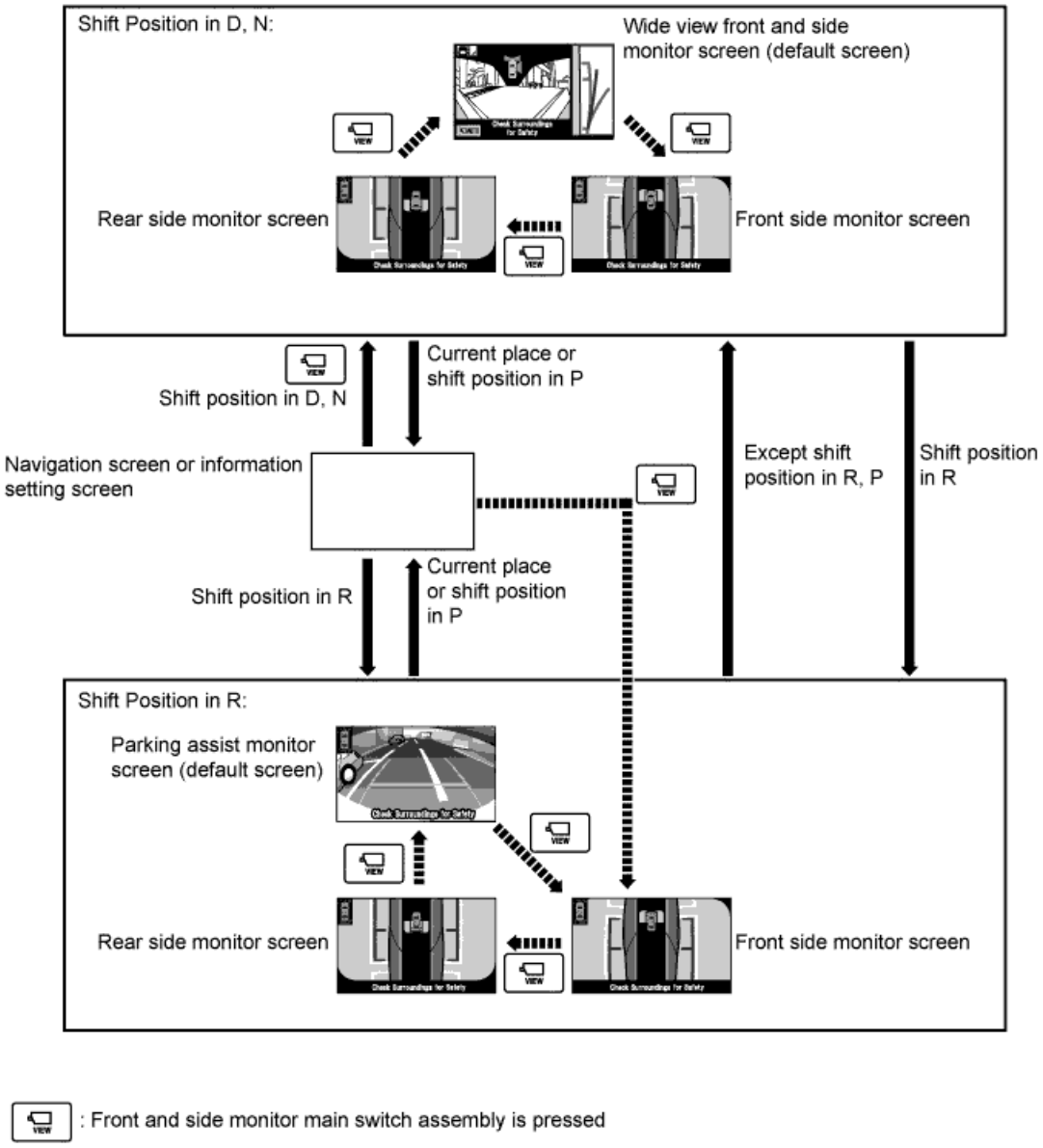
- **If the shift lever is not in R and the wide view front and side monitor screen is displayed, the course guideline display change switch and automatic display mode set/cancel switch are displayed and the following operations can be performed.**
- **For the course guideline display change switch, refer to the following procedures (Click here).**
- **Automatic display mode set/cancel switch**

Automatic mode display switch (Indicator in the button)	Display mode
ON (Illuminated)	Automatic display mode
OFF (Not illuminated)	Manual display mode

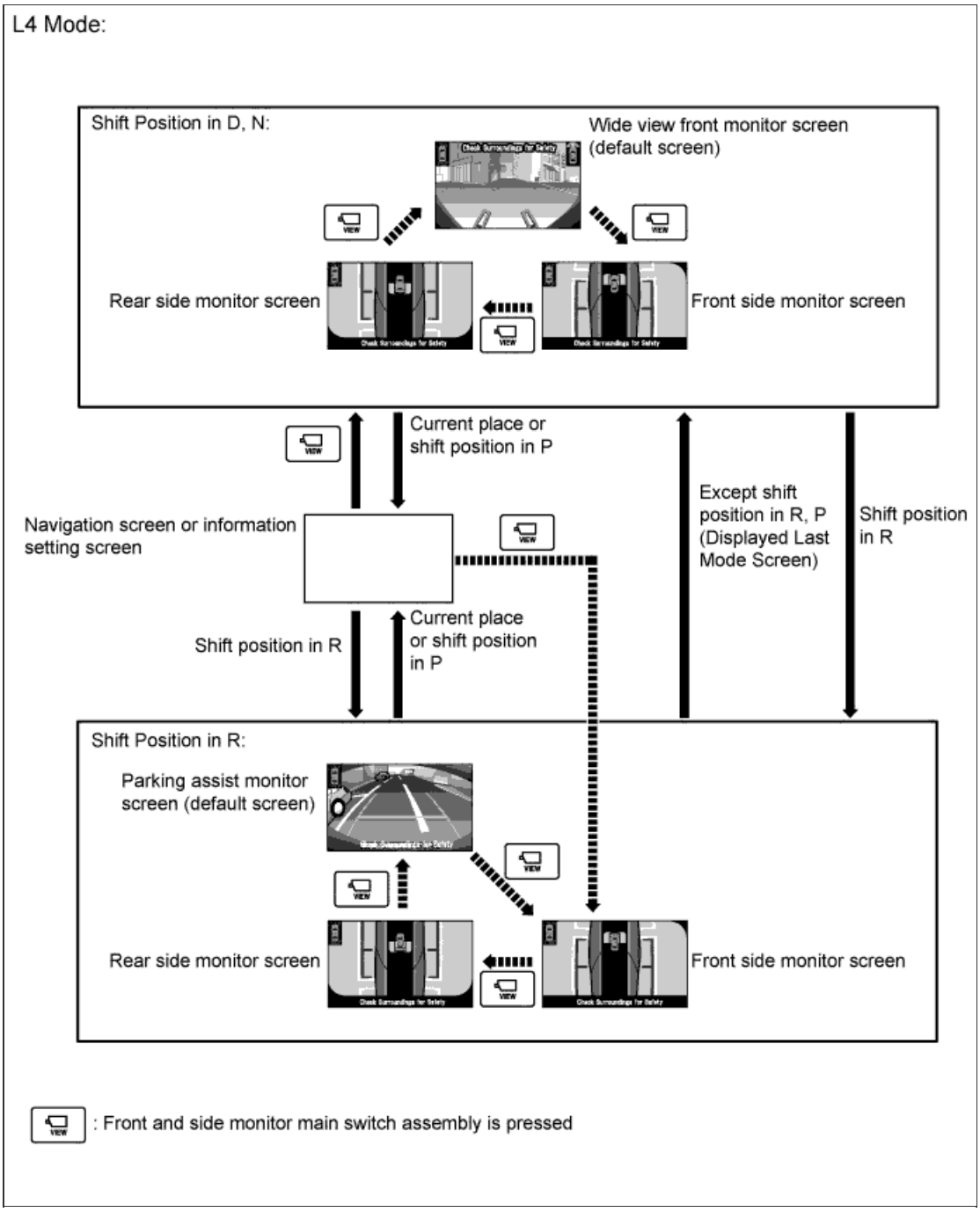
- **The last mode screen is the screen that was displayed last when the screen was changed to the navigation screen, information setting screen, etc.**

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

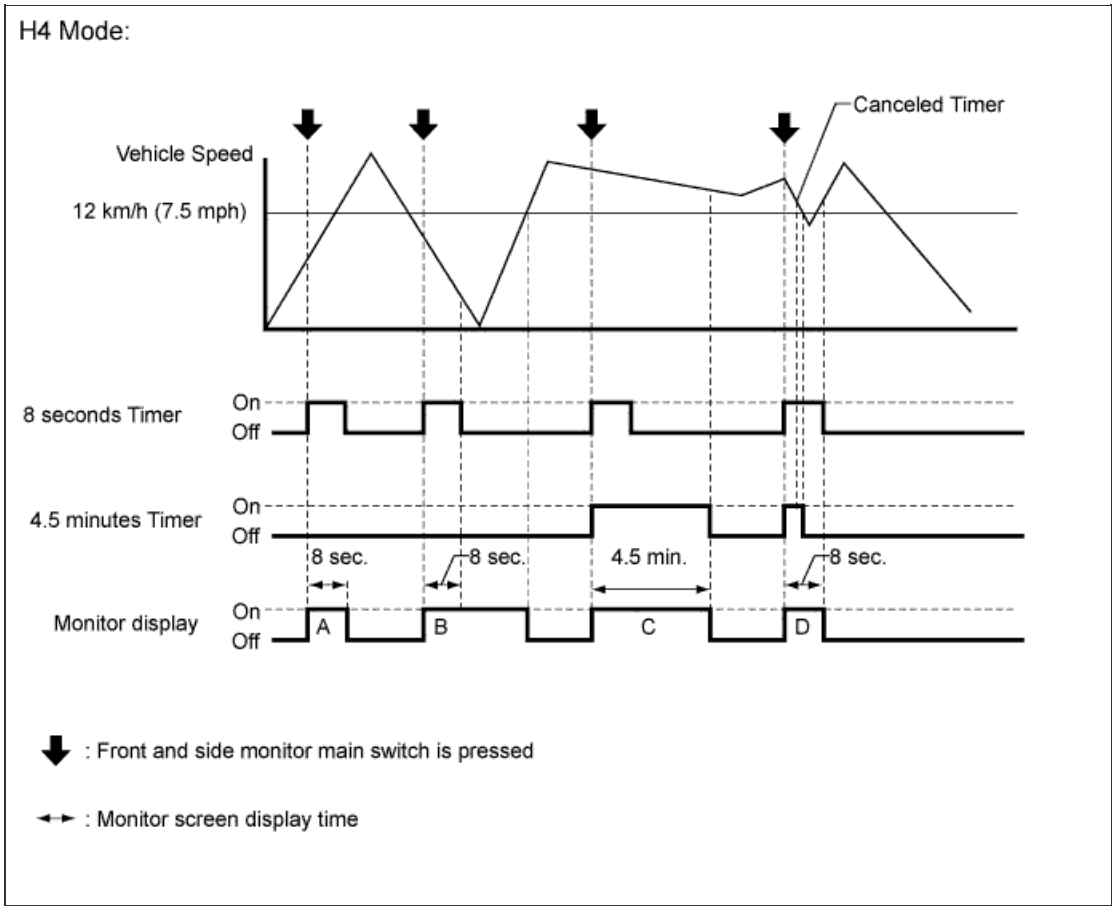
ii. L4 mode:
During manual display mode (shift lever in a position other than R), during engine switch on (IG) or engine startup (no DTCs are output), if the following conditions have been met, pressing the front and side monitor main switch will change the display mode as

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

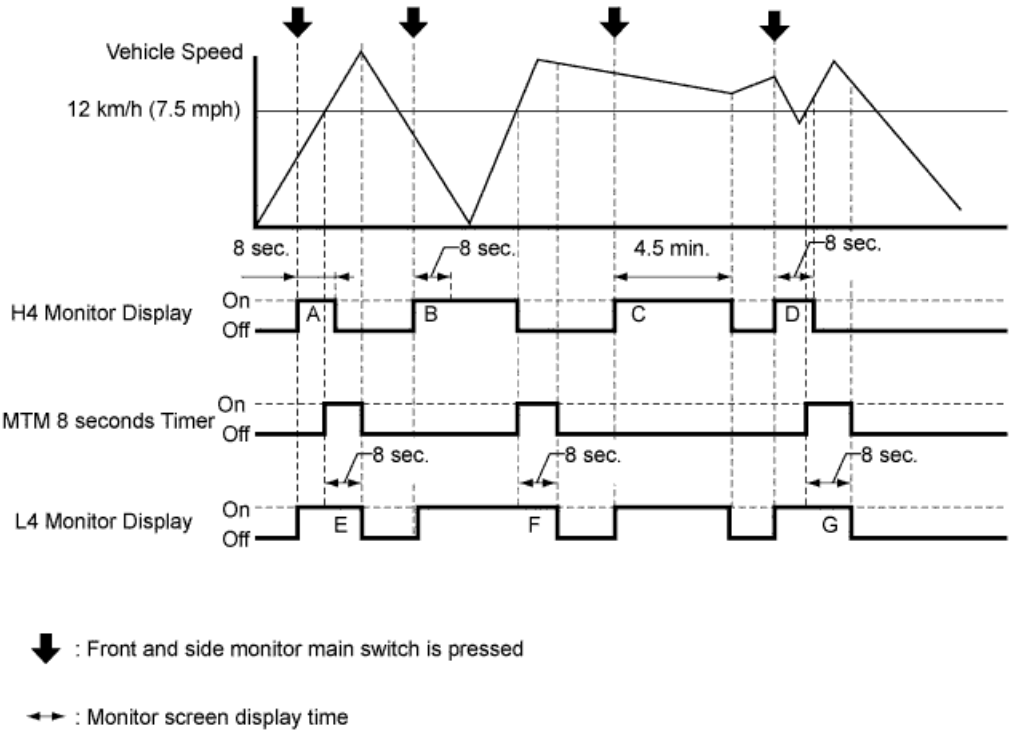
i. During manual display mode (when the shift lever is not in R), when the front and side monitor main switch is pressed and the following conditions are met, the wide view front and side monitor screen is displayed for a certain period of time even when the vehicle speed is more than 12 km/h (7.5 mph).



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 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. 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:

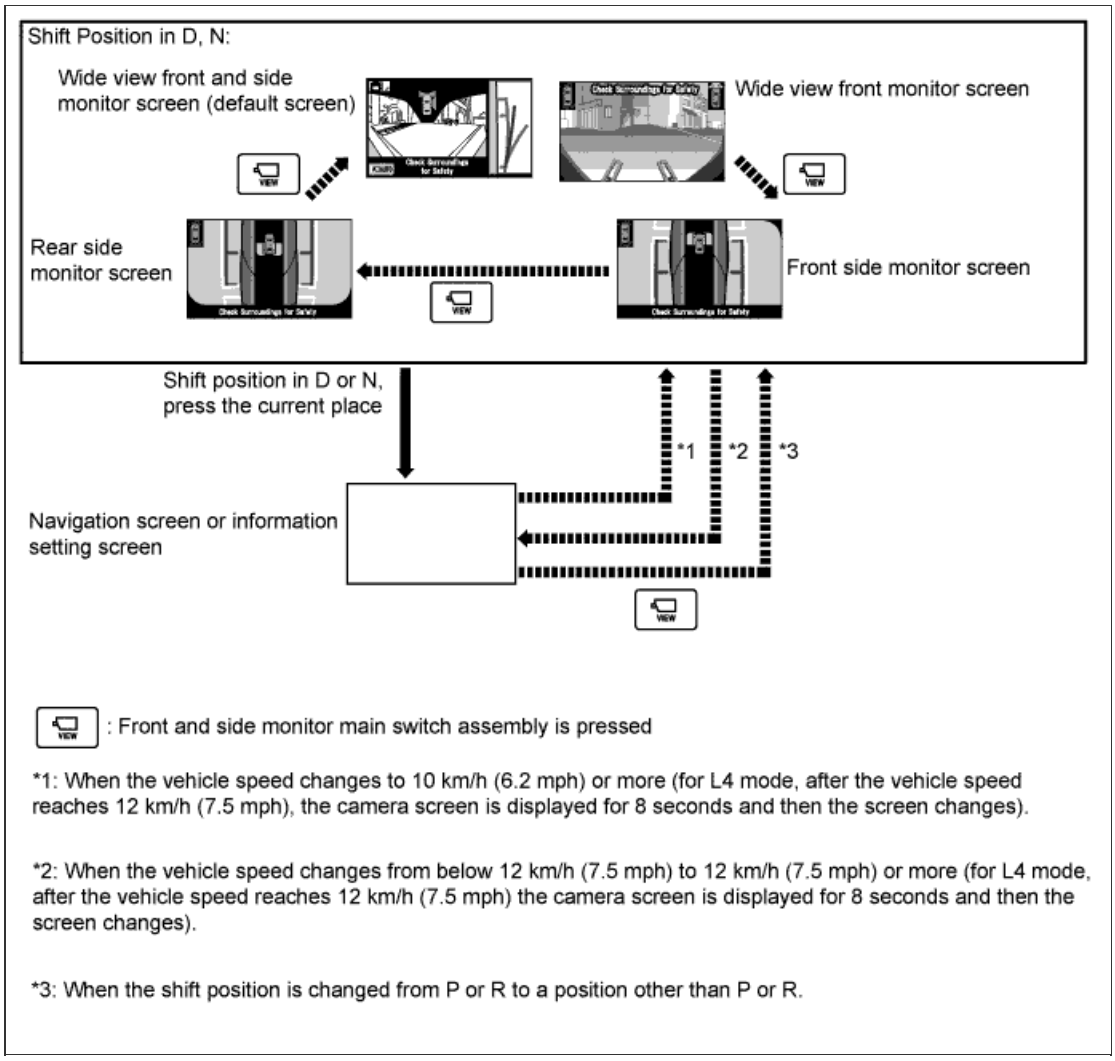


	Time when Front and Side			

Screen Display Time	Monitor Main Switch Assembly is Pressed	Change in Vehicle Speed	Timer Operation Time	Note
A 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. 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 F 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*

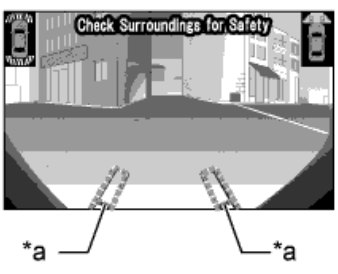
*:The conditions to change the screen after the display screen changes automatically are the same as in manual display mode.

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

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 DTC OUTPUT*

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. (Click here).

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
No DTC is output	A
DTC is output	B

B. → Go to DIAGNOSTIC TROUBLE CODE CHART (**Click here**)

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.

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
When auto-display mode is not set, display does not change from displayed screen even though operating wide view front and side monitor switch while within display permission vehicle speed (approximately 12 km/h [7 mph] or less)	Proceed to "CHK" message(s) are displayed on the SIGNAL CHECK screen	Click here
	Multi-display assembly	Click here

Display Malfunction

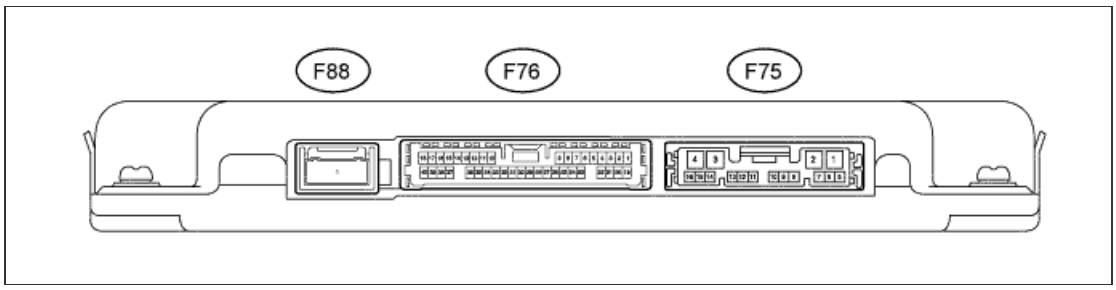
Symptom	Suspected Area	See page
Image from camera for the parking assist monitor is abnormal (side monitor system is also abnormal).	Data List/Active Test - AISIC Output Status	Click here
	GVIF cable	-
	Parking assist ECU	Click here
	Multi-media module receiver assembly	Click here
Image from camera for the Wide View Front Monitor is Abnormal (Other 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

PARKING ASSIST ECU



a. Disconnect the F75 and F76 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
F75-1 (+B) - F75-4 (GND1)	L - W-B	Power source signal	Always	11 to 14 V
F75-4 (GND1) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
F75-8 (IG) - F75-4 (GND1)	G - W-B	IG Power source signal	Engine switch on (IG)	11 to 14 V
			Engine switch off	Below 1 V
F75-9 (ACC) - F75-4 (GND1)	GR - W-B	ACC Power source signal	Engine switch on (ACC)	11 to 14 V
			Engine switch off	Below 1 V
F76-7 (BLSW) - F75-4 (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 F75 and F76 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
F75-10 (TX-)	L	AVC-LAN communication signal	-	-
F75-11 (TX+)	W	AVC-LAN communication signal	-	-
F76-36 (BCV-) - F76-35 (BGND)	W - Shielded	Front television camera ground	Always	Below 1 V
F76-12 (BCV+) - F76-35 (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)
F76-35 (BGND) - F75-4 (GND1)	Shielded - W-B	Front television camera ground (shield)	Always	Below 1 V
F76-11 (BCB+) - F76-35 (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

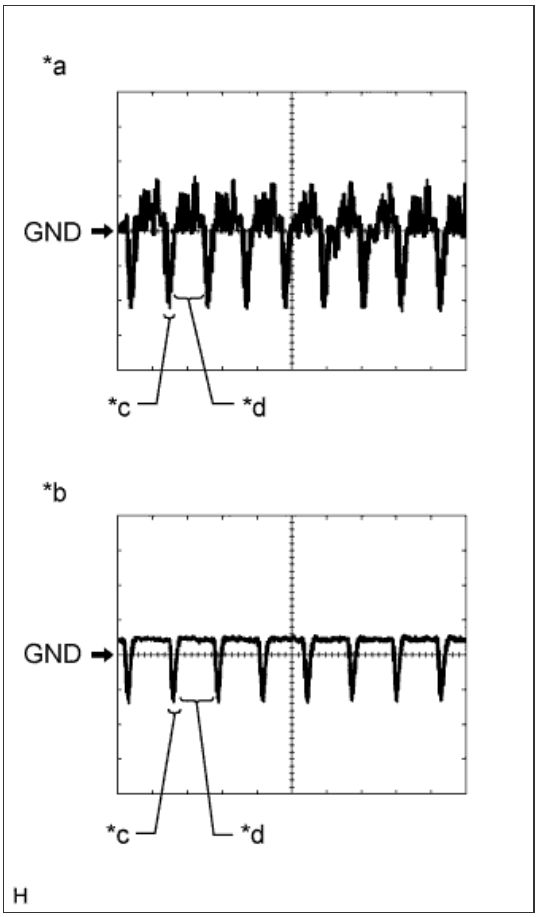
*a	Waveform A (under normal conditions)
*b	Waveform B (camera lens is covered, blacking out the screen)
*c	Synchronized Signal
*d	Video Waveform

HINT:

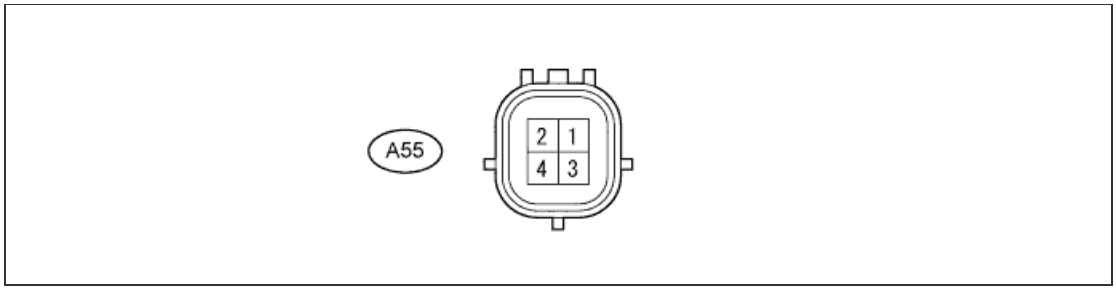
The video waveform changes according to the image sent by the rear television camera assembly.

i. Waveform

Item	Content
Terminal No. (Symbol)	F76-12 (BCV+) - F76-35 (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 • 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 A55 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
A55-3 (BGND) - Body ground	BR - Body ground	Ground	Always	Below 1 V
A55-1 (BCB+) - A55-3 (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 A55 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
A55-2 (BCV+) - A55-3 (BGND)	L -BR	Display signal	Engine switch on (IG), front and side monitor main switch assembly on	Pulse generation (See waveform)
A55-4 (BCV-) - A55-3 (BGND)	Y -BR	Front television camera ground	Always	Below 1 V

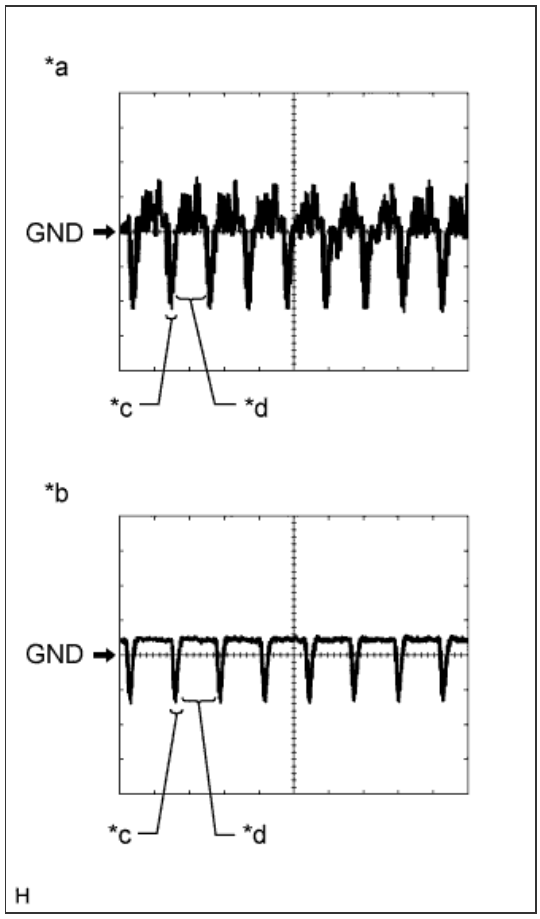
e. Using an oscilloscope, check waveform.

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)	A55-2 (BCV+) - A55-3 (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 • 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

WIDE VIEW FRONT MONITOR 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.

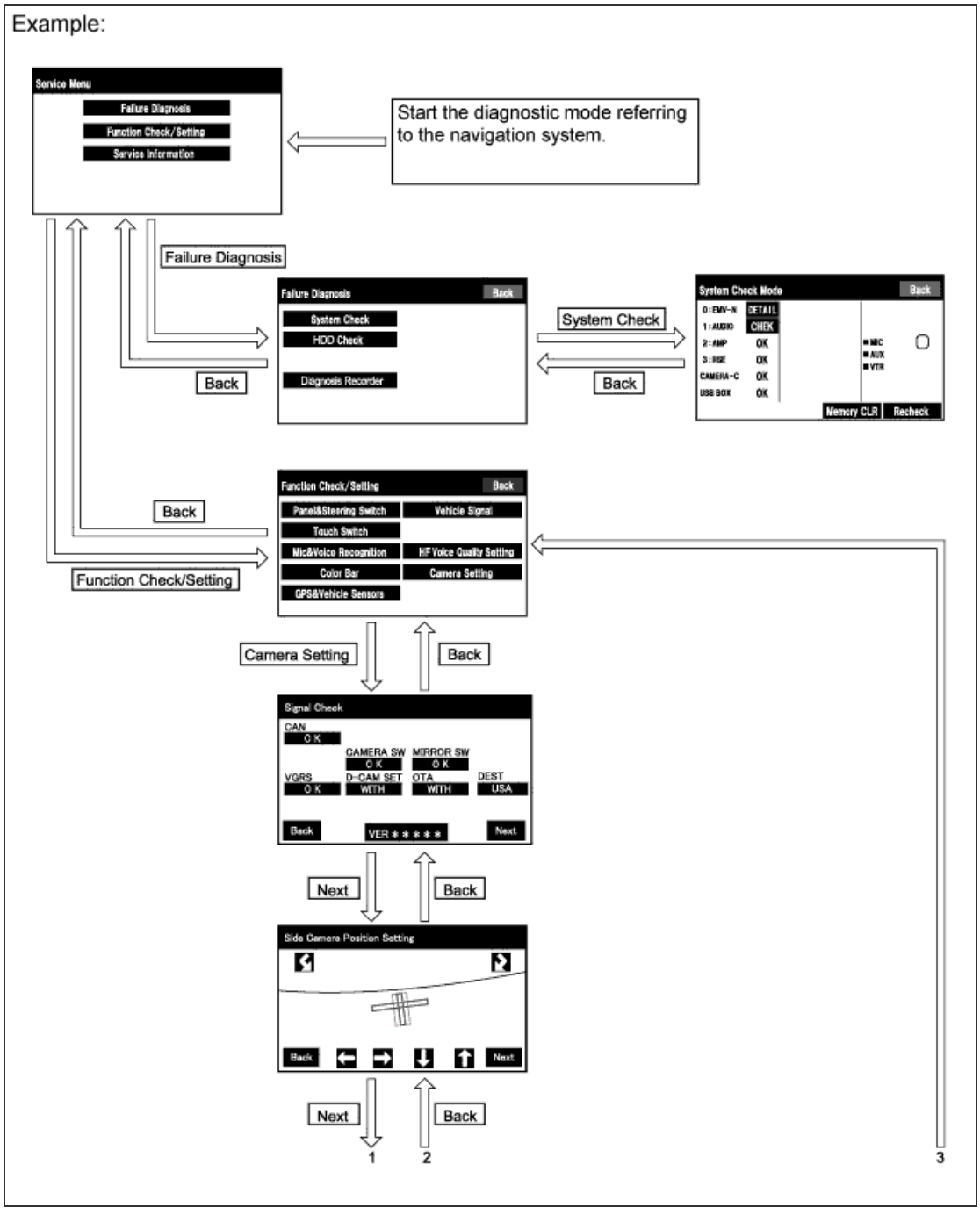
NOTICE:

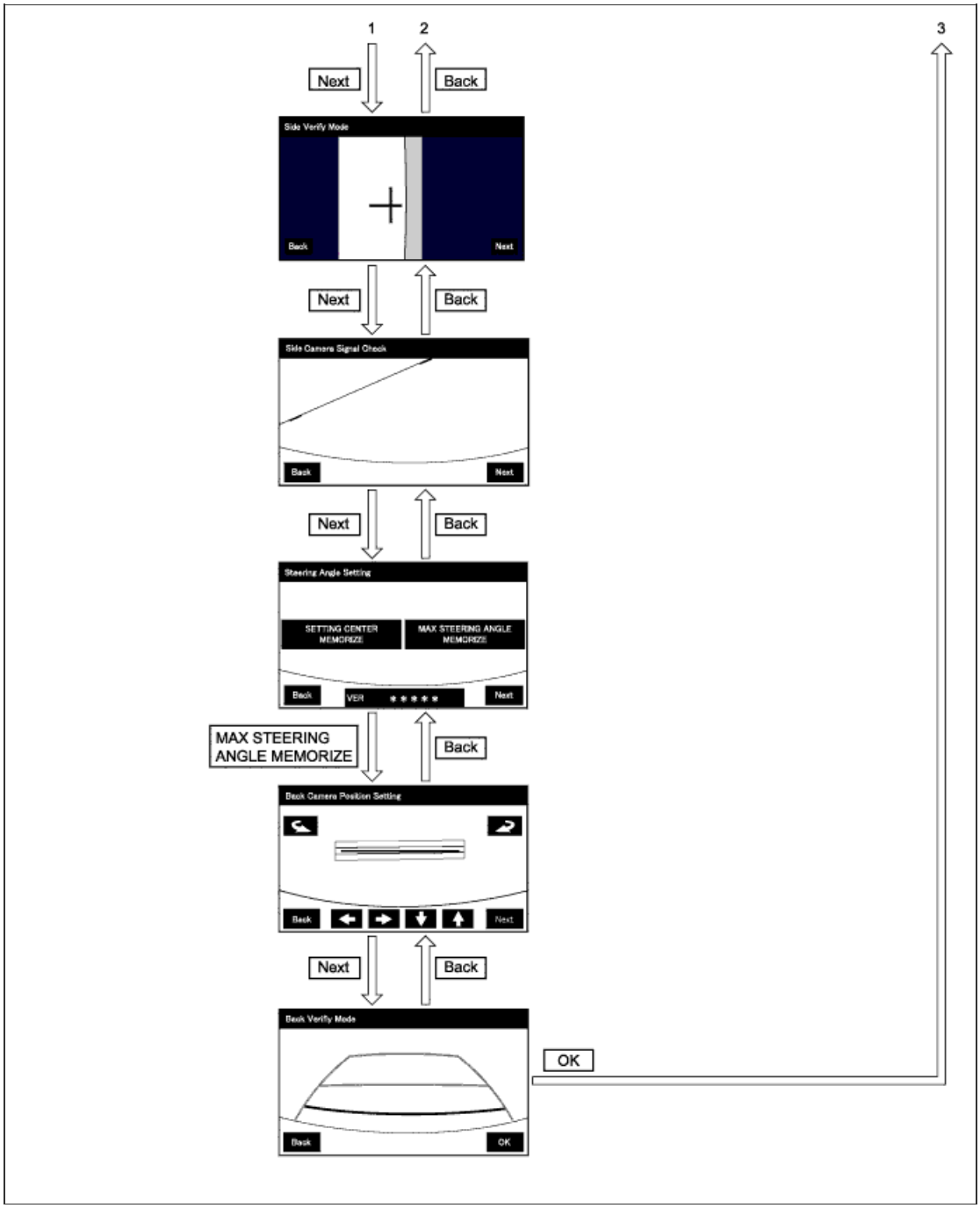
Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the wide view front monitor system may be needed (Click here).

HINT:

The displayed screens and items may differ depending on vehicle specifications.

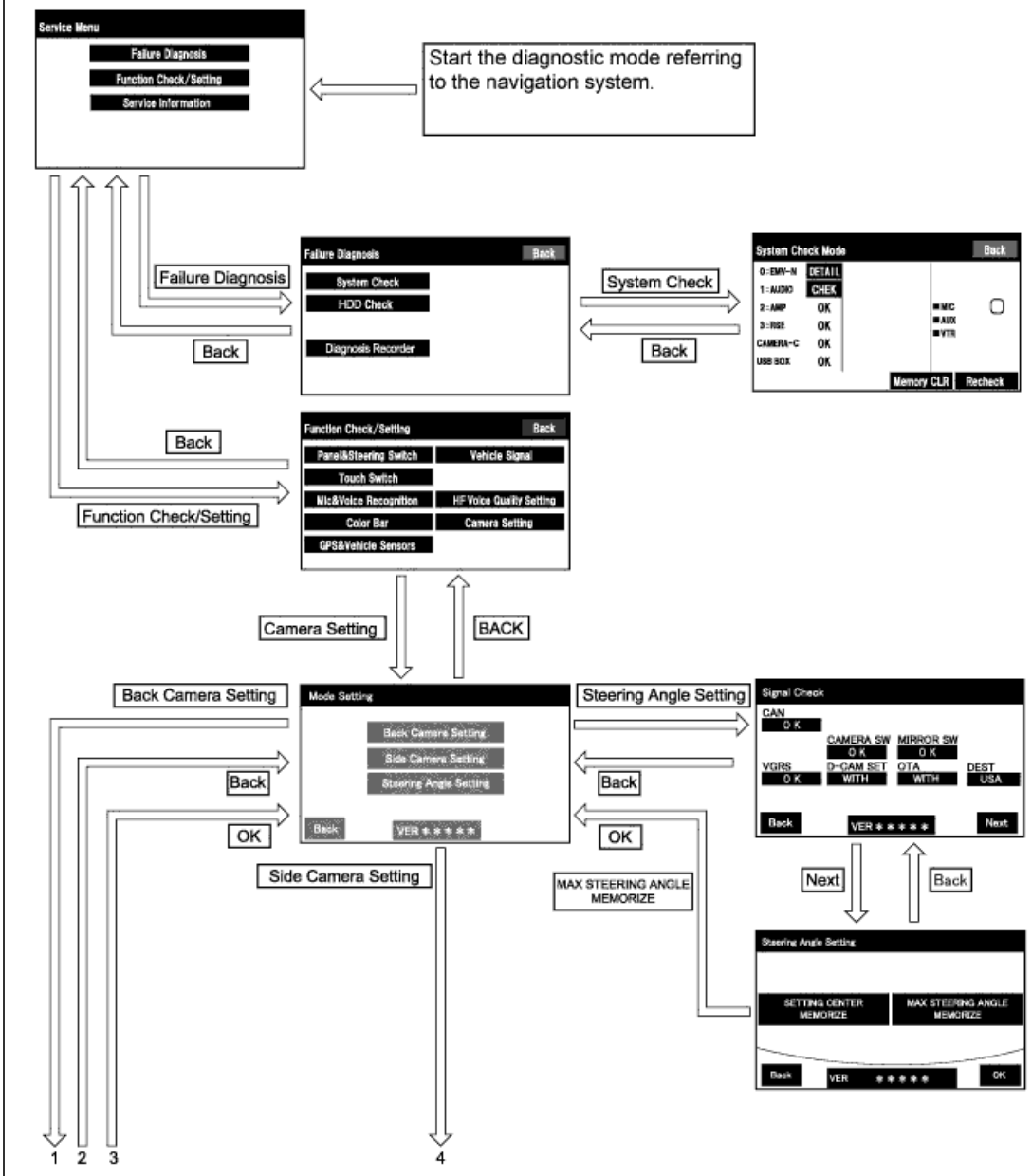
DIAGNOSIS SCREEN TRANSITION (during parking assist ECU initialization)

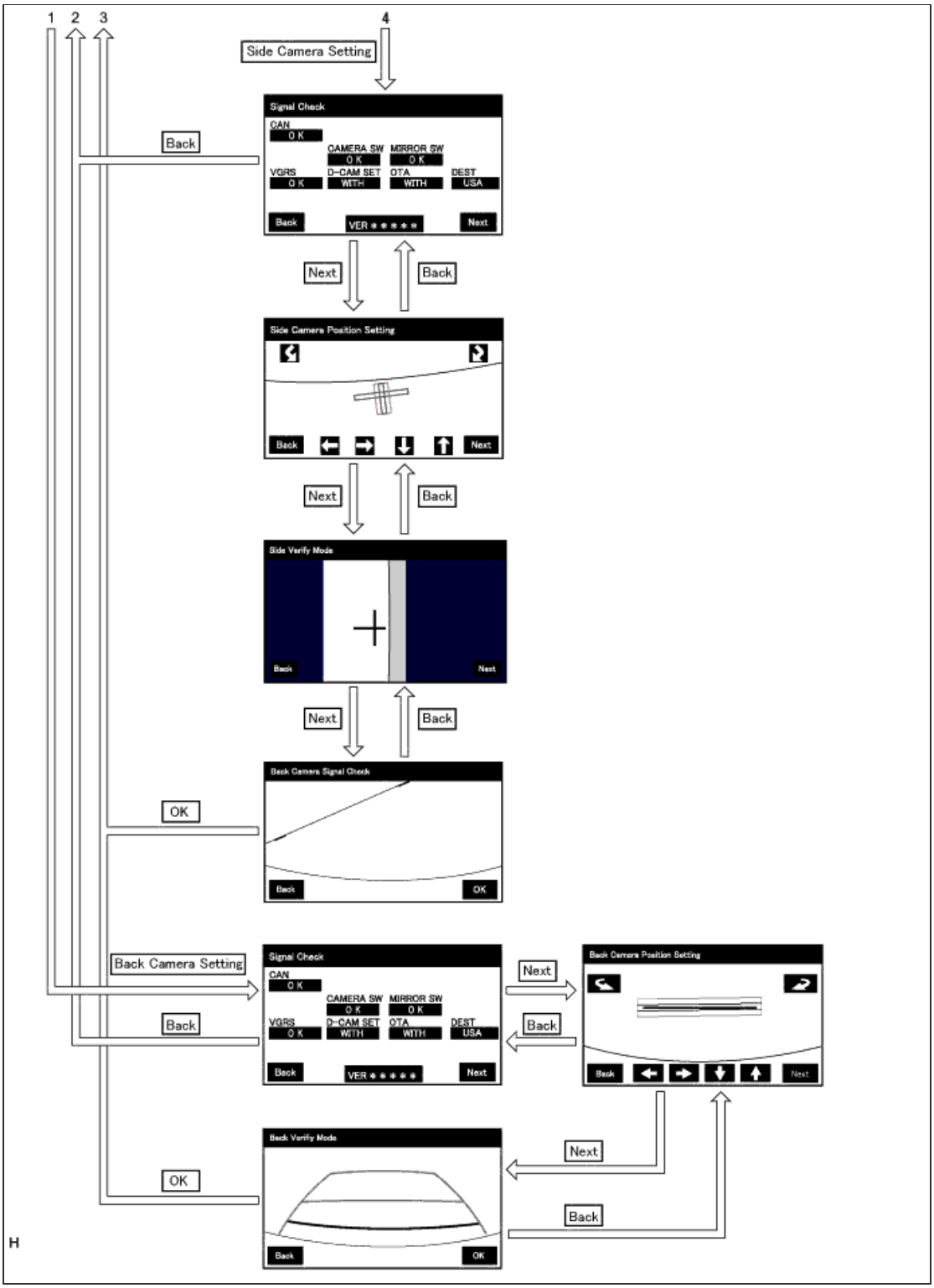




DIAGNOSIS SCREEN TRANSITION (after parking assist ECU initialization)

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



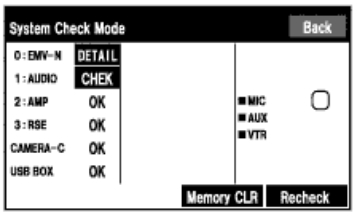
DIAGNOSTIC MODE

a. Start diagnostic mode (Click here).

b. Failure diagnosis (Click here).

c. System check (check using system check mode screen) (Click here).

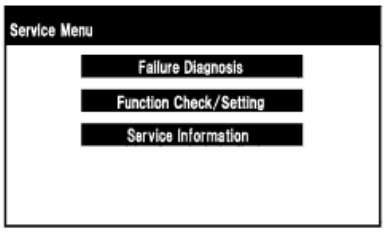
d. Finish diagnostic mode (Click here).



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.

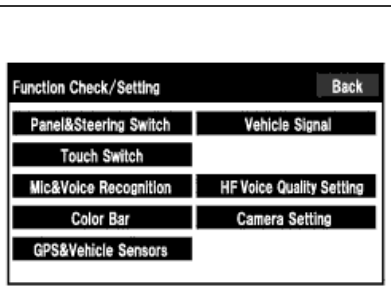


ii. Select "Camera Setting" on the [Function Check/Setting] screen.

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.

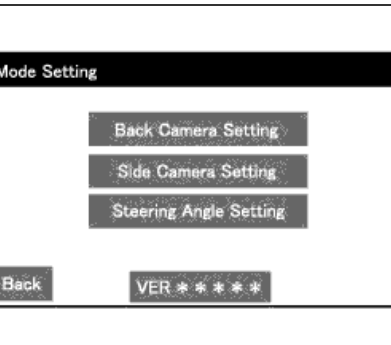
Parking Assist ECU Initialization	Screen Transition
Not performed	[Signal Check] screen
Performed	[Mode Setting] screen



iii. When the screen changes to the [Mode Setting] screen, select "Back Camera Setting" to display the [Signal Check] screen.

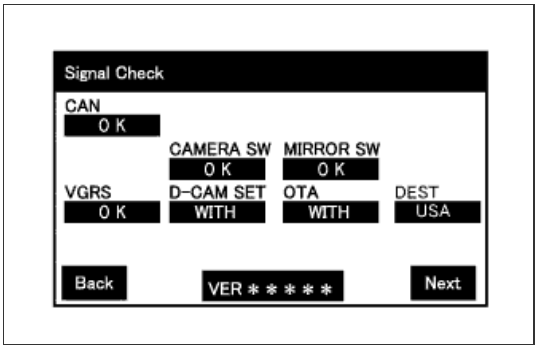
HINT:

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	-

*: w/ Variable Gear Ratio Steering System

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 (w/ Variable Gear Ratio Steering System):

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 wide view front 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
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. 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

Wide Monitor System

DTC Code	Detection Item	See page
C1681	Front Camera Feedback Malfunction	Click here
C1682	Front Camera Current Malfunction	Click here

DTC C1681 Front Camera Feedback Malfunction

DTC C1682 Front Camera Current Malfunction

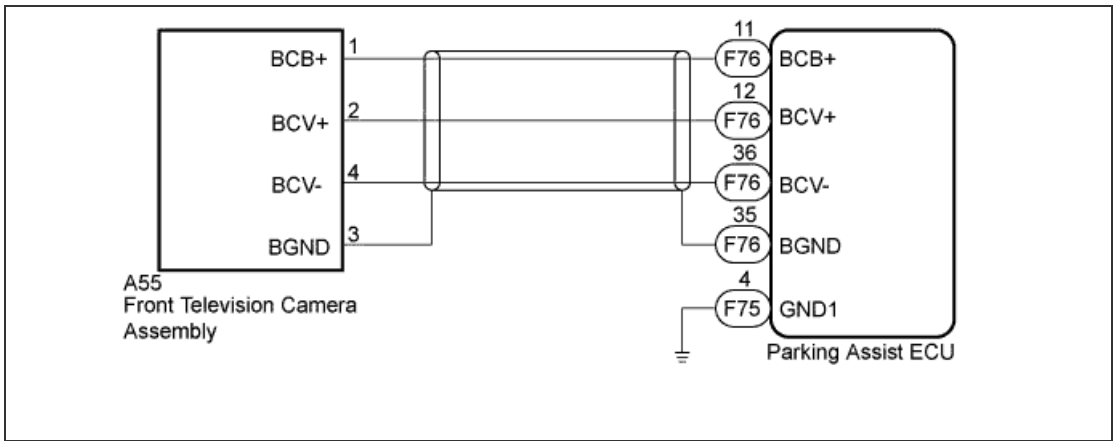
for Preparation Click here

DESCRIPTION

DTC C1681 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 C1682 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 television camera power supply failure	• Harness or connector • Front television camera assembly • Parking assist ECU
C1682	An open or short in the front television camera signal circuit	

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 F75 and F76 parking assist ECU connectors.

b. Disconnect the A55 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
F76-36 (BCV-) - A55-4 (BCV-)	Always	Below 1 Ω
F76-12 (BCV+) - A55-2 (BCV+)	Always	Below 1 Ω
F76-35 (BGND) - A55-3 (BGND)	Always	Below 1 Ω
F76-11 (BCB+) - A55-1 (BCB+)	Always	Always
F75-4 (GND1) - Body ground	Always	Always
F76-36 (BCV-) - Body ground	Always	10 kΩ or higher

F76-12 (BCV+) - Body ground	Always	10 kΩ or higher
F76-35 (BGND) - Body ground	Always	10 kΩ or higher
F76-11 (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 F75 and F76 parking assist ECU connectors.

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

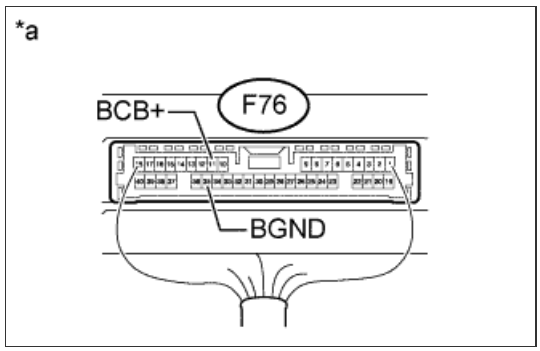
Standard Resistance:

Tester Connection	Condition	Specified Condition
F76-35 (BGND) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

Tester Connection	Condition	Specified Condition
F76-11 (BCB+) - F76-35 (BGND)	Engine switch on (IG), front and side monitor main switch assembly on	5.5 to 7.05 V



Text in Illustration

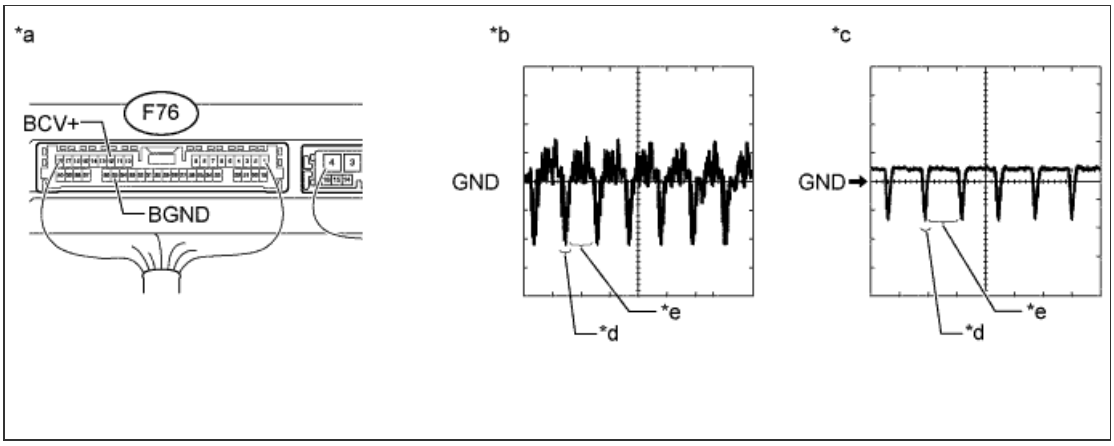
*a	Component with harness connected (Parking Assist ECU)

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

3.CHECK FRONT TELEVISION CAMERA ASSEMBLY (BCV+, BGND)

a. Reconnect the A55 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)	F76-12 (BCV+) - F76-35 (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 • 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

DTC C1682 Front Camera Current Malfunction

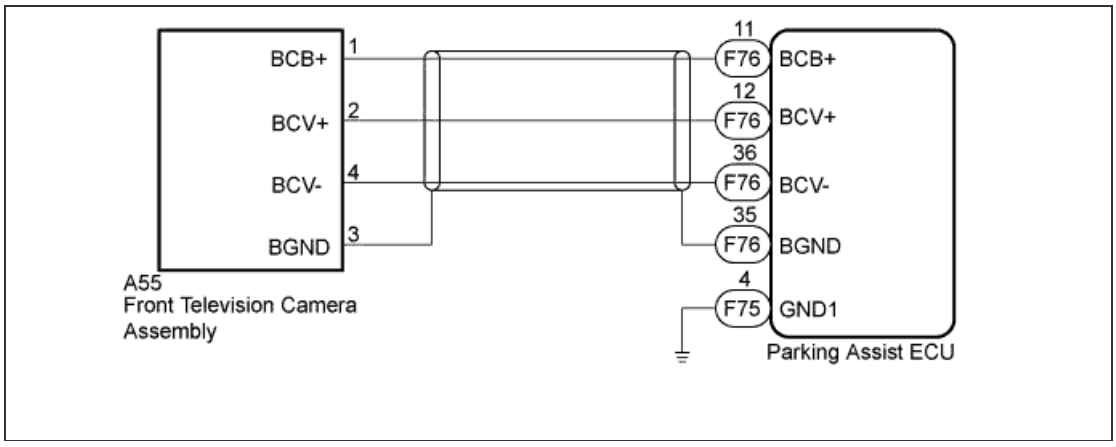
for Preparation Click here

DESCRIPTION

DTC C1681 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 C1682 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 television camera power supply failure	• Harness or connector • Front television camera assembly • Parking assist ECU
C1682	An open or short in the front television camera signal circuit	

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 F75 and F76 parking assist ECU connectors.

b. Disconnect the A55 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
F76-36 (BCV-) - A55-4 (BCV-)	Always	Below 1 Ω
F76-12 (BCV+) - A55-2 (BCV+)	Always	Below 1 Ω
F76-35 (BGND) - A55-3 (BGND)	Always	Below 1 Ω
F76-11 (BCB+) - A55-1 (BCB+)	Always	Always
F75-4 (GND1) - Body ground	Always	Always
F76-36 (BCV-) - Body ground	Always	10 kΩ or higher

F76-12 (BCV+) - Body ground	Always	10 kΩ or higher
F76-35 (BGND) - Body ground	Always	10 kΩ or higher
F76-11 (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 F75 and F76 parking assist ECU connectors.

