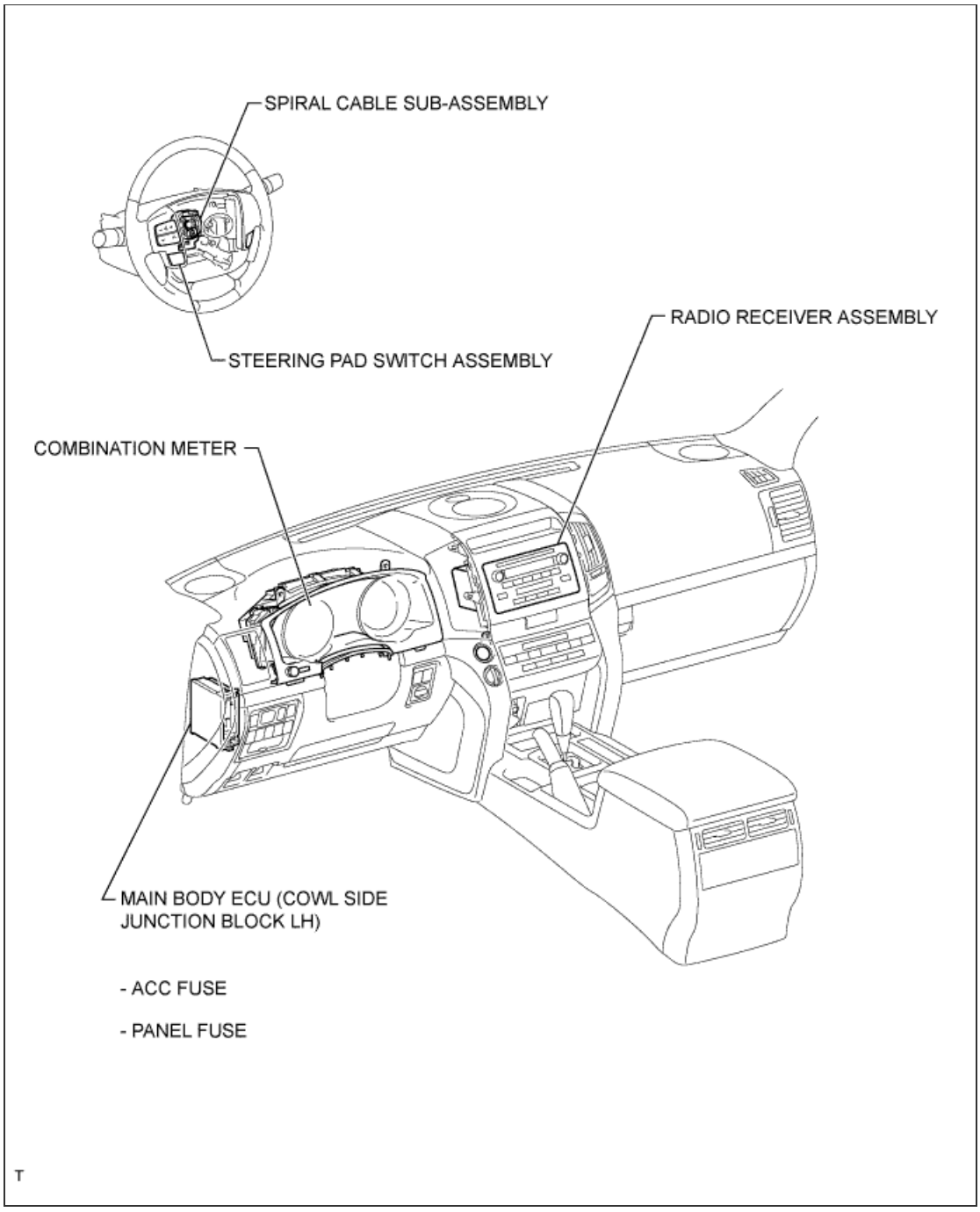
for Preparation Click here

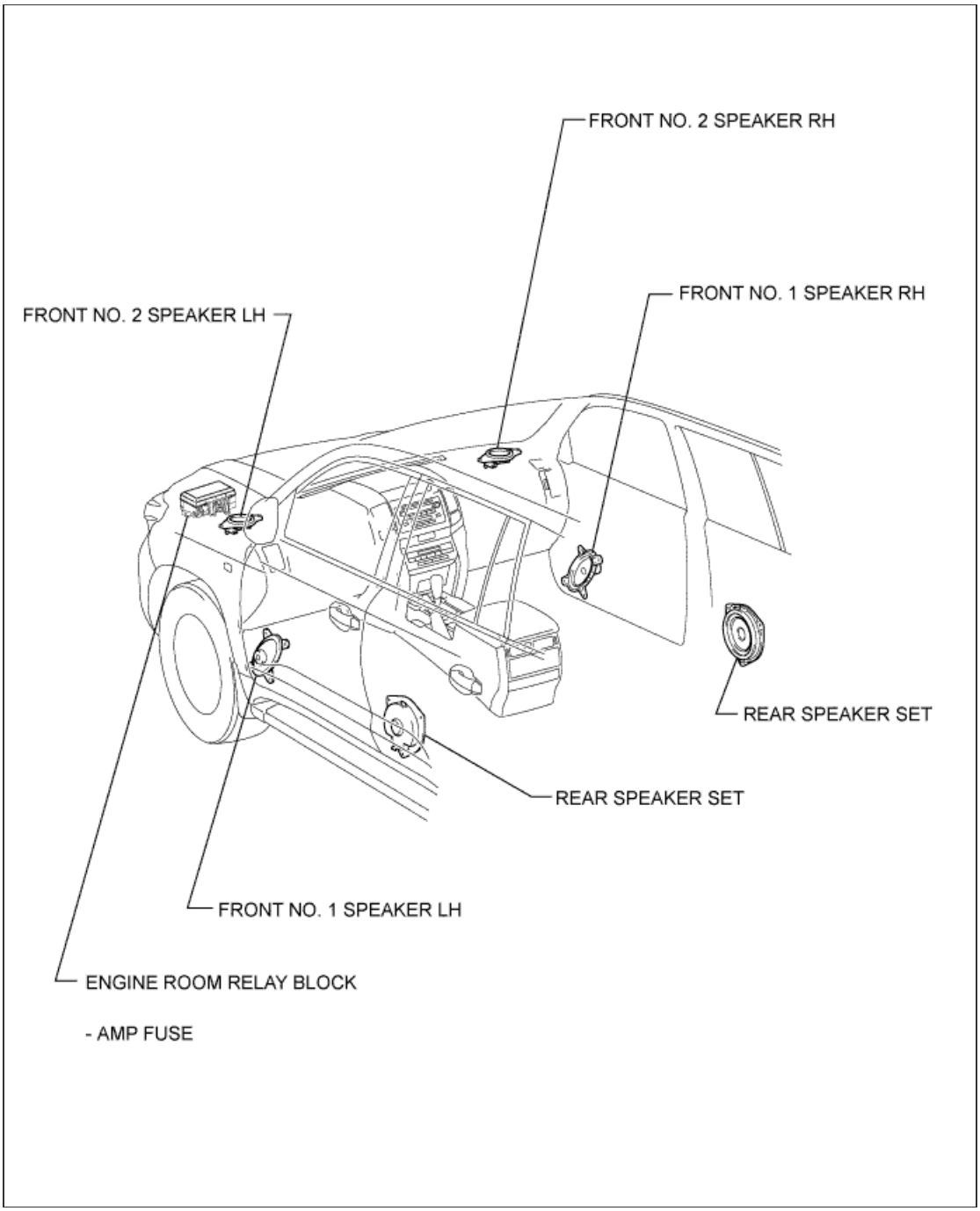
1.IGNITION SWITCH EXPRESSION

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.

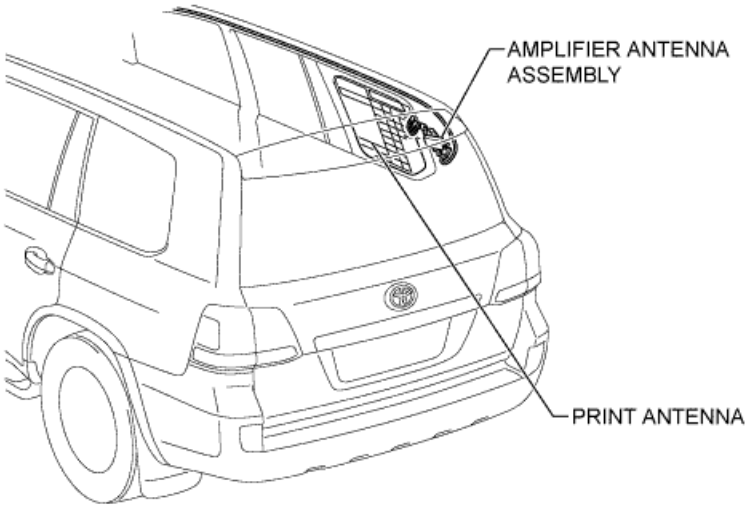
Expression	Ignition Switch (Position)	Engine Switch (Condition)
Ignition Switch off	LOCK	Off
Ignition Switch ACC	ACC	On (ACC)
Ignition Switch ON	ON	On (IG)
Engine Start	START	Start

for Preparation Click here

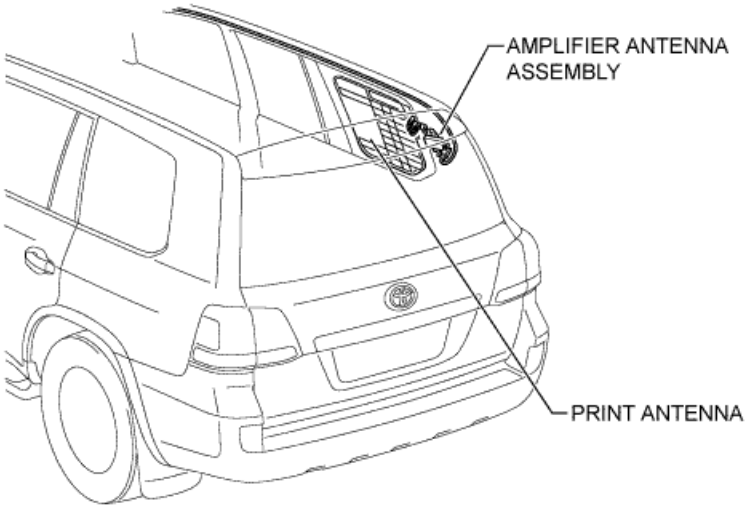



FRONT NO. 2 SPEAKER RH
FRONT NO. 1 SPEAKER RH
FRONT NO. 2 SPEAKER LH
REAR SPEAKER SET
REAR SPEAKER SET
FRONT NO. 1 SPEAKER LH
ENGINE ROOM RELAY BLOCK
- AMP FUSE

w/ Glass Breakage Sensor:

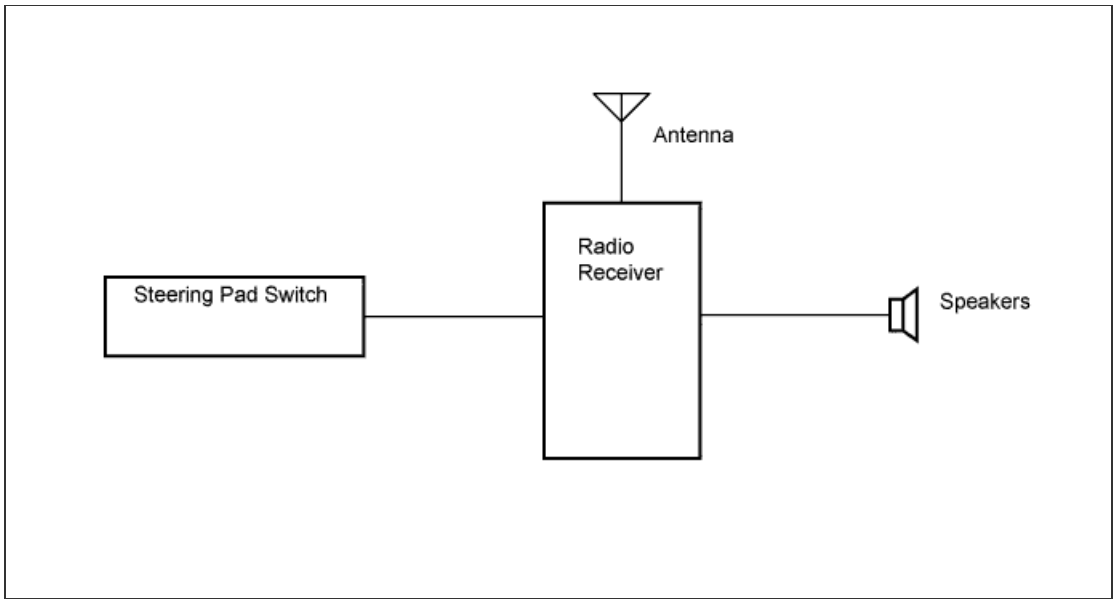


w/o Glass Breakage Sensor:



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:

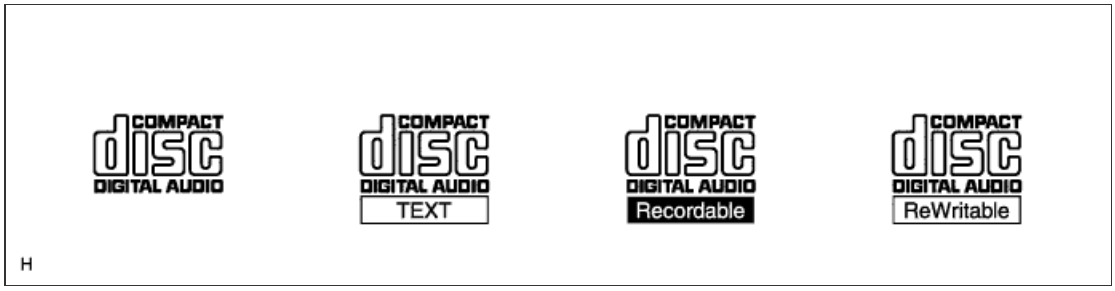
Do not look directly at the laser pickup because the CD player uses an invisible laser beam. Be sure to operate the player only as instructed.

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:

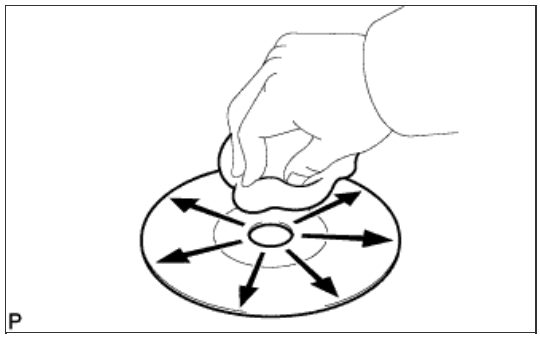
- **Just as condensation fogs the vehicle windows during wet or cold weather, condensation may also form inside the player. If condensation forms, CD skipping or playback stoppage may occur. Ventilate or dehumidify the vehicle for a while before using the player.**
- **If the player vibrates severely 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:

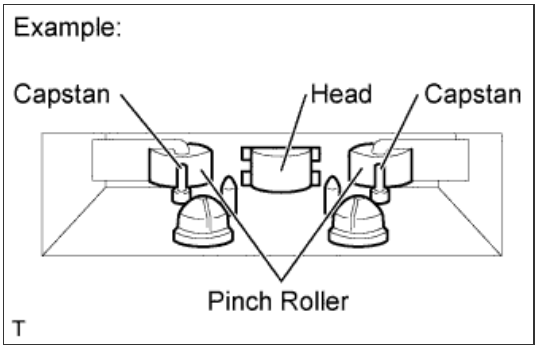
If saving non-MP3 files with an extension of ".mp3", those files are wrongly recognized as MP3 files and played. A loud noise may occur and damage to the speaker may result.

CASSETTE TAPE PLAYER OUTLINE

a. Tape Player / Head Cleaning:

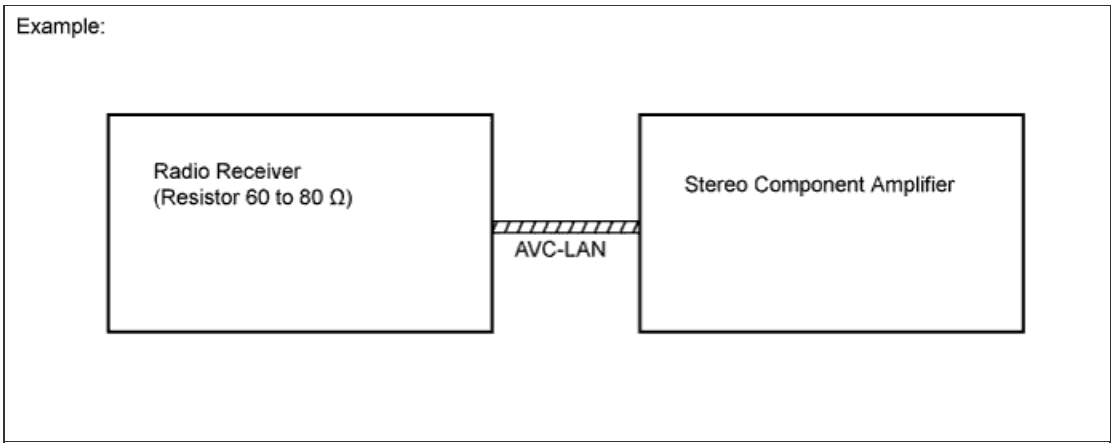
i. Raise the cassette door with your finger. Using a pencil or similar object, push in the guide.

ii. Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, pinch rollers and capstans.



AVC-LAN DESCRIPTION

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



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

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

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

produced.

HINT:

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

COMMUNICATION SYSTEM OUTLINE

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

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

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

DIAGNOSTIC FUNCTION OUTLINE

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

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

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

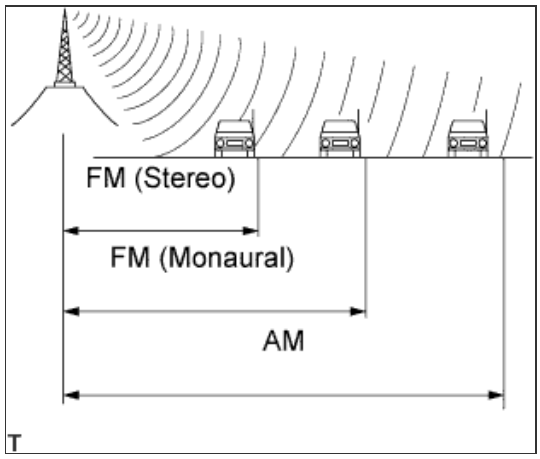
i. Radio broadcasts use the radio frequency bands shown in the table below.

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).

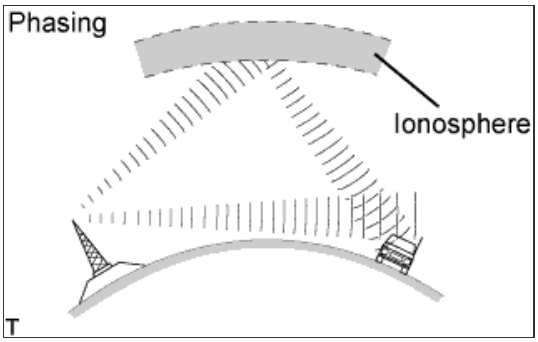


RECEPTION PROBLEMS

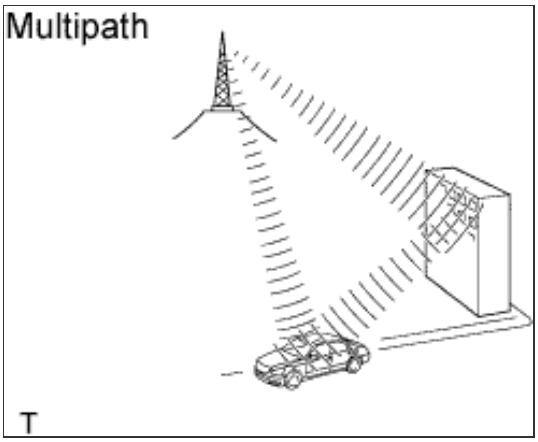
HINT:

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.

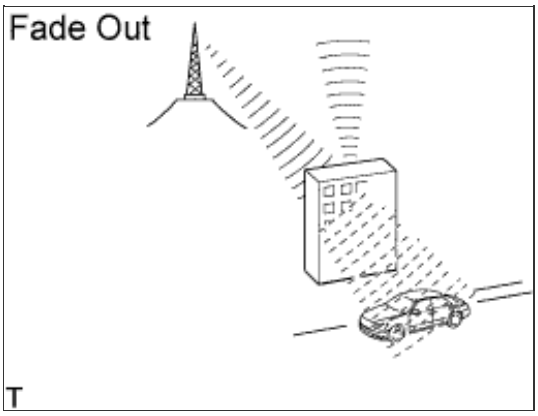
a. AM broadcasts are susceptible to electrical interference called phasing.
Occurring only at night, phasing is the interference created when a vehicle receives 2 radio wave signals from the same transmitter. One signal is reflected off of the ionosphere and the other signal is received directly from 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
Cassette tape cannot be inserted or played	Radio receiver power source circuit	Click here
	Cassette tape cannot be inserted or played	Click here
	Radio receiver power source circuit	Click

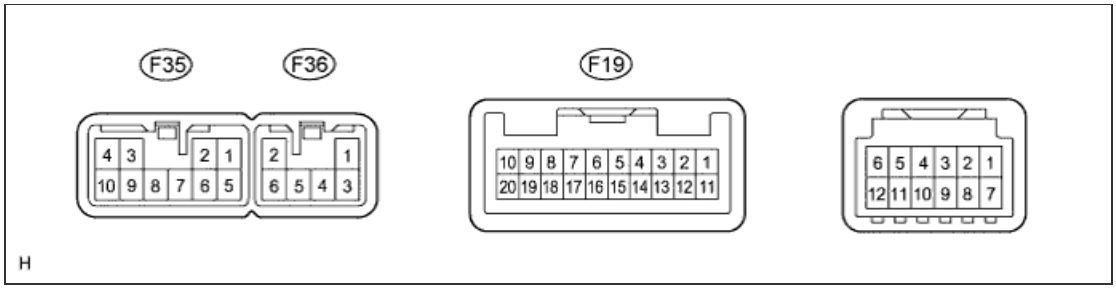
Cassette tape cannot be ejected		here
	Cassette tape cannot be ejected	Click here
Sound quality is bad only when playing tape	Sound quality is bad only when playing tape	Click here
Tape is tangled due to incorrect tape speed or auto-reverse malfunction	Tape is tangled due to incorrect tape speed or auto-reverse malfunction	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.

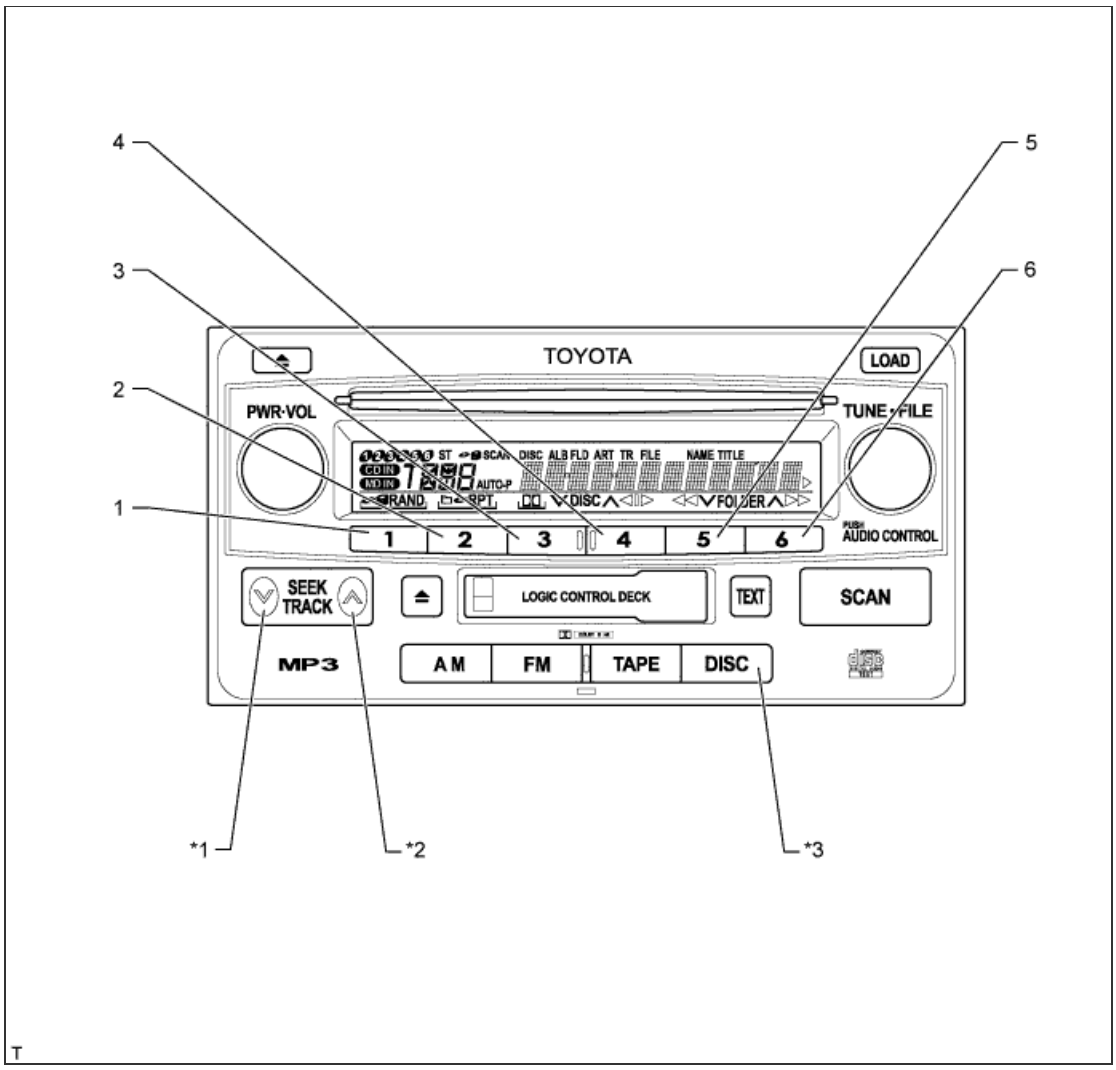
Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specification
F19-6 (SWG) - F35-7 (GND)	W - BR	Steering pad switch ground	Always	Below 1 V
F19-7 (SW1) - F35-7 (GND)	L - BR	Steering pad switch signal	Steering pad switch not pushed	4 V or more
			Steering pad switch seek+ switch pushed	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.

for Preparation Click here

STARTING DIAGNOSTIC MODE



Text in Illustration

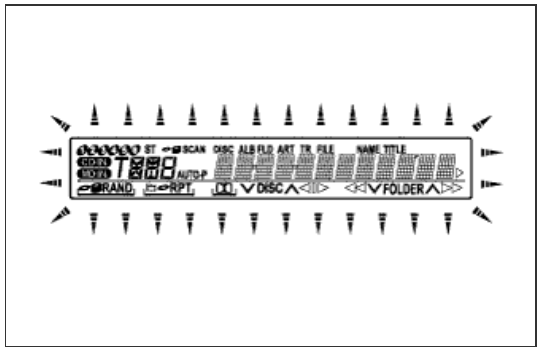
*1	SEEK-TRACK Down	*2	SEEK-TRACK Up
*3	DISC Switch	-	-

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 "DISC" 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
good	Good (normal)	No DTCs are stored in both "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

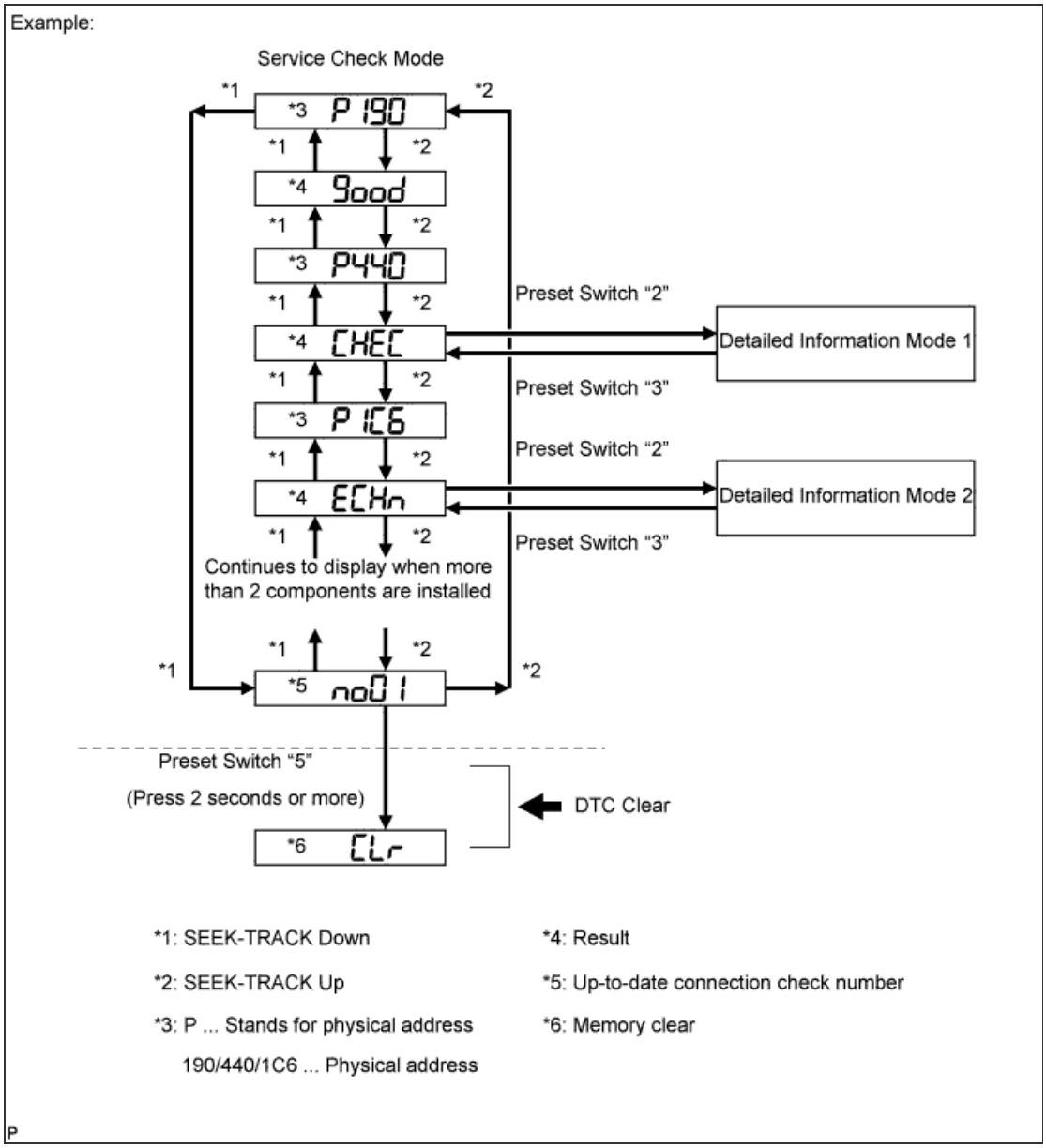
d. Service check mode.

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.

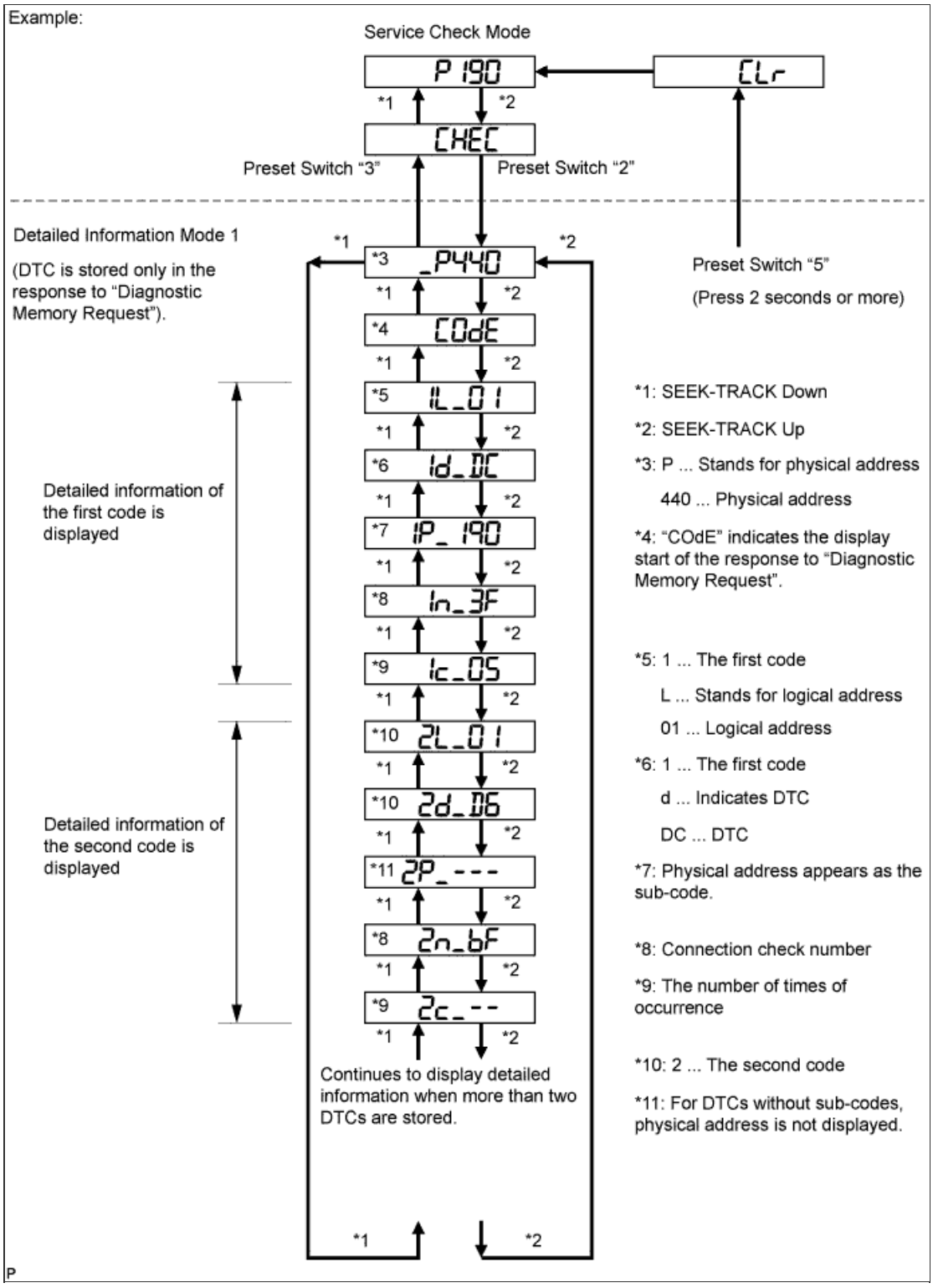
iii. Press preset switch "3" to go to "Service Check Mode".

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.

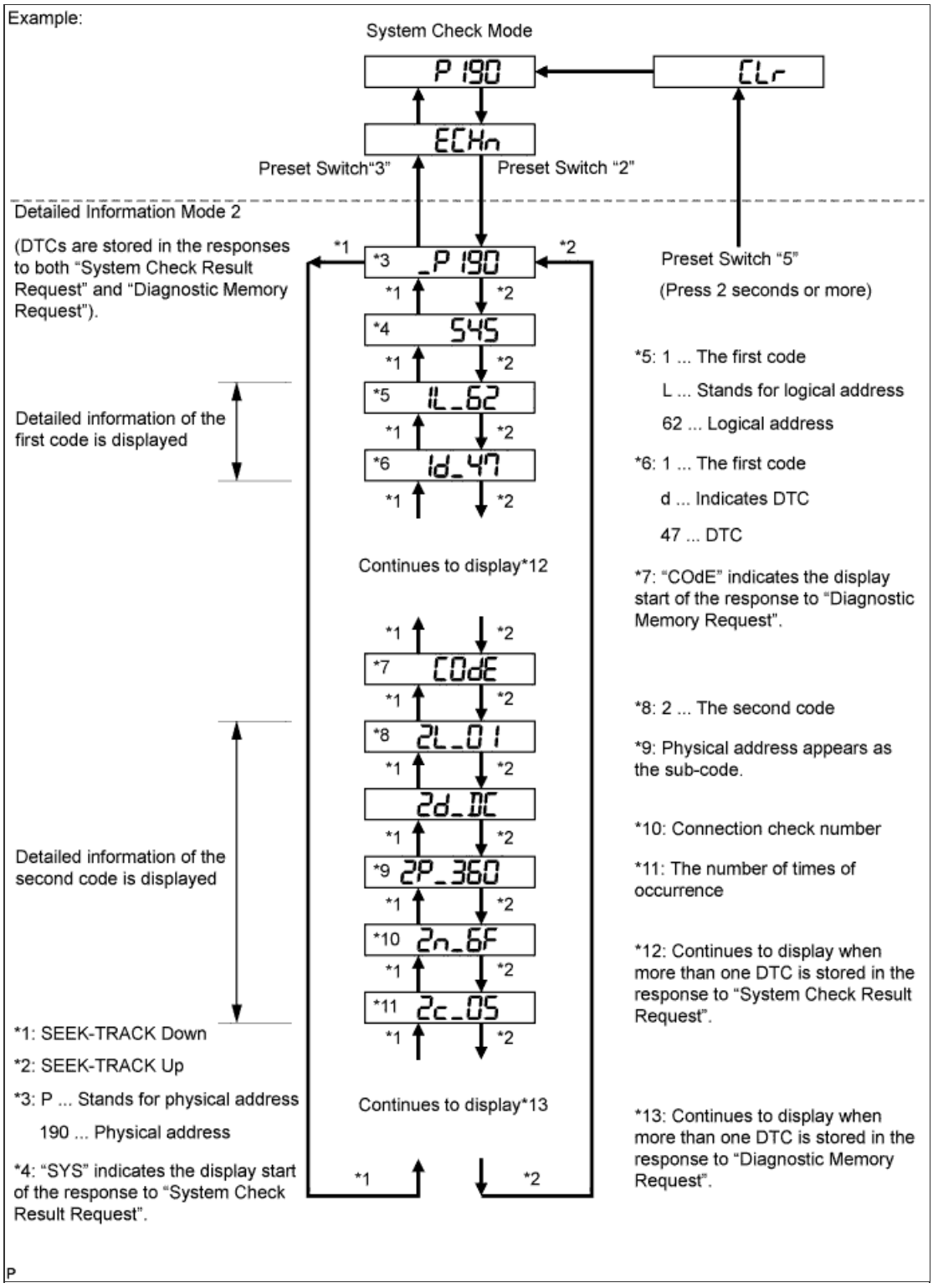
iii. Press preset switch "3" to go to "Service Check Mode".

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".

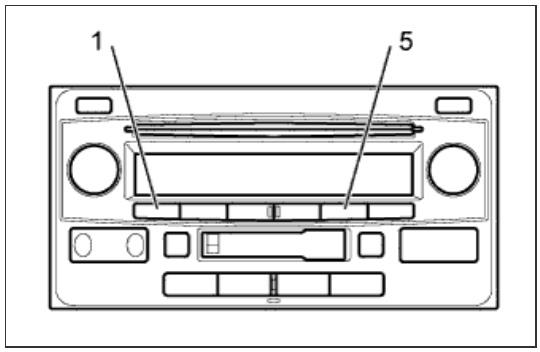
HINT:

- **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

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

AUDIO AND VISUAL SYSTEM (w/ Cassette Tape Player) > Sound Quality is Bad Only when CD is Played (Volume is Too Low)

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

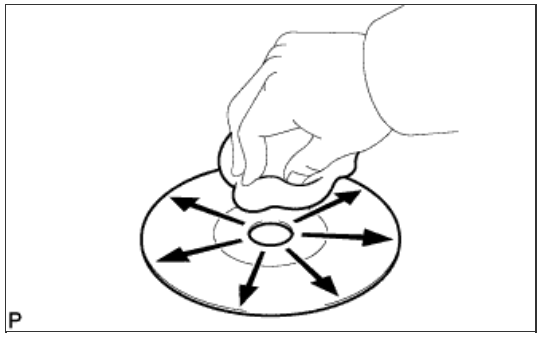
3.CLEAN CD

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

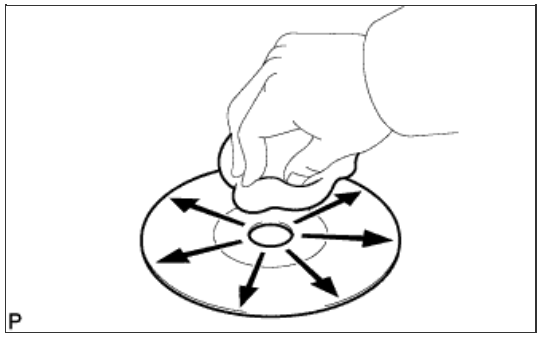
1.CLEAN CD

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)

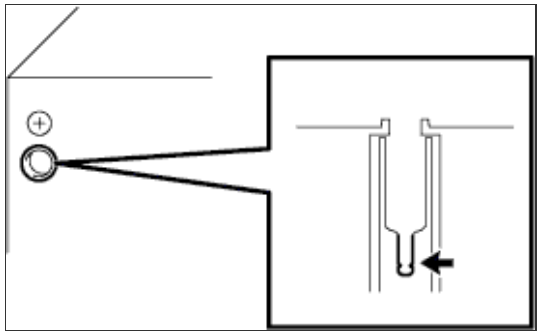
a. Remove the antenna plug of the radio receiver.

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 ↓

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

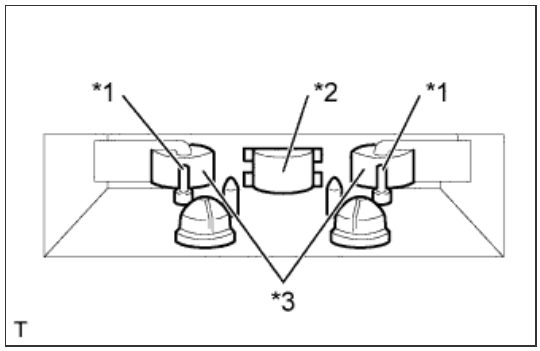
a. Head cleaning

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

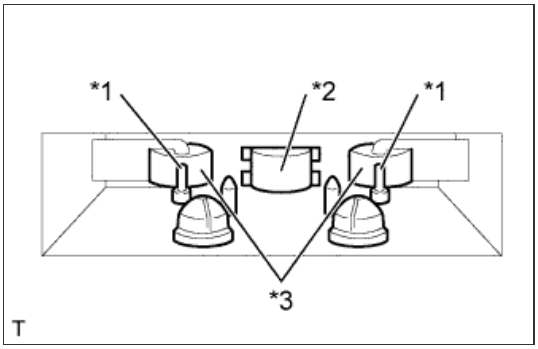
a. Head cleaning

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 →

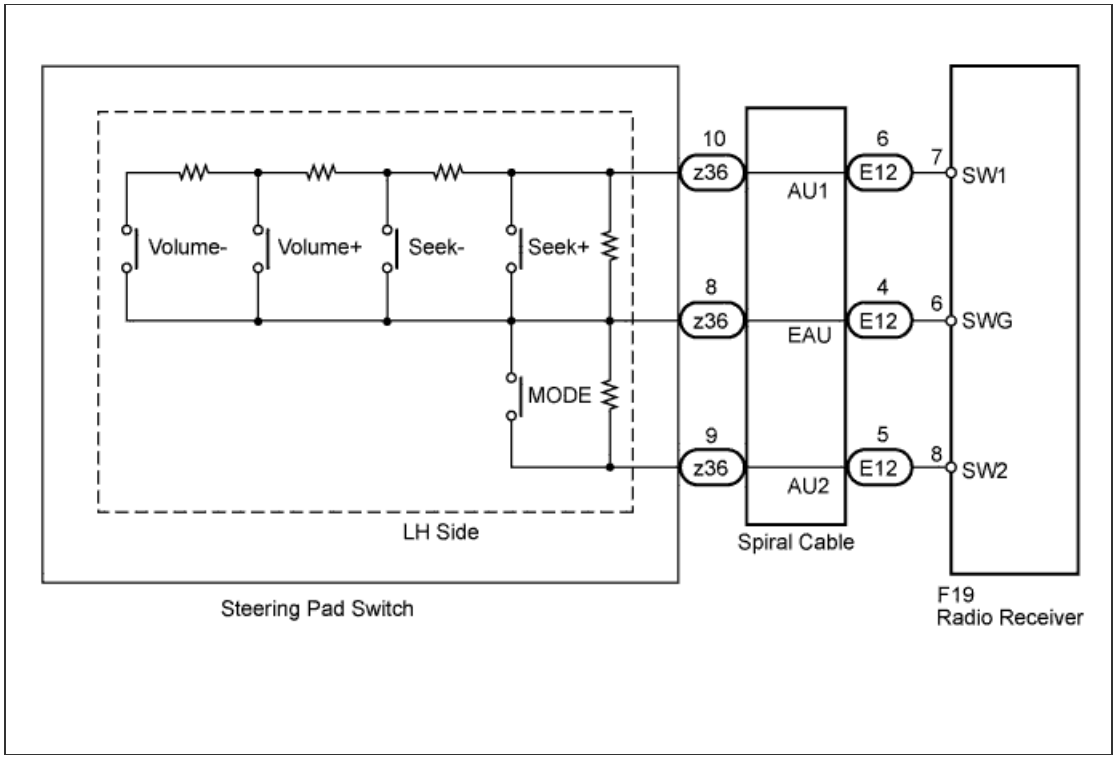
END (BAD SOUND QUALITY)

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.

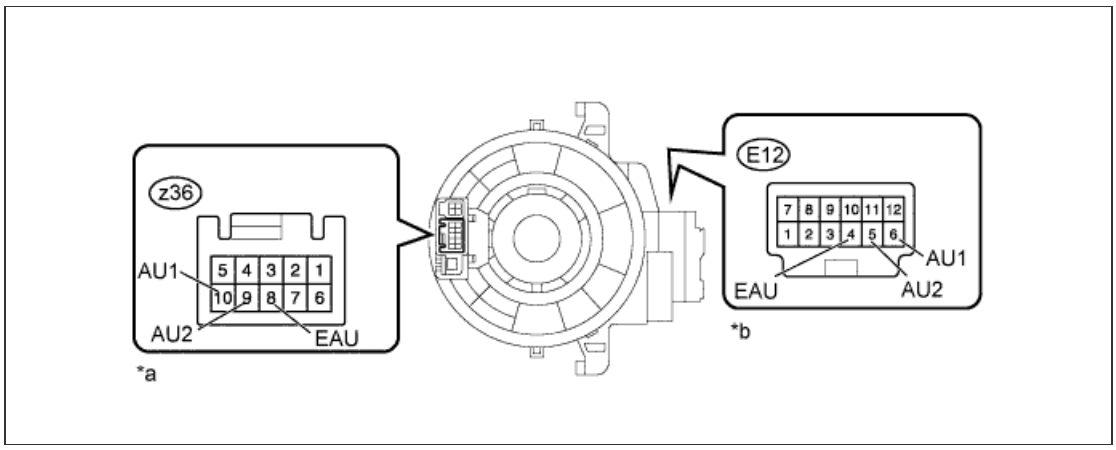
Standard Resistance:

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:

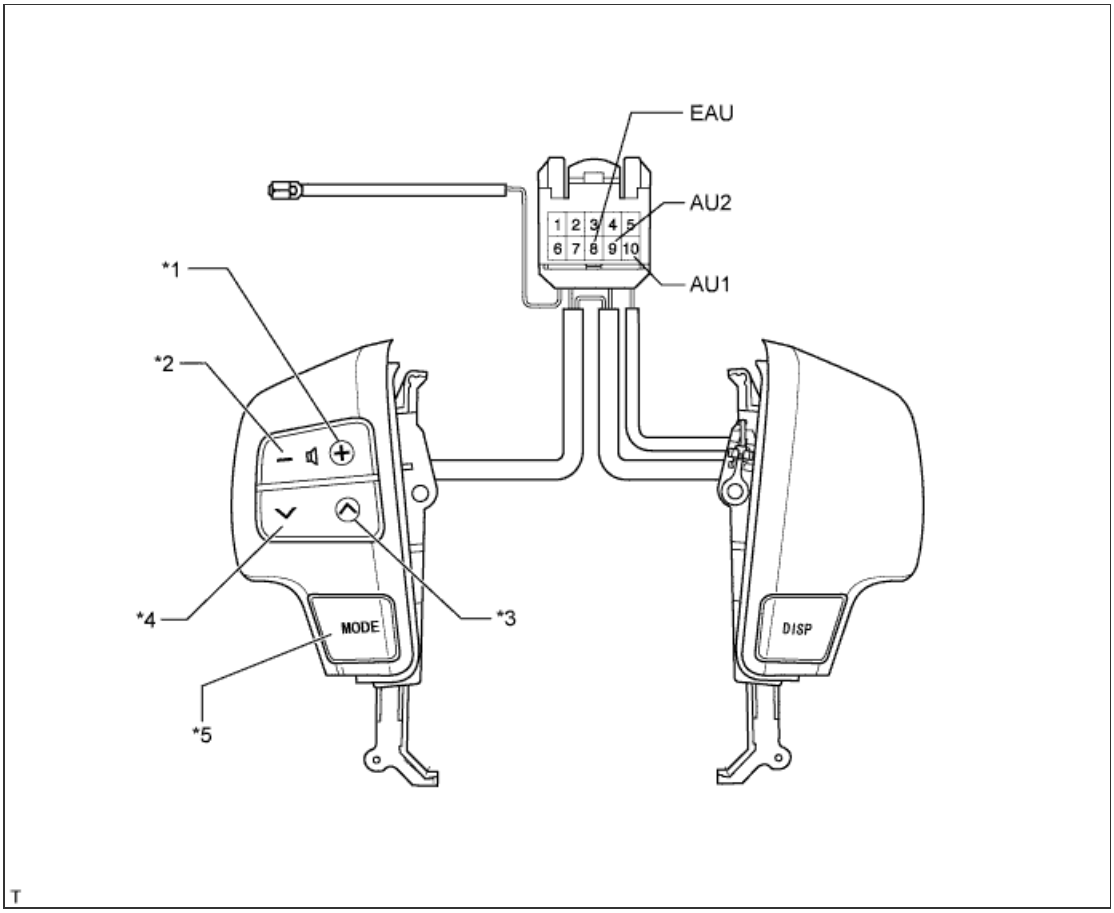
The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the SRS (Click here).