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

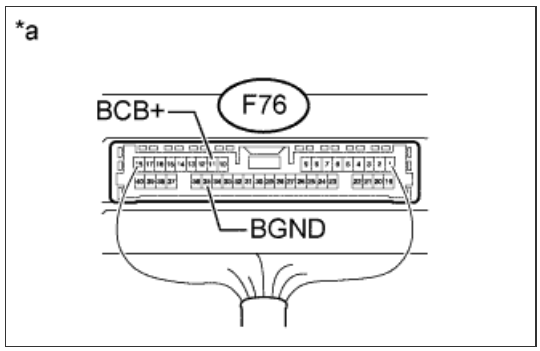
Standard Resistance:

Tester Connection	Condition	Specified Condition
F76-35 (BGND) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

Tester Connection	Condition	Specified Condition
F76-11 (BCB+) - F76-35 (BGND)	Engine switch on (IG), front and side monitor main switch assembly on	5.5 to 7.05 V



Text in Illustration

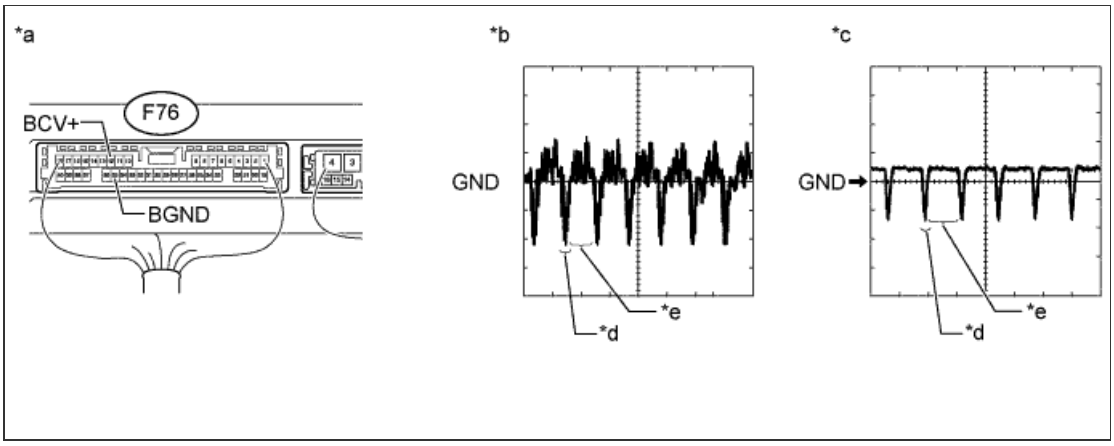
*a	Component with harness connected (Parking Assist ECU)

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

3.CHECK FRONT TELEVISION CAMERA ASSEMBLY (BCV+, BGND)

a. Reconnect the A55 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)	F76-12 (BCV+) - F76-35 (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 • 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)

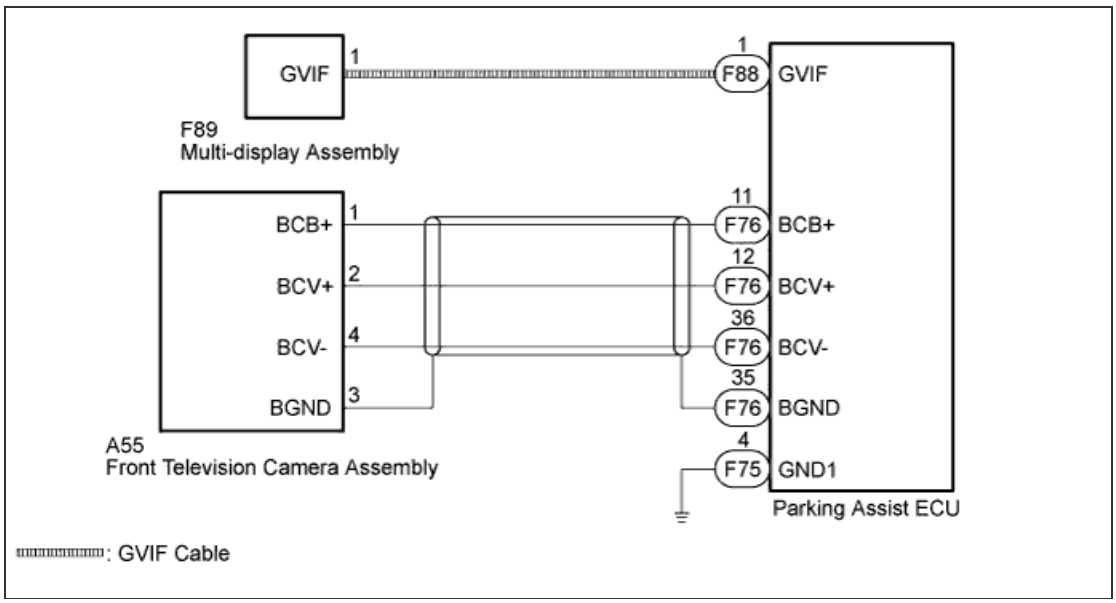
OK → REPLACE PARKING ASSIST ECU (Click here)

for Preparation Click here

DESCRIPTION

The display signal of the front television camera assembly is transmitted to 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 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, 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 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 F75 and F76 parking assist ECU connectors.

b. Disconnect the A55 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
F76-36 (BCV-) - A55-4 (BCV-)	Always	Below 1 Ω
F76-12 (BCV+) - A55-2 (BCV+)	Always	Below 1 Ω
F76-35 (BGND) - A55-3 (BGND)	Always	Below 1 Ω
F76-11 (BCB+) - A55-1 (BCB+)	Always	Always
F75-4 (GND1) - Body ground	Always	Always
F76-36 (BCV-) - Body ground	Always	10 kΩ or higher
F76-12 (BCV+) - Body ground	Always	10 kΩ or higher
F76-35 (BGND) - Body ground	Always	10 kΩ or higher
F76-11 (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 F75 and F76 parking assist ECU connectors.

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

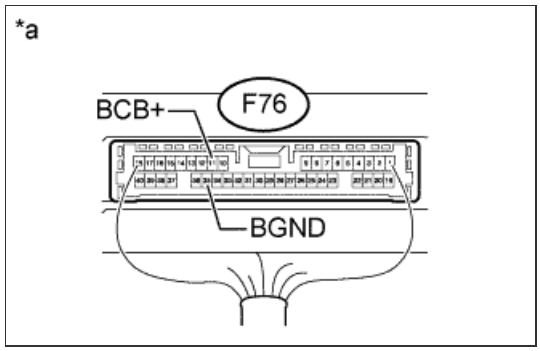
Standard Resistance:

Tester Connection	Condition	Specified Condition
F76-35 (BGND) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

Tester Connection	Condition	Specified Condition
F76-11 (BCB+) - F76-35 (BGND)	Engine switch on (IG), front and side monitor main switch assembly on	5.5 to 7.05 V



Text in Illustration

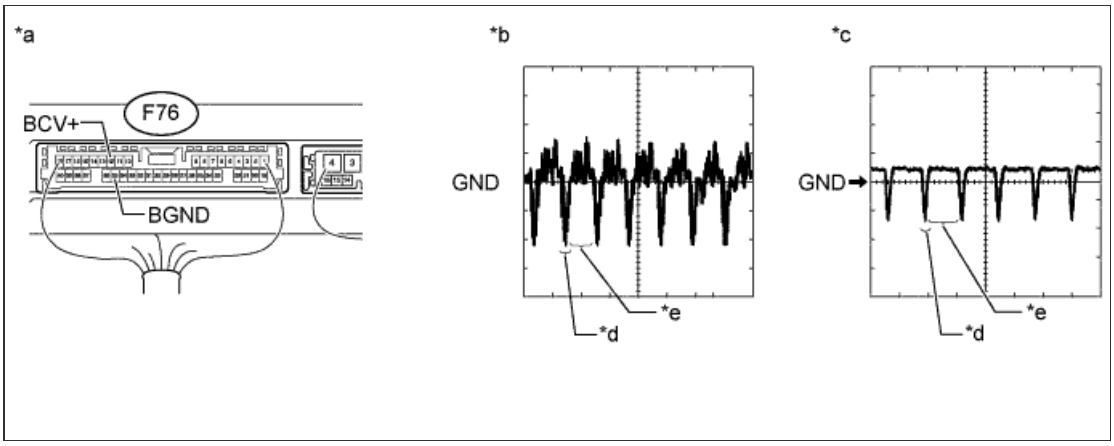
*a	Component with harness connected (Parking Assist ECU)

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

4.CHECK FRONT TELEVISION CAMERA ASSEMBLY (BCV+, BGND)

a. Reconnect the A55 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)	F76-12 (BCV+) - F76-35 (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 • 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 ASSEMBLY IS DEFECTIVE)

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.

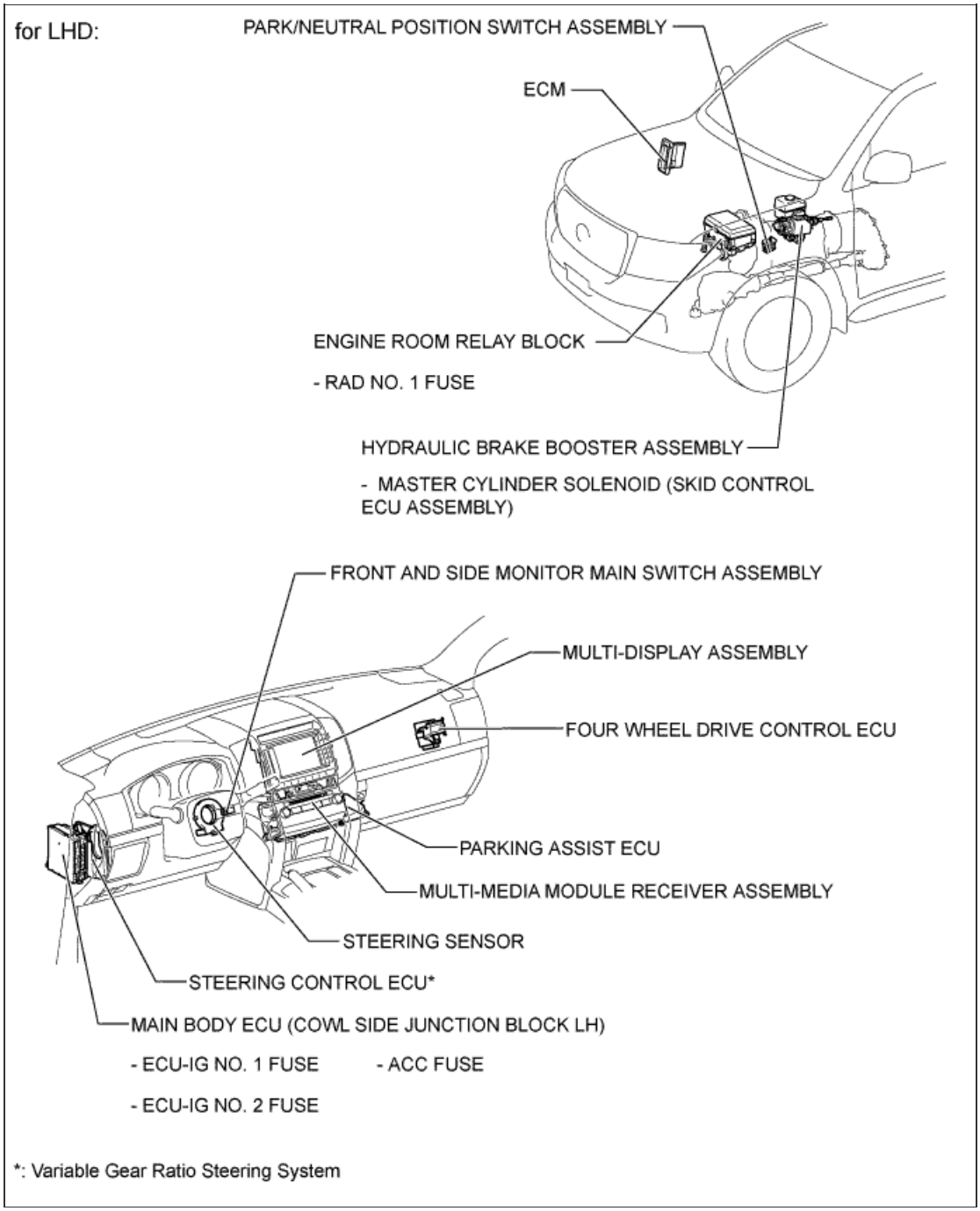
vii. It is too dark around the camera (at night etc.).

viii. The ambient temperature around the camera is either too high or too low.

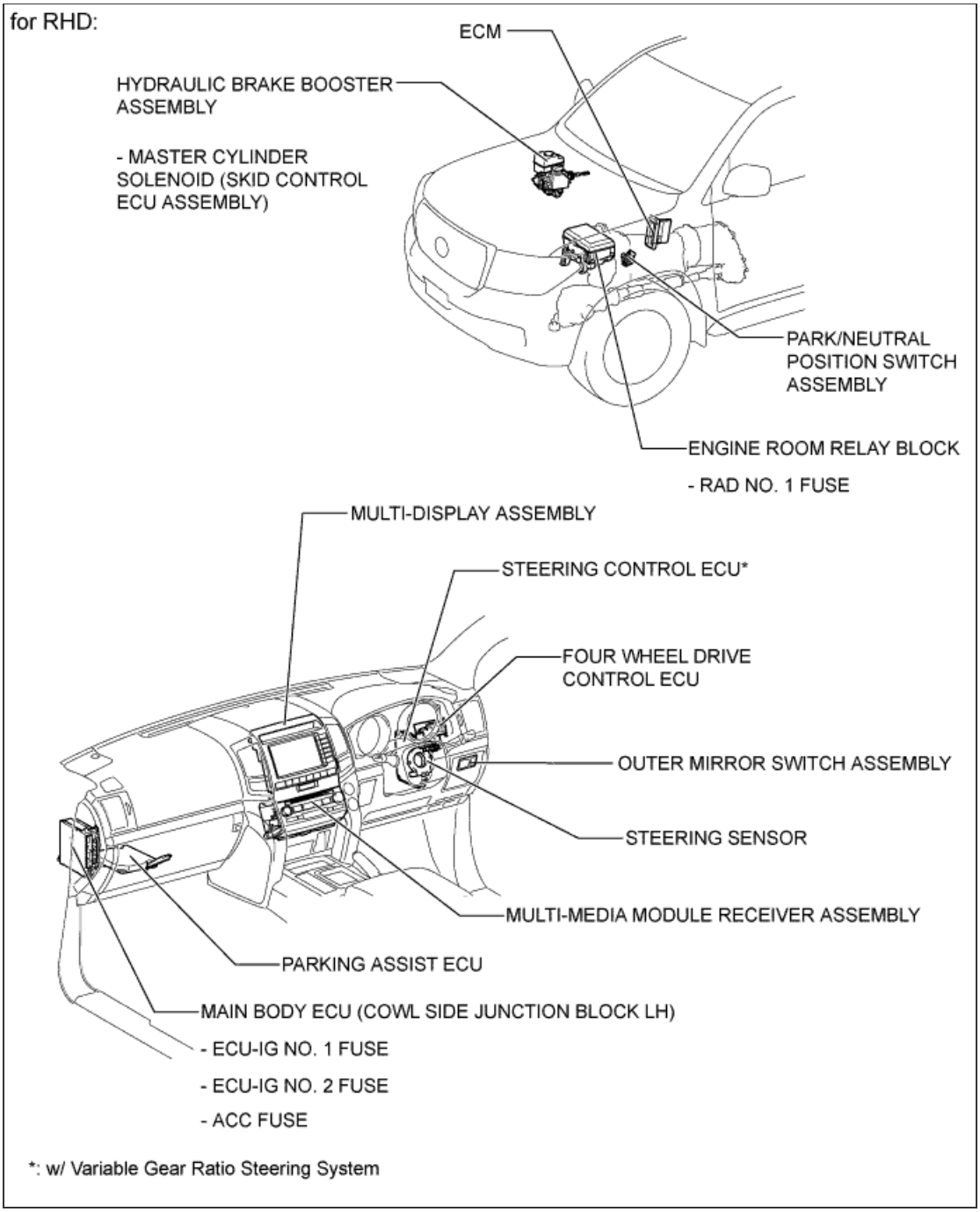
ix. The vehicle is tilted at a steep angle.

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.)

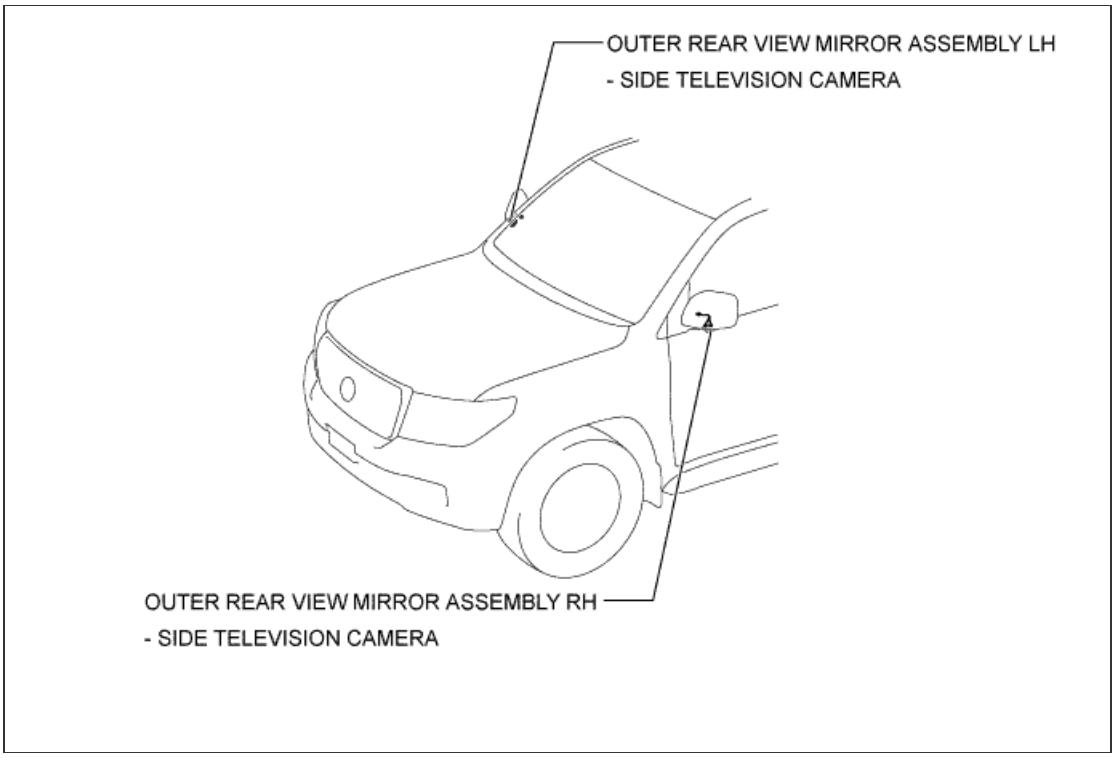
for Preparation Click here



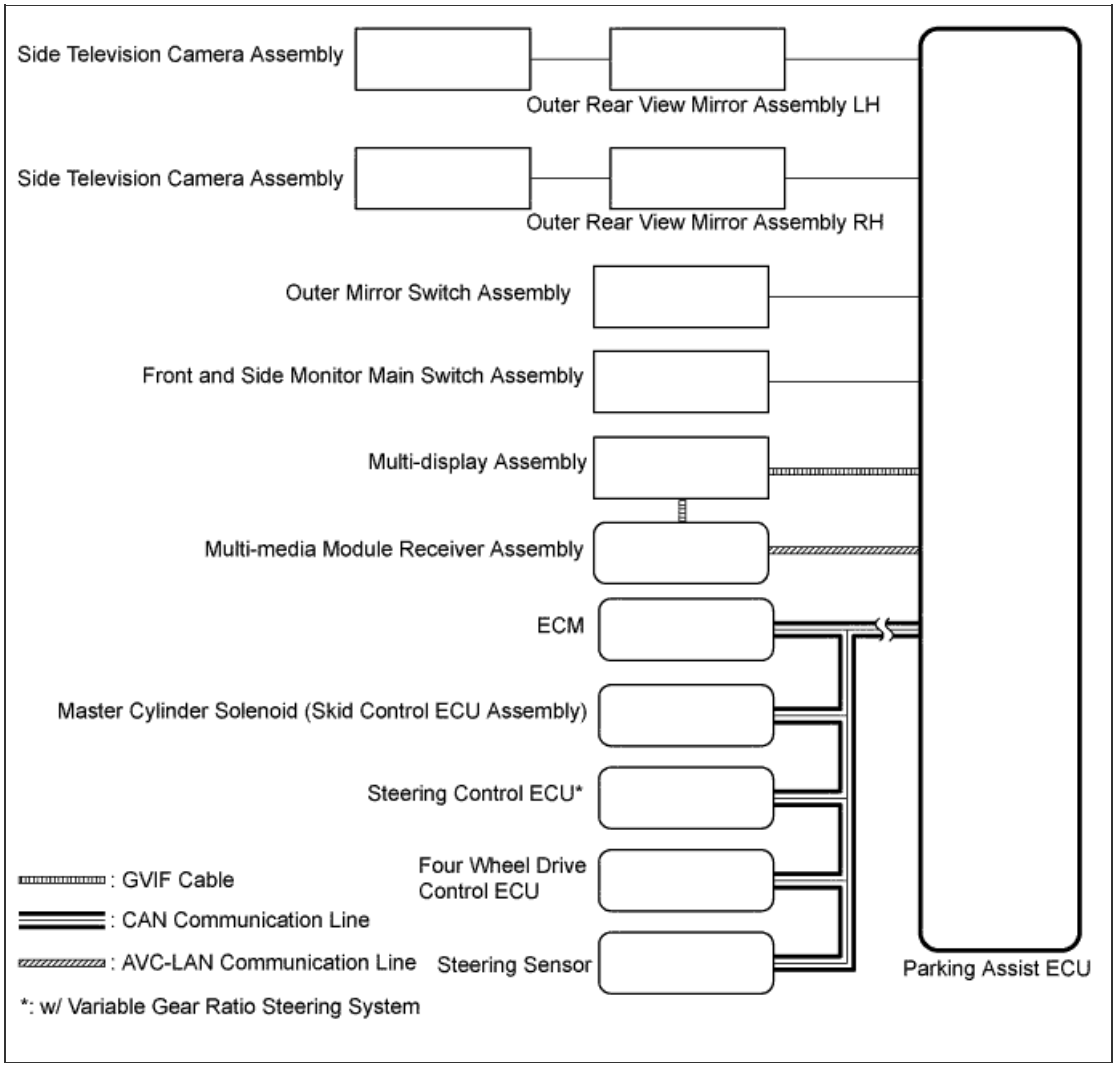
for RHD:



*: w/ Variable Gear Ratio Steering System


OUTER REAR VIEW MIRROR ASSEMBLY LH
- SIDE TELEVISION CAMERA
OUTER REAR VIEW MIRROR ASSEMBLY RH
- SIDE TELEVISION CAMERA

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-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 • Vehicle information	CAN
Master Cylinder Solenoid (Skid Control ECU Assembly)	Parking Assist ECU	• Inner brake information • ABS ACT information	CAN
Four Wheel Drive Control ECU	Parking Assist ECU	L4 Condition signal	CAN
ECM	Parking Assist ECU	Shift position signal	CAN

*: w/ Variable Gear Ratio Steering System

for Preparation Click here

GENERAL

a. This system has a side television camera assembly built into the outer rear view mirror assembly (passenger side and driver side) to display the passenger side and driver side views of the vehicle on the multi-display assembly.

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

xii. ECM

*: w/ Variable Gear Ratio Steering 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.

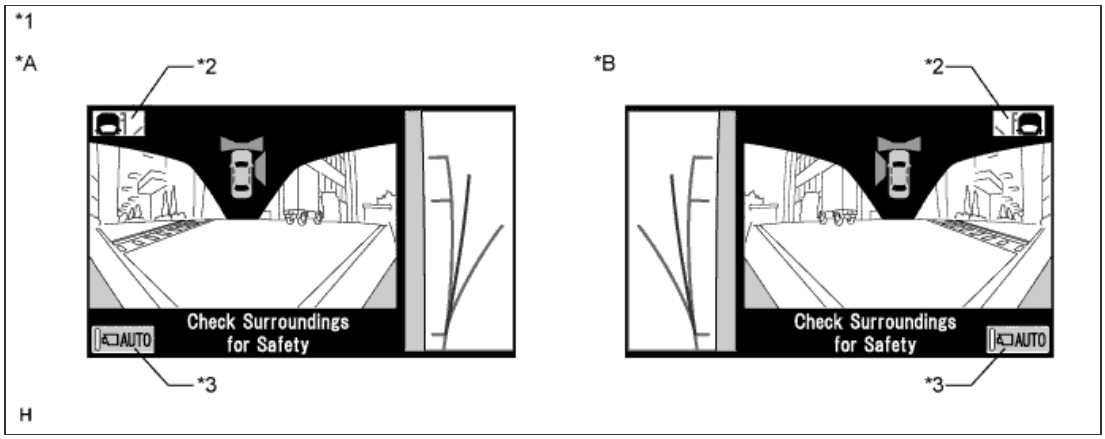
Item	Function
Parking Assist ECU	• Turns the side television camera assembly on or off based on parameters such as the display settings, the front and side monitor main switch signal, the shift signal and the vehicle speed signal. • Transmits the wide view front and side monitor, side monitor, or wide 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. • 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. • 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. • Renders each configuration page in the diagnosis window and outputs the screen to the multi-display assembly. • When the outer mirror retraction signal is received, terminates the side camera collimation/alignment. • 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.

*: w/ Variable Gear Ratio Steering System

DISPLAY CONDITIONS FOR SIDE MONITOR DISPLAY

a. Screen display operation



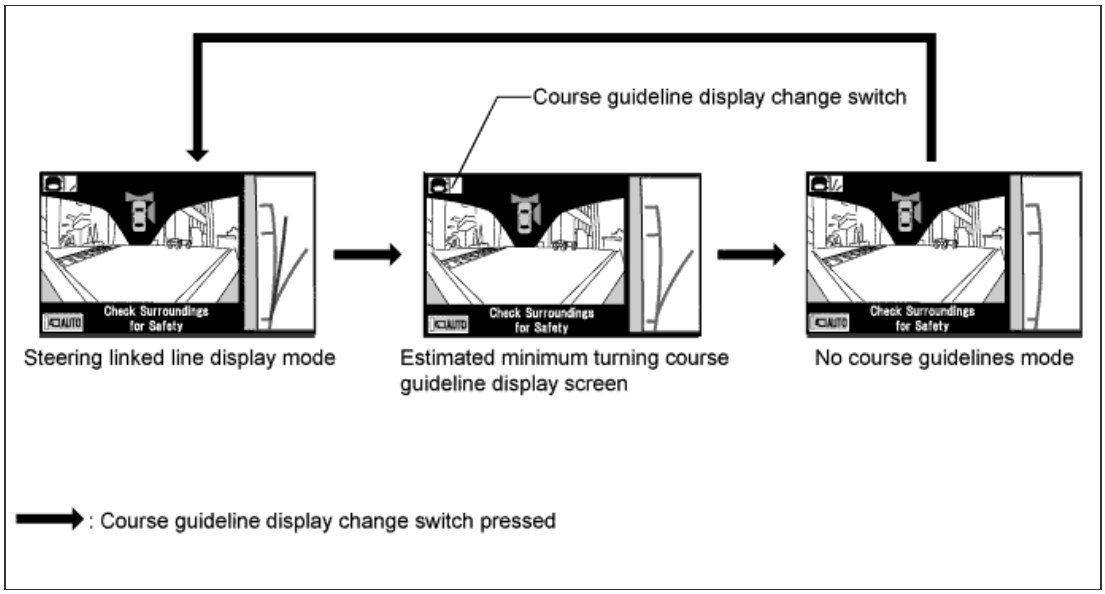
Text in Illustration

*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

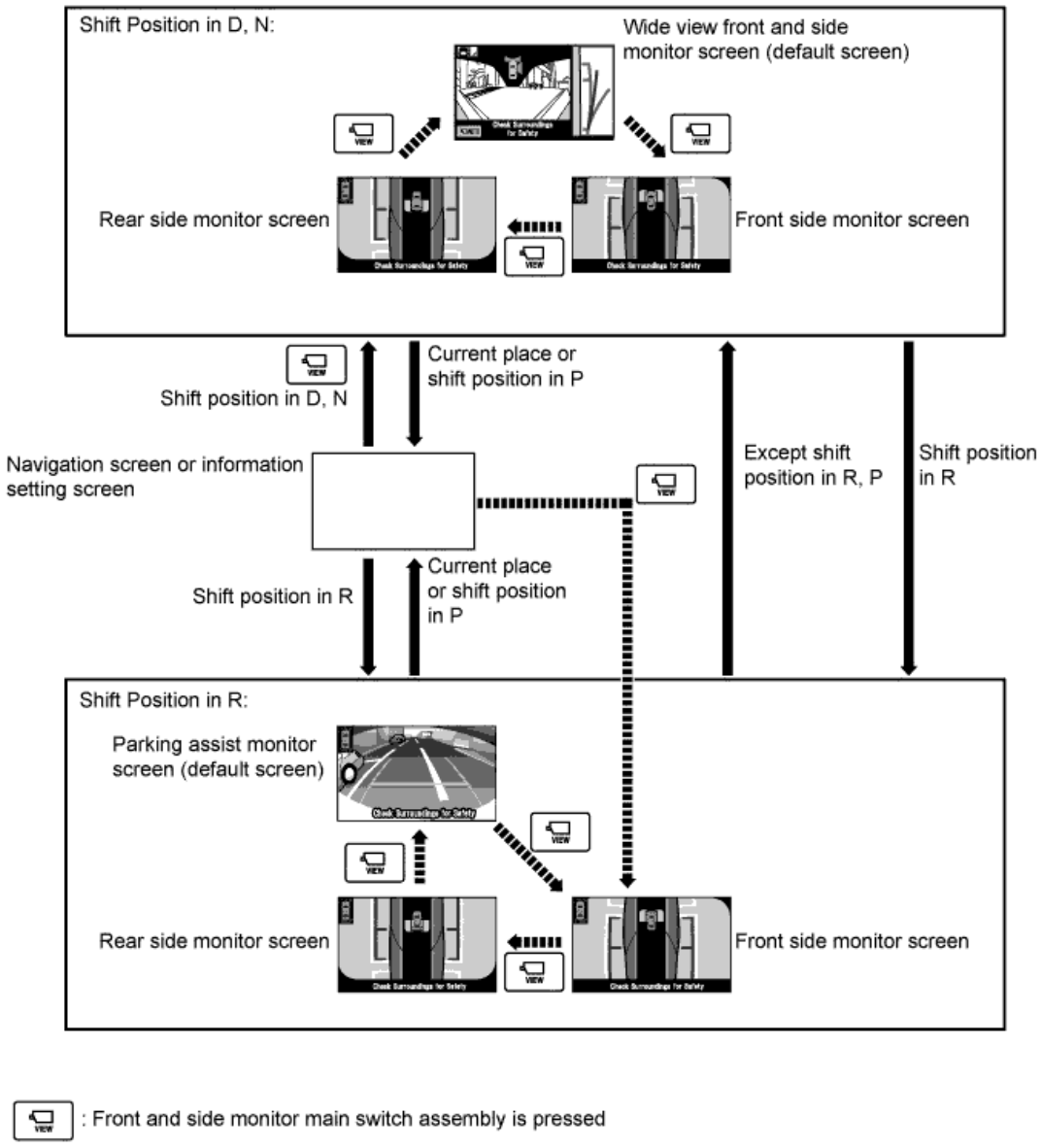
- **Automatic display mode set/cancel switch**

Automatic mode display switch (Indicator in the button)	Display mode
ON (Illuminated)	Automatic display mode
OFF (Not illuminated)	Manual display mode

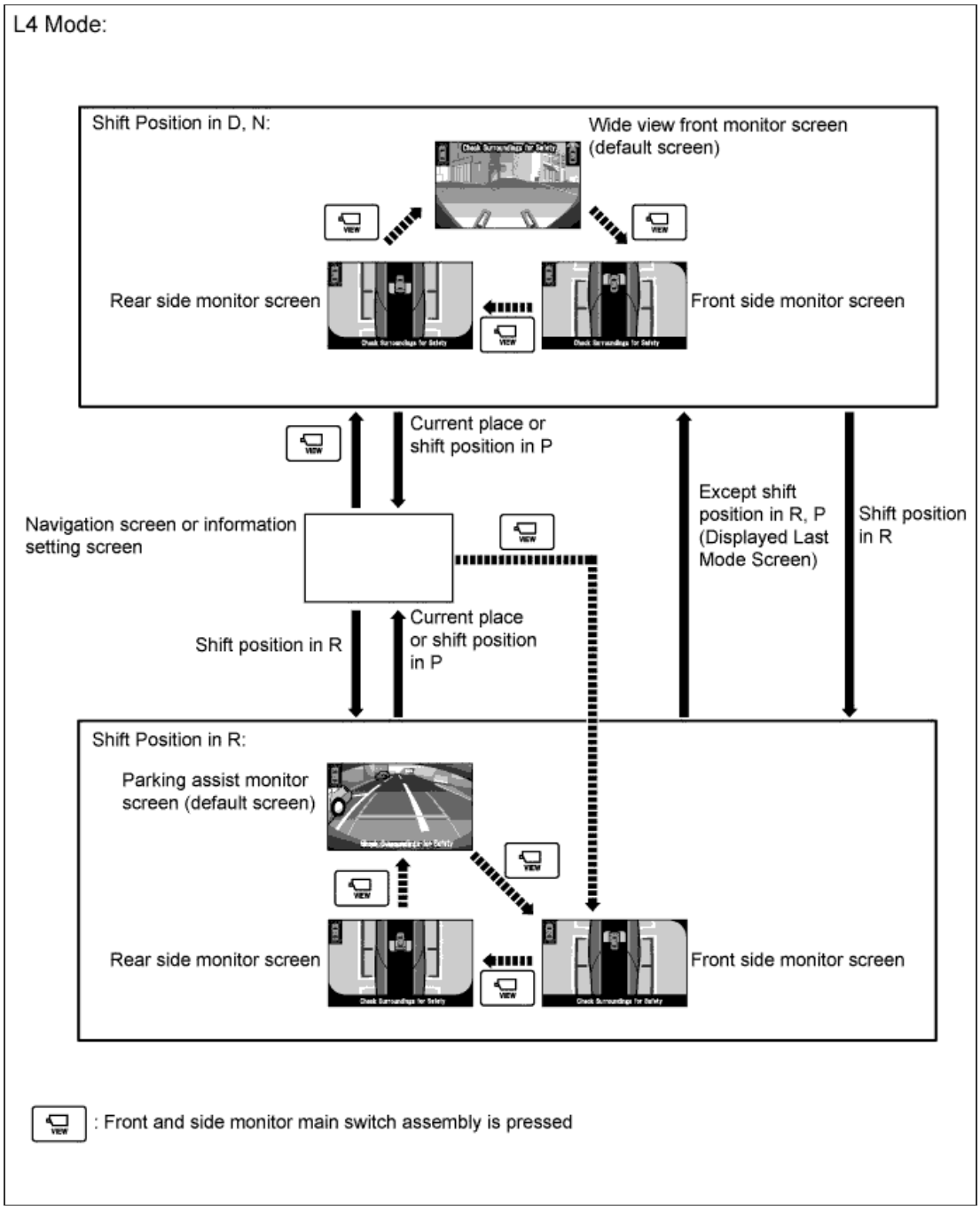
- **The last mode screen is the screen that was displayed last when the screen was changed to the navigation screen, information setting screen, etc.**

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

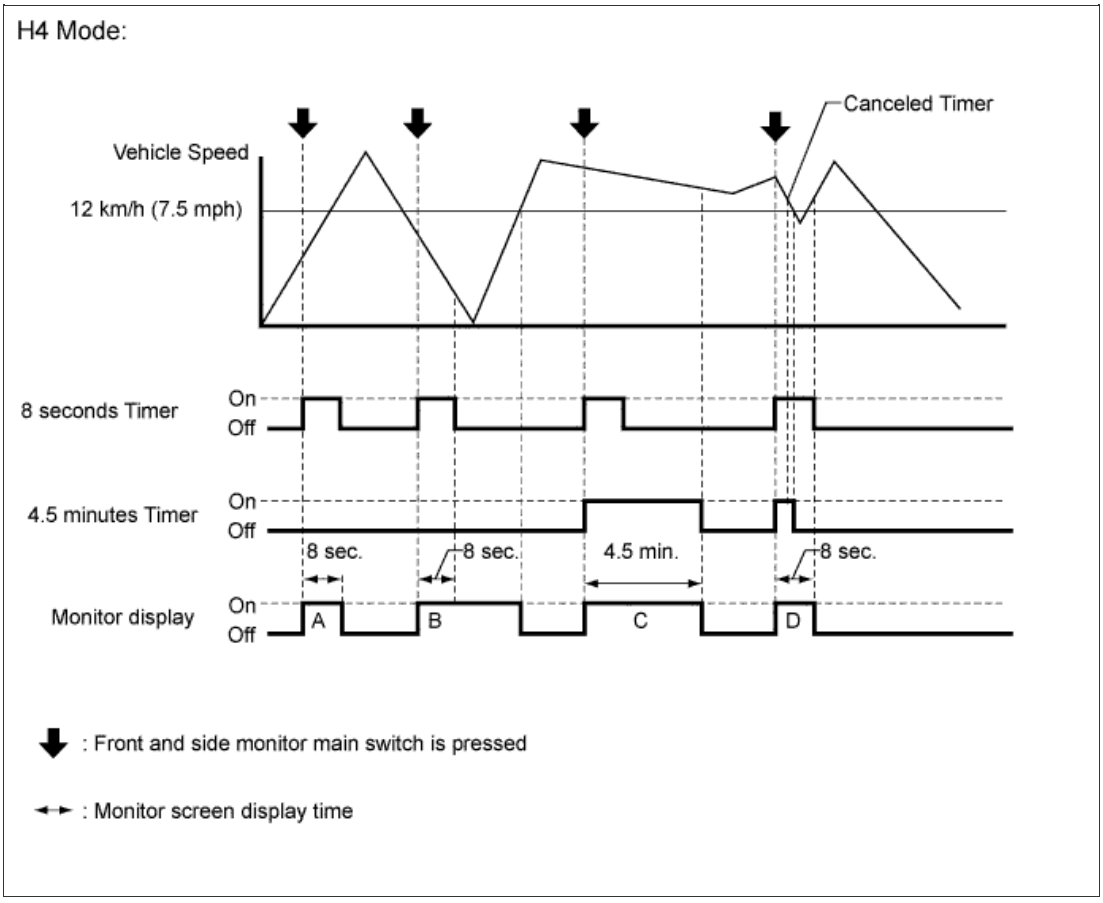
Automatic Mode Display Switch	Multi-display Screen	Shift Lever Position	Vehicle Speed	Screen (changes due to front and side monitor main switch assembly operation)
OFF	Navigation screen or information setting screen	Other than R	12 km/h (7.5 mph) or less	Navigation screen or information setting screen → 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

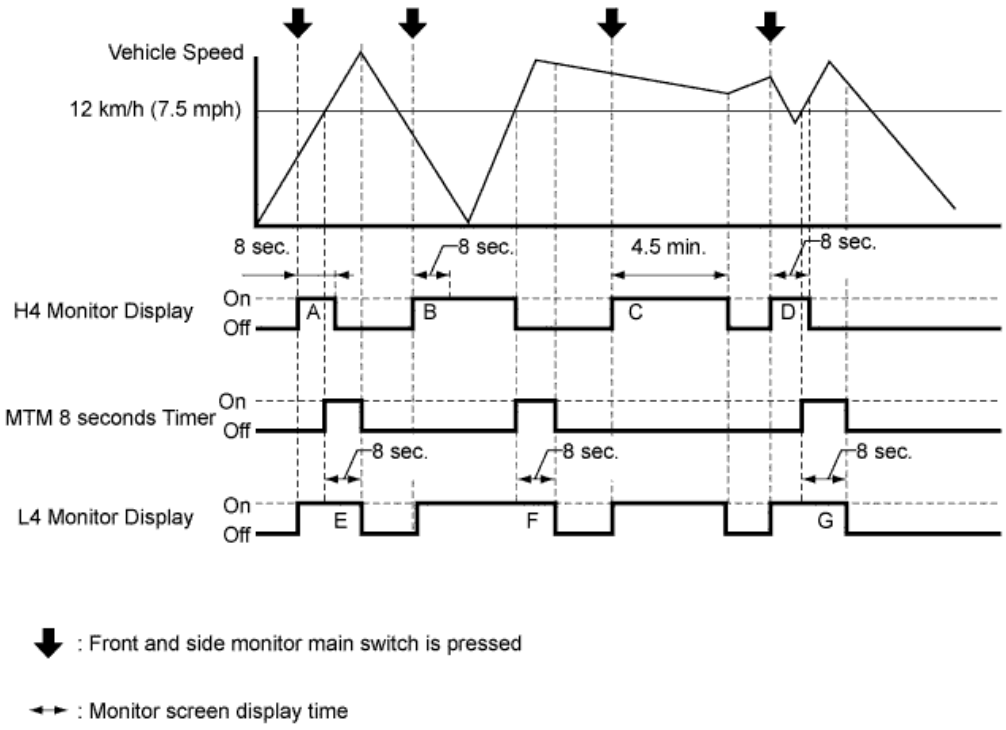
i. During manual display mode (when the shift lever is not in R), when the front and side monitor main switch is pressed and the following conditions are met, the wide view front and side monitor screen is displayed for a certain period of time even when the vehicle speed is more than 12 km/h (7.5 mph).



Screen Display Time	Time when Front and Side Monitor Main Switch Assembly is Pressed	Change in Vehicle Speed	Timer Operation Time	Note
A 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. 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:

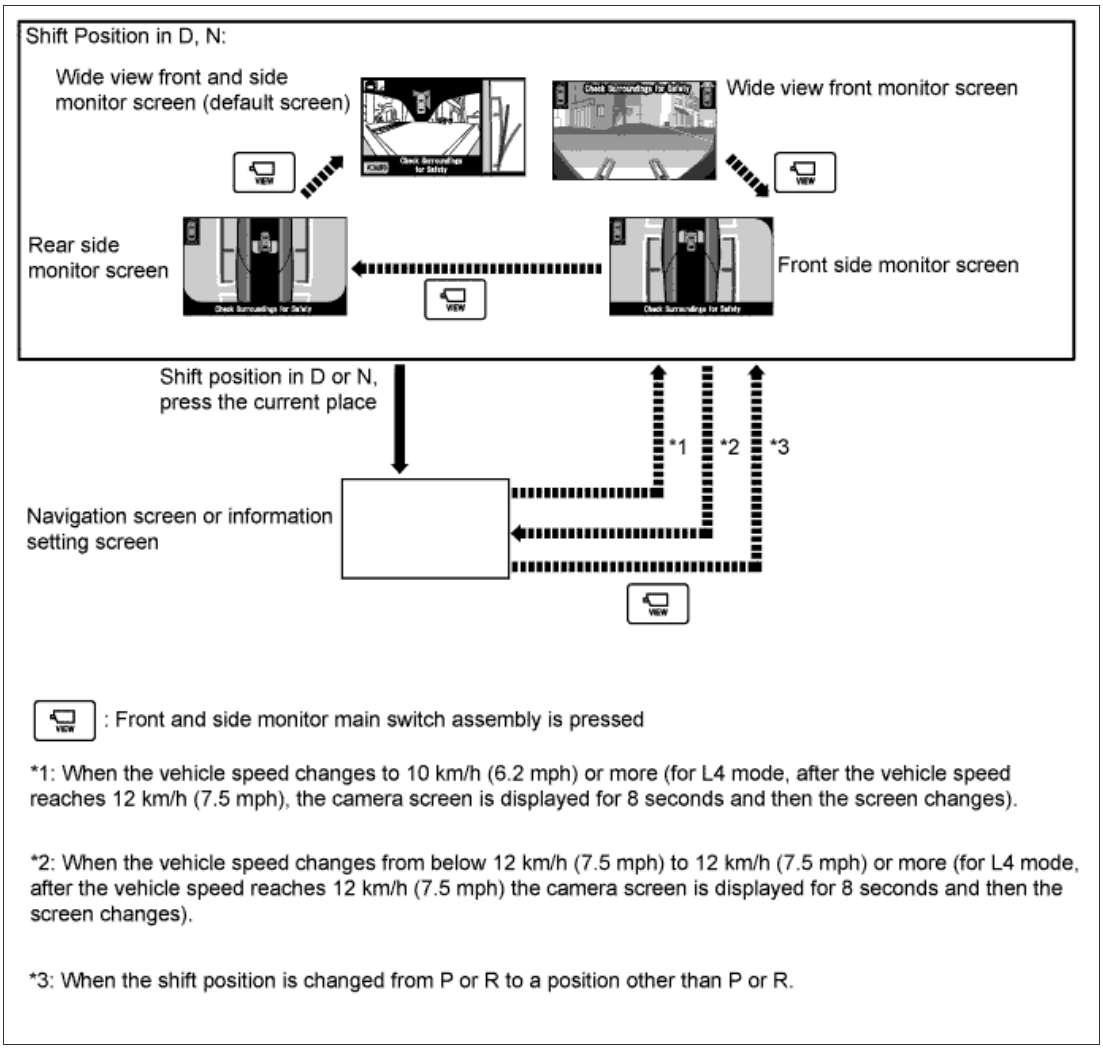


Screen Display Time	Time when Front and Side Monitor Main Switch Assembly is	Change in Vehicle Speed	Timer Operation Time	Note

	Pressed			
A 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. 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 F 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*

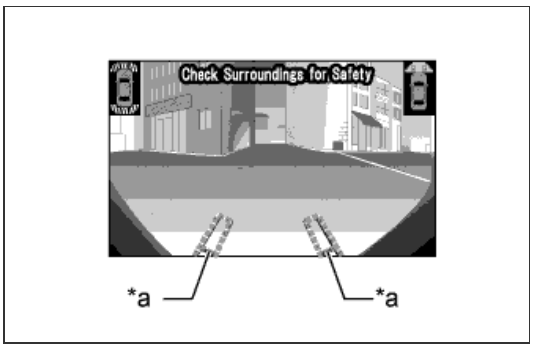
*:The conditions to change the screen after the display screen changes automatically are the same as in manual display mode.

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 parking assist ECU. 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 procedure to troubleshoot the side monitor system.**
- ***: Use the intelligent tester.**

1.VEHICLE BROUGHT TO WORKSHOP

NEXT

2.INSPECT BATTERY VOLTAGE

a. Measure the voltage with the ignition 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 (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. Check 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. 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 the 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, move the shift lever to P and make sure that the vehicle is not moving.

HINT:

"?" button is displayed at the same time as "System initializing". If the "?" button is selected, this method is displayed.

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 • Removal and installation of the connector of the Steering angle sensor • 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 • 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

NOTICE:

After the engine switch is turned off, the multi-media module receiver assembly requires approximately 60 seconds to record various types of memory and settings. As a result, after turning the engine switch off, wait a minute or more before disconnecting the cable from the negative (-) battery terminal.

HINT:

The adjustment values stored while performing side monitor system calibration are stored in the parking assist ECU.

SIDE CAMERA SETTING (Procedure 1)

HINT:

Be sure to check for DTCs before performing this procedure (Click here).

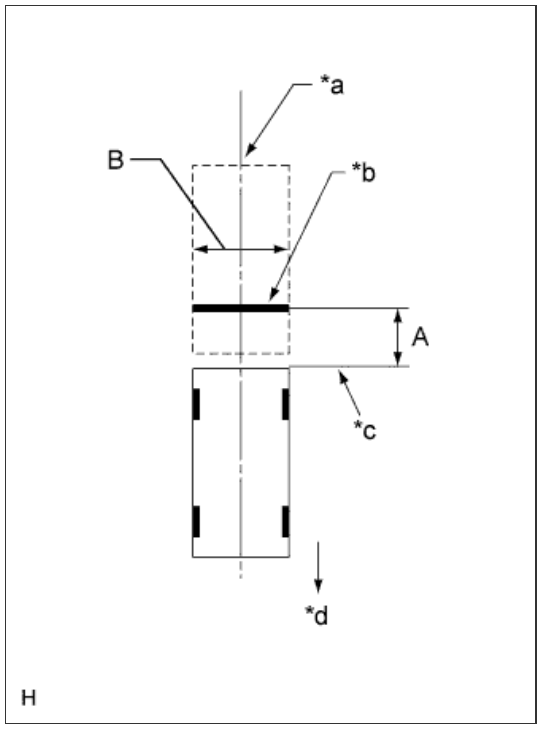
a. Preparation for adjustment

i. Park the vehicle with the steering wheel centered.

ii. Set a target bar for optical axis adjustment of the rear television camera.

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 (6.45 to 6.58 ft.)