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

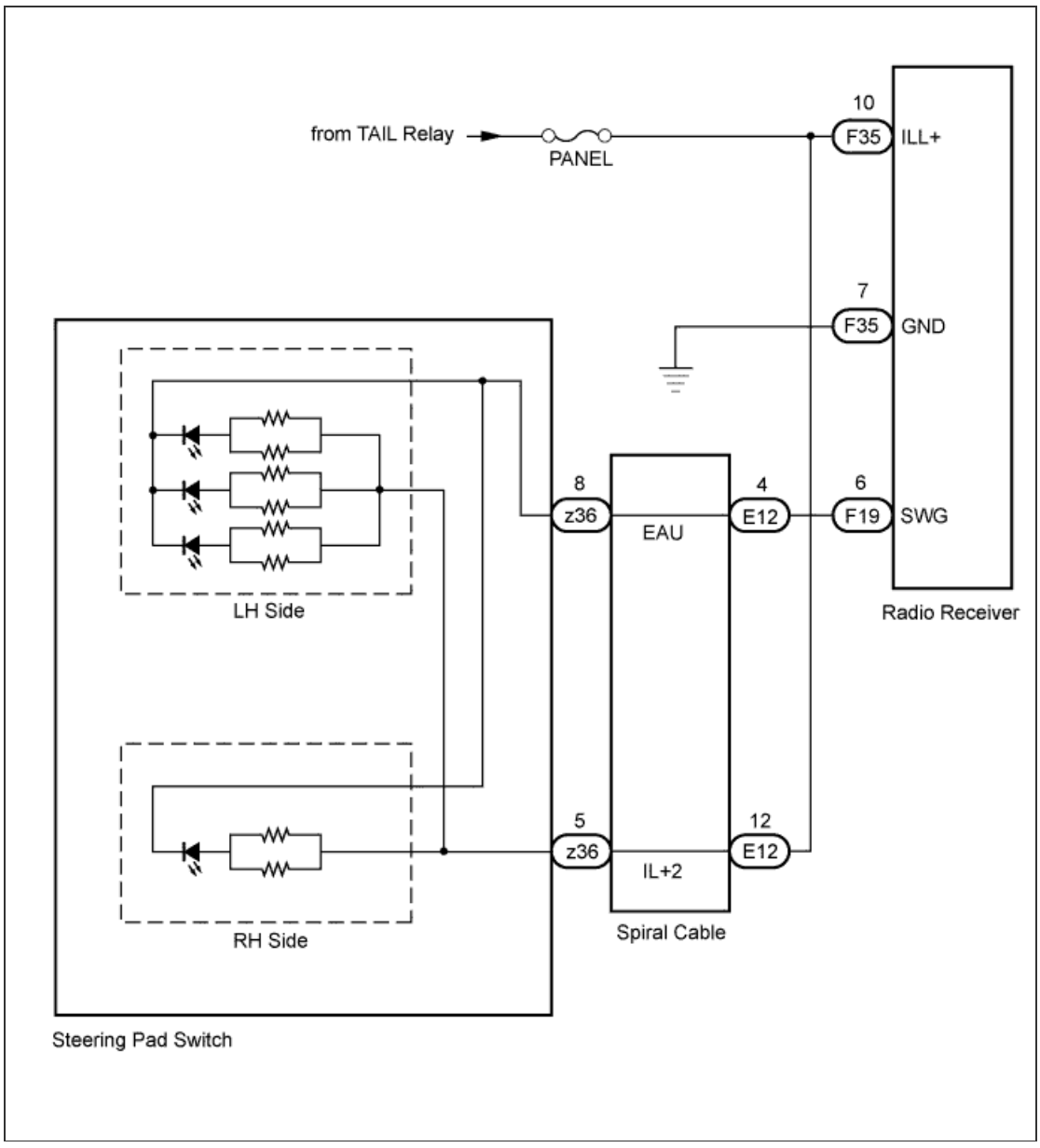
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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

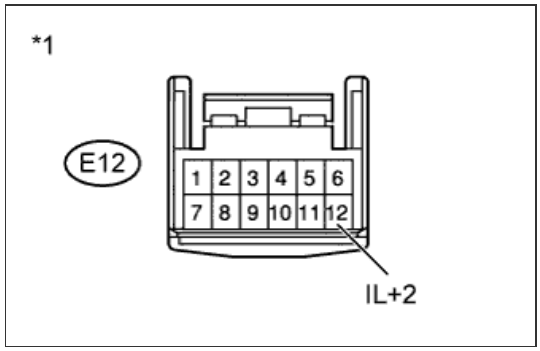
2.CHECK HARNESS AND CONNECTOR (SPIRAL CABLE - TAIL RELAY)

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



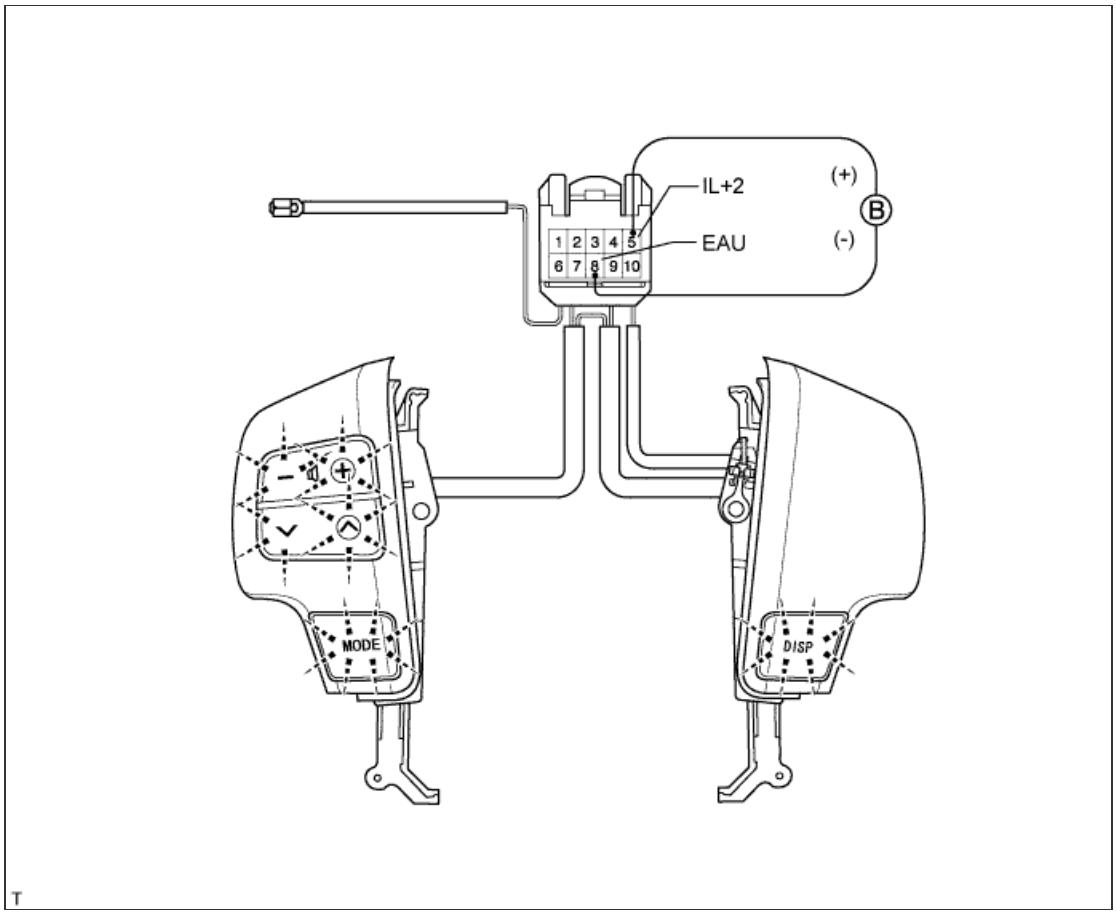
Text in Illustration

*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.

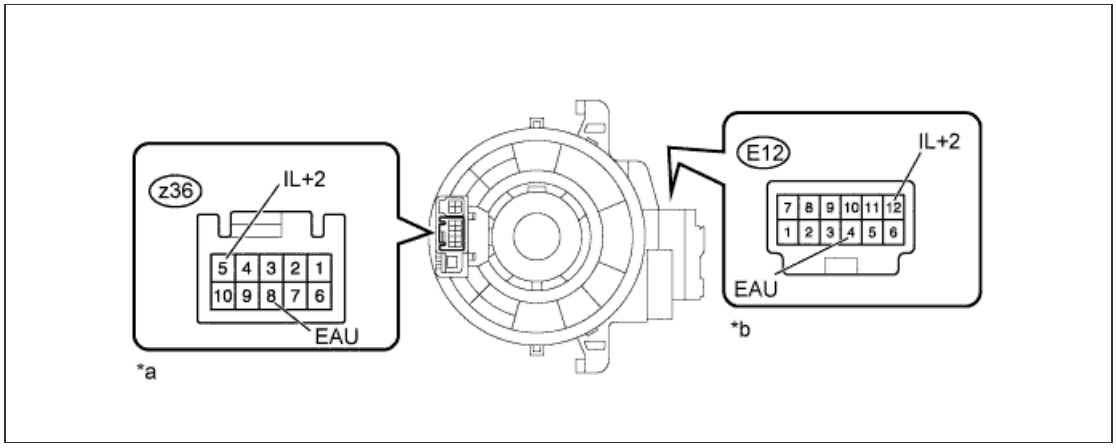
OK:

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.

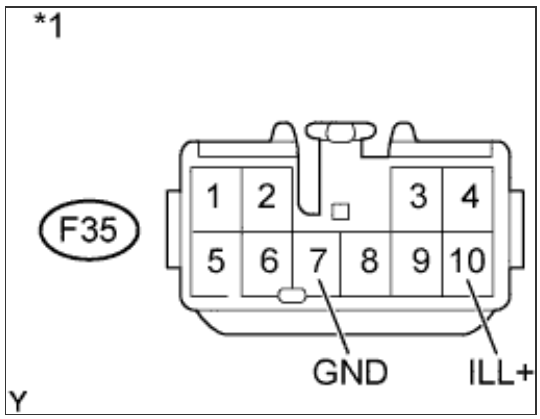
Standard Resistance:

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

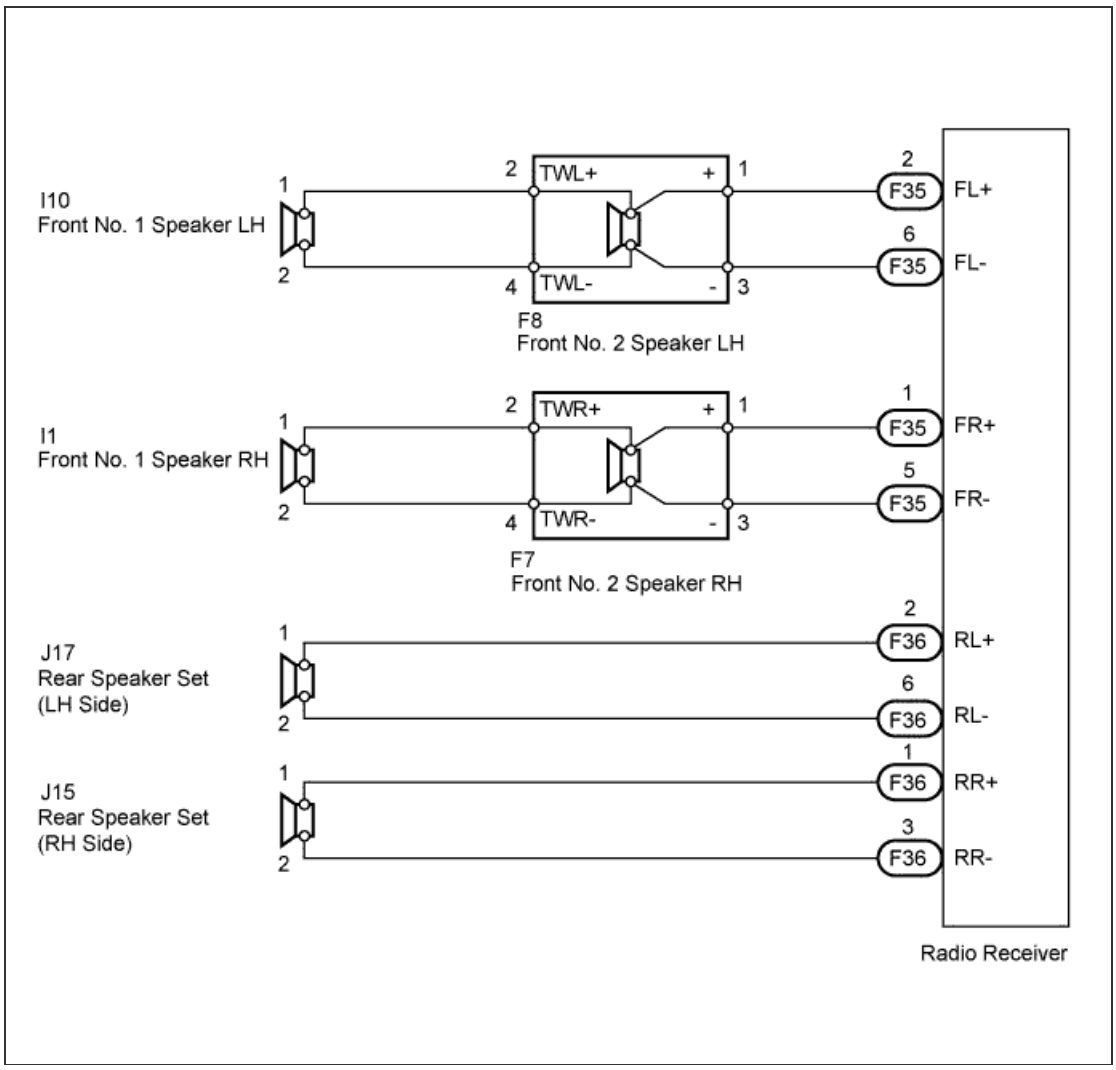
REPLACE RADIO RECEIVER ASSEMBLY (Click here)

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

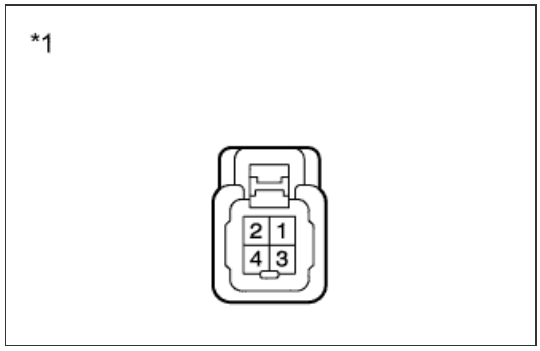
B → Go to step 5

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.

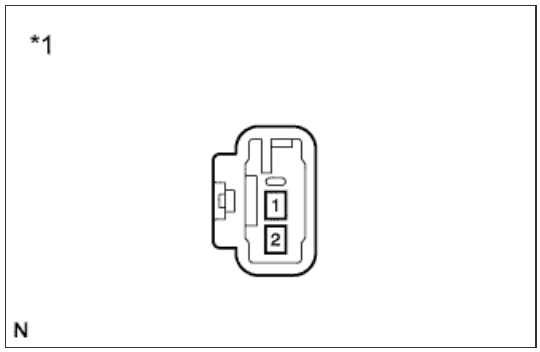
b. Measure the resistance according to the value(s) in the table below.

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.

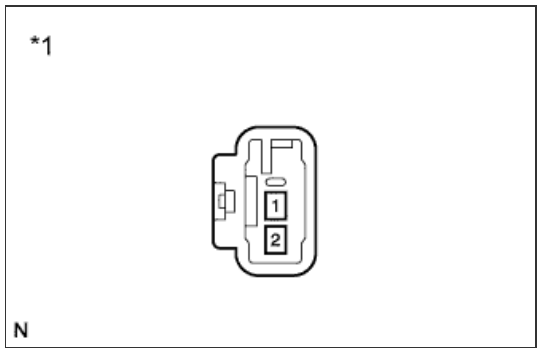
b. Measure the resistance according to the value(s) in the table below.

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

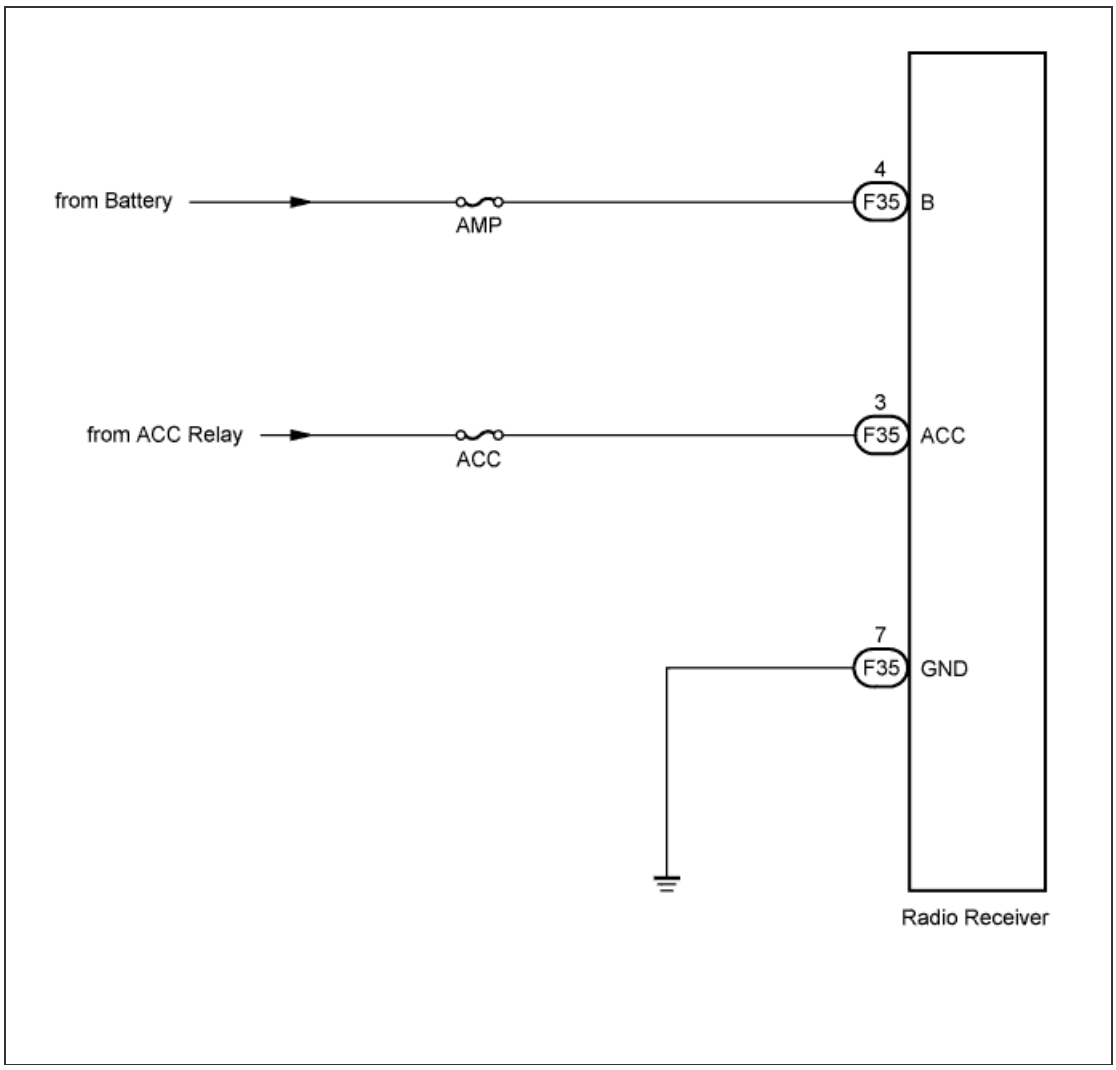
REPLACE RADIO RECEIVER ASSEMBLY (Click here)

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.

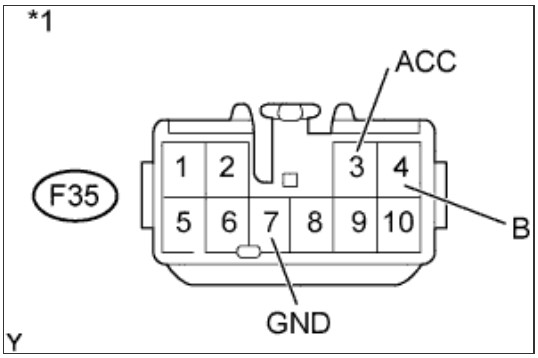
Standard Resistance:

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)

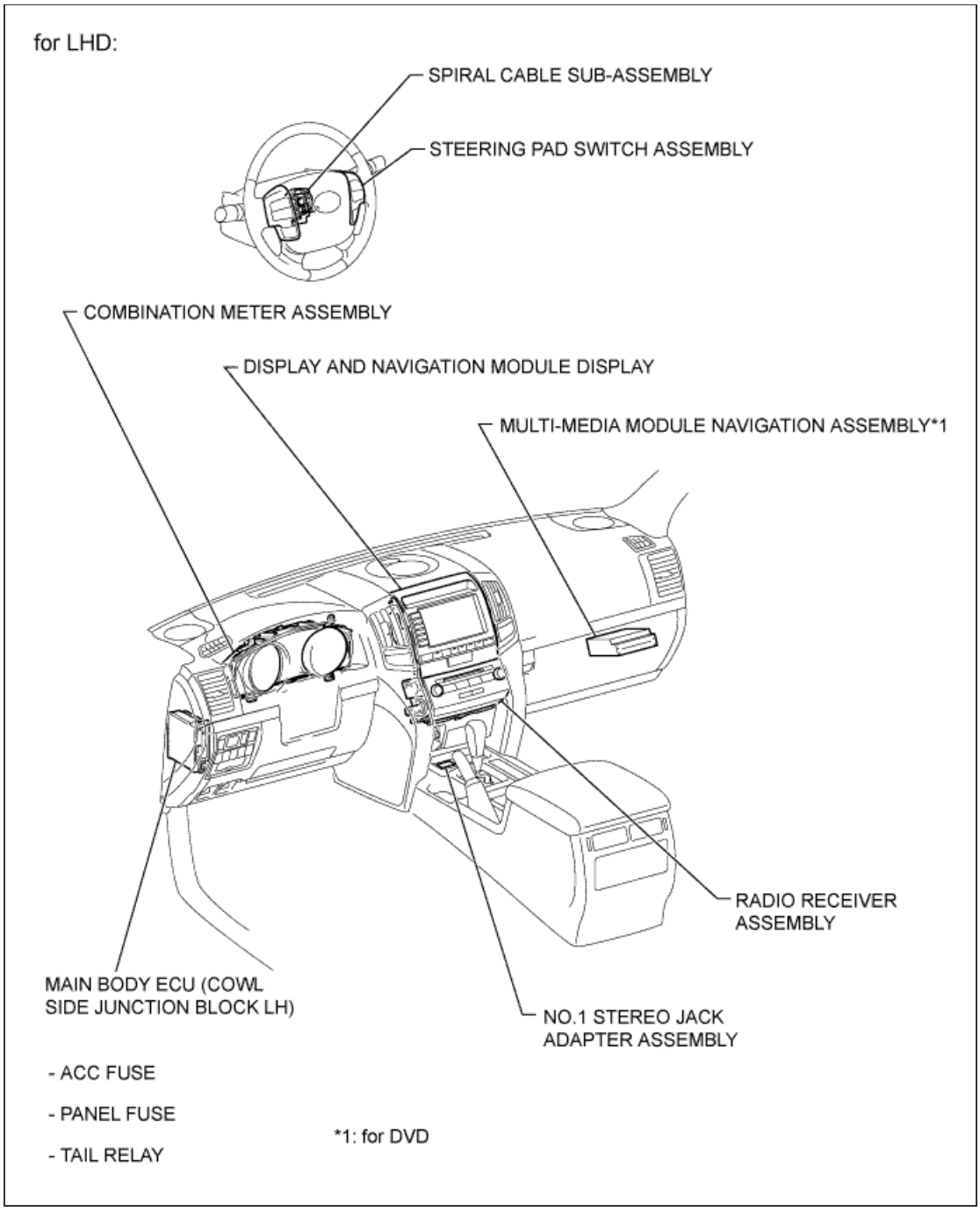
for Preparation Click here

1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE (-) BATTERY TERMINAL

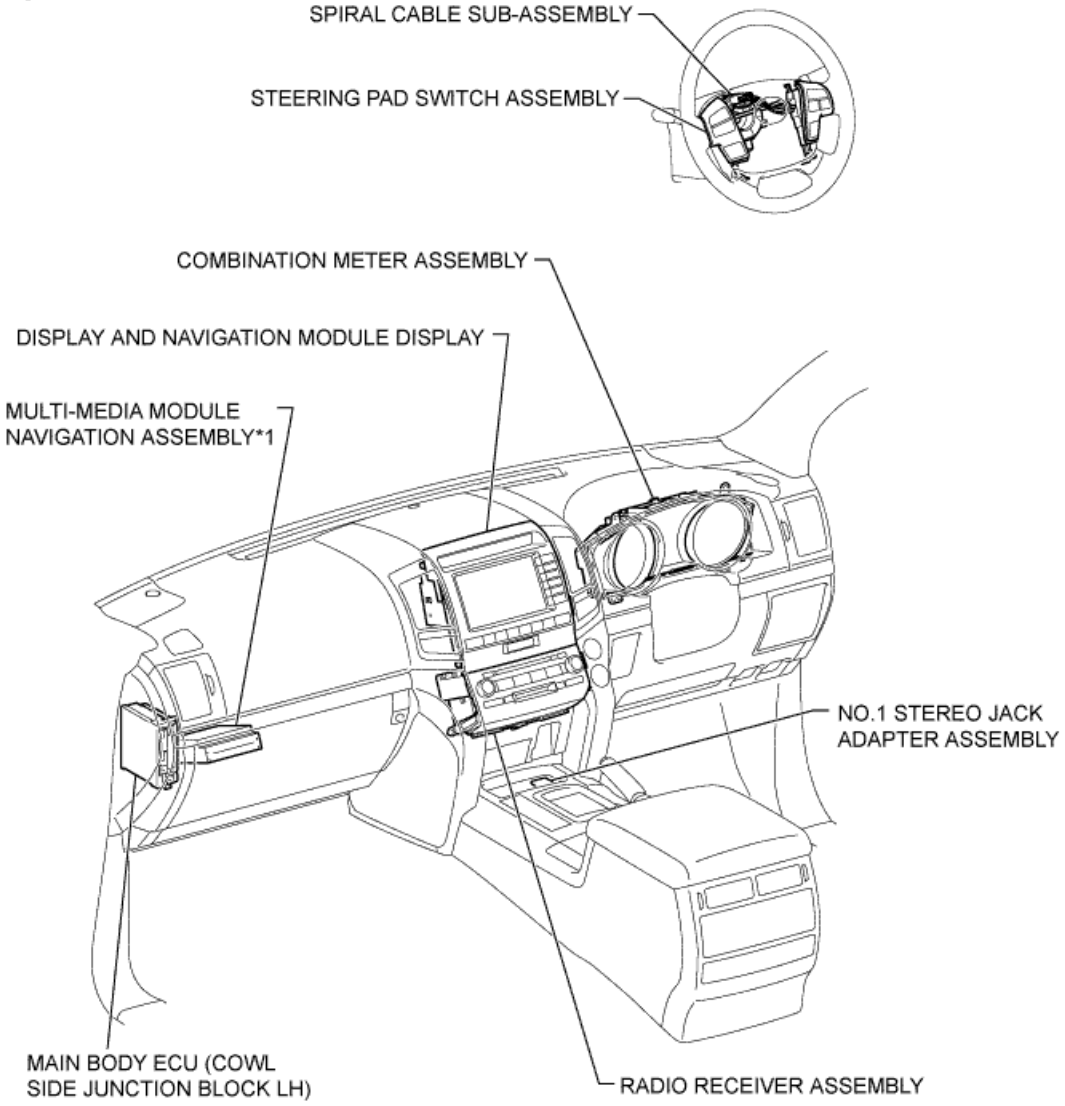
NOTICE:

After the engine switch is turned off, the display and navigation module display (HDD navigation system) records various types of memory and settings. As a result, after turning the engine switch off, wait 1 minute or more before disconnecting the cable from the negative (-) battery terminal.

for Preparation Click here

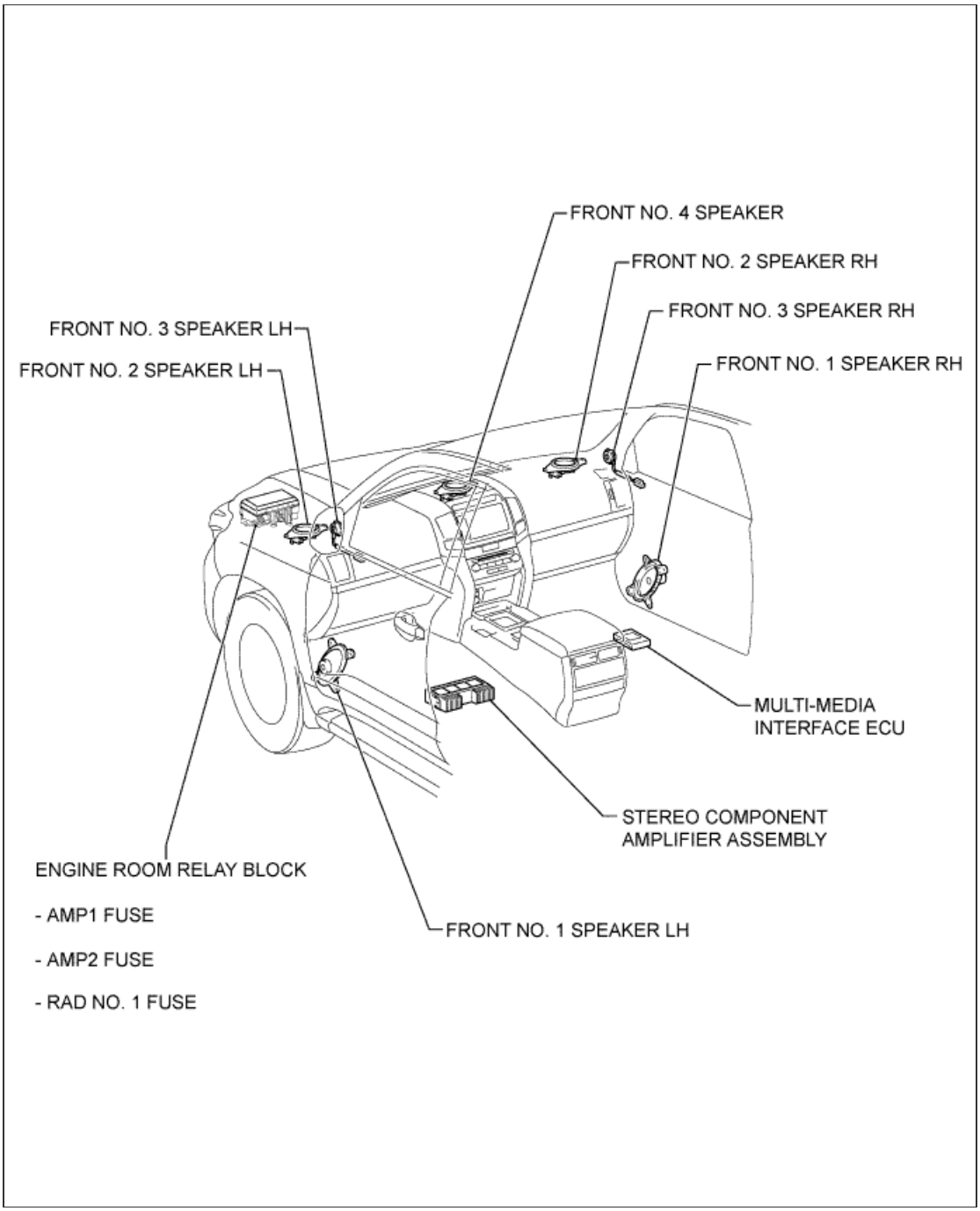


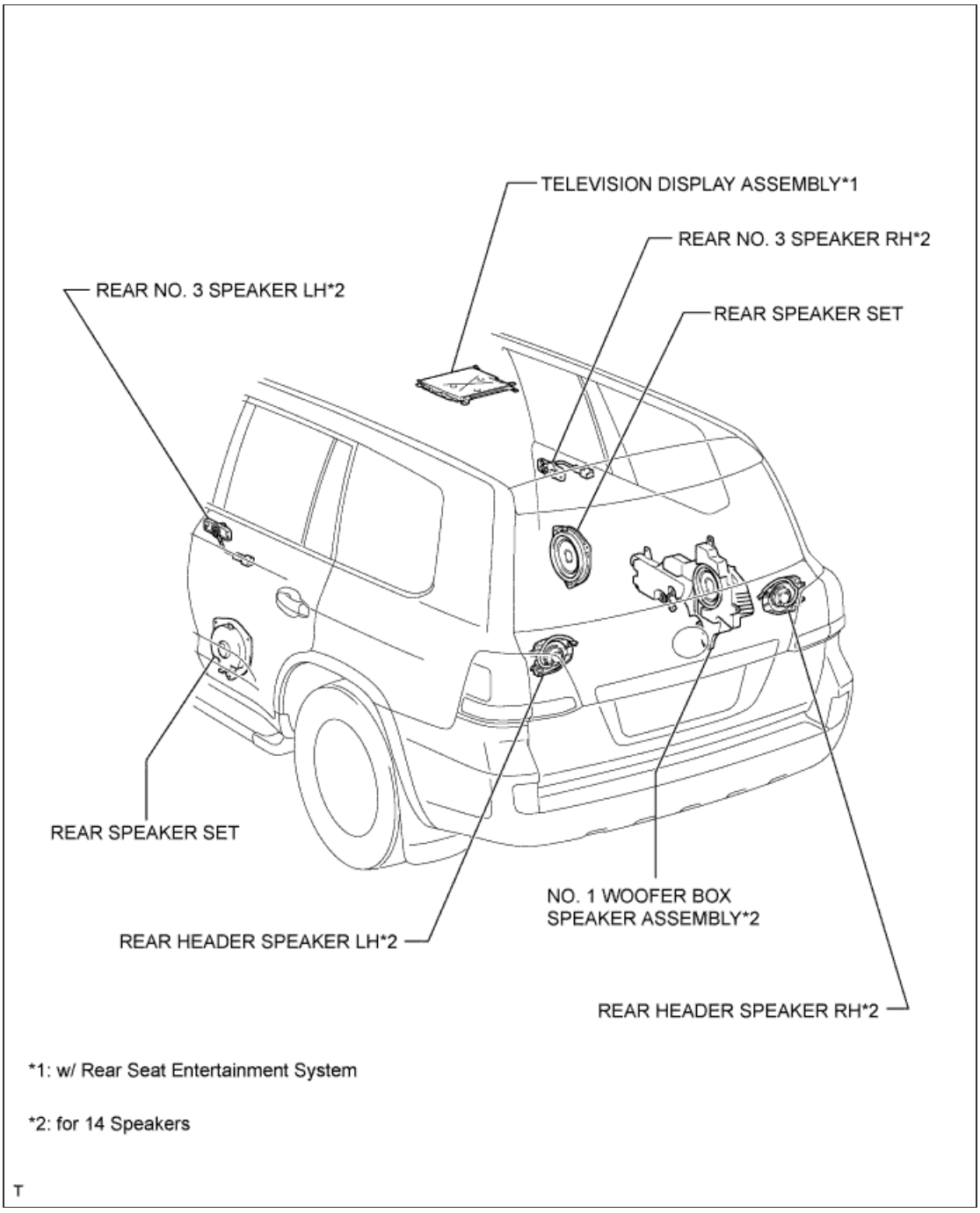
for RHD:



- ACC FUSE
- PANEL FUSE
- TAIL RELAY

*1: for DVD

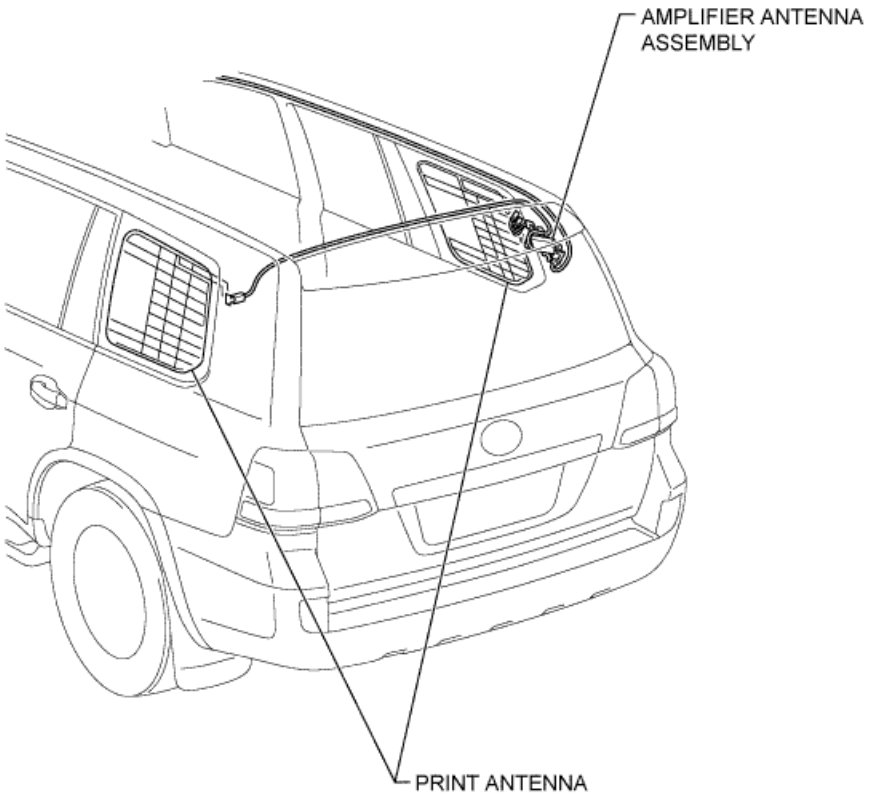

FRONT NO. 4 SPEAKER
FRONT NO. 2 SPEAKER RH
FRONT NO. 3 SPEAKER RH
FRONT NO. 3 SPEAKER LH
FRONT NO. 1 SPEAKER RH
FRONT NO. 2 SPEAKER LH
MULTI-MEDIA
INTERFACE ECU
STEREO COMPONENT
AMPLIFIER ASSEMBLY
ENGINE ROOM RELAY BLOCK
- AMP1 FUSE
- AMP2 FUSE
- RAD NO. 1 FUSE
FRONT NO. 1 SPEAKER LH



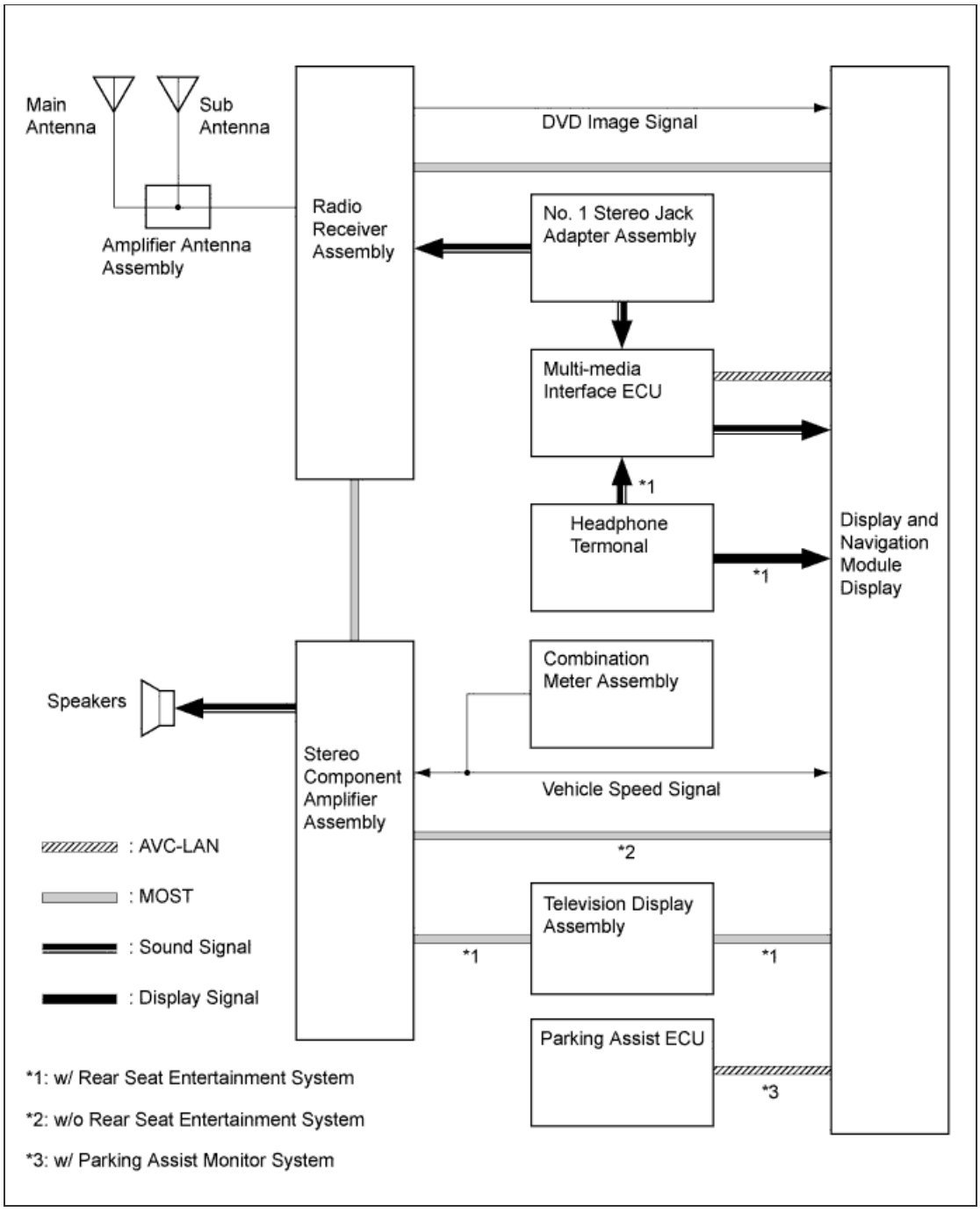
*1: w/ Rear Seat Entertainment System

*2: for 14 Speakers

T


AMPLIFIER ANTENNA ASSEMBLY
PRINT ANTENNA

for Preparation Click here



for Preparation Click here

DVD (Digital Versatile Disc) PLAYER OUTLINE (for DVD Changer Models)

a. The DVD player can only play DVD videos, DVD audios and video CDs that have any of the following marks:



i. Precaution for use of discs

NOTICE:

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

CD (Compact Disc) PLAYER OUTLINE

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

CAUTION:

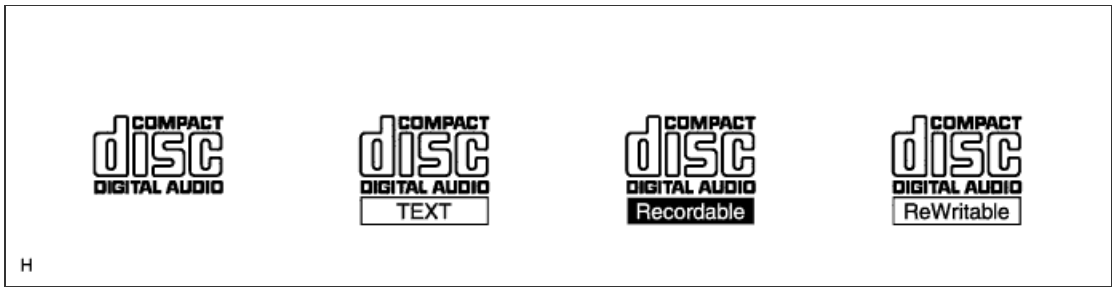
Do not look directly at the laser pickup because the CD player uses an invisible laser beam. Be sure to operate the player only as instructed.

NOTICE:

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

b. Usable discs

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



H

c. Precautions for use of discs

NOTICE:

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

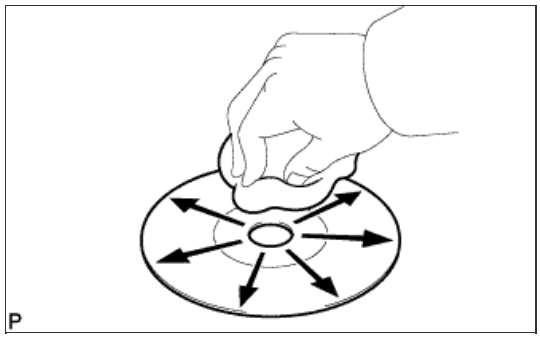
HINT:

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

d. Cleaning

NOTICE:

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


P

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

NOTICE:

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

MP3/WMA OUTLINE

a. Playable MP3 file standards

Compatible standard	MP3 (MPEG1 LAYER3, MPEG2 LSF LAYER3)
Compatible sampling frequency	• MPEG1 LAYER3: 32, 44.1, 48 (kHz) • 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 (Only compatible with 2-channel playback)	• Ver. 7, 8: CBR48, 64, 80, 96, 128, 160, 192 (kbps) • Ver. 9: CBR48, 64, 80, 96, 128, 160, 192, 256, 320 (kbps)

c. ID3 tag and WMA tag

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

HINT:

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

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

d. Usable media

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

NOTICE:

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

e. Usable media format

i. Usable media format

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

HINT:

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

ii. Standard and restrictions

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

f. File names

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

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

NOTICE:

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

COMMUNICATION SYSTEM

HINT:

- **Refer to Navigation System (for HDD) (Click here).**
- **Refer to Navigation System (for DVD) (Click here).**

DIAGNOSTIC FUNCTION OUTLINE

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

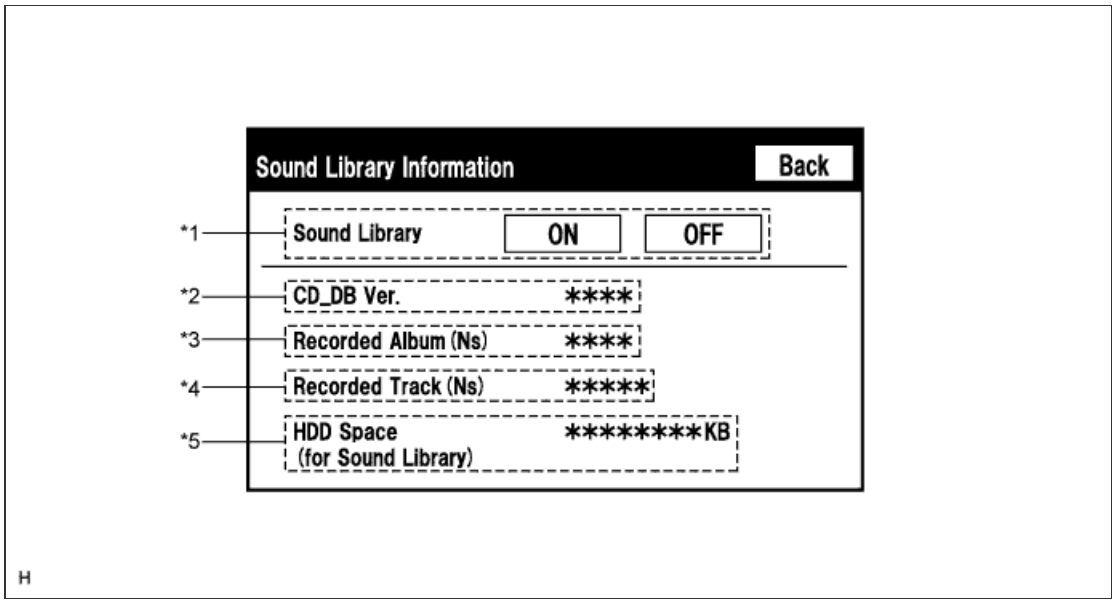
DIAGNOSIS DISPLAY DETAILED DESCRIPTION (w/ Sound Library)

HINT:

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

a. Function Check/Setting Screen

i. Sound Library Information Screen



Screen Description

Display	Content
*1: Recording function setting for HDD	Recording to HDD permitted (ON)/not permitted (OFF)
*2: Media database version	Media database version currently installed on HDD
*3: Number of albums	Number of albums recorded in HDD
*4: Number of tracks	Number of tracks recorded in HDD
*5: Free space in HDD	Free space in HDD partition for sound library

b. Refer to the following for detailed descriptions of the diagnosis display for items other than the sound library function:

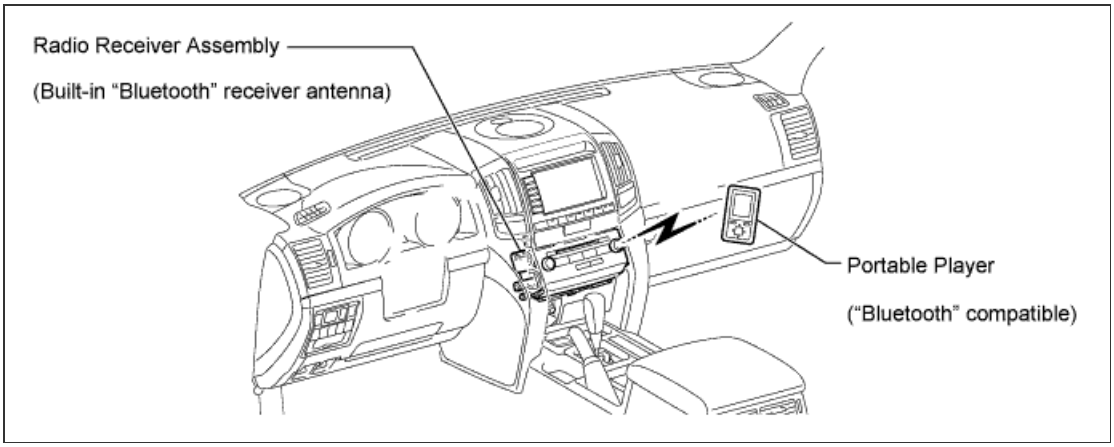
HINT:

Refer to Navigation System (for HDD) (Click here).

"BLUETOOTH" OUTLINE

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

b. "Bluetooth" is a wireless connection technology that uses the 2.4 GHz frequency band. This makes it possible to connect a cellular phone ("Bluetooth" compatible phone*1) to the radio receiver assembly (the "Bluetooth" system is built in), and use the hands-free function of the cellular phone, even if it is in a pocket or bag. As a result, it is not necessary to use a connector attached directly to the cellular phone.
*1: Some versions of "Bluetooth" compatible cellular phones may not function.



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 (w/ Bluetooth Audio Function)

i. The "Bluetooth" built-in radio receiver assembly and a "Bluetooth" compatible portable audio player*2 can be connected using a "Bluetooth" wireless connection. This enables files stored in the portable audio player to be heard from the vehicle speakers. In addition, operations such as play/stop can be performed directly from the radio receiver assembly.
*2: Some versions of "Bluetooth" compatible audio players may not be able to operate the "Bluetooth" function, or music may play, but functions available using the radio receiver assembly may be limited.

ii. Available "Bluetooth" audio devices

"Bluetooth" specifications	Ver. 1.1 or higher (Recommended: Ver. 2.0+EDR or higher)
Following profiles	• A2DP (Advanced Audio Distribution Profile) Ver. 1.0 or higher • AVRCP (Audio/Video Remote Control Profile) Ver. 1.0 or higher (Confirmed: Ver. 1.3 or higher)
Maximum number of audio devices that can be registered	2

HINT:

The amount of remaining battery charge displayed on the radio receiver assembly may be different from that of the portable player.

USB AUDIO SYSTEM FUNCTION OUTLINE

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

HINT:

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

b. USB audio system compatible model

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

Compatible USB device formats	• USB communication format: USB 2.0 FS (12MBPS) • 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 names and folder names

may not be displayed correctly.
Items related to standards and limitations are as follows:

- Maximum directory hierarchy: 8 levels
- Maximum number of folders in device: 999 (including the root folder)
- Maximum number of files in device: 65025
- Maximum number of files per folder: 255

ii. "iPod"
"iPod" is a trademark of Apple Inc., registered in the U.S. and other countries.

Supported "iPod" Models and Firmware Versions

Supported "iPod" Model	Supported Firmware Version
"iPod" 5G	Ver. 1.2 or more
"iPod Nano" 1G	Ver. 1.2 or more
"iPod Nano" 2G	Ver. 1.1.2 or more
"iPod Nano" 3G	Ver. 1.0 or more
"iPod touch"	Ver. 1.1 or more
"iPod classic"	Ver. 1.0 or more

Unsupported "iPod" Models

Unsupported Models	"iPod shuffle"
	"iPhone"
	"iPod" 1G, 2G, 3G, 4G
	"iPod mini"

HINT:

Depending on the generation of "iPod" used, response to commands from the vehicle may be delayed.

Items related to standards and limitations are as follows:

- Maximum number of lists in device: 9999
- Maximum number of songs in device: 65535
- Maximum number of songs per list: 65535

ASL (Automatic Sound Levelizer) FUNCTION OUTLINE

a. The Automatic Sound Levelizer (ASL) function automatically adjusts the sound data in order to enable clear sound to be heard from the audio system even when vehicle noise increases (as vehicle noise increases, the volume is turned up etc.). Vehicle speed signals are received from the combination meter assembly and used for the ASL.

SOUND LIBRARY FUNCTION OUTLINE (for HDD)

a. Up to 2000 tracks can be recorded to the HDD from audio discs (based on 5-minute tracks recorded at 128kbps).

b. The recorded tracks will be provided with album, artist, genre and title names using the "Gracenote" Media Database ("CDDB") and stored in the sound library on the HDD.

c. Album, artist, genre and title names for recorded tracks can be input or edited freely.

HINT:

- **Recording equipment should be used only for lawful copying. It is necessary to carefully confirm what is lawful copying in the country in which you are making a copy.**
- **Copying of copyright material such as films or music is unlawful unless permitted by a legal exception or consent granted by the owners of the rights to the content.**
- **Music recognition technology and related data are provided by "Gracenote".**
- **"Gracenote" is the industry standard in music recognition technology and related content delivery. For more information, visit www.gracenote.com.**
- **CD and music-related data from "Gracenote", Inc. is copyright 2000 - 2008 "Gracenote".**
- **"Gracenote" software is copyright 2000 - 2008 "Gracenote".**
- **This product and service may covered by one or more U.S. patents.**
- **"Gracenote" and "CDDB" are registered trademarks of "Gracenote".**

for Preparation Click here

HINT:

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

1.VEHICLE BROUGHT TO WORKSHOP

NEXT

2.INSPECT BATTERY VOLTAGE

Standard Voltage:
11 to 14 V

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

NEXT

3.BASIC INSPECTION

a. Turn the engine switch on (IG).

b. Check whether or not the radio receiver assembly turns on.

Result

Result	Proceed to
Radio receiver assembly turns on.	A
Radio receiver assembly does not turn on.	B

B. → Go to step 8

A

4.CHECK FOR DTC*

a. Refer to DTC Check/Clear of the navigation system.

- Refer to Navigation System (for HDD) (Click here).
- Refer to Navigation System (for DVD) (Click here).

Result

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

HINT:

After the check using the intelligent tester, check the "System Check Mode" screen as necessary.

B. → Go to step 8

A

5.DTC CLEAR*

a. Refer to DTC Check/Clear of the navigation system.

- Refer to Navigation System (for HDD) (Click here).
- Refer to Navigation System (for DVD) (Click here).

HINT:

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

NEXT

6.RECHECK FOR DTC*

a. Refer to DTC Check/Clear of the navigation system.

- Refer to Navigation System (for HDD) (Click here).
- Refer to Navigation System (for DVD) (Click here).

Result

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

HINT:

- **Even if the malfunction symptom is not confirmed, check for diagnostic trouble codes. This is because the system stores past diagnostic trouble codes.**
- **After the check using the intelligent tester, check the "System Check Mode" screen as necessary.**
- **Check the diagnostic trouble code and inspect the area code indicates.**

B. → **Go to step 9**

A

7.DIAGNOSTIC TROUBLE CODE CHART

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

NOTICE:

- **The navigation system outputs DTCs for the following systems.**
- **When DTCs other than the codes in Diagnostic Trouble Code Chart for the audio and visual system are output, refer to Diagnostic Trouble Code Chart for the following systems.**
- **Refer to Navigation System (for HDD) (Click here).**
- **Refer to Navigation System (for DVD) (Click here).**

Result

Result	Proceed to
Audio and Visual System (w/ Navigation System) are output.	A
Navigation System (for HDD) are output.	B
Navigation System (for DVD) are output.	C

A. → **Go to step 10**

B. → **GO TO NAVIGATION SYSTEM (for HDD)**

C. → **GO TO NAVIGATION SYSTEM (for DVD)**

8.PROBLEM SYMPTOMS TABLE

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

Result

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

Fault is listed in Problem Symptoms Table.	B

HINT:

If the symptom does not recur and no DTC is output, perform the symptom reproduction method (Click here).

B. → **Go to step 11**

A

9.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

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

NEXT

10.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

NEXT

11.RECHECK FOR DIAGNOSTIC TROUBLE CODE

HINT:

After clearing DTCs, recheck for DTCs.

NEXT

12.PERFORM CONFIRMATION TEST

NEXT

END

for Preparation Click here

RADIO DESCRIPTION

a. Radio frequency band

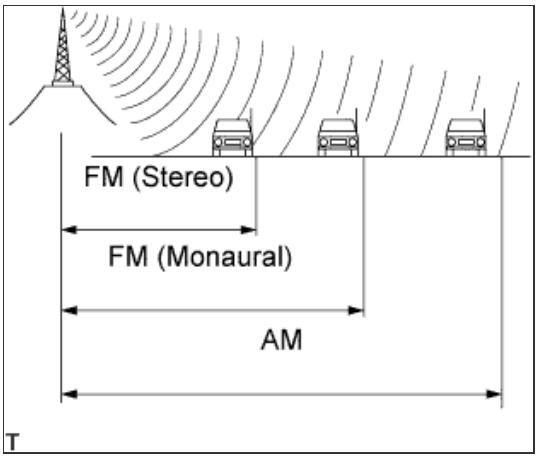
i. Radio broadcasts use the radio frequency bands shown in the table below.

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

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

b. Service area

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

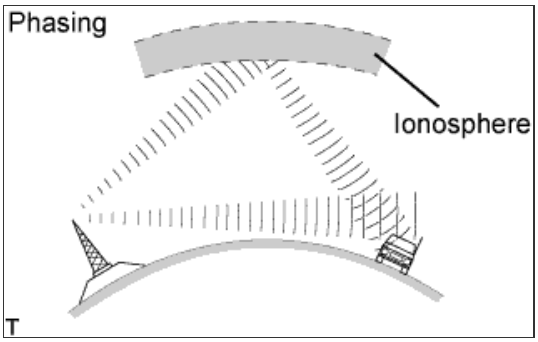


c. Radio reception problems

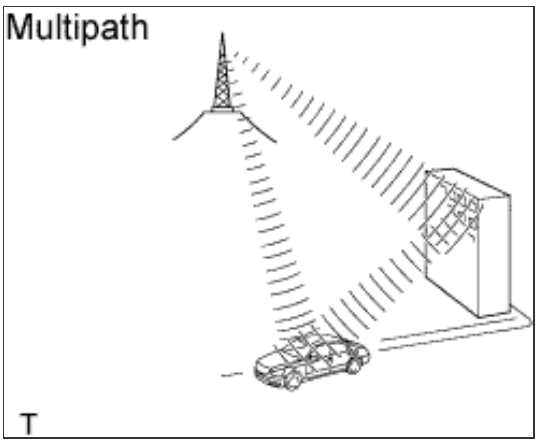
HINT:

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

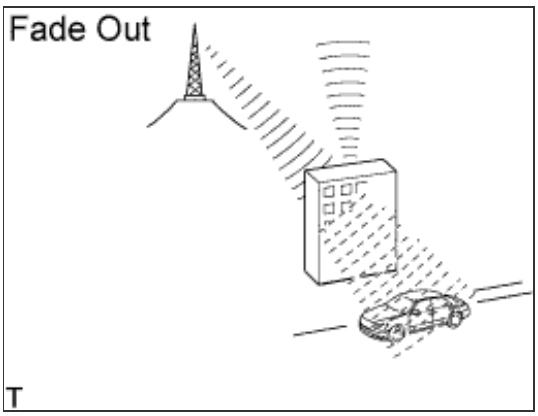
i. Phasing
AM broadcasts are susceptible to electrical interference and another kind of interference called phasing. Occurring only at night, phasing is the interference created when a vehicle receives 2 radio wave signals from the same transmitter. One signal is reflected off the ionosphere and the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



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



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



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

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

for Preparation Click here

HINT:

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

Audio Function

Symptom	Suspected Area	See page
Pressing power switch does not turn on system.	Proceed to "Pressing Power Switch does not Turn on System"	Click here
	Radio receiver power source circuit	Click here
	Radio receiver assembly	Click here
Panel switch does not function.	Steering pad switch circuit (Navigation system for HDD)	Click here
	Steering pad switch circuit (Navigation system for DVD)	Click here
	Radio receiver assembly	Click here
No sound can be heard from speakers. (Audio is mute.)	Proceed to "No Sound can be Heard from Speakers"	Click here
	Stereo component amplifier power source circuit	Click here
	Speaker circuit	Click here
	Stereo component amplifier assembly	Click here
	Radio receiver assembly	Click here
Sound quality is bad in all modes. (Volume is too low.)	Proceed to "Poor Sound Quality in All Modes (Low Volume)"	Click here
	Speaker circuit	Click here
	Stereo component amplifier assembly	Click here
	Radio receiver assembly	Click here
ASL does not function.	Proceed to "Vehicle Speed Signal Circuit between Stereo Component Amplifier and Combination Meter"	Click here
External device sound cannot be heard or sound quality is bad. (Stereo jack is used.)	Radio receiver power source circuit	Click here
	Proceed to "Sound Signal Circuit between Radio Receiver and Stereo Jack Adapter"	Click here
	No. 1 stereo jack adapter assembly	Click here
	Radio receiver assembly	Click here
Abnormal noise occurs.	Proceed to "Noise Occurs"	Click here
	Stereo component amplifier assembly	Click here
	Radio receiver assembly	Click here
Radio broadcast cannot be received or poor reception.	Proceed to "Radio Broadcast cannot be Received or Poor Reception"	Click here
	Radio receiver power source circuit	Click

Disc cannot be inserted/played or disc is ejected right after insertion.		here
	Proceed to "Disc cannot be Inserted or is Ejected Right After Insertion"	Click here
Disc cannot be ejected.	Radio receiver power source circuit	Click here
	Proceed to "Disc cannot be Ejected"	Click here
Sound quality is bad only when disc is played. (Volume is too low.)	Proceed to "Sound Quality is Bad Only when Disc is Played (Volume is Too Low)"	Click here
CD/DVD sound skips.	Proceed to "CD/DVD Sound Skips"	Click here
Radio receiver cannot be illuminated at night.	Illumination circuit	Click here
	Radio receiver assembly	Click here

Steering Pad Switch Function

Symptom	Suspected Area	See page
Audio system cannot be operated with steering pad switch.	Steering pad switch circuit (Navigation system for HDD)	Click here
	Steering pad switch circuit (Navigation system for DVD)	Click here
	Radio receiver assembly	Click here

"Bluetooth" Audio Function*1

Symptom	Suspected Area	See page
Portable player cannot be registered.	Proceed to "Portable Player cannot be Registered"	Click here
	Radio receiver assembly	Click here
Portable player cannot be connected manually/automatically.	Proceed to "Portable Player cannot be Registered"	Click here
	Proceed to "Portable Player cannot be Connected Manually / Automatically"	Click here
	Radio receiver assembly	Click here
Cellular phone with portable audio function cannot be recognized as "Bluetooth" audio device even when connected using "Bluetooth".	Proceed to "Portable Player cannot be Registered"	Click here
	Proceed to "Portable Player cannot be Connected Manually / Automatically"	Click here
	Radio receiver assembly	Click here
Sound of portable player cannot be heard from speakers, or sound is low.	Proceed to "Sound of Portable Player cannot be Heard from Speakers or Sound is Low"	Click here
	Radio receiver assembly	Click here
Portable player does not play even after "Bluetooth" audio mode is selected.	Proceed to "Does not Play even after Bluetooth Audio Mode is Selected"	Click here
	Radio receiver assembly	Click here
Portable player does not play.	Proceed to "Does not Play even after Bluetooth Audio Mode is Selected"	Click here
	Radio receiver assembly	Click here
Track information such as track number, track name and elapsed play time is not displayed.	Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device"	Click here
	Radio receiver assembly	Click here
Operation switches for portable player such as play, pause, repeat, random and scan are not displayed.	Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device"	Click here
	Radio receiver assembly	Click here
Battery condition of portable player is not displayed.	Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device"	Click here
	Radio receiver assembly	Click

		here
"Bluetooth" signal condition is not displayed.	Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device"	Click here
	Radio receiver assembly	Click here
Portable player cannot pause, select file, fast forward, fast rewind, random play or scan.	Proceed to "Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device"	Click here
	Radio receiver assembly	Click here
Noise occurs or sound skips when portable player plays.	Proceed to "Noise Occurs or Sound Skips when Portable Player Plays"	Click here
	Radio receiver assembly	Click here
Registered device cannot be deleted.	Proceed to "Registered Device cannot be Deleted"	Click here
	Radio receiver assembly	Click here

USB Audio System Function

Symptom	Suspected Area	See page
USB audio sound cannot be heard or sound quality is bad. (Stereo jack is used.)	Multi-media Interface ECU power source circuit	Click here
	Proceed to "Sound Signal Circuit between Navigation ECU and Multi-media Interface ECU"	Click here
	Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter"	Click here
	No. 1 stereo jack adapter assembly	Click here
	Multi-media interface ECU	Click here
	Display and navigation module display	Click here
USB device or "iPod" is not recognized.	Proceed to "USB Audio System Recognition/Play Error"	Click here
	Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter"	Click here
	No. 1 stereo jack adapter assembly	Click here
	Multi-media interface ECU	Click here
Track information such as track, artist and album names are not displayed.	Proceed to "USB Audio System Recognition/Play Error"	Click here
	Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter"	Click here
	No. 1 stereo jack adapter assembly	Click here
	Multi-media interface ECU	Click here
USB device or "iPod" is recognized but cannot play nor play in a sorted order.	Proceed to "USB Audio System Recognition/Play Error"	Click here
	Proceed to "Sound Signal Circuit between Multi-media Interface ECU and Stereo Jack Adapter"	Click here
	No. 1 stereo jack adapter assembly	Click here
	Multi-media interface ECU	Click here

Sound Library Function*2

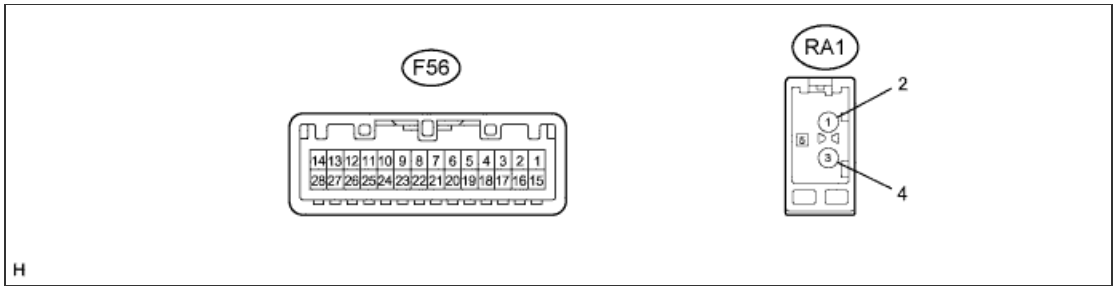
Symptom	Suspected Area	See page
	Proceed to "Audio Recorded to HDD cannot be Played"	Click here
	Proceed to Operation Check "Check Hard Disk Drive"	Click

A message is displayed indicating that the music cannot be played.		here
	Radio receiver assembly	Click here
	Display and navigation module display	Click here
Audio recorded to HDD cannot be played.	Proceed to "Audio Recorded to HDD cannot be Played"	Click here
	Proceed to Operation Check "Check Hard Disk Drive"	Click here
	Display and navigation module display	Click here
A message is displayed indicating that the HDD is unable to copy because of low temperature.	Start engine and increase cabin temperature (near navigation ECU)	-
	Proceed to Operation Check "Check Hard Disk Drive"	Click here
	Display and navigation module display	Click here
Sound cannot be heard for all tracks only when using sound library.	Proceed to "Audio cannot be Recorded to HDD"	Click here
	Proceed to Operation Check "Check Hard Disk Drive"	Click here
	Display and navigation module display	Click here
CD tracks cannot be recorded. ("REC" switch is not displayed.)	Proceed to "Audio cannot be Recorded to HDD"	Click here
	Proceed to Operation Check "Check Hard Disk Drive"	Click here
	Radio receiver assembly	Click here
	Display and navigation module display	Click here
CD tracks cannot be recorded.	Proceed to "Audio cannot be Recorded to HDD"	Click here
	Proceed to Operation Check "Check Hard Disk Drive"	Click here
	Radio receiver assembly	Click here
	Display and navigation module display	Click here
Sound library items cannot be edited/deleted.	Proceed to "Cannot Edit or Delete Sound Library Items"	Click here
	Proceed to Operation Check "Check Hard Disk Drive"	Click here
	Display and navigation module display	Click here
Titles are not displayed for recorded songs.	Titles are not displayed when songs are recorded from a CD such as new album and that has not been recorded in the media database.	-
Title is displayed when CD is played but not displayed for songs that are recorded on HDD.	Proceed to "Correct Song Information is not Displayed"	Click here
Titles displayed when playing CD and titles recorded on HDD do not match.	Proceed to "Correct Song Information is not Displayed"	Click here
Song information on CD jacket and recorded song information do not match.	Proceed to "Correct Song Information is not Displayed"	Click here

*1: w/ Bluetooth Audio Function
*2: w/ Sound Library Function

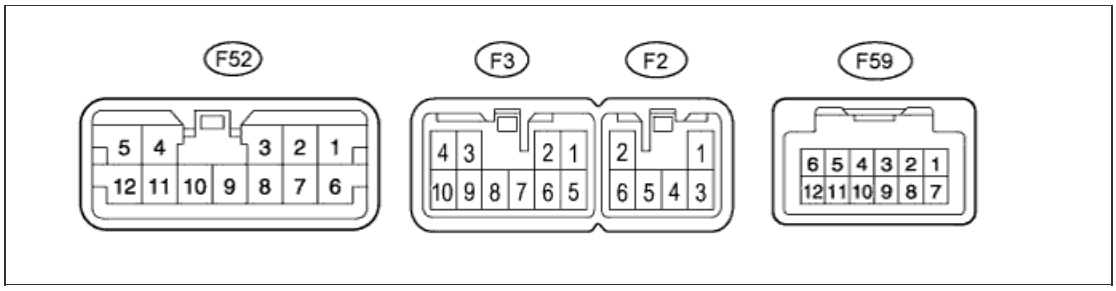
for Preparation Click here

RADIO RECEIVER ASSEMBLY



Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specification
F56-3 (ILL+) - F56-15 (GND)	G - BR	Illumination signal	Light control switch off	Below 1 V
			Light control switch tail	11 to 14 V
F56-5 (AUXI) - F56-15 (GND)	V - BR	External device connection detection signal	External device connected	Below 1 V
F56-6 (AGND) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
F56-7 (SLD) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
F56-8 (NTSC) - F56-15 (GND)	W - BR	DVD image signal	DVD playing	A waveform synchronized with display signals is output
F56-9 (MI+)	B	MOST communication signal	-	-
F56-10 (SLDI) - Body ground	BR - Body ground	Shield ground	Always	Below 1 V
F56-11 (MO+)	B	MOST communication signal	-	-
F56-12 (WUI) - F56-15 (GND)	R - BR	MOST communication wake up signal	Engine switch on (ACC)	4.5 V or higher
F56-14 (B) - F56-15 (GND)	L - BR	Battery	Always	11 to 14 V
F56-15 (GND) - Body ground	BR - Body ground	Ground	Always	Below 1 V
F56-17 (ILL-) - F56-15 (GND)	W - BR	Illumination (rheostat) signal	Light control switch off	Below 1 V
			Light control switch tail	Pulse generation
F56-19 (ARI) - F56-15 (GND)	W - BR	Sound signal (Right)	External device playing (When stereo jack used)	A waveform synchronized with sounds is output
F56-20 (ALI) - F56-15 (GND)	B - BR	Sound signal (Left)	External device playing (When stereo jack used)	A waveform synchronized with sounds is output
F56-21 (ASGN) - F56-15 (GND)	R - BR	Shield ground	Always	Below 1 V
F56-22 (GND) - F56-15 (GND)	B - BR	Shield ground	Always	Below 1 V
F56-23 (MI-)	W	MOST communication signal	-	-
F56-24 (SLDI) - Body ground	BR - Body ground	Shield ground	Always	Below 1 V
F56-25 (MO-)	W	MOST communication signal	-	-
F56-26 (WUO) - F56-15 (GND)	R - BR	MOST communication wake up signal	Engine switch on (ACC)	4.5 V or higher
RA1-5 (ANT+) - F56-15 (GND)	BR- BR	Power source of antenna	Engine switch on (ACC) Radio switch on and AM or FM	11 to 14 V

STEREO COMPONENT AMPLIFIER ASSEMBLY

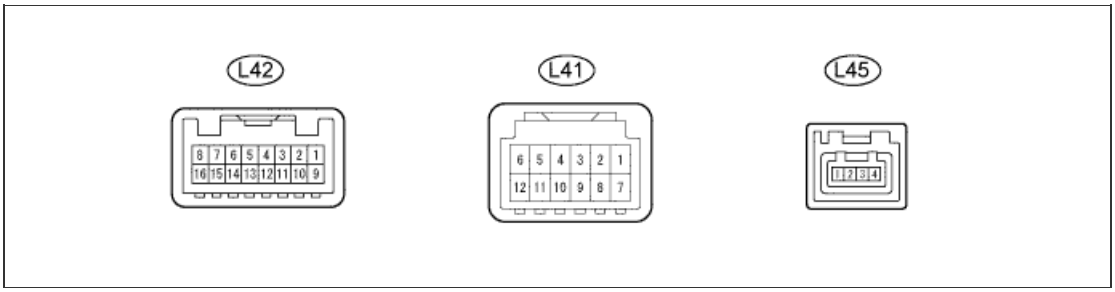


Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specification
F2-1 (+B) - F2-2 (GND)	B - W-B	Battery	Always	11 to 14 V
F2-2 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
F2-3 (+B2) - F2-2 (GND)	L - W-B	Battery	Always	11 to 14 V
F2-6 (GND2) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
F3-1 (WFL+) - F2-2 (GND)	P - W-B	Sound signal (Front Left)	Audio system playing	A waveform synchronized with sounds is output
F3-2 (WFR+) - F2-2 (GND)	LG - W-B	Sound signal (Front Right)	Audio system playing	A waveform synchronized with sounds is output
F3-3 (CTR+) - F2-2 (GND)*1 F3-8 (CTR+) - F2-2 (GND)*2	W - W-B	Sound signal (Front Center)	Audio system playing	A waveform synchronized with sounds is output
F3-4 (WF2+) - F2-2 (GND)*1	R - W-B	Sound signal (Woofer)	Audio system playing	A waveform synchronized with sounds is output
F3-5 (WFL-) - F2-2 (GND)	V - W-B	Sound signal (Front Left)	Audio system playing	A waveform synchronized with sounds is output
F3-6 (WFR-) - F2-2 (GND)	L - W-B	Sound signal (Front Right)	Audio system playing	A waveform synchronized with sounds is output
F3-7 (SL-) - F2-2 (GND)*1	B - W-B	Sound signal (Rear Left)	Audio system playing	A waveform synchronized with sounds is output
F3-8 (SL+) - F2-2 (GND)*1	W - W-B	Sound signal (Rear Left)	Audio system playing	A waveform synchronized with sounds is output
F3-9 (CTR-) - F2-2 (GND)*1 F3-7 (CTR-) - F2-2 (GND)*2	B - W-B	Sound signal (Front Center)	Audio system playing	A waveform synchronized with sounds is output
F3-10 (WF2-) - F2-2 (GND)*1	W - W-B	Sound signal (Woofer)	Audio system playing	A waveform synchronized with sounds is output
F52-1 (WF1+) - F2-2 (GND)*1	W - W-B	Sound signal (Woofer)	Audio system playing	A waveform synchronized with sounds is output
F52-2 (SR+) - F2-2 (GND)*1	W - W-B	Sound signal (Rear Right)	Audio system playing	A waveform synchronized with sounds is output
F52-3 (FL+) - F2-2 (GND)	W - W-B	Sound signal (Front Left)	Audio system playing	A waveform synchronized with sounds is output
F52-4 (R-L+) - F2-2 (GND)*1 F52-4 (RL+) - F2-2 (GND)*2	W - W-B*1 B - W-B*2	Sound signal (Rear Left)	Audio system playing	A waveform synchronized with sounds is output
F52-5 (R-R+) - F2-2 (GND)*1 F52-5 (RR+) - F2-2 (GND)*2	W - W-B*1 R - W-B*2	Sound signal (Rear Right)	Audio system playing	A waveform synchronized with sounds is output
F52-6 (WF1-) - F2-2 (GND)*1	B - W-B	Sound signal (Woofer)	Audio system playing	A waveform synchronized with sounds is output
F52-7 (SR-) - F2-2 (GND)*1	B - W-B	Sound signal (Rear Right)	Audio system playing	A waveform synchronized with sounds is output
F52-8 (FL-) - F2-2 (GND)	B - W-B	Sound signal (Front Left)	Audio system playing	A waveform synchronized with sounds is output
F52-9 (FR-) - F2-2 (GND)	B - W-B	Sound signal (Front Right)	Audio system playing	A waveform synchronized with sounds is output
F52-10(FR+) - F2-2 (GND)	W - W-B	Sound signal (Front Right)	Audio system playing	A waveform synchronized with sounds is output
F52-11 (R-L-) - F2-2 (GND)*1 F52-11 (RL-) - F2-2 (GND)*2	B - W-B*1 Y - W-B*2	Sound signal (Rear Left)	Audio system playing	A waveform synchronized with sounds is output
F52-12 (R-R-) - F2-2 (GND)*1 F52-12 (RR-) - F2-2 (GND)*2	B - W-B*1 W - W-B*2	Sound signal (Rear Right)	Audio system playing	A waveform synchronized with sounds is output
F59-2 (SPD) - F2-2 (GND)	V - W-B	Speed signal from combination meter assembly	Engine switch on (IG) Drive wheels turned slowly	Pulse generation
F59-3 (WUI) - F2-2 (GND)	R - W-B	MOST communication wake up signal	Engine switch on (ACC)	4.5 V or higher
		MOST communication		

F59-4 (MI+)	B	signal	-	-
F59-5 (SLDI) - Body ground	BR - Body ground	Shield ground	Always	Below 1 V
F59-6 (MO+)	W	MOST communication signal	-	-
F59-9 (WUO)*3	P	MOST communication signal	Engine switch on (ACC)	4.5 V or higher
F59-10 (MI-)	W	MOST communication signal	-	-
F59-11 (SLDO) - Body ground	BR - Body ground	Shield ground	Always	Below 1 V
F59-12 (MO-)	B	MOST communication signal	-	-

*1: for 14 Speakers
*2: for 9 Speakers
*3: w/ Rear Seat Entertainment System

MULTI-MEDIA INTERFACE ECU



Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specification
L41-1 (USD1) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
L41-2 (URO+) - L41-7 (GND)	W - B	USB audio system sound signal	USB audio system playing	A waveform synchronized with sounds is output
L41-3 (ULO+) - L41-7 (GND)	B - B	USB audio system sound signal	USB audio system playing	A waveform synchronized with sounds is output
L41-4 (UGD1) - L41-7 (GND)	R - B	USB audio system sound signal	USB audio system playing	A waveform synchronized with sounds is output
L41-7 (GND) - Body ground	B - Body ground	Ground	Always	Below 1 V
L41-9 (TX1+)	W	AVC-LAN communication signal	-	-
L41-10 (TX1-)	L	AVC-LAN communication signal	-	-
L41-11 (ACC) - L41-7 (GND)	GR - B	Accessory (ON)	Engine switch off	Below 1 V
			Engine switch on (ACC)	11 to 14 V
L41-12 (+B) - L41-7 (GND)	R - B	Battery	Always	11 to 14 V
L42-1 (VRI) - L42-10 (VGN)	W - R	Aux sound signal (right)	External device is playing (When stereo jack is used)	A waveform synchronized with sounds is output
L42-2 (SGND) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
L42-9 (VLI) - L42-10 (VGN)	B - R	Aux sound signal (left)	External device is playing (When stereo jack is used)	A waveform synchronized with sounds is output
L42-10 (VGN) - Body ground	R - Body ground	Ground	Always	Below 1 V
L45-1 (UPO) - L45-4 (UESG)	-	Battery	Always	5 V
L45-2 (UDI-)	-	Data signal	USB device or "iPod" connected	-
L45-3 (UDI+)	-	Data signal	USB device or "iPod" connected	-
L45-4 (UESG) - Body ground	-	Ground	Always	Below 1 V

DISPLAY AND NAVIGATION MODULE DISPLAY (for HDD) (Click here)

DISPLAY AND NAVIGATION MODULE DISPLAY (for DVD) (Click here)

for Preparation Click here

HINT:

- **Refer to Navigation System (for HDD) (Click here).**
- **Refer to Navigation System (for DVD) (Click here).**

for Preparation Click here

Audio and Visual System

DTC Code	Detection Item	Trouble Area	See page
B1585	USB Media Malfunction	1. Multi-media interface ECU 2. USB device or "iPod"	Click here
B15A1	Audio HU Malfunction	Radio receiver assembly	Click here
B15A3	Stereo Component Amplifier Malfunction	Stereo component amplifier assembly	Click here
B15B3	Radio Tuner Malfunction	Radio receiver assembly	Click here
B15B5	DVD Changer Malfunction	Radio receiver assembly	Click here
B15B7	Bluetooth Module Malfunction	Radio receiver assembly	Click here
B15BB	Multi-media Interface ECU Malfunction	1. USB device or "iPod" 2. Wire harness or connector 3. No. 1 stereo jack adapter assembly 4. Multi-media interface ECU	Click here
B15C3	Speaker Output Short	1. Wire harness or connector 2. Speaker 3. Stereo component amplifier assembly	Click here
B15DF	USB Communication Malfunction	1. Multi-media interface ECU 2. USB device or "iPod"	Click here
B15E1	Media Malfunction	1. CD or DVD 2. Radio receiver assembly	Click here

DTC B1585 USB Media Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when a malfunction occurs in a connected device.

DTC No.	DTC Detection Condition	Trouble Area
B1585	When one of the conditions below is met: • 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	• Multi-media interface ECU • USB device or "iPod"

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.REPLACE USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

HINT:

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

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

HINT:

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**
- **Refer to System Description for compatible formats and versions (Click here).**

NEXT

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.CHECK DTC

a. Recheck for DTCs.

HINT:

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

OK:
No DTC is output.

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

OK

USB DEVICE FORMAT WAS INCOMPATIBLE, "iPod" VERSION WAS INCOMPATIBLE, OR USB DEVICE OR "iPod" WAS DEFECTIVE

DTC B15A3 Stereo Component Amplifier Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when a malfunction occurs in the stereo component amplifier assembly.

DTC No.	DTC Detection Condition	Trouble Area
B15A3	When one of the conditions below is met: • Internal power supply malfunction • DSP error • EEPROM error	Stereo component amplifier assembly

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same trouble occurs again.

OK:
No DTC is output.

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

OK

USE SIMULATION METHOD TO CHECK (Click here)

DTC B15A1 Audio HU Malfunction

DTC B15B3 Radio Tuner Malfunction

DTC B15B5 DVD Changer Malfunction

DTC B15B7 Bluetooth Module Malfunction

for Preparation Click here

DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

DTC No.	DTC Detection Condition	Trouble Area
B15A1	Bus malfunction, sub-micro processor malfunction	Radio receiver assembly
B15B3	Tuner communication error	
B15B5	When one of the conditions below is met: • Mechanical communication error • Read malfunction • Mechanical malfunction	
B15B7	"Bluetooth" module malfunction	

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTC (Click here).

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

OK:
No DTC is output.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK → USE SIMULATION METHOD TO CHECK (Click here)

DTC B15BB Multi-media Interface ECU Malfunction

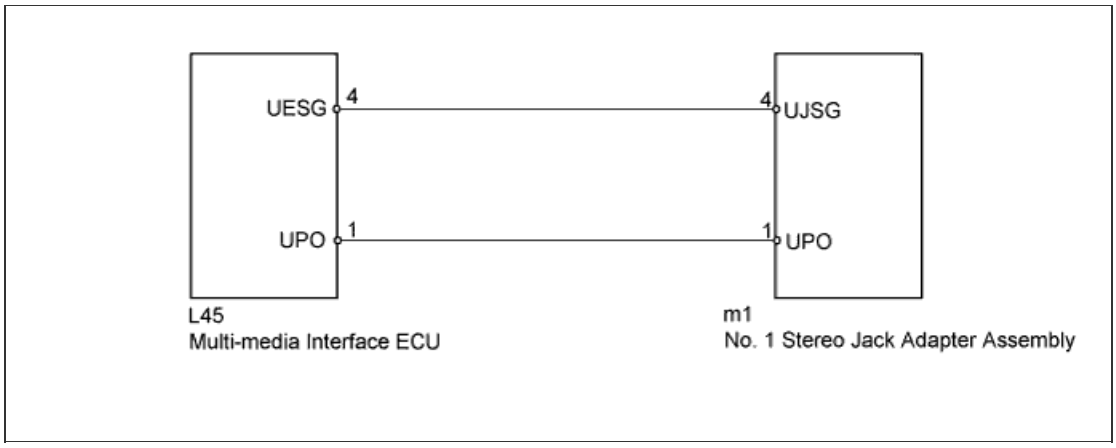
for Preparation Click here

DESCRIPTION

This DTC is stored when a malfunction occurs in the multi-media interface ECU.

DTC No.	DTC Detection Condition	Trouble Area
B15BB	When one of the conditions below is met: • System microprocessor malfunction • Media interface microprocessor malfunction • CD-LSI (Large Scale Integration) malfunction • Internal power supply malfunction	• USB device or "iPod" • Wire harness or connector • No. 1 stereo jack adapter assembly • Multi-media interface ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTC.

1.REPLACE USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

HINT:

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

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

HINT:

If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.

NEXT

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.RECHECK FOR DTC

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

OK:
No DTC is output.

NG → Go to step 4

OK

USB DEVICE OR "iPod" WAS DEFECTIVE

4.INSPECT MULTI-MEDIA INTERFACE ECU

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

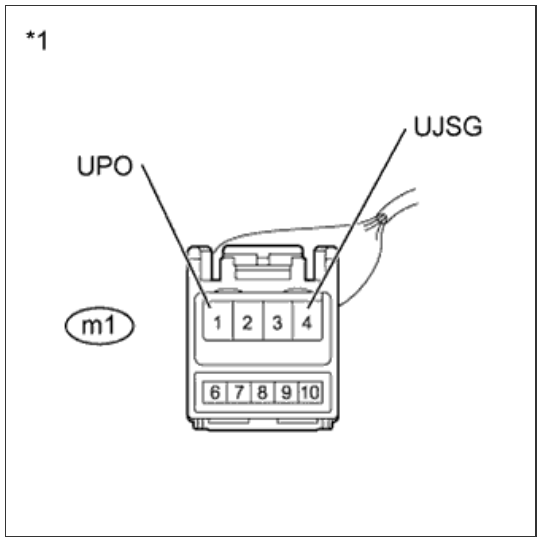
b. Measure the voltage according to the value(s) in the table below.

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 (INTERFACE ECU - STEREO JACK ADAPTER)

a. Disconnect the L45 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
L45-1 (UPO) - m1-1 (UPO)	Always	Below 1 Ω
L45-4 (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 B15A1 Audio HU Malfunction

DTC B15B3 Radio Tuner Malfunction

DTC B15B5 DVD Changer Malfunction

DTC B15B7 Bluetooth Module Malfunction

for Preparation Click here

DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

DTC No.	DTC Detection Condition	Trouble Area
B15A1	Bus malfunction, sub-micro processor malfunction	Radio receiver assembly
B15B3	Tuner communication error	
B15B5	When one of the conditions below is met: • Mechanical communication error • Read malfunction • Mechanical malfunction	
B15B7	"Bluetooth" module malfunction	

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTC (Click here).

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

OK:
No DTC is output.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK → USE SIMULATION METHOD TO CHECK (Click here)

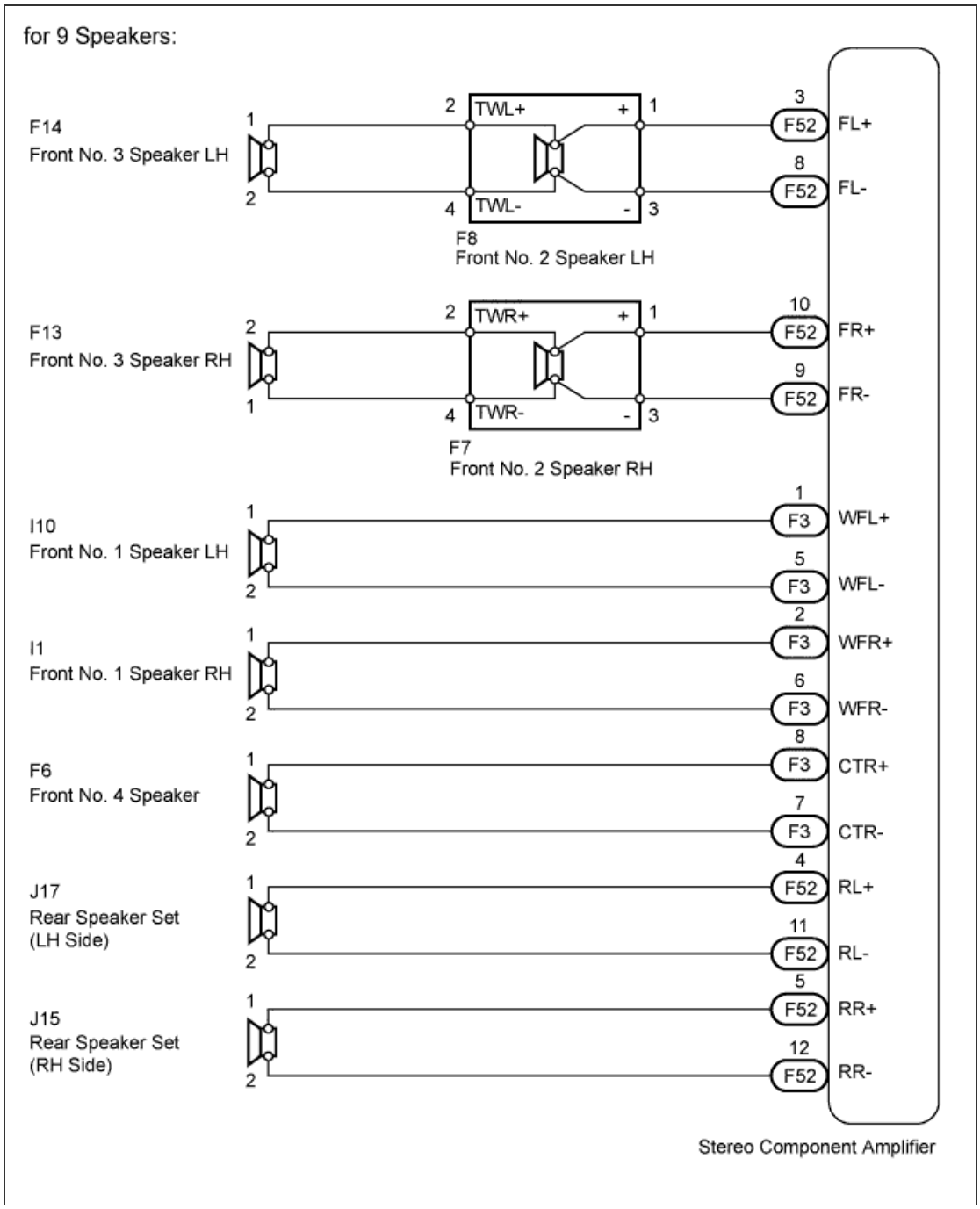
for Preparation Click here

DESCRIPTION

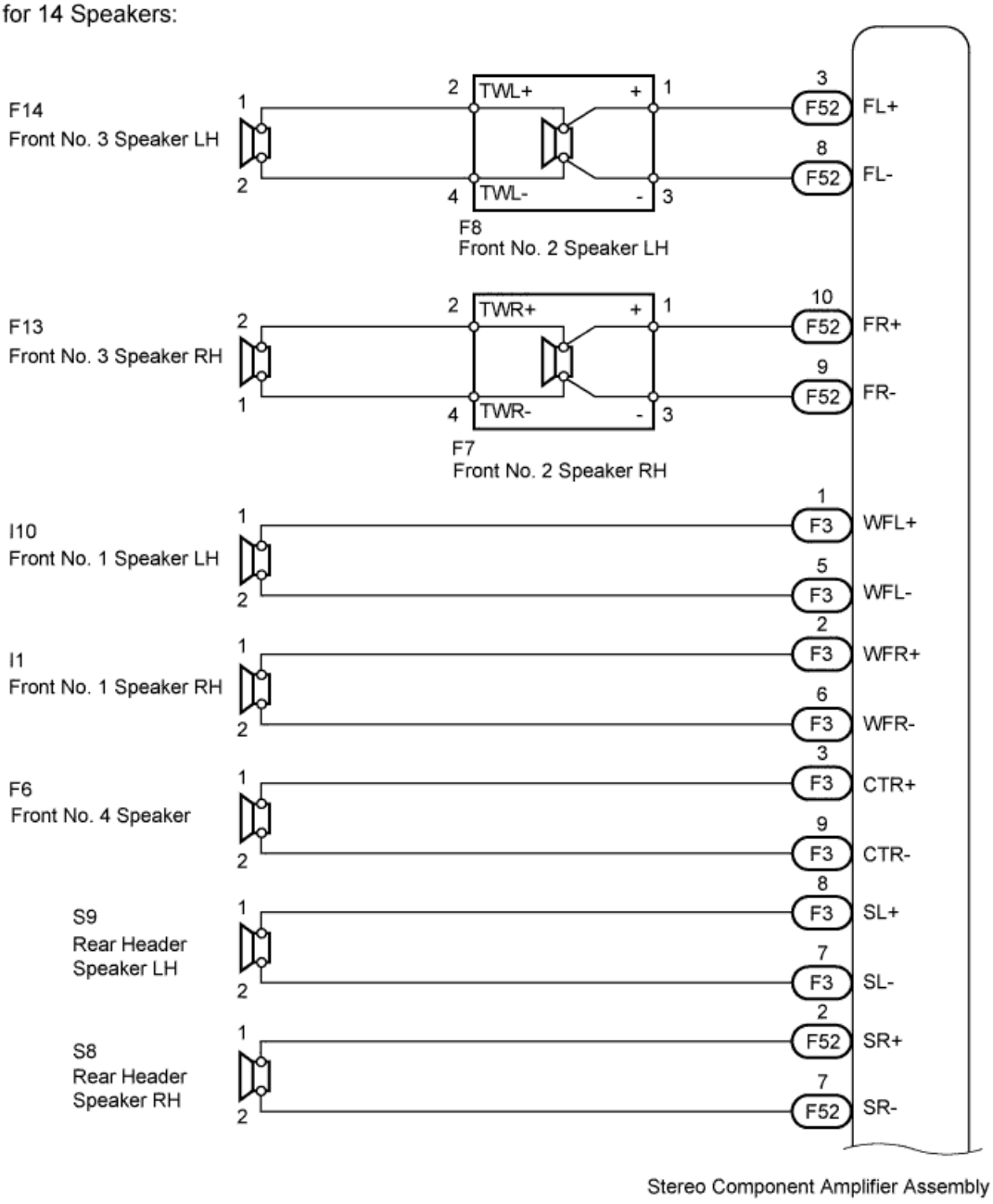
This DTC is stored when a malfunction occurs in the speakers.

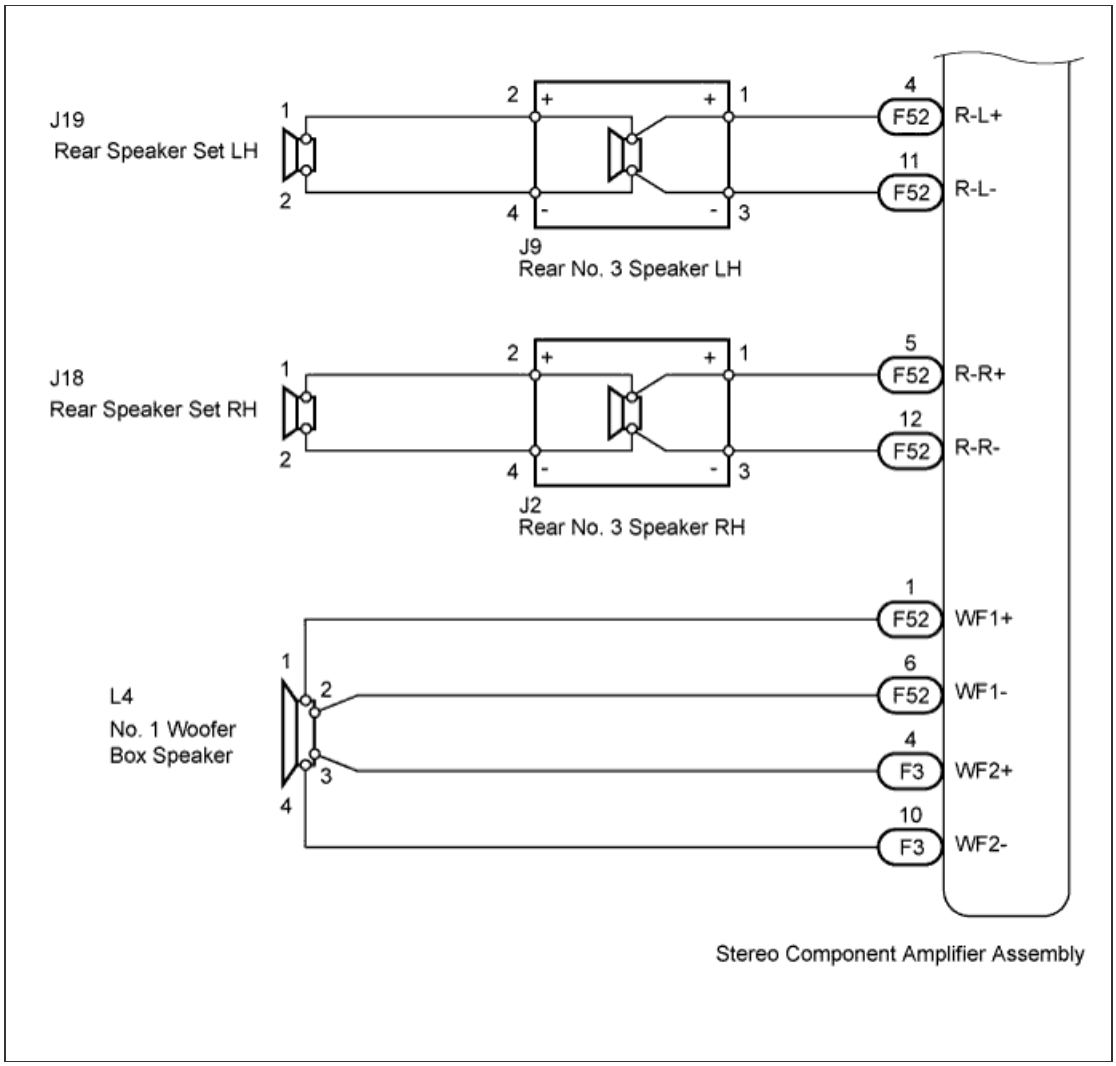
DTC No.	DTC Detection Condition	Trouble Area
B15C3	A short is detected in the speaker output circuit.	• Wire harness or connector • Speaker • Stereo component amplifier assembly

WIRING DIAGRAM



for 14 Speakers:





INSPECTION PROCEDURE

1.SYSTEM CHECK

a. Check the vehicle specifications.

Result

Result	Proceed to
for 9 speakers model	A
for 14 speakers model	B

B → Go to step 12

A

2.CHECK DTC

a. Disconnect the F3 and F52 stereo component amplifier assembly connectors.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

OK:
DTC B15C3 is not output.

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK

3.CHECK DTC

a. Reconnect the F52 stereo component amplifier assembly connector.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

OK:
DTC B15C3 is not output.

NG → Go to step 7

OK ↓

4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - SPEAKERS)

a. Disconnect the F3 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
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 ↓

5.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I1 and I10 front No. 1 speaker assembly connectors.

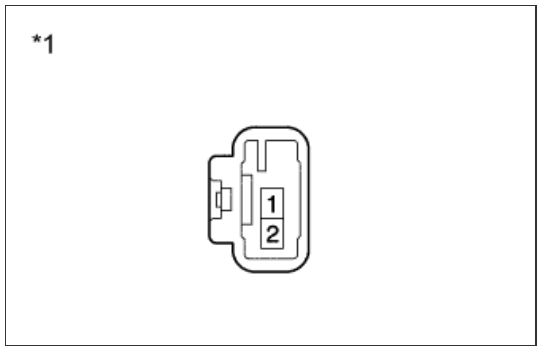
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	3 Ω

Text in Illustration

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



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

OK ↓

6.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 front No. 4 speaker assembly connector.

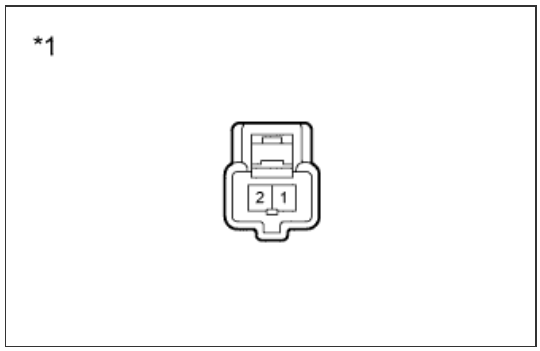
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	6 Ω

Text in Illustration

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



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

OK → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - SPEAKERS)

a. Disconnect the F52 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
F52-3 (FL+) - Body ground	Always	10 kΩ or higher
F52-8 (FL-) - Body ground	Always	10 kΩ or higher
F52-10 (FR+) - Body ground	Always	10 kΩ or higher
F52-9 (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

8.INSPECT REAR SPEAKER SET

a. Disconnect the J17 and J15 rear speaker set connectors.

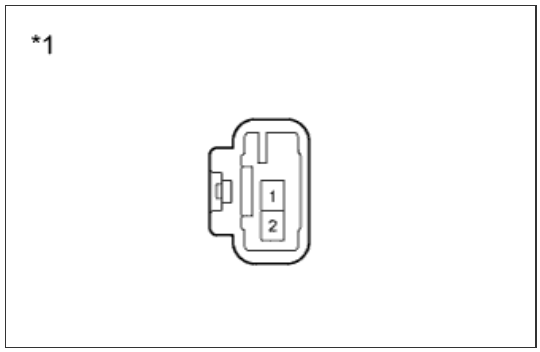
b. Measure the resistance according to the value(s) in the table below.