Text in Illustration

*a	Vehicle Center
*b	Target Bar for Back Camera Adjustment
*c	Vehicle End
*d	Front Side

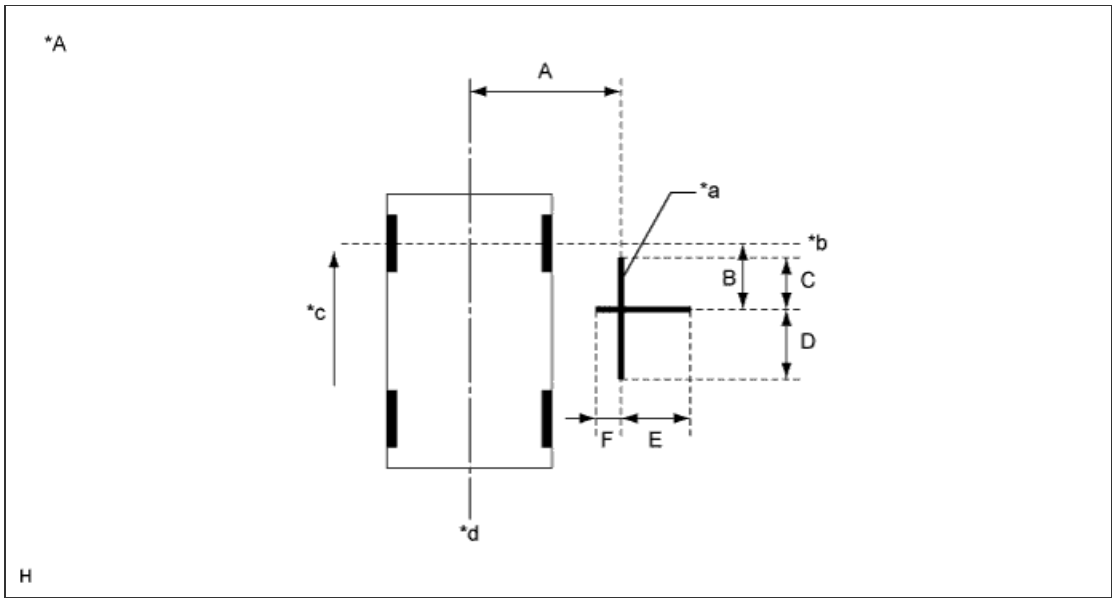
HINT:

- **Set a piece of tape on the ground as the target bar for adjustment. Its width and length are 20 to 30 mm (0.79 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.

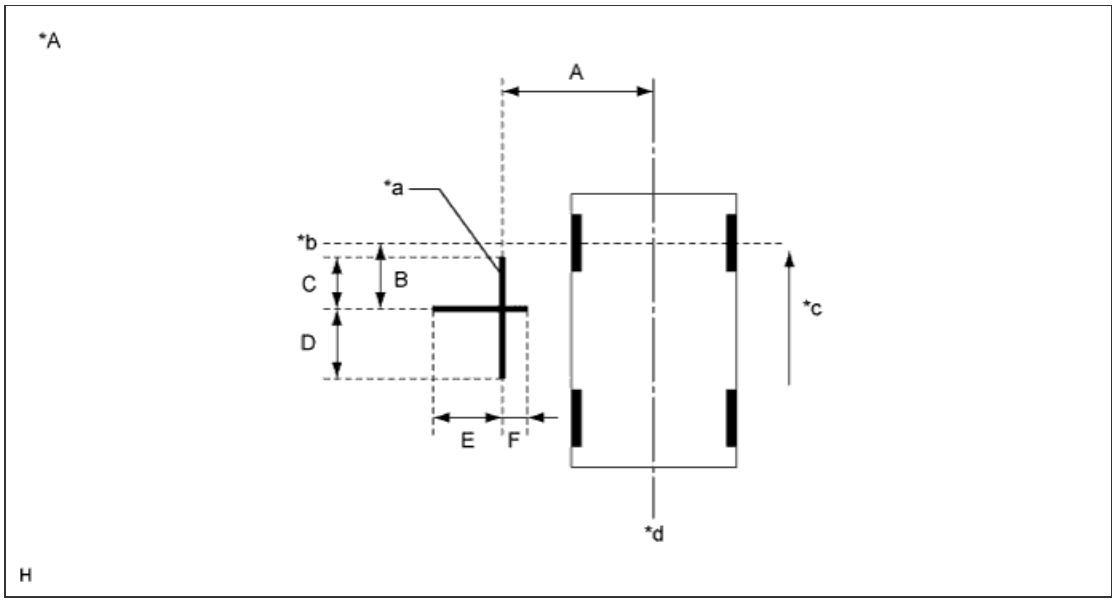
HINT:

Only when adjusting the optical axis of the camera, 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-media module receiver assembly and choose a tape color which can be easily seen.

b. Start diagnostic mode (Click here).

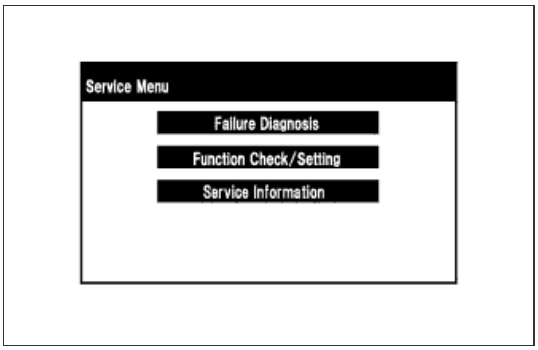
NOTICE:

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.

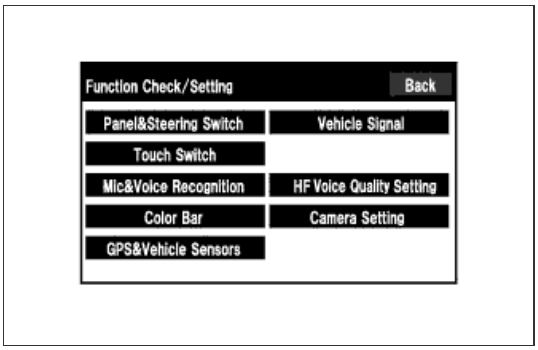
HINT:

The displayed items may differ depending on vehicle specifications.

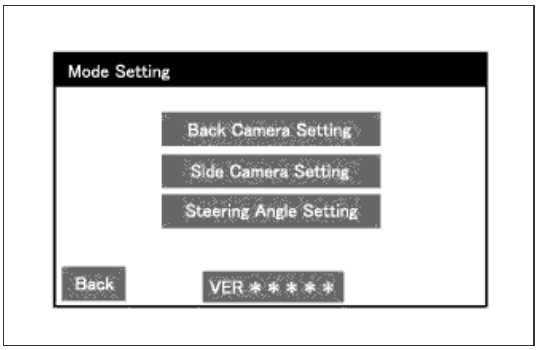
i. Select "Function Check/Setting" on the [Service Menu] screen.



ii. Select "Camera Setting" on the [Function Check/Setting] screen.



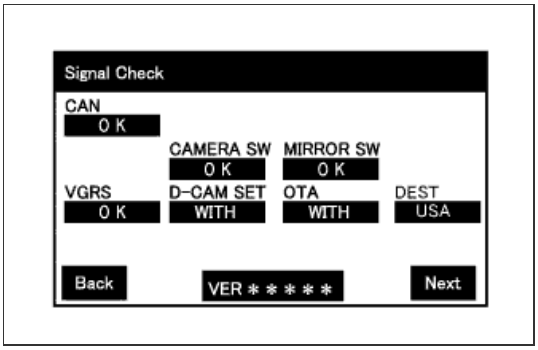
iii. Select "Side Camera Setting" on the [Mode Setting] screen.



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.



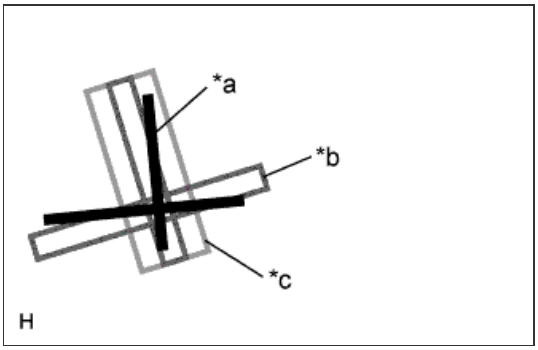
NOTICE:

- **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.

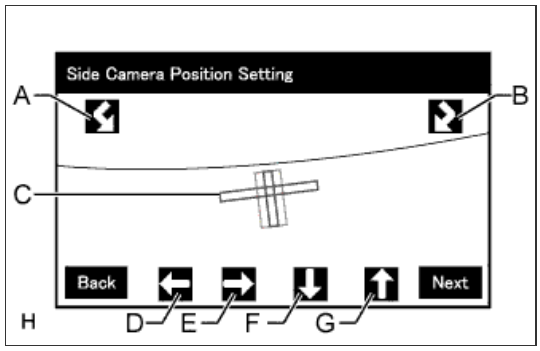
- Select switches A and B to rotate C so that it is parallel to the target adjustment bar.

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].



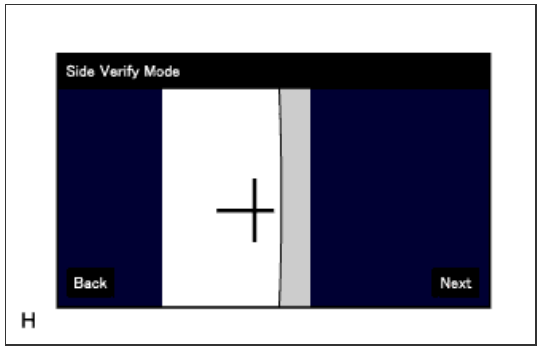
d. Side Verify Mode:

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].

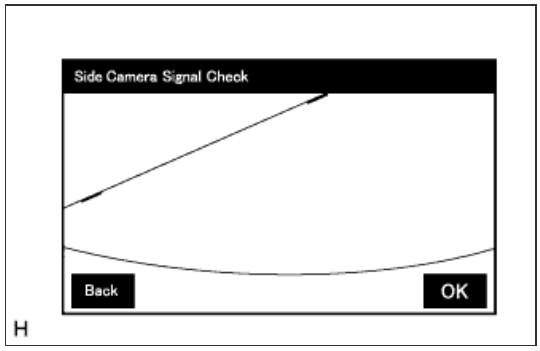


e. Side Camera Signal Check:

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 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

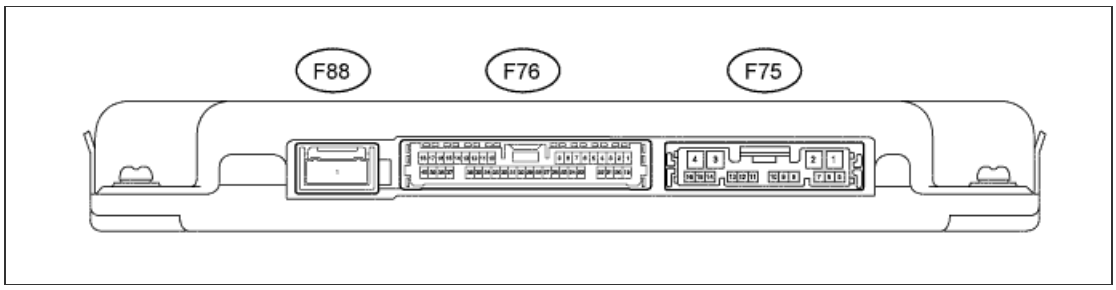
Symptom	Suspected Area	See page
Assist lines are not displayed.	Parking assist ECU	Click here
"System initializing" is displayed.	Correct the steering angle neutral point	Click here
Images from all cameras (rear and side television camera) are abnormal.	Data List/Active Test - AISIC Output Status	Click 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

PARKING ASSIST ECU



a. Disconnect the F75 and F76 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
F75-1 (+B) - F75-4 (GND1)	L - W-B	Power source signal	Always	11 to 14 V
F75-4 (GND1) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
F75-8 (IG) - F75-4 (GND1)	G - W-B	IG Power source signal	Engine switch on (IG)	11 to 14 V
			Engine switch off	Below 1 V
F75-9 (ACC) - F75-4 (GND1)	GR - W-B	ACC Power source signal	Engine switch off (ACC)	11 to 14 V
			Engine switch off	Below 1 V
F76-7 (BLSW) - F75-4 (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 F75 and F76 parking assist ECU connectors.

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

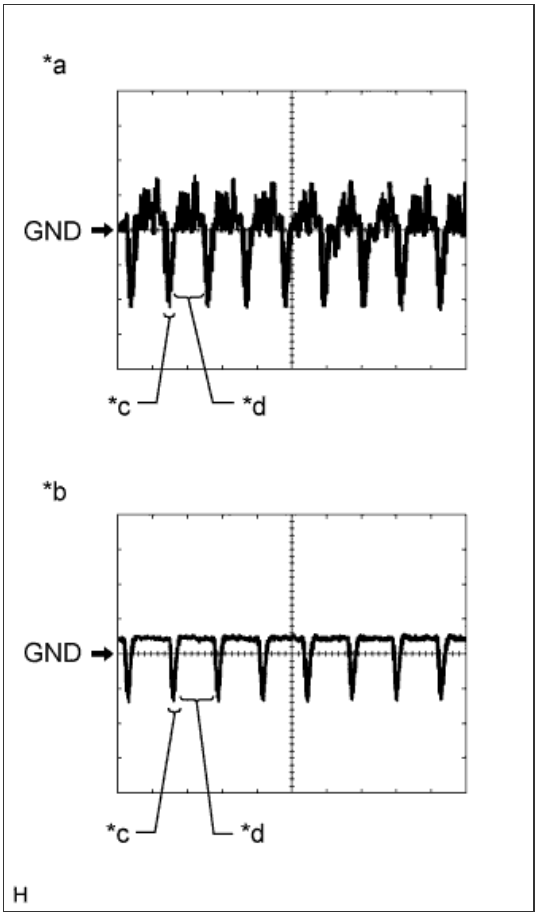
Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
F76-39 (CANL) - F75-4 (GND1)	L - W-B	CAN communication signal	CAN communication circuit	Pulse generation
FF76-40 (CANH) - F75-4 (GND1)	V - W-B	CAN communication signal	CAN communication circuit	Pulse generation
F75-10 (TX-)	L	AVC-LAN communication signal	-	-
F75-11 (TX+)	W	AVC-LAN communication signal	-	-
F76-34 (SCV-) - F76-33 (SGND)	W - Shielded	Side television camera ground	Always	Below 1 V
F76-10 (SCV+) - F76-33 (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)
F76-33 (SGND) - F75-4 (GND1)	Shielded - W-B	Side television camera ground (shield)	Always	Below 1 V
F76-32 (SCB+) - F76-33 (SGND)	B - Shielded	Power source to side television camera	Engine switch on (IG), shift lever in R	5.5 to 7.05 V
F76-31 (DCV-) - F76-29 (DGND)	W - Shielded	Side television camera ground	Always	Below 1 V
F76-30 (DCV+) - F76-29 (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)
F76-29 (DGND) - F75-4 (GND1)	Shielded - W-B	Side television camera ground (shield)	Always	Below 1 V
F76-28 (DCB+) - F76-29	B - Shielded	Power source to side	Engine switch on (IG), front and side monitor	5.5 to 7.05 V

(DGND)		television camera	main switch assembly on	

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



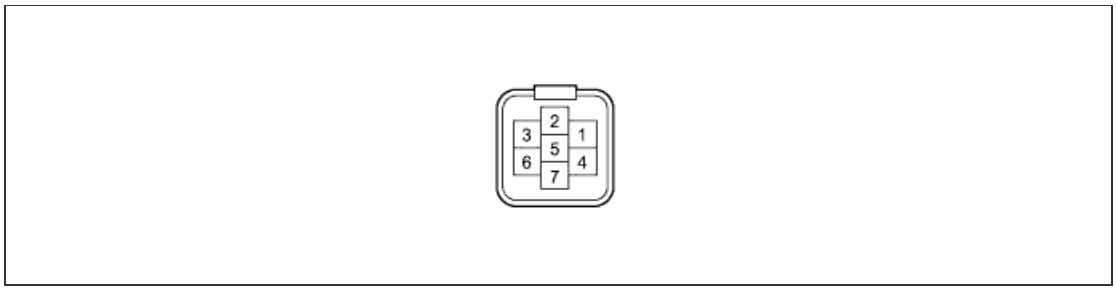
HINT:

The video waveform changes according to the image sent by the side television camera assembly.

i. Waveform

Item	Content
Terminal No. (Symbol)	• F76-10 (SCV+) - F76-33 (SGND) • F76-30 (DCV+) - F76-29 (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 • 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.

Terminal No. (Symbol)	Terminal Description	Condition	Specified Condition
4 - Body ground	Ground	Always	Below 1 V
1 - 4	Power source	Engine switch on (IG) Front and side monitor main switch on	5.5 to 7.05 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)
4 - 6	Rear television camera ground	Always	Below 1 V

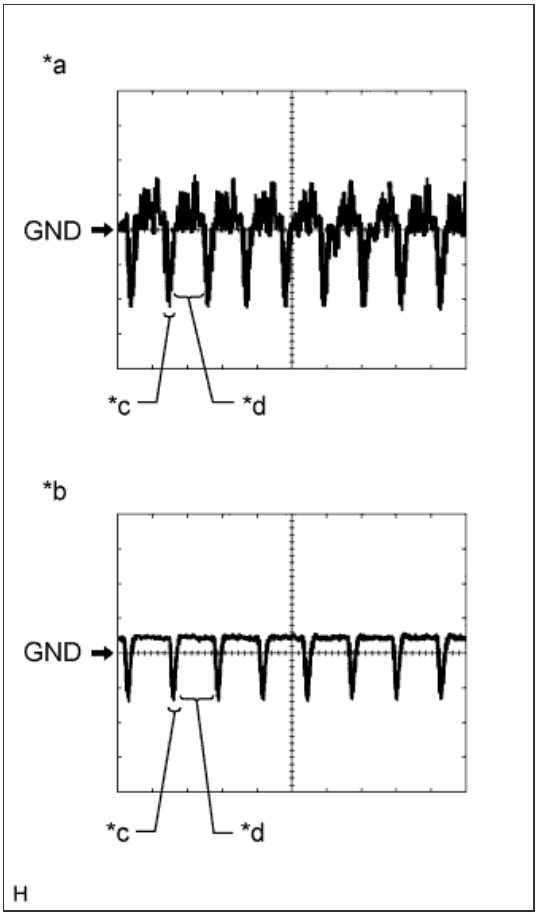
e. Using an oscilloscope, check waveform.

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 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. • 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. 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.

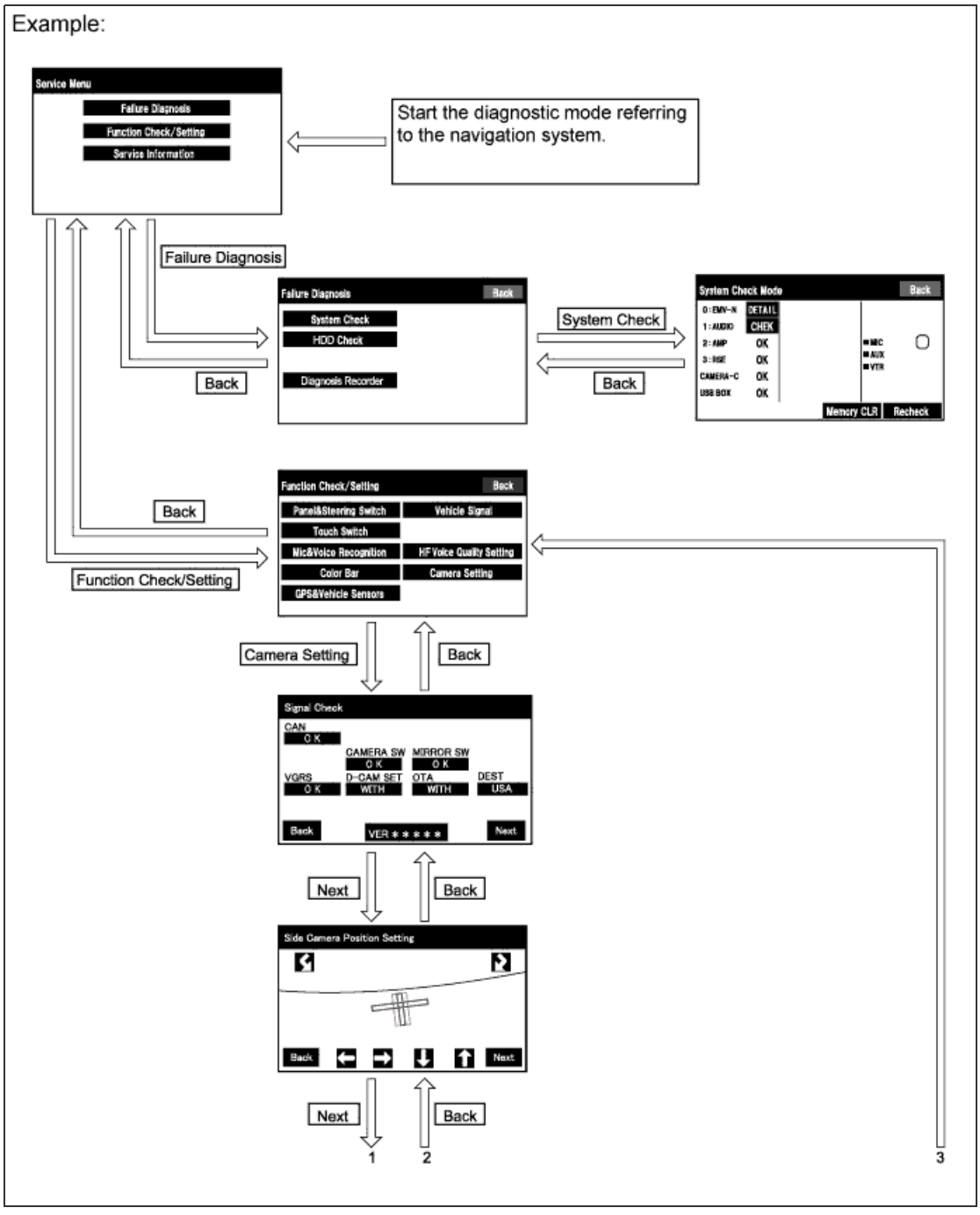
NOTICE:

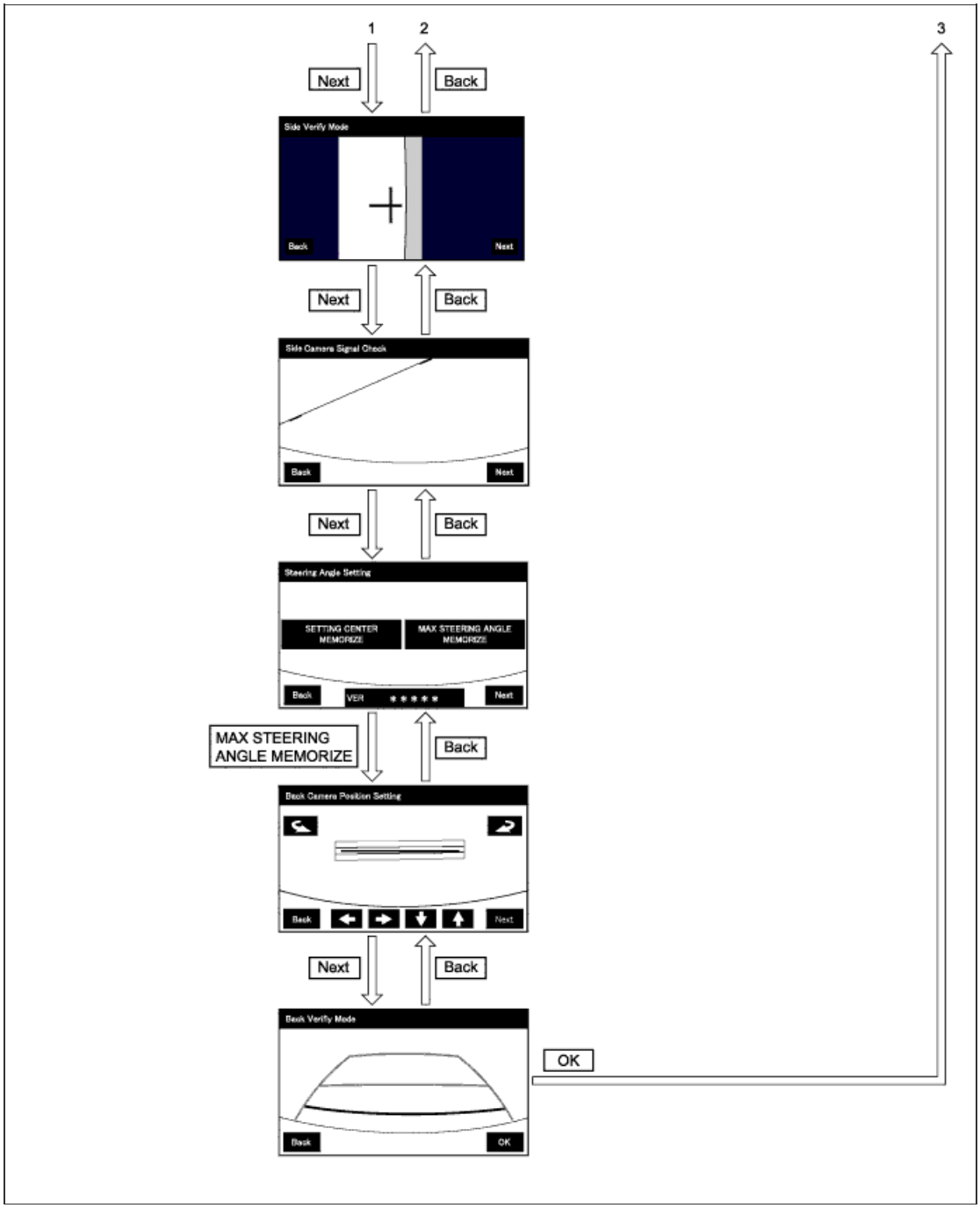
Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the side monitor system may be needed (Click here).

HINT:

The displayed screens and items may differ depending on vehicle specifications.

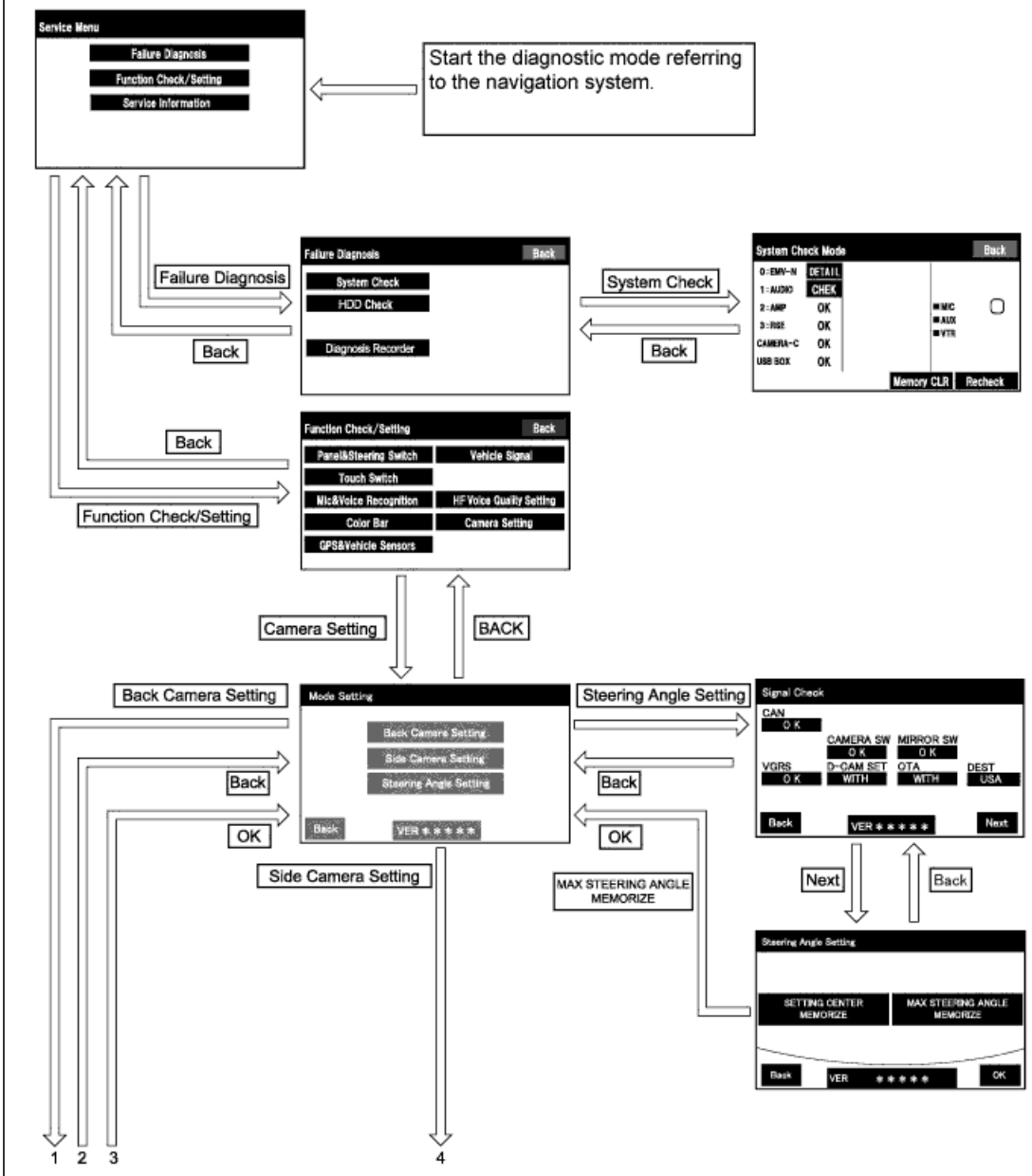
DIAGNOSIS SCREEN TRANSITION (during parking assist ECU initialization)

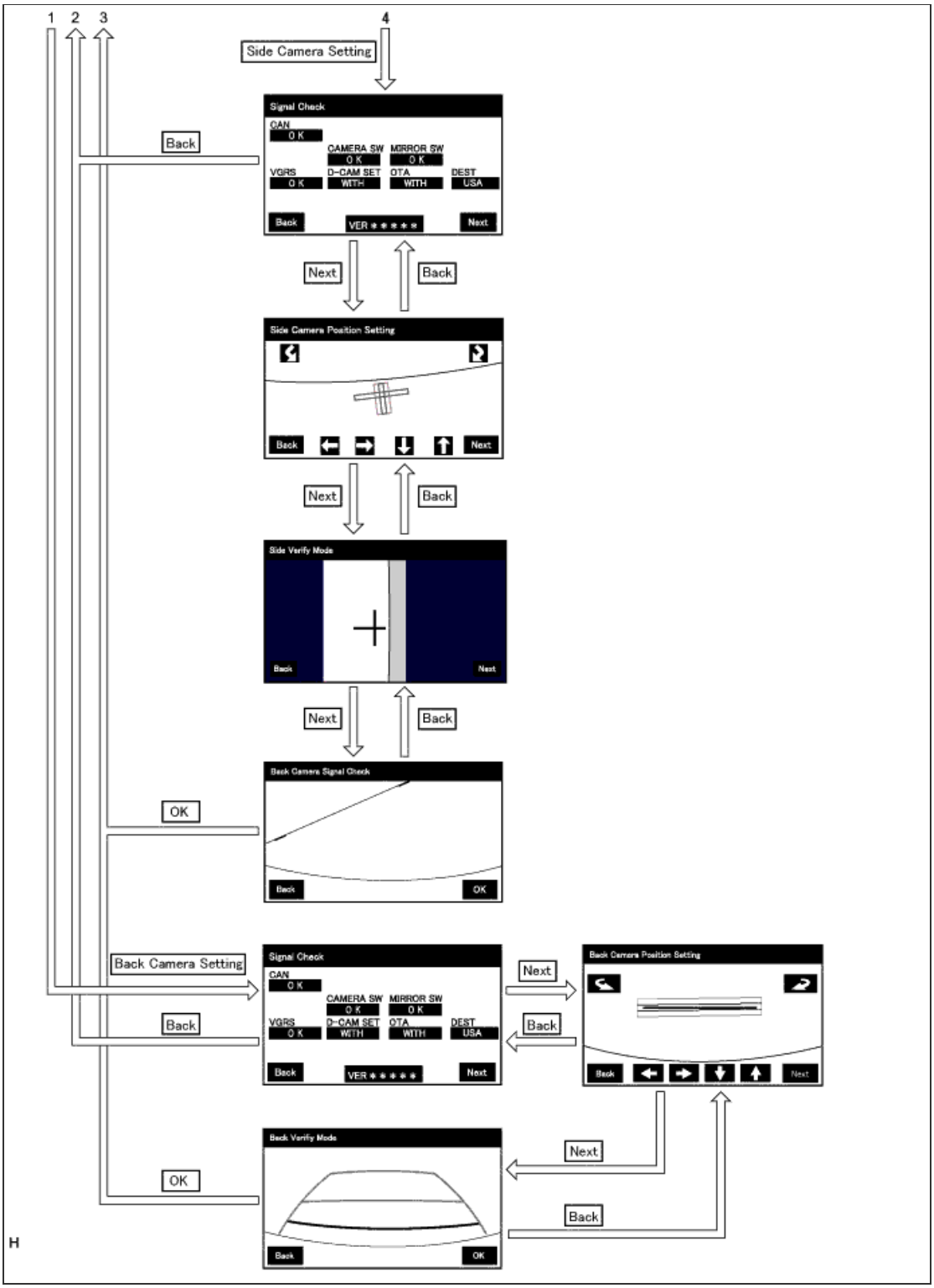




DIAGNOSIS SCREEN TRANSITION (after parking assist ECU initialization)

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



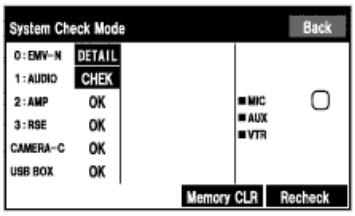
DIAGNOSTIC MODE

a. Start diagnostic mode (Click here).

b. Failure diagnosis (Click here).

c. System check (check using system check mode screen) (Click here).

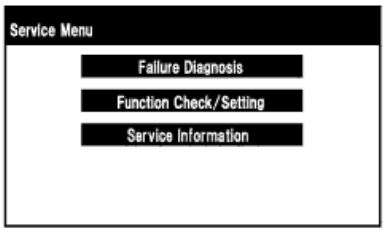
d. Finish diagnostic mode (Click here).



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.

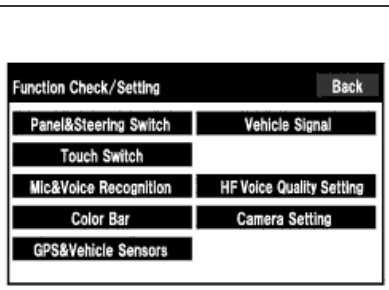


ii. Select "Camera Setting" on the [Function Check/Setting] screen.

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.

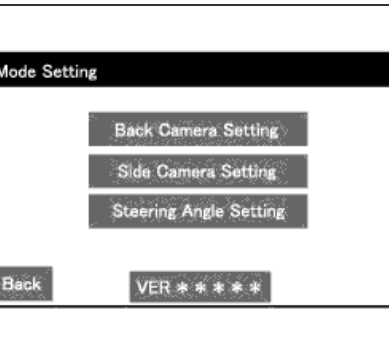
Parking Assist ECU Initialization	Screen Transition
Not performed	[Signal Check] screen
Performed	[Mode Setting] screen



iii. When the screen changes to the [Mode Setting] screen, select "Back Camera Setting" to display the [Signal Check] screen.

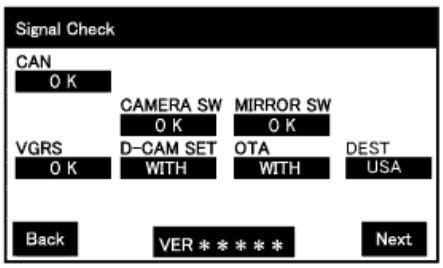
HINT:

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	-

*1: w/ Variable Gear Ration Steering System

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) (Click here)

f. VGRS inspection (w/ Variable Gear Ratio Steering System):

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 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:

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" 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	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

DTC C1683 Side Camera Feedback Malfunction

DTC C1684 Side Camera Current Malfunction

for Preparation Click here

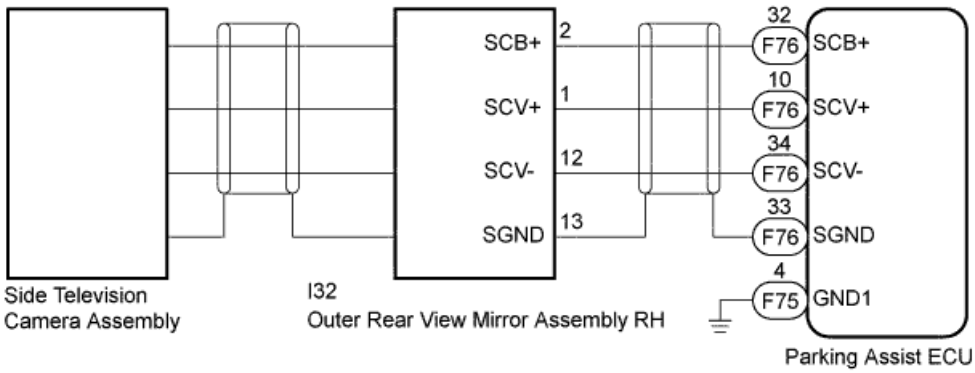
DESCRIPTION

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.

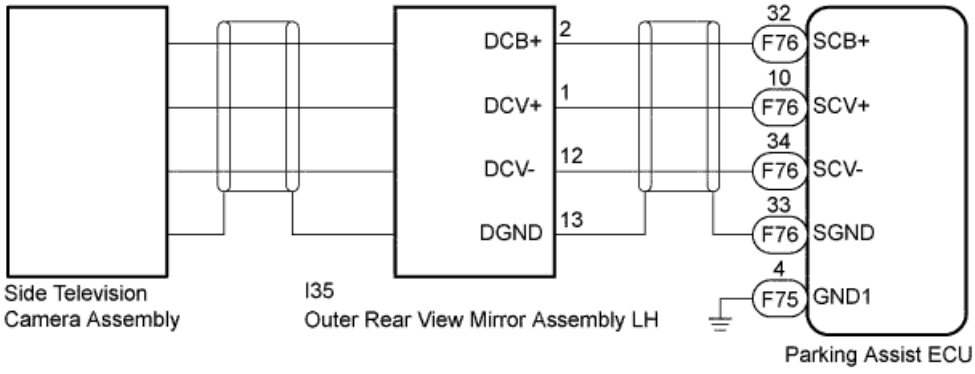
DTC Code	DTC Detection Condition	Trouble Area
C1683	Side Camera Feedback Malfunction	• Harness or connector • Parking assist ECU • Side television camera assembly (for Front Passenger Side) • Outer rear view mirror assembly (for Front Passenger Side)
C1684	Side Camera Current Malfunction	

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 F75 and F76 parking assist ECU connectors.

b. Disconnect the I32*1 or I35*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
F76-34 (SCV-) - I32-12 (SCV-)	Always	Below 1 Ω
F76-10 (SCV+) - I32-1 (SCV+)	Always	Below 1 Ω
F76-33 (SGND) - I32-13 (SGND)	Always	Below 1 Ω
F76-32 (SCB+) - I32-2 (SCB+)	Always	Below 1 Ω
F75-4 (GND1) - Body ground	Always	Below 1 Ω
F76-34 (SCV-) - Body ground	Always	10 kΩ or higher
F76-10 (SCV+) - Body ground	Always	10 kΩ or higher
F76-33 (SGND) - Body ground	Always	10 kΩ or higher
F76-32 (SCB+) - Body ground	Always	10 kΩ or higher

for RHD:

Tester Connection	Condition	Specified Condition
F76-34 (SCV-) - I35-12 (DCV-)	Always	Below 1 Ω
F76-10 (SCV+) - I35-1 (DCV+)	Always	Below 1 Ω
F76-33 (SGND) - I35-13 (DGND)	Always	Below 1 Ω
F76-32 (SCB+) - I35-2 (DCB+)	Always	Below 1 Ω
F75-4 (GND1) - Body ground	Always	Below 1 Ω
F76-34 (SCV-) - Body ground	Always	10 kΩ or higher
F76-10 (SCV+) - Body ground	Always	10 kΩ or higher
F76-33 (SGND) - Body ground	Always	10 kΩ or higher
F76-32 (SCB+) - Body ground	Always	10 kΩ or higher

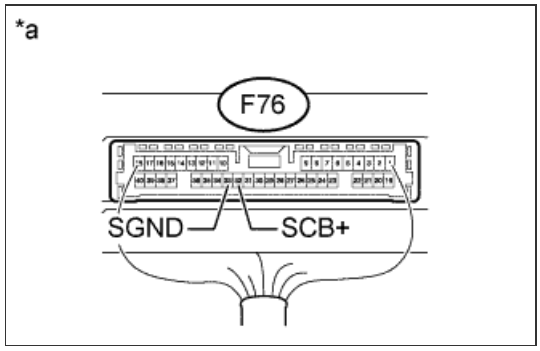
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.CHECK PARKING ASSIST ECU (SCB+, SGND)

a. Reconnect the F75 and F76 parking assist ECU connectors.

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



Standard Resistance:

Tester Connection	Condition	Specified Condition
F76-33 (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
F76-32 (SCB+) - F76-33 (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)

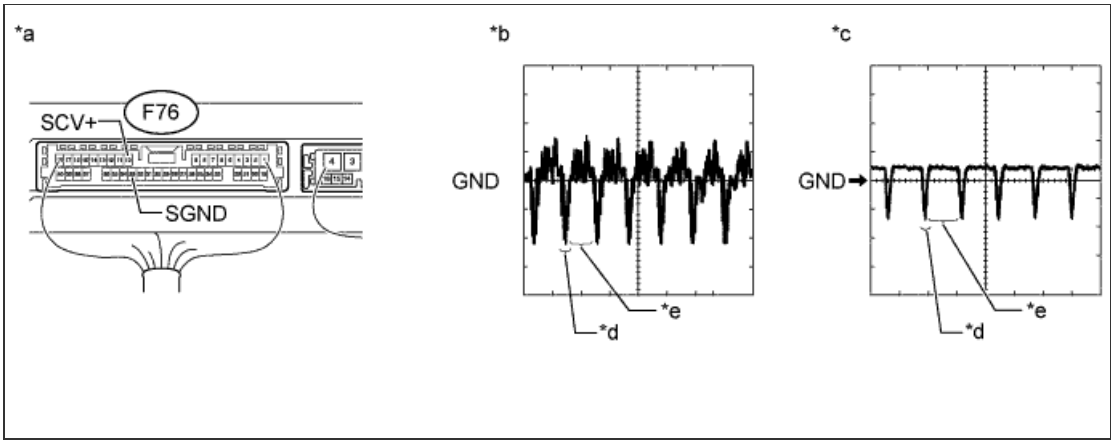
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

3.CHECK SIDE TELEVISION CAMERA ASSEMBLY (SCV+, SGND OR DCV+, DGND)

a. Reconnect the I32*1 or I35*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)	F76-10 (SCV+) - F76-33 (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 • 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 C1686 Driver Side Camera Video Sync Signal Malfunction

DTC C1687 Over Current Detected in Driver Side Camera

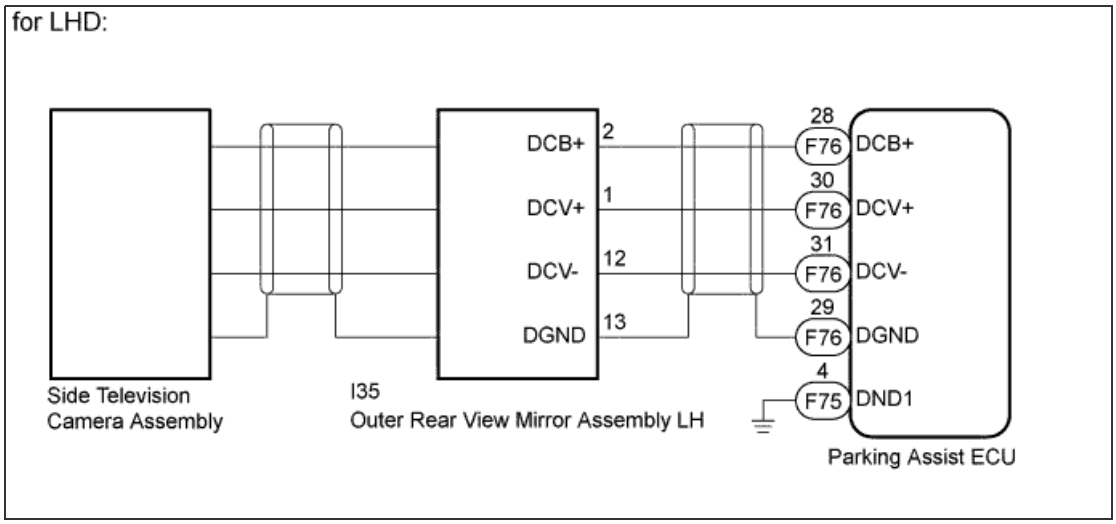
for Preparation Click here

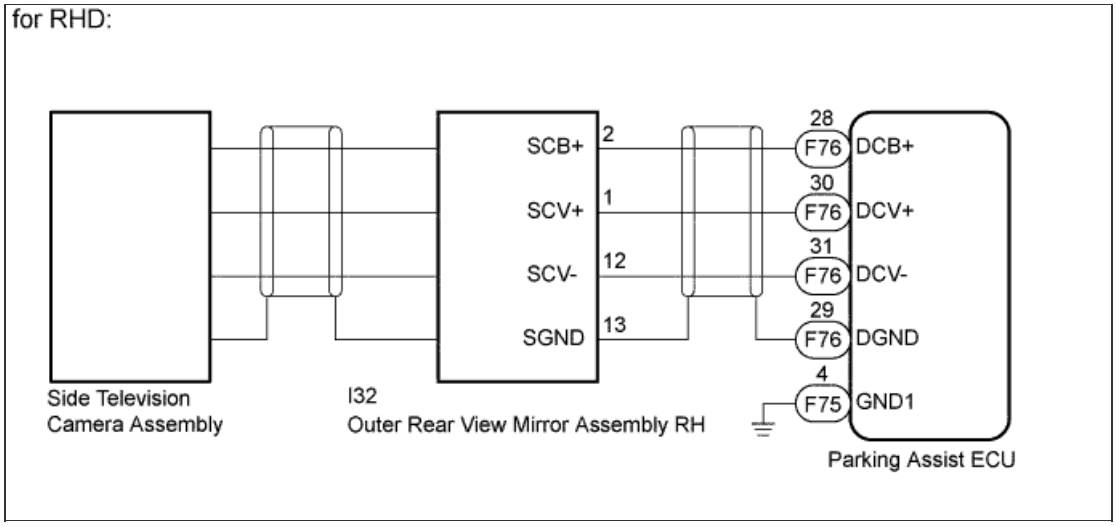
DESCRIPTION

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 off 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 • Parking assist ECU • Side television camera assembly (for Driver Side) • 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 F75 and F76 parking assist ECU connectors.

b. Disconnect the I35*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
F76-31 (DCV-) - I35-12 (DCV-)	Always	Below 1 Ω
F76-30 (DCV+) - I35-1 (DCV+)	Always	Below 1 Ω
F76-29 (DGND) - I35-13 (DGND)	Always	Below 1 Ω
F76-28 (DCB+) - I35-2 (DCB+)	Always	Below 1 Ω
F75-4 (GND1+) - Body ground	Always	Below 1 Ω
F76-31 (DCV-) - Body ground	Always	10 kΩ or higher
F76-30 (DCV+) - Body ground	Always	10 kΩ or higher
F76-29 (DGND) - Body ground	Always	10 kΩ or higher
F76-28 (DCB+) - Body ground	Always	10 kΩ or higher

for RHD:

Tester Connection	Condition	Specified Condition
F76-31 (DCV-) - I32-12 (SCV-)	Always	Below 1 Ω
F76-30 (DCV+) - I32-1 (SCV+)	Always	Below 1 Ω
F76-29 (DGND) - I32-13 (SGND)	Always	Below 1 Ω
F76-28 (DCB+) - I32-2 (SCB+)	Always	Below 1 Ω
F75-4 (GND1+) - Body ground	Always	Below 1 Ω
F76-31 (DCV-) - Body ground	Always	10 kΩ or higher
F76-30 (DCV+) - Body ground	Always	10 kΩ or higher
F76-29 (DGND) - Body ground	Always	10 kΩ or higher
F76-28 (DCB+) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

Go to step 5

2.CHECK PARKING ASSIST ECU (DCB+, DGND)

a. Reconnect the F75 and F76 parking assist ECU connectors.

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

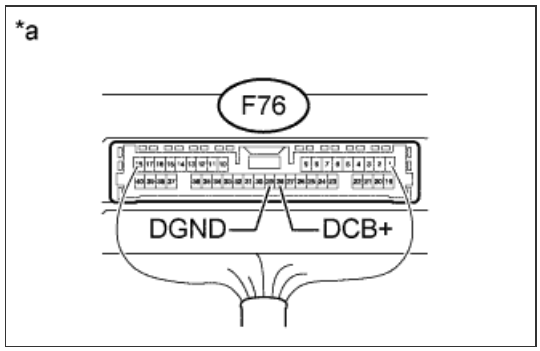
Standard Resistance:

Tester Connection	Condition	Specified Condition
F76-29 (DGND) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F76-28 (DCB+) - F76-29 (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)

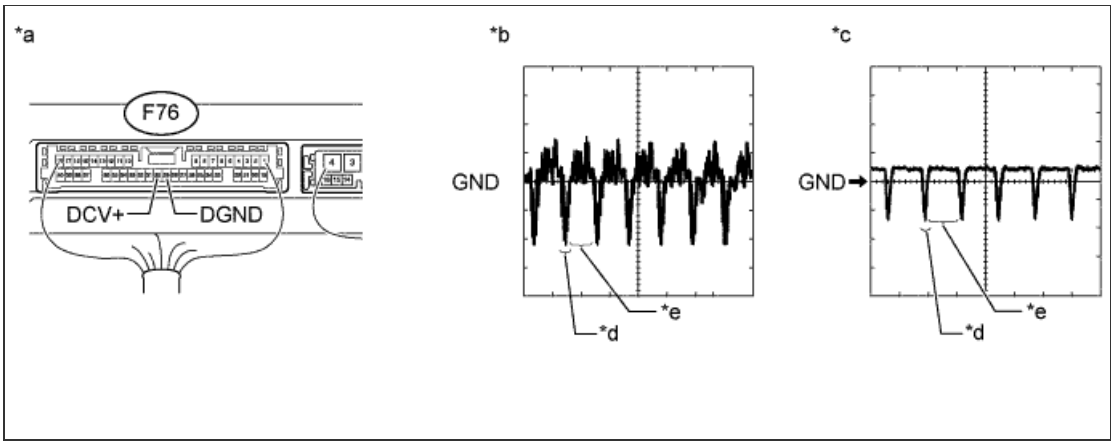
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

3.CHECK SIDE TELEVISION CAMERA ASSEMBLY (DCV+, DGND OR SCV+. SGND)

a. Reconnect the I35*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)	F76-30 (DCV+) - F76-29 (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 • 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.