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

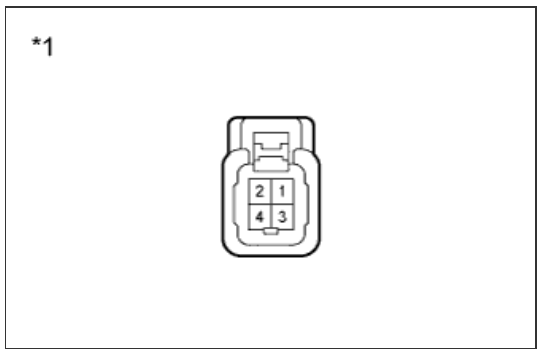
9.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 front No. 2 speaker assembly connectors.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	Below 1 Ω
3 - 4	Always	Below 1 Ω
2 - 4	Always	4 Ω



Text in Illustration

*1	Component without harness connected (Front No. 2 Speaker Assembly)

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

OK

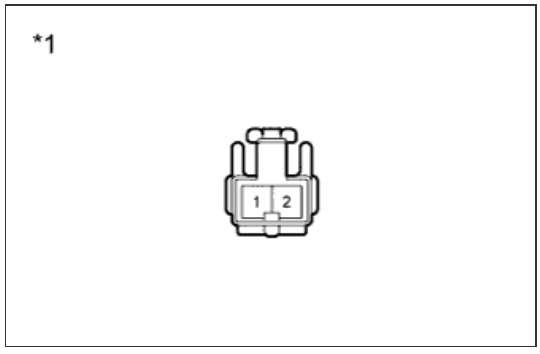
10.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY

a. Disconnect the F14 and F13 front No. 3 speaker assembly connectors.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	4 Ω



Text in Illustration

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

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

OK

11.CHECK HARNESS AND CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

a. Disconnect the F7 and F8 front No. 2 speaker assembly connectors.

b. Disconnect the F13 and F14 front No. 3 speaker assembly connectors.

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

Standard Resistance:

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

for RH Side:

Tester Connection	Condition	Specified Condition
F7-2 (TWR+) - F13-2	Always	Below 1 Ω
F7-4 (TWR-) - F13-1	Always	Below 1 Ω
F7-2 (TWR+) - Body ground	Always	10 kΩ or higher
F7-4 (TWR-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

12.CHECK DTC

a. Disconnect the F3 and F52 stereo component amplifier assembly connectors.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

OK:

DTC B15C3 is not output.

NG → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK ↓

13.CHECK DTC

a. Reconnect the F52 stereo component amplifier assembly connector.

b. Clear the DTCs.

c. Check if DTC B15C3 is output.

OK:

DTC B15C3 is not output.

NG → Go to step 19

OK ↓

14.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - SPEAKERS)

a. Disconnect the F3 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
F3-3 (CTR+) - Body ground	Always	10 kΩ or higher
F3-9 (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
F3-8 (SL+) - Body ground	Always	10 kΩ or higher
F3-7 (SL-) - Body ground	Always	10 kΩ or higher
F3-4 (WF2+) - Body ground	Always	10 kΩ or higher
F3-10 (WF2-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

15.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I1 and I10 front No. 1 speaker assembly connectors.

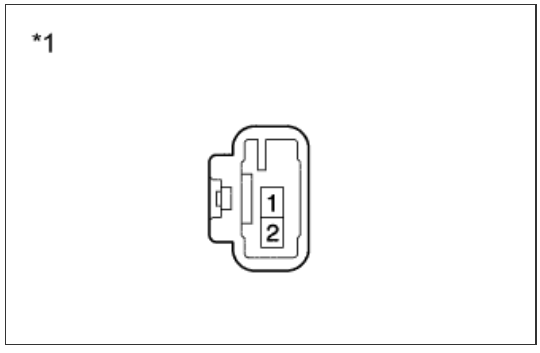
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

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

Text in Illustration

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



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

OK

16.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 front No. 4 speaker assembly connector.

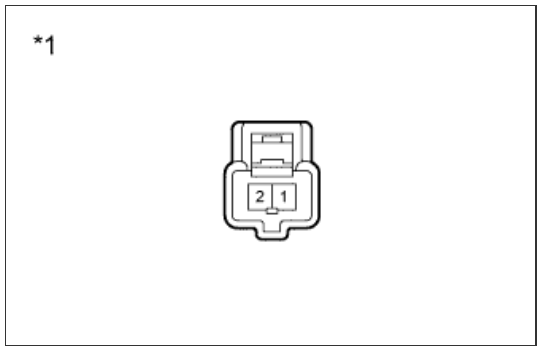
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

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

Text in Illustration

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



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

OK

17.INSPECT REAR HEADER SPEAKER LH

a. Disconnect the S9 rear header speaker LH connector.

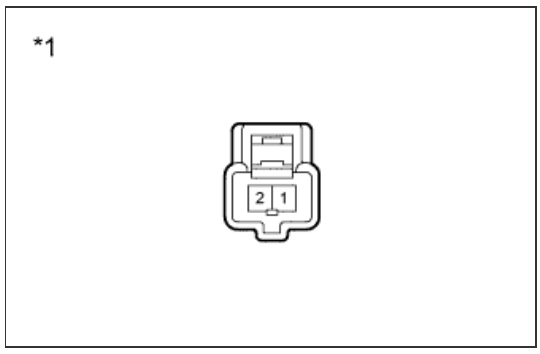
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

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

Text in Illustration

*1	Component without harness connected (Rear Header Speaker LH)



NG → REPLACE REAR HEADER SPEAKER LH

OK

18.INSPECT NO. 1 WOOFER BOX SPEAKER

a. Disconnect the L4 No. 1 woofer box speaker connector.

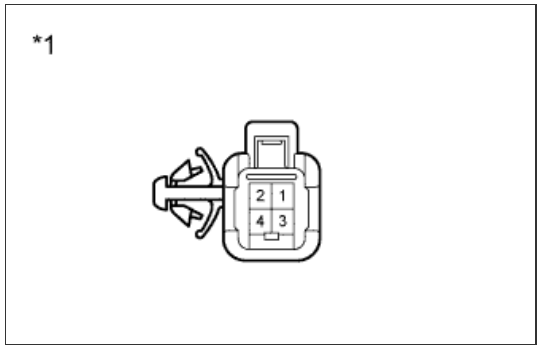
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
3 - 4	Always	1.6 to 2.4 Ω

Text in Illustration

*1	Component without harness connected (No. 1 woofer box speaker)



NG → REPLACE NO. 1 WOOFER BOX SPEAKER

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

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

a. Disconnect the F52 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
F52-3 (FL+) - Body ground	Always	10 kΩ or higher
F52-8 (FL-) - Body ground	Always	10 kΩ or higher
F52-10 (FR+) - Body ground	Always	10 kΩ or higher
F52-9 (FR-) - Body ground	Always	10 kΩ or higher
F52-4 (R-L+) - Body ground	Always	10 kΩ or higher
F52-11 (R-L-) - Body ground	Always	10 kΩ or higher
F52-5 (R-R+) - Body ground	Always	10 kΩ or higher
F52-12 (R-R-) - Body ground	Always	10 kΩ or higher
F52-2 (SR+) - Body ground	Always	10 kΩ or higher
F52-7 (SR-) - Body ground	Always	10 kΩ or higher
F52-1 (WF1+) - Body ground	Always	10 kΩ or higher
F52-6 (WF1-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

20.INSPECT REAR HEADER SPEAKER RH

a. Disconnect the S8 rear header speaker RH connector.

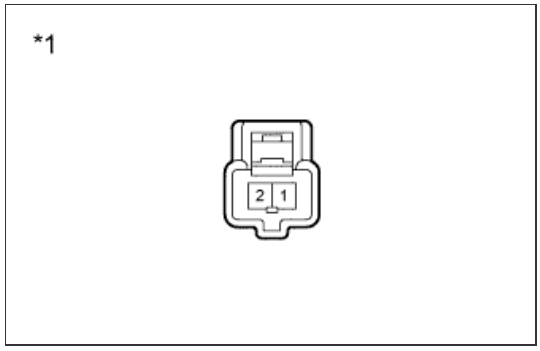
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

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

Text in Illustration

*1	Component without harness connected (Rear Header Speaker RH)



NG → REPLACE REAR HEADER SPEAKER RH

OK

21.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 front No. 2 speaker assembly connectors.

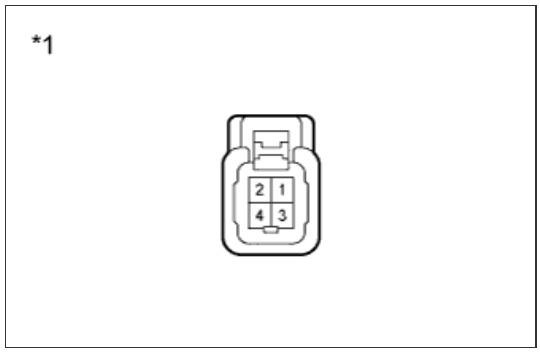
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	Below 1 Ω
3 - 4	Always	Below 1 Ω
2 - 4	Always	1.5 to 2.5 Ω

Text in Illustration

*1	Component without harness connected (Front No. 2 Speaker Assembly)



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

OK

22.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY

a. Disconnect the F14 and F13 front No. 3 speaker assembly connectors.

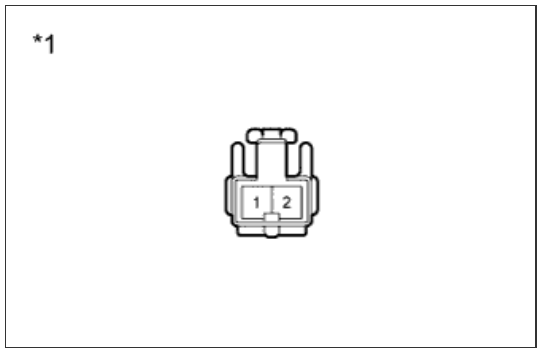
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	4 Ω

Text in Illustration

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



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

OK

23.CHECK HARNESS AND CONNECTOR (FRONT NO. 2 SPEAKER - FRONT NO. 3 SPEAKER)

a. Disconnect the F7 and F8 front No. 2 speaker assembly connectors.

b. Disconnect the F13 and F14 front No. 3 speaker assembly connectors.

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

Standard Resistance:

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

for RH Side:

Tester Connection	Condition	Specified Condition
F7-2 (TWR+) - F13-2	Always	Below 1 Ω
F7-4 (TWR-) - F13-1	Always	Below 1 Ω

F7-2 (TWR+) - Body ground	Always	10 kΩ or higher
F7-4 (TWR-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

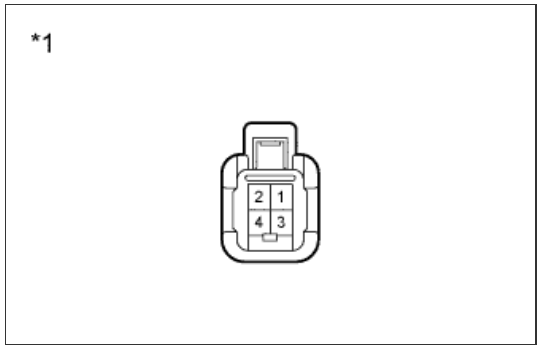
24.INSPECT REAR NO. 3 SPEAKER ASSEMBLY

a. Disconnect the J2 and J9 rear No. 3 speaker assembly 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 (Rear No. 3 Speaker Assembly)

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

OK

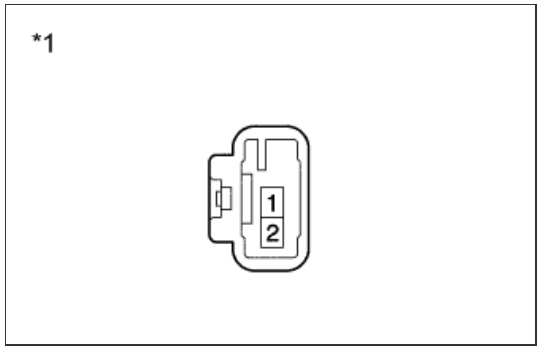
25.INSPECT REAR SPEAKER SET

a. Disconnect the J18 and J19 rear speaker set connectors.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	1.5 to 2.3 Ω



Text in Illustration

*1	Component without harness connected (Rear Speaker Set)

NG → REPLACE REAR SPEAKER SET (Click here)

OK

26.CHECK HARNESS AND CONNECTOR (REAR NO. 3 SPEAKER - REAR SPEAKER SET)

a. Disconnect the J2 and J9 rear No. 3 speaker assembly connectors.

b. Disconnect the J18 and J19 rear speaker set connectors.

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

Standard Resistance:

for LH Side:

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

for RH Side:

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

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

27.INSPECT NO. 1 WOOFER BOX SPEAKER

a. Disconnect the L4 No. 1 woofer box speaker connector.

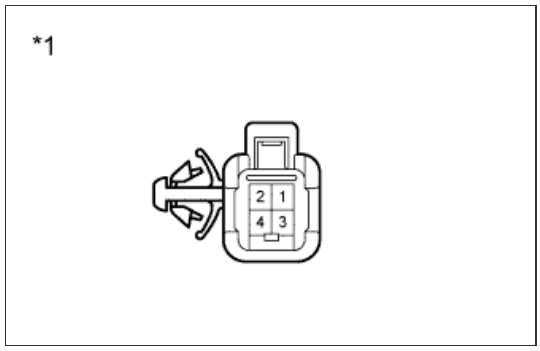
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	1.6 to 2.4 Ω

Text in Illustration

*1	Component without harness connected (No. 1 woofer box speaker)



NG → REPLACE NO. 1 WOOFER BOX SPEAKER

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

DTC B15A1 Audio HU Malfunction

DTC B15B3 Radio Tuner Malfunction

DTC B15B5 DVD Changer Malfunction

DTC B15B7 Bluetooth Module Malfunction

for Preparation Click here

DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

DTC No.	DTC Detection Condition	Trouble Area
B15A1	Bus malfunction, sub-micro processor malfunction	Radio receiver assembly
B15B3	Tuner communication error	
B15B5	When one of the conditions below is met: • Mechanical communication error • Read malfunction • Mechanical malfunction	
B15B7	"Bluetooth" module malfunction	

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTC (Click here).

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

OK:
No DTC is output.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK → USE SIMULATION METHOD TO CHECK (Click here)

DTC B15DF USB Communication Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when a malfunction occurs in communication error with a USB device or "iPod".

DTC No.	DTC Detection Condition	Trouble Area
B15DF	When one of the conditions below is met: • Communication error with USB device • "iPod" control software of system microprocessor malfunction • Communication error with "iPod"	• Multi-media interface ECU • USB device or "iPod"

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1.REPLACE USB DEVICE OR "iPod"

a. Disconnect the USB device or "iPod" from the No. 1 stereo jack adapter assembly.

b. Turn the engine switch off.

HINT:

When this DTC has been stored, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

c. Turn the engine switch on (ACC).

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

HINT:

If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.

NEXT

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.RECHECK FOR DTC

a. Recheck for DTCs.

HINT:

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

OK:
No DTC is output.

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

OK

USB DEVICE OR "iPod" WAS DEFECTIVE

DTC B15A1 Audio HU Malfunction

DTC B15B3 Radio Tuner Malfunction

DTC B15B5 DVD Changer Malfunction

DTC B15B7 Bluetooth Module Malfunction

for Preparation Click here

DESCRIPTION

These DTCs are stored when a malfunction occurs in the radio receiver assembly.

DTC No.	DTC Detection Condition	Trouble Area
B15A1	Bus malfunction, sub-micro processor malfunction	Radio receiver assembly
B15B3	Tuner communication error	
B15B5	When one of the conditions below is met: • Mechanical communication error • Read malfunction • Mechanical malfunction	
B15B7	"Bluetooth" module malfunction	

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTC (Click here).

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

OK:
No DTC is output.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK → USE SIMULATION METHOD TO CHECK (Click here)

DTC B15E1 Media Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when signals from disc in the radio receiver assembly cannot be read.

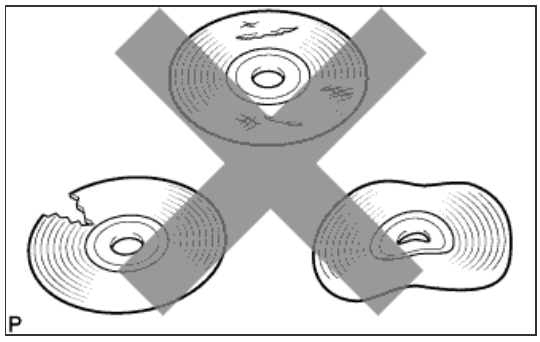
DTC No.	DTC Detection Condition	Trouble Area
B15E1	When one of the conditions below is met: • An unsuitable disc is inserted. • The disc cannot be read. • The disc cannot be read because of dirt or scratches. • The disc cannot be read because it is inserted upside down.	• CD or DVD • Radio receiver assembly

INSPECTION PROCEDURE

1.CHECK DISC

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

OK:
No deformation or cracks on the disc



NG → CHANGE DISC

OK

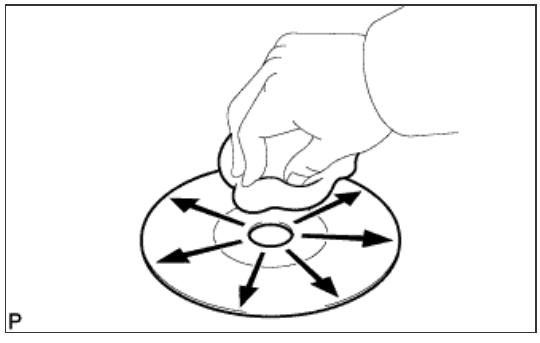
2.DISC CLEANING

a. Disc cleaning

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

NOTICE:

Do not use a conventional record cleaner or anti-static preservative.



NEXT

3.REPLACE DISC WITH ANOTHER AND RECHECK

a. Replace the disc with another and recheck.

b. Clear the DTC (Click here).

c. Recheck for DTC and check if the same trouble occurs again.

OK:

No DTC is output.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

for Preparation Click here

INSPECTION PROCEDURE

1.NOISE CONDITION

a. Check from which direction the noise comes (front left or right, rear left or right).

i. Check from which direction the noise comes.

OK:
The location of the noise source can be determined.

NG → Go to step 3

OK

2.CHECK SPEAKERS

a. Check the installation conditions of the speaker units that are located near the noise source and that there are no cracks, scratches, deformation or other malfunctions.

Result

Result	Proceed to
A speaker is installed incorrectly	A
Foreign objects are in the speaker	B
A speaker cone paper is broken	C
No malfunction is found	D

A → REINSTALL SPEAKER

B → REMOVE FOREIGN OBJECT

C → REPLACE SPEAKER

D

3.CHECK NOISE CONDITION

a. Check the noise condition.

HINT:

The radio has a noise prevention function to reduce noise when listening to the radio. If a loud noise occurs, check whether the ground at the antenna mounting base and the noise prevention unit are installed and wired correctly.

Condition under which Noise Occurs	Noise Source
Noise increases when the accelerator pedal is depressed, but stops when the engine is stopped.	Generator
Noise occurs during A/C or heater operation.	Blower motor
Noise occurs when the horn switch is pressed and released or when pressed and held.	Horn
Noise occurs synchronously with the blink of the turn signal.	Flasher
Noise occurs during window washer operation.	Washer
Noise occurs during wiper operation.	Wiper
Noise occurs when the brake pedal is depressed.	Stop light switch
Noise occurs when the sliding roof moves.	Sliding roof motor
Others	Static electricity

HINT:

- **In the chart left column, find the situation that matches the customer's complaint. Then, in the right column, find the part**

that is causing the noise. Check the respective noise filter.

- To save time and avoid a misdiagnosis, first make sure that the noise is not coming from outside the vehicle.
- Troubleshoot noises in descending order of loudness.
- Setting the radio to a frequency where no signal is received may make recognition of the noise problem easier.

OK:

The noise source cannot be determined.

	NG	REPAIR OR REPLACE NOISE SOURCE
OK		
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)		

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK VEHICLE CONDITION

a. Check that conditions in the cabin are not likely to cause condensation.

HINT:

This problem occurs if the cabin is humid and the temperature changes rapidly. This may produce condensation, resulting in a short circuit.

OK:

Condensation is not likely being produced.

NG → **DRY OUT CABIN AND RECHECK CONDITION**

OK

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

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK RADIO RECEIVER ASSEMBLY

a. Check the radio receiver assembly settings.

i. Check that the volume is not set to "0".

ii. Check that mute is off.

OK:
The volume is not set to "0" and mute is off.

NG → **SET VOLUME TO HIGH AND TURN MUTE OFF**

OK

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

for Preparation Click here

INSPECTION PROCEDURE

1.REPLACE DISC AND RECHECK

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

i. Check if the same trouble occurs again.

OK:
Malfunction disappears.

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

OK

END

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK IF A PROPER DISC IS INSERTED

a. Make sure that the disc is an audio disc or a disc with MP3 or WMA files, and that it is not deformed, flawed, stained, deteriorated or otherwise defective.

OK:
Normal disc

HINT:

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

NG → CHANGE DISC

OK

2.CHECK THAT DISC IS INSERTED PROPERLY

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

OK:
Disc is properly inserted.

NG → INSERT DISC PROPERLY

OK

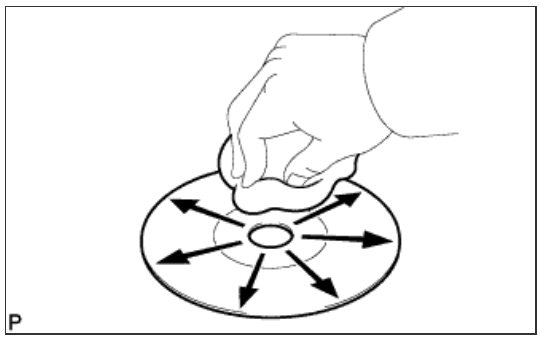
3.CLEAN DISC AND RECHECK

a. Clean the disc by wiping it clean with a soft cloth from the inside to the outside in a radial direction.

OK:
Malfunction disappears.

NOTICE:

Do not use a conventional record cleaner or anti-static preservative.



NG → Go to step 4

OK

END

4.REPLACE DISC AND RECHECK

a. Replace the disc with a known good one and check if the same trouble occurs again.

OK:

Malfunction disappears.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

for Preparation Click here

INSPECTION PROCEDURE

1.PRESS EJECT AND CHECK OPERATION

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

OK:
Disc is ejected.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

2.REPLACE DISC AND RECHECK

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

OK:
Disc is ejected.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

END

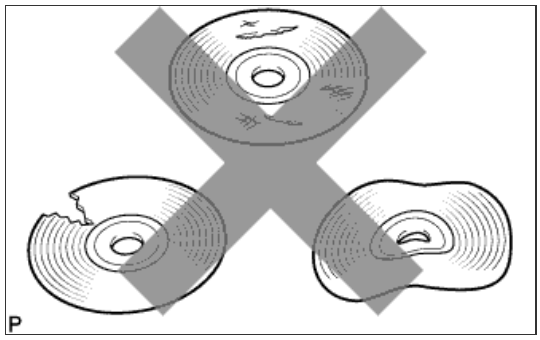
for Preparation Click here

INSPECTION PROCEDURE

1.CHECK DISC

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

OK:
No deformation or cracks on the disc



NG → CHANGE DISC

OK

2.CHECK DISC

a. Check the disc.

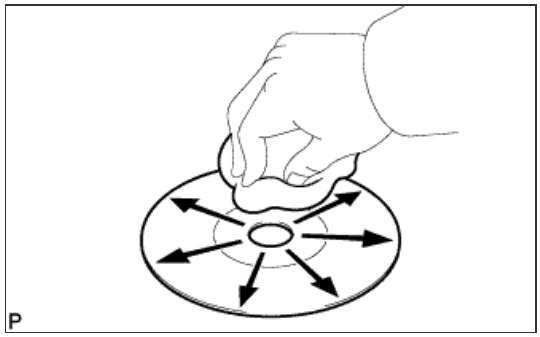
OK:
The disc is clean.

HINT:

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

NOTICE:

Do not use a conventional record cleaner or anti-static preservative.



N → CLEAN DISC

OK

.CHECK OPERATION

a. Check if the same problem occurs again using a known good disc.

OK:
Malfunction disappears.

NG → Go to step 4

OK

END

4.CHECK RADIO RECEIVER ASSEMBLY

a. Check that the radio receiver assembly is properly installed.

OK:

Radio receiver assem ly is properly installed.

NG → REINSTALL RADIO RECEIVER ASSEMBLY PROPERLY

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK RADIO RECEIVER ASSEMBLY

a. Check the radio automatic station search function.

i. Check the radio automatic station search function by activating it.

Result

Result	Proceed to
Automatic station function stops on a station	A
Automatic station search function does not stop	B

B → Go to step 2

A → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

2.CHECK OPTIONAL COMPONENTS

a. Check optional components (sunshade film, telephone antenna, etc.).

i. Check if any optional components that may decrease reception capacity, such as sunshade film or a telephone antenna, are installed.

Result

Result	Proceed to
Optional components are installed	A
Optional components are not installed	B

NOTICE:

Do not remove any optional components installed by the customer without his or her consent.

B → Go to step 3

A → REMOVE OPTIONAL COMPONENTS AND CHECK AGAIN (SEE NOTICE ABOVE)

3.CHECK RADIO ANTENNA

a. Preparation for check

i. Remove the roof antenna pole sub-assembly from the amplifier antenna assembly.

b. Check for noise

i. Turn the engine switch on (ACC) with the radio receiver assembly connector connected.

ii. Turn the radio on and tune into AM mode.

iii. Place a screwdriver, thin wire, or other metal object on the amplifier antenna threaded installation portion for the roof antenna pole sub-assembly and check that noise can be heard from the speakers.

Result

Result	Proceed to
Noise does not occur	A
Noise occurs	B

B → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

A

4.CHECK RADIO RECEIVER ASSEMBLY

a. Preparation for check

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

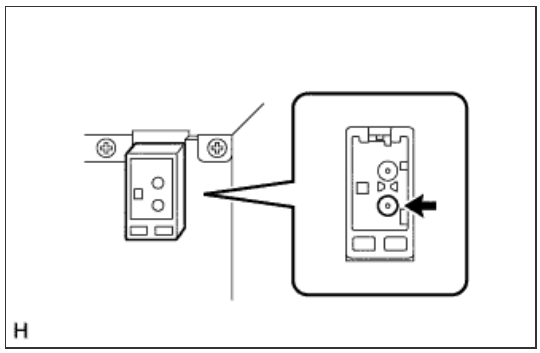
b. Check for noise

i. Turn the engine switch on (ACC) with the radio receiver assembly connector connected.

ii. Turn the radio on and tune into AM mode.

iii. Place a screwdriver, thin wire or other metal object on the radio receiver assembly antenna jack and check that noise can be heard from the speakers.

OK:
Noise can be heard from the speakers.



NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

5.CHECK GLASS ANTENNA

a. Check for continuity of the antenna.

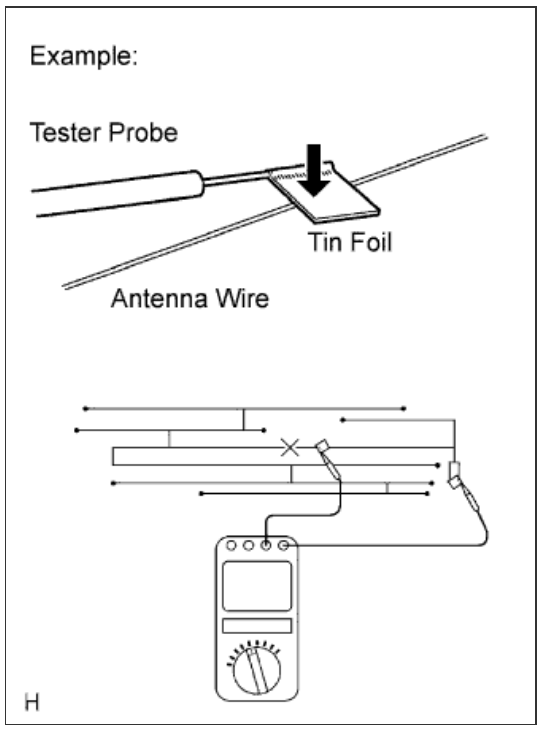
HINT:

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

NOTICE:

When cleaning the glass, wipe it in the direction of the wire with a soft dry cloth. Take care not to damage the wire. Do not use detergents or glass cleaners with abrasive ingredients. When measuring resistance, wrap a piece of tin foil around the tip of each probe and press the foil against the wire with your finger, as shown in the illustration.

OK:
There is continuity in the antenna.



NG → REPAIR GLASS ANTENNA

OK

6.INSPECT RADIO RECEIVER ASSEMBLY

a. Disconnect the radio receiver assembly connector.

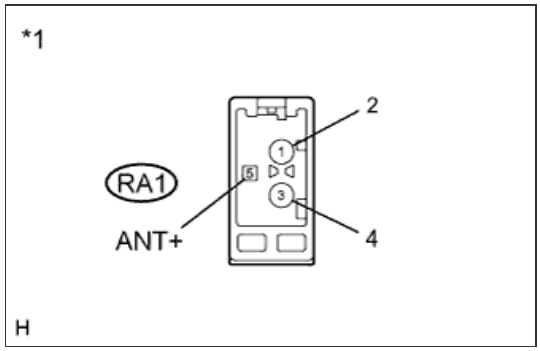
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
RA1-5 (ANT+) - Body ground	Engine switch on (ACC) Radio switch on	11 to 14 V

Text in Illustration

*1	Component without harness connected (Radio Receiver Assembly)



NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

7.CHECK ANTENNA CORD

a. Remove the antenna connector of the radio receiver assembly and antenna.

b. Measure the resistance between the antenna and radio receiver assembly to check for an open circuit in the antenna cord.

Standard Resistance:
Below 1 Ω

c. Measure the resistance between the antenna cord and body ground to check for a short circuit in the antenna cord.

Standard Resistance:
10 kΩ or higher

NG → REPLACE ANTENNA CORD (Click here)

OK

8.REPLACE AMPLIFIER ANTENNA ASSEMBLY

a. Replace the amplifier antenna assembly and check if radio broadcasts can be received normally (Click here).

OK:
Radio broadcasts can be received.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

NORMAL OPERATION

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK AUDIO SETTINGS

a. Set "BASS", "MID" and "TREB" to the initial values and check that sound is normal.

OK:
Malfunction disappears.

NG → Go to step 2

OK → END

2.COMPARE WITH ANOTHER VEHICLE OF SAME MODEL

a. Compare with another vehicle of the same model.

i. Compare with another vehicle of the same model which does not have trouble to see if there is any difference in the sound quality.

OK:
No difference is found.

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

OK → END

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK PORTABLE PLAYER SETTINGS

a. Check the portable player settings.

i. Check that the volume is not set to "0".

ii. Check that the mute is off.

b. Check that the sound of the portable player can be heard from the speakers.

OK:
Sound of the portable player can be heard from the speakers.

NG → Go to step 2

OK

END

2.CHECK AUDIO SETTINGS

a. Check the audio settings.

i. Check that the volume is not set to "0".

b. Check that the sound of the portable player can be heard from the speakers.

OK:
Sound of the portable player can be heard from the speakers.

NG → Go to step 3

OK

END

3.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check that the sound of the portable player can be heard from the speakers on another "Bluetooth" audio compatible vehicle of the same model.

OK:
Sound of the portable player can be heard from the speakers.

NG → MALFUNCTION IN PORTABLE PLAYER

OK

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

for Preparation Click here

INSPECTION PROCEDURE

HINT:

Even if the portable player can play audio content, it may not be able to play via the in-vehicle device. This does not necessarily indicate a malfunction of the in-vehicle device.

1.CHECK OPERATION

a. Check if the portable player operates normally.

OK:
The portable player operates normally.

NG → MALFUNCTION IN PORTABLE PLAYER

OK ↓

2.CHECK AUDIO SETTINGS

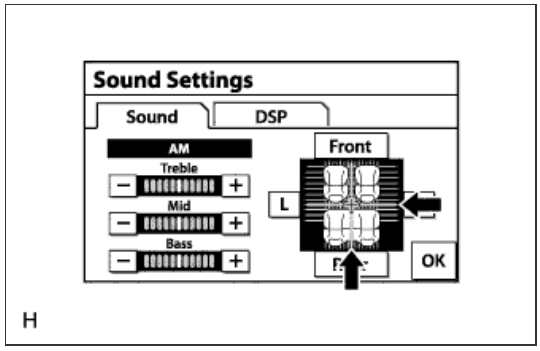
a. Enter the "Sound Settings" screen by pressing the "Sound" switch on the audio display.

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

OK:
Audio system returns to normal.

HINT:

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



H

NG → SET VOLUME TO HIGH AND TURN MUTE OFF

OK ↓

3.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check if the "Bluetooth" audio player plays normally on another "Bluetooth" audio compatible vehicle of the same model.

OK:
"Bluetooth" audio plays normally.

NG → MALFUNCTION IN PORTABLE PLAYER

OK ↓

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

AUDIO AND VISUAL SYSTEM (w/ Navigation System) > Portable Player cannot be Operated Using In-vehicle Device or Track Information is not Displayed on In-vehicle Device

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check if track information is displayed normally on another "Bluetooth" audio compatible vehicle of the same model.

OK:
Track information is displayed normally.

NG → **PORTABLE PLAYER IS NOT COMPATIBLE**

OK ↓

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

for Preparation Click here

INSPECTION PROCEDURE

HINT:

- **Perform this check with the portable player volume set at an appropriate level.**
- **Make sure there are no obstructions between the portable player and radio receiver assembly that may block signals, and that the portable player and radio receiver assembly are not excessively far apart.**
- **Make sure devices other than the radio receiver assembly are not connected to the portable player.**
- **Make sure there is no interference from a wireless LAN, etc.**

1.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check that the same problem does not occur in the sound heard from the speakers on another "Bluetooth" audio compatible vehicle of the same model.

OK:
The same problem does not occur in the sound heard from the speakers.

NG → MALFUNCTION IN PORTABLE PLAYER

OK

2.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES

a. Remove additional devices which use radio waves.

b. Play the portable player and check that the same problem does not occur in the sound heard from the speakers.

OK:
The same problem does not occur in the sound heard from the speakers.

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

OK

END

for Preparation Click here

INSPECTION PROCEDURE

HINT:

Some versions of "Bluetooth" compatible audio players may not function, or the function may be limited using the radio receiver assembly, even if the portable audio player itself can play files (Click here).

1.CHECK CONNECTED DEVICE SETTINGS

a. Display the "Select Portable Player" screen and check if the portable player is registered as a connected device.



NOTICE:

If a cellular phone is used as a portable player, it must be registered independently from the registration that is performed for the hands-free system.

HINT:

Only 2 portable players can be registered.

Result

Result	Proceed to
The portable player is registered as a connected device.	A
The portable player is not registered as a connected device.	B

B → REGISTER PORTABLE PLAYER AS CONNECTED DEVICE

A

2.CHECK SYMPTOMS

a. Check the connection condition between the portable player and radio receiver assembly.

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

- **The portable player is connected to another device.**
- **The portable player is connected to the radio receiver assembly using the hands-free function.**
- **The radio receiver assembly has cleared the portable player registration.**
- **The portable player is off.**

Result

Result	Proceed to
The portable player cannot be connected manually.	A
The portable player cannot be connected automatically.	B

B → Go to step 4

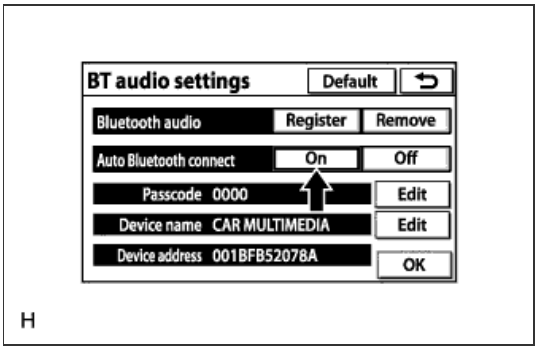
A

3.CHECK AUTOMATIC CONNECTION SETTINGS

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

i. Check if On is displayed for "Auto Bluetooth connect" on the "BT audio settings" screen.

OK:
On is displayed for "Auto Bluetooth connect".



NG → CHANGE "AUTO BLUETOOTH CONNECT" TO ON

OK ↓

4.CHECK PORTABLE PLAYER STATUS

a. Check the status of the portable player.

i. Check that the portable player is in standby mode.

ii. Check that the portable player is not connected to another device (headphones etc.).

OK:
The portable player is in standby mode and not connected to another device (headphones etc.).

NG → CHANGE PORTABLE PLAYER TO STANDBY MODE AND DISCONNECT OTHER DEVICES (HEADPHONES etc.)

OK ↓

5.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check if the portable player can be connected manually/automatically on another "Bluetooth" audio compatible vehicle of the same model.

OK:
The portable player can be connected manually/automatically.

NG → PORTABLE PLAYER IS NOT COMPATIBLE

OK ↓

6.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES

a. Remove additional devices which use radio waves.

b. Check if the portable player can be connected manually/automatically.

OK:
The portable player can be connected manually/automatically.

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

OK ↓

END

for Preparation Click here

INSPECTION PROCEDURE

1.DELETE OPERATION

a. Check if a registered portable player can be deleted normally.

OK:
Registered portable player can be deleted normally.

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

OK

END

for Preparation Click here

INSPECTION PROCEDURE

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

esult	Proceed to
he portable player is "Bluetooth" audio compatible.	A
he 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. eferring to the o ner s manual, correctly register the portable player.

b. Check that the portable player can be registered as a connected device.

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

- **The A2DP (Advanced Audio Distribution Profile) is not used when registering a cellular phone.**
- **A different portable player registration remains in the radio receiver assembly.**
- **A different radio receiver assembly registration remains in the portable player.**
- **The portable player is off.**

OK:
The portable player has been registered as a connected device.

NG → Go to step 3

OK

END

3.CHECK USING ANOTHER "BLUETOOTH" AUDIO COMPATIBLE VEHICLE OF SAME MODEL

a. Check if the portable player can be registered normally on another "Bluetooth" audio compatible vehicle of the same model.

OK:
The portable player can be registered.

NG → MALFUNCTION IN PORTABLE PLAYER

OK

4.REMOVE ADDITIONAL DEVICES WHICH USE RADIO WAVES

a. emove additional devices hich use radio aves.

b. Check that the portable player can be registered as a connected device.

OK:
The portable player can be registered.

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

OK → END

for Preparation Click here

INSPECTION PROCEDURE

HINT:

- **When a large amount of data is in a USB device, it may take a while before play begins.**
- **When using a USB device, files that are copy protected or encrypted 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:

hen this malfunction occurs, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device when it is connected.

b. Turn the engine switch on (ACC).

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

HINT:

- **If the malfunction occurred when a USB device was in use, use another USB device for the inspection. If the malfunction occurred when an "iPod" was in use, use another "iPod" for the inspection.**
- **Refer to System Description for compatible formats and versions (Click here).**

NEXT

4.CHECK USB Device or "iPod"

a. Check if USB device or "iPod" is recognized by the display and navigation module display, if information such as track, artist and album names are displayed on screen or if it can play.

OK:
Malfunction disappears.

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

OK

USB DEVICE OR "iPod" WAS INCOMPATIBLE OR DEFECTIVE

for Preparation Click here

DESCRIPTION

HINT:

The HDD is compliant with the Serial Copy Management System (SCMS). Therefore, recording from a CD-R that is a copy of a commercially published music CD is not possible.

INSPECTION PROCEDURE

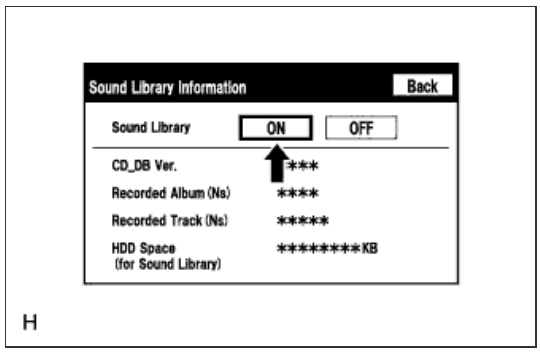
1.CHECK SOUND LIBRARY SETTING OF HDD ON SOUND LIBRARY INFORMATION SCREEN

a. Enter the "Sound Library Information" (Check Sound Library Setting) (Click here).

b. Select "ON" for the "Sound Library" setting.

c. Check if recording is possible.

OK:
Malfunction disappears.



NG → Go to step 2

OK

END

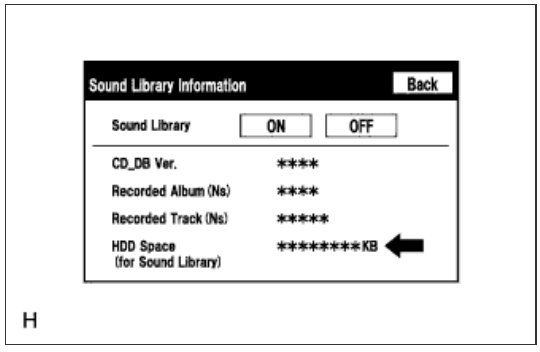
2.CHECK FREE SPACE IN HDD

a. Enter the "Sound Library Information" (Check Sound Library Setting) (Click here).

b. Check free space in HDD from the sound library setting screen.

Result

Result	Proceed to
Insufficient space in HDD	A
Sufficient space in HDD	B



B → Go to step 3

A

DELETE UNNECESSARY DATA FROM HDD

3.CHECK IF AUDIO POWER IS ON

a. Check if the audio power is on.

HINT:

When the audio is off, audio recording is not possible.

OK:
Audio power is on.

NG → TURN AUDIO ON

OK

4.CHECK IF RECORDING SETTING IS SET TO AUTO

a. Check if the recording setting is set to AUTO.

HINT:

When the recording setting is set to manual, recording does not start automatically after a CD is inserted.

OK:
Recording setting is set to AUTO.

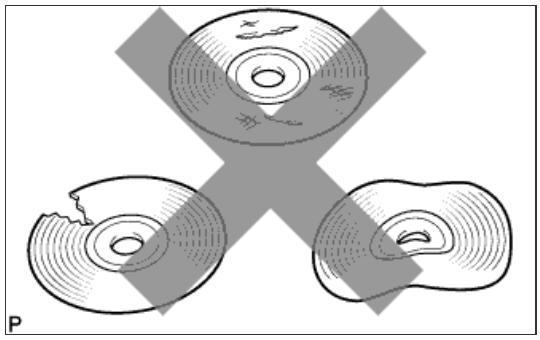
NG → CHANGE RECORDING SETTING TO AUTO

OK

5.CHECK CD

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

OK:
No deformation or cracks on the CD



NG → CHANGE CD

OK

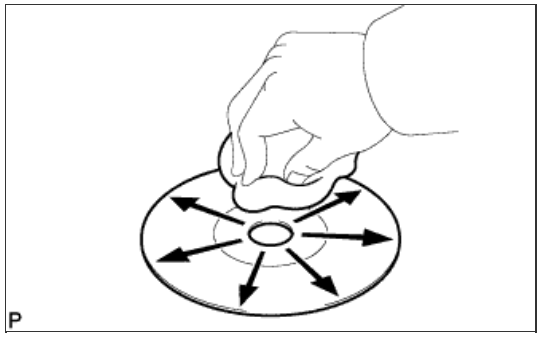
6.CLEAN CD AND RECHECK CD

a. Check the disc by wiping it clean with a soft cloth from the inside to the outside in a radial direction.

OK:
Malfunction disappears.

NOTICE:

Do not use a conventional record cleaner or anti-static preservative.



NG → Go to step 7

OK

END

7.CHECK USING ANOTHER VEHICLE WITH HDD NAVIGATION SYSTEM

a. Check if the CD plays normally using another vehicle with the HDD navigation system.

OK:
Malfunction disappears.

NG → **CD WAS FAULTY**

OK

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

for Preparation Click here

INSPECTION PROCEDURE

HINT:

The HDD cannot read when driving on a rough road because of vibration.

1.CHECK IF THERE IS ANY PROBLEM ON CD

a. Check if a message indicating a skipping track is displayed in the CD track information list on the audio screen.

Result

Result	Proceed to
CD skip indication is not displayed.	A
CD skip indication is displayed.	B

B → **CD WAS FAULTY**

A

2.DELETE AND RE-RECORD TRACK WITH ERROR

a. Delete the track that is indicated as skipping.

b. Insert the CD and re-record the same track.

NEXT

3.CHECK IF RE-RECORDED TRACK CAN BE PLAYED

a. Check if the re-recorded track can be played.

Result

Result	Proceed to
Track can be played.	A
Track cannot be played.	B

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

A

END

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK IF CD IS BEING RECORDED

a. Check if a CD is being recorded.

Result

Result	Proceed to
CD is being recorded.	A
CD is not being recorded.	B

B → Go to step 2

A → END

2.CHECK IF SOUND LIBRARY ITEMS ARE BEING DELETED

a. Check if sound library items are being deleted.

Result

Result	Proceed to
Items are being deleted.	A
Items are not being deleted.	B

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

A → END

for Preparation Click here

INSPECTION PROCEDURE

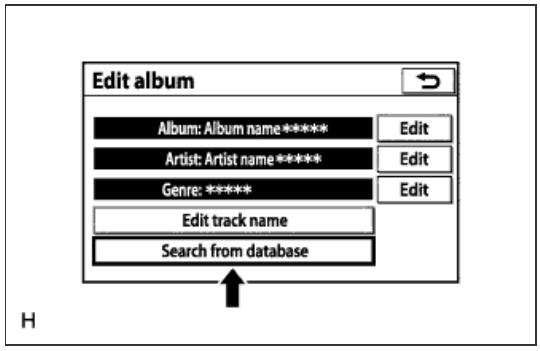
HINT:

- **When a CD-TEXT compatible CD is inserted and played, CD track names will be displayed. When the song is played using the sound library, information acquired from the media database will be used. Therefore, title displayed for the same song may differ from the one displayed for the CD and the one for the sound library.**
- **CD-TEXT song information and media database information may be different.**

1.SEARCH THE MEDIA DATABASE AGAIN

a. Select "Search from database" on the "Edit album" screen.

b. Search the media database again.



NG → ENTER SONG INFORMATION MANUALLY

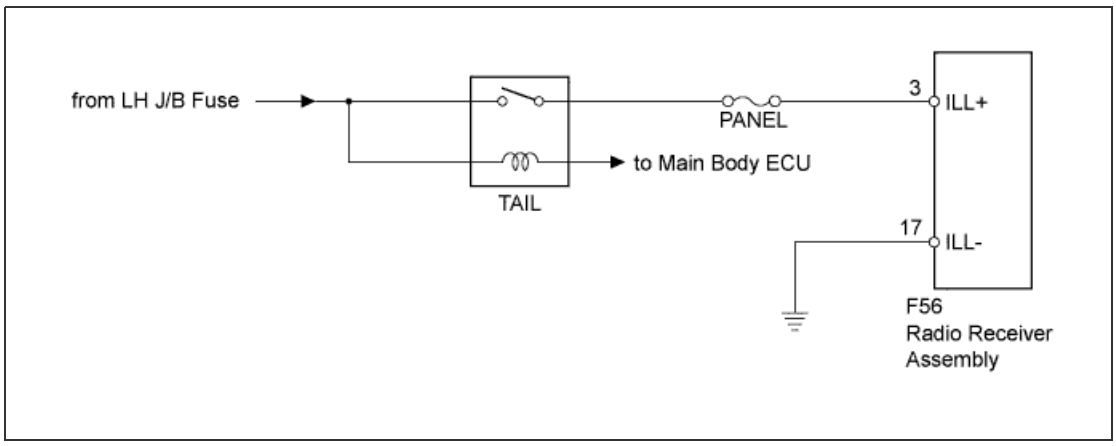
OK → END

for Preparation Click here

DESCRIPTION

Power is supplied to the radio receiver assembly illumination when the light control switch is in the tail or head position.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

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

1.CHECK ILLUMINATION

a. Check if the illumination for the radio receiver assembly, heater control switch or others (hazard switch, transmission control switch, etc.) comes on when the light control switch is turned to the head or tail position.

Result

Result	Proceed to
Illumination comes on for all components except radio receiver assembly.	A
No illumination comes on (radio receiver assembly, hazard switch, heater control switch, etc.).	B

B → GO TO LIGHTING SYSTEM (Click here)

A

2.CHECK HARNESS AND CONNECTOR (BATTERY AND BODY GROUND - RADIO RECEIVER ASSEMBLY)

a. Disconnect the F56 radio receiver assembly connector.