NG → **REPLACE OUTER REAR VIEW MIRROR ASSEMBLY (Click here)**

OK →

END (DRIVER SIDE TELEVISION CAMERA ASSEMBLY IS DEFECTIVE)

DTC C1683 Side Camera Feedback Malfunction

DTC C1684 Side Camera Current Malfunction

for Preparation Click here

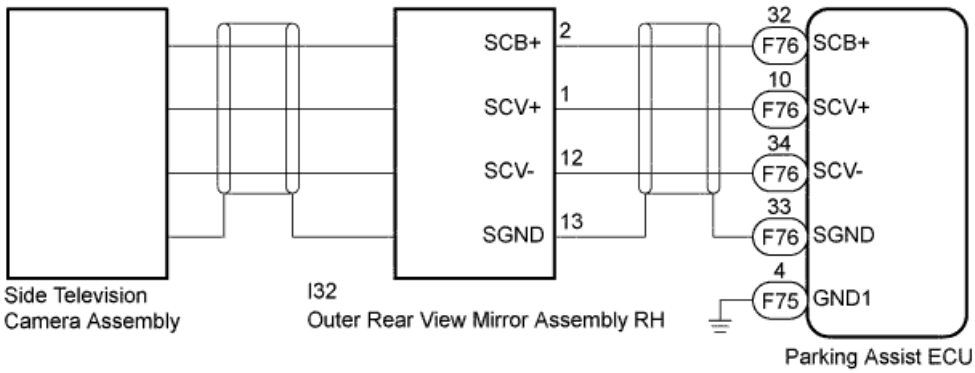
DESCRIPTION

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.

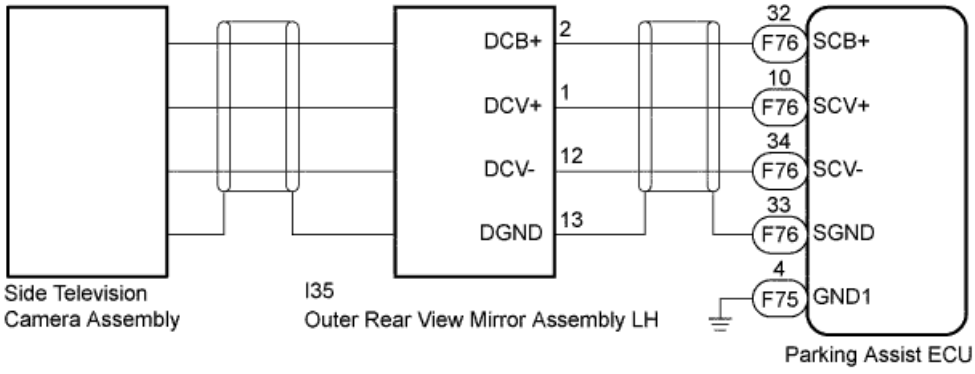
DTC Code	DTC Detection Condition	Trouble Area
C1683	Side Camera Feedback Malfunction	• Harness or connector • Parking assist ECU • Side television camera assembly (for Front Passenger Side) • Outer rear view mirror assembly (for Front Passenger Side)
C1684	Side Camera Current Malfunction	

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 F75 and F76 parking assist ECU connectors.

b. Disconnect the I32*1 or I35*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
F76-34 (SCV-) - I32-12 (SCV-)	Always	Below 1 Ω
F76-10 (SCV+) - I32-1 (SCV+)	Always	Below 1 Ω
F76-33 (SGND) - I32-13 (SGND)	Always	Below 1 Ω
F76-32 (SCB+) - I32-2 (SCB+)	Always	Below 1 Ω
F75-4 (GND1) - Body ground	Always	Below 1 Ω
F76-34 (SCV-) - Body ground	Always	10 kΩ or higher
F76-10 (SCV+) - Body ground	Always	10 kΩ or higher
F76-33 (SGND) - Body ground	Always	10 kΩ or higher
F76-32 (SCB+) - Body ground	Always	10 kΩ or higher

for RHD:

Tester Connection	Condition	Specified Condition
F76-34 (SCV-) - I35-12 (DCV-)	Always	Below 1 Ω
F76-10 (SCV+) - I35-1 (DCV+)	Always	Below 1 Ω
F76-33 (SGND) - I35-13 (DGND)	Always	Below 1 Ω
F76-32 (SCB+) - I35-2 (DCB+)	Always	Below 1 Ω
F75-4 (GND1) - Body ground	Always	Below 1 Ω
F76-34 (SCV-) - Body ground	Always	10 kΩ or higher
F76-10 (SCV+) - Body ground	Always	10 kΩ or higher
F76-33 (SGND) - Body ground	Always	10 kΩ or higher
F76-32 (SCB+) - Body ground	Always	10 kΩ or higher

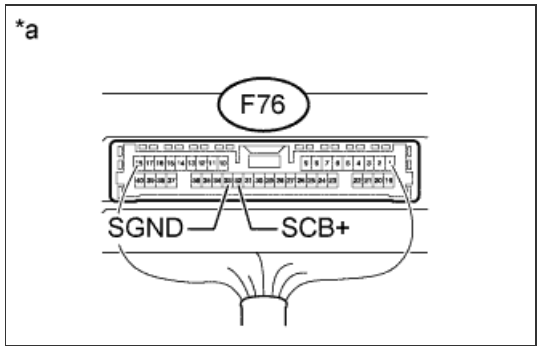
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.CHECK PARKING ASSIST ECU (SCB+, SGND)

a. Reconnect the F75 and F76 parking assist ECU connectors.

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



Standard Resistance:

Tester Connection	Condition	Specified Condition
F76-33 (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
F76-32 (SCB+) - F76-33 (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)

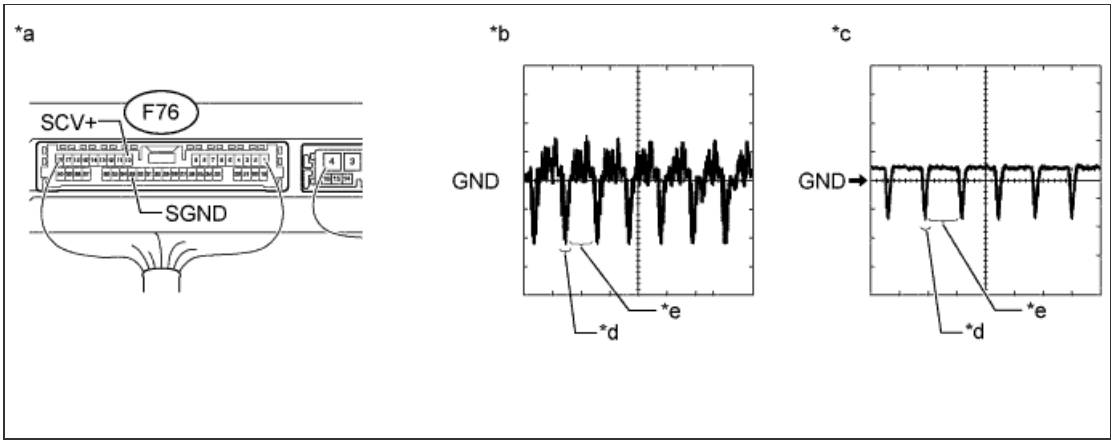
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

3.CHECK SIDE TELEVISION CAMERA ASSEMBLY (SCV+, SGND OR DCV+, DGND)

a. Reconnect the I32*1 or I35*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)	F76-10 (SCV+) - F76-33 (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 • 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 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 adjustment • 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

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 C1686 Driver Side Camera Video Sync Signal Malfunction

DTC C1687 Over Current Detected in Driver Side Camera

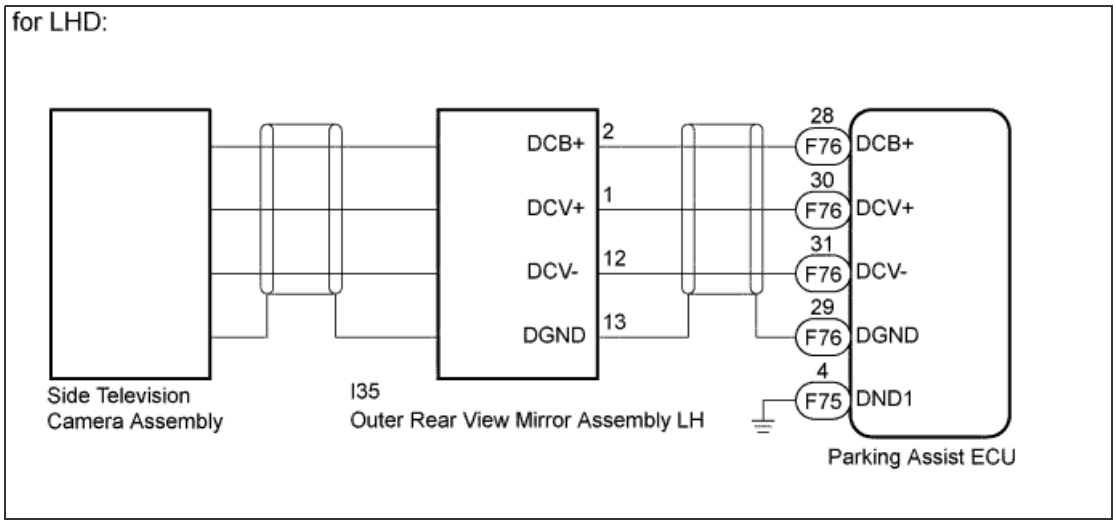
for Preparation Click here

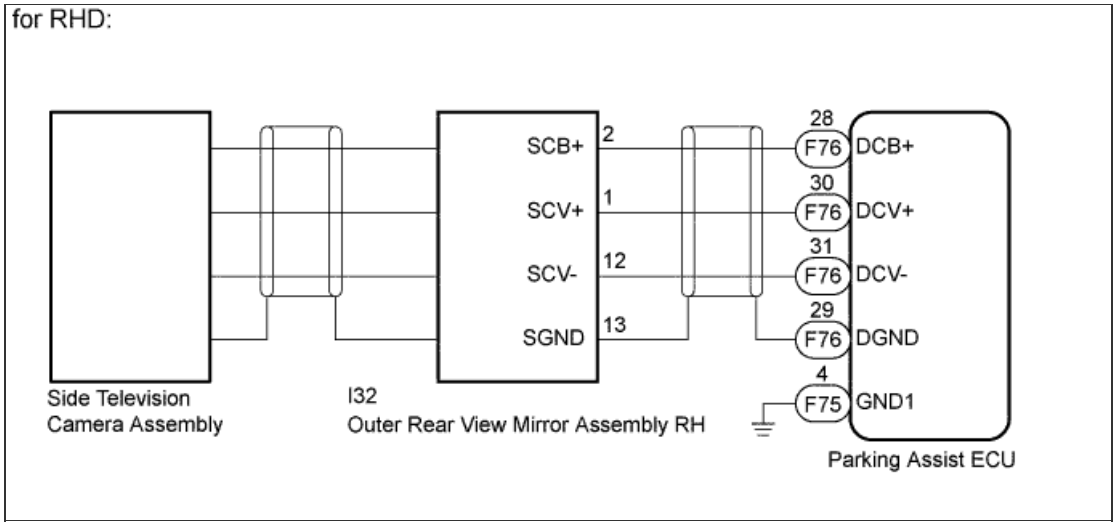
DESCRIPTION

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 off 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 • Parking assist ECU • Side television camera assembly (for Driver Side) • 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 F75 and F76 parking assist ECU connectors.

b. Disconnect the I35*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
F76-31 (DCV-) - I35-12 (DCV-)	Always	Below 1 Ω
F76-30 (DCV+) - I35-1 (DCV+)	Always	Below 1 Ω
F76-29 (DGND) - I35-13 (DGND)	Always	Below 1 Ω
F76-28 (DCB+) - I35-2 (DCB+)	Always	Below 1 Ω
F75-4 (GND1+) - Body ground	Always	Below 1 Ω
F76-31 (DCV-) - Body ground	Always	10 kΩ or higher
F76-30 (DCV+) - Body ground	Always	10 kΩ or higher
F76-29 (DGND) - Body ground	Always	10 kΩ or higher
F76-28 (DCB+) - Body ground	Always	10 kΩ or higher

for RHD:

Tester Connection	Condition	Specified Condition
F76-31 (DCV-) - I32-12 (SCV-)	Always	Below 1 Ω
F76-30 (DCV+) - I32-1 (SCV+)	Always	Below 1 Ω
F76-29 (DGND) - I32-13 (SGND)	Always	Below 1 Ω
F76-28 (DCB+) - I32-2 (SCB+)	Always	Below 1 Ω
F75-4 (GND1+) - Body ground	Always	Below 1 Ω
F76-31 (DCV-) - Body ground	Always	10 kΩ or higher
F76-30 (DCV+) - Body ground	Always	10 kΩ or higher
F76-29 (DGND) - Body ground	Always	10 kΩ or higher
F76-28 (DCB+) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

Go to step 5

2.CHECK PARKING ASSIST ECU (DCB+, DGND)

a. Reconnect the F75 and F76 parking assist ECU connectors.

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

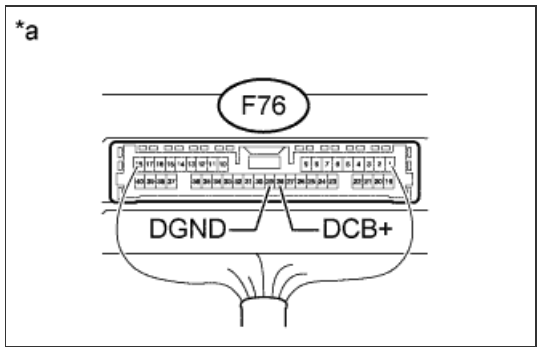
Standard Resistance:

Tester Connection	Condition	Specified Condition
F76-29 (DGND) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F76-28 (DCB+) - F76-29 (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)

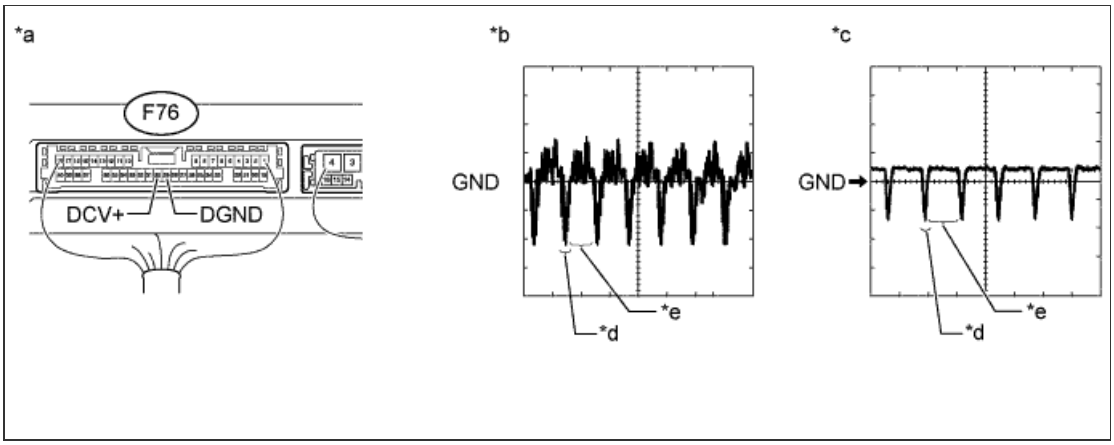
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

3.CHECK SIDE TELEVISION CAMERA ASSEMBLY (DCV+, DGND OR SCV+. SGND)

a. Reconnect the I35*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)	F76-30 (DCV+) - F76-29 (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 • 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.

NG → **REPLACE OUTER REAR VIEW MIRROR ASSEMBLY (Click here)**

OK →

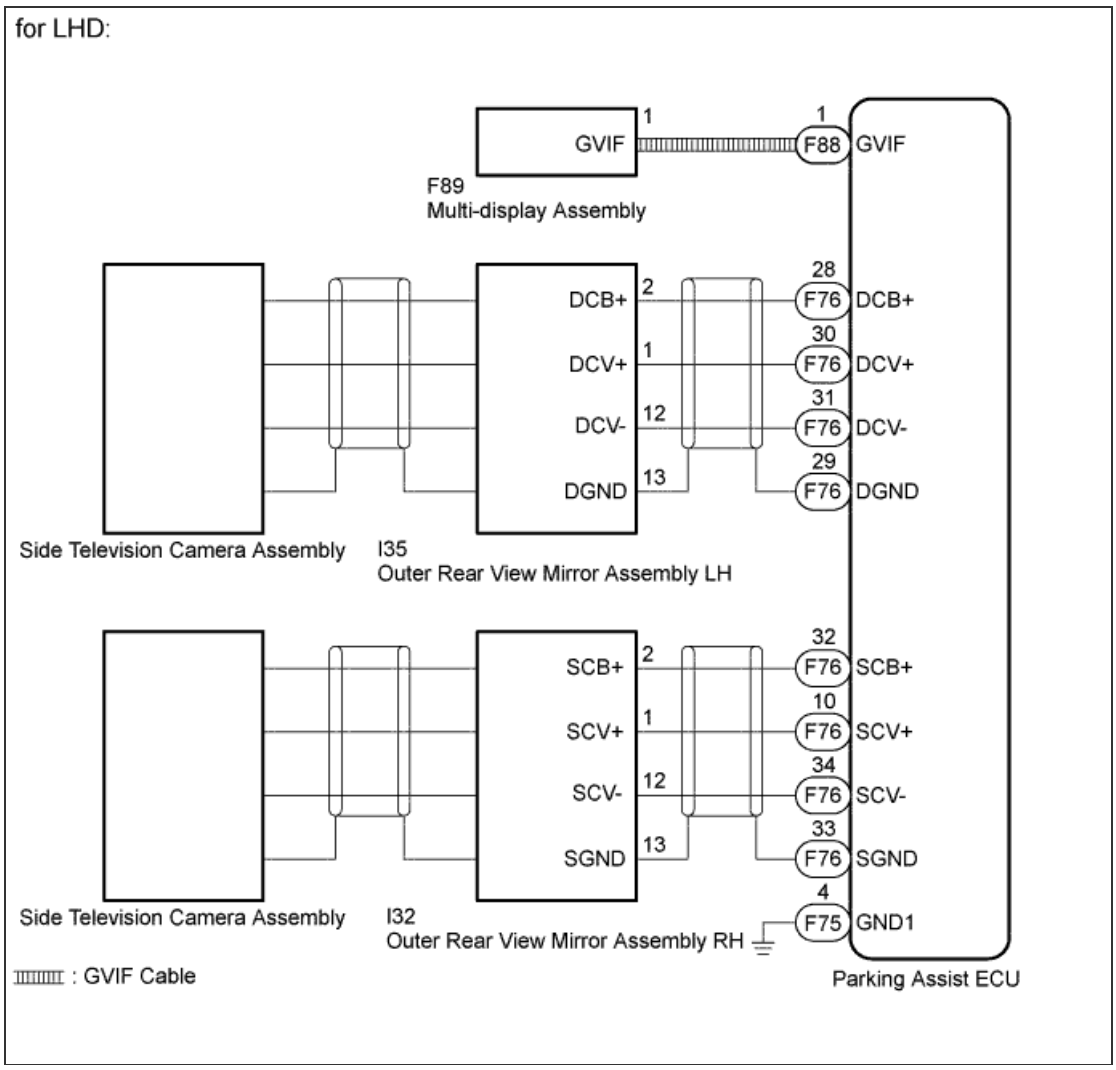
END (DRIVER SIDE TELEVISION CAMERA ASSEMBLY IS DEFECTIVE)

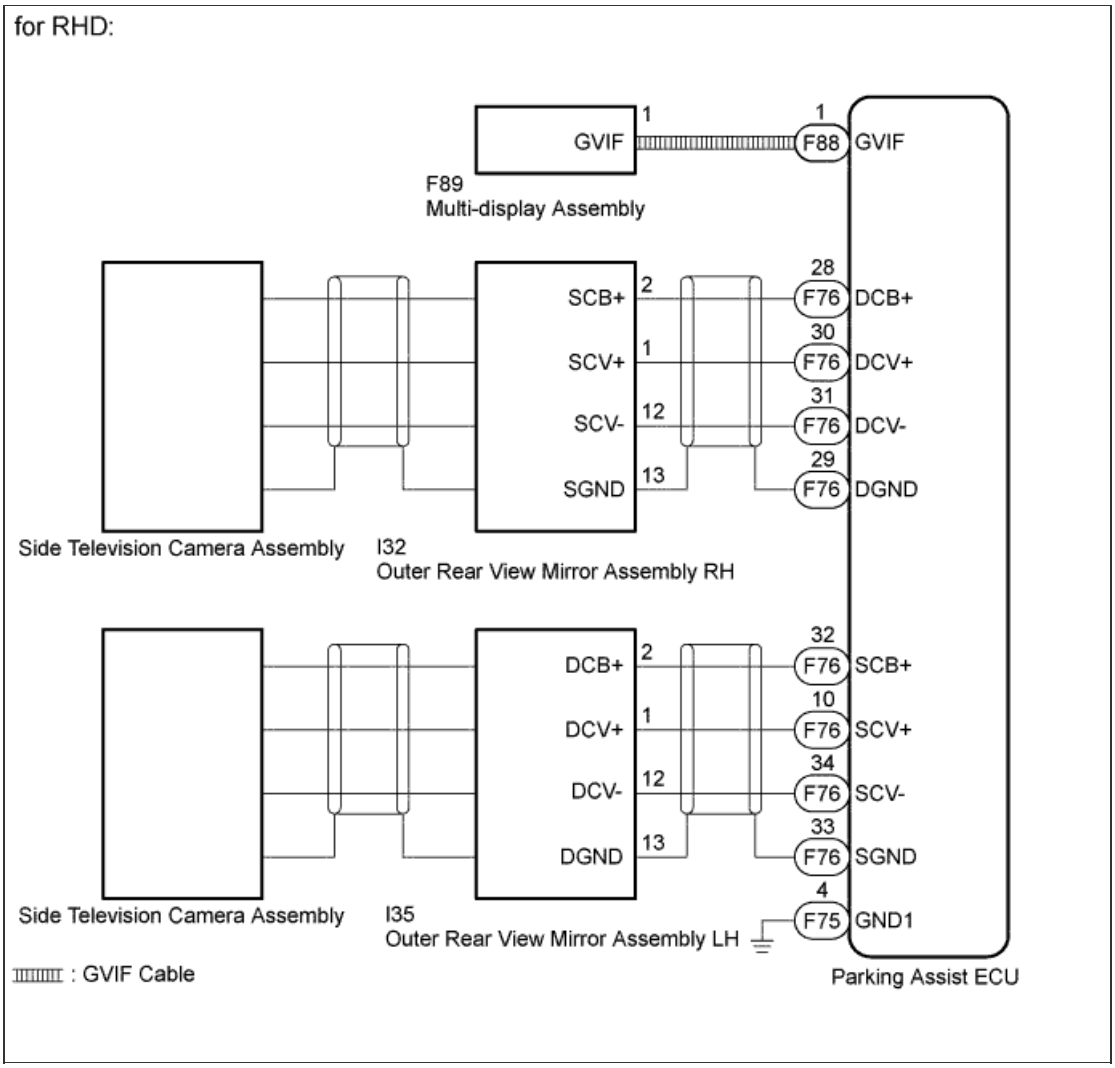
for Preparation Click here

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, particular to the CCD camera.)**

1.CHECK SYMPTOMS

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 F75 and F76 parking assist ECU connectors.

b. Disconnect the I35*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
F76-31 (DCV-) - I35-12 (DCV-)	Always	Below 1 Ω
F76-30 (DCV+) - I35-1 (DCV+)	Always	Below 1 Ω
F76-29 (DGND) - I35-13 (DGND)	Always	Below 1 Ω
F76-28 (DCB+) - I35-2 (DCB+)	Always	Below 1 Ω
F75-4 (GND1+) - Body ground	Always	Below 1 Ω
F76-31 (DCV-) - Body ground	Always	10 kΩ or higher
F76-30 (DCV+) - Body ground	Always	10 kΩ or higher
F76-29 (DGND) - Body ground	Always	10 kΩ or higher
F76-28 (DCB+) - Body ground	Always	10 kΩ or higher

for RHD:

Tester Connection	Condition	Specified Condition
F76-31 (DCV-) - I32-12 (SCV-)	Always	Below 1 Ω
F76-30 (DCV+) - I32-1 (SCV+)	Always	Below 1 Ω
F76-29 (DGND) - I32-13 (SGND)	Always	Below 1 Ω
F76-28 (DCB+) - I32-2 (SCB+)	Always	Below 1 Ω
F75-4 (GND1+) - Body ground	Always	Below 1 Ω
F76-31 (DCV-) - Body ground	Always	10 kΩ or higher
F76-30 (DCV+) - Body ground	Always	10 kΩ or higher
F76-29 (DGND) - Body ground	Always	10 kΩ or higher
F76-28 (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 F75 and F76 parking assist ECU connectors.

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

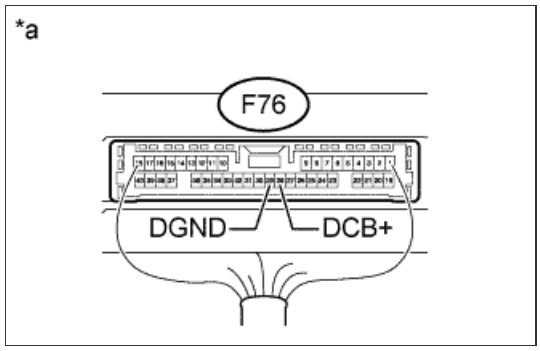
Standard Resistance:

Tester Connection	Condition	Specified Condition
F76-29 (DGND) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F76-28 (DCB+) - F76-29 (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)

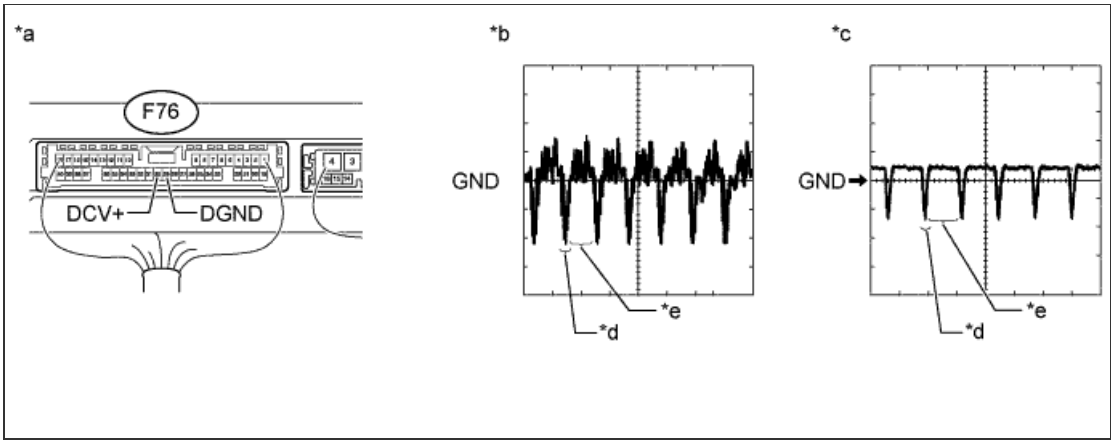
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

4.CHECK SIDE TELEVISION CAMERA ASSEMBLY (DCV+, DGND OR SCV+, SGND)

a. Reconnect the I35*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)	F76-30 (DCV+) - F76-29 (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 • 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.

OK:
Malfunction does not reoccur (returns to normal)

NG → REPLACE OUTER REAR VIEW MIRROR ASSEMBLY (Click here)

OK ↓

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 F75 and F76 parking assist ECU connectors.

b. Disconnect the I32*1 or I35*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
F76-34 (SCV-) - I32-12 (SCV-)	Always	Below 1 Ω
F76-10 (SCV+) - I32-1 (SCV+)	Always	Below 1 Ω
F76-33 (SGND) - I32-13 (SGND)	Always	Below 1 Ω
F76-32 (SCB+) - I32-2 (SCB+)	Always	Below 1 Ω
F75-4 (GND1) - Body ground	Always	Below 1 Ω
F76-34 (SCV-) - Body ground	Always	10 kΩ or higher
F76-10 (SCV+) - Body ground	Always	10 kΩ or higher
F76-33 (SGND) - Body ground	Always	10 kΩ or higher
F76-32 (SCB+) - Body ground	Always	10 kΩ or higher

for RHD:

Tester Connection	Condition	Specified Condition
F76-34 (SCV-) - I35-12 (DCV-)	Always	Below 1 Ω
F76-10 (SCV+) - I35-1 (DCV+)	Always	Below 1 Ω
F76-33 (SGND) - I35-13 (DGND)	Always	Below 1 Ω
F76-32 (SCB+) - I35-2 (DCB+)	Always	Below 1 Ω
F75-4 (GND1) - Body ground	Always	Below 1 Ω
F76-34 (SCV-) - Body ground	Always	10 kΩ or higher
F76-10 (SCV+) - Body ground	Always	10 kΩ or higher
F76-33 (SGND) - Body ground	Always	10 kΩ or higher
F76-32 (SCB+) - Body ground	Always	10 kΩ or higher

B → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

8.CHECK PARKING ASSIST ECU (SCB+, SGND)

a. Reconnect the F75 and F76 parking assist ECU connectors.

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

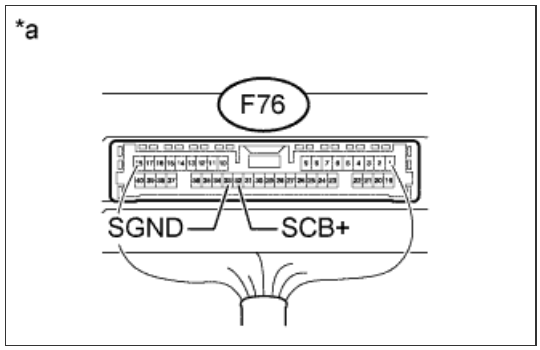
Standard Resistance:

Tester Connection	Condition	Specified Condition
F76-33 (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
F76-32 (SCB+) - F76-33 (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)

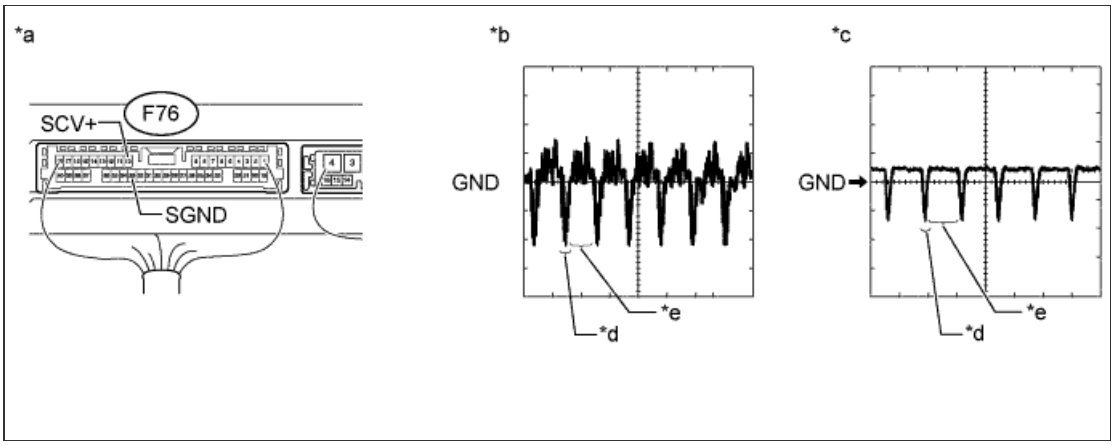
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

9.CHECK SIDE TELEVISION CAMERA ASSEMBLY (SCV+, SGND OR DCV+, DGND)

a. Reconnect the I32*1 or I35*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)	F76-10 (SCV+) - F76-33 (SGND)
Tool Setting	200 mV/DIV., 50 µsec./DIV.
	• Waveform A: Engine switch on (IG), front and side monitor main switch assembly on and camera

Condition	lens is not covered, displaying an image • 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.

OK:
Malfunction does not reoccur (returns to normal)

NG → REPLACE OUTER REAR VIEW MIRROR ASSEMBLY (Click here)

OK

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.

OK:
Malfunction does not reoccur (returns to normal)

NG → Go to step 14

OK

END (GVIF CABLE IS DEFECTIVE)

14.REPLACE MULTI-DISPLAY ASSEMBLY

a. Replace the multi-display assembly (Click here).

NEXT

15.CONFIRM SYMPTOMS

a. Check if the same malfunction recurs when the side 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

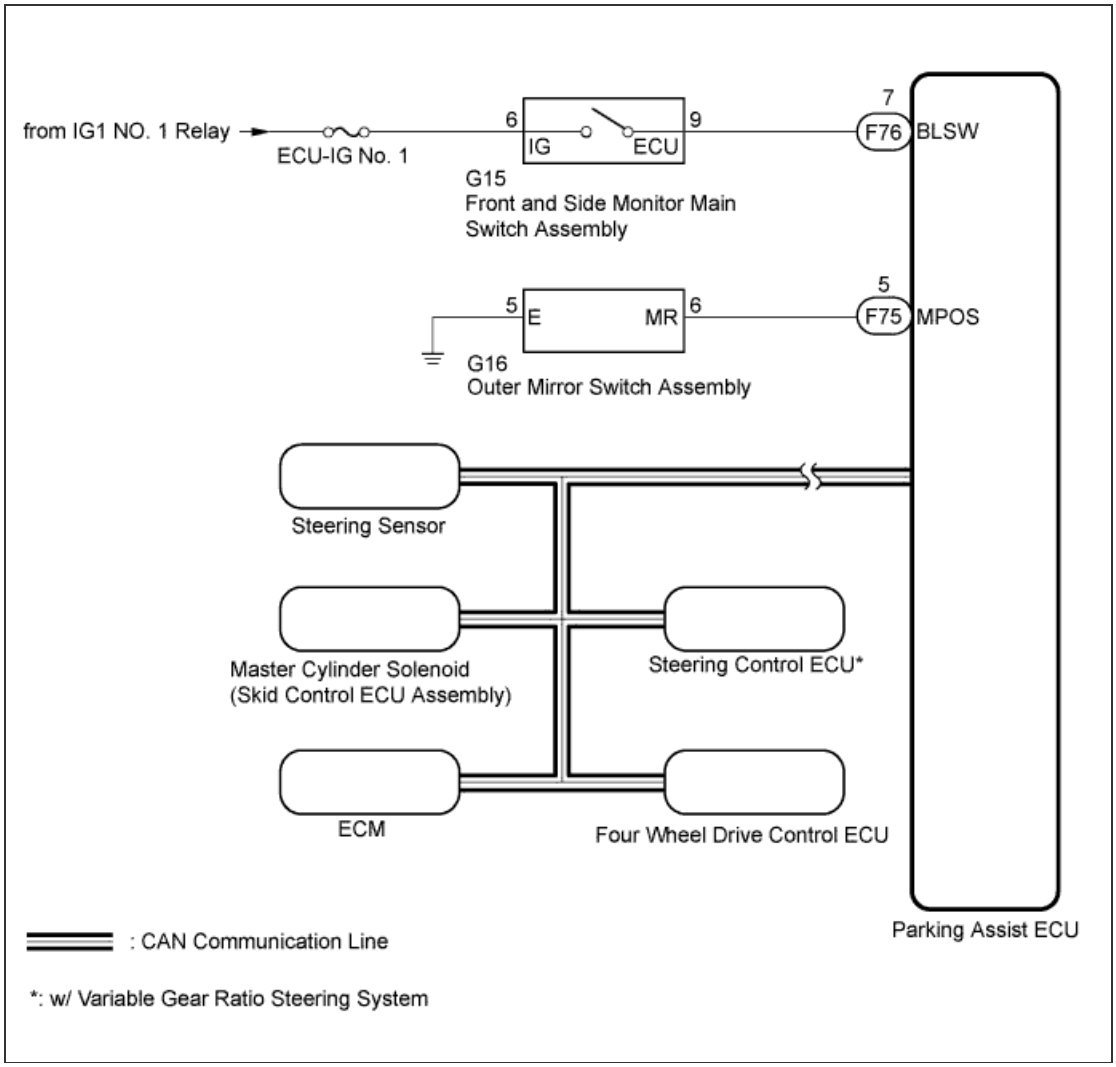
On the [Signal Check] screen, it is possible to check if the state of signals sent to the parking assist ECU is normal (Click here).

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



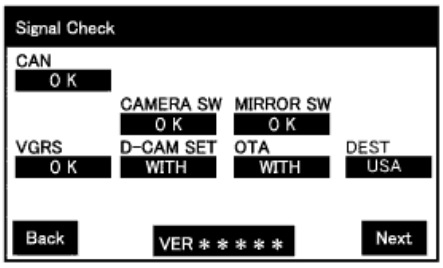
INSPECTION PROCEDURE

NOTICE:

- **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).	D

B → Go to step 4

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, BATTERY AND BODY GROUND)

a. Disconnect the G15 front and side monitor main switch assembly connector.

b. Disconnect the F76 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
G15-6 (IG) - Body ground	Engine switch on (IG)	11 to 14 V
G15-6 (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
F76-7 (BLSW) - G15-9(ECU)	Always	Below 1 Ω
G15-9 (ECU) - Body ground	Always	10 kΩ or higher

G15-6 (IG) - Body ground	Always	Below 1 Ω

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 F75 parking assist ECU connector.

b. Disconnect the G16 outer mirror switch assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F75-5 (MPOS) - G16-6 (MR)	Always	Below 1 Ω
F75-5 (MPOS) - Body ground	Always	10 kΩ or higher
G16-5 (E) - Body ground	Always	Below 1 Ω

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).

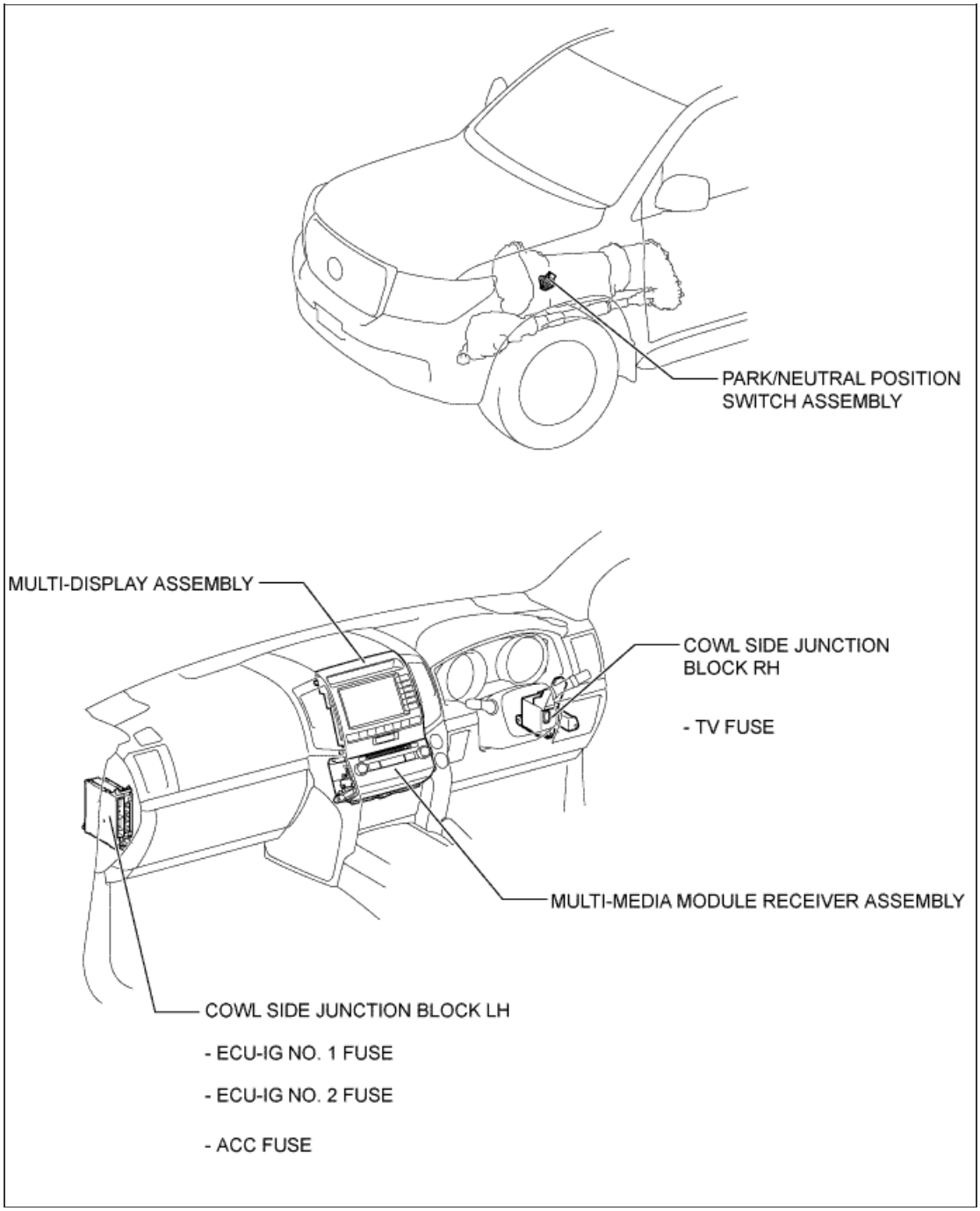
OK:
Power mirror control system (power retract function) is normal.

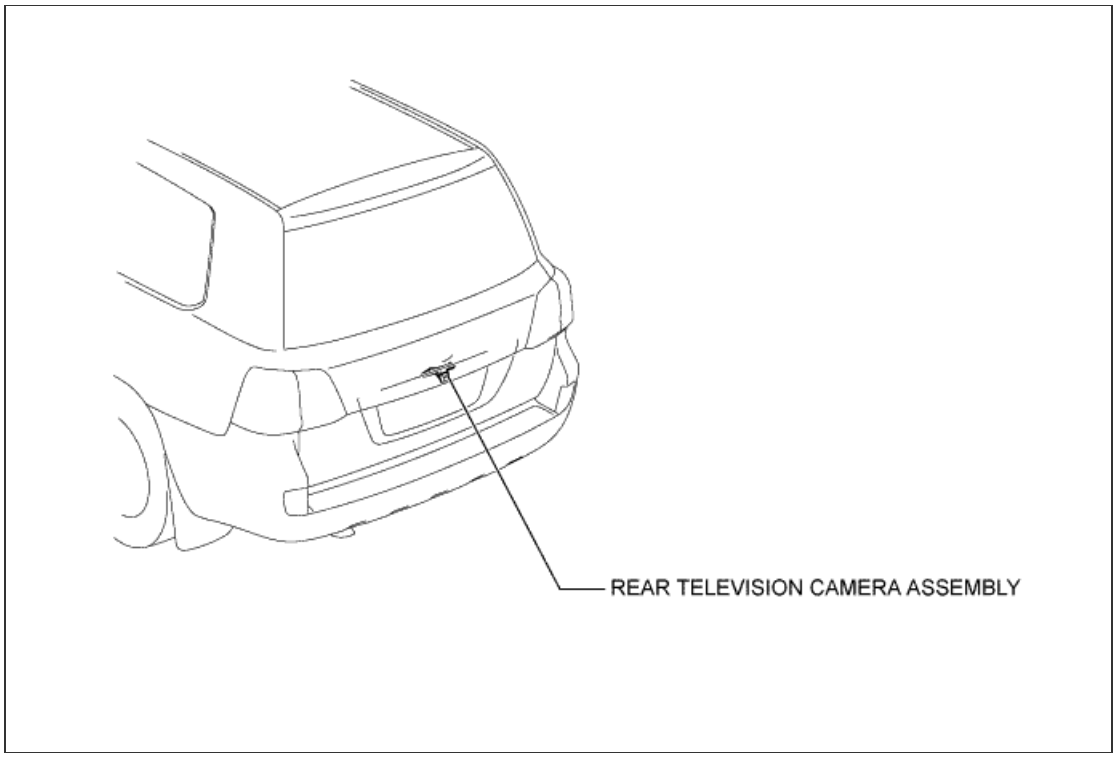
NG → Go to POWER MIRROR CONTROL SYSTEM (Click here)

OK ↓

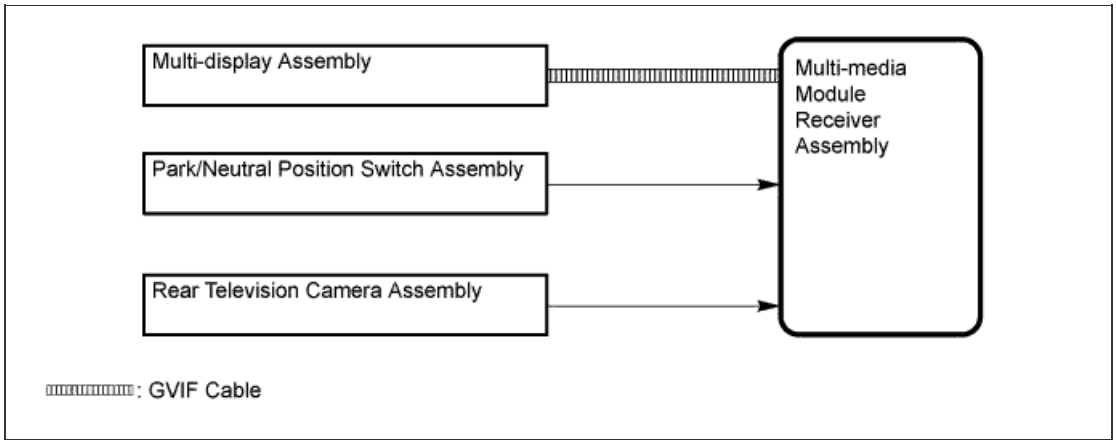
REPLACE PARKING ASSIST ECU (Click here)

for Preparation Click here




REAR TELEVISION CAMERA ASSEMBLY

for Preparation Click here



for Preparation Click here

GENERAL

a. To assist the driver in parking the vehicle by displaying an image of the area behind the vehicle, this system has a rear television camera assembly mounted on the back door. The system displays the image on the multi-display assembly.

b. This system consists of the following components:

i. Multi-media module receiver assembly

ii. Multi-display assembly

iii. Rear television camera assembly

iv. Park/neutral position switch assembly

FUNCTION OF COMPONENTS

Components	Function
Multi-media module receiver assembly	• Receives the video signals which contain an image of the area behind the vehicle taken with the rear television camera assembly. • Performs overall control of the system by receiving signals from the sensors.
Rear television camera assembly	• Mounted on the back door to transmit an image of the area behind the vehicle to the multi-display assembly through the multi-media module receiver assembly. • Has a color video camera that uses a CCD (Charge Coupled Device) and a wide-angle lens.
Multi-display assembly	Displays the rear view monitor image on the display panel.
Park/neutral position switch assembly	Transmits a reverse shift position signal to the multi-media module receiver assembly.

OPERATION EXPLANATION

a. The park/neutral position switch assembly outputs the R position signal to the multi-media module receiver assembly when the shift lever is moved to R. After receiving the R position signal, the multi-display assembly 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, particular 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.CUSTOMER PROBLEM ANALYSIS

NEXT

3.INSPECT BATTERY VOLTAGE

Standard voltage:
11 to 14 V

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

NEXT

4.CHECK DTC OF NAVIGATION SYSTEM

a. Refer to the DTC Check / Clear procedures of the navigation system (Click here).

Result

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

B. Go to NAVIGATION SYSTEM (Click here)

A

5.PROBLEM SYMPTOM CONFIRMATION

Result

Result	Proceed to
Symptom does not occur	A
Symptom occurs	B

A. Go to step 7

B

6.SYMPTOM SIMULATION

NEXT

7.CHECK IF SAME SYMPTOM APPEARS IN OTHER SYSTEM

Result

Result	Proceed to
Symptom does not appear	A
Symptom appears (Audio and Visual System [w/ Navigation System])	B
Symptom appears (Navigation System)	C
Symptom appears (Rear Seat Entertainment System)	D

B. → Go to AUDIO AND VISUAL SYSTEM (w/ Navigation System)

C. → Go to NAVIGATION SYSTEM

D. → G0 to REAR SEAT ENTERTAINMENT SYSTEM

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. → ADJUST, REPAIR OR REPLACE IN ACCORDANCE WITH PROBLEM SYMPTOMS TABLE

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:

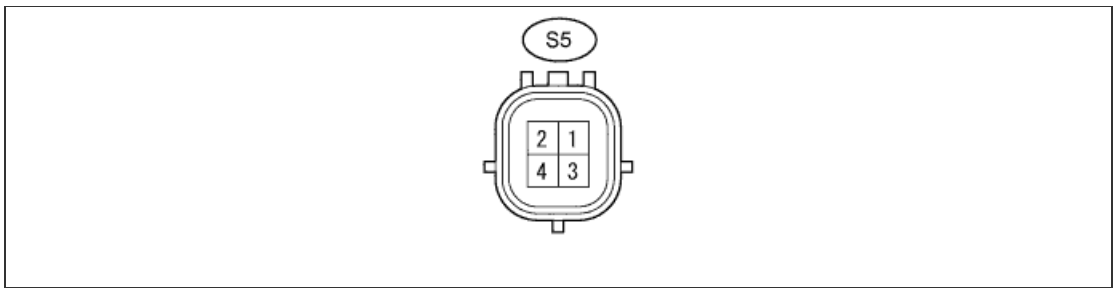
- **Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**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

Rear View Monitor System

Symptom	Suspected Area	See page
When shift lever is R, rear view monitor image is not displayed (screen is not black).	Reverse Signal Circuit	Click here
	Proceed to "Image from camera for rear view monitor is abnormal"	Click here
	Multi-display assembly	Click here
	Multi-media module receiver assembly	Click here
When shift lever is R, rear view monitor image is not displayed (screen is black).	Proceed to "Image from camera for rear view 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 rear view monitor image is displayed.	Reverse Signal Circuit	Click here
	Multi-display assembly	Click here
	Multi-media module receiver assembly	Click here
Image from the camera for the rear view monitor is abnormal (color, distorted picture).	Proceed to "Image from camera for rear view monitor is abnormal"	Click here
	Multi-display assembly	Click here
	Multi-media module receiver assembly	Click here
When the rear view monitor screen is displayed, the lines are misaligned. (The image from the camera is tilted.)	Check that the camera is correctly installed	Click here

for Preparation Click here

CHECK 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:

The blind rear television camera assembly uses waterproof connector. Therefore, voltage cannot be checked with the connector connected to the vehicle.

d. Measure the waveform 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.

HINT:

- **The video waveform changes according to the image sent by the rear television camera assembly.**
- **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.**

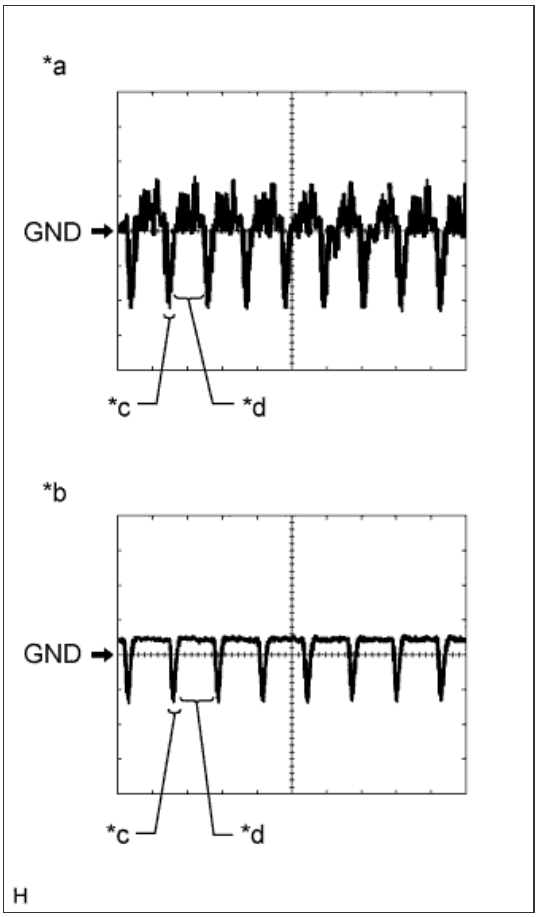
Text in Illustration

*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

Waveform

Item	Content
Terminal No. (Symbol)	S5-2 (CV+) - S5-3 (CGND)
Tool	

Setting	0.2 V/DIV., 50 µs/DIV.
Condition	Waveform A: Engine switch on (IG), shift lever in R and camera lens is not covered, displaying an image Waveform B: Engine switch on (IG), shift lever in R and camera lens is covered, blacking out the screen



CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY (Click here)

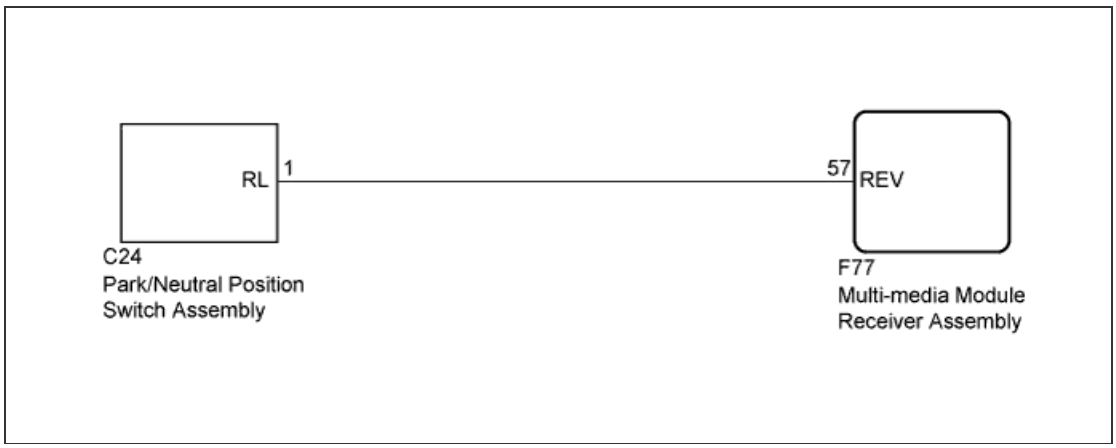
CHECK MULTI-DISPLAY ASSEMBLY (Click here)

for Preparation Click here

DESCRIPTION

The multi-media module receiver assembly receives a reverse signal from the park/neutral position switch assembly.

WIRING DIAGRAM



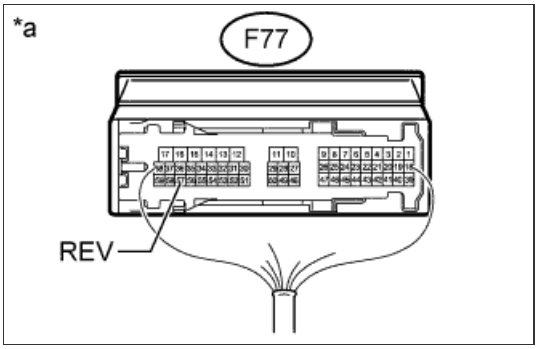
INSPECTION PROCEDURE

1.CHECK MULTI-MEDIA MODULE RECEIVER ASSEMBLY (REVERSE SIGNAL)

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

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F77-57 (REV) - Body ground	Engine switch on (IG), shift lever in R	11 to 14 V
F77-57 (REV) - Body ground	Engine switch on (IG), shift lever not in R	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 - PARK/NEUTRAL POSITION SWITCH ASSEMBLY)

a. Disconnect the F77 multi-media module receiver assembly connector.

b. Disconnect the C24 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
F77-57 (REV) - C24-1 (RL)	Always	Below 1 Ω

F77-57 (REV) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

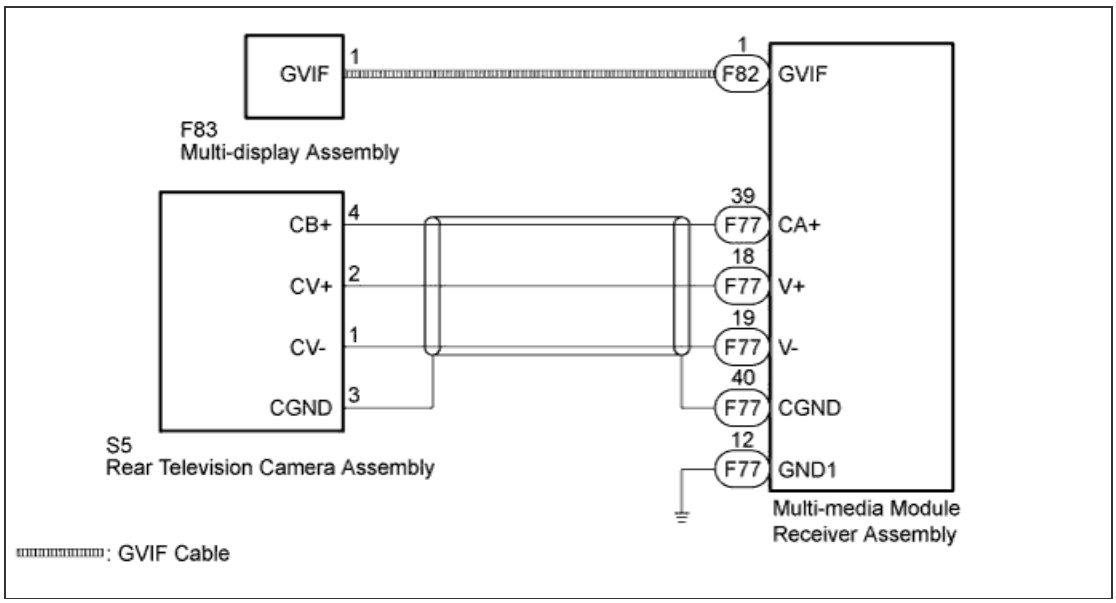
REPLACE PARK/NEUTRAL POSITION SWITCH ASSEMBLY (Click here)

for Preparation Click here

DESCRIPTION

This is the display signal circuit of the rear television camera assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Images may be unclear 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 ambient light surrounding 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.)**
- **When the camera is used under fluorescent lights, sodium lights, or mercury lights etc., the lights and the illuminated area may appear to flicker.**

1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA MODULE RECEIVER - REAR TELEVISION CAMERA AND BODY GROUND)

a. Disconnect the F77 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
F77-18 (V+) - S5-2 (CV+)	Always	Below 1 Ω
F77-19 (V-) - S5-1 (CV-)	Always	Below 1 Ω
F77-39 (CA+) - S5-4 (CB+)	Always	Below 1 Ω
F77-40 (CGND) - S5-3 (CGND)	Always	Below 1 Ω

F77-12 (GND1) - Body ground	Always	Below 1 Ω
F77-18 (V+) - Body ground	Always	10 kΩ or higher
F77-19 (V-) - Body ground	Always	10 kΩ or higher
F77-39 (CA+) - Body ground	Always	10 kΩ or higher
F77-40 (CGND) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.CHECK MULTI-MEDIA MODULE RECEIVER DISPLAY (CA+, CGND)

a. Reconnect the multi-media module receiver assembly connector.

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

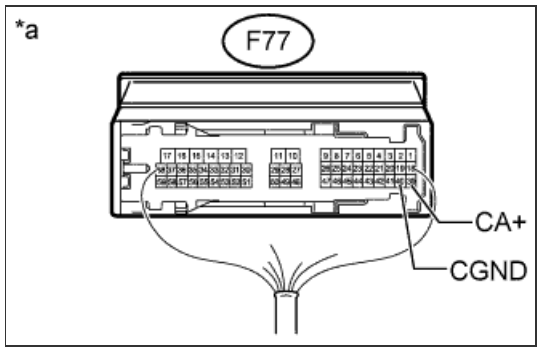
Standard Resistance:

Tester Connection	Condition	Specified Condition
F77-40 (CGND) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F77-39 (CA+) - F77-40 (CGND)	Engine switch on (IG), shift lever in R	5.5 to 7.05 V



Text in Illustration

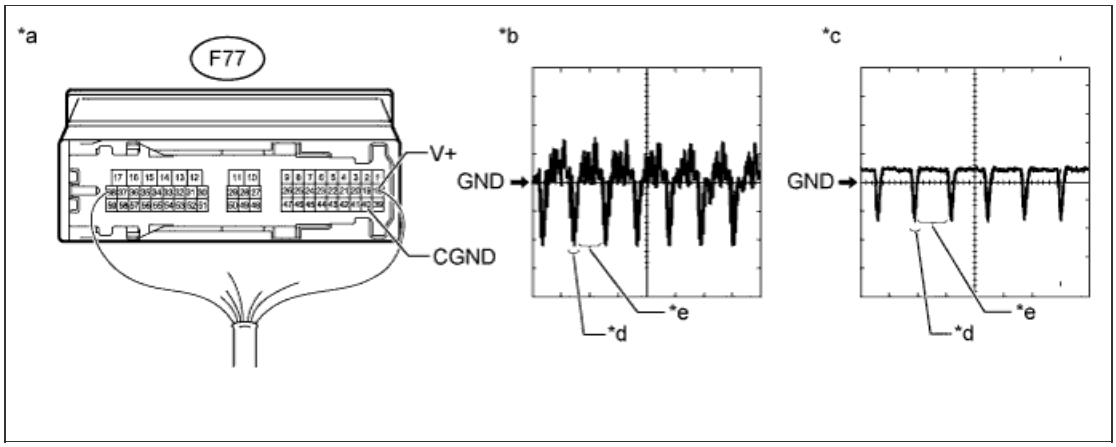
*a	Component with harness connected (Multi-media Module Receiver Assembly)

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.**

Measurement Condition

Item	Content
Tester No. (Symbol)	F77-18 (V+) - F77-40 (CGND)
Tool Setting	0.2 V/DIV., 50 µS/DIV
Condition	Waveform A: Engine starts, shift lever in R (camera lens is not covered, displaying an image) Waveform B: Engine starts, shift lever in R (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 harness and connector (GVIF cable) with a normally functioning one.

NEXT ↓

5.CHECK REAR VIEW MONITOR SYSTEM

a. Check the operation of rear view monitor system.

OK:

Rear view monitor system is operated normally.

NG → Go to step 6

OK ↓

END (GVIF CABLE IS DEFECTIVE)

6.REPLACE MULTI-DISPLAY ASSEMBLY

a. Replace the multi-display assembly with a normally functioning one (Click here).

NEXT

7.CHECK REAR VIEW MONITOR SYSTEM

a. Check the operation of rear view monitor system.

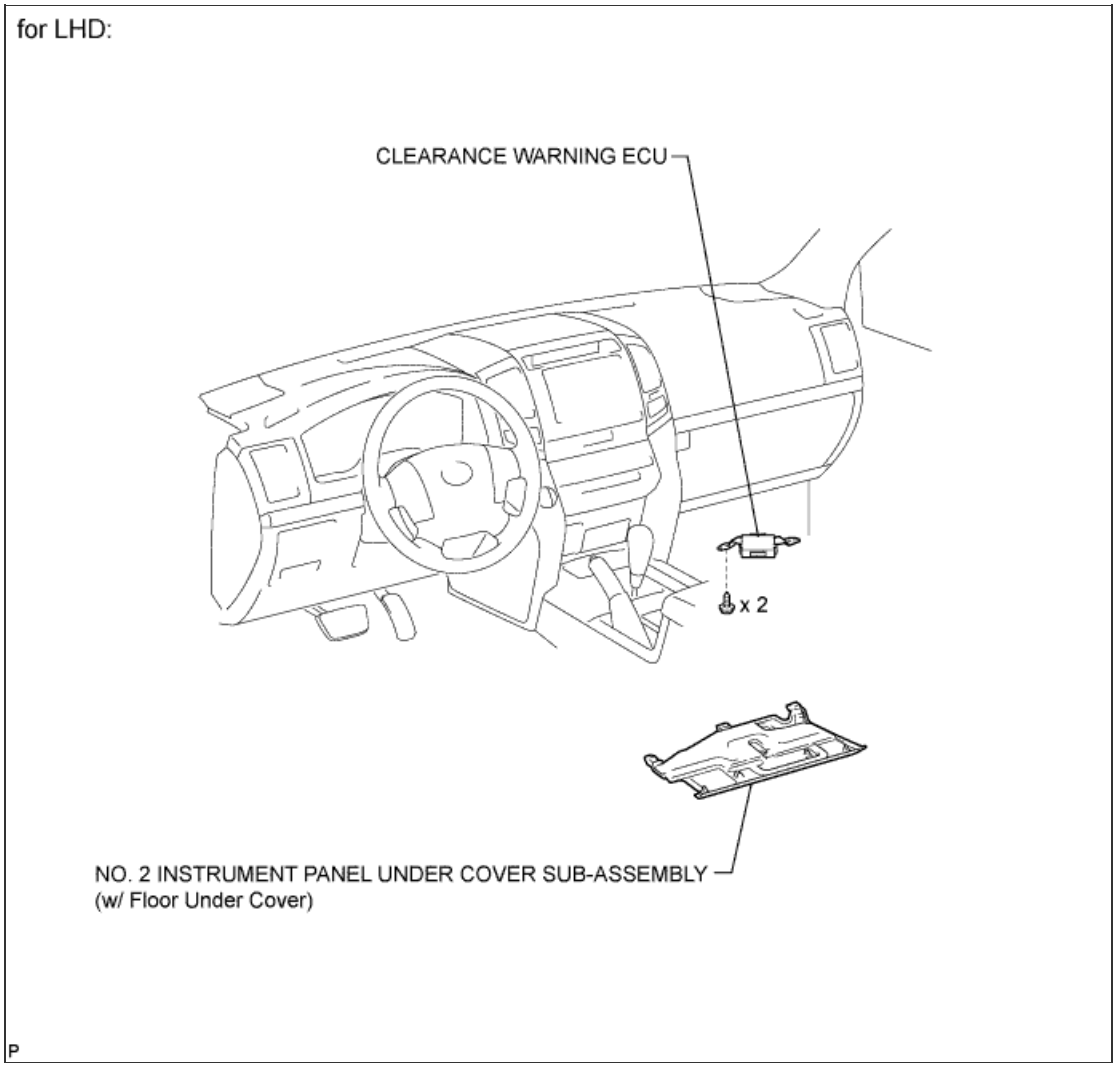
OK:
Rear view monitor system is operated normally.

NG → REPLACE MULTI-MEDIA MODULE RECEIVER ASSEMBLY (**Click here**)

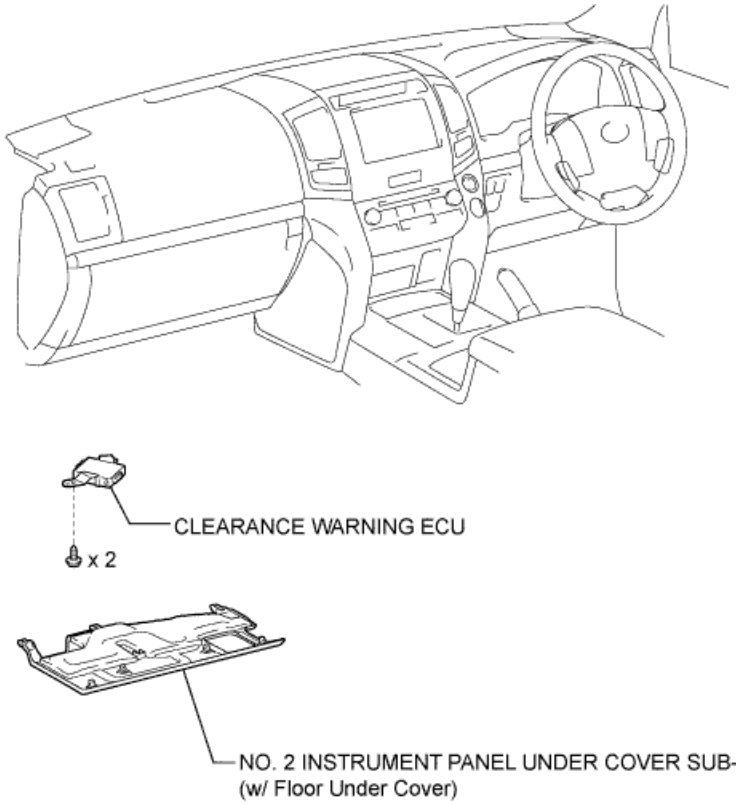
OK

END (MULTI-DISPLAY IS DEFECTIVE)

for Preparation Click here



for RHD:


CLEARANCE WARNING ECU
x 2
NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY
(w/ Floor Under Cover)

P

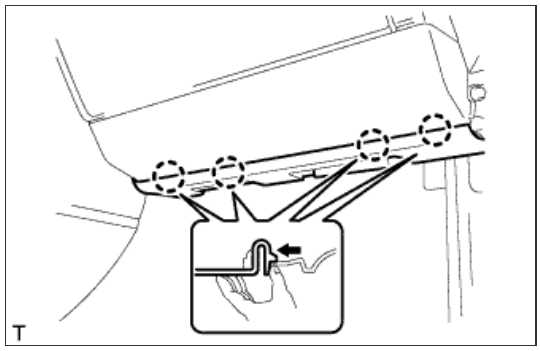
for Preparation Click here

HINT:

- **Use the same procedure for RHD and LHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

1. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

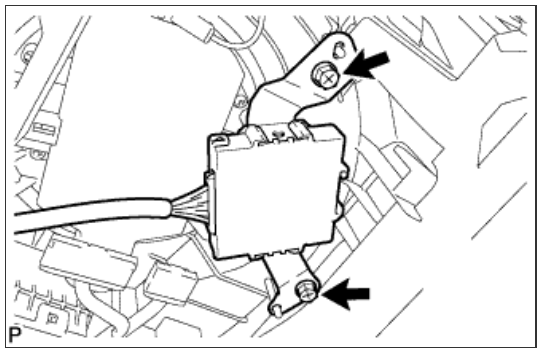
a. Detach the 4 claws and remove the No. 2 instrument panel under cover.



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 procedure for RHD and LHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

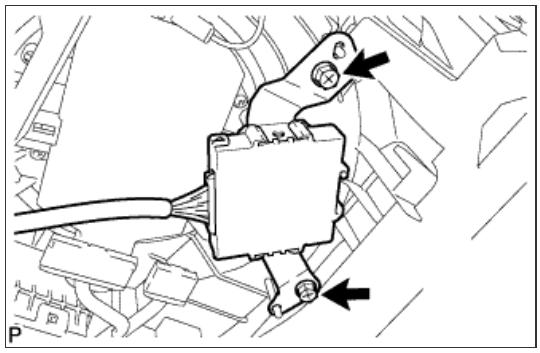
1. INSTALL CLEARANCE WARNING ECU

a. Install the clearance warning ECU to the blower unit with the 2 screws.

NOTICE:

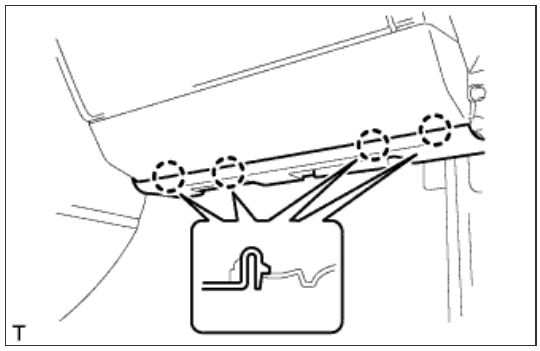
- **Avoid any impact to the clearance warning ECU.**
- **Do not drop the ECU. If it is dropped, replace it with a new one.**

b. Connect the connector.

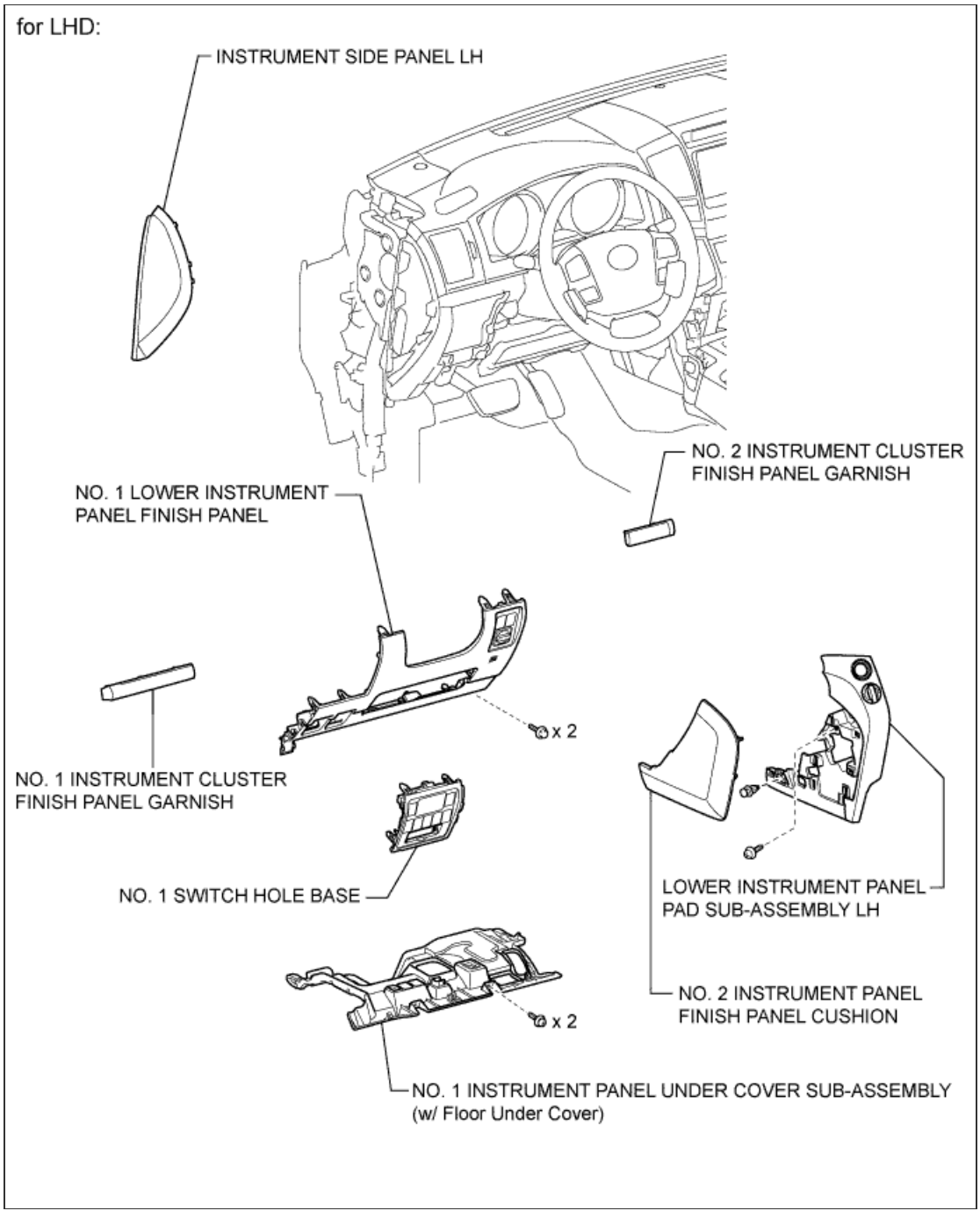


2. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

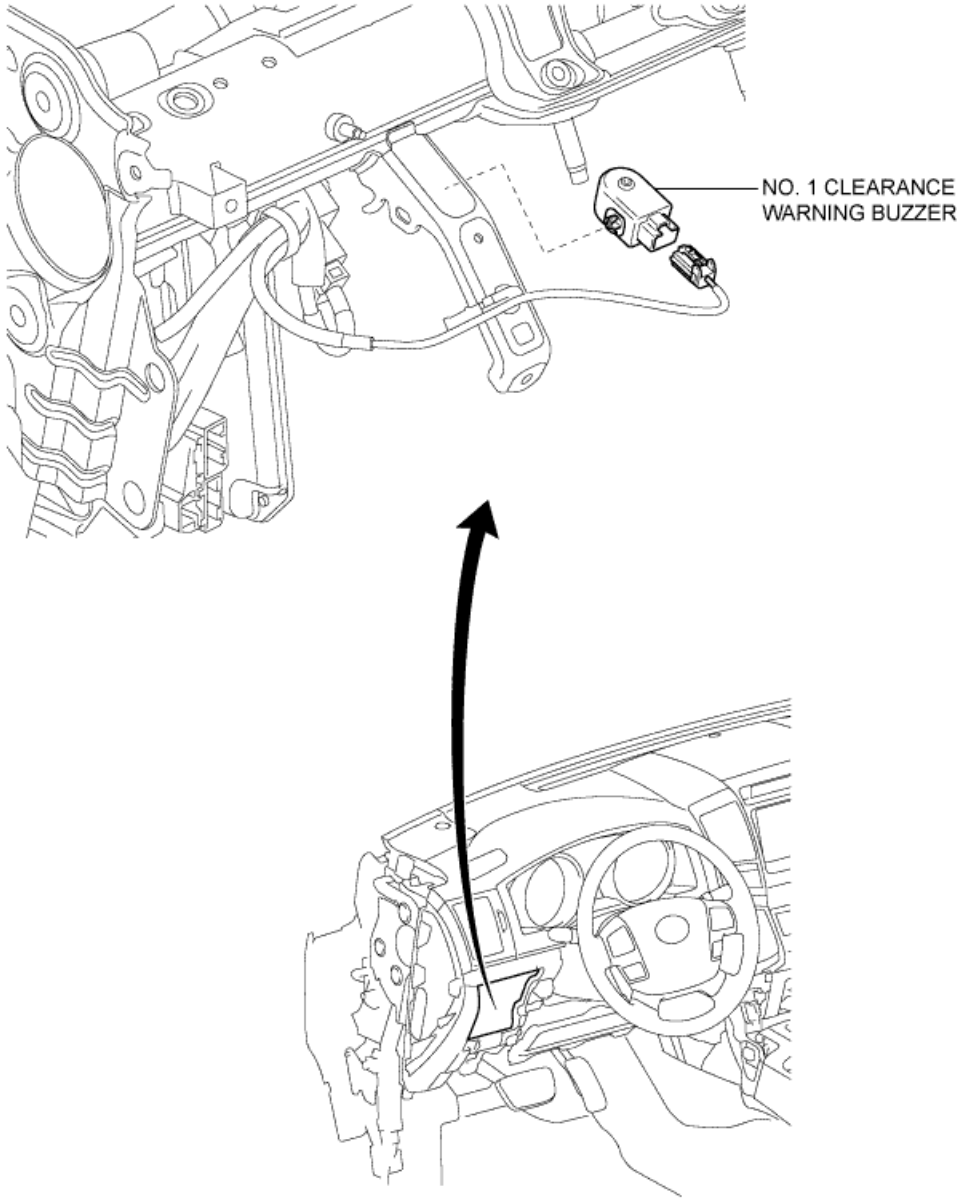
a. Attach the 4 claws to install the No. 2 instrument panel under cover.



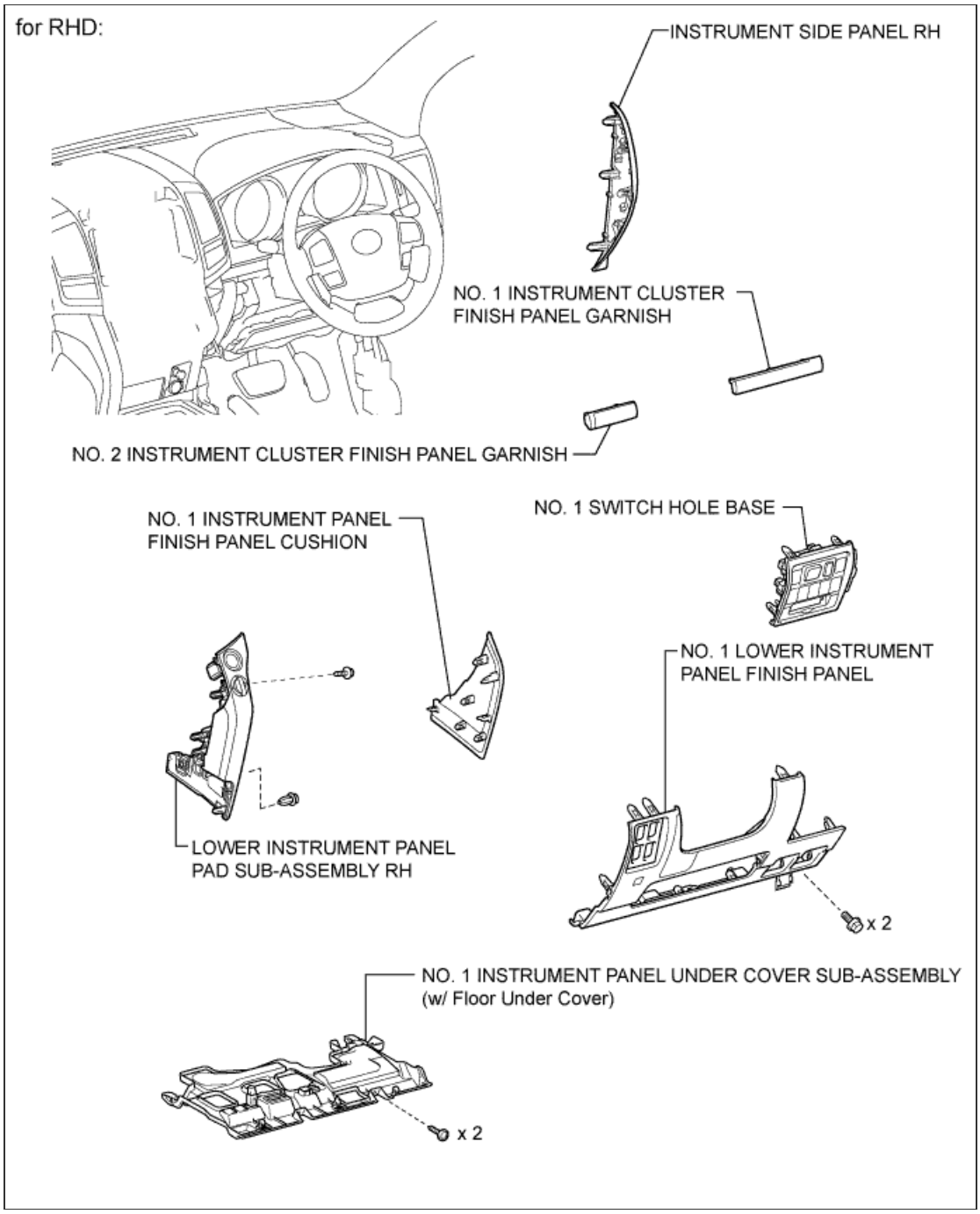
for Preparation Click here



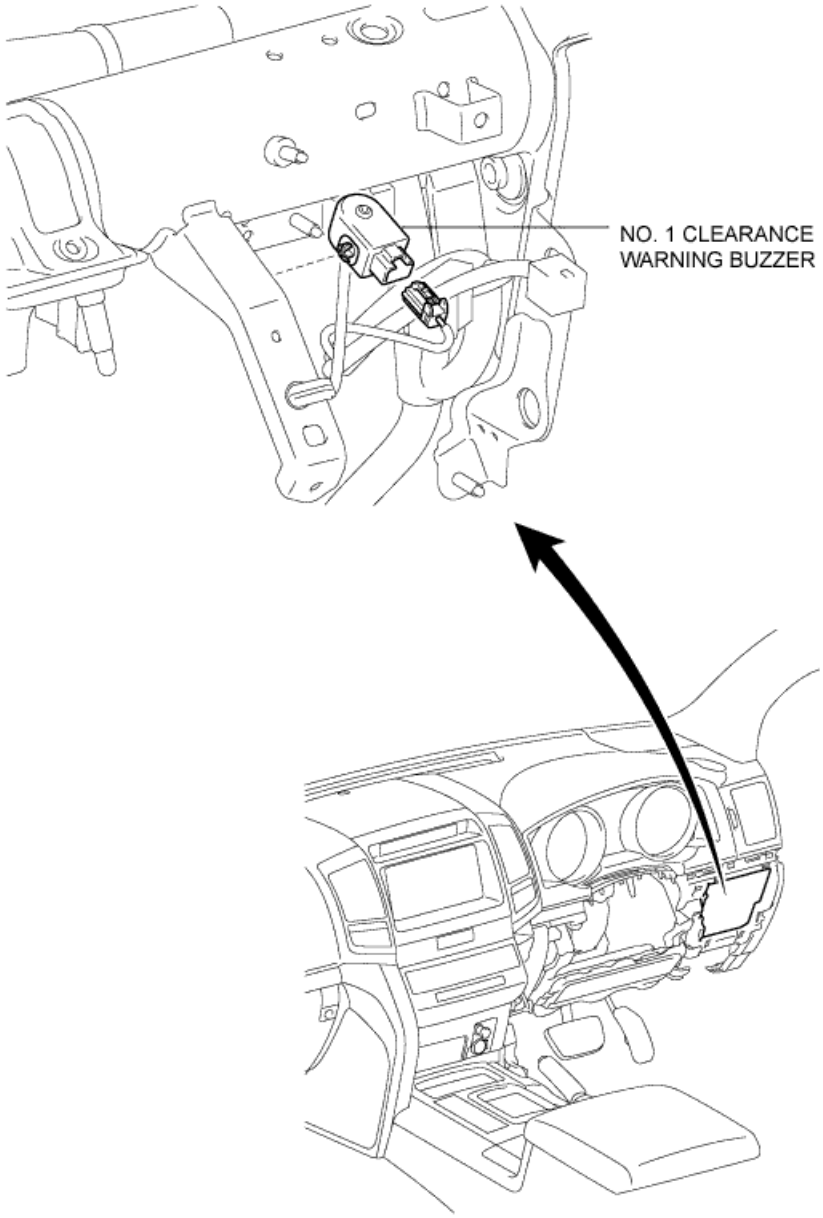
for LHD:



H


for RHD:
INSTRUMENT SIDE PANEL RH
NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH
NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH
NO. 1 INSTRUMENT PANEL FINISH PANEL CUSHION
NO. 1 SWITCH HOLE BASE
NO. 1 LOWER INSTRUMENT PANEL FINISH PANEL
LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH
x 2
NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)
x 2

for RHD:



H

for Preparation Click here

HINT:

- **Use the same procedure for RHD and LHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

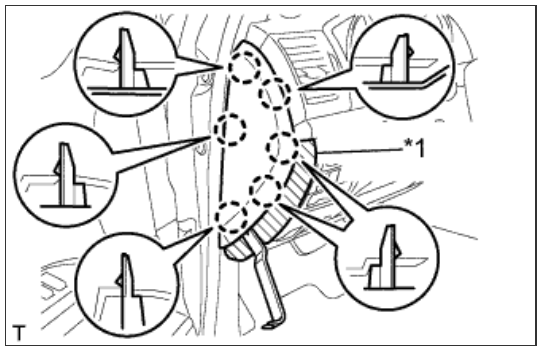
1. REMOVE INSTRUMENT SIDE PANEL LH

a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 6 claws and remove the instrument side panel.



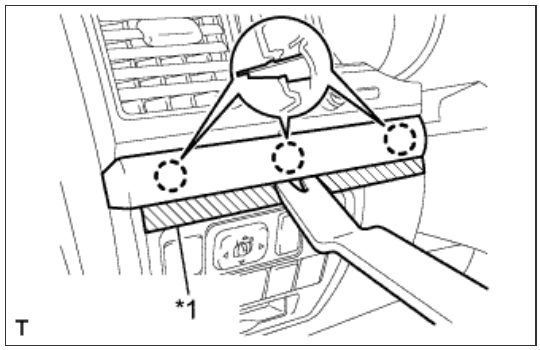
2. REMOVE NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 3 claws and remove the No. 1 instrument cluster finish panel garnish.



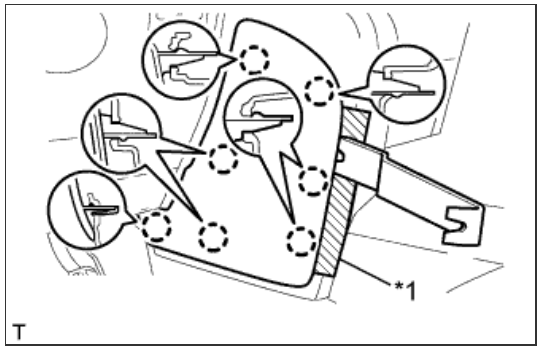
3. REMOVE NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Put protective tape around the No. 2 instrument panel finish panel cushion.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 7 claws and remove the No. 2 instrument panel finish panel cushion.

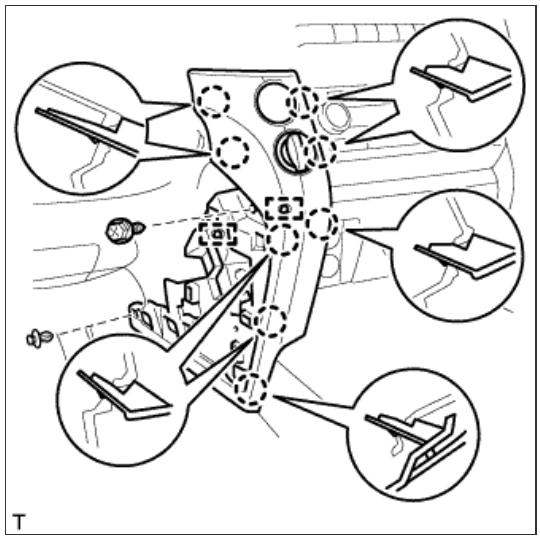


4. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Remove the clip and screw.

b. Detach the 8 claws.

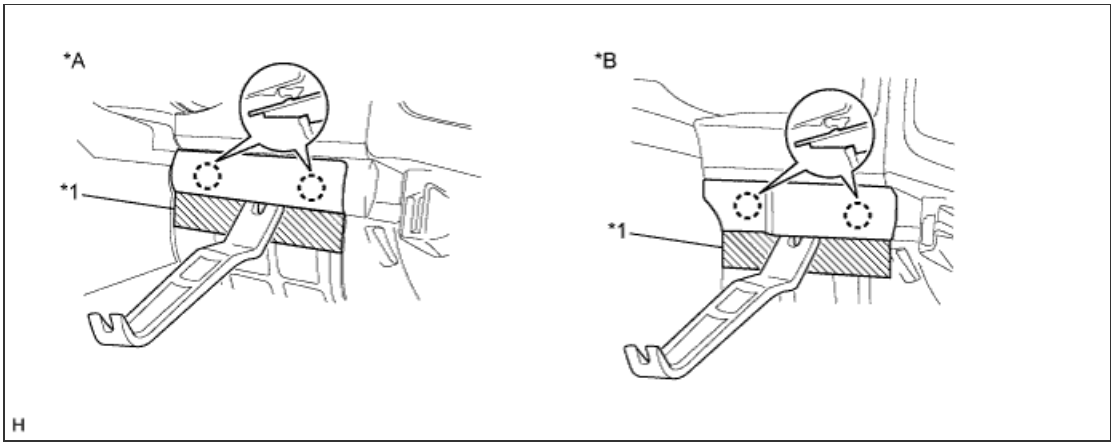
c. Disconnect the connectors, detach the 2 clamps and remove the lower instrument panel pad sub-assembly.



5. REMOVE NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 2 claws and remove the No. 2 instrument cluster finish panel garnish.



Text in Illustration

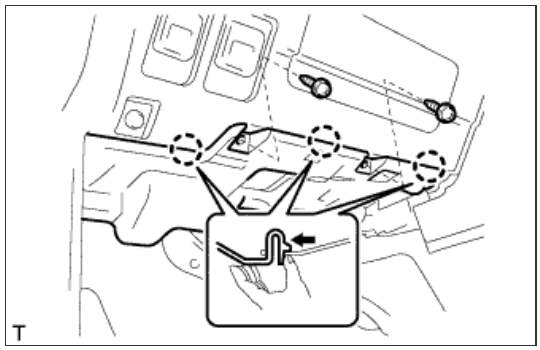
*A	w/ Entry and Start System	*B	w/o Entry and Start System
*1	Protective Tape	-	-

6. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

a. Remove the 2 screws.

b. Detach the 3 claws.

c. Disconnect the connectors and remove the No. 1 instrument panel under cover.



7. REMOVE NO. 1 LOWER INSTRUMENT PANEL FINISH PANEL

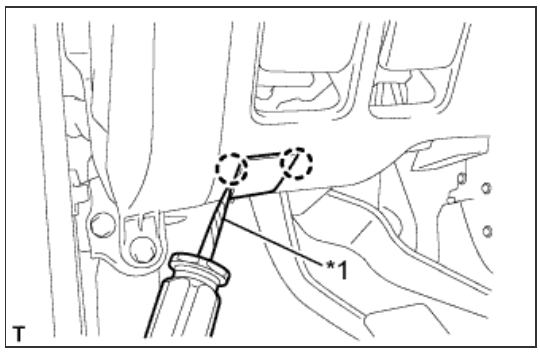
a. Using a screwdriver, detach the 2 claws and open the hole cover.

HINT:

Tape the screwdriver tip before use.

Text in Illustration

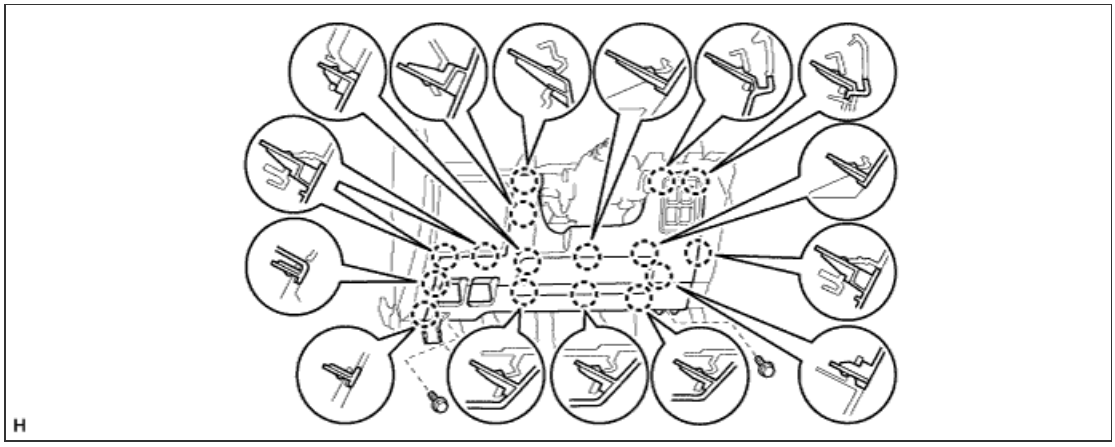
*1	Protective Tape



b. w/ Driver Side Knee Airbag:

i. Remove the 2 bolts.

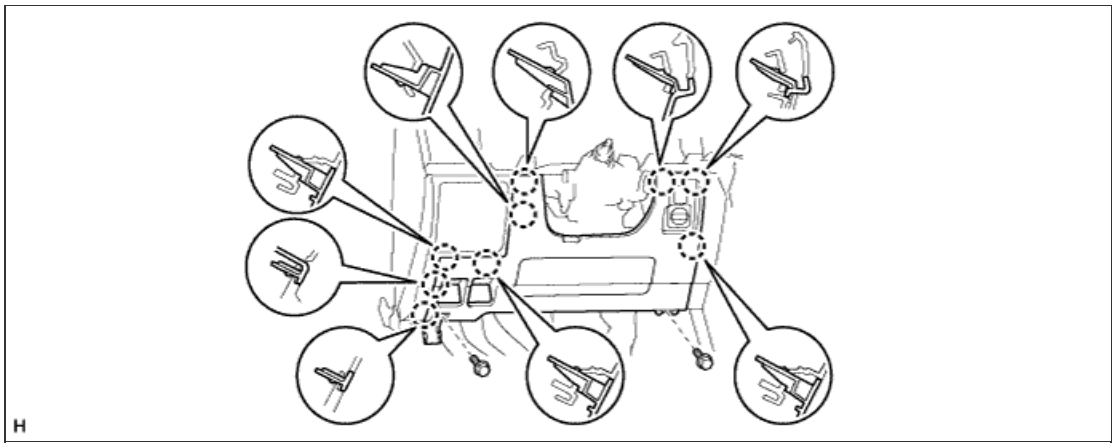
ii. Detach the 16 claws.



c. w/o Driver Side Knee Airbag:

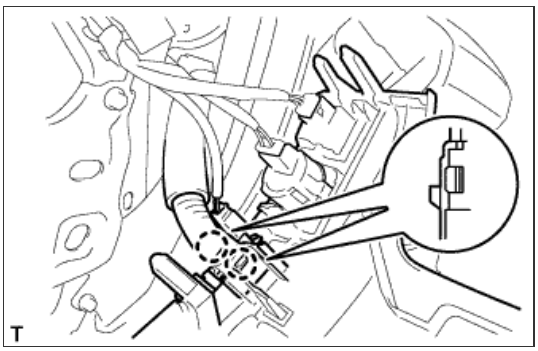
i. Remove the 2 bolts.

ii. Detach the 9 claws.



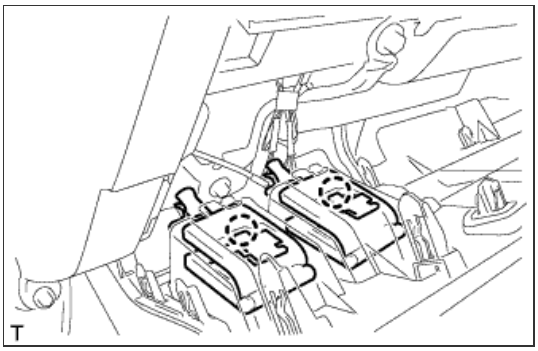
d. for Automatic Air Conditioning System:

i. Detach the 2 claws and remove the room temperature sensor.



e. Detach the 2 claws and disconnect the 2 control cables.

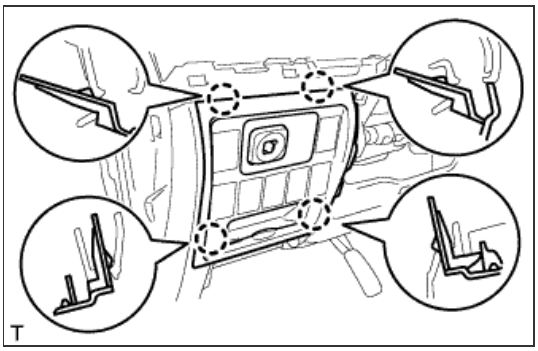
f. Disconnect the connectors and remove the lower No. 1 instrument panel finish panel.



8. REMOVE NO. 1 SWITCH HOLE BASE

a. Detach the 4 claws.

b. Disconnect the connectors and remove the No. 1 switch hole cover.

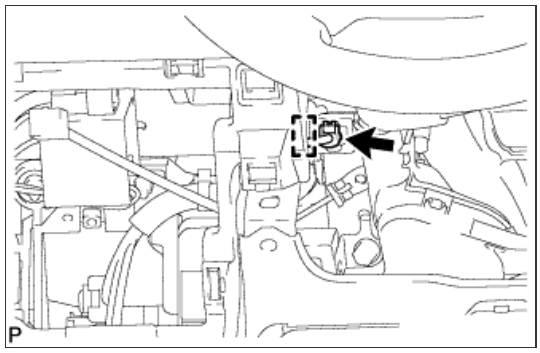


9. REMOVE NO. 1 CLEARANCE WARNING BUZZER

a. Disconnect the connector.

b. Using a clip remover, detach the clip and remove the No. 1 clearance warning

buzzer.



for Preparation Click here

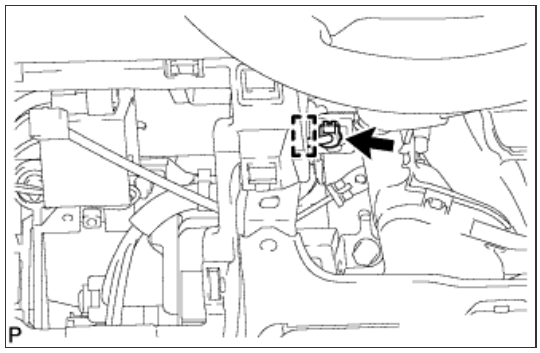
HINT:

- **Use the same procedure for RHD and LHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

1. INSTALL NO. 1 CLEARANCE WARNING BUZZER

a. Attach the clip to install the No. 1 clearance warning buzzer.

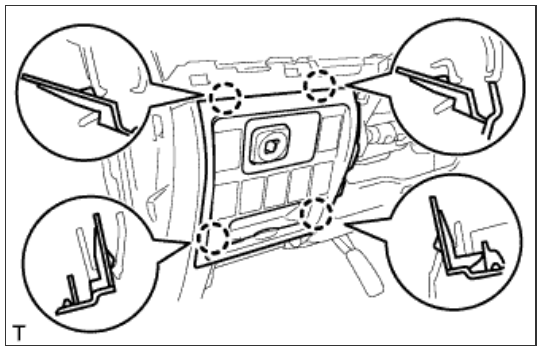
b. Connect the connector.



2. INSTALL NO. 1 SWITCH HOLE BASE

a. Connect the connectors.

b. Attach the 4 claws to install the No. 1 switch hole base.

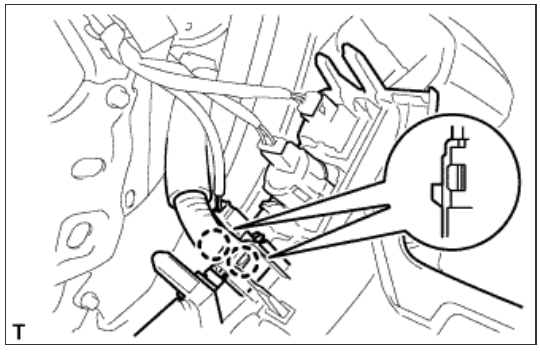


3. INSTALL NO. 1 LOWER INSTRUMENT PANEL FINISH PANEL

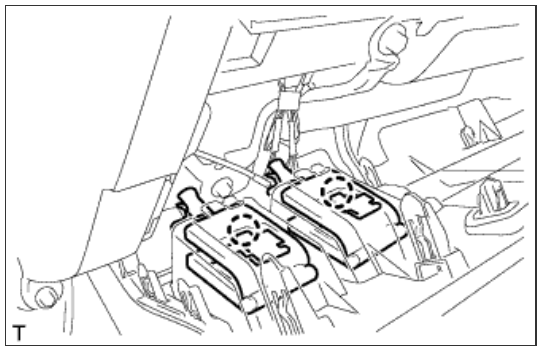
a. Connect the connectors.

b. for Automatic Air Conditioning System:

i. Attach the 2 claws to install the room temperature sensor.