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

Standard Voltage:

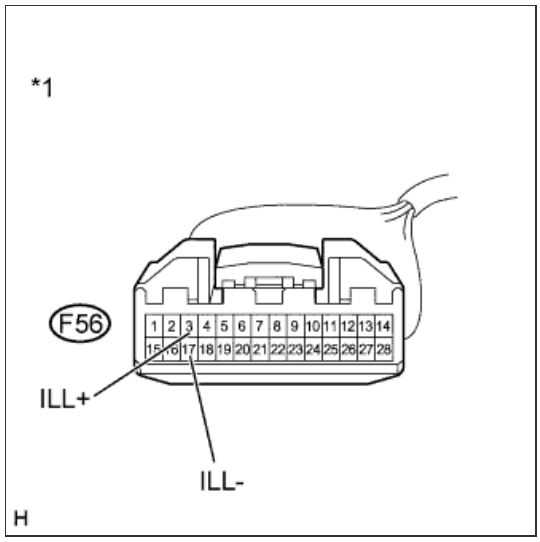
Tester Connection	Switch Condition	Specified Condition
F56-3 (ILL+) - Body ground	Light control switch tail or head	11 to 14 V

Standard Resistance:

Tester Connection	Condition	Specified Condition
F56-17 (ILL-) - Body ground	Always	Below 1 Ω

Te t inIllustration

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



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

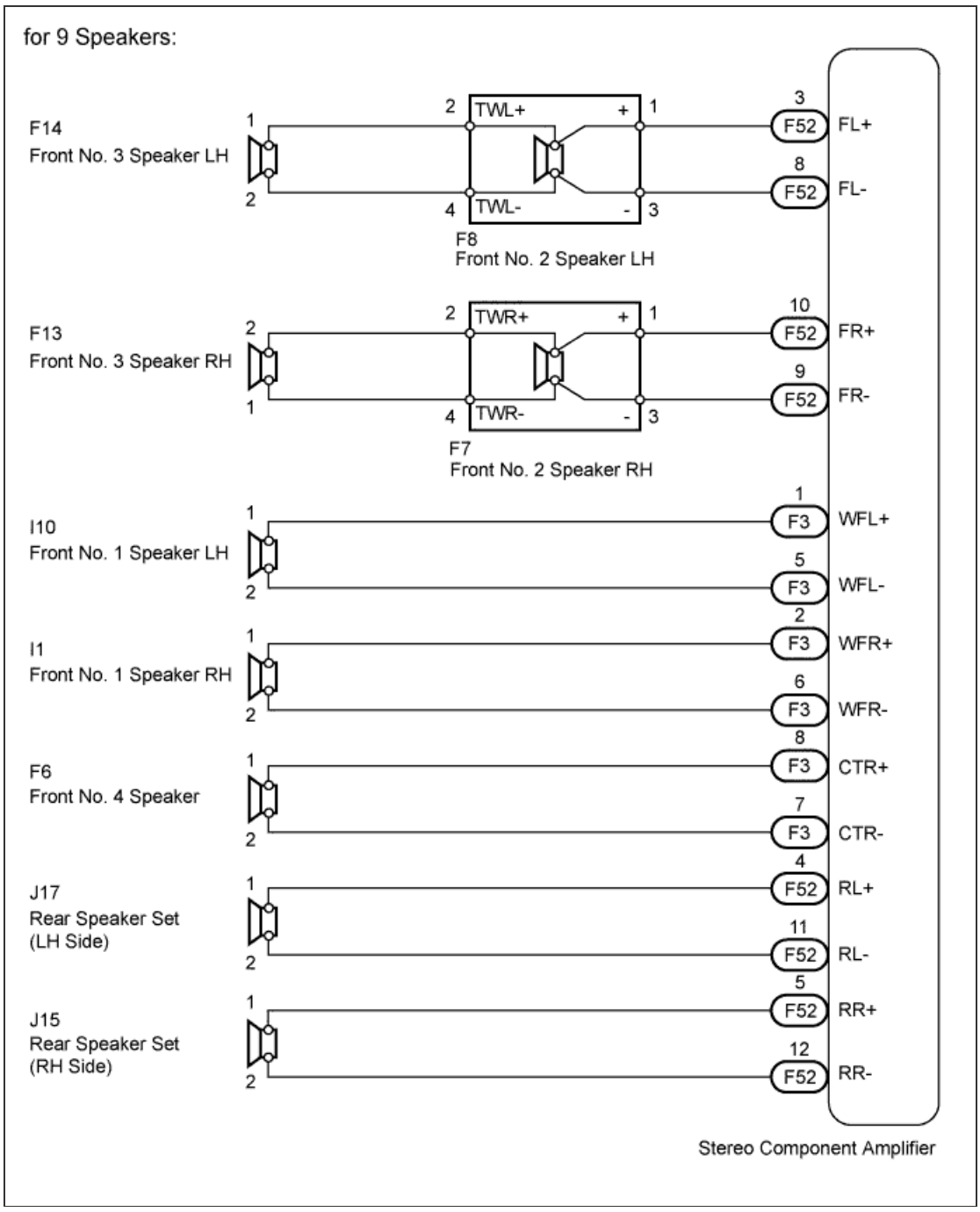
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

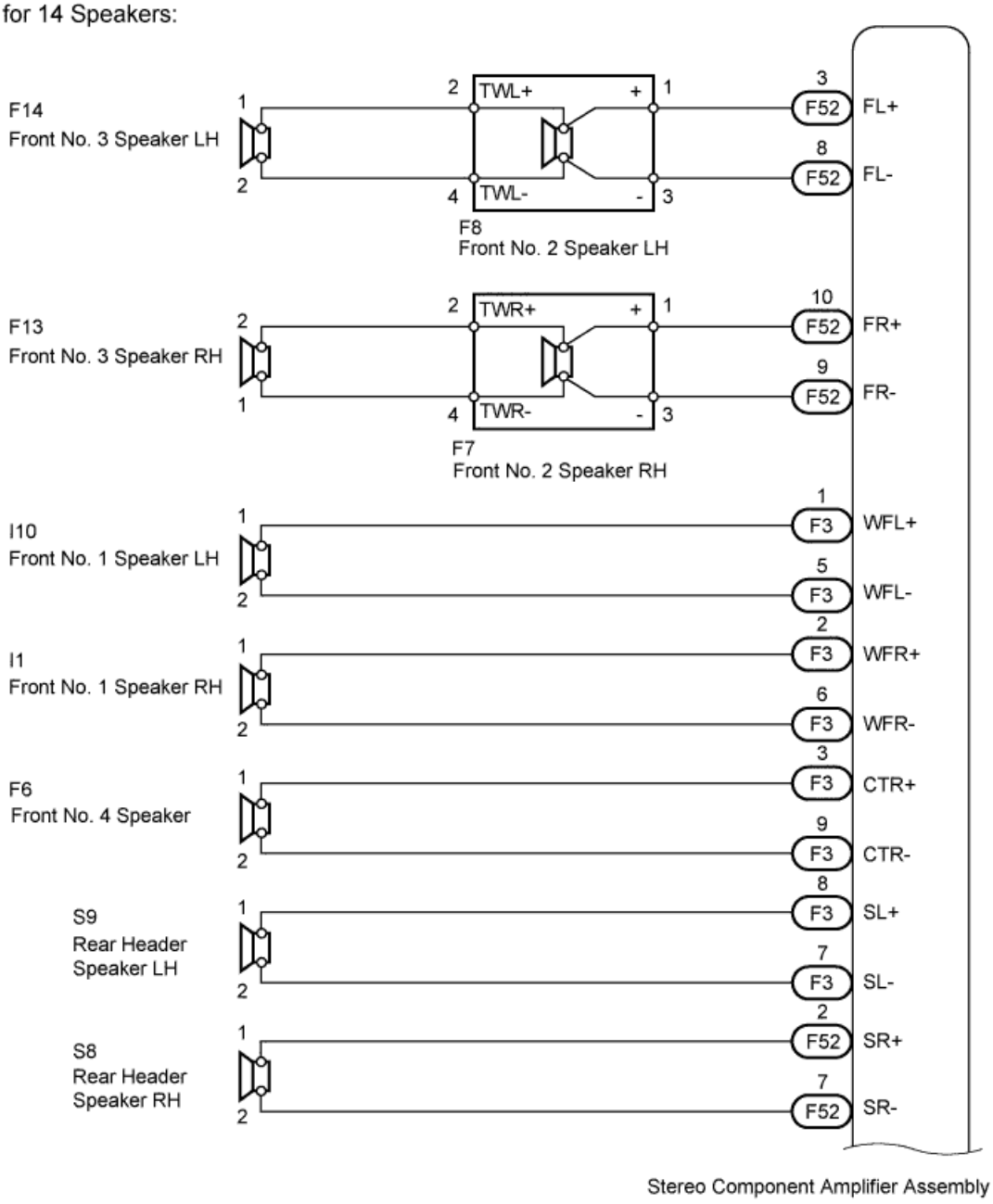
DESCRIPTION

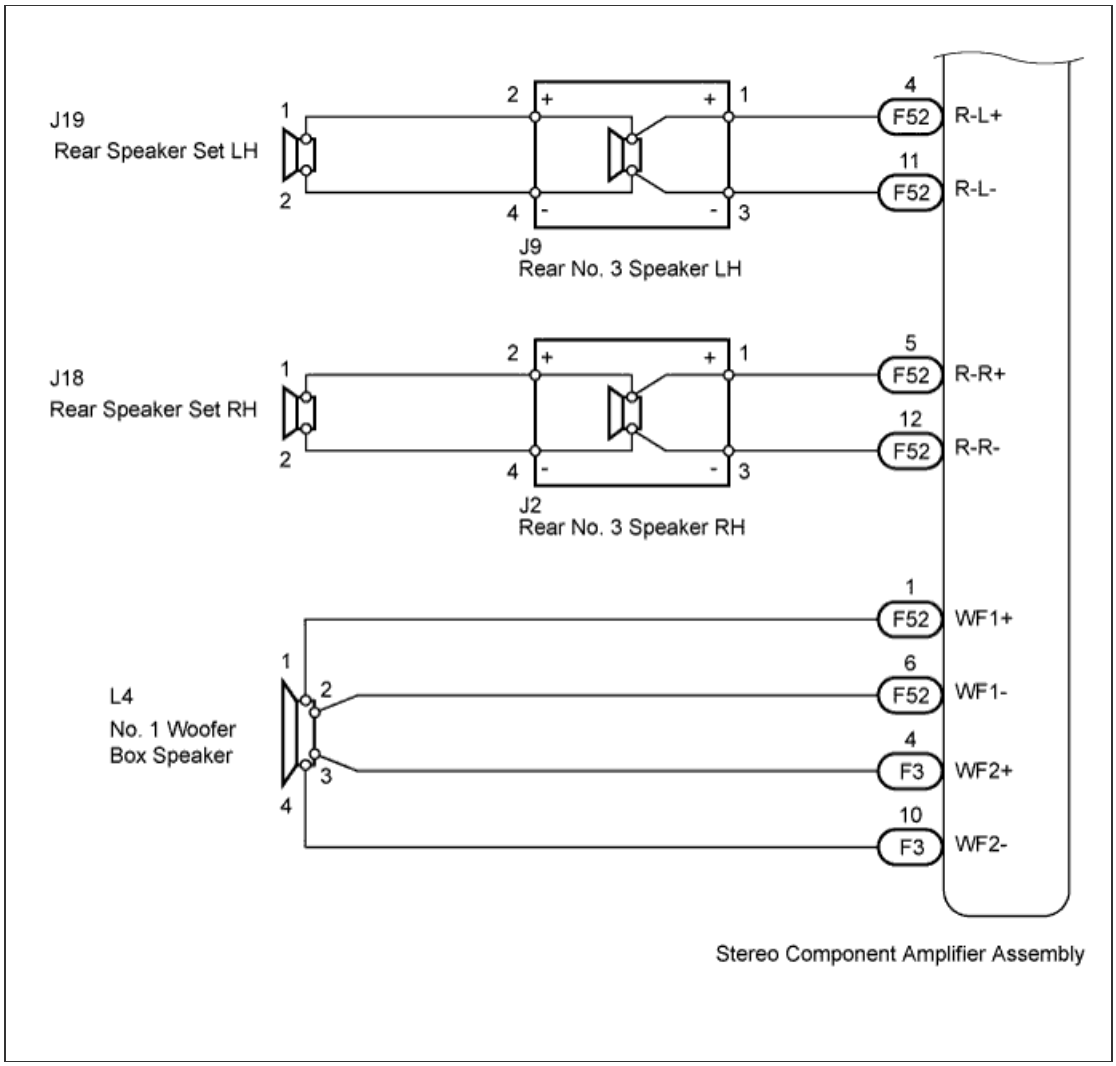
The stereo component amplifier assembly sends a sound signal to the speakers.

WIRING DIAGRAM



for 14 Speakers:





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 11

A

2.CHECK SPEAKER

a. Check the malfunctioning speakers.

Result

Result	Proceed to
Front No. 1 speaker	A
Front No. 2 speaker	B
Front No. 3 speaker	C
Front No. 4 speaker	D

B → Go to step 5

C → Go to step 7

D → Go to step 9

A

3.INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the I1 and I10 front No. 1 speaker assembly connectors.

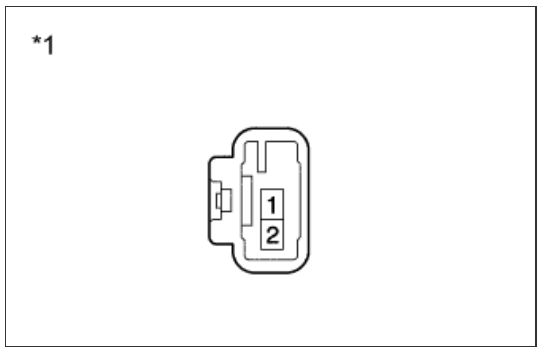
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	3 Ω

Text in Illustration

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



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

OK

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

a. Disconnect the I1 and I10 front No. 1 speaker connectors.

b. Disconnect the F3 stereo component amplifier assembly connector.

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

Standard Resistance:

for LH Side:

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 Side:

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

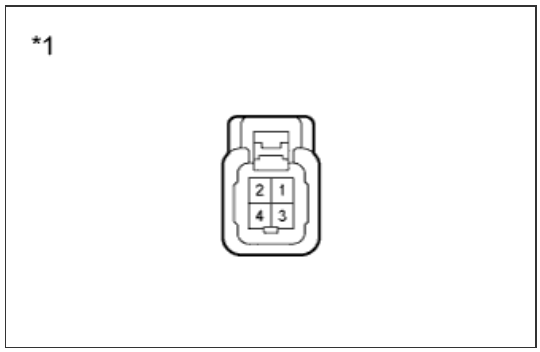
OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

5.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 front No. 2 speaker assembly connectors.

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



Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	Below 1 Ω
3 - 4	Always	Below 1 Ω
2 - 4	Always	4 Ω

Text in Illustration

*1	Component without harness connected (Front No. 2 Speaker Assembly)

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

OK

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

a. Disconnect the F7 and F8 front No. 2 speaker connectors.

b. Disconnect the F52 stereo component amplifier assembly connector.

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

Standard Resistance:

for LH Side:

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 Side:

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)

7.INSPECT FRONT NO. 3 SPEAKER ASSEMBLY

a. Disconnect the F14 and F13 front No. 3 speaker connectors.

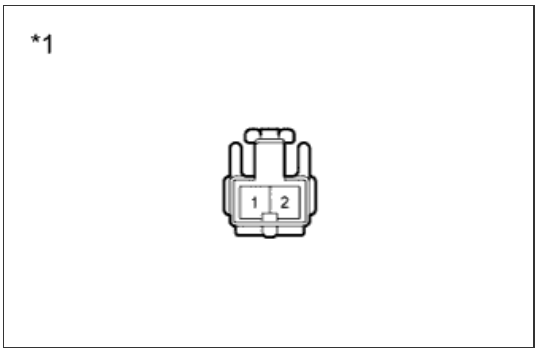
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	4 Ω

Text in Illustration

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



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

OK

8.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

a. Disconnect the F8 and F7 front No. 2 speaker connectors.

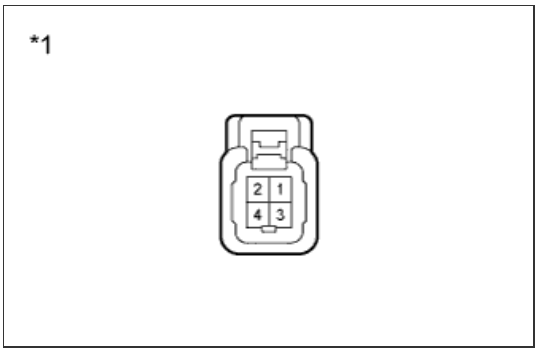
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	Below 1 Ω
3 - 4	Always	Below 1 Ω
2 - 4	Always	4 Ω

Text in Illustration

*1	Component without harness connected (Front No. 2 Speaker Assembly)



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

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR

9.INSPECT FRONT NO. 4 SPEAKER ASSEMBLY

a. Disconnect the F6 front No. 4 speaker connector.

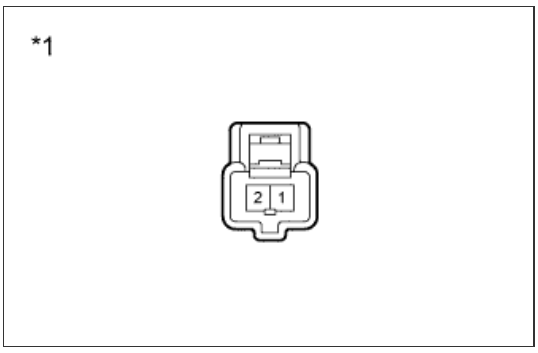
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	6 Ω

Text in Illustration

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



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

OK

10.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 4 SPEAKER)

a. Disconnect the F6 front No. 4 speaker connector.

b. Disconnect the F3 stereo component amplifier assembly connector.

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

Standard Resistance:

for 9 Speaker Model:

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

for 14 Speaker Model:

Tester Connection	Condition	Specified Condition
F3-3 (CTR+) - F6-1	Always	Below 1 Ω
F3-9 (CTR-) - F6-2	Always	Below 1 Ω
F3-3 (CTR+) - Body ground	Always	10 kΩ or higher
F3-9 (CTR-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

11.CHECK SPEAKER

a. Check the malfunctioning speakers.

Result

Result	Proceed to
Rear speaker set	A
Rear No. 3 speaker*1	B
Rear header speaker*1	C
No. 1 woofer box speaker*1	D

*1: for 14 speaker

B → Go to step 17

C → Go to step 19

D → Go to step 21

A

12.SYSTEM CHECK

a. Check the vehicle specifications.

Result

Result	Proceed to
for 9 speakers model	A

for 14 speakers model	B

B → Go to step 15

A

13.INSPECT REAR SPEAKER SET

a. Disconnect the J17 and J15 rear speaker set connectors.

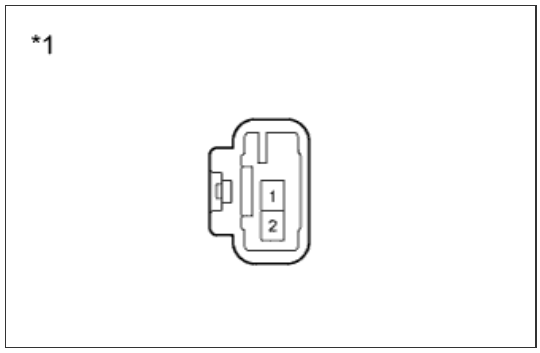
b. Measure the resistance according to the value(s) in the table below.

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

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

a. Disconnect the J15 and J17 rear speaker set connectors.

b. Disconnect the F52 stereo component amplifier assembly connector.

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

Standard Resistance:

for LH Side:

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 Side:

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)

15.INSPECT REAR SPEAKER SET

a. Disconnect the J18 and J19 rear speaker set connectors.

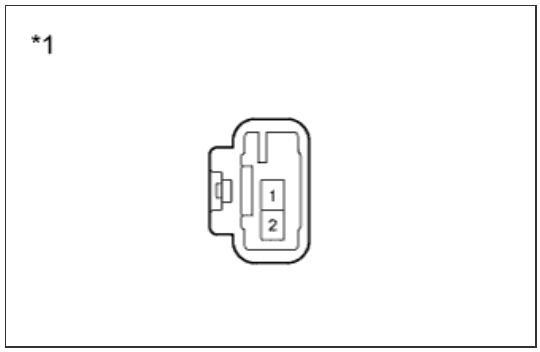
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	1.5 to 2.3 Ω

Text in Illustration

*1	Component without harness connected (Rear Speaker Set)



NG → REPLACE REAR SPEAKER SET (Click here)

OK

16.INSPECT REAR NO. 3 SPEAKER ASSEMBLY

a. Disconnect the J2 and J9 rear No. 3 speaker connectors.

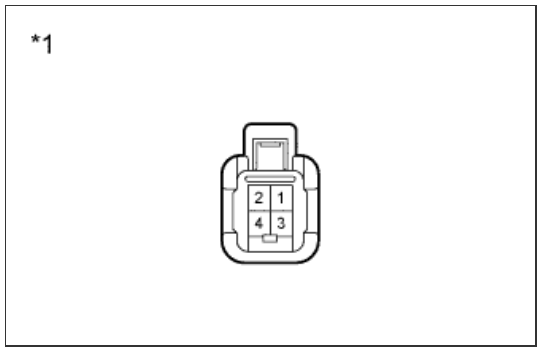
b. Measure the resistance according to the value(s) in the table below.

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. 3 Speaker Assembly)



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

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR

17.INSPECT REAR NO. 3 SPEAKER ASSEMBLY

a. Disconnect the J2 and J9 rear No. 3 speaker connectors.

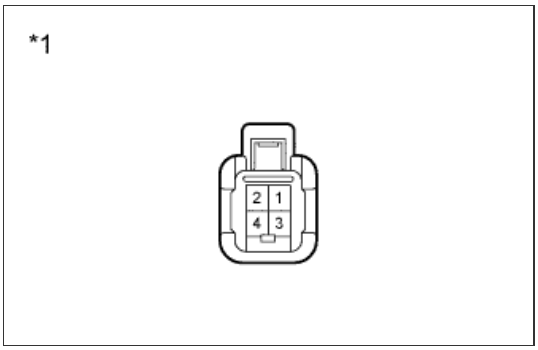
b. Measure the resistance according to the value(s) in the table below.

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 (Rear No. 3 Speaker Assembly)



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

OK

18.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - FRONT NO. 3 SPEAKER)

a. Disconnect the J2 and J9 rear No. 3 speaker connectors.

b. Disconnect the F52 stereo component amplifier assembly connector.

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

Standard Resistance:

for LH Side:

Tester Connection	Condition	Specified Condition
F52-4 (R-L+) - J9-1	Always	Below 1 Ω
F52-11 (R-L-) - J9-3	Always	Below 1 Ω
F52-4 (R-L+) - Body ground	Always	10 kΩ or higher
F52-11 (R-L-) - Body ground	Always	10 kΩ or higher

for RH Side:

Tester Connection	Condition	Specified Condition
F52-5 (R-R+) - J2-1	Always	Below 1 Ω
F52-12 (R-R-) - J2-3	Always	Below 1 Ω
F52-5 (R-R+) - Body ground	Always	10 kΩ or higher
F52-12 (R-R-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

19.INSPECT REAR HEADER SPEAKER

a. Disconnect the S8 and S9 rear header speaker connectors.

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

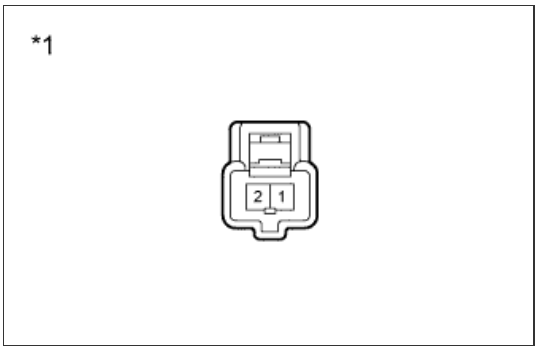
Standard Resistance:

Tester Connection	Condition	Specified Condition

1 -	Always	1.5 to 2.5 Ω

Text in Illustration

*1	Component without harness connected (Rear Header Speaker)



NG → REPLACE REAR HEADER SPEAKER (Click here)

OK

20.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - REAR HEADER SPEAKER)

a. Disconnect the S8 and S9 rear header speaker connectors.

b. Disconnect the F3 and F52 stereo component amplifier assembly connector.

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

Standard Resistance:

for LH Side:

Tester Connection	Condition	Specified Condition
F3-8 (SL+) - S9-1	Always	Below 1 Ω
F3-7 (SL-) - S9-2	Always	Below 1 Ω
F3-8 (SL+) - Body ground	Always	10 kΩ or higher
F3-7 (SL-) - Body ground	Always	10 kΩ or higher

for RH Side:

Tester Connection	Condition	Specified Condition
F52-2 (SR+) - S8-1	Always	Below 1 Ω
F52-7 (SR-) - S8-2	Always	Below 1 Ω
F52-2 (SR+) - Body ground	Always	10 kΩ or higher
F52-7 (SR-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

21.INSPECT NO. 1 WOOFER BOX SPEAKER

a. Disconnect the L4 No. 1 woofer box speaker connector.

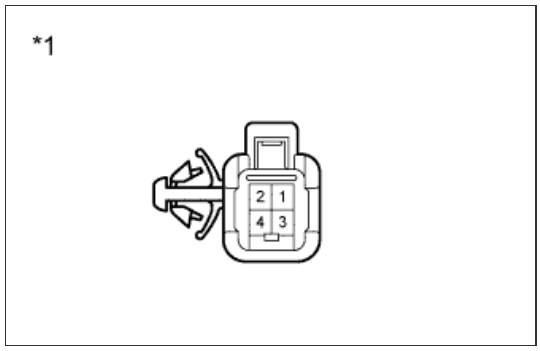
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Always	1.6 to 2.4 Ω
3 - 4	Always	1.6 to 2.4 Ω

Text in Illustration

*1	Component without harness connected (No. 1 woofer box speaker)



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

OK

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

a. Disconnect the L4 No. 1 woofer box speaker connector.

b. Disconnect the F3 and F52 stereo component amplifier assembly connectors.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F52-1 (WF1+) - L4-1	Always	Below 1 Ω
F52-6 (WF1-) - L4-2	Always	Below 1 Ω
F3-4 (WF2+) - L4-3	Always	Below 1 Ω
F3-10 (WF2-) - L4-4	Always	Below 1 Ω
F52-1 (WF1+) - Body ground	Always	10 kΩ or higher
F52-6 (WF1-) - Body ground	Always	10 kΩ or higher
F3-4 (WF2+) - Body ground	Always	10 kΩ or higher
F3-10 (WF2-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

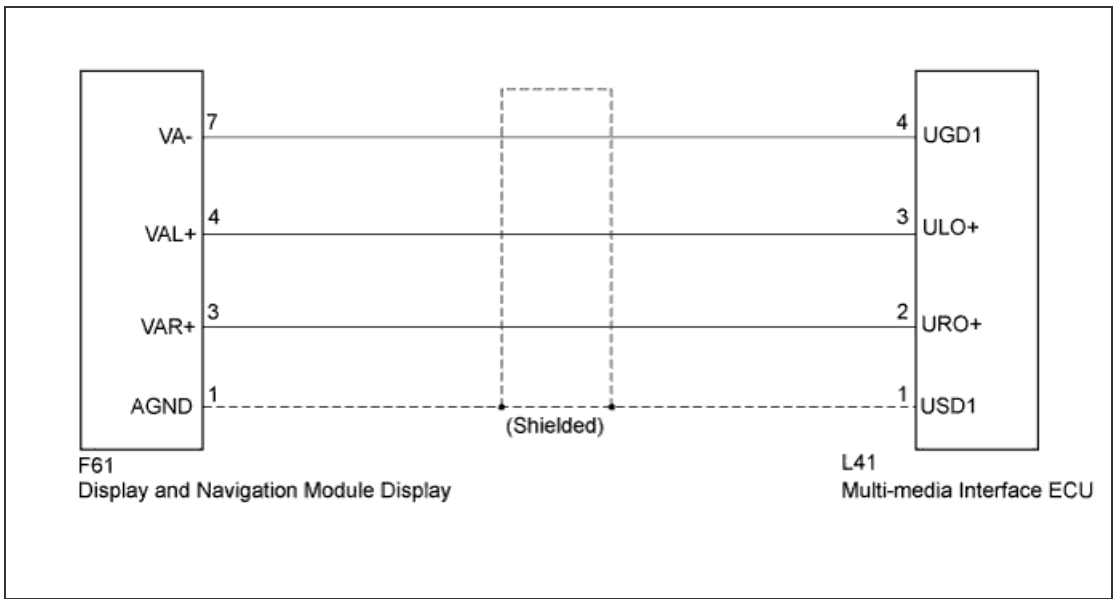
REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

for Preparation Click here

DESCRIPTION

The multi-media interface ECU sends a sound signal to the display and navigation module display through this circuit.
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, radio receiver assembly, display and navigation module display or speakers.

WIRIN DIA RAM



INSPECTION PROCEDURE

1 C E RNESS AND CONNECTOR (NAVI ATION MODULE DIS LAY - INTER E ECU)

a Disconnect the F61 display and navigation module display connector and L41 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
F61-1 (AGND) - L41-1 (USD1)	Always	Below 1 Ω
F61-3 (VAR+) - L41-2 (URO+)	Always	Below 1 Ω
F61-4 (VAL+) - L41-3 (ULO+)	Always	Below 1 Ω
F61-7 (VA-) - L41-4 (UGD1)	Always	Below 1 Ω
F61-1 (AGND) - Body ground	Always	10 kΩ or higher
F61-3 (VAR+) - Body ground	Always	10 kΩ or higher
F61-4 (VAL+) - Body ground	Always	10 kΩ or higher
F61-7 (VA-) - Body ground	Always	10 kΩ or higher

N → REPAIR OR REPLACE RNESS OR CONNECTOR

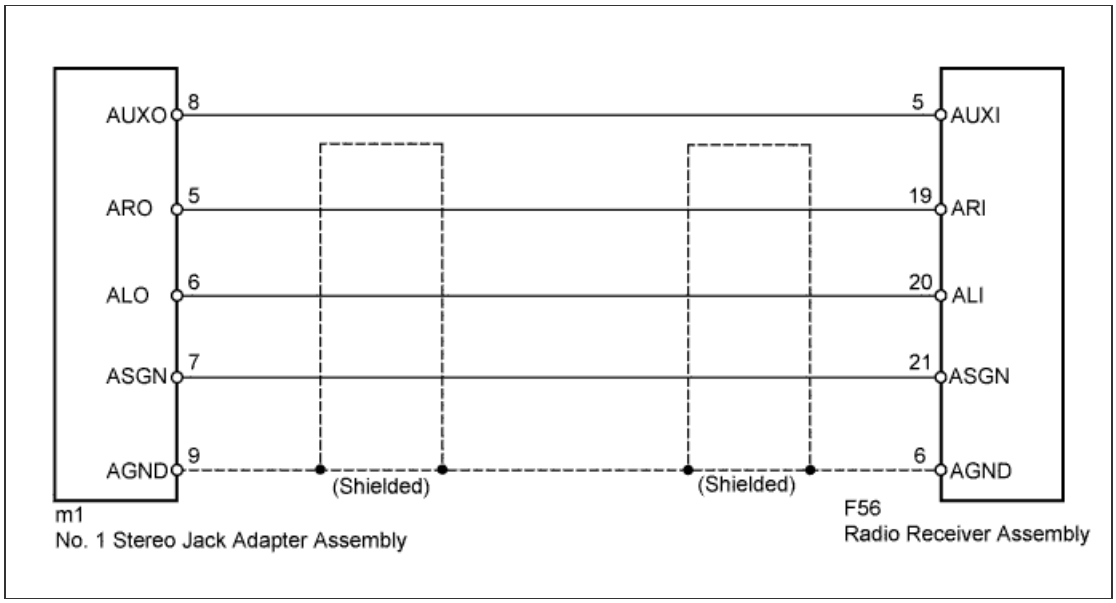
O → PROCEED TO NEXT SUSPECTED AREA S WN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

The No. 1 stereo jack adapter assembly sends an external device sound signal to the radio receiver assembly through this circuit.
The sound signal that has been sent is amplified by the stereo component amplifier assembly or radio receiver assembly, and then is sent to the speakers.
If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assembly, radio receiver assembly or speakers.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - NO. 1 STEREO JACK ADAPTER)

a. Disconnect the m1 No. 1 stereo jack adapter assembly connector and F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
m1-8 (AUXO) - F56-5 (AUXI)	Always	Below 1 Ω
m1-7 (ASGN) - F56-21 (ASGN)	Always	Below 1 Ω
m1-5 (ARO) - F56-19 (ARI)	Always	Below 1 Ω
m1-6 (ALO) - F56-20 (ALI)	Always	Below 1 Ω
m1-9 (AGND) - F56-6 (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

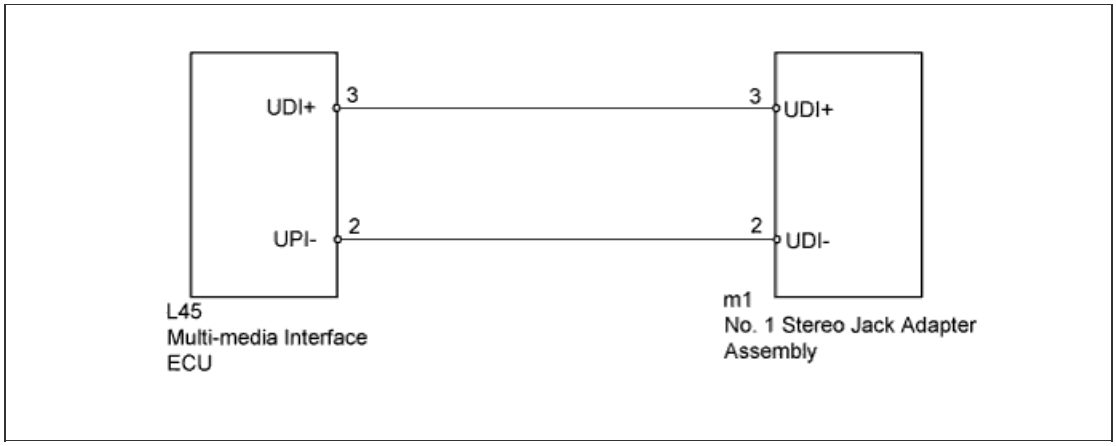
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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 (NO. 1 STEREO JACK ADAPTER - INTERFACE ECU)

a. Disconnect the L45 multi-media interface ECU connector and m1 No. 1 stereo jack adapter assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
m1-3 (UDI+) - L45-3 (UDI+)	Always	Below 1 Ω
m1-2 (UDI-) - L45-2 (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

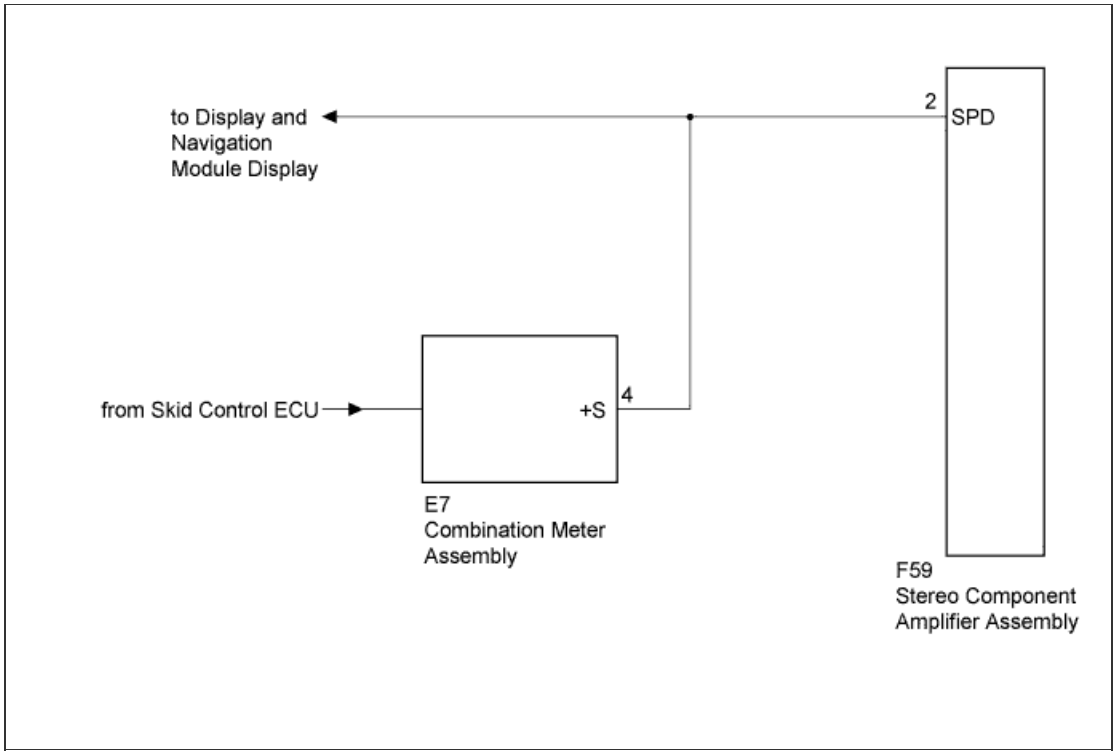
DESCRIPTION

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 F59 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
F59-2 (SPD) - E7-4 (+S)	Always	Below 1 Ω
F59-2 (SPD) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.INSPECT COMBINATION METER ASSEMBLY (OUTPUT WAVEFORM)

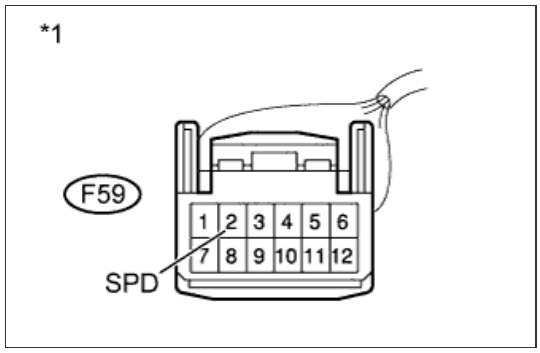
a. Reconnect the E7 combination meter assembly connector.

b. Check the input waveform.

i. Connect an oscilloscope to terminal F59-2 (SPD) and body ground.

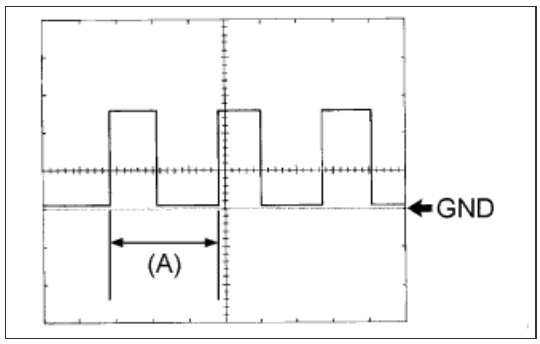
ii. Turn the engine switch on (IG).

iii. Turn a wheel slowly.



iv. Check the signal waveform according to the condition(s) in the table below.

Item	Condition
Measurement terminal	F59-2 (SPD) - Body ground
Tool setting	5 V/DIV., 20 ms./DIV.
Vehicle condition	Driving at approx. 20 km/h (12 mph)



Text in Illustration

*1	Front view of wire harness connector (to Stereo Component Amplifier Assembly)

OK:

The waveform is displayed as shown in the illustration.

HINT:

When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.

NG → REPLACE COMBINATION METER ASSEMBLY (Click here)

OK →

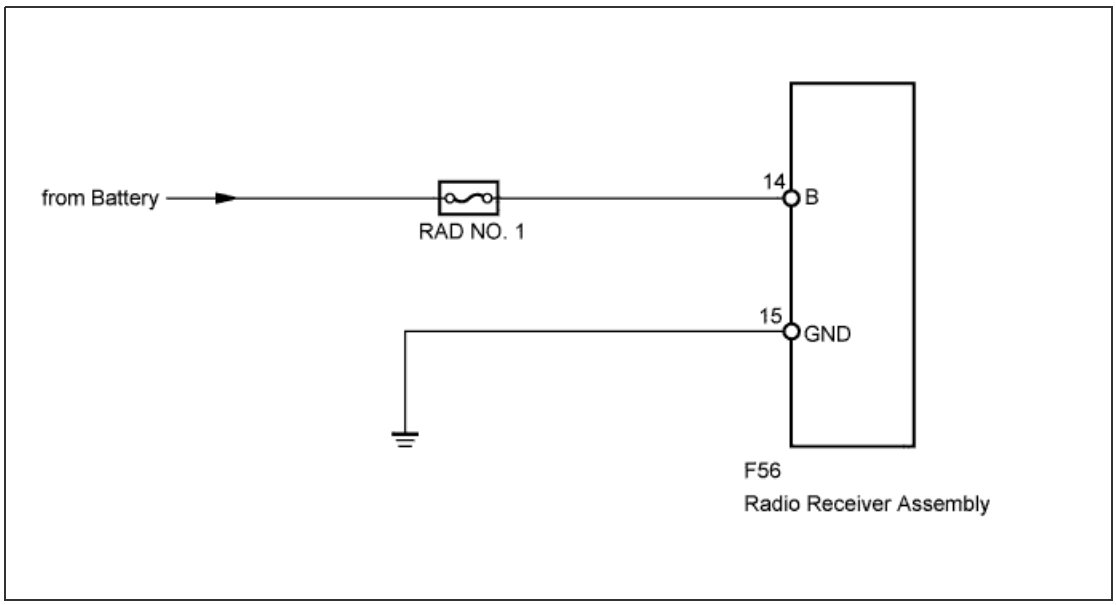
REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

for Preparation Click here

DESCRIPTION

This circuit provides power to the radio receiver assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

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

1.CHEC RNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - BATTERY AND BODY GROUND)

a. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F56-15 (GND) - Body ground	Always	Below 1 Ω

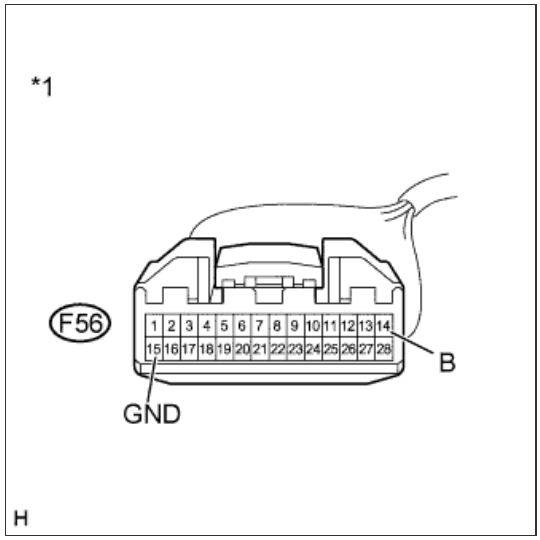
c. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
F56-14 (B) - F56-15 (GND)	Always	11 to 14 V

Te t in Illustration

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



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

O

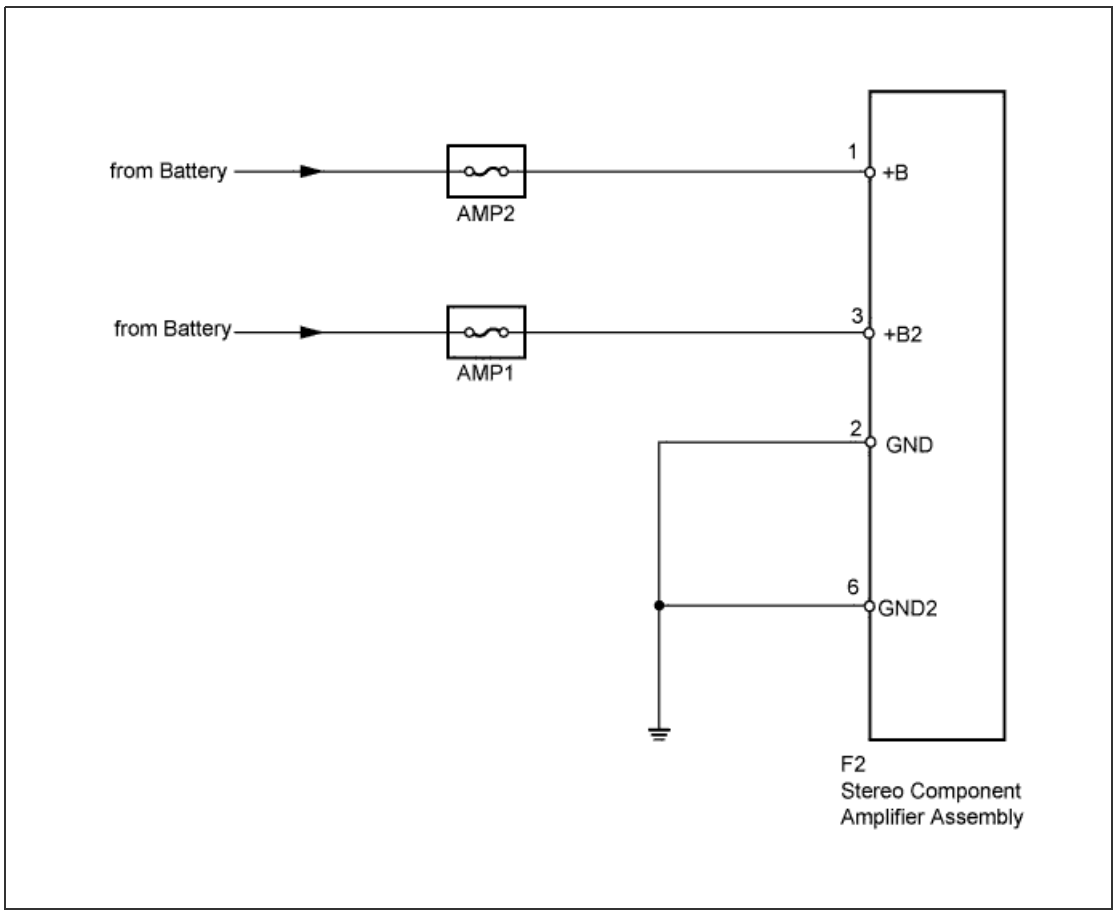
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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.

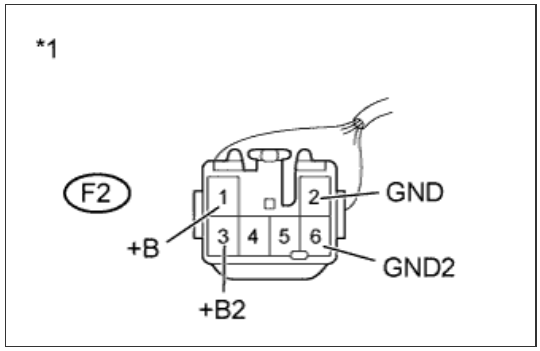
1.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - BATTERY AND BODY GROUND)

a. Disconnect the F2 stereo component amplifier assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F2-2 (GND) - Body ground	Always	Below 1 Ω
F2-6 (GND2) - Body ground	Always	Below 1 Ω



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

Standard Voltage:

Tester Connection	Condition	Specified Condition

F2-1 (+B) - F2-2 (GND)	Always	11 to 14 V
F2-3 (+B2) - F2-2 (GND)	Always	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Stereo Component Amplifier Assembly)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

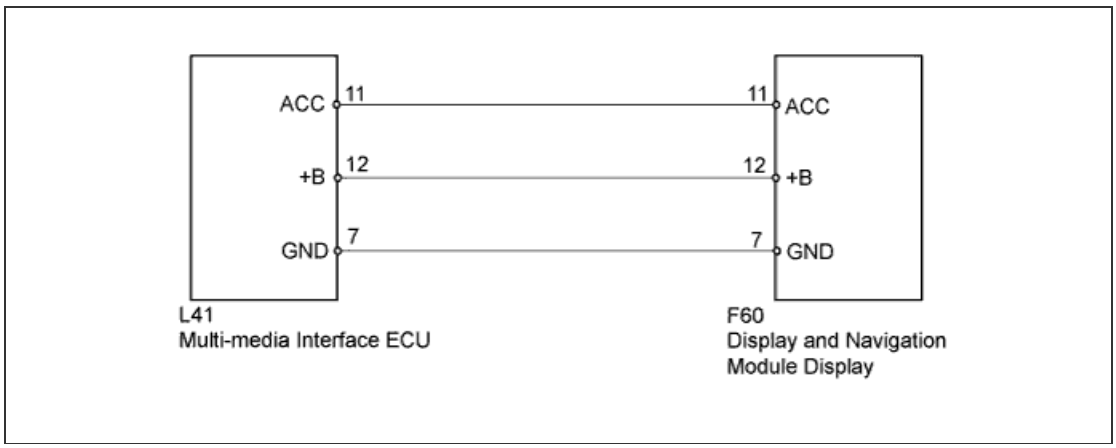
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This circuit provides power to the multi-media interface ECU.

WIRING DIAGRAM

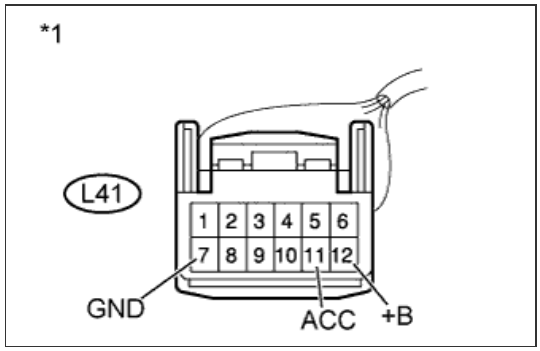


INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - BATTERY AND BODY GROUND)

a. Disconnect the L41 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
L41-12 (+B) - L41-7 (GND)	Always	11 to 14 V
L41-11 (ACC) - L41-7 (GND)	Engine switch on (ACC)	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Multi-media Interface ECU)

NG → Go to step 2

OK

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

2.CHECK HARNESS AND CONNECTOR (INTERFACE ECU - NAVIGATION MODULE)

a. Disconnect the F60 display and navigation module display connector.

b. Disconnect the L41 multi-media interface ECU connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L41-11 (ACC) - F60-11 (ACC)	Always	Below 1 Ω

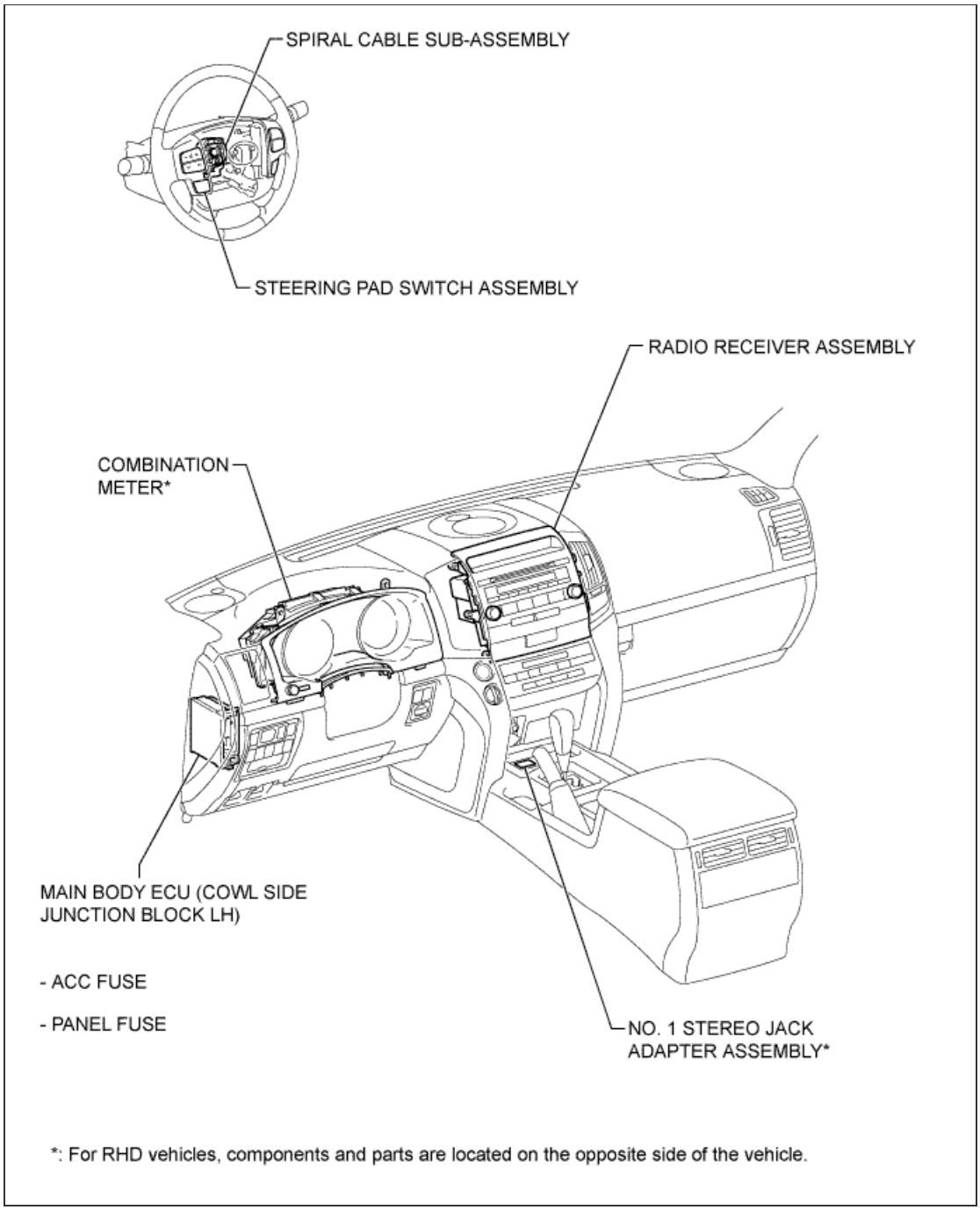
L41-12 (+B) - F60-12 (+B)	Always	Below 1 Ω
L41-7 (GND) - F60-7 (GND)	Always	Below 1 Ω
L41-11 (ACC) - Body ground	Always	10 kΩ or higher
L41-12 (+B) - Body ground	Always	10 kΩ or higher
L41-7 (GND) - Body ground	Always	10 kΩ or higher

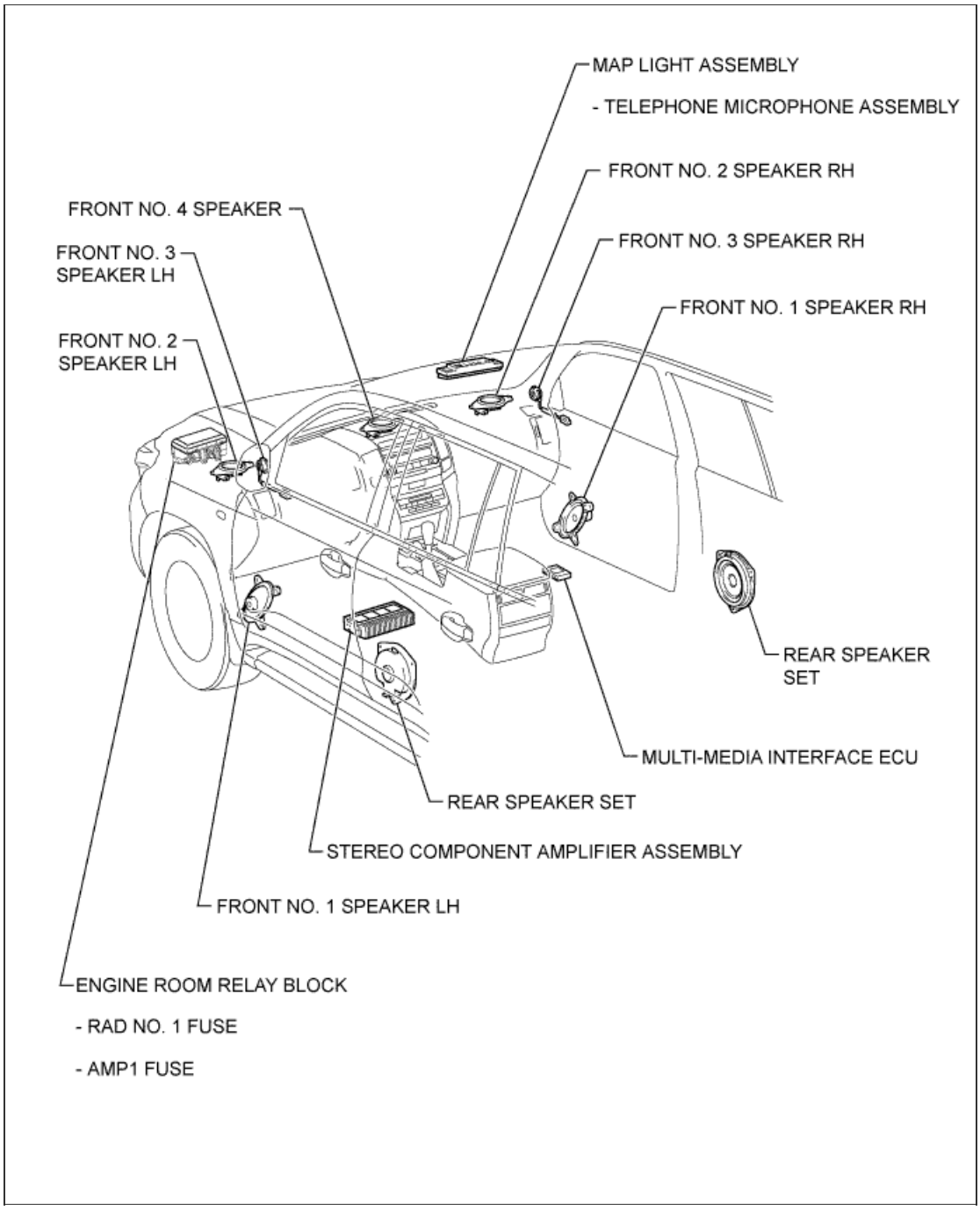
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

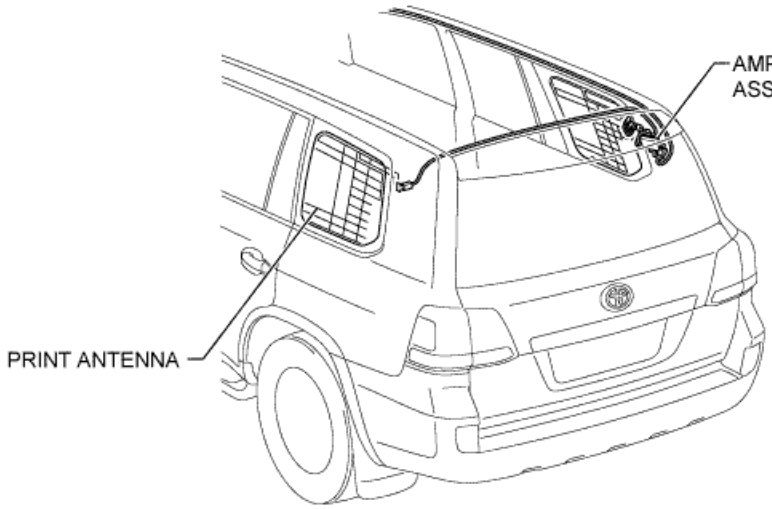
REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

for Preparation Click here

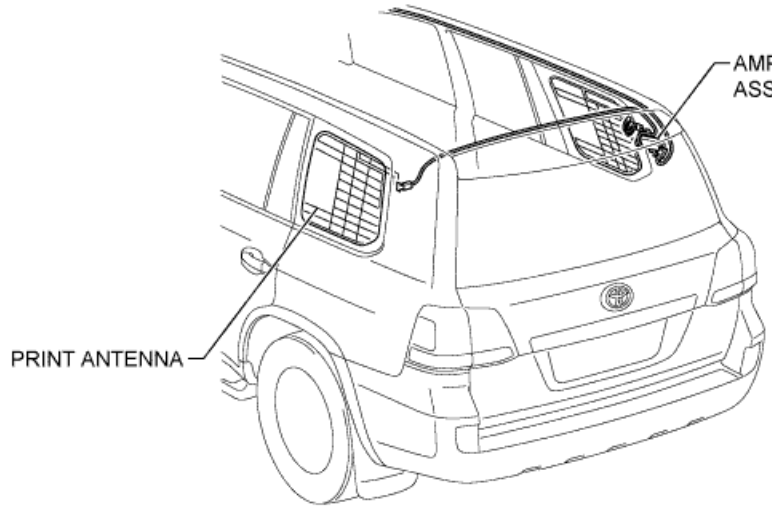



MAP LIGHT ASSEMBLY
- TELEPHONE MICROPHONE ASSEMBLY
FRONT NO. 2 SPEAKER RH
FRONT NO. 4 SPEAKER
FRONT NO. 3 SPEAKER RH
FRONT NO. 3 SPEAKER LH
FRONT NO. 1 SPEAKER RH
FRONT NO. 2 SPEAKER LH
REAR SPEAKER SET
MULTI-MEDIA INTERFACE ECU
REAR SPEAKER SET
STEREO COMPONENT AMPLIFIER ASSEMBLY
FRONT NO. 1 SPEAKER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

w/ Glass Breakage Sensor:

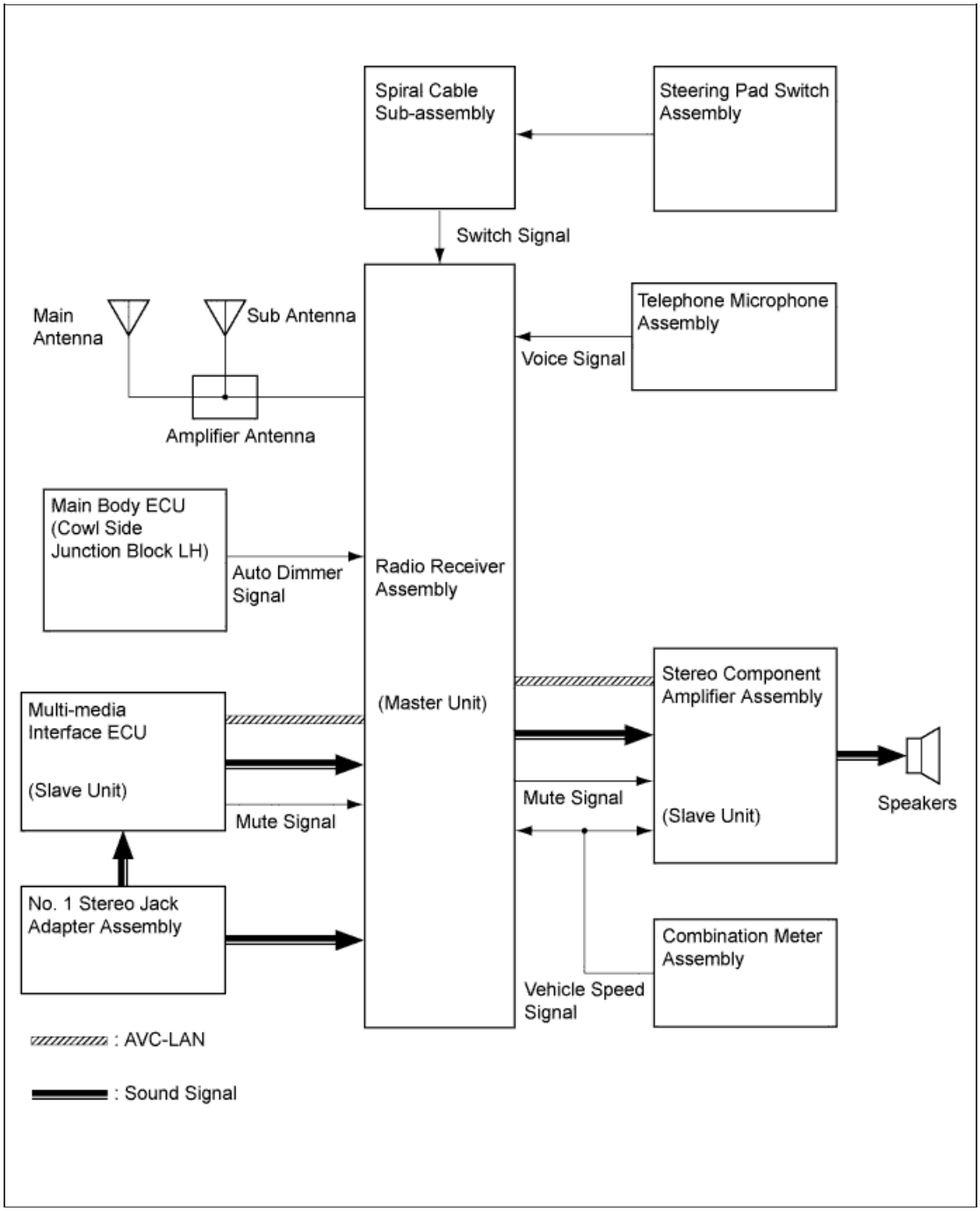


w/o Glass Breakage Sensor:



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:

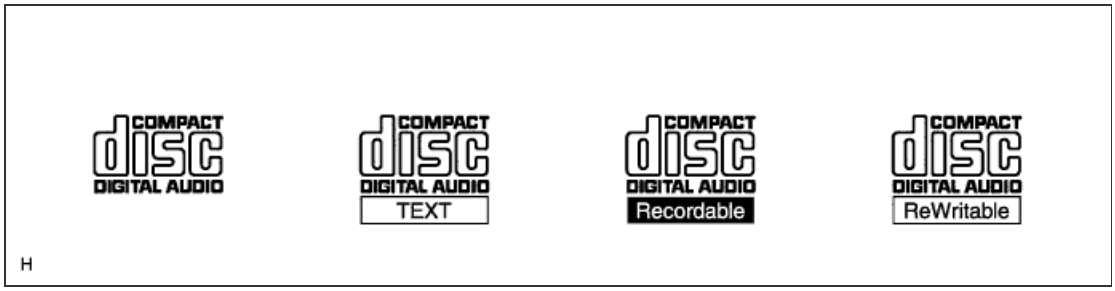
Do not look directly at the laser pickup because the CD player uses an invisible laser beam. Be sure to operate the player only as instructed.

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 follo ing marks



c. recautions 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

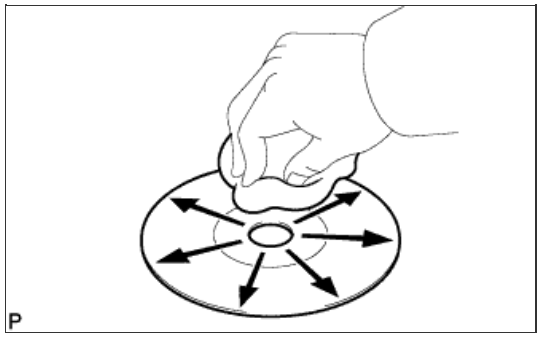
NOTICE:

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

i. dirt is on the disc surface, ipe it clean ith 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. layable M file standards

Compatible standard	M (M LAYER , M L LAYER
Compatible sampling frequency	• M LAYER , 44.1, 48 (k • L LAYER 1 , 22. , 24 (k
Compatible bit rate	• M LAYER , 8 , , 112, 128, 1 , 1 2, 224, 2 , (kbps) • M L LAYER , 8 , , 112, 128, 144, 1 (kbps) • Compatible ith BR
Compatible channel mode	tereo, oint stereo, dual channel, monaural

b. layable WMA file standards

Compatible standard	WMA er. , 8 and
Compatible sampling frequency	, 44.1, 48 (k
Compatible bit rate	• er. , 8 CBR48, , 8 , , 128, 1 , 1 2 (kbps) • er. CBR48, , 8 , , 128, 1 , 1 2, 2 , kbps) • Compatible ith 2 channel playback only

c. D tag and WMA tag

i. Additional te tual information called D tag can be input to M files. nformation such as song titles and artist names can be stored.

HINT:

This player is compatible ith the D tags of D er. 1. and 1.1, and D er. 2.2 and 2. . (umber of characters complies ith D er. 1. and 1.1.)

ii. Additional te tual information called WMA tag can be input to WMA files. nformation such as song titles and artist names can be stored.

d. Usable media

i. nly CD-R Ms, CD-Rs (CD-Recordable) and CD-RWs (CD-ReWritable) can be used to play M filesA

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-R M Mode 1, CD-R M A 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.

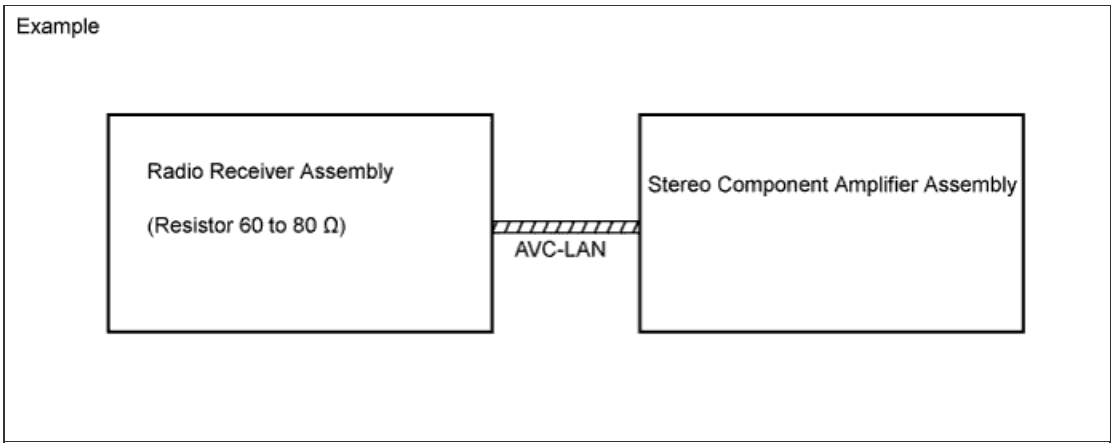
ii. Save MP3 or WMA files with an extension of ".mp3" or ".wma".

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

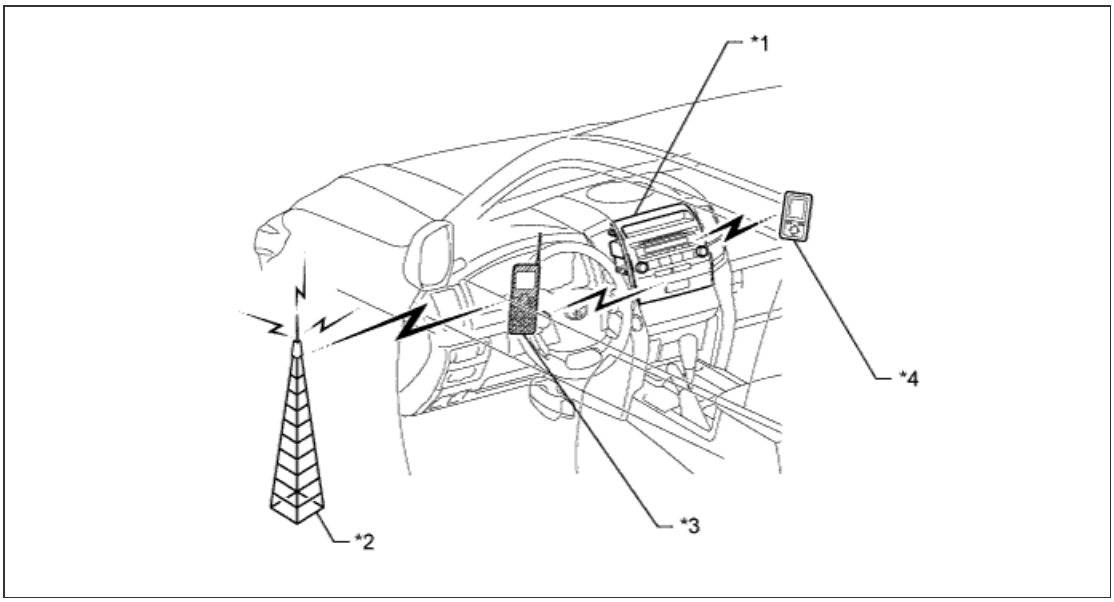
a. The audio system has a diagnostic function (the result is indicated on the master unit).

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 DESCRIPTION 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

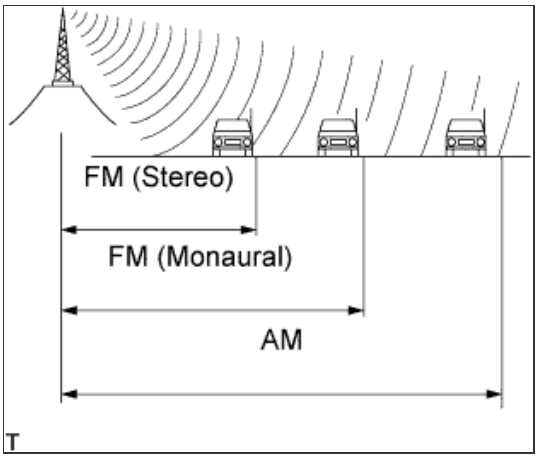
i. Radio broadcasts use the radio frequency bands shown in the table below.

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.

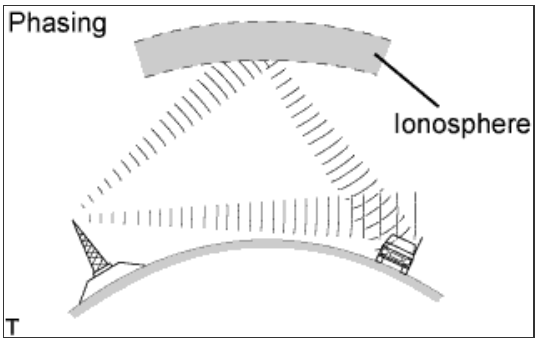


c. Radio reception problems

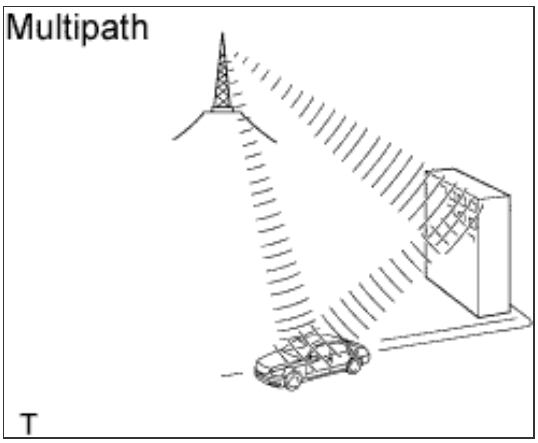
HINT:

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.

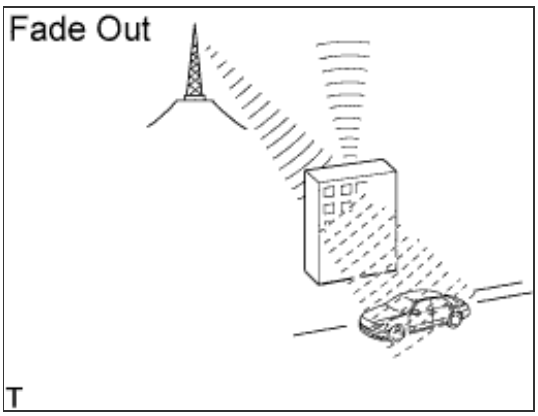
i. Phasing
AM broadcasts are susceptible to electrical interference and another kind of interference called phasing. Occurring only at night, phasing is the interference created when a vehicle receives 2 radio wave signals from the same transmitter. One signal is reflected off the ionosphere and the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



. 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 F ction

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

Bl tooth ction

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

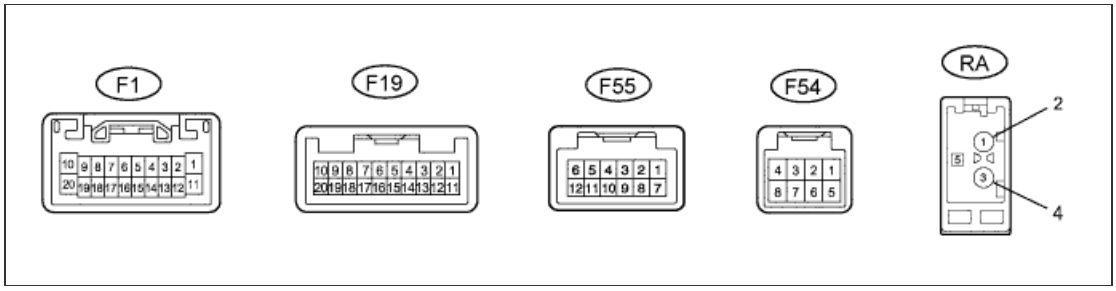
USB Audio System Function

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

for Preparation Click here

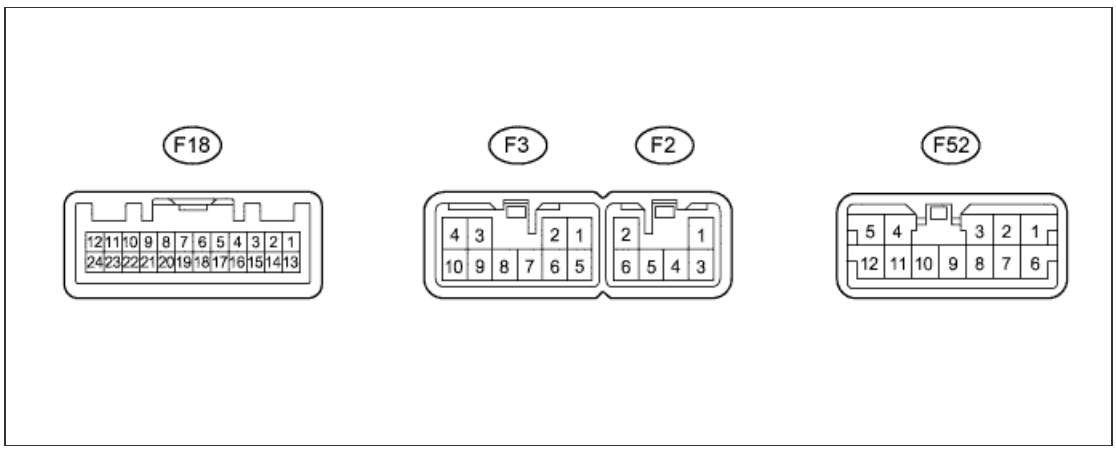
RADIO RECEIVER ASSEMBLY



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)	V - 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

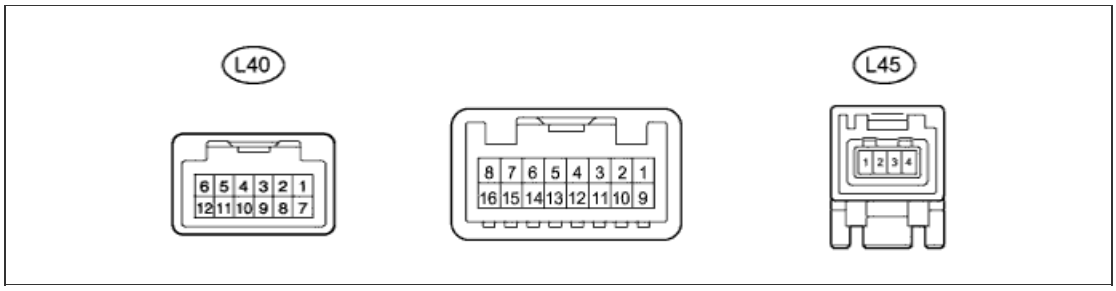
CHECK STEREO COMPONENT AMPLIFIER



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
L45-4 (UESG) - Body ground	-	Ground	Always	Below 1 V
L45-2 (UDI-)	-	Data signal	USB device or "iPod" connected	-
L45-3 (UDI+)	-	Data signal	USB device or "iPod" connected	-
L45-1 (UPO) - L45-4 (UESG)	-	Battery	Always	5 V

for Preparation Click here

HINT:

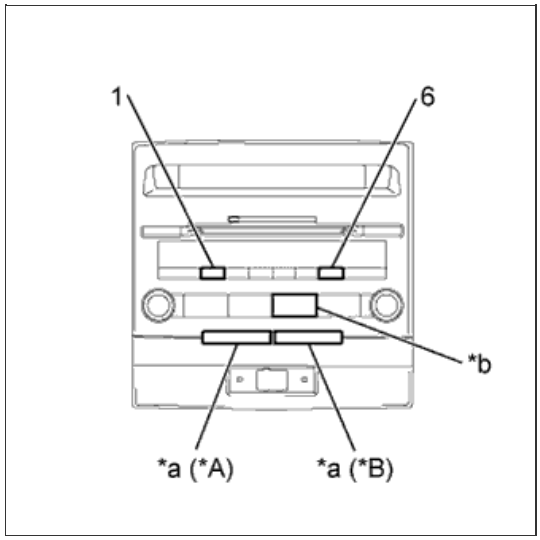
If the system cannot enter diagnostic mode, inspect the AVC-LAN and all the components that are connected to the AVC-LAN for short circuits and repair or replace the malfunctioning part (Click here).

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.



Te t in Ill stration

*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 S ITCH CHECK MODE

HINT:

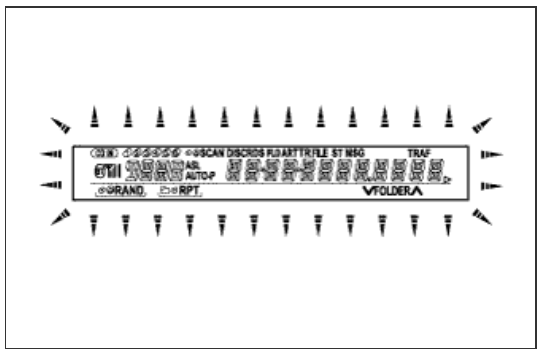
Illumination status of all switches and operations of the panel switches can be checked.

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 ACK ADAPTER CONNECTION CHECK MODE

a. Press the "SEEK TRACK UP" switch.

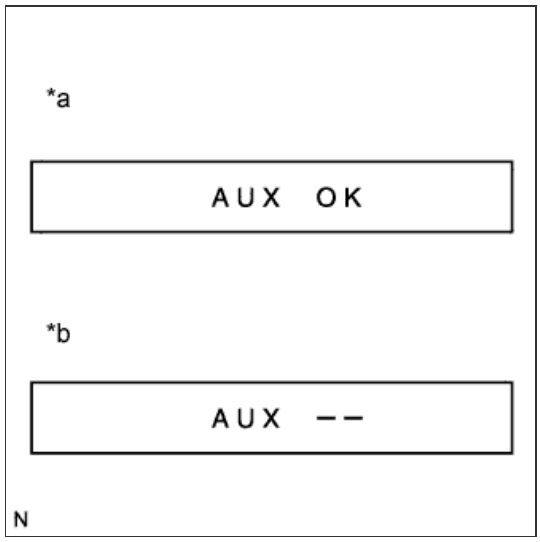
Te t in Ill stration

*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 ra di receiver assembly js lays AU KOor AU ON when it recogni es a connection to the stereo ak a pter.**
- **Vehicles that o not have a stereo ak a pter also have this f ntion.**
- **This f ntion is not to check connection stat s to an e ternal vice b t to check recognition of the stereo ak a pter.**



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".

INISHIN 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

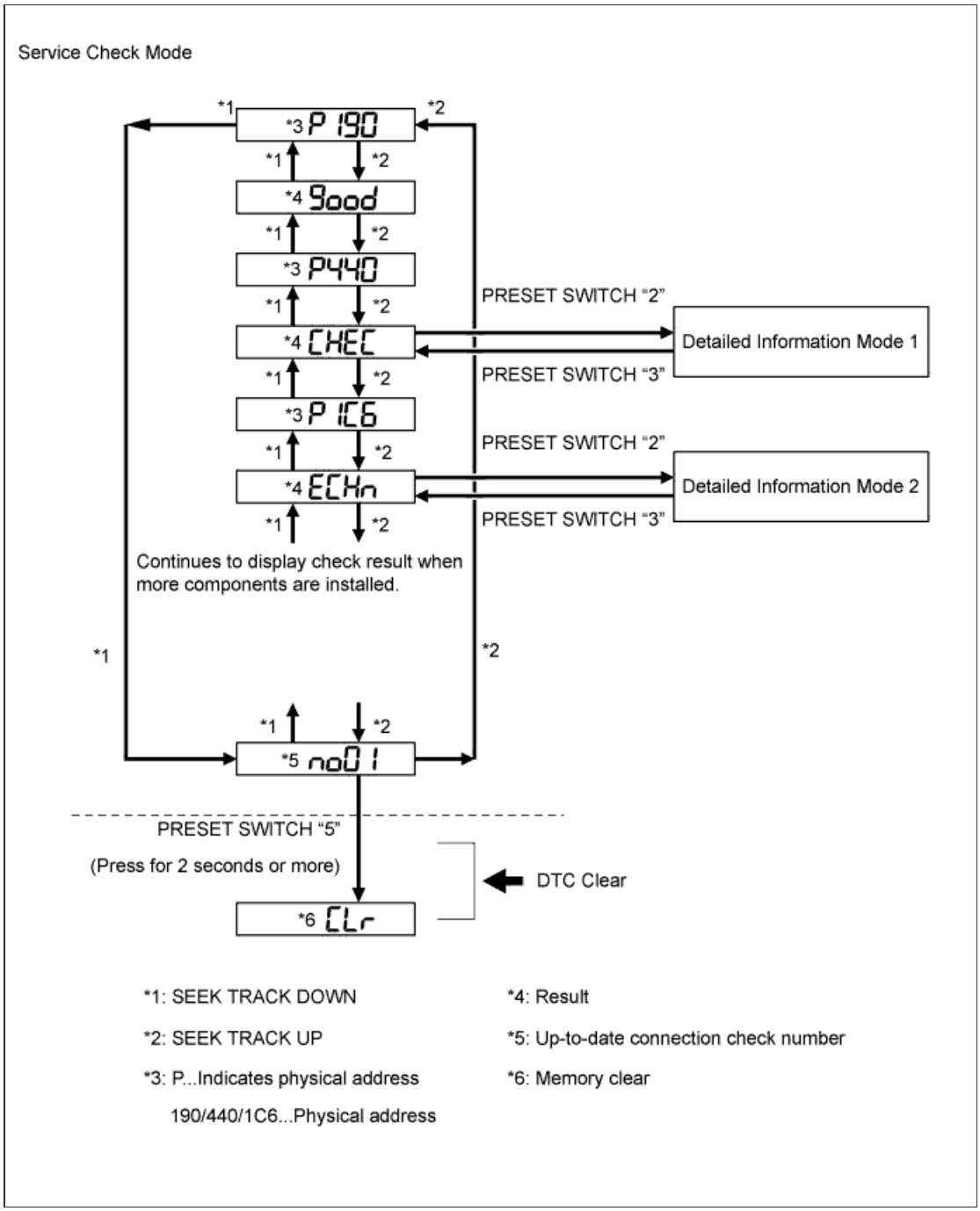
. Service check mode

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 res lts are goo the system ges that no DTC e ists.**
- **If preset switch pres sse in the service check mo e rst ce check is performe g ain.**
- **This ill stration is only an e ample an may ffer for each optional part an o tp t DTCs.**



e. Detailed information mode 1

HINT:

- **Detailed Information Mode is displayed when there is no response to System Check Result Request and DTCs 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.

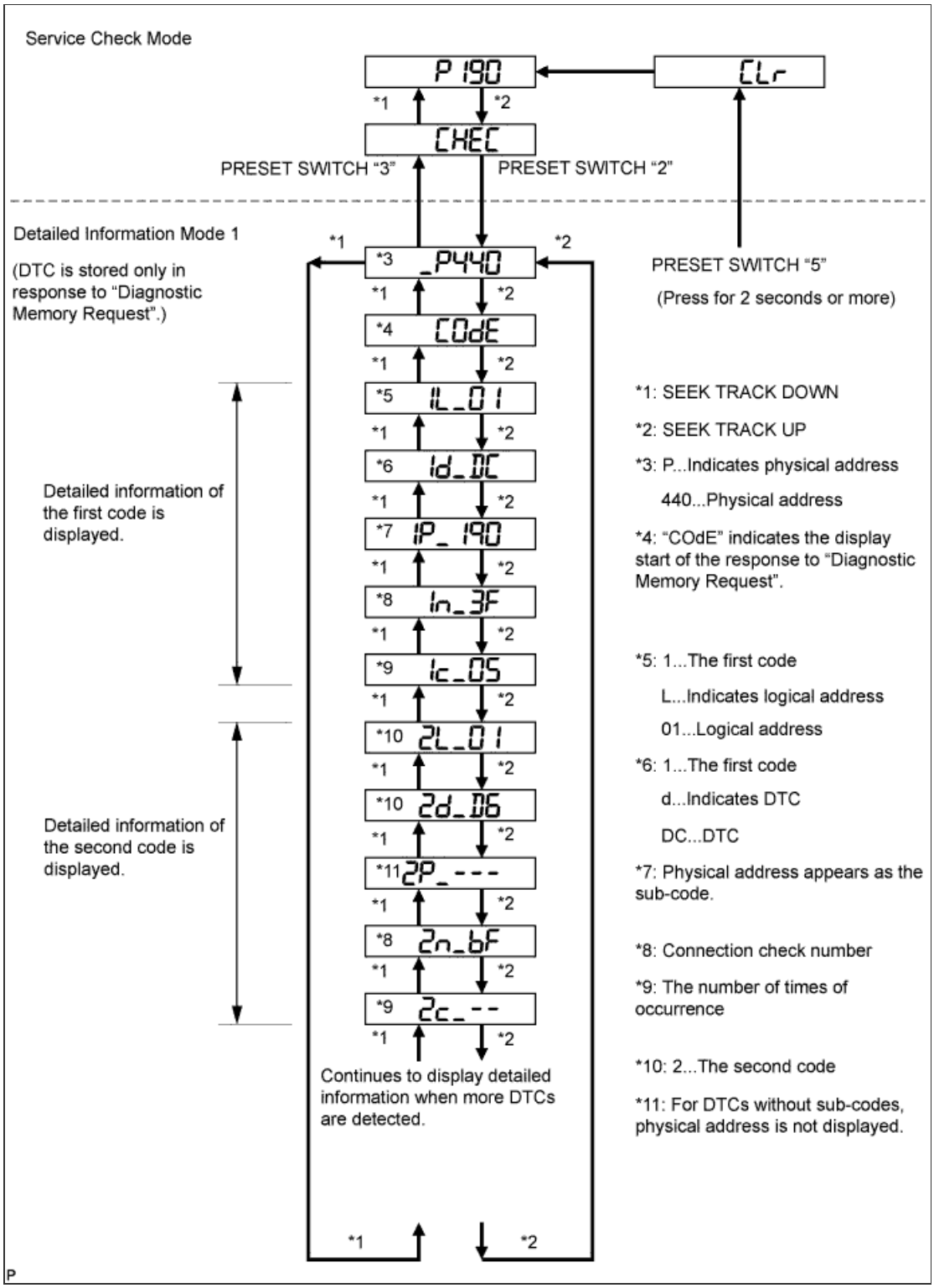
iii. Press the preset switch "3" to go to "Service Check Mode".

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 is displayed when DTCs are stored in responses to both System Check Result Requests and Diagnostic Memory Requests.**
- **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.

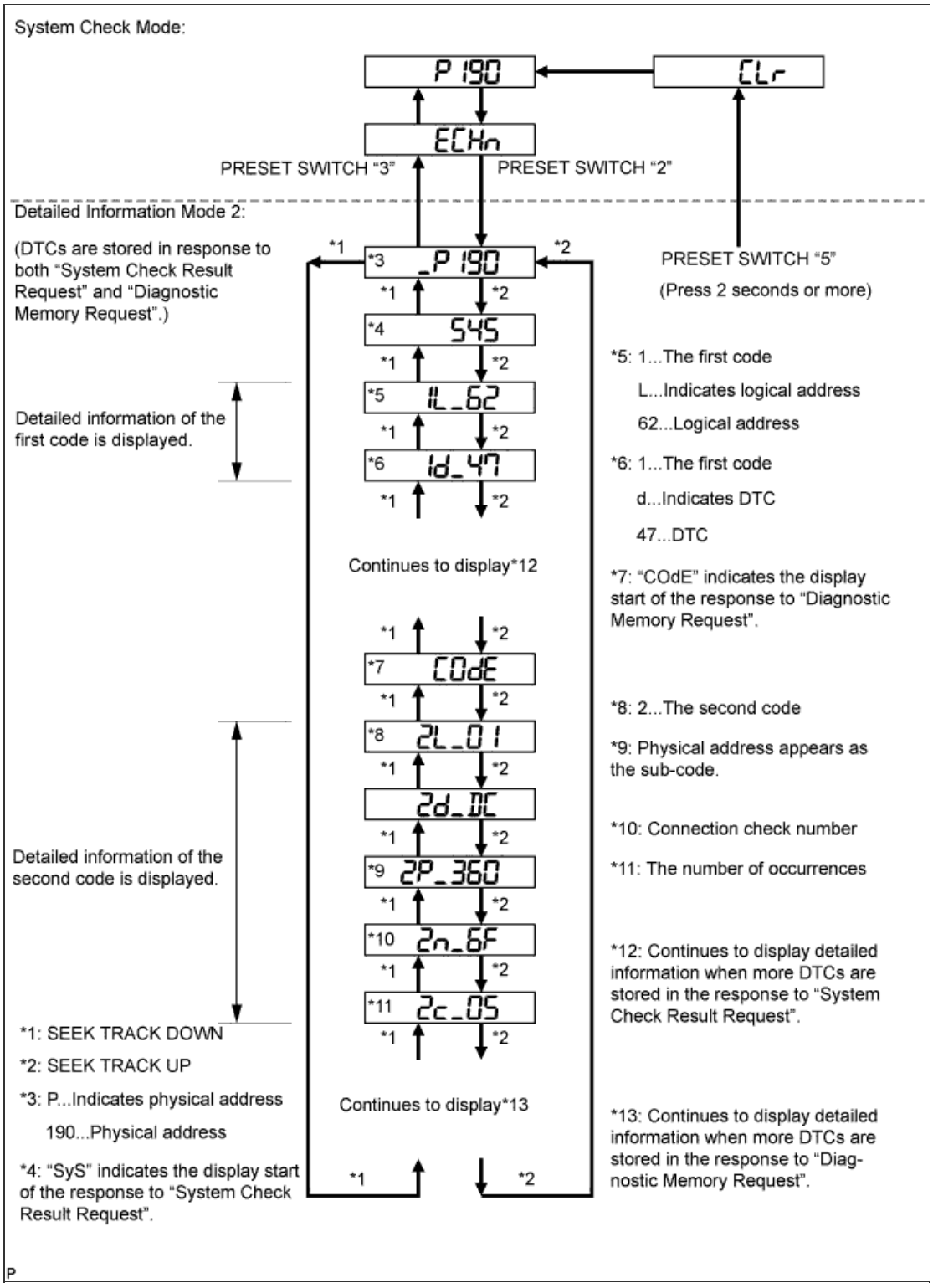
iii. Press preset switch "3" to go to "Service Check Mode".

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 subcode 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)

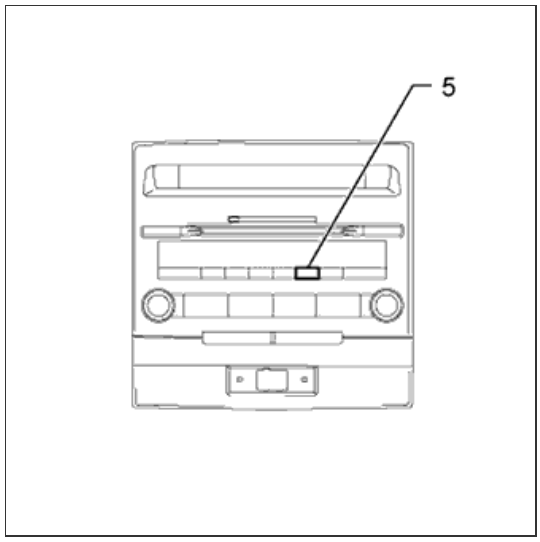
i. When preset switch "5" is pressed for 2 seconds or more during "Service Check Mode", the DTCs for all components are cleared. ("CLr" is displayed at this time.)

HINT:

- **A eeps n is emitte once when the DTC memory is completely cleare .**
- **hen the DTC memory for all the components is**

cleare only the component co es(physical a ress) are isplaye .

- After the DTC memory is cleare rvice Check Mo e ris store .



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 eeps n is emitte once when the DTC memory is completely cleare .
- hen the DTC memory is cleare only the component co e(physical a ress) is isplaye for the target component.
- After the DTC memory is cleare the Service Check Mo e ris store .
- To check DTCs press preset switch erform 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	Trouble Area	See page
01-21	ROM Error	Radio receiver assembly	Click here
01-22	RAM Error	Radio receiver assembly	Click here
01-2E	EEPROM Error	Radio receiver assembly	Click here
01-D5	Absence of Registration Unit	- 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	Click here
01-D6	No Master	- 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	Click here
01-D7	Connection Check Error	- 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	Click here
01-D8	No Response for Connection Check	- 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	Click here
01-D9	Last Mode Error	- 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	Click here
01-DA	No Response Against ON / OFF Command	- 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	Click here
01-DB	Mode Status Error	- 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	Click here
01-DC	Transmission Error	If the same sub-code is stored in other components, check power source circuit and communication system of all components shown by sub-code	Click here
01-DD	Master Reset	- 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	Click here
01-DE	Slave Reset	- 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	Click here
01-DF	Master Error	- 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	Click here
01-E0	Registration Complete Indication Error	-	Click here
01-E1	Voice Processing Device ON Error	- 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	Click here
01-E2	ON / OFF Indication Parameter Error	Radio receiver assembly	Click here
01-E3	Registration Demand Transmission	-	Click here
01-E4	Multiple Frame Incomplete	-	Click here
01-F2	No Response from Diagnosis Memory Request	Stereo component amplifier assembly	Click here

01-FF	No Response to Diagnosis Request	Stereo component amplifier assembly	Click here

Telephone

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

Radio Unit

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

In-dash CD Changer

DTC Code	Detection Item	Trouble Area	See page
63-10	CD Changer Mechanical Error	Radio receiver assembly	Click here
63-11	CD Insertion and Ejection Error	Radio receiver assembly	Click here
63-12	CD Reading Abnormal	Radio receiver assembly	Click here
63-41	Wrong Disc	- CD - Radio receiver assembly	Click here
63-42	Disc cannot be Read	- CD - Radio receiver assembly	Click here
63-43	CD-ROM Abnormal	- CD - Radio receiver assembly	Click here
63-44	CD Abnormal	Radio receiver assembly	Click here
63-45	Eject Error	Radio receiver assembly	Click here
63-46	Scratched / Reversed Disc	- CD - Radio receiver assembly	Click here
63-47	High Temperature	Radio receiver assembly	Click here
63-48	Excess Current	Radio receiver assembly	Click here
63-50	Tray Insertion / Ejection Error	Radio receiver assembly	Click here
63-51	Elevator Error	Radio receiver assembly	Click here
63-52	Clamp Error	Radio receiver assembly	Click here
63-78	DSP Error	-	Click here
63-7D	Disc cannot be Played	- CD - Radio receiver assembly	Click here
63-7E	No Playable Files	- CD - Radio receiver assembly	Click here
63-7F	Copyright Protection Error	- CD - Radio receiver assembly	Click here

Speakers

DTC Code	Detection Item	Trouble Area	See page
74-40	Short in Speaker Circuit	- Wire harness or connector - Speaker - Stereo component amplifier assembly	Click here

Multi-media Interface ECU

DTC Code	Detection Item	Trouble Area	See page
CB-10	System Microcomputer Malfunction	- Multi-media interface ECU - USB device or "iPod"	Click here
CB-11	Media Interface Microcomputer Malfunction	- Multi-media interface ECU - USB device or "iPod"	Click here
CB-12	CD-LSI Malfunction	- Multi-media interface ECU - USB device or "iPod"	Click here
		- USB device or "iPod"	

CB-13	USB Over Current Detection	- No. 1 stereo jack adapter assembly - Wire harness or connector - Multi-media interface ECU	Click here
CB-43	USB Device Class/Protocol Error	- Multi-media interface ECU - USB device	Click here
CB-44	USB File System Error	- Multi-media interface ECU - USB device	Click here
CB-45	USB Communication Error	- Multi-media interface ECU - USB device	Click here
CB-46	iPod Control Error	- Multi-media interface ECU - "iPod"	Click here
CB-47	iPod Communication Error	- Multi-media interface ECU - "iPod"	Click here
CB-50	iPod Malfunction	- Multi-media interface ECU - "iPod"	Click here
CB-51	iPod Protocol Error	- Multi-media interface ECU - "iPod"	Click here
CB-52	No Playable iPod File Exists	"iPod"	Click here
CB-7D	iPod Protocol Unsupported	- Multi-media interface ECU - "iPod"	Click here
CB-7E	No Playable USB File Exists	USB device	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

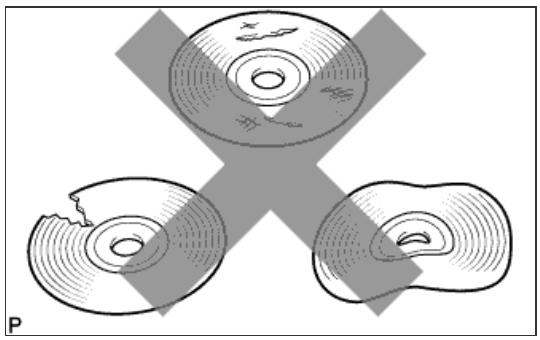
HINT:

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

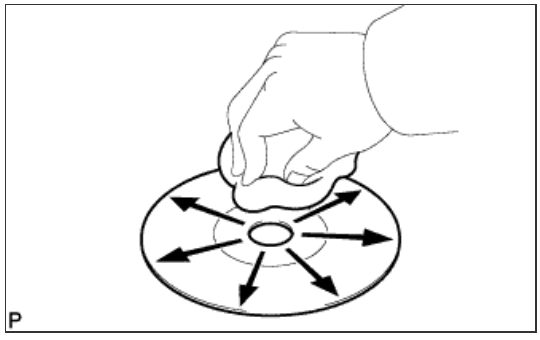
2.DISC CLEANING

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. Rec eck or DTCs and c eck i t e same trouble occurs a ain.

OK:
Malfunction disappears.

NG → Go to step 5

OK

END

5.REPLACE DISC AND RECHECK

a. Replace t e disc and rec eck.

i. Replace t e disc it a kno n ood one.

ii. Clear t e DTCs (Click ere).

iii. Rec eck or DTCs and c eck i t e same trouble occurs a ain.

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

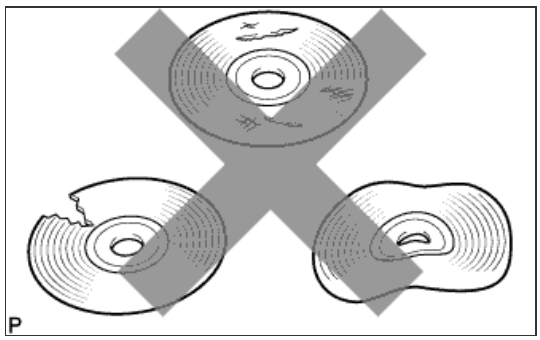
HINT:

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

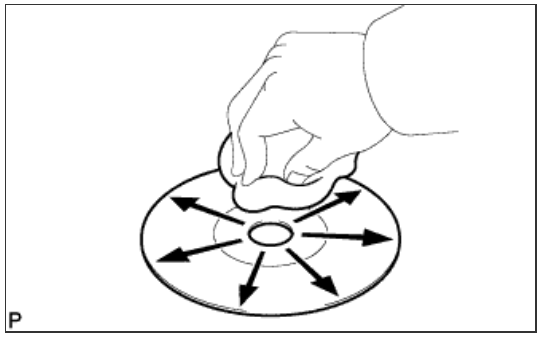
2.DISC CLEANING

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. Rec eck or DTCs and c eck i t e same trouble occurs a ain.

OK:
Malfunction disappears.

NG → Go to step 5

OK

END

5.REPLACE DISC AND RECHECK

a. Replace t e disc and rec eck.

i. Replace t e disc it a kno n ood one.

ii. Clear t e DTCs (Click ere).

iii. Rec eck or DTCs and c eck i t e same trouble occurs a ain.

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 i abnormal.	• CD • Radio recei er a embl

INSPECTION PROCEDURE

HINT:

A ter t e in pection i completed, clear t e DTC .

1.CHECK IF A PROPER CD IS INSERTED

a. Make ure t at a upported CD i u ed, and t at it i not de ormed, la ed, tained, deteriorated or ot er i e de ecti e.

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 t e CD and rec eck.

i. Replace t e CD it a kno n ood one.

ii. Clear t e DTC (Click ere).

iii. Rec eck or DTC and c eck i t e ame trouble occur a ain.