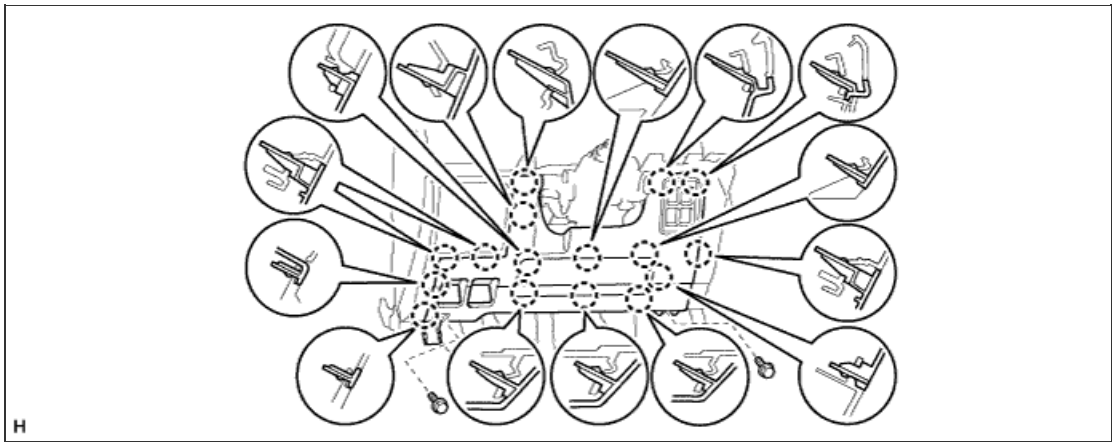
c. Attach the 2 claws to connect the 2 control cables.



d. w/ Driver Side Knee Airbag:

i. Attach the 16 claws to install the lower No. 1 instrument panel finish panel.

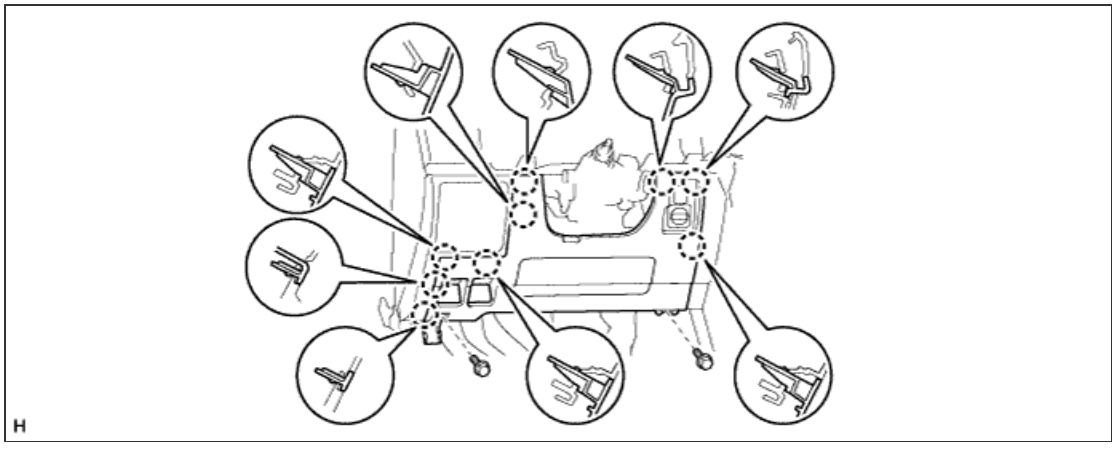
ii. Install the 2 bolts.



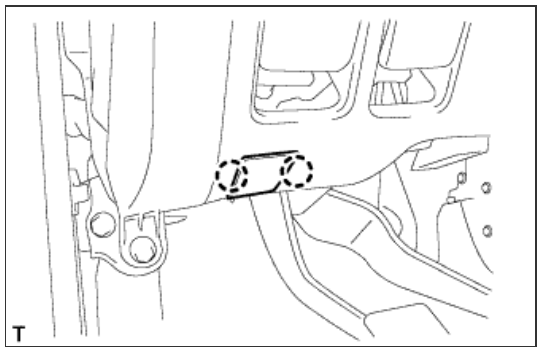
e. w/o Driver Side Knee Airbag:

i. Attach the 9 claws to install the lower No. 1 instrument panel finish panel.

ii. Install the 2 bolts.



f. Attach the 2 claws to close the hole cover.

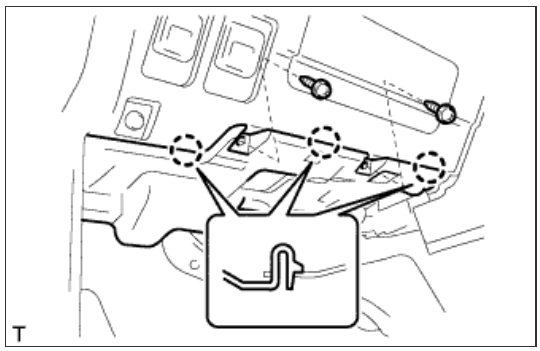


4. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

a. Connect the connectors.

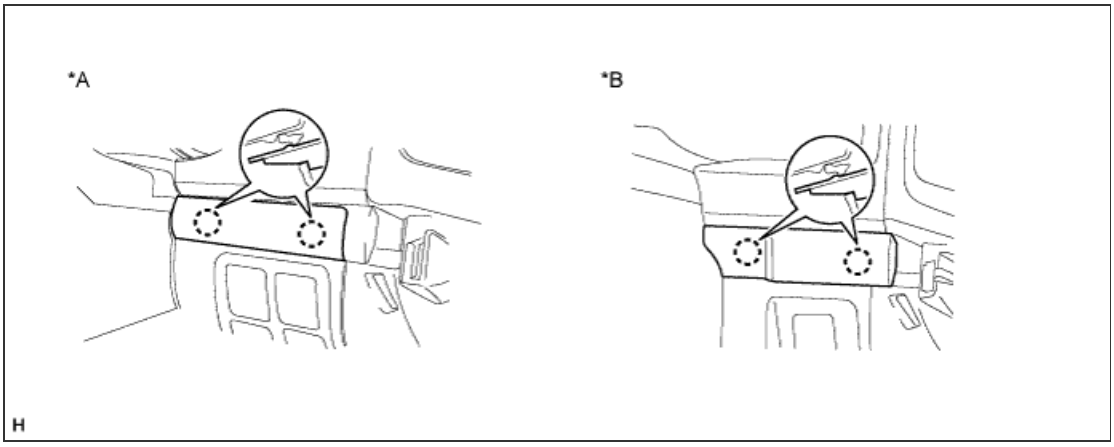
b. Attach the 3 claws to install the No. 1 instrument panel under cover.

c. Install the 2 screws.



5. INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Attach the 2 claws to install the No. 2 instrument cluster finish panel garnish.



Text in Illustration

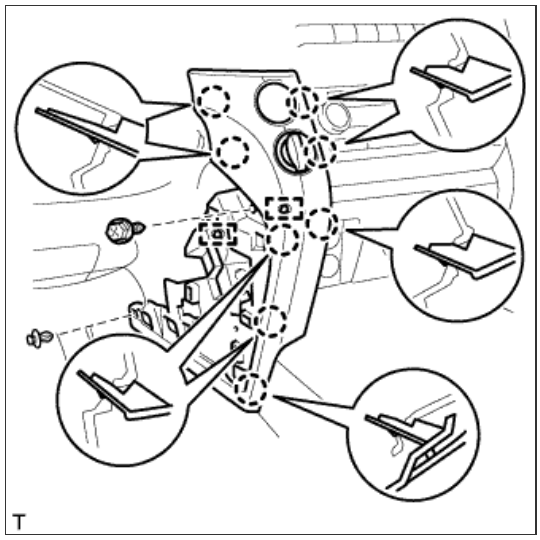
*A	w/ Entry and Start System	*B	w/o Entry and Start System

6. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connectors and attach the 2 clamps.

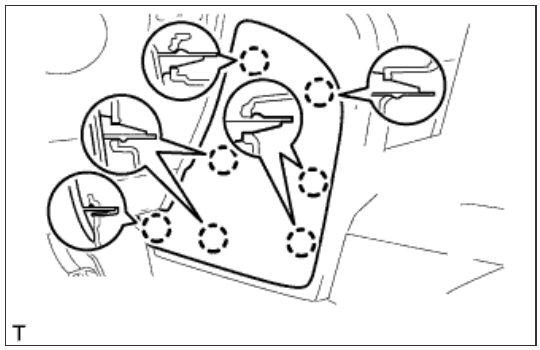
b. Attach the 8 claws to install the lower instrument panel pad sub-assembly.

c. Install the clip and screw.



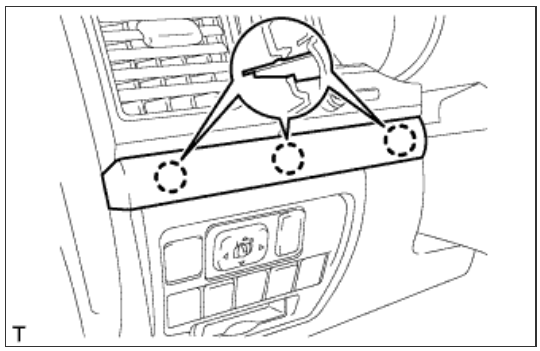
7. INSTALL NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Attach the 7 claws to install the No. 2 instrument panel finish panel cushion.



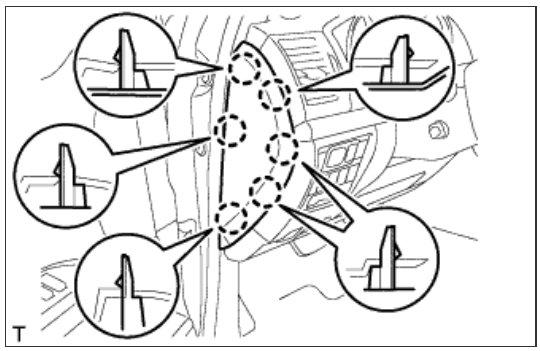
8. INSTALL NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Attach the 3 claws to install the No. 1 instrument cluster finish panel garnish.

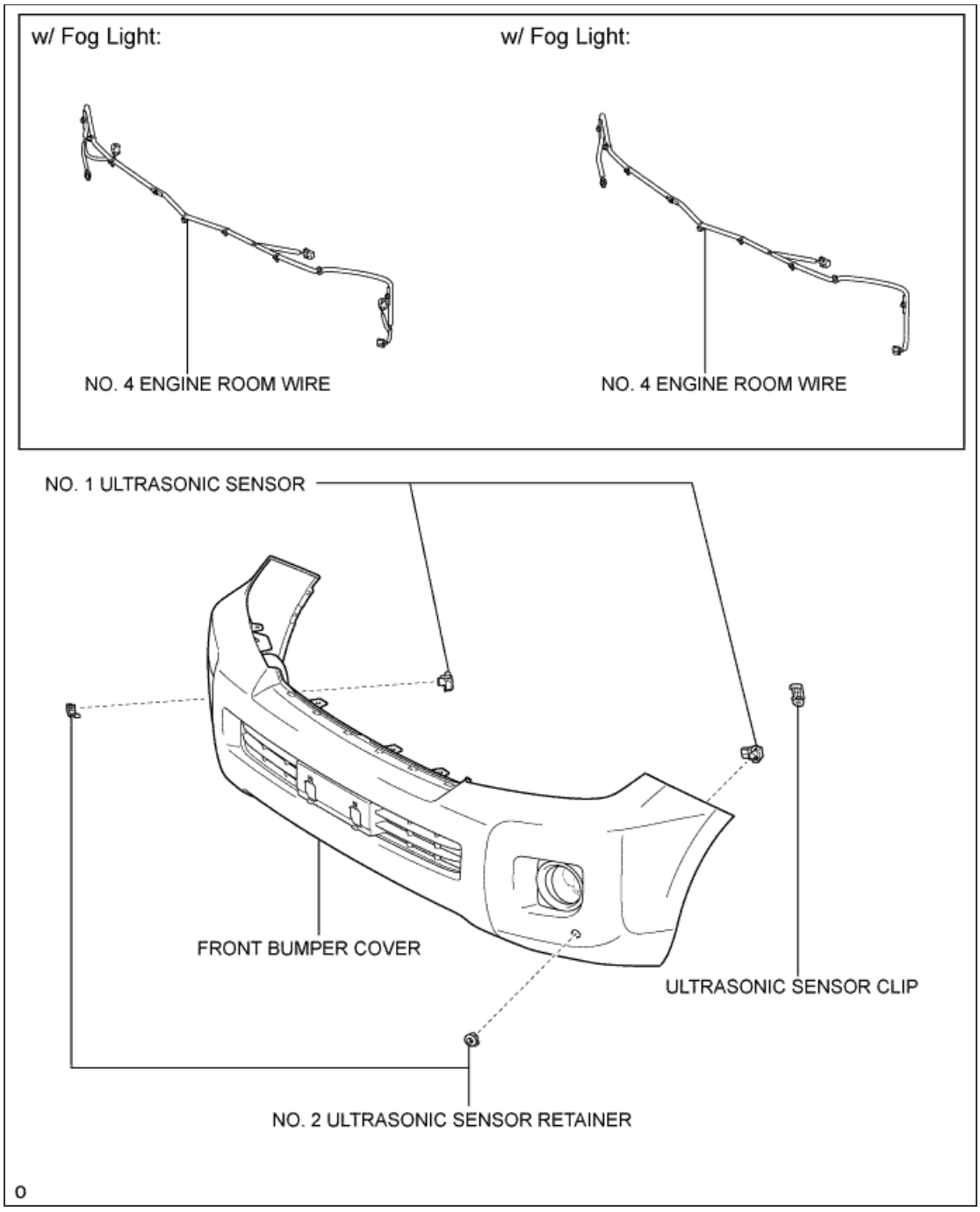


9. INSTALL INSTRUMENT SIDE PANEL LH

a. Attach the 6 claws to install the instrument side panel.



for Preparation Click here



for Preparation Click here

1. REMOVE FRONT BUMPER COVER

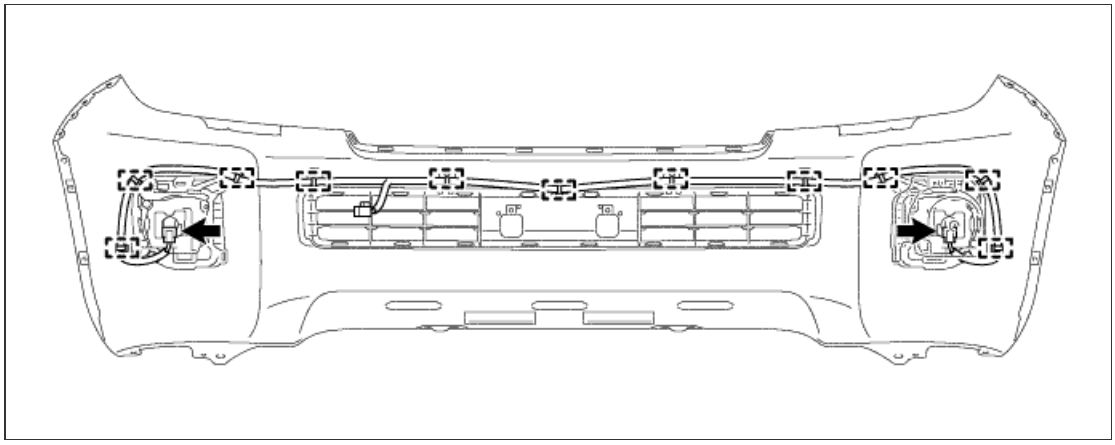
(Click here)

2. REMOVE NO. 4 ENGINE ROOM WIRE

a. w/o TOYOTA Parking Assist-sensor System, w/ Fog Light:
Remove the No. 4 engine room wire.

i. Disconnect the 2 connectors.

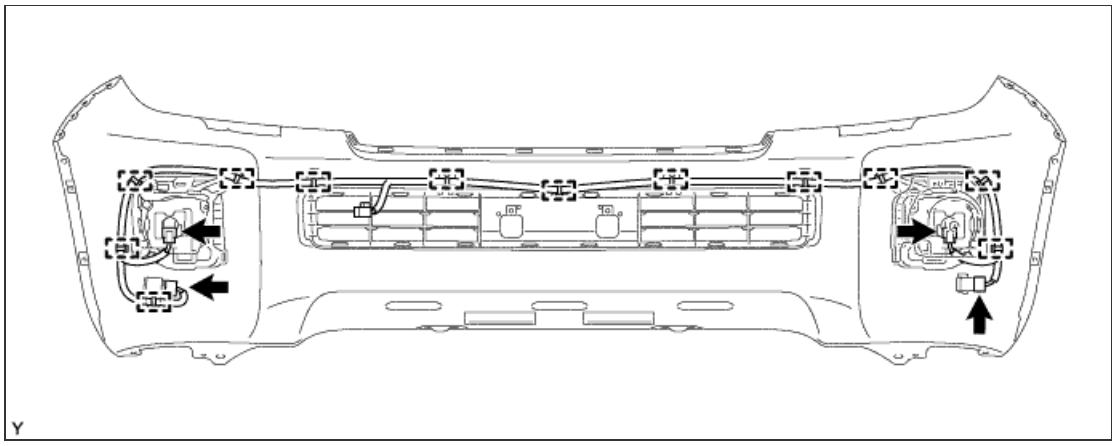
ii. Detach the 11 clamps and remove the No. 4 engine room wire.



b. w/ TOYOTA Parking Assist-sensor System, w/ Fog Light:
Remove the No. 4 engine room wire.

i. Disconnect the 4 connectors.

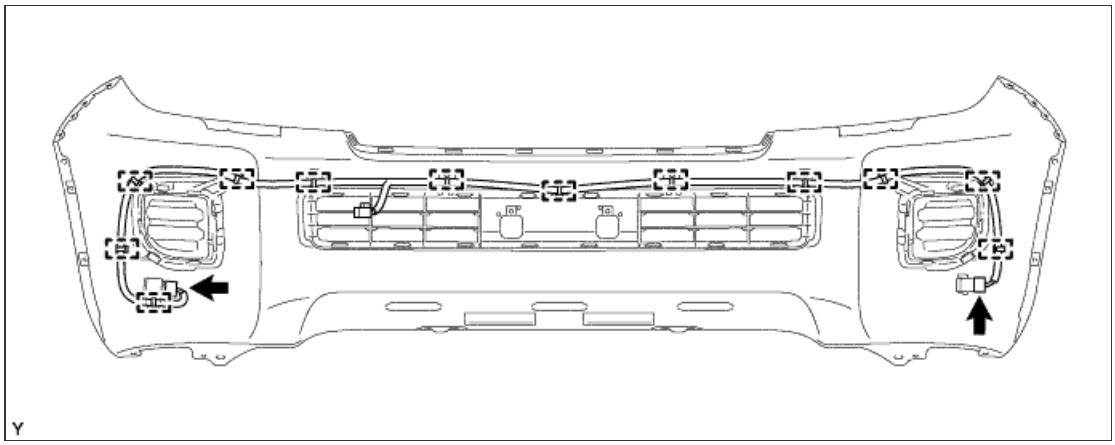
ii. Detach the 12 clamps and remove the No. 4 engine room wire.



c. w/ TOYOTA Parking Assist-sensor System, w/o Fog Light:
Remove the No. 4 engine room wire.

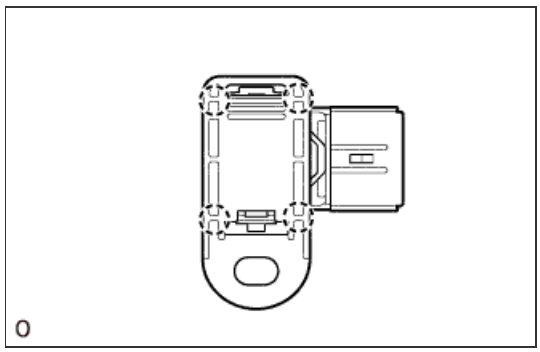
i. Disconnect the 2 connectors.

ii. Detach the 12 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

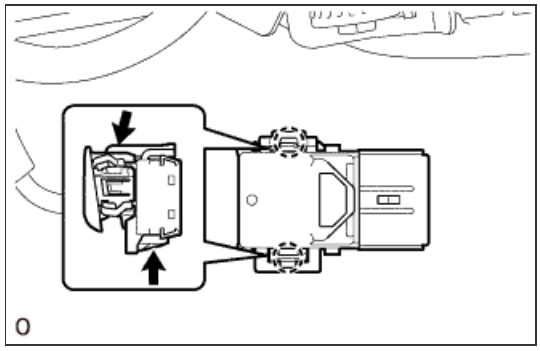
HINT:

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.

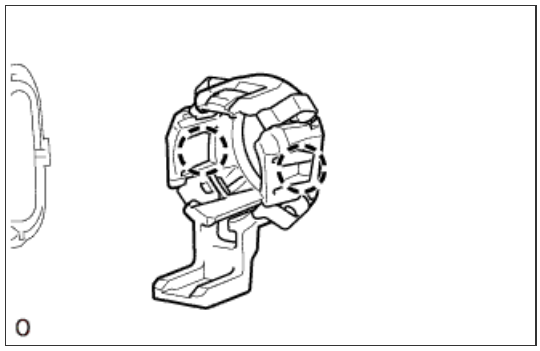


5. REMOVE NO. 2 ULTRASONIC SENSOR RETAINER

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 No. 2 ultrasonic sensor retainer from the front bumper cover.



for Preparation Click here

1. INSPECT NO. 1 ULTRASONIC SENSOR

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

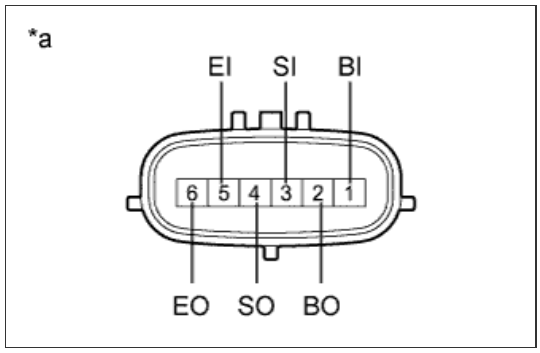
Standard Resistance:

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.

Test in Illustration

*a	Component without harness connected (No. 1 Ultrasonic Sensor)



for Preparation Click here

1. INSTALL NO. 2 ULTRASONIC SENSOR RETAINER

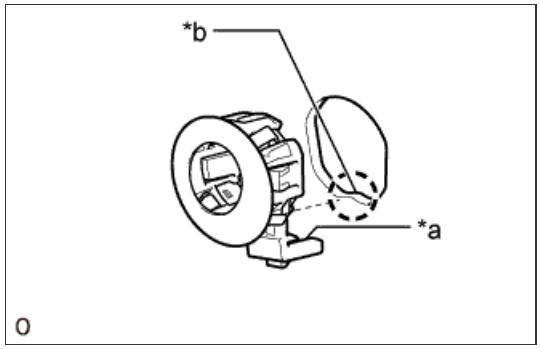
HINT:

Use the same procedure to install the No. 2 ultrasonic sensor retainer on the other side.

a. Temporarily install the No. 2 ultrasonic sensor retainer to the front bumper.

Text in Illustration

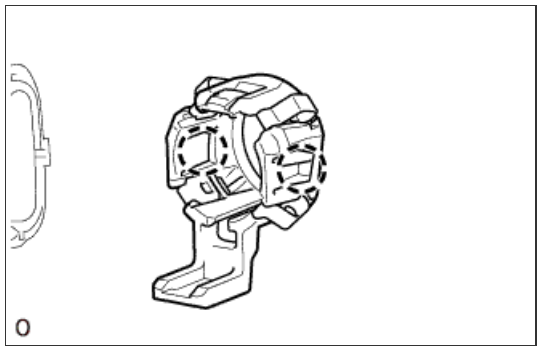
*a	Protrusion
*b	Keyhole



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. w/o TOYOTA Parking Assist-sensor System, w/ Fog Light:
Install the No. 4 engine room wire.

i. Attach the 11 clamps to install the No. 4 engine room wire.

ii. Connect the 2 connectors.

b. w/ TOYOTA Parking Assist-sensor System, w/ Fog Light:
Install the No. 4 engine room wire.

i. Attach the 12 clamps to install the No. 4 engine room wire.

ii. Connect the 4 connectors.

c. w/ TOYOTA Parking Assist-sensor System, w/o Fog Light:
Install the No. 4 engine room wire.

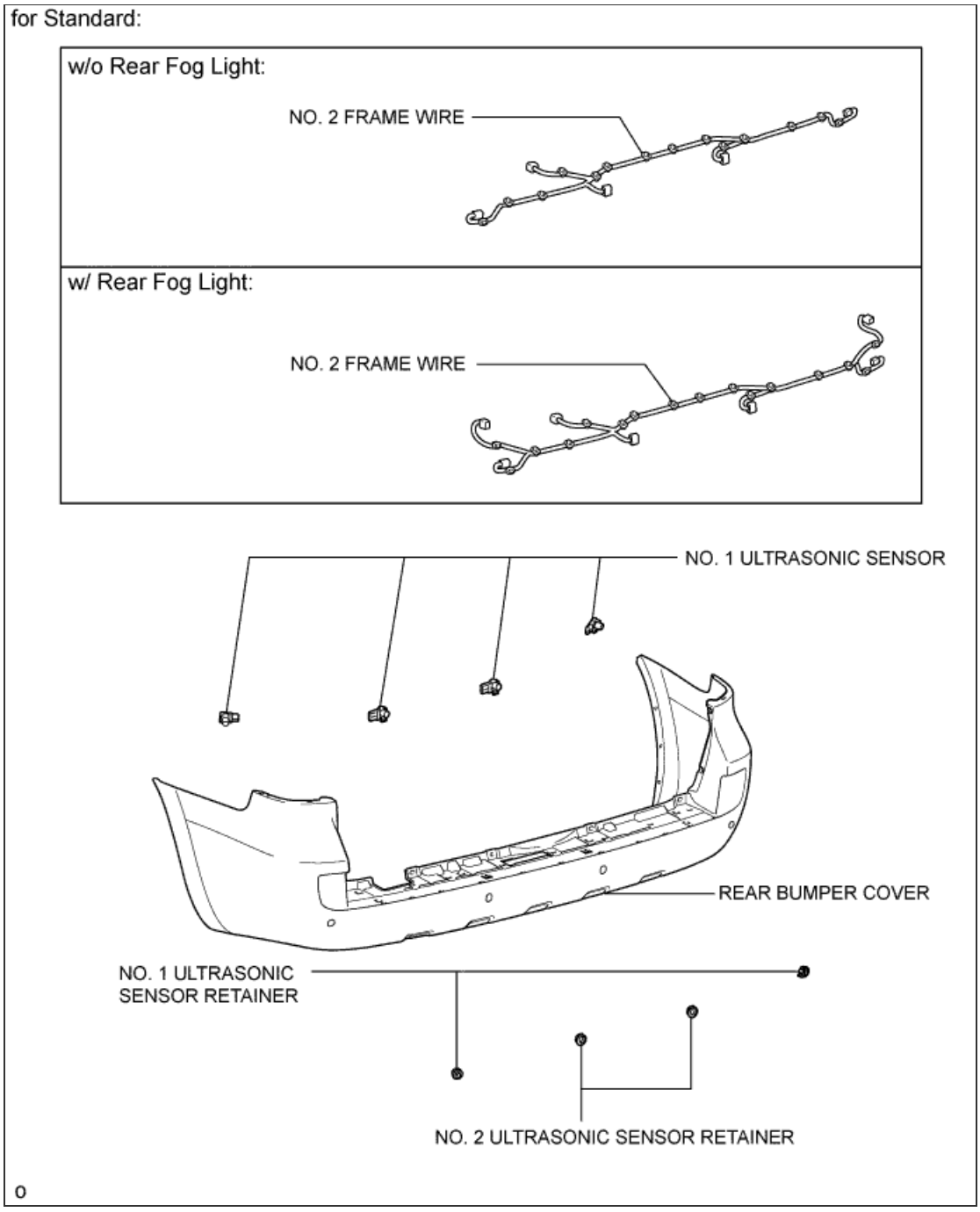
i. Attach the 12 clamps to install the No. 4 engine room wire.

ii. Connect the 2 connectors.

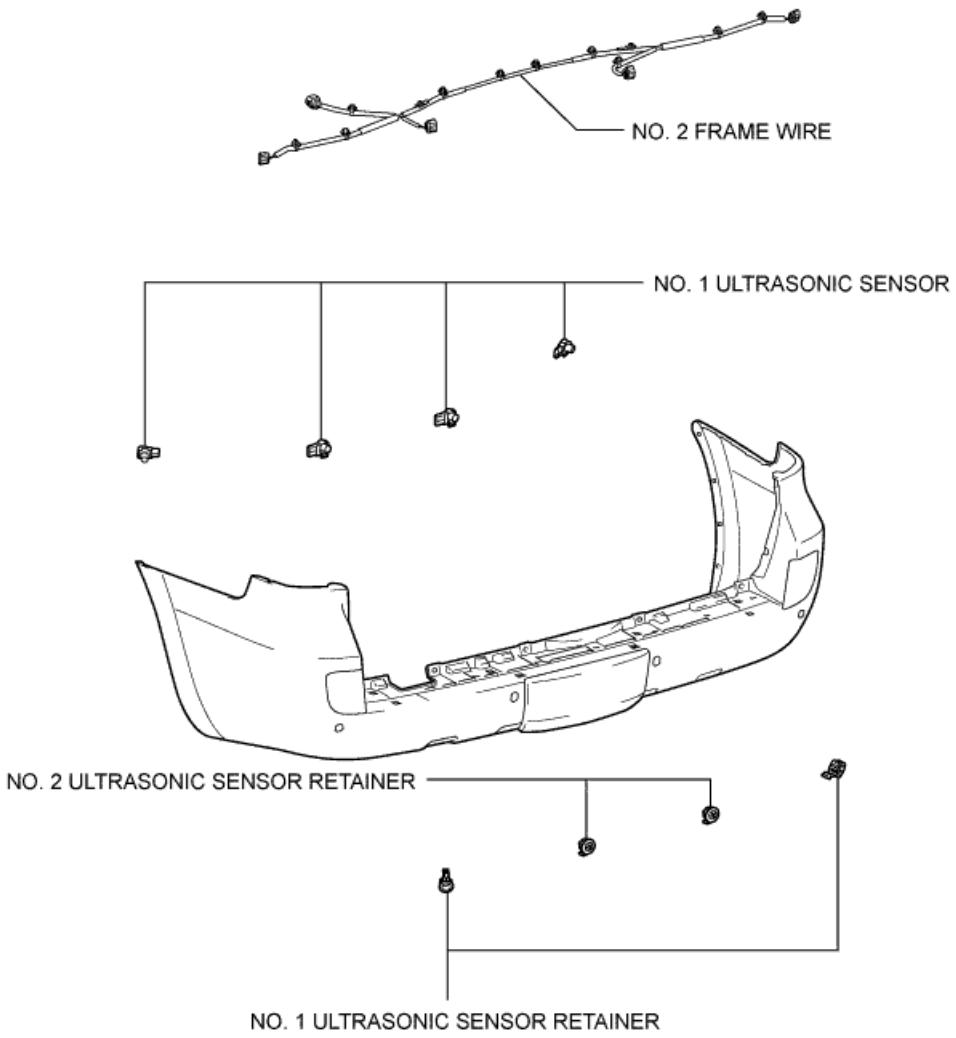
5. INSTALL FRONT BUMPER COVER

(Click here)

for Preparation Click here

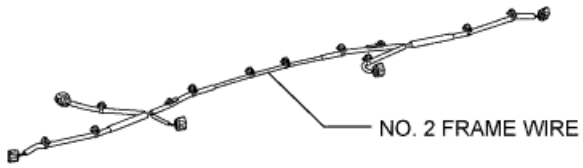


w/ Towing Hitch:

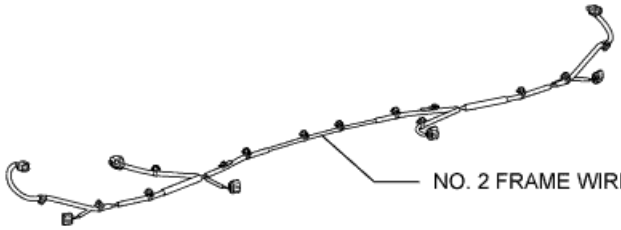


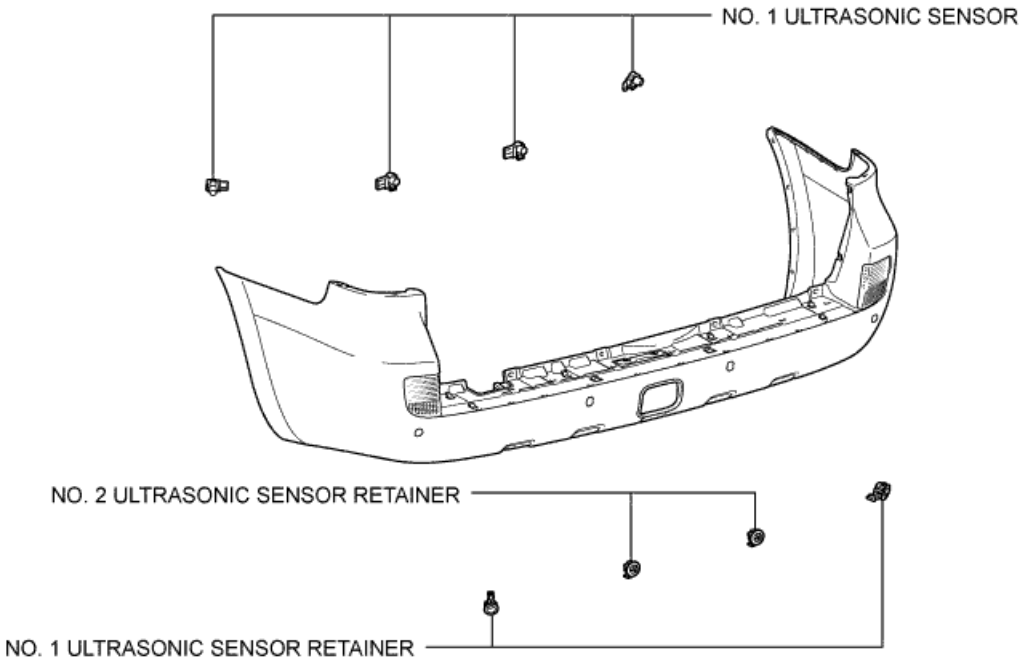
w/ Pintle Hook:

w/o Rear Fog Light:



w/ Rear Fog Light:





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).

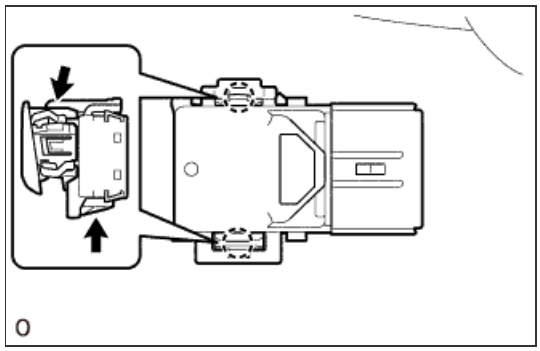
c. w/ Pintle Hook:
(Click here).

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.**

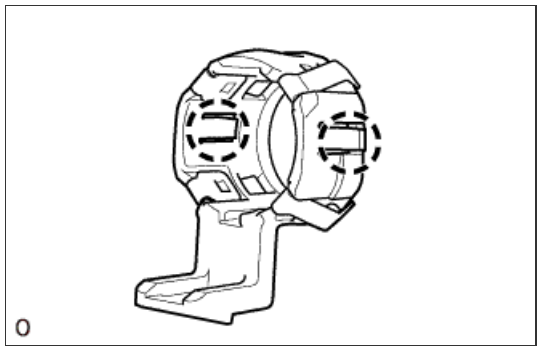


4. REMOVE NO. 1 ULTRASONIC SENSOR RETAINER

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.**
- **The illustration shows the No. 1 ultrasonic sensor retainer for the RH corner. The vertical orientation of the No. 1 ultrasonic sensor retainers for the LH corner is opposite that of the image shown in the illustration.**

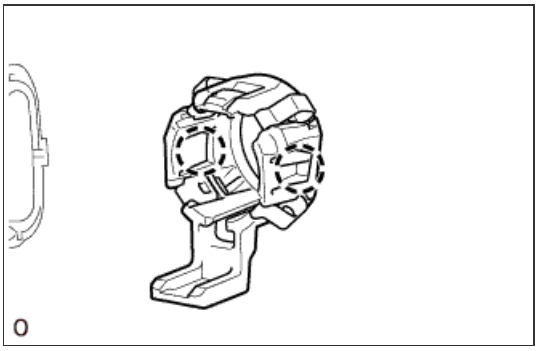


5. REMOVE NO. 2 ULTRASONIC SENSOR RETAINER

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. 1 ULTRASONIC SENSOR

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

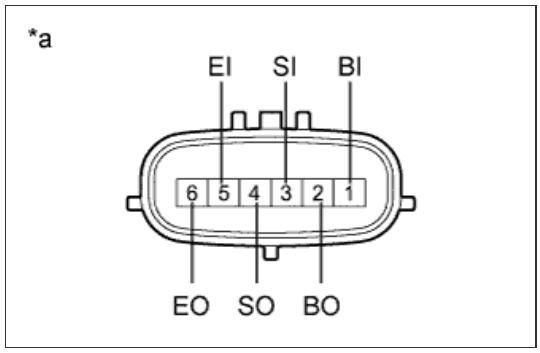
Standard Resistance:

Tester Connection	Condition	Specified Condition
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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.

Test in Illustration

*a	Component without harness connected (No. 1 Ultrasonic Sensor)



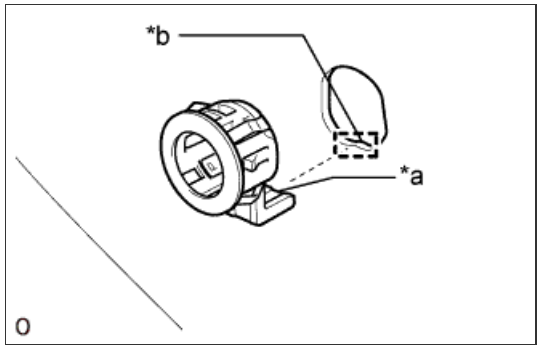
for Preparation Click here

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.



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.**

HINT:

The illustration shows the No. 1 ultrasonic sensor retainer for the RH corner. The vertical orientation of the No. 1 ultrasonic sensor retainers for the LH corner is opposite that of the image shown in the illustration.

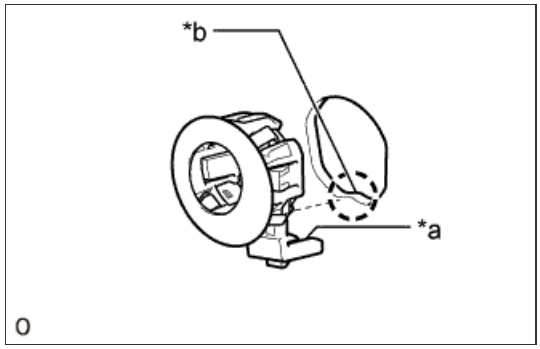
b. Attach the 2 claws to install the No. 1 ultrasonic sensor retainer.

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. 2 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).

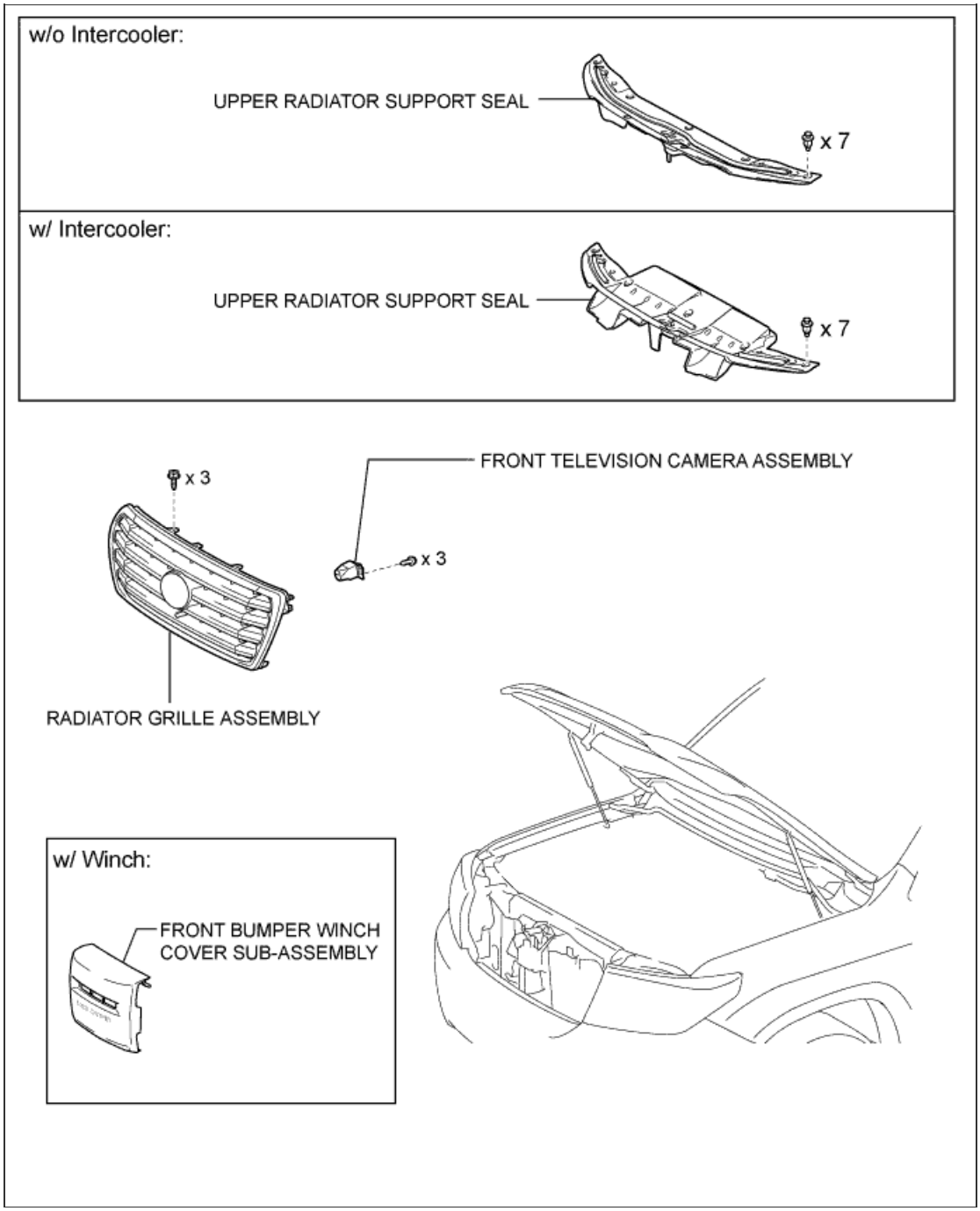
5. INSTALL REAR BUMPER COVER

a. for Standard:
(Click here).

b. w/ Towing Hitch:
(Click here).

c. w/ Pintle Hook:
(Click here).

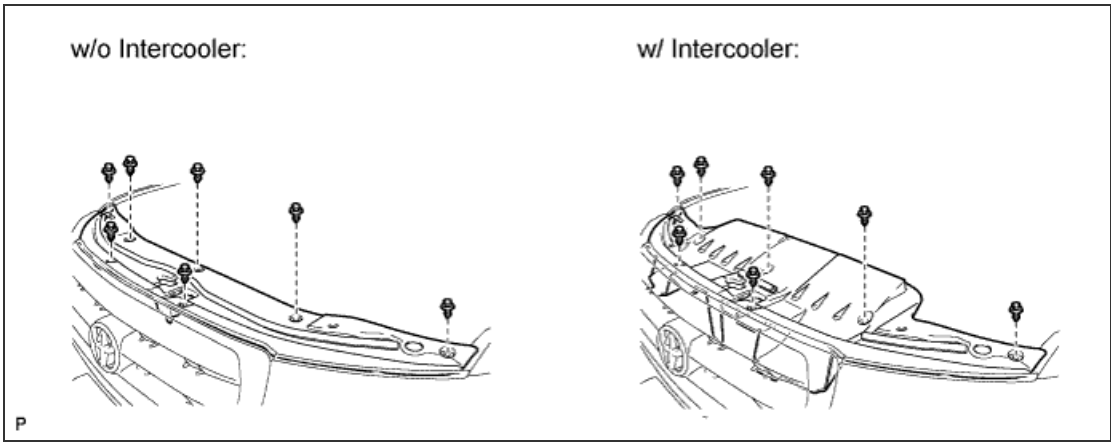
for Preparation Click here



for Preparation Click here

1. REMOVE UPPER RADIATOR SUPPORT SEAL

a. Remove the 7 clips and radiator support seal.



2. REMOVE FRONT BUMPER WINCH COVER SUB-ASSEMBLY (w/ Winch)

3. REMOVE RADIATOR GRILLE ASSEMBLY

a. Put protective tape around the radiator grille assembly.

Text in Illustration

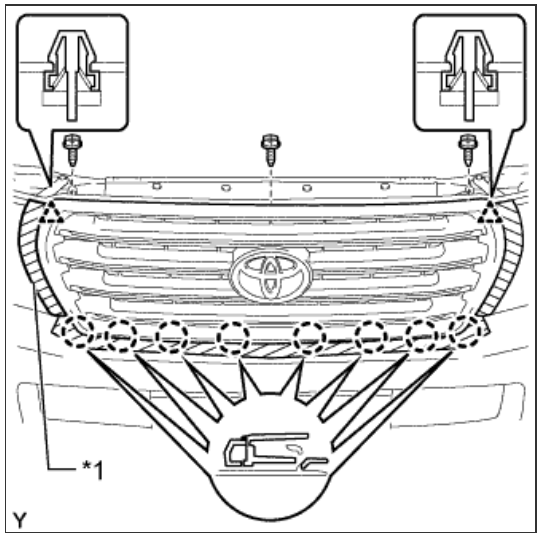
*1	Protective Tape

b. Remove the 3 screws.

c. Detach the 2 clips and 8 claws, and remove the radiator grille assembly.

d. w/ Wide View Front Monitor System:

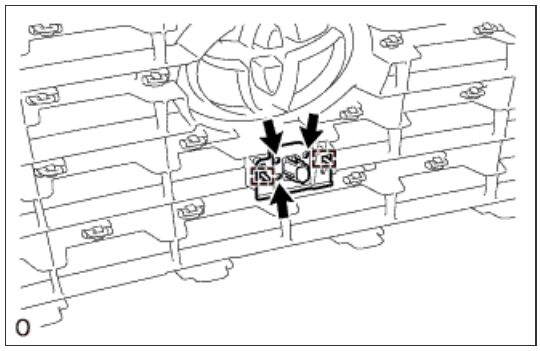
i. Disconnect the connector.



4. 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. 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:

i. Connect the connector.

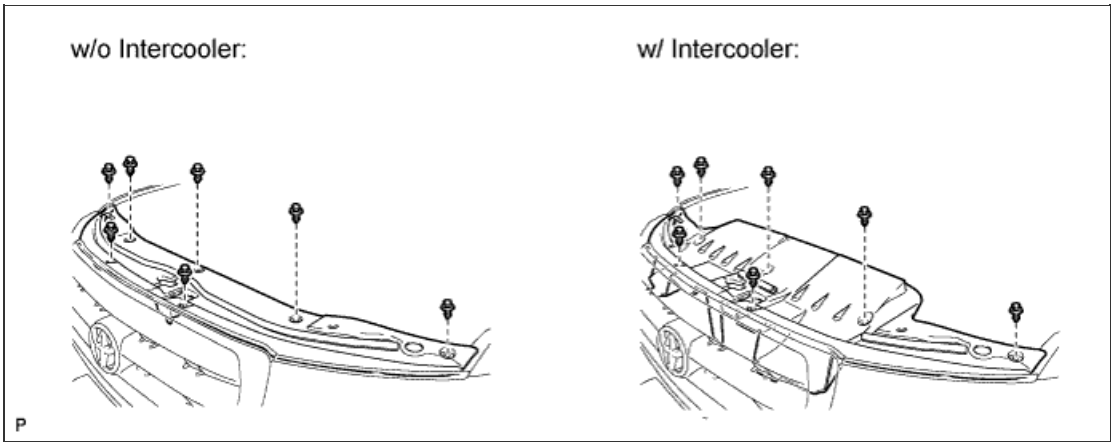
b. Attach the 2 clips and 8 claws to install the radiator grille assembly.

c. Install the 3 screws.

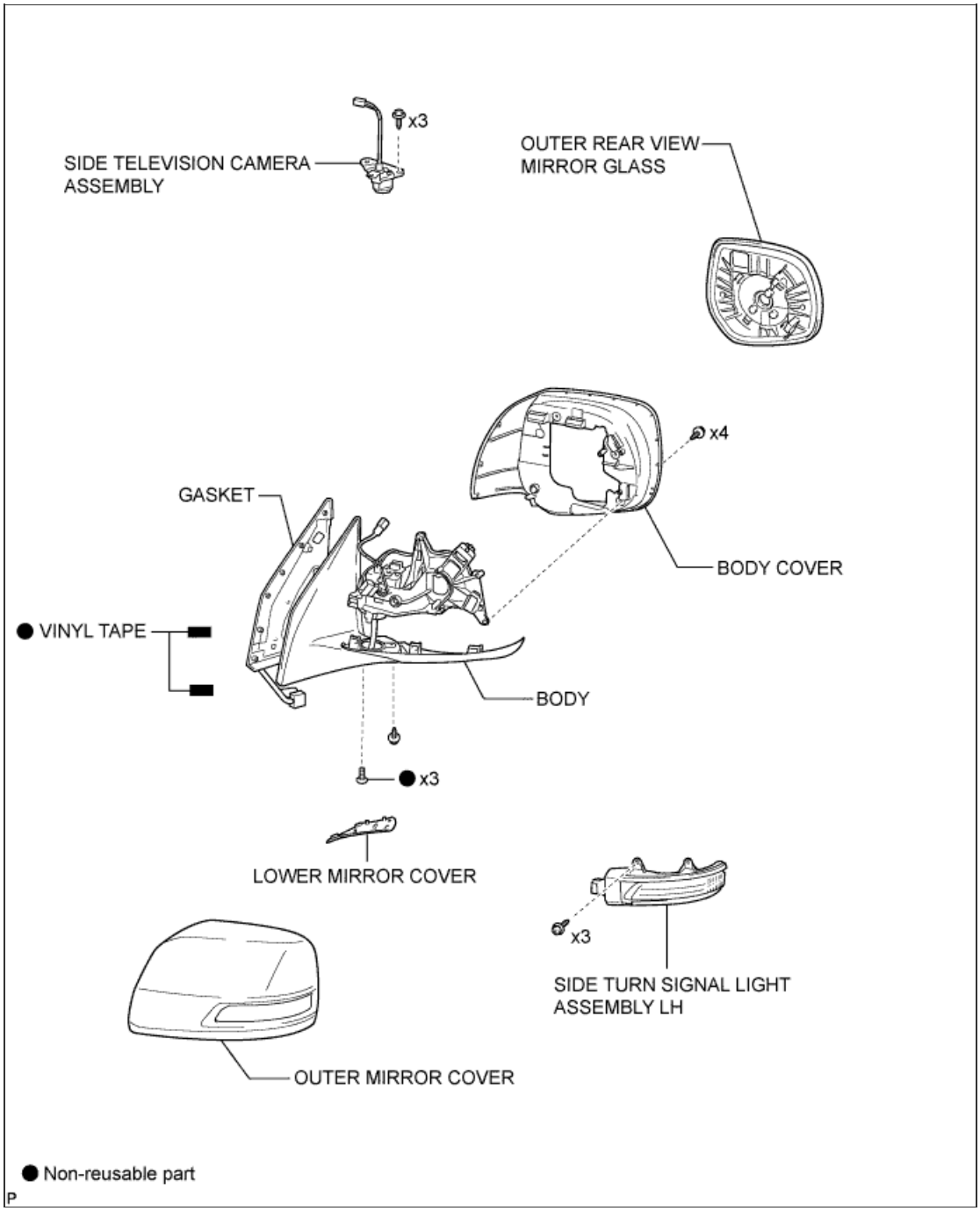
3. INSTALL FRONT BUMPER WINCH COVER SUB-ASSEMBLY (w/ Winch)

4. INSTALL UPPER RADIATOR SUPPORT SEAL

a. Install the radiator support seal 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 OUTER REAR VIEW MIRROR ASSEMBLY LH

(Click here)

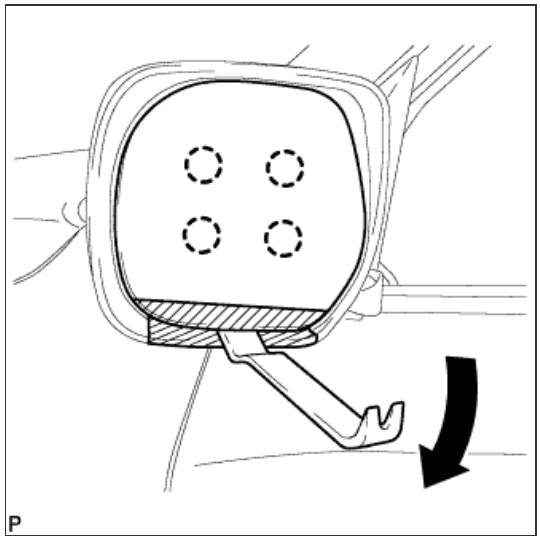
2. REMOVE OUTER MIRROR LH

a. Push the upper part of the mirror surface and tilt it.

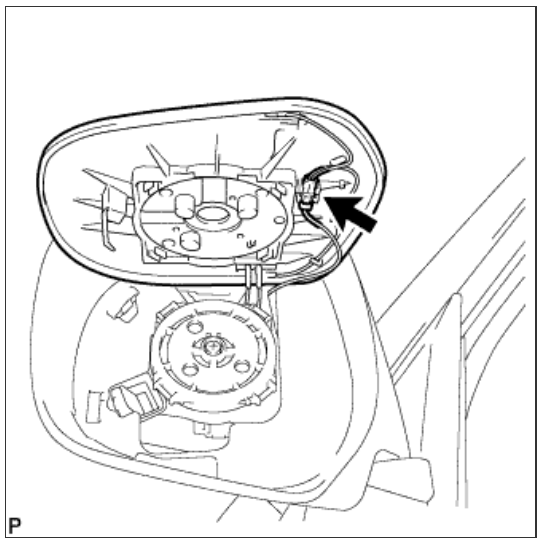
b. Using a moulding remover, detach the 4 claws and separate the outer mirror LH from the mirror body.

HINT:

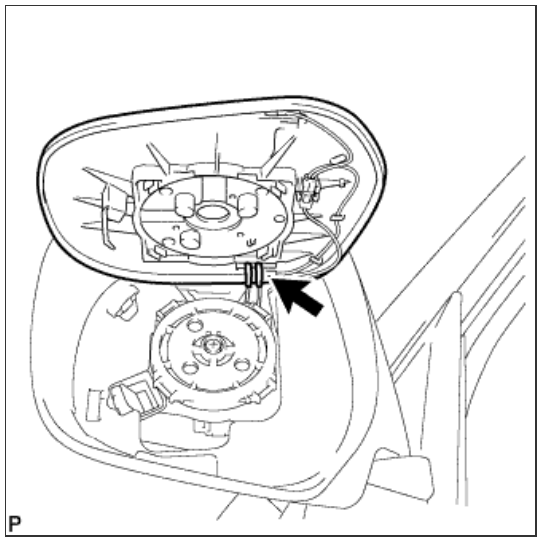
Apply protective tape to the outer rear mirror LH to prevent it from being damaged.



c. w/ EC Mirror:
Disconnect the connector and remove the outer mirror LH.



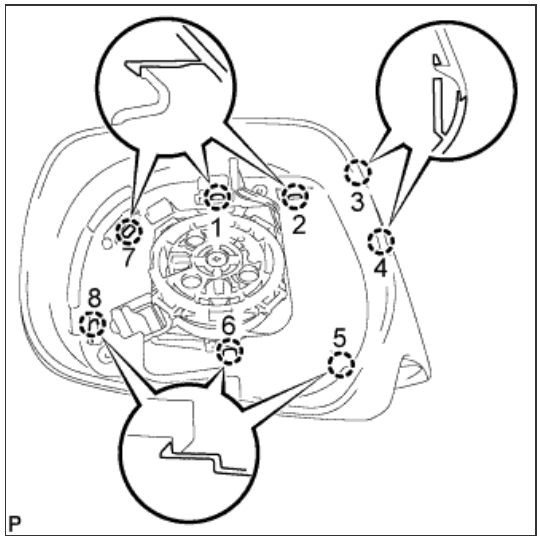
d. w/ Mirror Heater:
Disconnect the 2 connectors and remove the outer mirror LH.



3. REMOVE OUTER MIRROR COVER LH

HINT:

Be sure to detach the claws of the outer mirror cover in the order shown in the illustration.



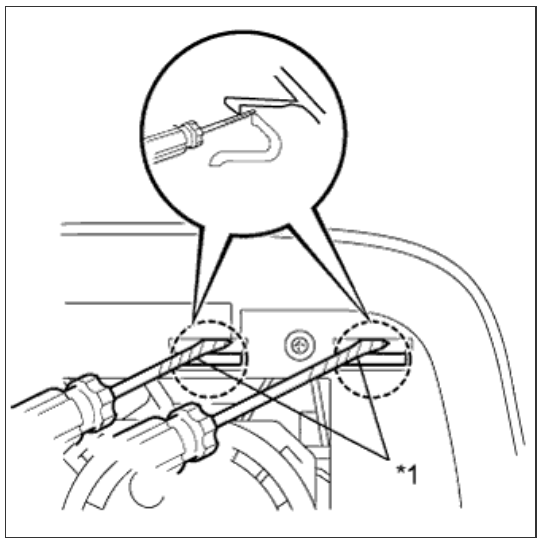
a. Using 2 screwdrivers, detach the 2 claws.

HINT:

Tape the screwdriver tip before use.

Text in Illustration

*1	Protective Tape



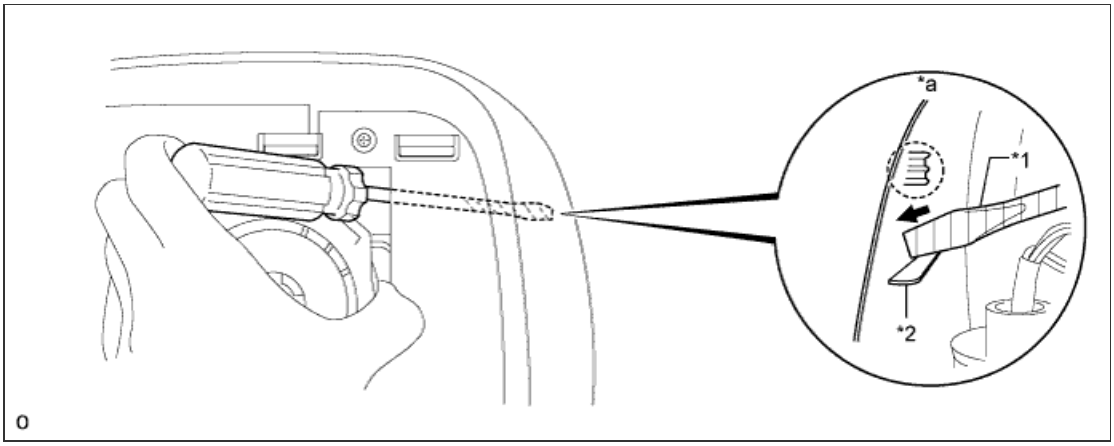
b. Insert a screwdriver into the slot as shown in the illustration and push on the outer mirror body to create a space between the outer mirror body and outer mirror cover.

NOTICE:

Be careful not to break the ribs.

HINT:

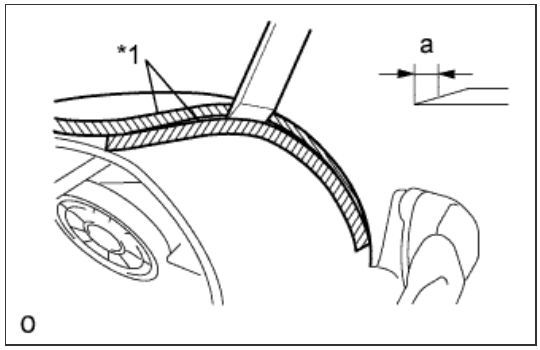
Tape the screwdriver tip before use.



Text in Illustration

*1	Protective Tape	*2	Rib
*a	Inner Side of Outer Mirror Cover	-	-

c. Apply protective tape to the areas of the body cover and outer mirror cover as shown in the illustration.



HINT:

Tape the moulding remover before use.

Text in Illustration

*1	Protective Tape

d. 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.).

Standard:

Area	Specified Condition
a	4mm

e. 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.**

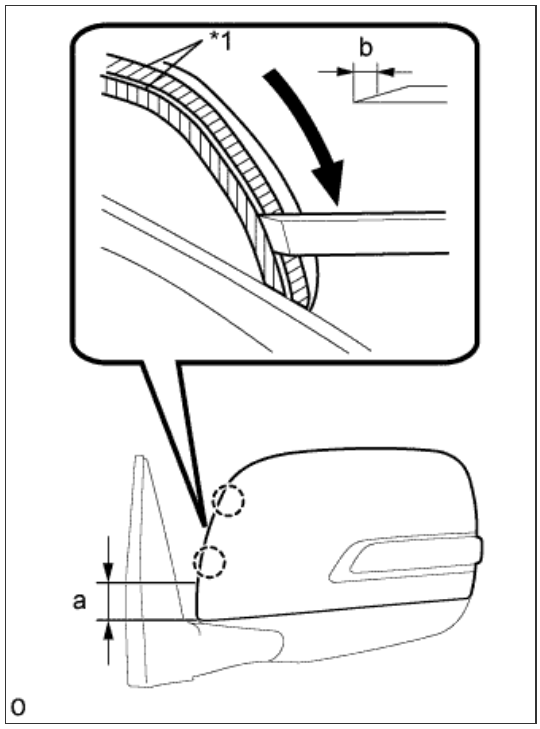
Text in Illustration

*1	Protective Tape

Standard:

Area	Specified Condition
a	40mm
b	4mm

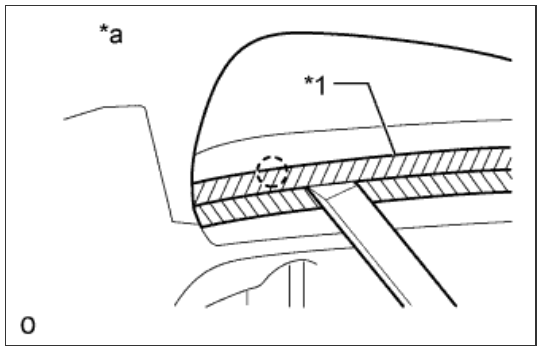
f. Remove the moulding remover B.



g. 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

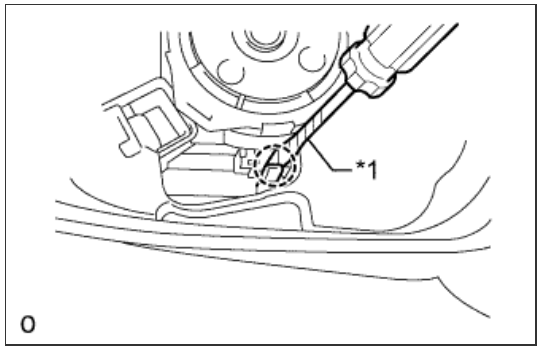


h. Insert a moulding remover B between the outer mirror cover and outer mirror body as shown in the illustration and detach the claw.

i. Using a screwdriver, detach the claw.

Text in Illustration

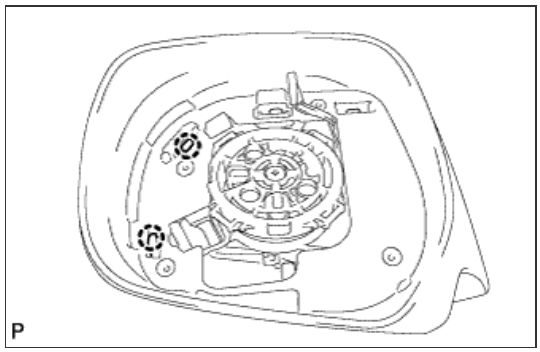
*1	Protective Tape



j. Detach the 2 claws and remove the outer mirror cover.

NOTICE:

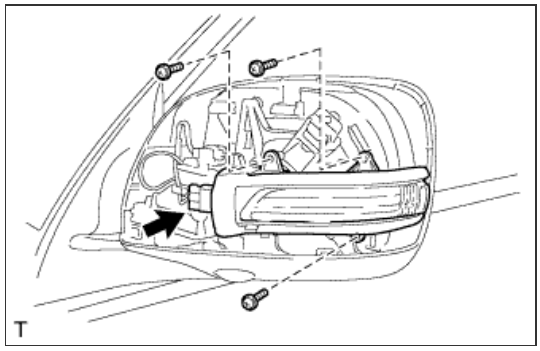
When removing the cover, be careful not to damage the side turn signal light assembly or cover.



4. REMOVE SIDE TURN SIGNAL LIGHT ASSEMBLY LH

a. Remove the 3 screws and light.

b. Disconnect the connector.



5. REMOVE SIDE TELEVISION CAMERA ASSEMBLY

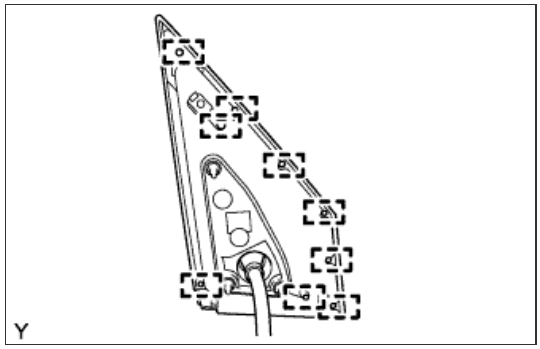
a. Remove the gasket

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.

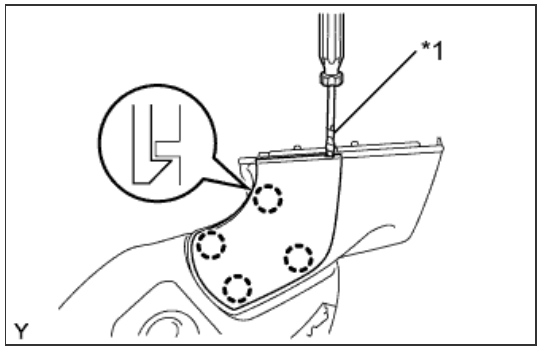


b. Remove the lower mirror cover

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

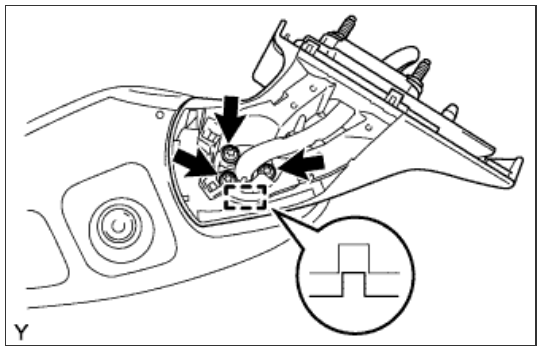
i. Remove the wire harness.

ii. Using "TORX" socket wrench T25, remove the 3 screws.

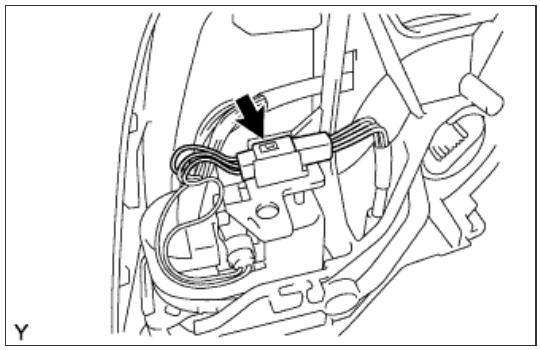
NOTICE:

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.



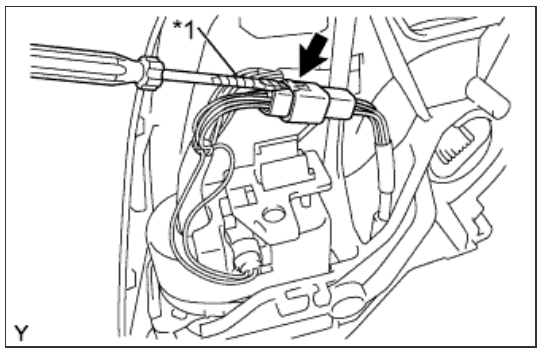
e. Using a screwdriver, disconnect the connector.

HINT:

Tape the moulding remover before use.

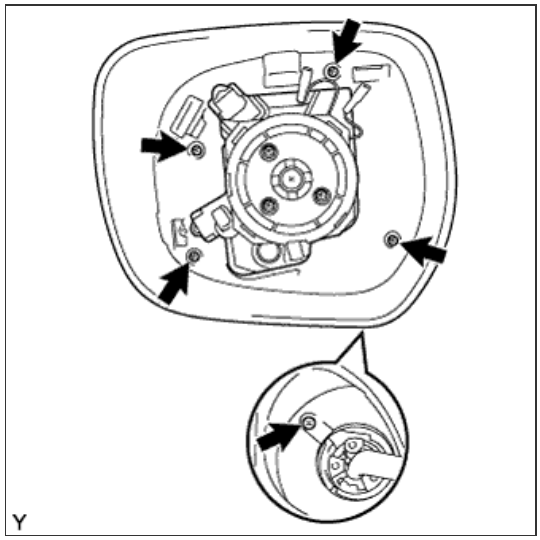
Text in Illustration

*1	Protective Tape



f. Remove the body

i. Remove the 5 screws and body.



g. Remove the body

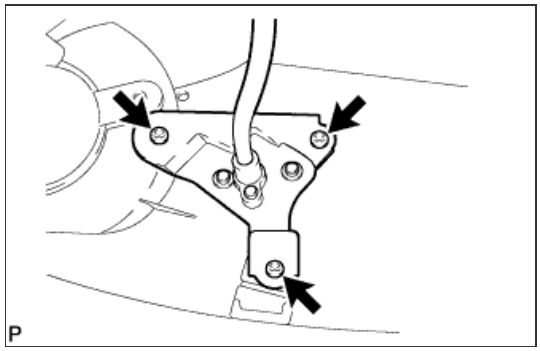
i. Disconnect the 2 guides and remove the body.

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.



for Preparation Click here

HINT:

- **Use the same procedure for both the RH and LH sides.**
- **The procedure described below is for the LH side.**

1. INSTALL SIDE TELEVISION CAMERA ASSEMBLY

a. Install the side television camera with the 3 screws.

b. Connect the connector.

c. Install the body

i. Attach the 2 guides and body.

NOTICE:

Be careful not to break the guide.

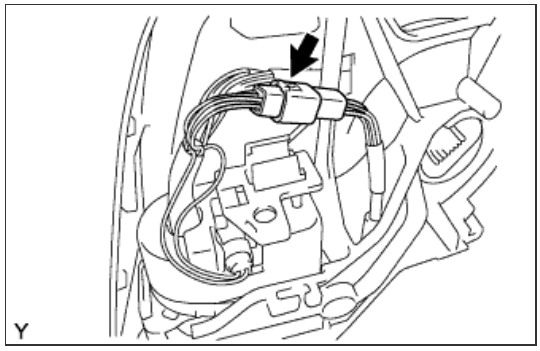
d. Install the body cover

i. Install the body with the 5 screws.

e. Connect the connector.

f. Attach the connector to the wire clip.

g. 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.

h. Install the lower mirror cover

i. Attach the 4 claws and install the new lower mirror cover.

i. 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.

Text in Illustration

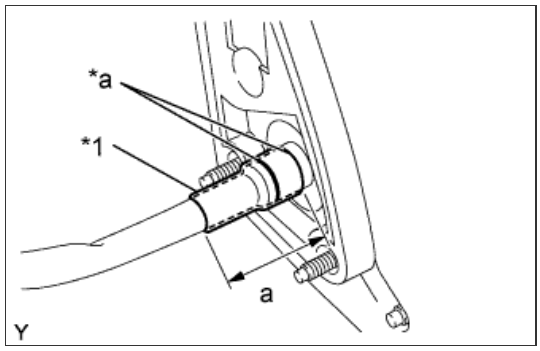
*1	New Vinyl Tape
*a	Marking

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.



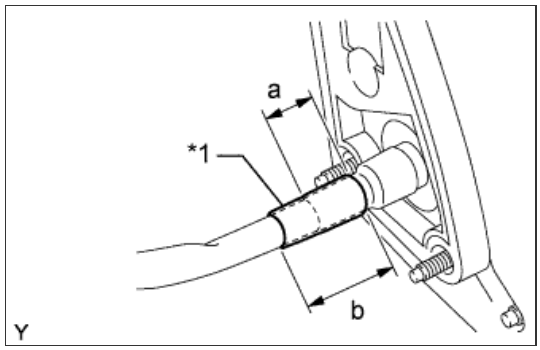
iii. Wrap new vinyl tape as shown in the illustration.

Text in Illustration

*1	New Vinyl Tape

Standard:

Area	Specified Condition
a	30.0 mm (1.18 in.)
b	50.0 mm (1.97 in.)



2. INSTALL SIDE TURN SIGNAL LIGHT ASSEMBLY LH

a. Connect the connector.

b. Install the light with the 3 screws.

3. INSTALL OUTER MIRROR COVER LH

a. Install the outer mirror cover.

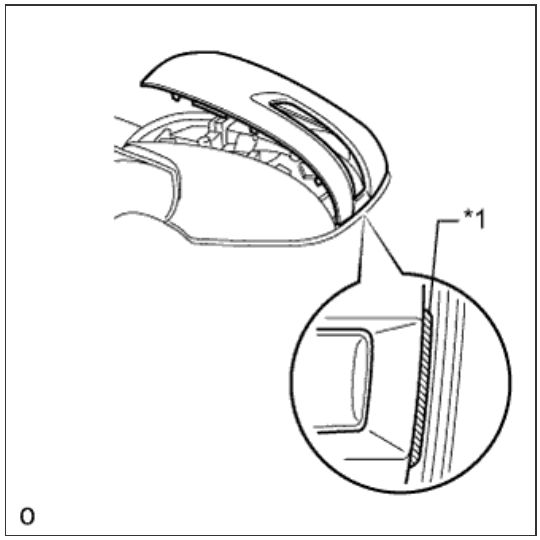
i. Insert the rib on the outer edge of the cover into the groove of the mirror body.

NOTICE:

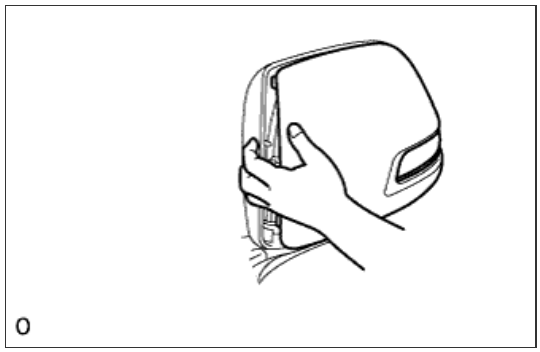
Do not scratch the turn light.

Text in Illustration

*1	Rib



ii. 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.

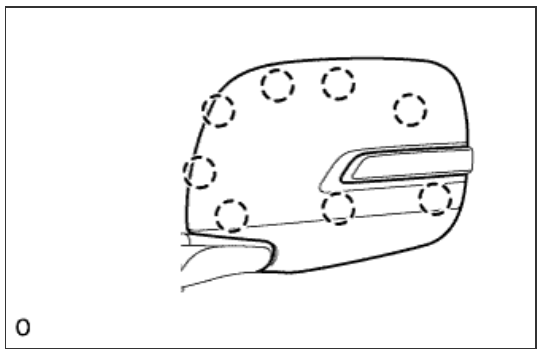


b. Push on the cover at the locations of the 8 claws to confirm that the claws are attached properly.

c. Check that there is no gap between the cover and mirror body.

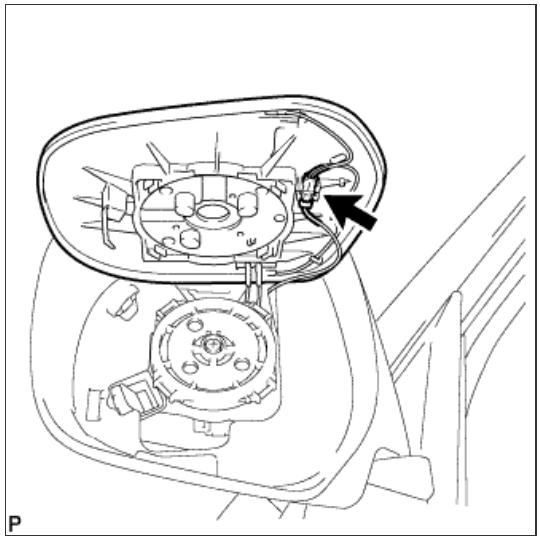
HINT:

If there is a gap between the cover and body, noise will occur during driving.

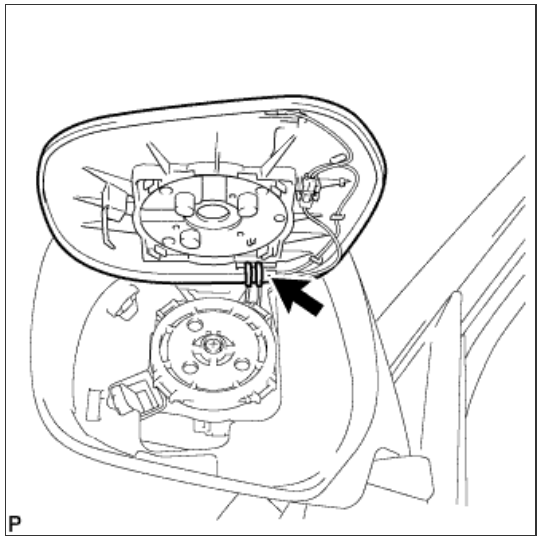


4. INSTALL OUTER MIRROR LH

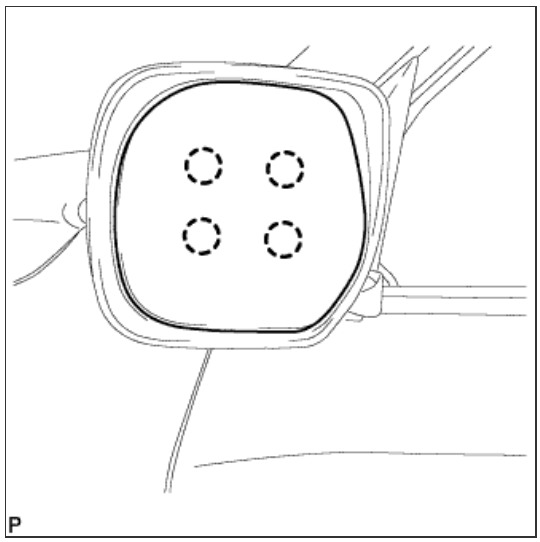
a. w/ EC Mirror:
Connect the connector.



b. w/ Mirror Heater:
Connect the 2 connectors.



c. Attach the 4 claws to install the outer mirror LH.



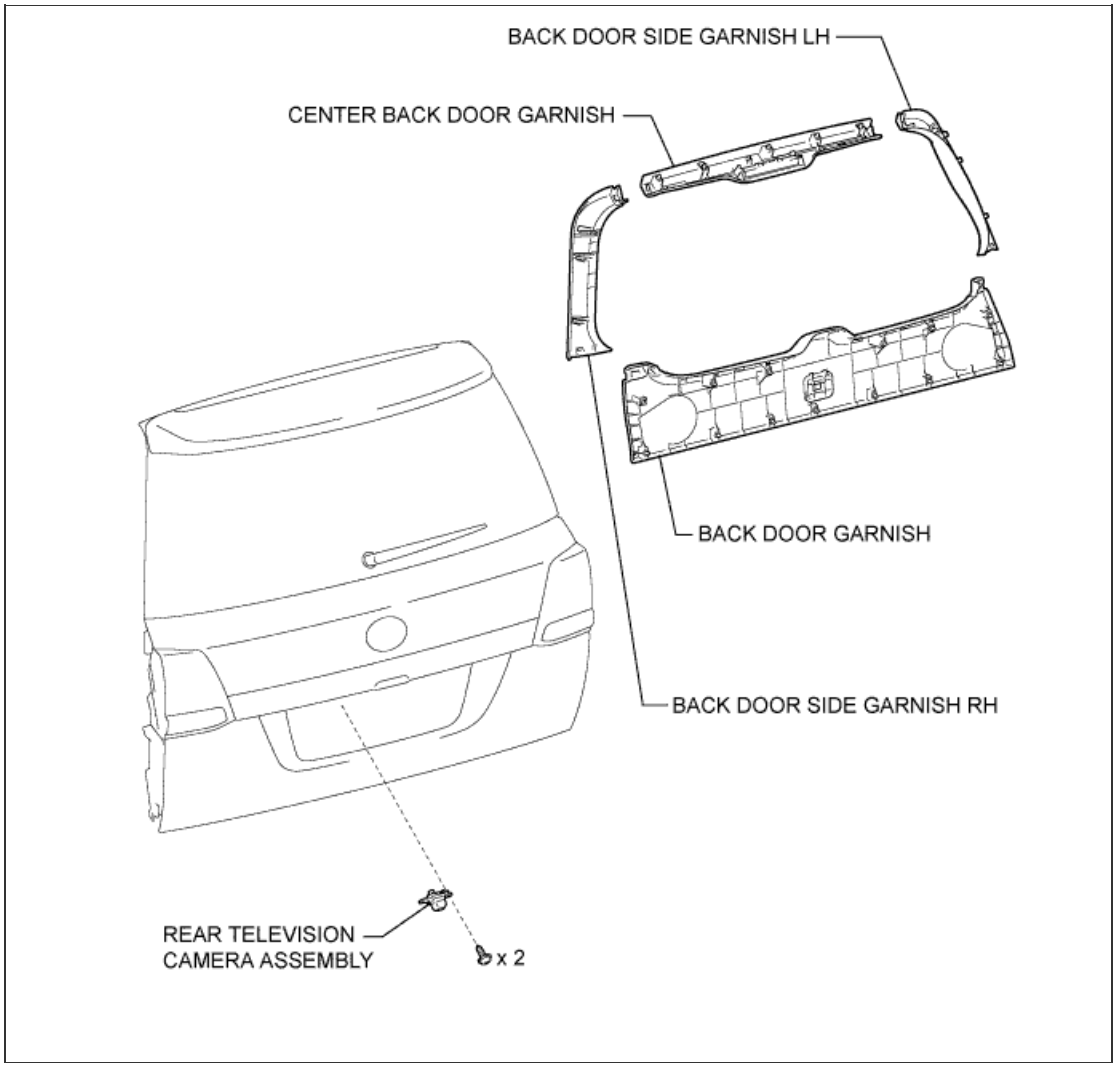
5. INSTALL OUTER REAR VIEW MIRROR ASSEMBLY LH

(Click here)

6. ADJUST SIDE TELEVISION CAMERA ASSEMBLY

(Click here

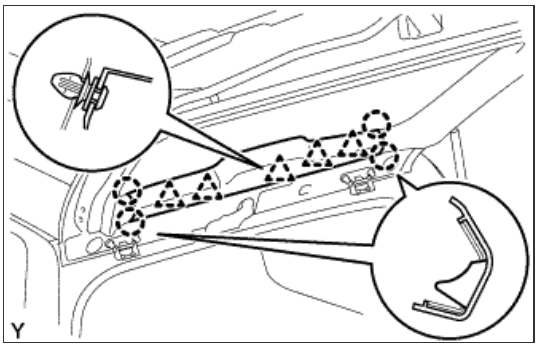
for Preparation Click here



for Preparation Click here

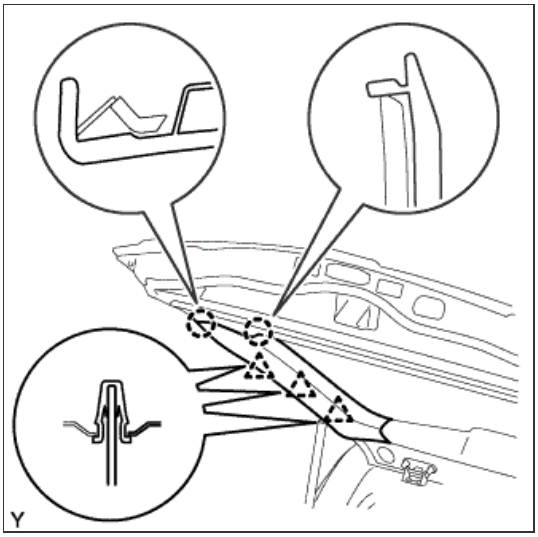
1. REMOVE CENTER BACK DOOR GARNISH

a. Detach the 5 clips and 4 claws, and remove the center back door garnish.



2. REMOVE BACK DOOR SIDE GARNISH LH

a. Detach the 3 clips and 2 claws, and remove the back door side garnish LH.



3. REMOVE BACK DOOR SIDE GARNISH RH

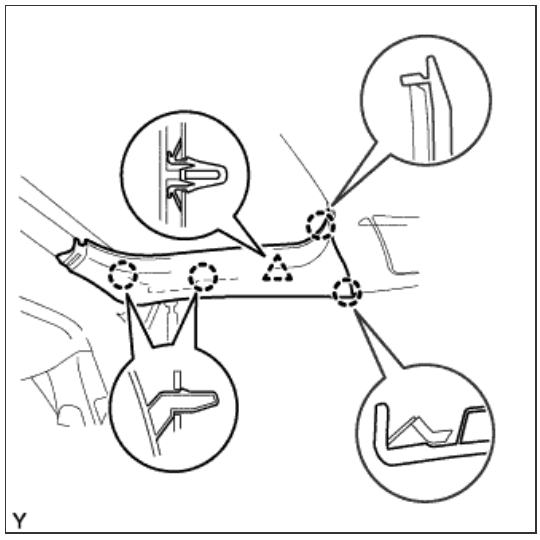
a. w/o Power Back Door:

HINT:

Use the same procedure described for the LH side.

b. w/ Power Back Door:

i. Detach the clip and 4 claws, and remove the back door side garnish RH.

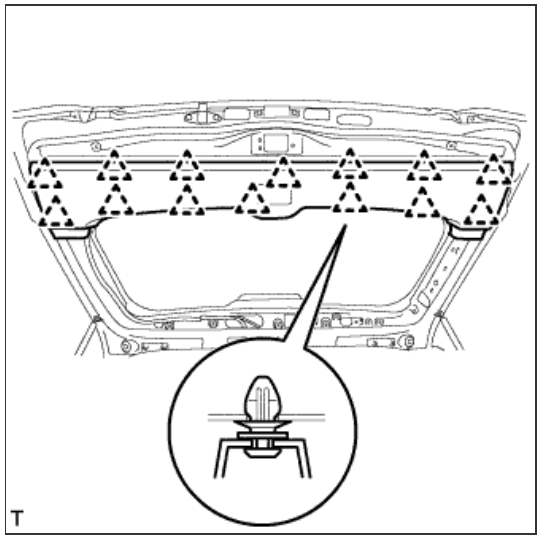


4. REMOVE BACK DOOR GARNISH

a. Using a screwdriver, detach the 14 clips and remove the back door garnish.

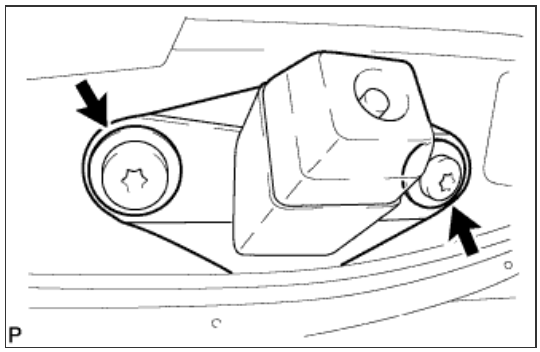
HINT:

Tape the screwdriver tip before use.



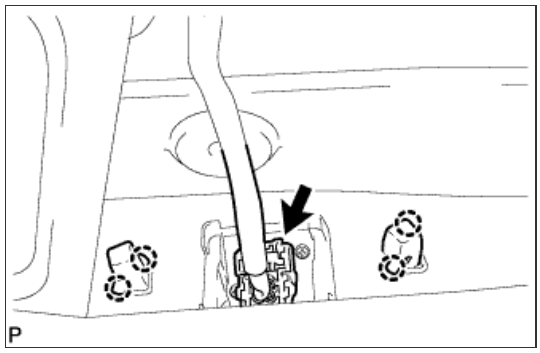
5. REMOVE REAR TELEVISION CAMERA ASSEMBLY

a. Using a T30 "TORX" socket wrench, remove the 2 screws.



b. Detach the 4 claws and remove the rear television camera assembly.

c. Disconnect the connector.


P

for Preparation Click here

HINT:

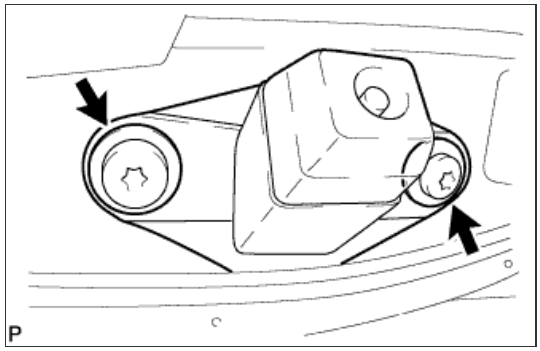
A bolt without a torque specification is shown in the standard bolt chart (Click here).

1. INSTALL REAR TELEVISION CAMERA ASSEMBLY

a. Connect the connector.

b. Attach the 4 claws 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

a. Attach the 14 clips to install the back door garnish.

3. INSTALL BACK DOOR SIDE GARNISH LH

a. Attach the 3 clips and 2 claws to install the back door side garnish LH.

4. INSTALL BACK DOOR SIDE GARNISH RH

a. w/o Power Back Door:

HINT:

Use the same procedure described for the LH side.

b. w/ Power Back Door:

i. Attach the clip and 4 claws to install the back door side garnish RH.

5. INSTALL CENTER BACK DOOR GARNISH

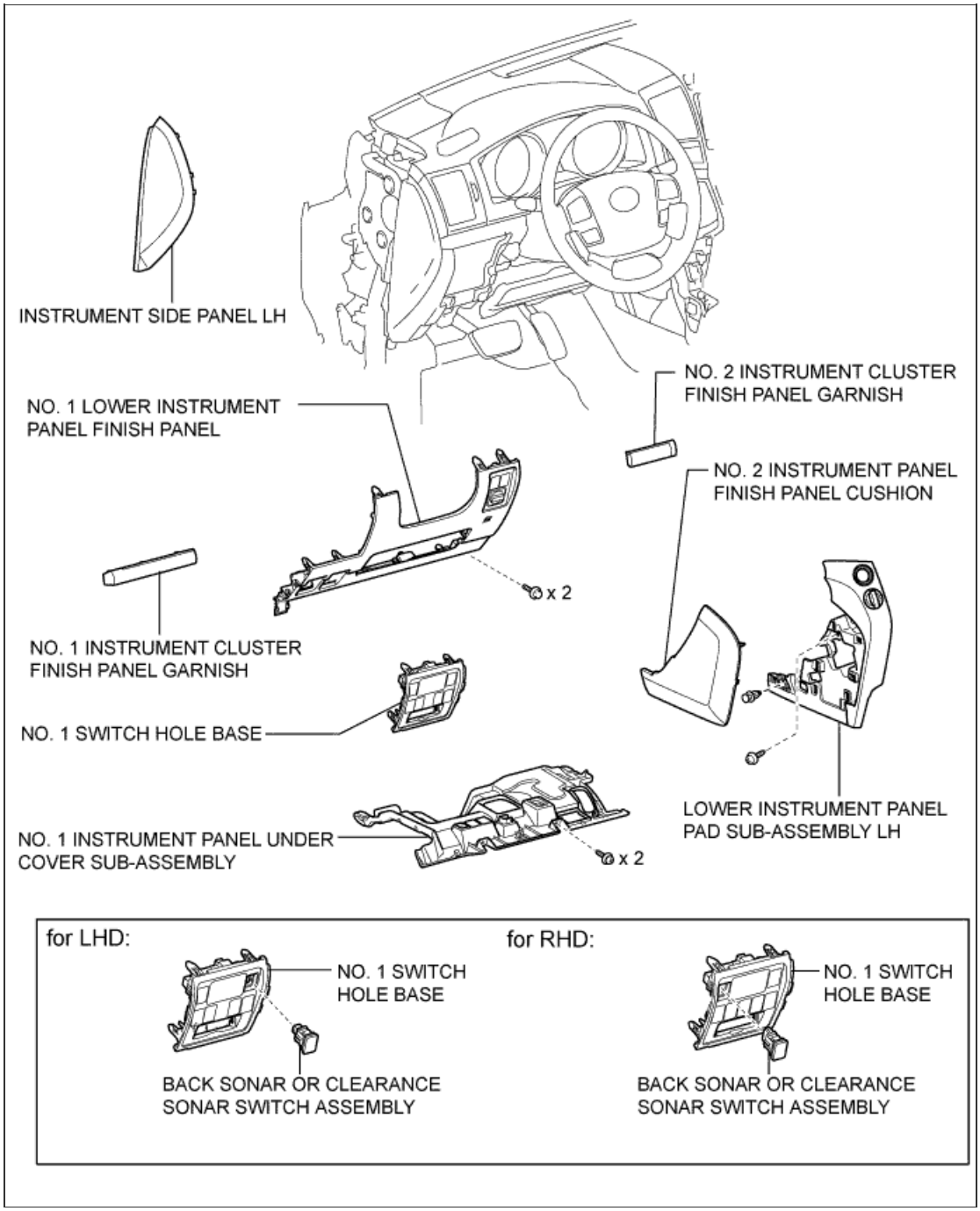
a. Attach the 5 clips and 4 claws to install the center back door garnish.

6. ADJUST REAR TELEVISION CAMERA ASSEMBLY

a. w/ Side Monitor System:
(Click here)

b. w/o Side Monitor System:
(Click here)

for Preparation Click here



for Preparation Click here

HINT:

- **Use the same procedure for RHD and LHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

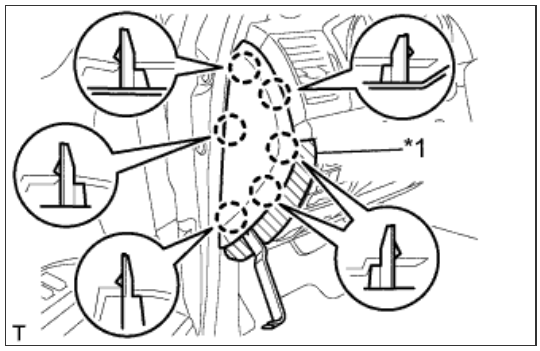
1. REMOVE INSTRUMENT SIDE PANEL LH

a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 6 claws and remove the instrument side panel.



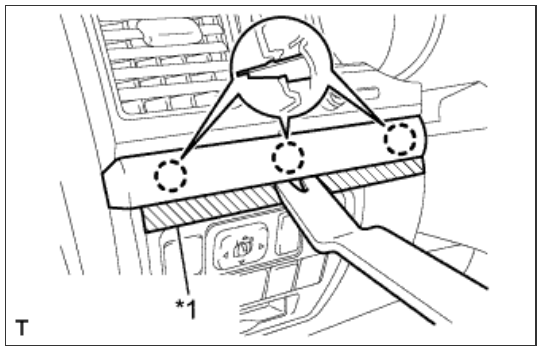
2. REMOVE NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 3 claws and remove the No. 1 instrument cluster finish panel garnish.



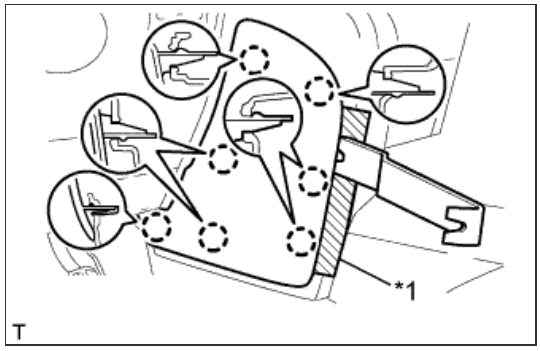
3. REMOVE NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Put protective tape around the No. 2 instrument panel finish panel cushion.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 7 claws and remove the No. 2 instrument panel finish panel cushion.

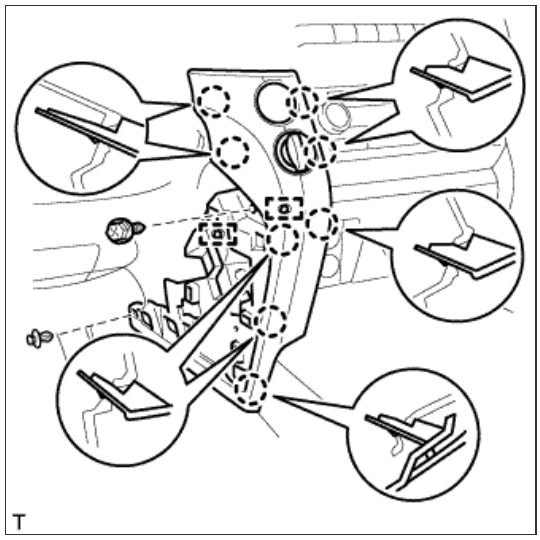


4. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Remove the clip and screw.

b. Detach the 8 claws.

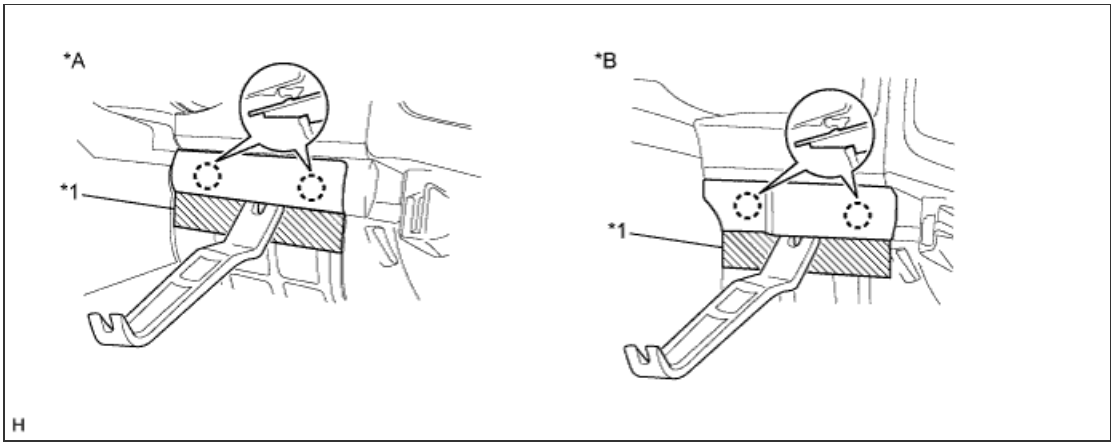
c. Disconnect the connectors, detach the 2 clamps and remove the lower instrument panel pad sub-assembly.



5. REMOVE NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 2 claws and remove the No. 2 instrument cluster finish panel garnish.



Text in Illustration

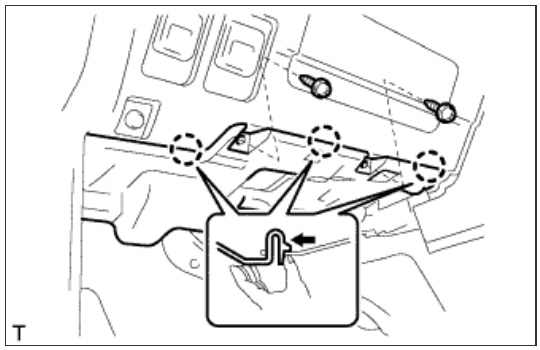
*A	w/ Entry and Start System	*B	w/o Entry and Start System
*1	Protective Tape	-	-

6. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

a. Remove the 2 screws.

b. Detach the 3 claws.

c. Disconnect the connectors and remove the No. 1 instrument panel under cover.



7. REMOVE NO. 1 LOWER INSTRUMENT PANEL FINISH PANEL

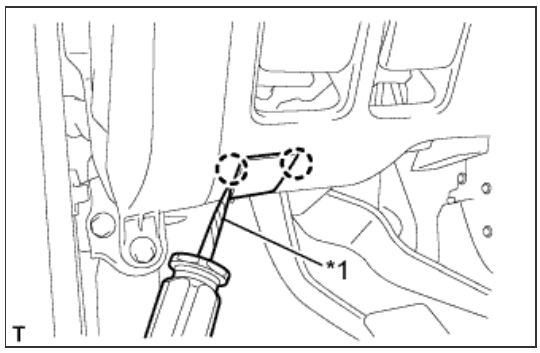
a. Using a screwdriver, detach the 2 claws and open the hole cover.

HINT:

Tape the screwdriver tip before use.