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:

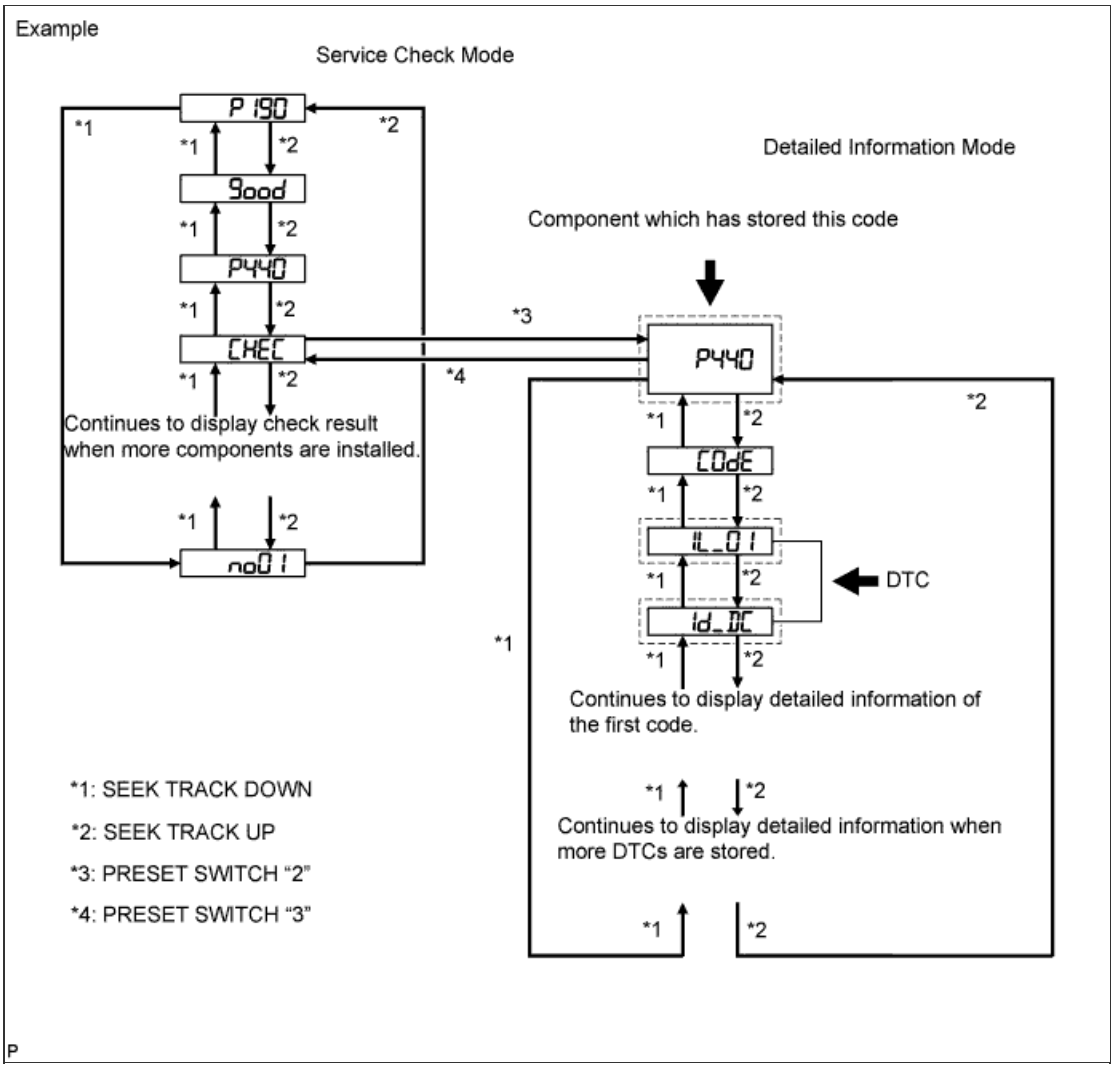
Refer to Radio Receiver Power Source Circuit (Click here).

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.

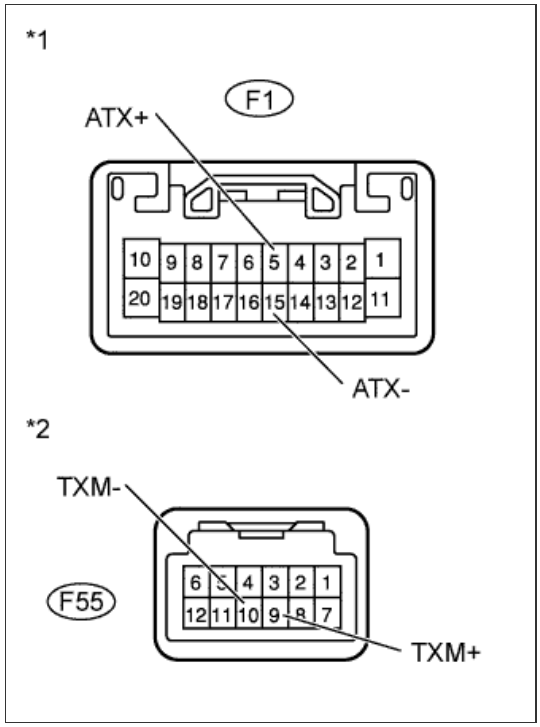
b. Measure the resistance according to the value(s) in the table below.

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).

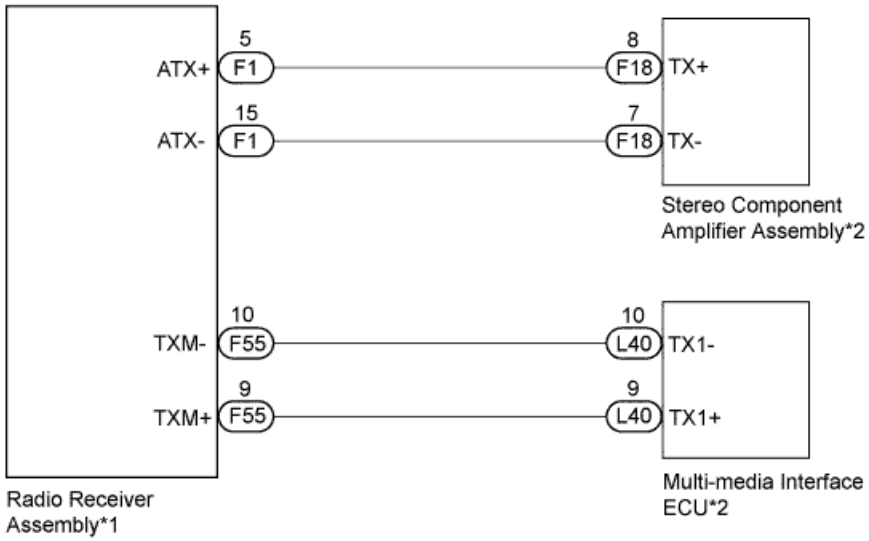
a. Referring to the following AVC-LAN wiring diagram, check the AVC-LAN circuit between the radio receiver assembly and component which has stored this code.

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:

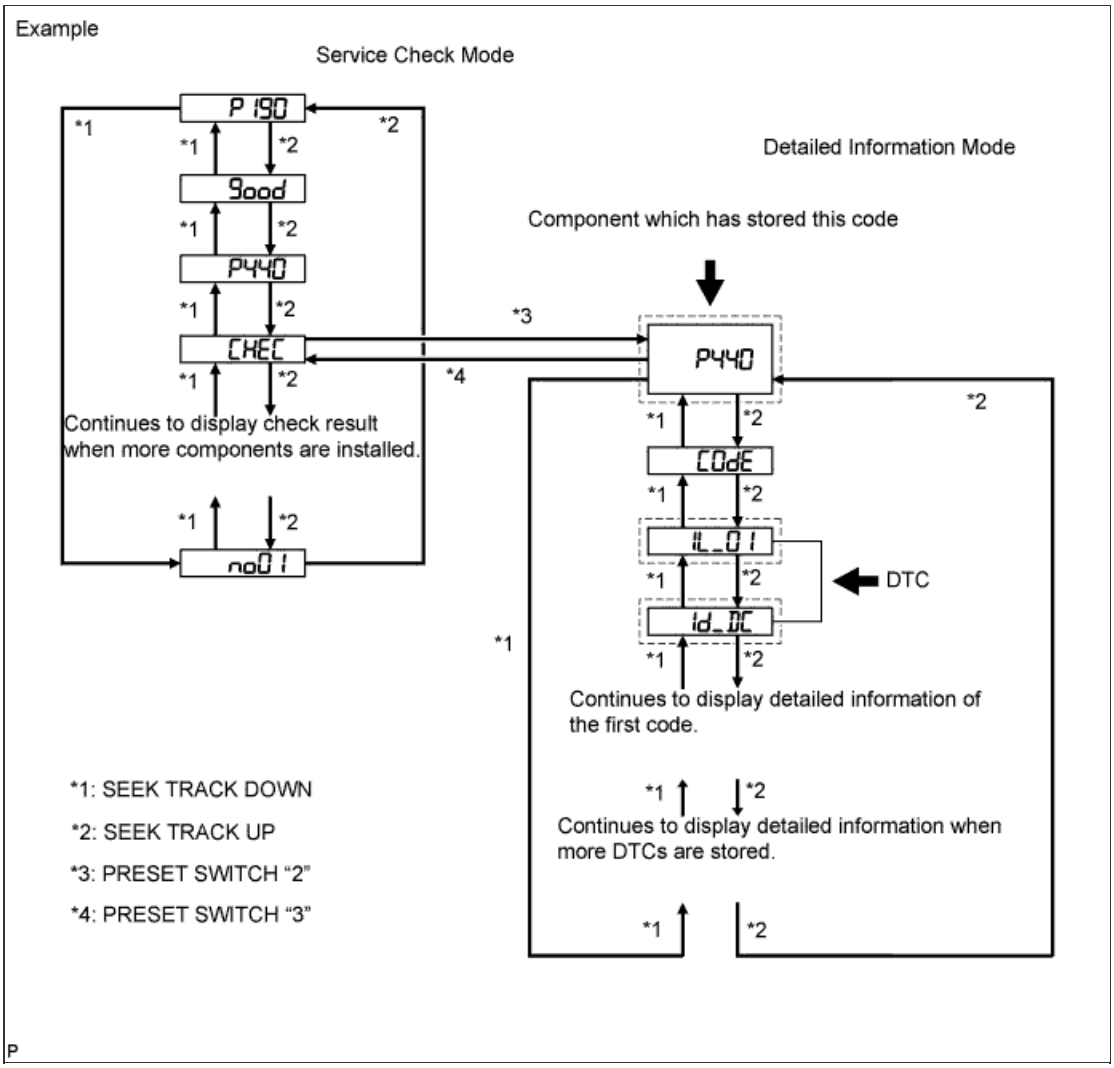
Refer to Radio Receiver Power Source Circuit (Click here).

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.

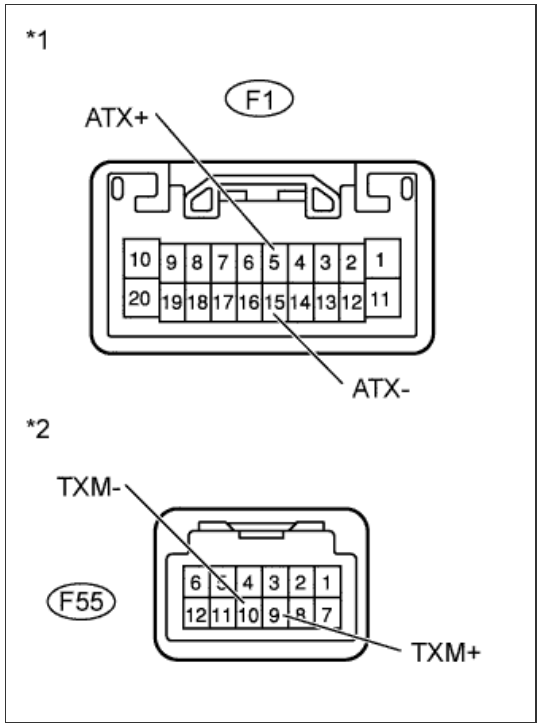
b. Measure the resistance according to the value(s) in the table below.

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).

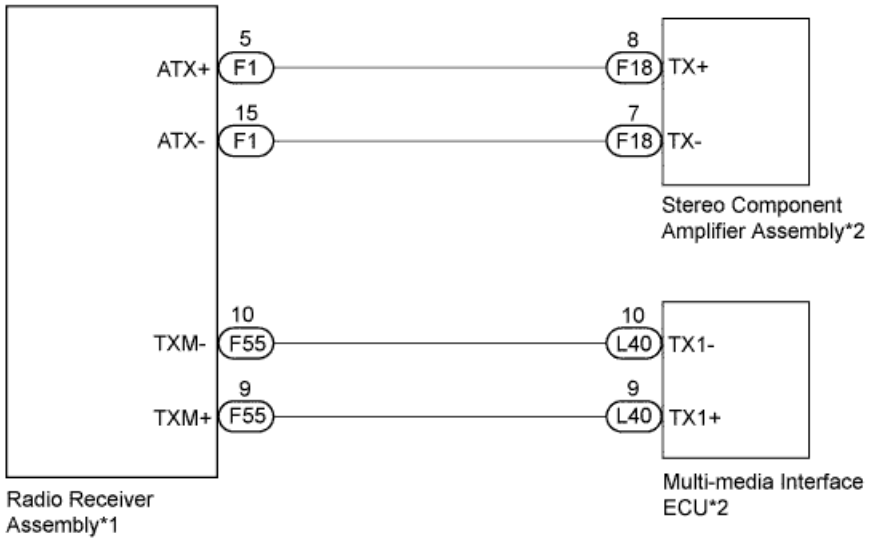
a. Referring to the following AVC-LAN wiring diagram, check the AVC-LAN circuit between the radio receiver assembly and component which has stored this code.

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	Scratc e or dirt i found on CD urface or CD i et up de do n.	• CD • adio receiver a e bl

INSPECTION PROCEDURE

HINT:

After t e in ection i co leted, clear t e DTC .

1.CHECK THAT CD IS INSERTED PROPERLY

a. C eck et er or not t e CD i in erted up de do n.

OK:
CD is properly inserted.

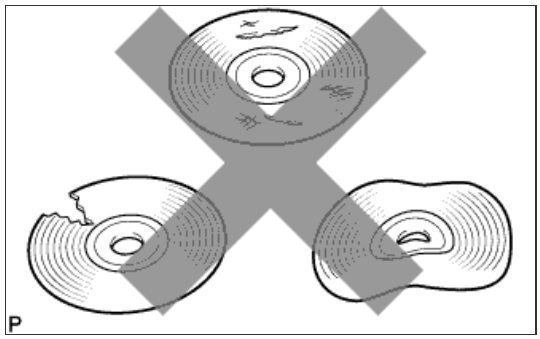
NG → REPLACE CD AND RECHECK

OK

2.CHECK DISC

a. C eck t at t e di c i not defor ed or cracked.

OK:
No deformation or cracks on the disc



NG → CHANGE DISC

OK

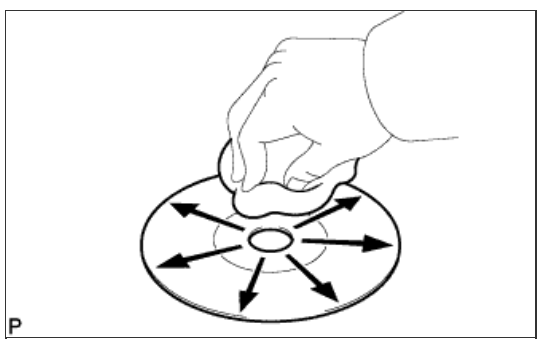
3.DISC CLEANING

a. Di c cleanin

i. f dirt i on t e di c urface, ipe it clean it a oft clot fro t e in de to t e out de in a radial direction.

NOTICE:

Do not u e a conventional record cleaner or anti- tatic pre ervative.



NEXT

4.CLEAR DTC

a. Clear t e DTC (Click ere).

NEXT

5.RECHECK FOR DTC

a. ec eck for DTC and c eck if t e a e trouble occur a ain.

OK:
Malfunction disappears.

NG → Go to step 6

OK

END

6.REPLACE CD AND RECHECK

a. eplace t e di c and rec eck.

i. eplace t e di c it a kno n ood one.

ii. Clear t e DTC (Click ere).

iii. ec eck for DTC and c eck if t e a e trouble occur a ain.

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:

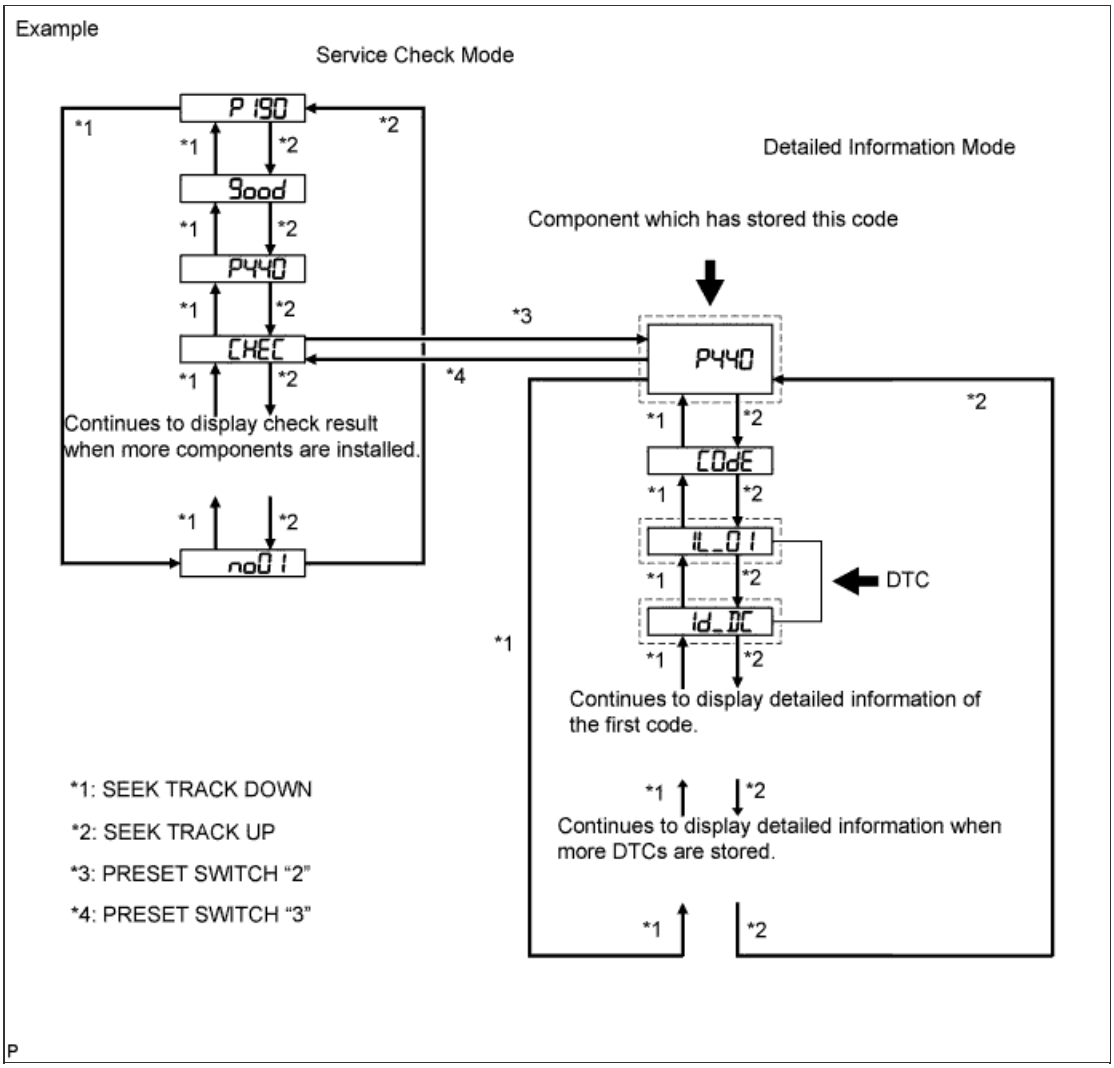
For the list of the components shown by sub-codes, refer to the table in step 2.

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.

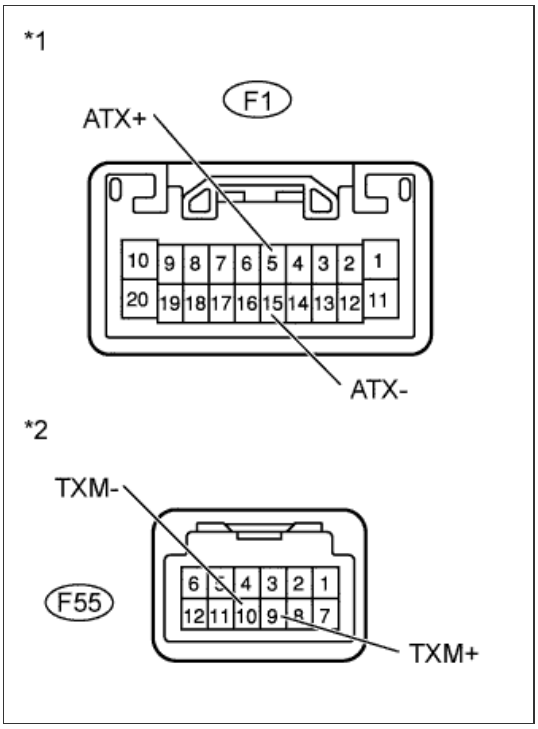
b. Measure the resistance according to the value(s) in the table below.

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)

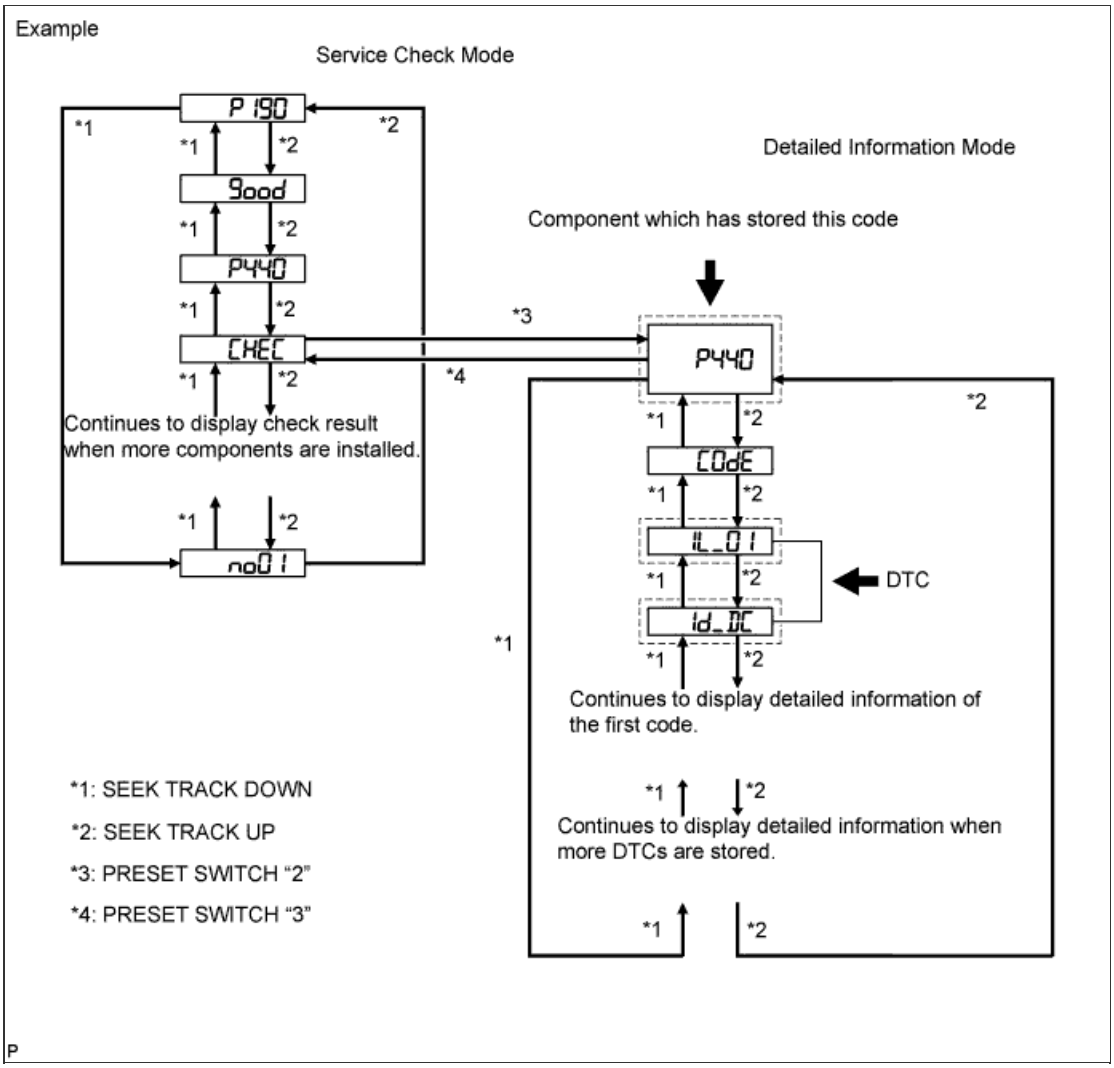


NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

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:

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

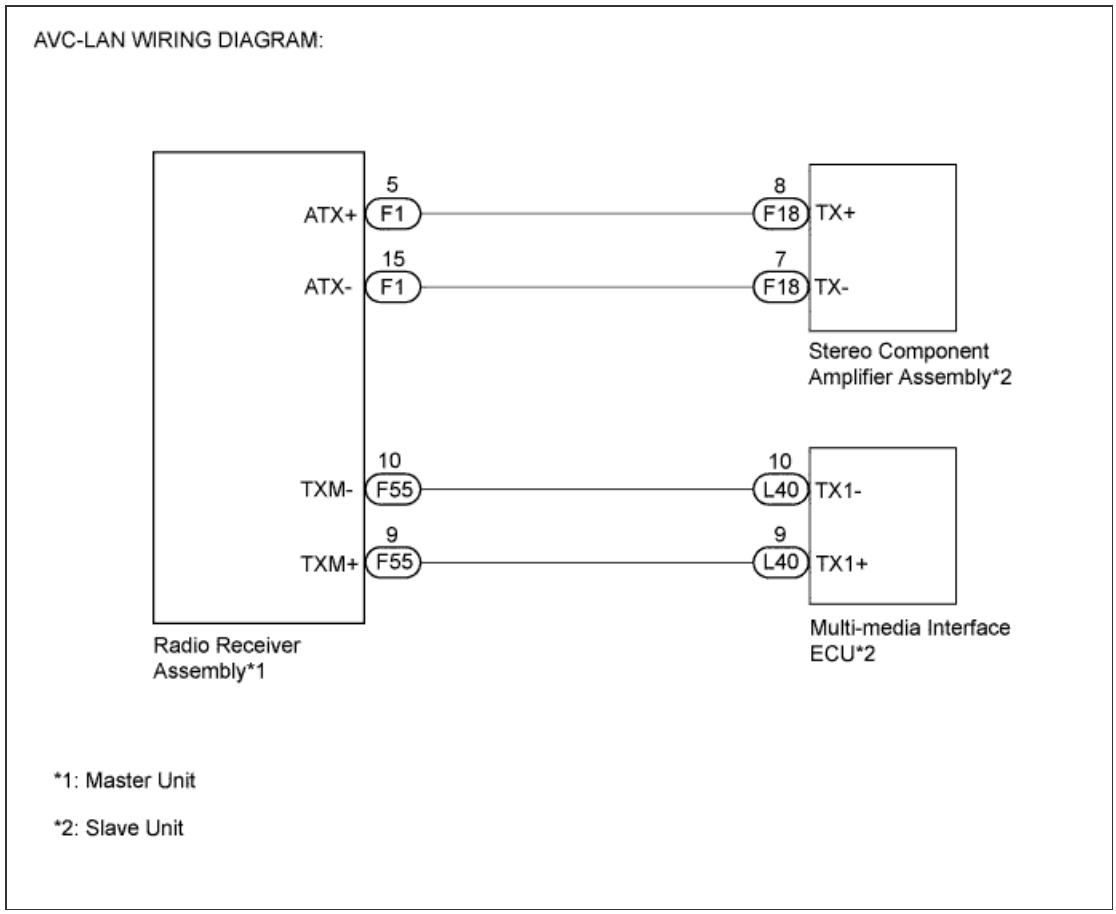
a. Referring to the following AVC-LAN wiring diagram, check the AVC-LAN circuit between the radio receiver assembly and component which has stored this code.

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:



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.

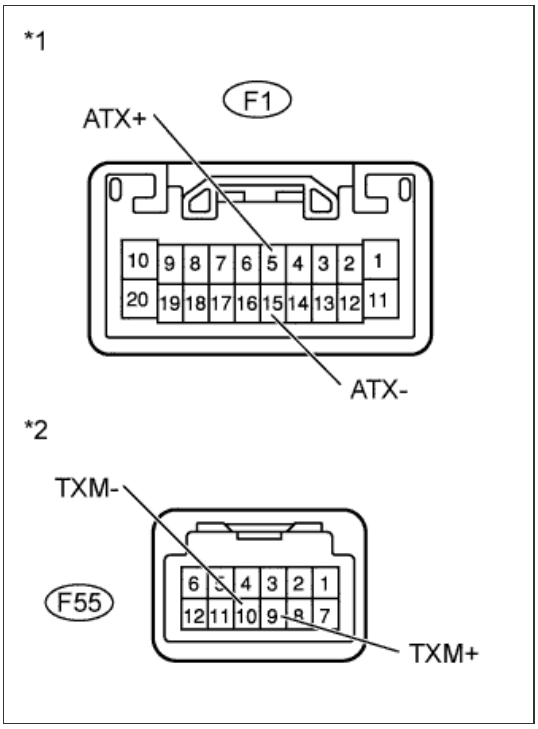
b. Measure the resistance according to the value(s) in the table below.

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)

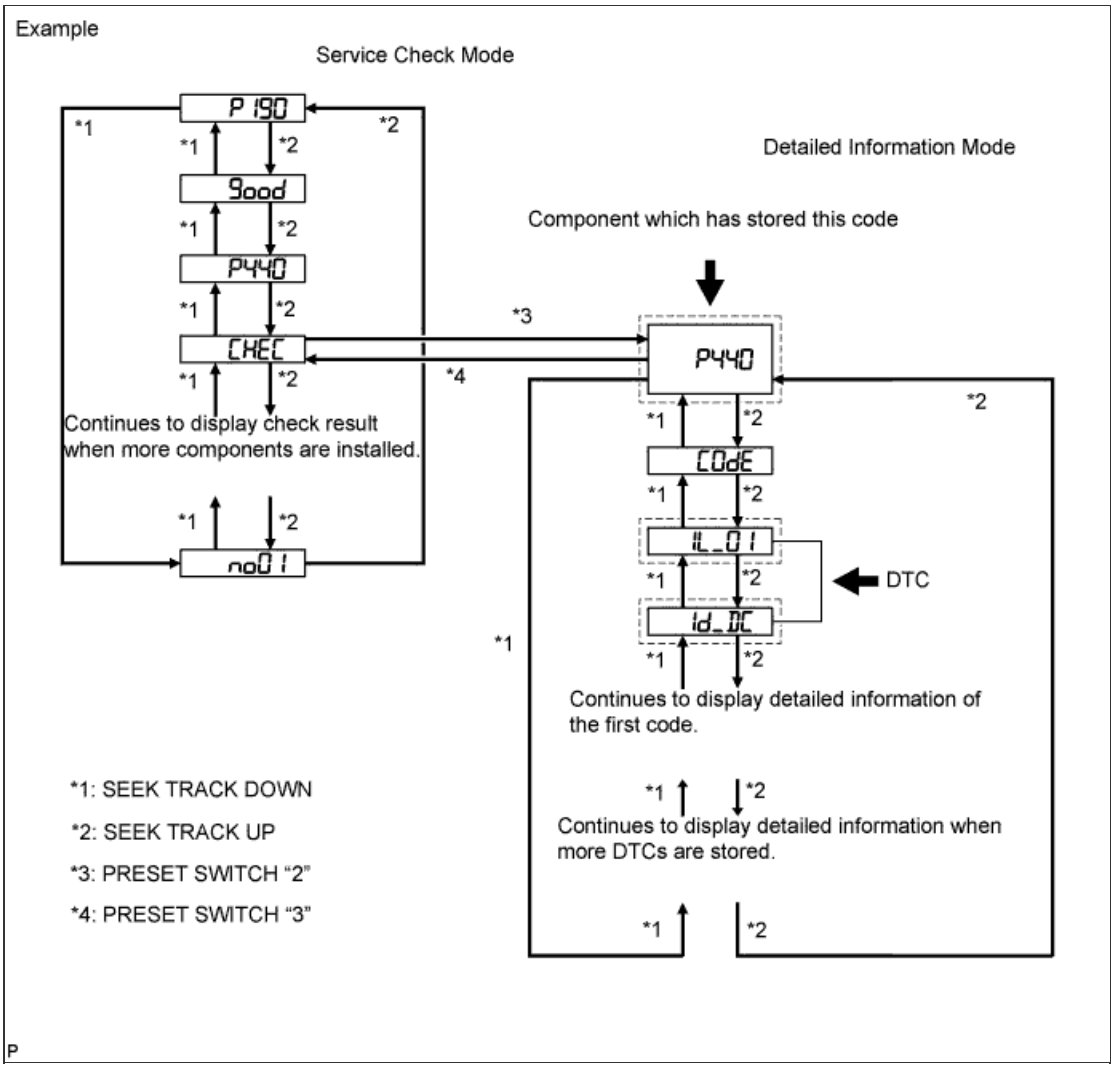


NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

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

.CHECK HARNESS AND CONNECTOR (AVC-LAN CIRCUIT)

HINT:

or details o the connectors r fe er to Terminals of ECU (Click here).

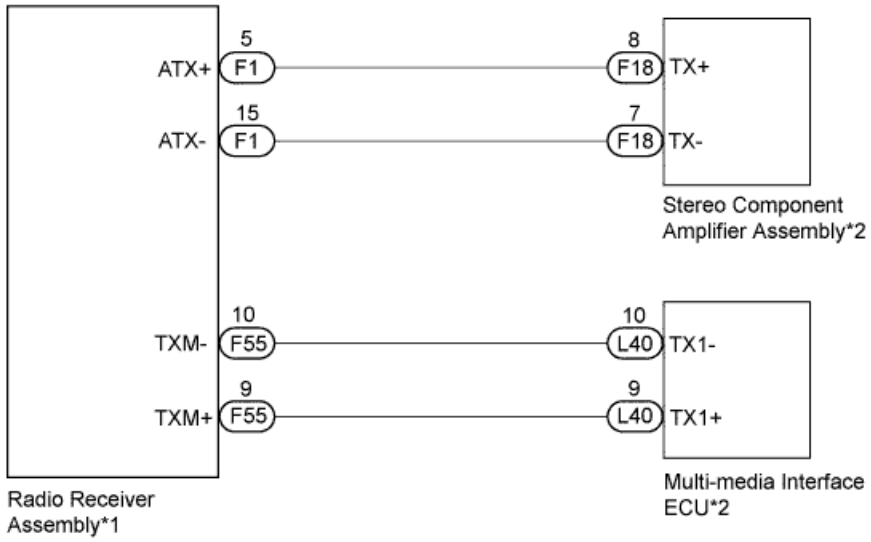
a. Referring to the following AVC-LAN wiring diagram, check the AVC-LAN circuit between the radio receiver assembly and component which has stored this code.

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 MA file i u ed. • Alt oug t e file a an exten ion of .mp3 or . ma t e eader information cannot be read.	• CD • adio recei er a embl
63-7	• A di c it no mu ic data i u ed. • Pla able file are not on t e di c(MP3 MA).	
63-7	Cp rig t protection exi t and pla back i not po ible.	

INSPECTION PROCEDURE

HINT:

After t e in pection i completed, clear t e DTC .

1.CHANGE DISC

a. In ert a di c it a pla able file and c eck if t e di c can be pla ed correctl .

HINT:

or detail on pla able file and di c refer to t e ner 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.

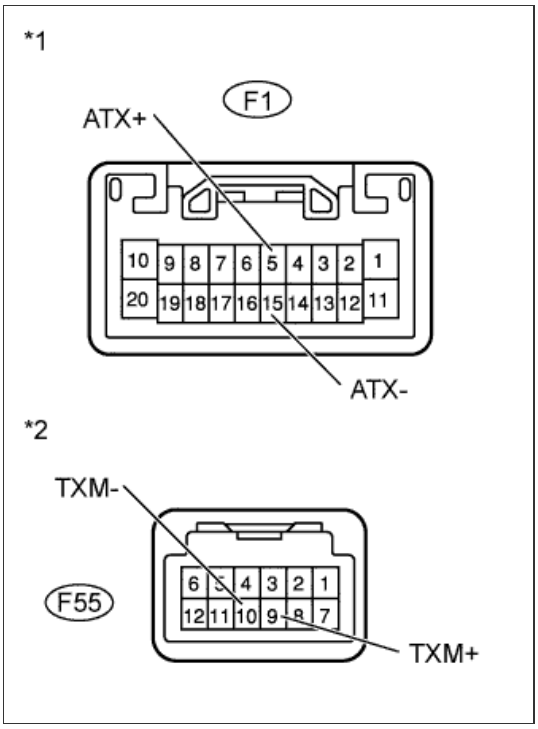
b. Measure the resistance according to the value(s) in the table below.

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)

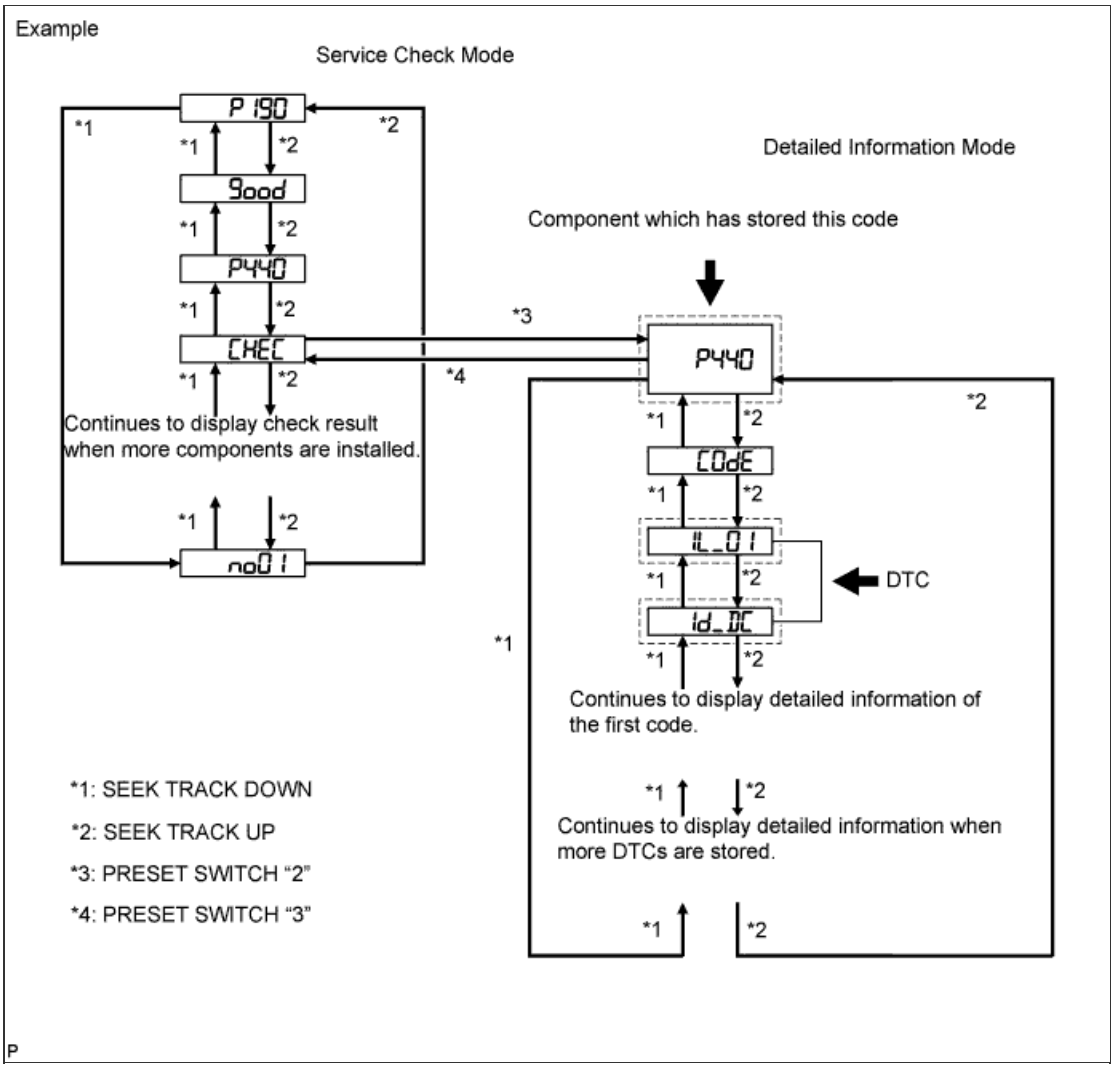


NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

3.IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

a. nter dignostic 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.

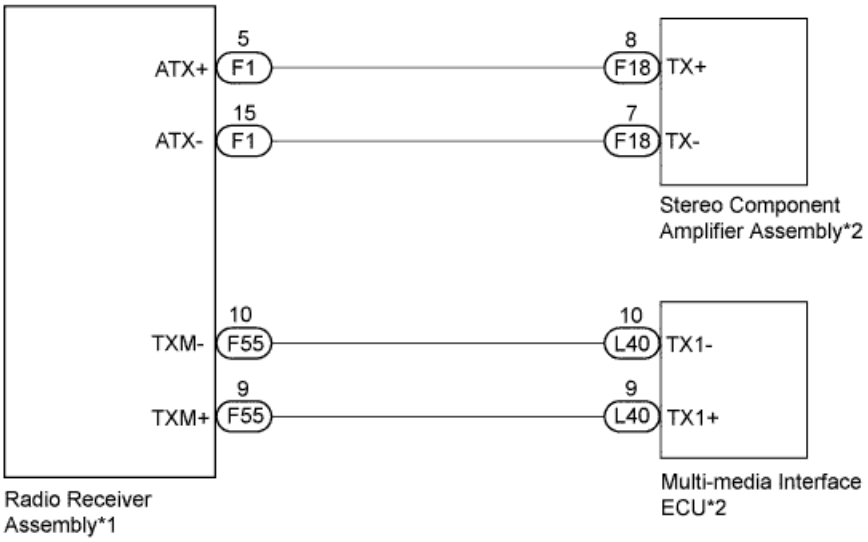
i. Disconnect all connectors between the radio receiver assembly and component which has stored this code.

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 MA file i u ed. • Alt oug t e file a an exten ion of .mp3 or . ma t e eader information cannot be read.	• CD • adio recei er a embl
63-7	• A di c it no mu ic data i u ed. • Pla able file are not on t e di c(MP3 MA).	
63-7	Cp rig t protection exi t and pla back i not po ible.	

INSPECTION PROCEDURE

HINT:

After t e in pection i completed, clear t e DTC .

1.CHANGE DISC

a. In ert a di c it a pla able file and c eck if t e di c can be pla ed correctl .

HINT:

or detail on pla able file and di c refer to t e ner 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 MA file i u ed. • Alt oug t e file a an exten ion of .mp3 or . ma t e eader information cannot be read.	• CD • adio recei er a embl
63-7	• A di c it no mu ic data i u ed. • Pla able file are not on t e di c(MP3 MA).	
63-7	Cp rig t protection exi t and pla back i not po ible.	

INSPECTION PROCEDURE

HINT:

After t e in pection i completed, clear t e DTC .

1.CHANGE DISC

a. In ert a di c it a pla able file and c eck if t e di c can be pla ed correctl .

HINT:

or detail on pla able file and di c refer to t e ner 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.

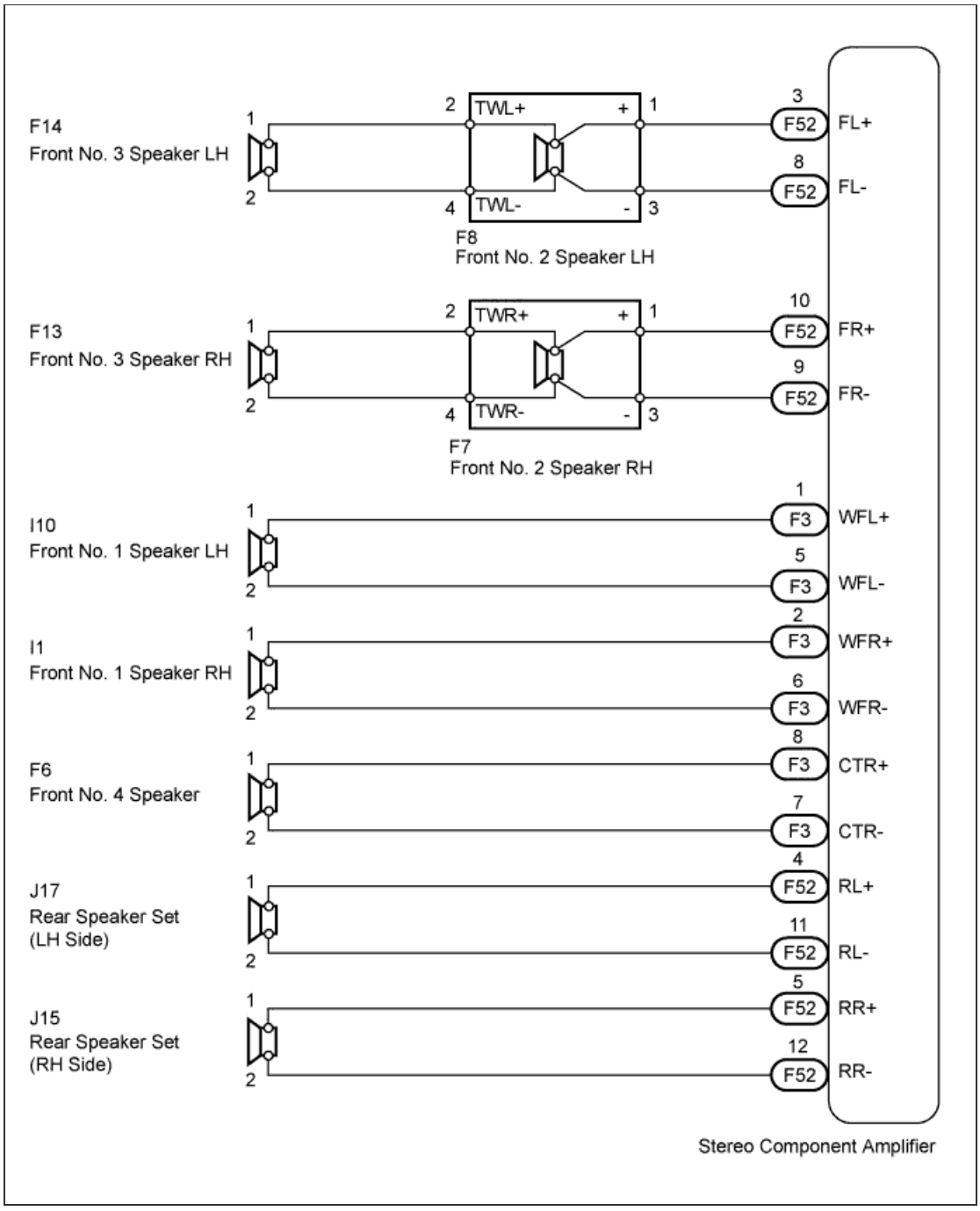
DTC 74-40 Short in Speaker Circuit

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.

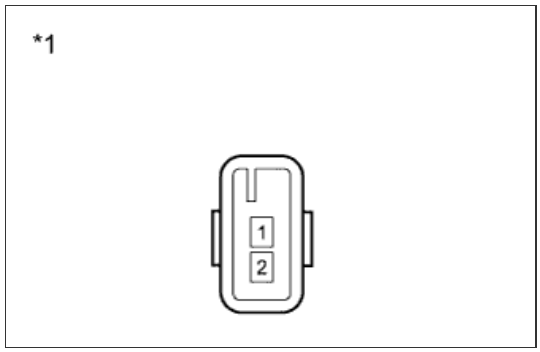
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
2	Al ys	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.

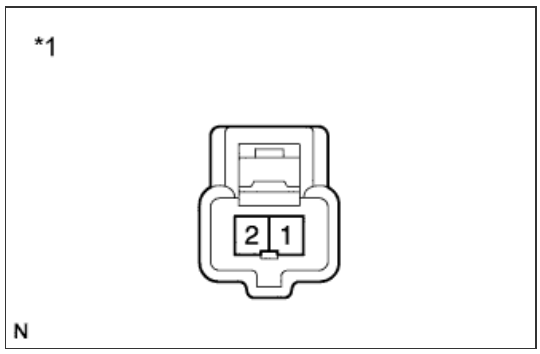
b. Measure the resistance according to the value(s) in the table below.

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 7 and 5 speaker connectors.

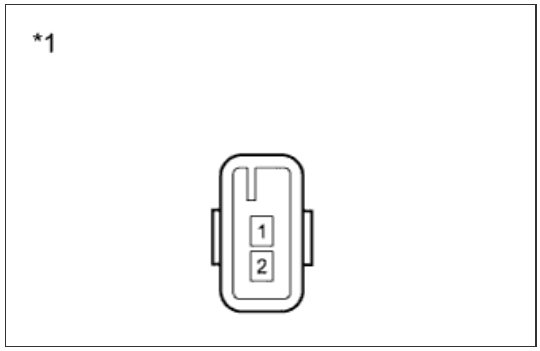
b. Measure the resistance according to the alues) in the table belo .

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - 2	Al ys	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.

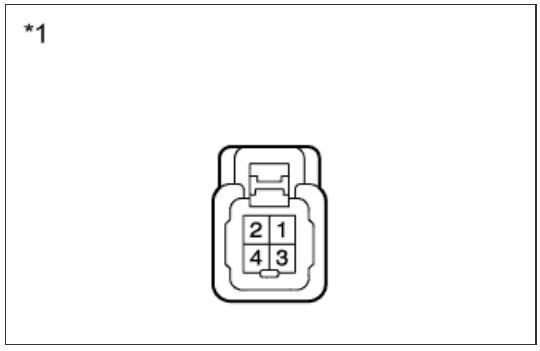
b. Measure the resistance according to the value(s) in the table below.

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.

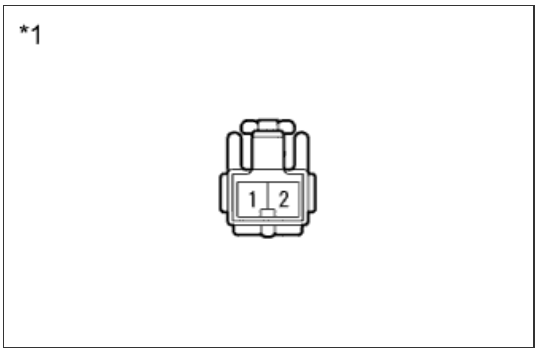
b. Measure the resistance according to the value(s) in the table below.