Text in Illustration

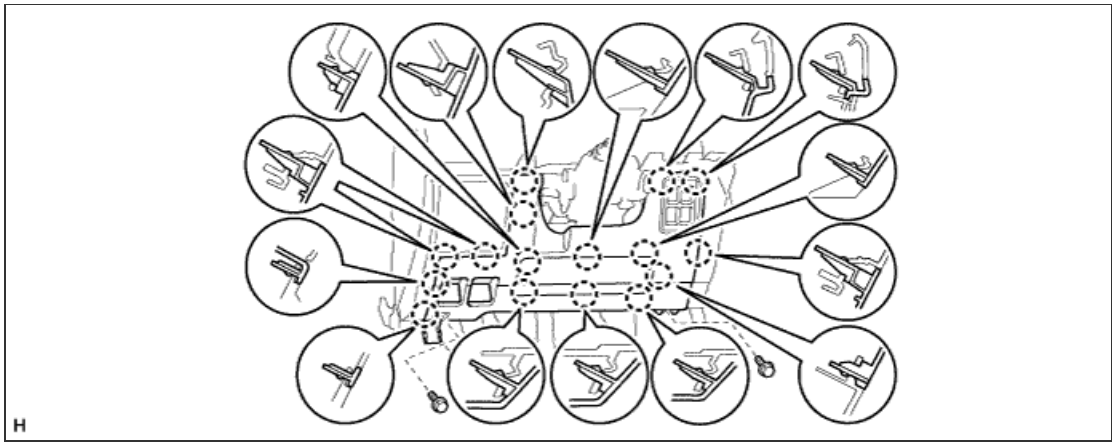
*1	Protective Tape



b. w/ Driver Side Knee Airbag:

i. Remove the 2 bolts.

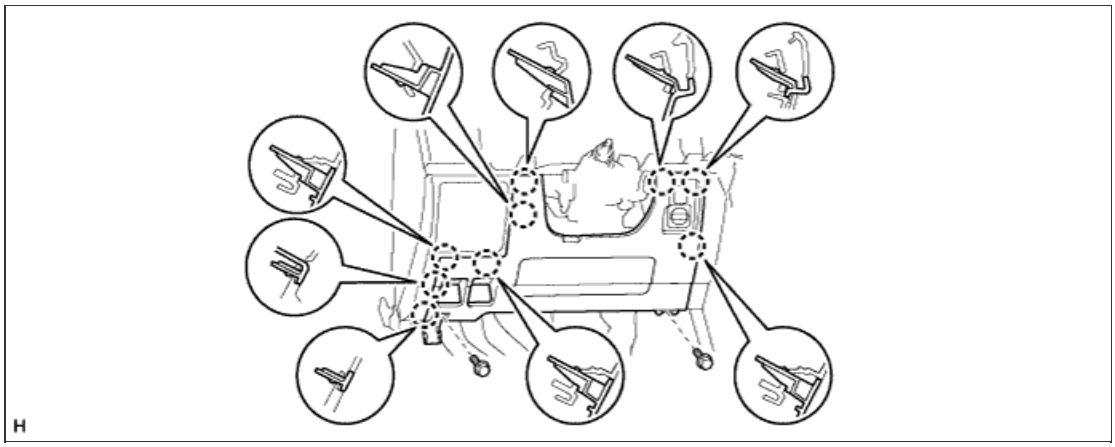
ii. Detach the 16 claws.



c. w/o Driver Side Knee Airbag:

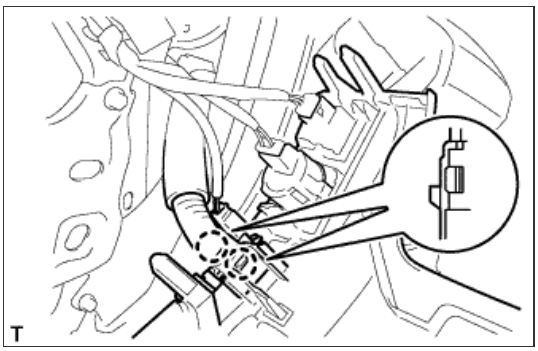
i. Remove the 2 bolts.

ii. Detach the 9 claws.



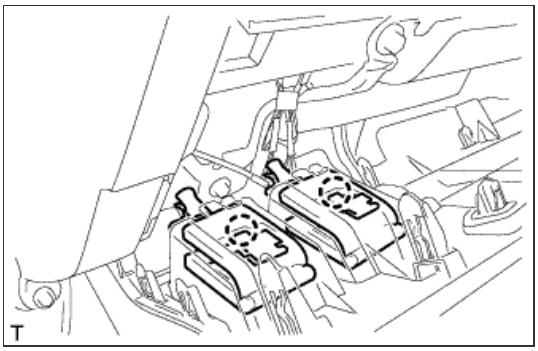
d. for Automatic Air Conditioning System:

i. Detach the 2 claws and remove the room temperature sensor.



e. Detach the 2 claws and disconnect the 2 control cables.

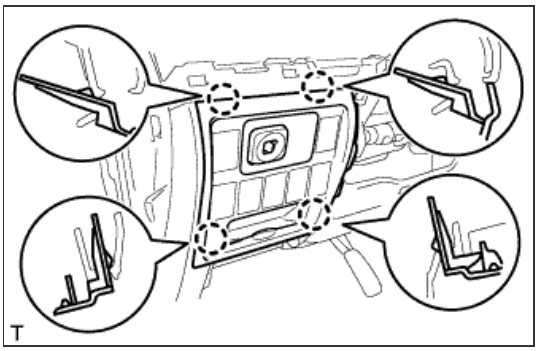
f. Disconnect the connectors and remove the lower No. 1 instrument panel finish panel.



8. REMOVE NO. 1 SWITCH HOLE BASE

a. Detach the 4 claws.

b. Disconnect the connectors and remove the No. 1 switch hole cover.

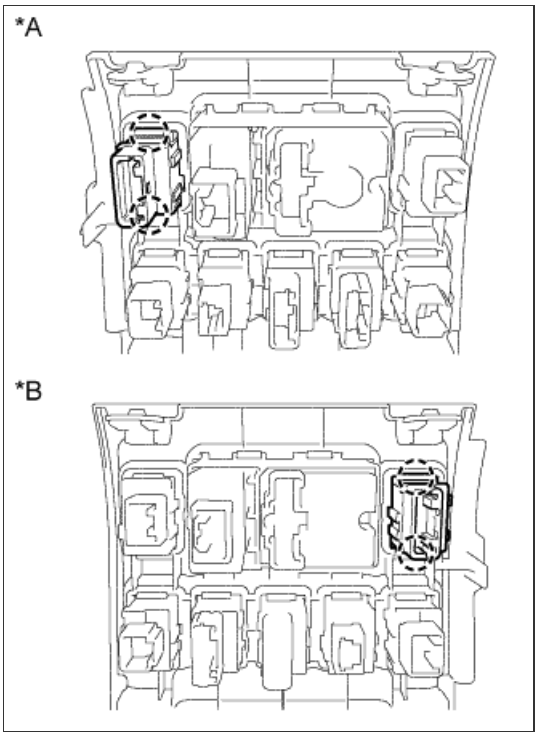


9. REMOVE BACK SONAR OR CLEARANCE SONAR SWITCH ASSEMBLY

a. Detach the 2 claws and remove the back sonar or clearance sonar switch assembly.

Text in Illustration

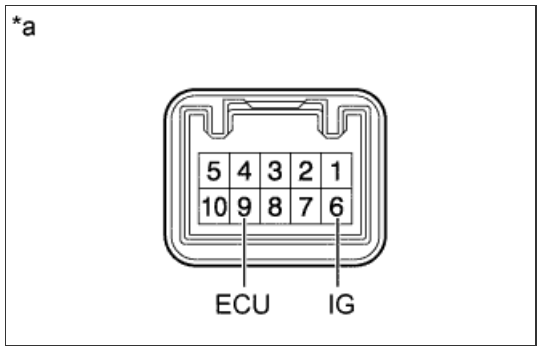
*A	for LHD
*B	for RHD



for Preparation Click here

1. INSPECT BACK SONAR OR CLEARANCE SONAR SWITCH ASSEMBLY

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



Standard Resistance:

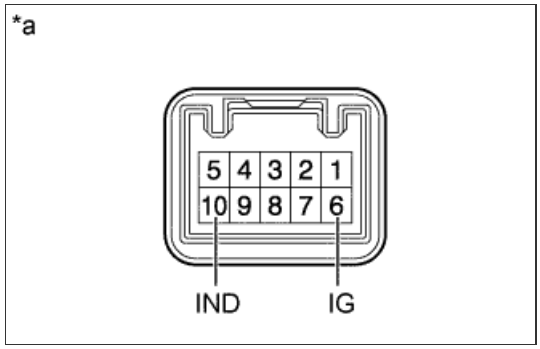
Tester Connection	Switch Condition	Specified Condition
6 (IG) - 9 (ECU)	Back sonar or clearance sonar switch assembly on	Below 1 Ω
6 (IG) - 9 (ECU)	Back sonar or clearance sonar switch assembly off	10 kΩ or higher

Text in Illustration

*1	Component without harness connected (Back Sonar or Clearance Sonar Switch assembly)

If the result is not as specified, replace the back sonar or clearance sonar switch assembly.

b. Check that the switch indicator.



i. Apply battery voltage to the blind spot monitor main switch (integration control and panel assembly) and check the operation of the switch as shown in the table below.

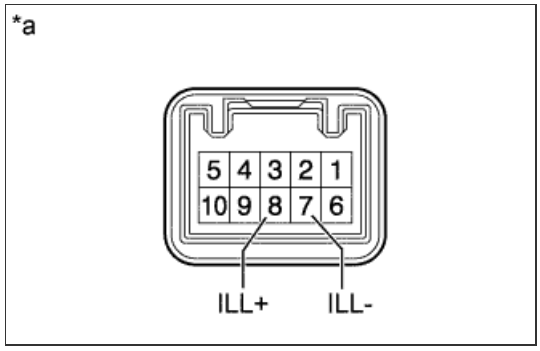
OK:

Tester Connection	Specified Condition
Battery positive (+) → Terminal 6 (IG) Battery negative (-) → Terminal 10 (IND)	Illuminates

Text in Illustration

*1	Component without harness connected (Back Sonar or Clearance Sonar Switch assembly)

c. Check that the switch illuminates.



i. Apply battery voltage to the back sonar or clearance sonar switch assembly and check that the switch illuminates.

OK:

Tester Connection	Specified Condition
Battery positive (+) → Terminal 8 (ILL+) Battery negative (-) → Terminal 7 (ILL-)	Illuminates

Text in Illustration

*a	Component without harness connected (Back Sonar or Clearance Sonar Switch Assembly)

If the result is not as specified, replace the back sonar or clearance sonar switch assembly.

for Preparation Click here

HINT:

- **Use the same procedure for RHD and LHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

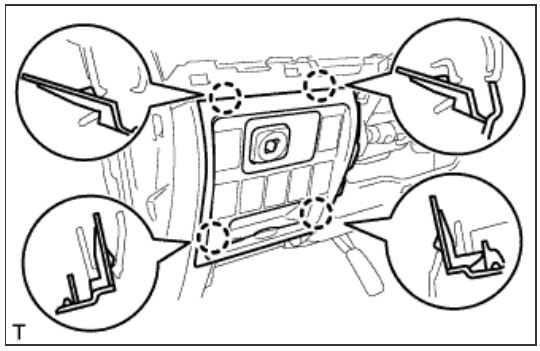
1. INSTALL BACK SONAR OR CLEARANCE SONAR SWITCH ASSEMBLY

a. Attach the 2 claws to install the back sonar or clearance sonar switch assembly.

2. INSTALL NO. 1 SWITCH HOLE BASE

a. Connect the connectors.

b. Attach the 4 claws to install the No. 1 switch hole base.

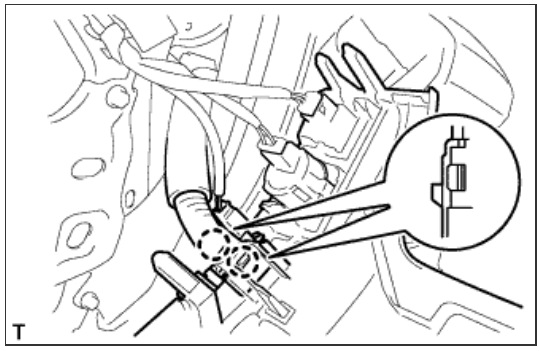


3. INSTALL NO. 1 LOWER INSTRUMENT PANEL FINISH PANEL

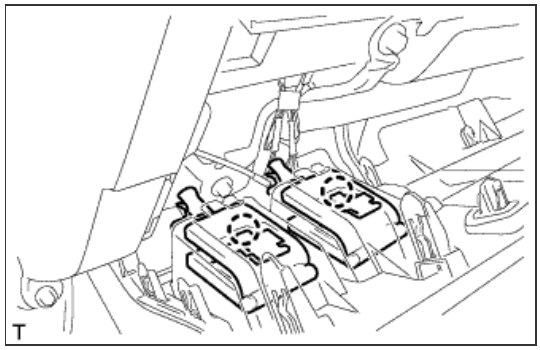
a. Connect the connectors.

b. for Automatic Air Conditioning System:

i. Attach the 2 claws to install the room temperature sensor.



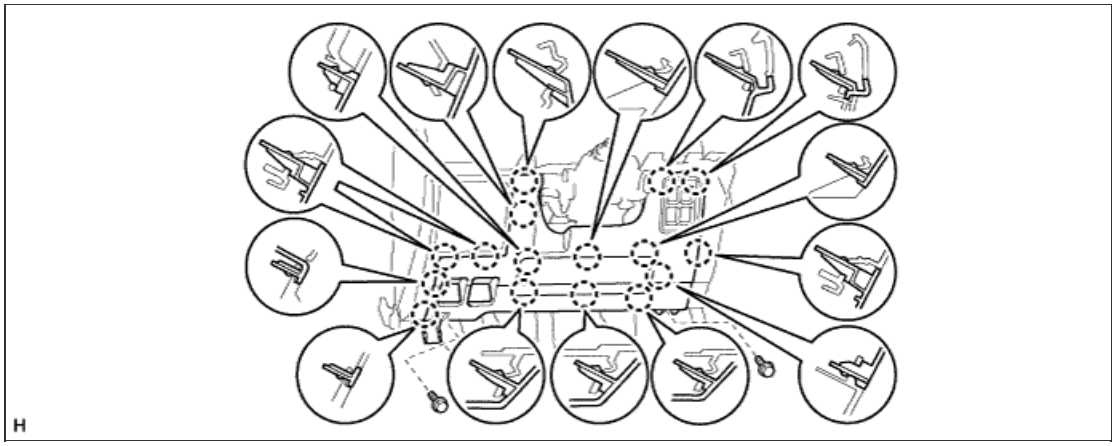
c. Attach the 2 claws to connect the 2 control cables.



d. w/ Driver Side Knee Airbag:

i. Attach the 16 claws to install the lower No. 1 instrument panel finish panel.

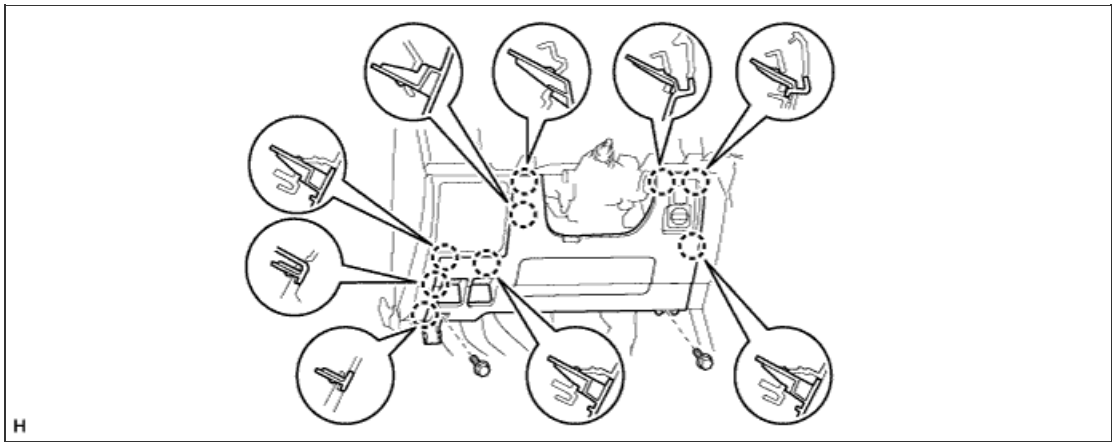
ii. Install the 2 bolts.



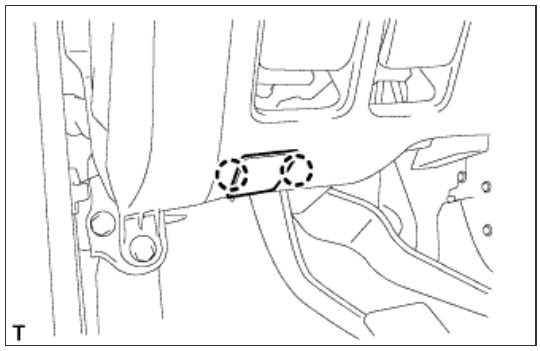
e. w/o Driver Side Knee Airbag:

i. Attach the 9 claws to install the lower No. 1 instrument panel finish panel.

ii. Install the 2 bolts.



f. Attach the 2 claws to close the hole cover.

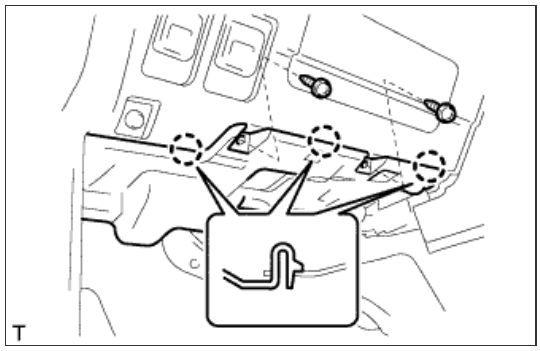


4. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

a. Connect the connectors.

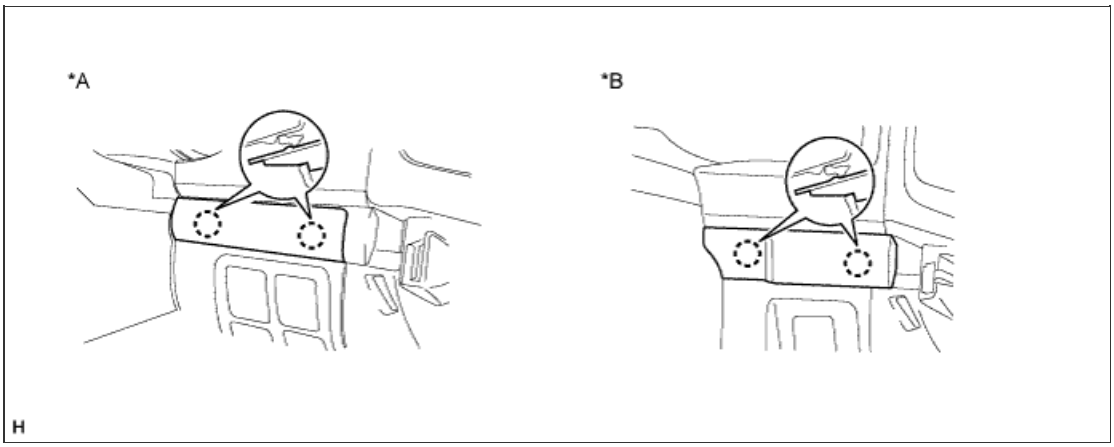
b. Attach the 3 claws to install the No. 1 instrument panel under cover.

c. Install the 2 screws.



5. INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Attach the 2 claws to install the No. 2 instrument cluster finish panel garnish.



Text in Illustration

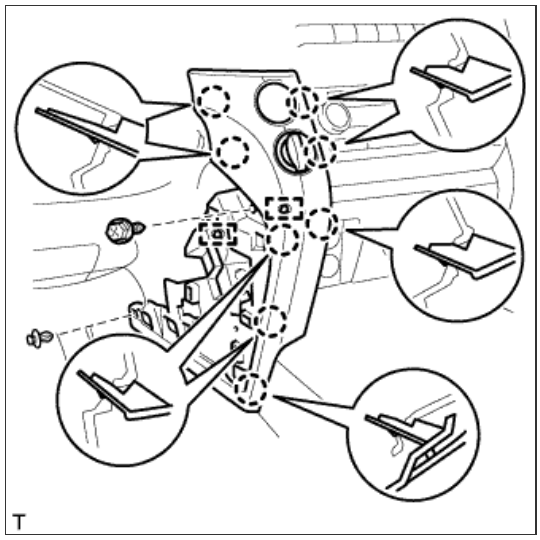
*A	w/ Entry and Start System	*B	w/o Entry and Start System

6. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connectors and attach the 2 clamps.

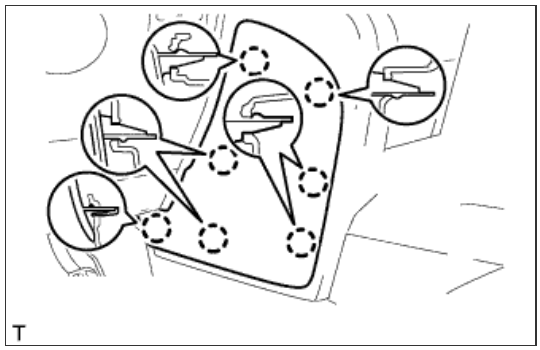
b. Attach the 8 claws to install the lower instrument panel pad sub-assembly.

c. Install the clip and screw.



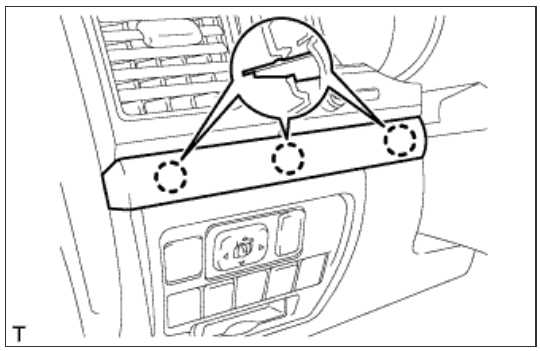
7. INSTALL NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Attach the 7 claws to install the No. 2 instrument panel finish panel cushion.



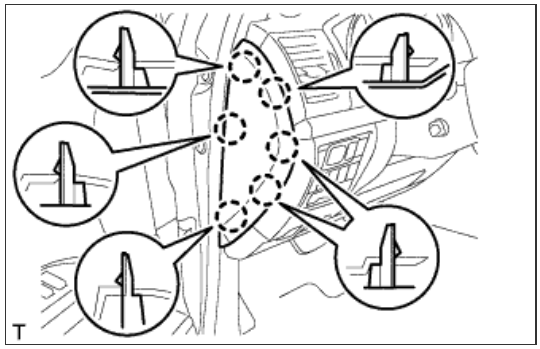
8. INSTALL NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Attach the 3 claws to install the No. 1 instrument cluster finish panel garnish.

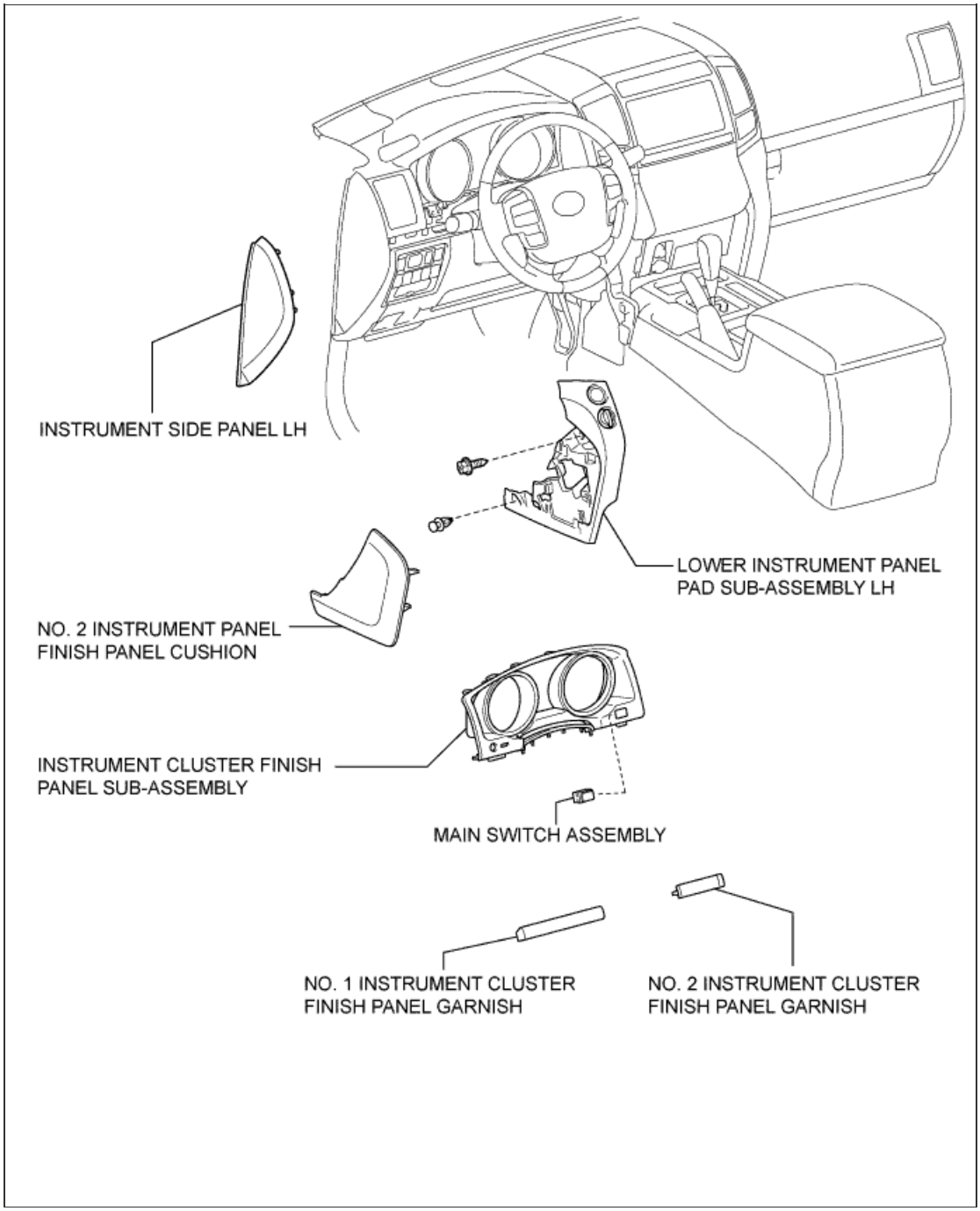


9. INSTALL INSTRUMENT SIDE PANEL LH

a. Attach the 6 claws to install the instrument side panel.



for Preparation [Click here]



FRONT AND SIDE MONITOR MAIN SWITCH > REMOVAL

for Preparation Click here

HINT:

- **Use the same procedure for RHD and LHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

1. DISABLE AUTO TILT AWAY FUNCTION

a. Disable the function by changing the customize parameter (Click here).

NOTICE:

Record the current customize parameter setting (whether the Autoaway/Return function is enabled or disabled) in order to restore the current setting after finishing the operation.

HINT:

Performing the above operation causes the Autoaway/Return function to be disabled when the engine switch is turned off.

b. Turn the engine switch on (IG). Operate the tilt and telescopic switch to fully extend and lower the steering column assembly.

c. Turn the engine switch off.

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).

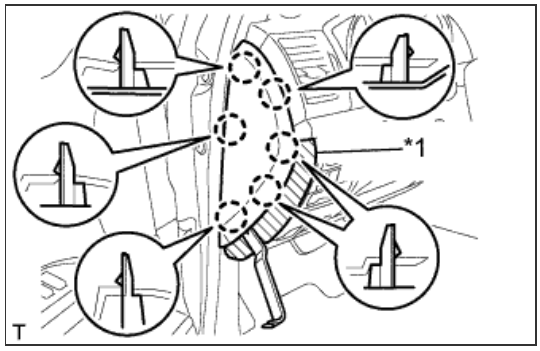
3. REMOVE INSTRUMENT SIDE PANEL LH

a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 6 claws and remove the instrument side panel.



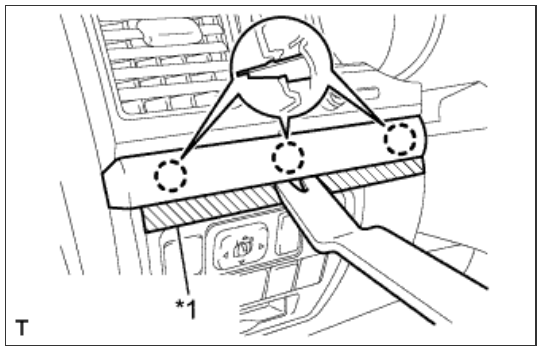
4. REMOVE NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 3 claws and remove the No. 1 instrument cluster finish panel garnish.



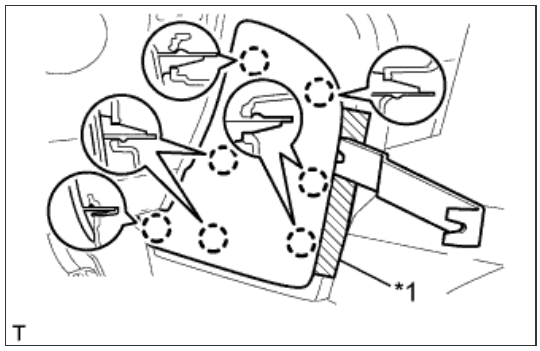
5. REMOVE NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Put protective tape around the No. 2 instrument panel finish panel cushion.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 7 claws and remove the No. 2 instrument panel finish panel cushion.

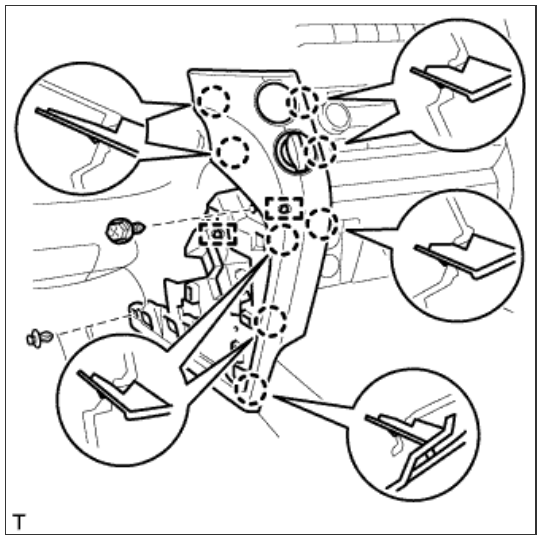


6. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Remove the clip and screw.

b. Detach the 8 claws.

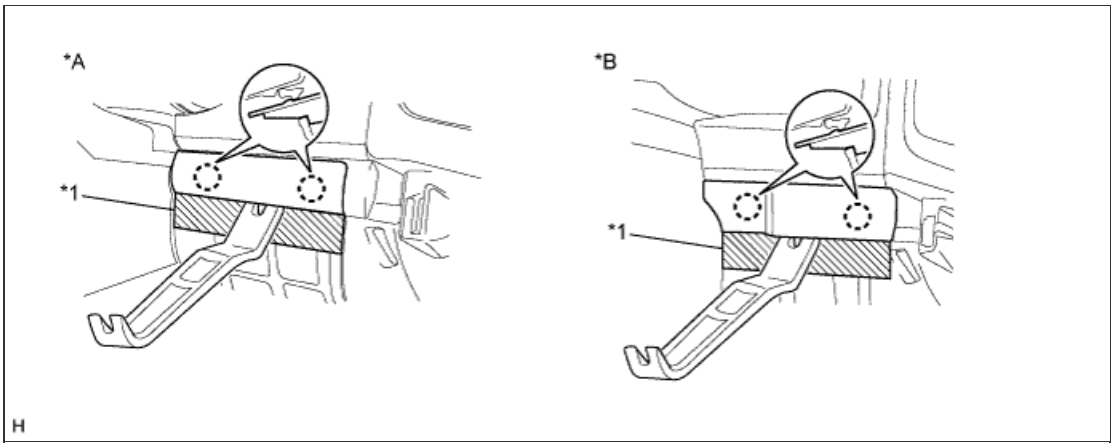
c. Disconnect the connectors, detach the 2 clamps and remove the lower instrument panel pad sub-assembly.



7. REMOVE NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 2 claws and remove the No. 2 instrument cluster finish panel garnish.

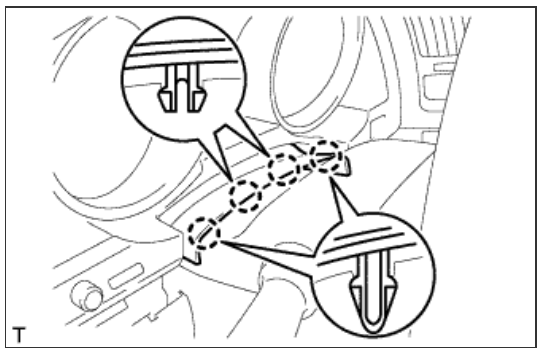


Text in Illustration

*A	w/ Entry and Start System	*B	w/o Entry and Start System
*1	Protective Tape	-	-

8. REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

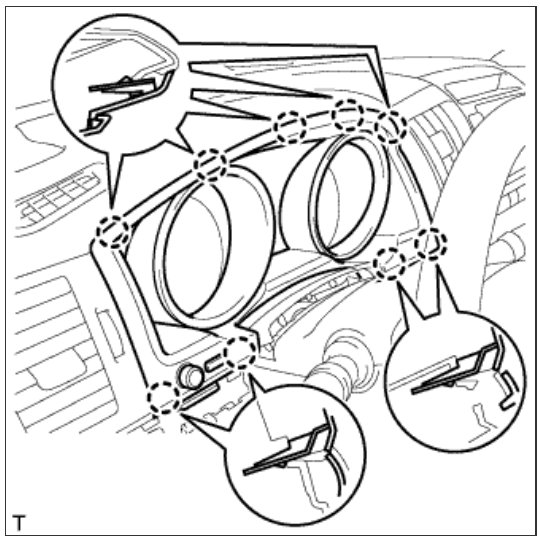
a. Detach the 4 claws.



b. Detach the 9 claws.

c. w/ Multi-information Display:
Remove the finish panel and disconnect the 2 connectors.

d. w/o Multi-information Display:
Remove the finish panel and disconnect the connector.

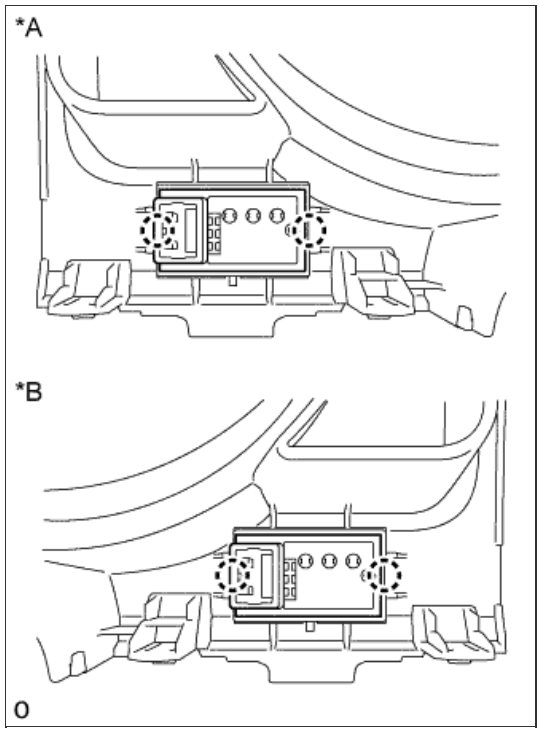


9. REMOVE MAIN SWITCH ASSEMBLY

a. Detach the 2 claws and remove the main switch assembly.

Text in Illustration

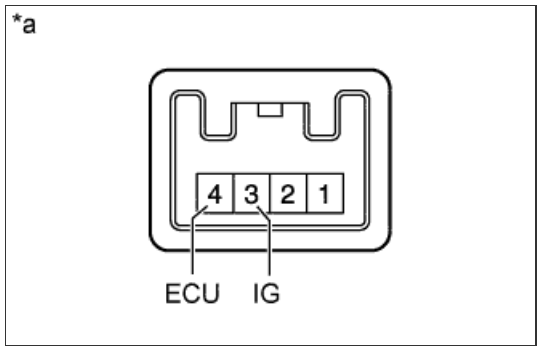
*A	for LHD
*B	for RHD


*A
*B
o

for Preparation Click here

1. INSPECT MAIN SWITCH ASSEMBLY

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



Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
4 (ECU) - 3 (IG)	Main switch assembly on	Below 1 Ω
4 (ECU) - 3 (IG)	Main switch assembly off	10 kΩ or higher

Text in Illustration

*1	Component without harness connected (Main Switch assembly)

If the result is not as specified, replace the main switch assembly .

for Preparation Click here

HINT:

- **Use the same procedure for RHD and LHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

1. INSTALL MAIN SWITCH ASSEMBLY

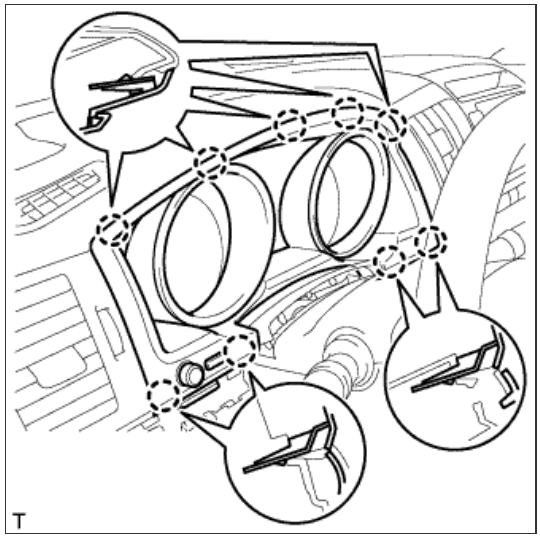
a. Attach the 2 claws to install the main switch assembly.

2. INSTALL INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

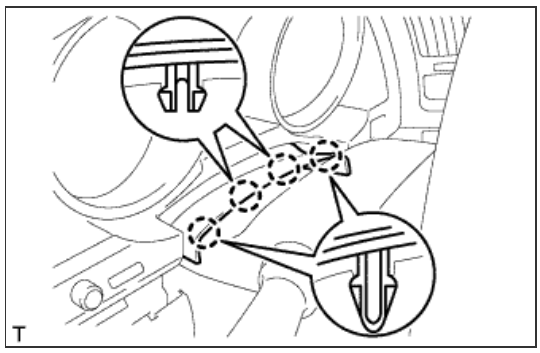
a. w/o Multi-information Display:
Connect the connector.

b. w/ Multi-information Display:
Connect the 2 connectors.

c. Attach the 9 claws to install the finish panel.

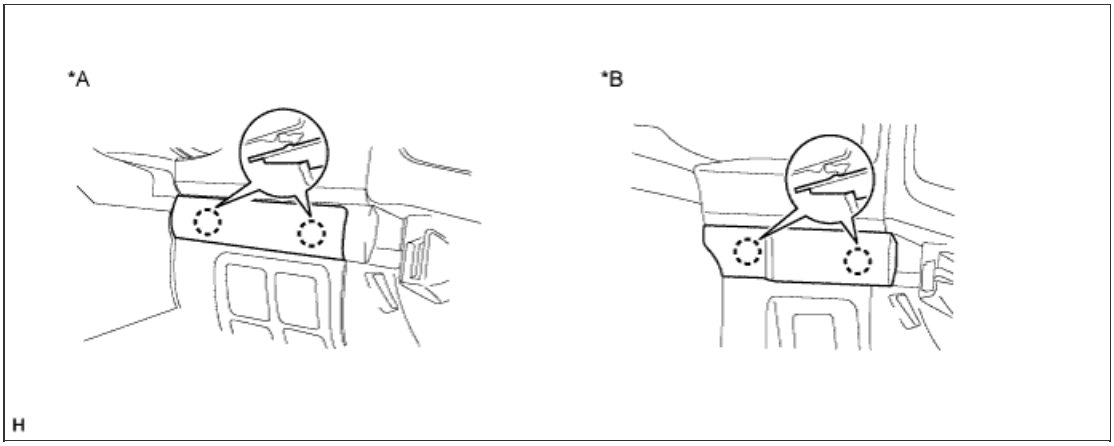


d. Attach the 4 claws.



3. INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Attach the 2 claws to install the No. 2 instrument cluster finish panel garnish.



Text in Illustration

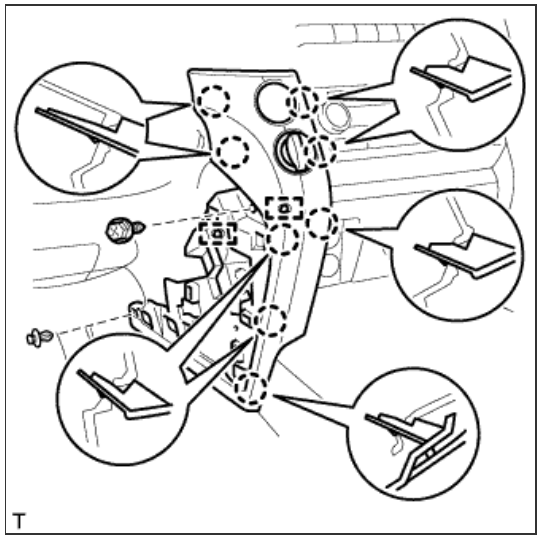
*A	w/ Entry and Start System	*B	w/o Entry and Start System

4. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connectors and attach the 2 clamps.

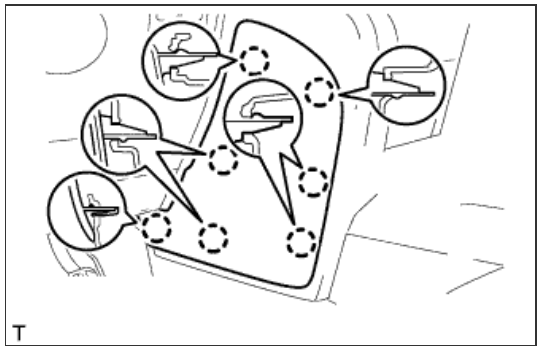
b. Attach the 8 claws to install the lower instrument panel pad sub-assembly.

c. Install the clip and screw.



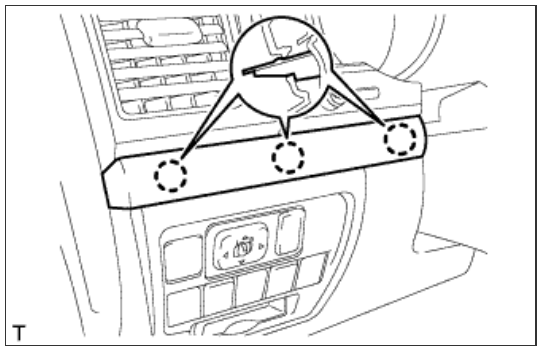
5. INSTALL NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Attach the 7 claws to install the No. 2 instrument panel finish panel cushion.



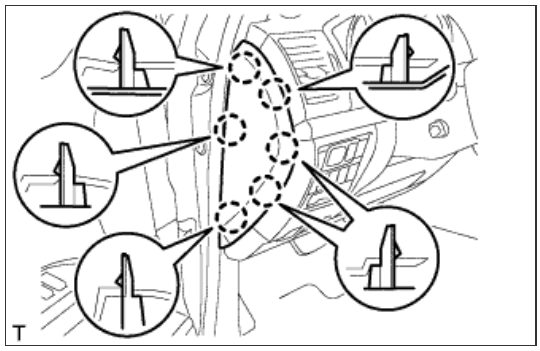
6. INSTALL NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Attach the 3 claws to install the No. 1 instrument cluster finish panel garnish.



7. INSTALL INSTRUMENT SIDE PANEL LH

a. Attach the 6 claws to install the instrument side panel.

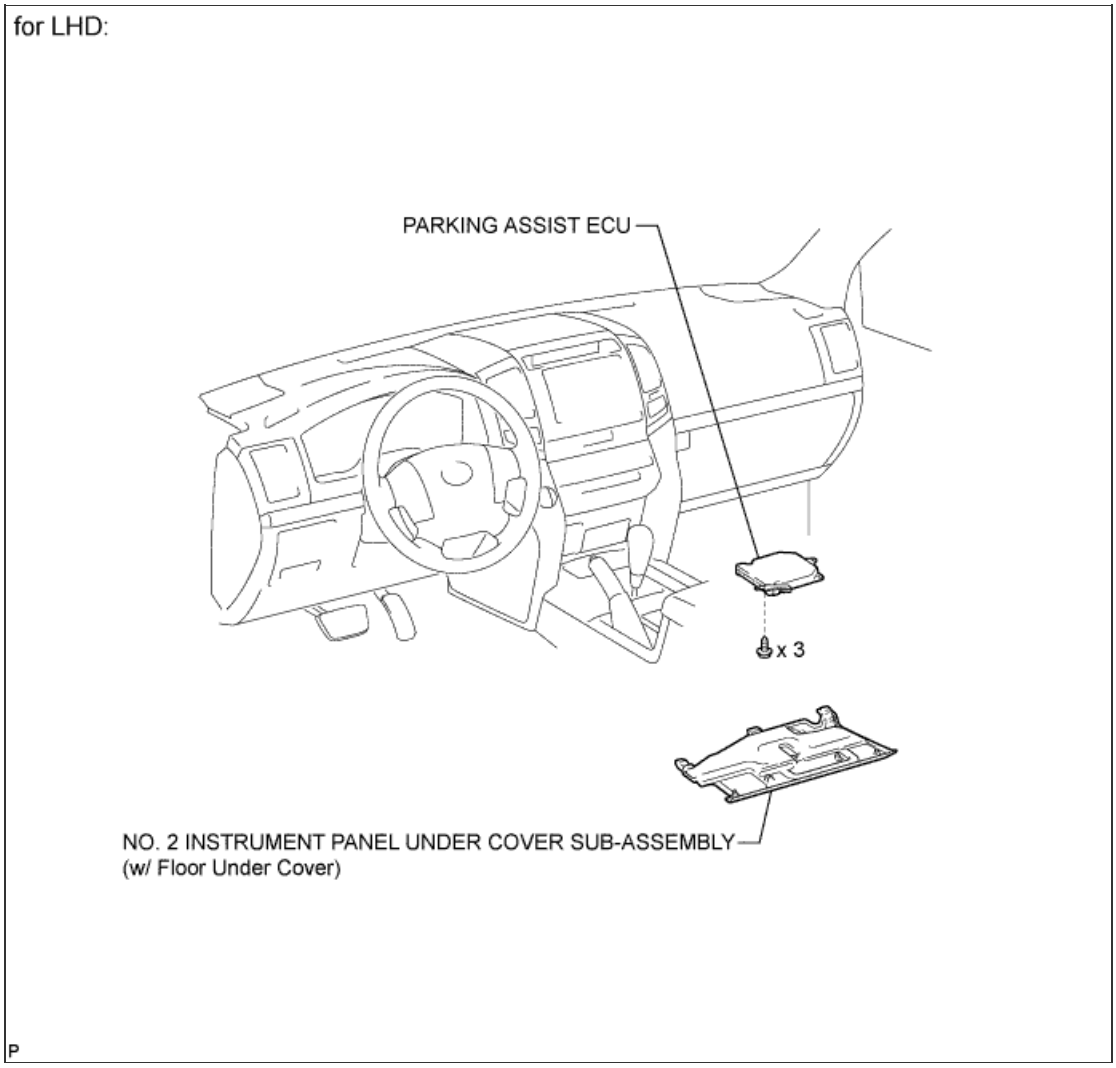


8. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

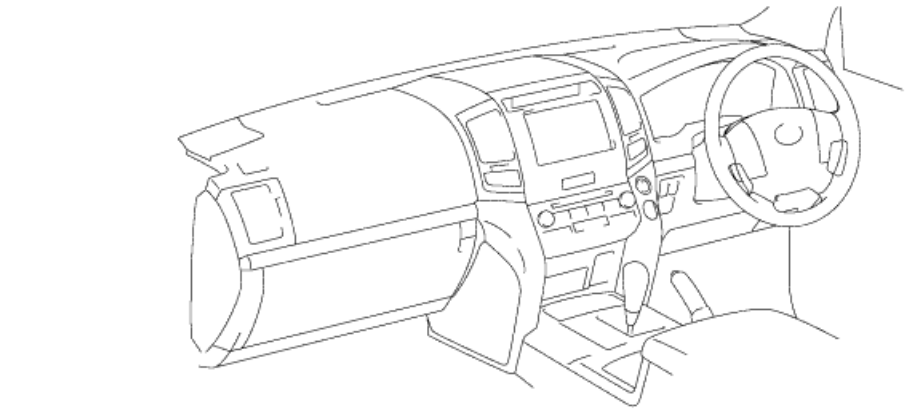
NOTICE:

- **Reset the Autoaway/Return function setting to the previous condition by changing the customize parameter (Click here).**
- **When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).**

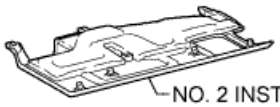
for Preparation Click here



for RHD:




PARKING ASSIST ECU
x 3


NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY
(w/ Floor Under Cover)

P

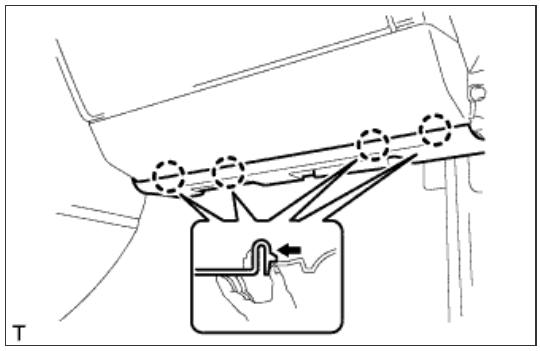
for Preparation Click here

HINT:

- **Use the same procedure for RHD and LHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

1. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

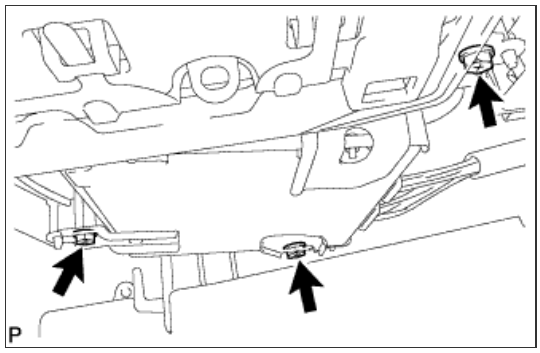
a. Detach the 4 claws and remove the No. 2 instrument panel under cover.



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 procedure for RHD and LHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

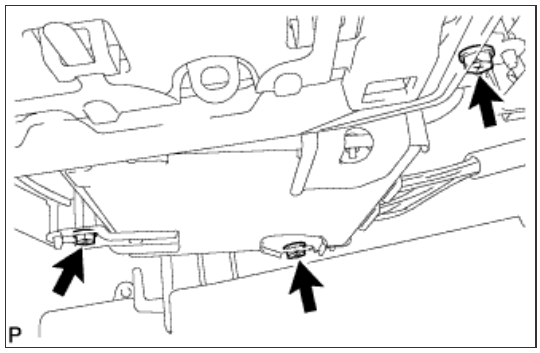
1. INSTALL PARKING ASSIST ECU

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 (w/ Floor Under Cover)

a. Attach the 4 claws to install the No. 2 instrument panel under cover.