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.	tereo 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.	tereo 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

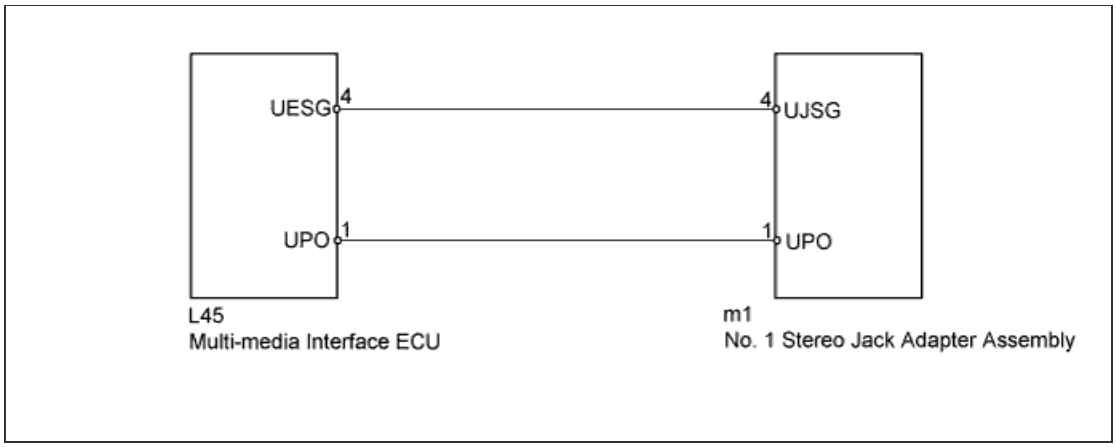
DTC CB-13 USB Over Current Detection

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.

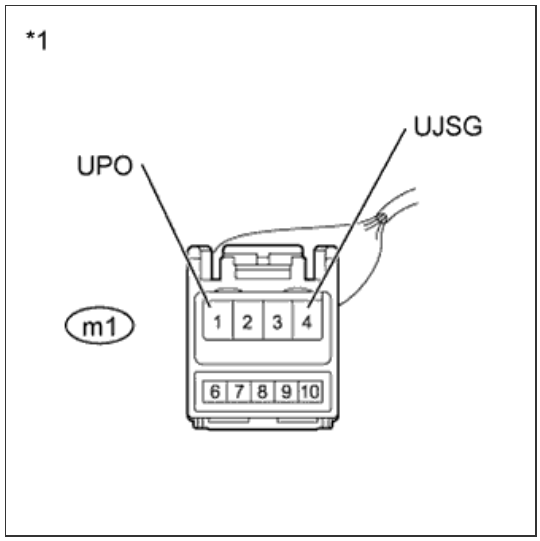
b. Measure the voltage according to the value(s) in the table below.

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 L45 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
L45-1 (UPO) - m1-1 (UPO)	Always	Below 1 Ω
L45-4 (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:

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

O :
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:

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

O :
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:

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

O :
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:

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

O :
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 abnor al.	adio receiver asse bly
60-43	The A tuner is abnor al.	
60-44	The tuner is abnor al.	
60- 0	A proble occurs in the IC inside the tuner unit and radio reception is not nor al.	

INSPECTION PROCEDURE

HINT:

After the inspection is co eted, clear the DTCs.

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.RECHECK FOR DTC

a. echeck for DTCs and check if the sa e trouble occurs again.

HINT:

If DTCs are detected fre uentlyreplace the radio receiver asse bly.

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:

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

O :
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 abnor al.	adio receiver asse bly
60-43	The A tuner is abnor al.	
60-44	The tuner is abnor al.	
60- 0	A proble occurs in the IC inside the tuner unit and radio reception is not nor al.	

INSPECTION PROCEDURE

HINT:

After the inspection is co eted, clear the DTCs.

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.RECHECK FOR DTC

a. echeck for DTCs and check if the sa e trouble occurs again.

HINT:

If DTCs are detected fre uentlyreplace the radio receiver asse bly.

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 abnor al.	adio receiver asse bly
60-43	The A tuner is abnor al.	
60-44	The tuner is abnor al.	
60- 0	A proble occurs in the IC inside the tuner unit and radio reception is not nor al.	

INSPECTION PROCEDURE

HINT:

After the inspection is co eted, clear the DTCs.

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.RECHECK FOR DTC

a. echeck for DTCs and check if the sa e trouble occurs again.

HINT:

If DTCs are detected fre uentlyreplace the radio receiver asse bly.

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 abnor al.	adio receiver asse bly
60-43	The A tuner is abnor al.	
60-44	The tuner is abnor al.	
60- 0	A proble occurs in the IC inside the tuner unit and radio reception is not nor al.	

INSPECTION PROCEDURE

HINT:

After the inspection is co eted, clear the DTCs.

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.RECHECK FOR DTC

a. echeck for DTCs and check if the sa e trouble occurs again.

HINT:

If DTCs are detected fre uentlyreplace the radio receiver asse bly.

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 hile the CD is not being inserted or e ected.	adio receiver assembly
63-11	CDs cannot be inserted or e ected.	
63-1	CD read problem occurs.	

INSPECTION PROCEDURE

HINT:

A ter the inspection is completed, clear the DTCs.

1.REPLACE RADIO RECEIVER ASSEMBLY

a. eplace the radio receiver assembly (Clic 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:

f 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 hile the CD is not being inserted or e ected.	adio receiver assembly
63-11	CDs cannot be inserted or e ected.	
63-1	CD read problem occurs.	

INSPECTION PROCEDURE

HINT:

A ter the inspection is completed, clear the DTCs.

1.REPLACE RADIO RECEIVER ASSEMBLY

a. eplace the radio receiver assembly (Clic 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:

f 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 chec 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 nown ood one and rechec

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

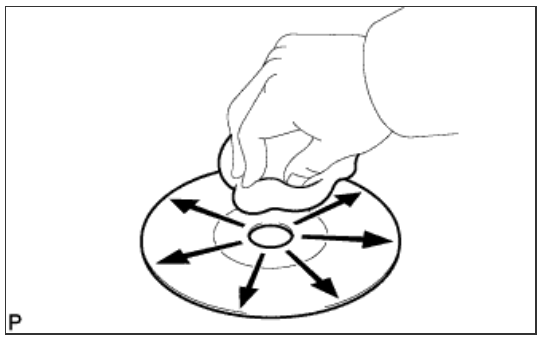
3.CLEAN CD AND RECHECK

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

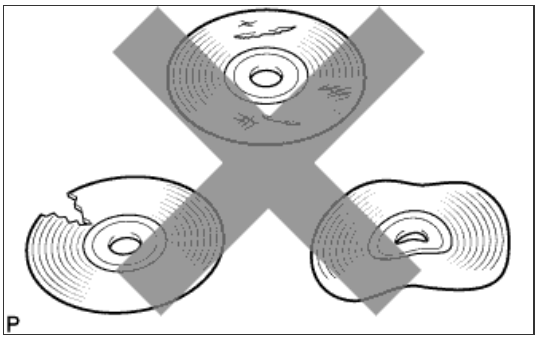
for Preparation Click here

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.

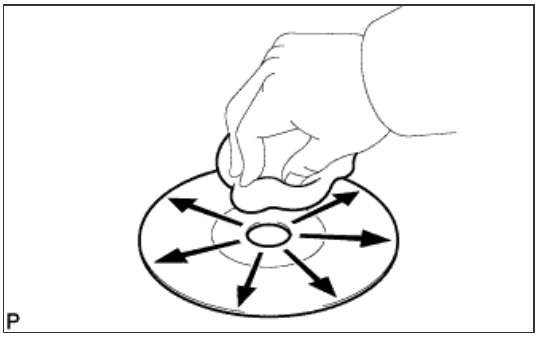
OK:
The CD is clean.

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.



N → 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 assem ly 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

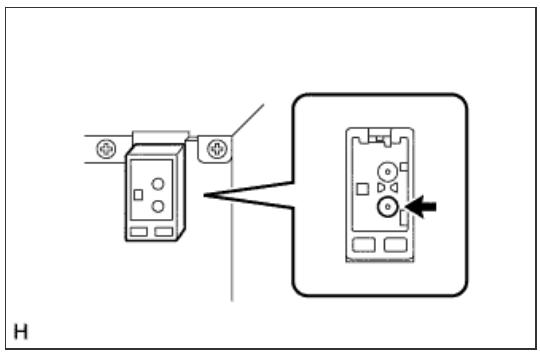
i. Remove the antenna plug from the radio receiver assembly.

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:

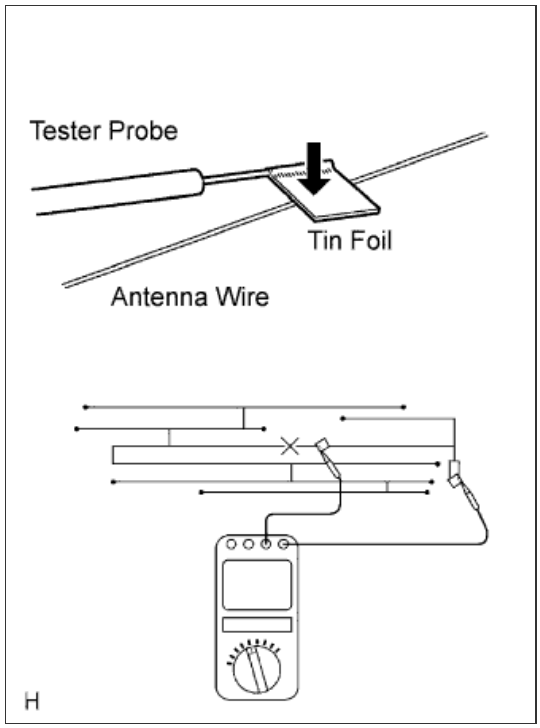
Check for continuity at the center of each antenna wire as shown in the illustration.

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.

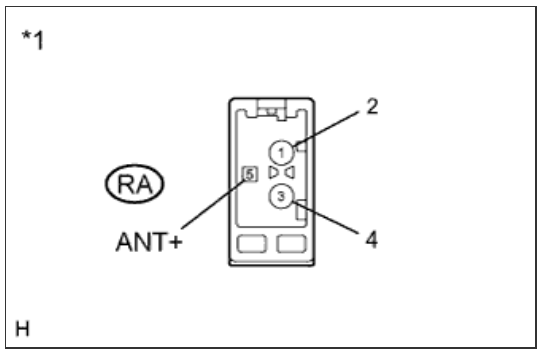
b. Measure the voltage according to the value(s) in the table below.

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:
1 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 LUETOOTH SETTIN S

a. Check if the "Bluetooth" settings are correct.

OK:
luetooth 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 luetooth compatible.

NG → END (ONLY A LUETOOTH 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 luetooth (Tdisplayed while connected).**

OK:
None of the above conditions exist.

NG → SET CORRECTLY

OK

.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

.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. (udio is mute.)" in Problem ymptoms able (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 lo .

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 porta le 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 " ".

ii. Check that mute is off.

OK:
The volume is not set to dmute is off.

NG → **SET VOLUME TO HIGH AND TURN MUTE OFF SETTINGS**

OK

.CHECK USING ANOTHER BLUETOOTH AUDIOCOMPATIBLE VEHICLE OF SAME MODEL

a. Check if the " luetooth" audio player plays normally on another " luetooth" audio compatible vehicle of the same model.

OK:
Bluetooth adio plays normally.

NG → **MALFUNCTION IN PORTABLE PLAYER**

OK

PROCEED TO NE T SUSECTED AREA SHO N INPROBLEM 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 LUETOOTH 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.**

.CHECK USIN ANOHER LUETOH AUDIO COMPATI LE VE O 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.

N → MAL UNCTION IN PORTABLE PLAYER

OK

.REMOVE ADDITIONAL DEVICES HICH USE RADIO AVES

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.

N → PROCEED TO NE T SUSPECTED REA SHO N 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 recogni ed by the radio receiver assembly.

NG → CHANGE SETTING TO ALLOW PORTABLE PLAYER TO BE RECOGNI EDBY 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 ↓

.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

esult	Proceed to
he portable player is "Bluetooth" audio compatible.	
he portable player is not "Bluetooth" audio compatible.	B

B → USE LUETOOTH AUDIO COMPATIBLE PORTABLE PLAYER

A

2.CHECK CONNECTION PROCEDURE OF CONNECTED DEVICE

a. eferring to the o ner smanual, 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

OK

END

.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

.REMOVE ADDITIONAL DEVICES HICH 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 RECHEC

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

O

END

.REPLACE USB DEVICE OR "iPod

a. Turn the engine switch off.

HINT:

hen this malfunction occurs, it is necessary to turn off the engine switch to make it possible for the vehicle to recognize a new device

hen it is connected.

b. urn 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.

O :
USB device or "iPod is recogni d or track information such as track, artist and album names are displayed.

NG → **PROCEED TO NE T SUSECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)**

OK

USB DEVICE OR "iPod WAS INCOMPATIBLE OR DEFECTIVE

for Preparation Click here

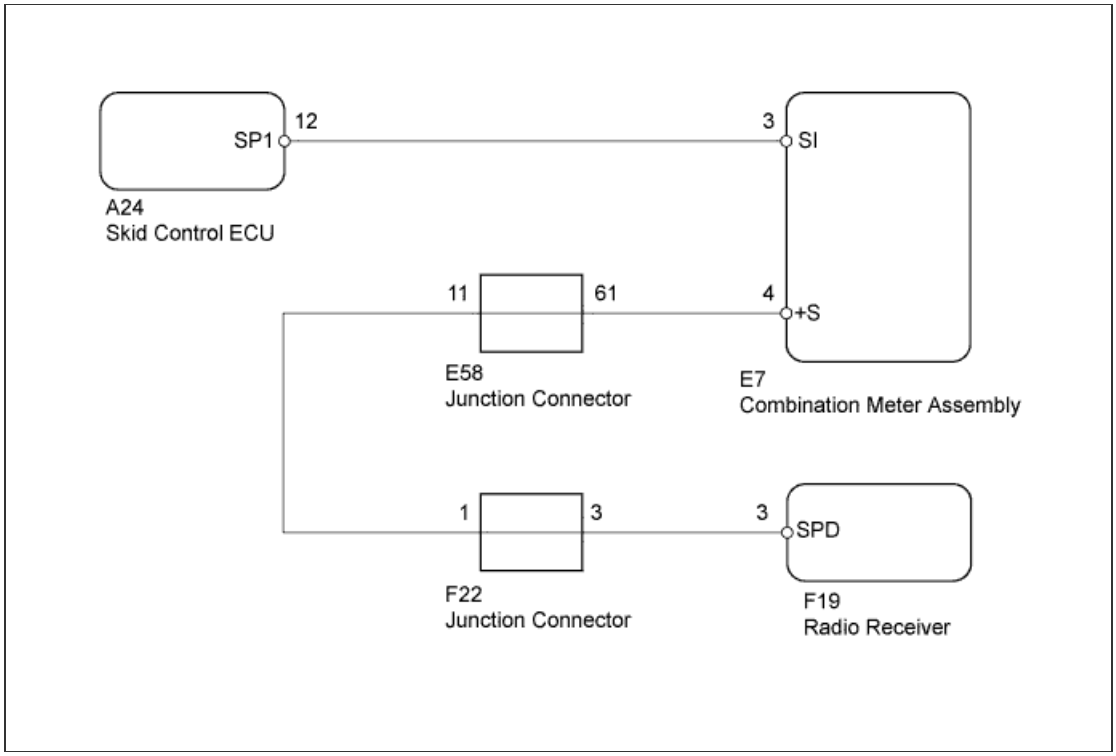
DESCRIPTION

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 WAVE FORM)

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)

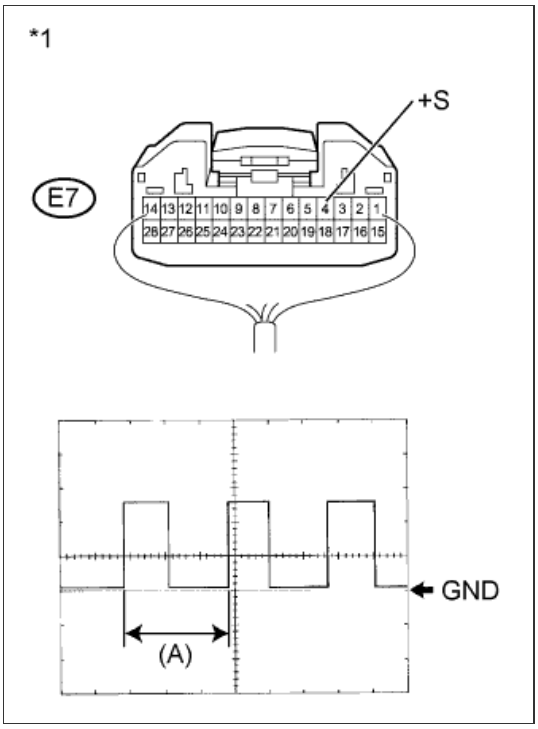
O :
The waveform is displayed as shown in the illustration.

Te t 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)

O ↓

2.CHEC 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

O ↓

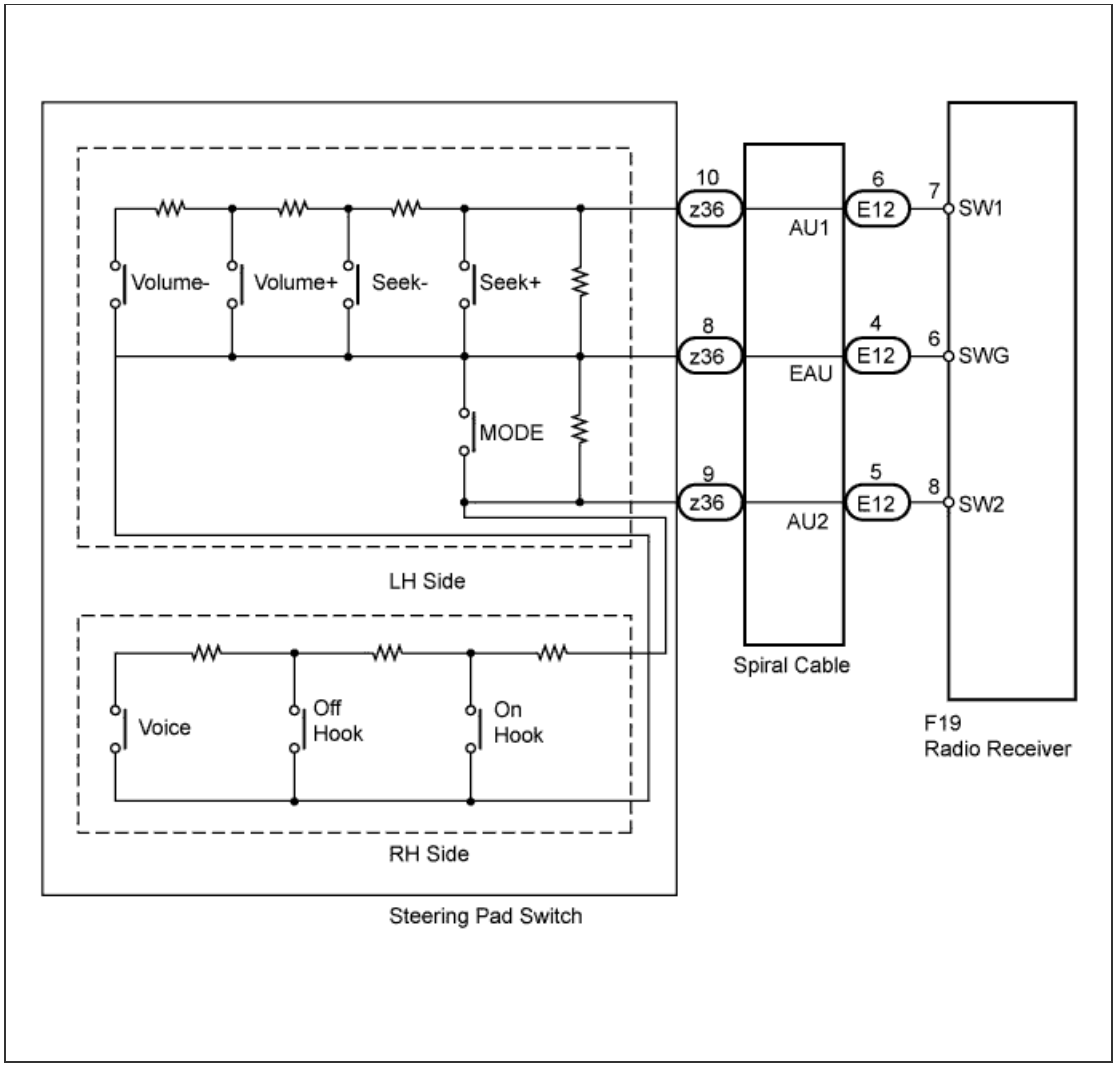
REPLACE RADIO RECEIVER ASSEMBLY (Click here)

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:

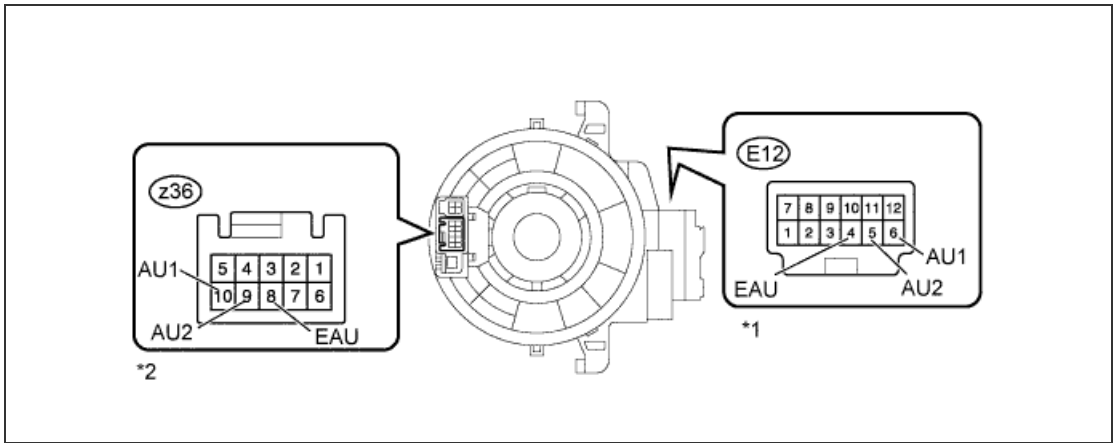
Tester Connection	Condition	Specified Condition
F19-8 (S 2) E12 ( )		

F19-6 (SW 12) - (EAU)	Always	Below 1 Ω
F19-7 (SW1) - E12-6 (AU1)		
F19-8 (SW2) - Body ground	Always	10 kΩ or higher
F19-6 (SW) - 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:

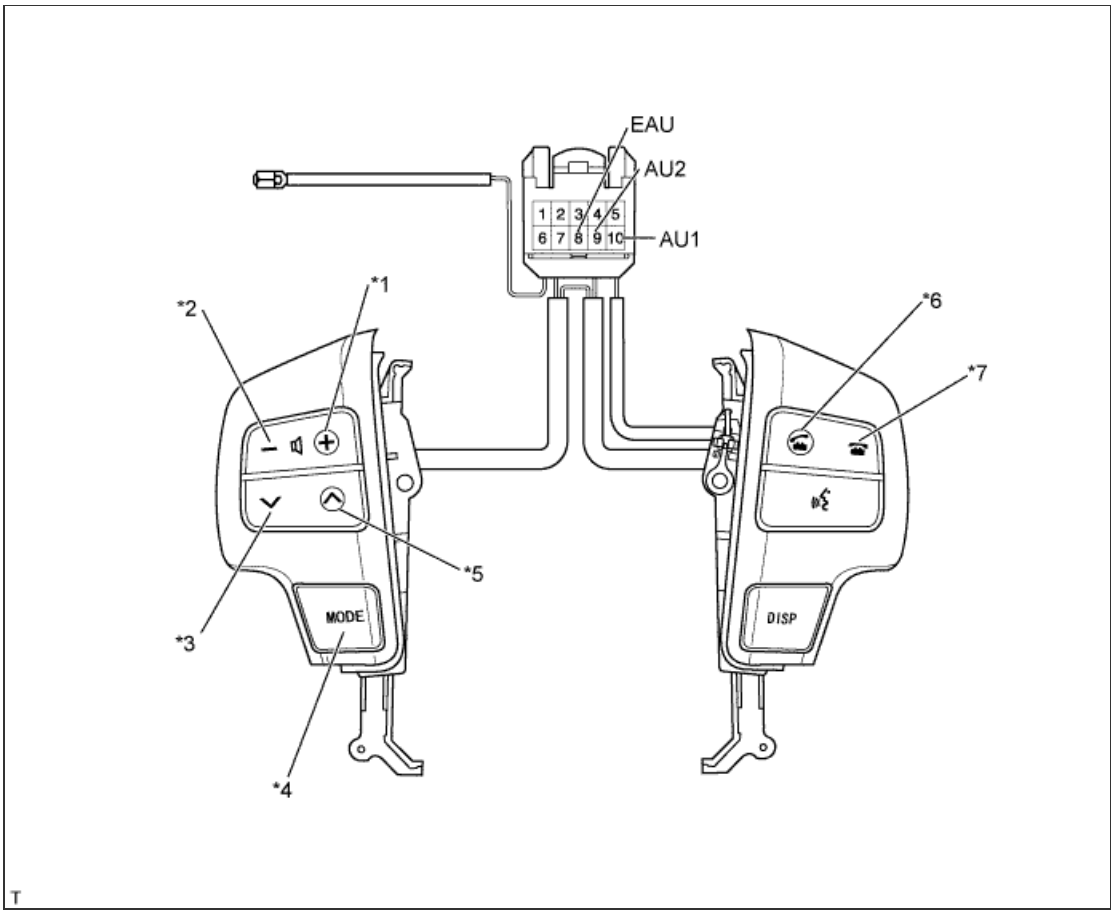
The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the SRS (Click here).

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 ook
*7	On ook	-	-

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
	o switch is pushed	95 to 105 kΩ
	Seek+ switch pushed	Below 2.5 Ω
	Seek- switch	

1 (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)	o 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

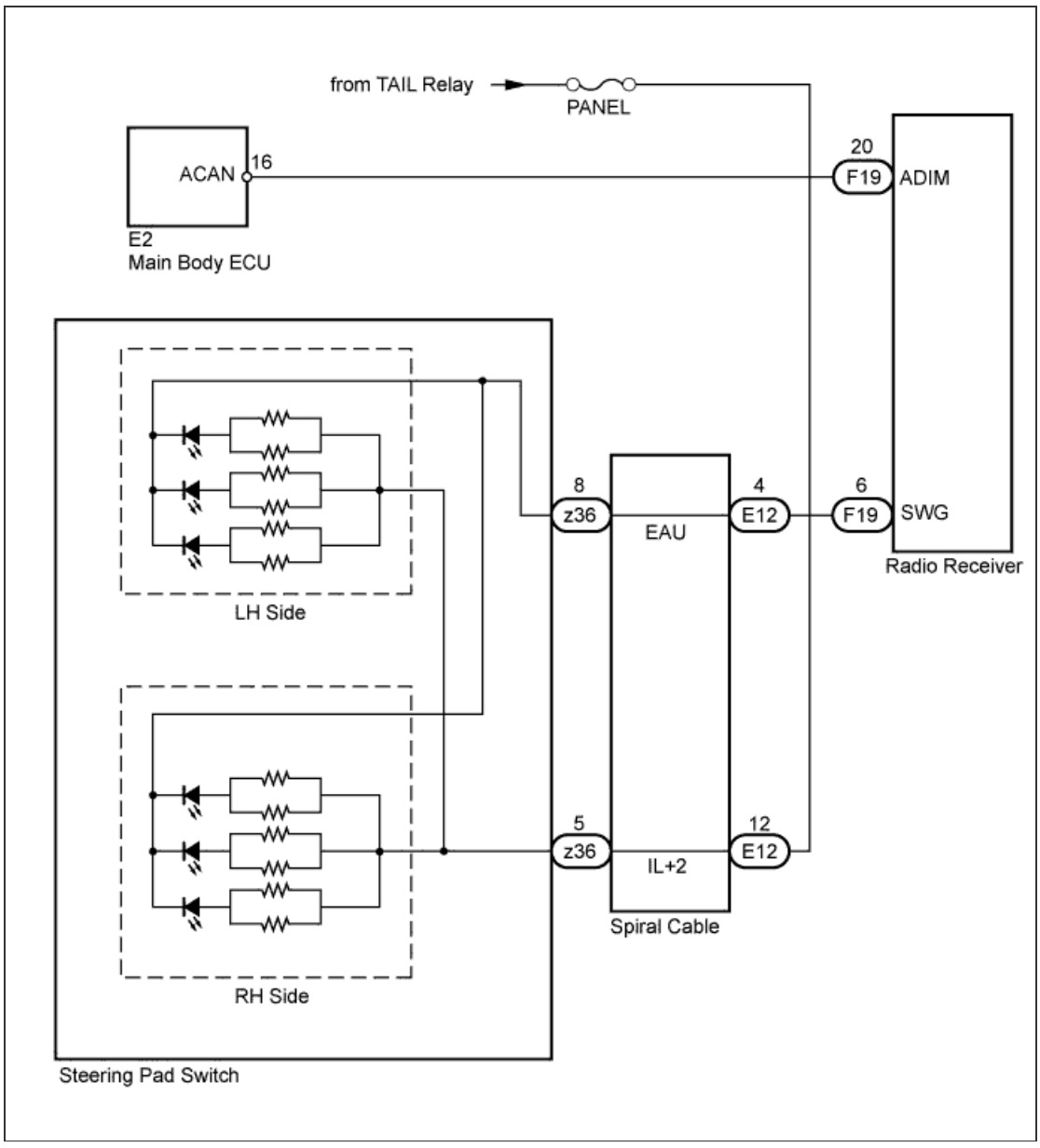
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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

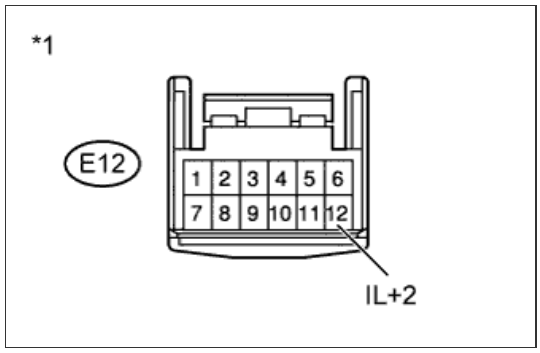
2.CHECK HARNESS AND CONNECTOR (BATTERY - SPIRAL CABLE)

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



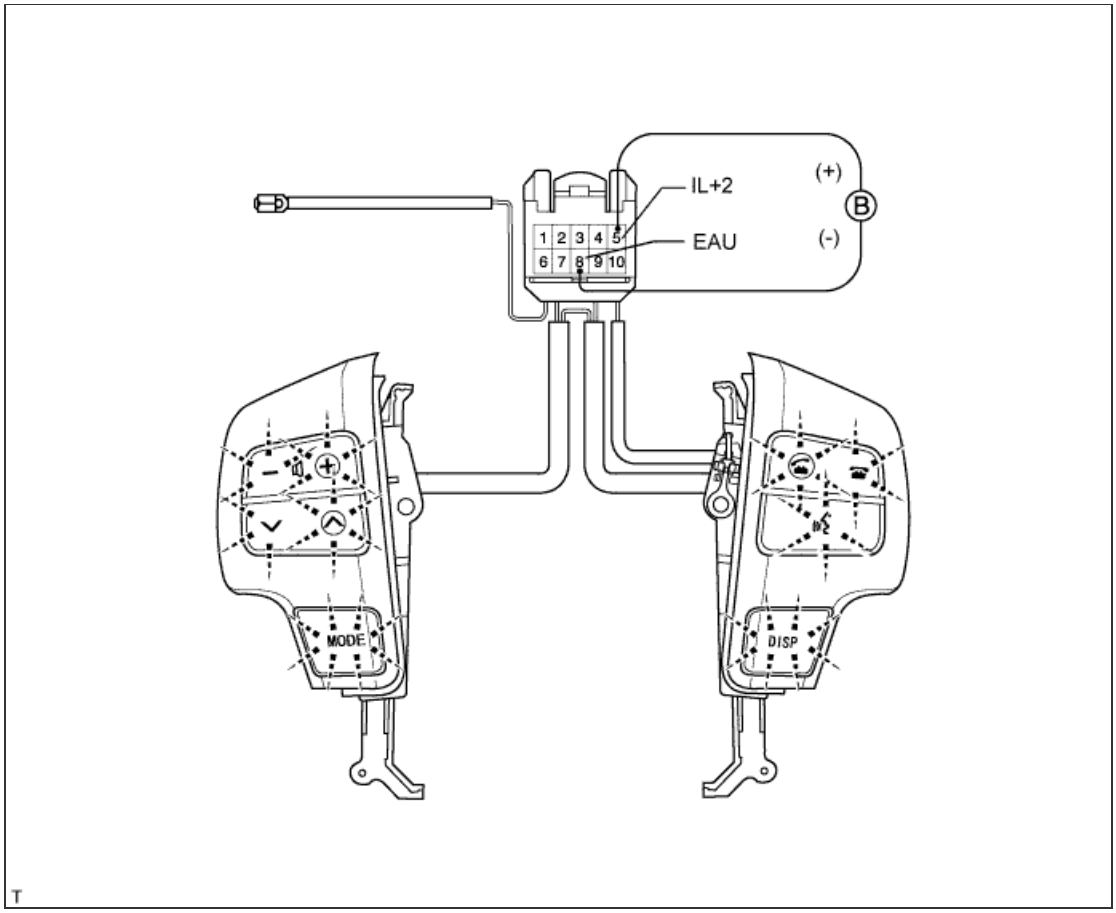
Text in Illustration

*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.

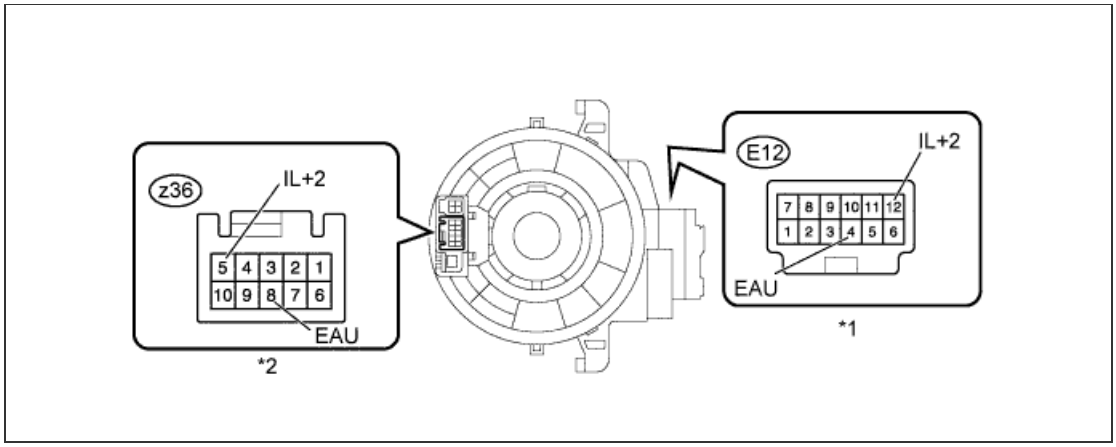
OK

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

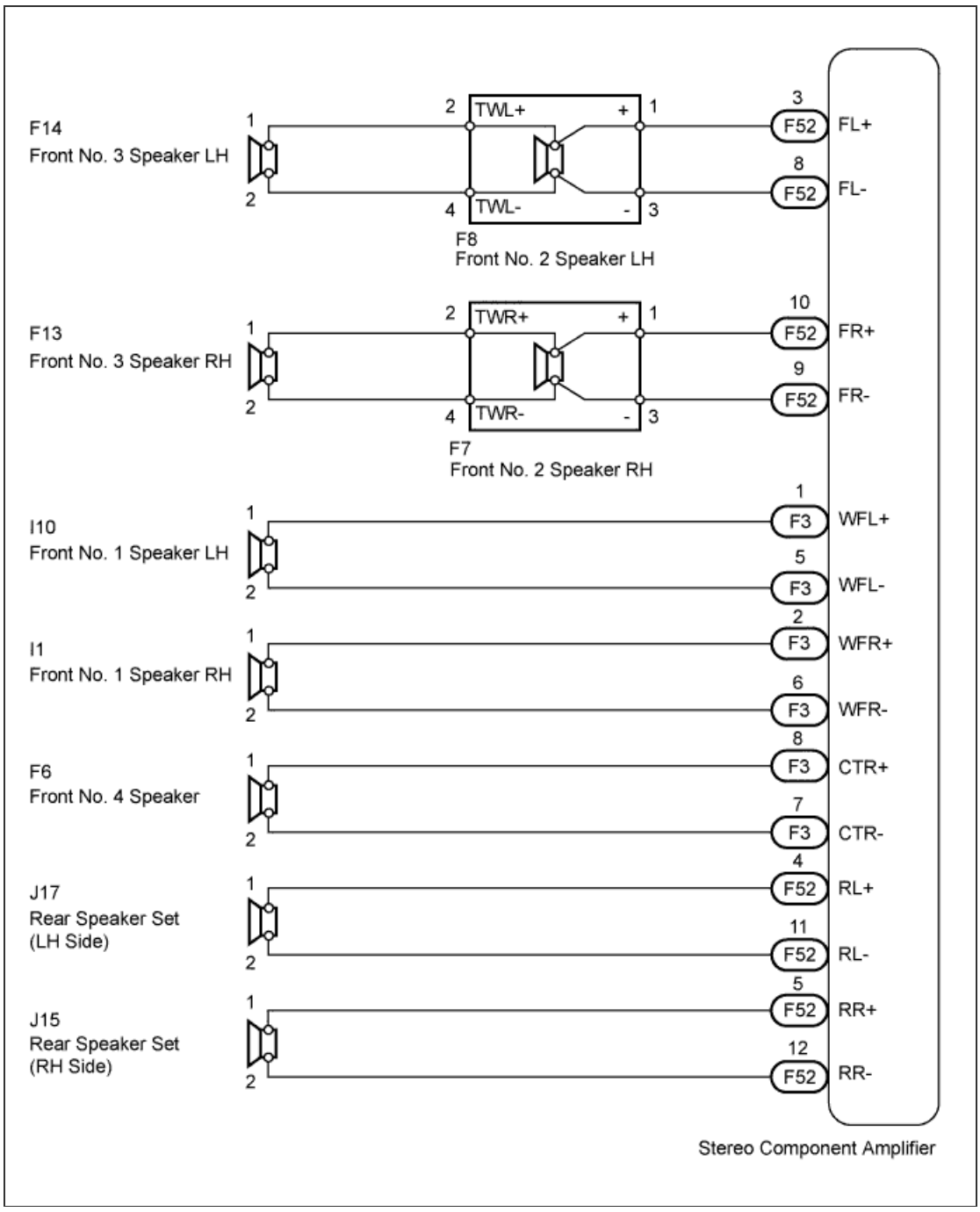
REPLACE RADIO RECEIVER ASSEMBLY (Click here)

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.

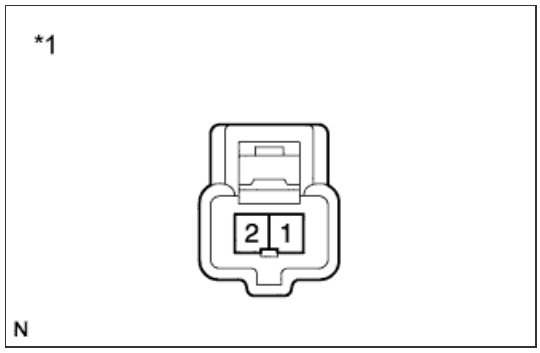
b. Measure the resistance according to the value(s) in the table below.

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)

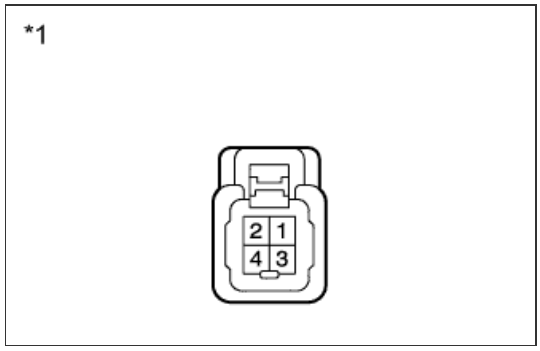
4.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

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.

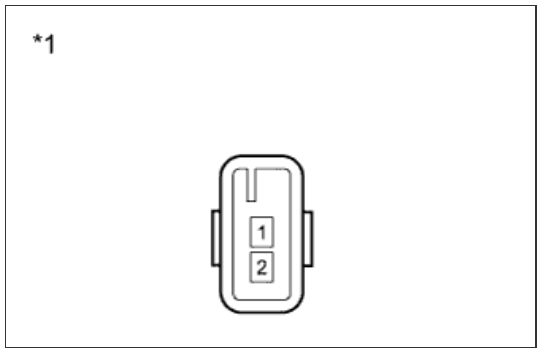
b. Measure the resistance according to the value(s) in the table below.

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.

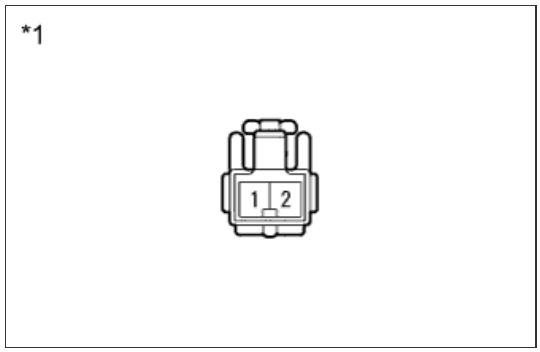
b. Measure the resistance according to the value(s) in the table below.

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

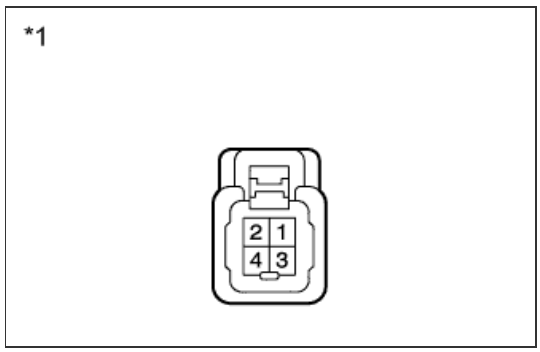
9.INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

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)

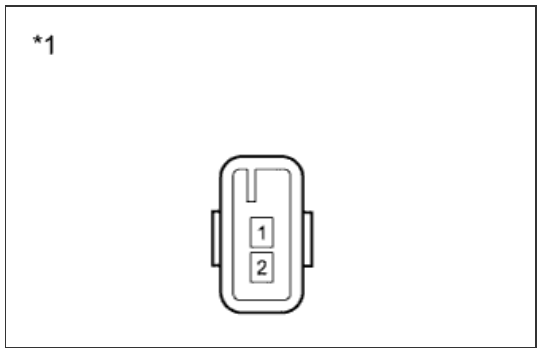
10.INSPECT REAR SPEAKER SET

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

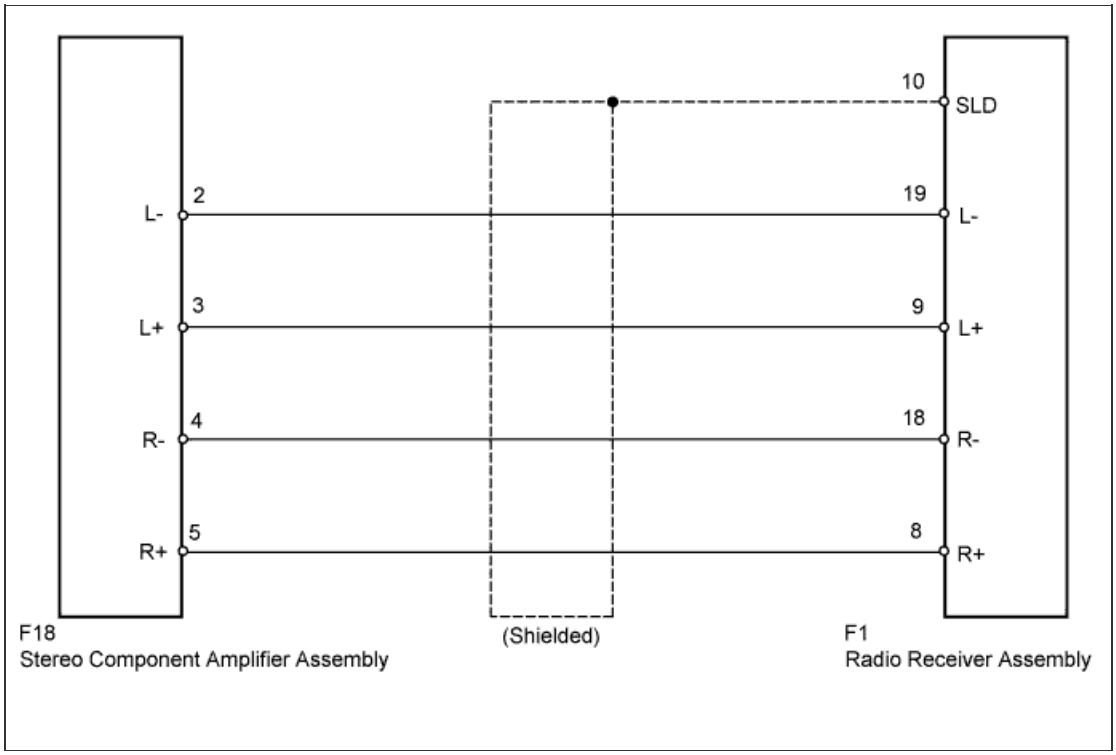
REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

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

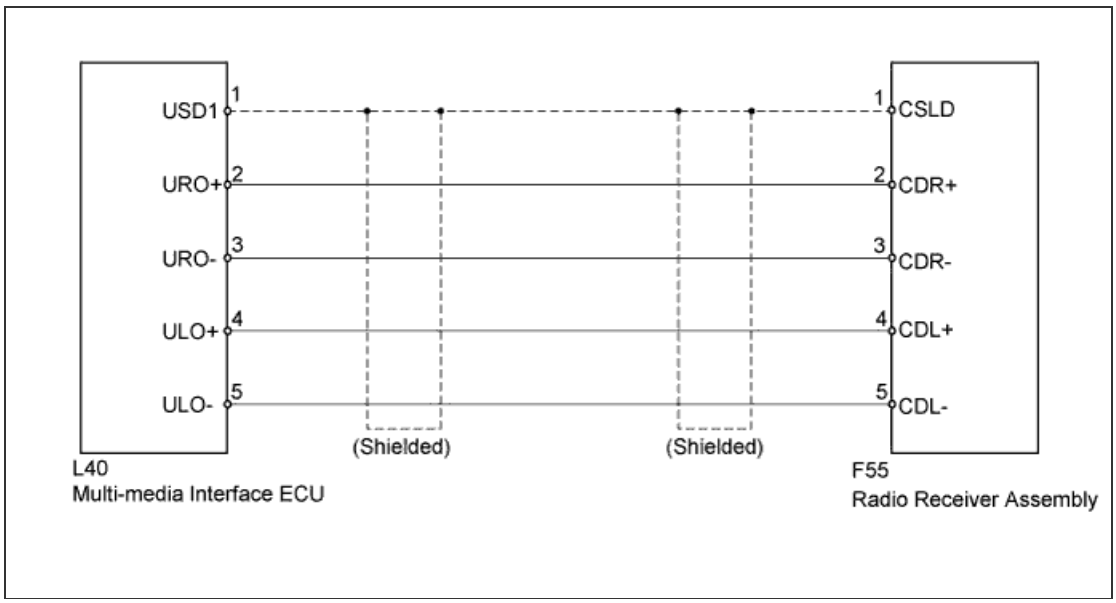
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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

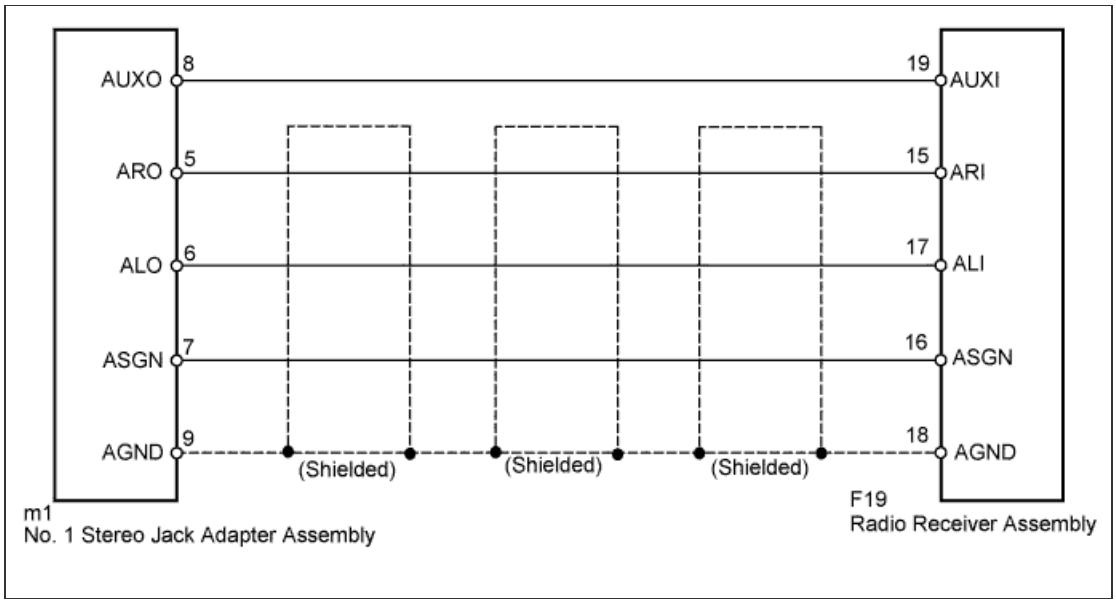
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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

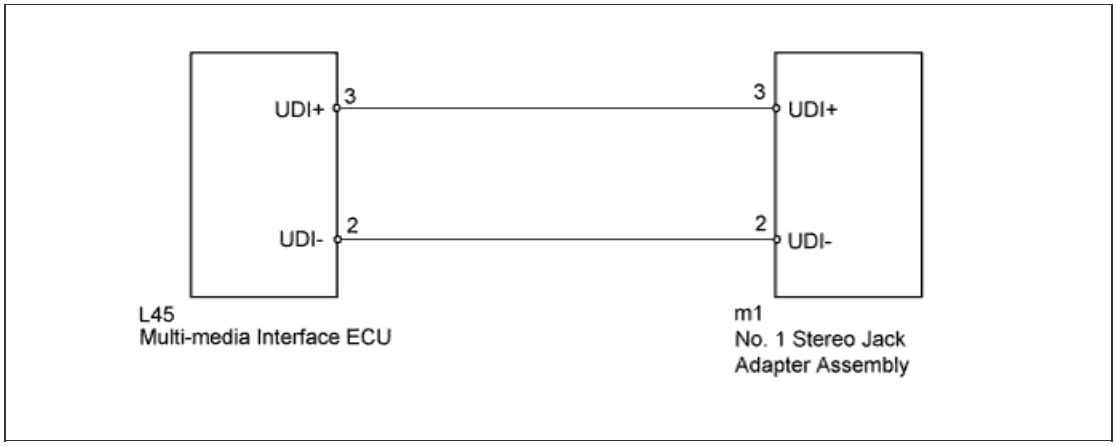
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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 L45 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+) - L45-3 (UDI+)	Always	Below 1 Ω
m1-2 (UDI-) - L45-2 (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

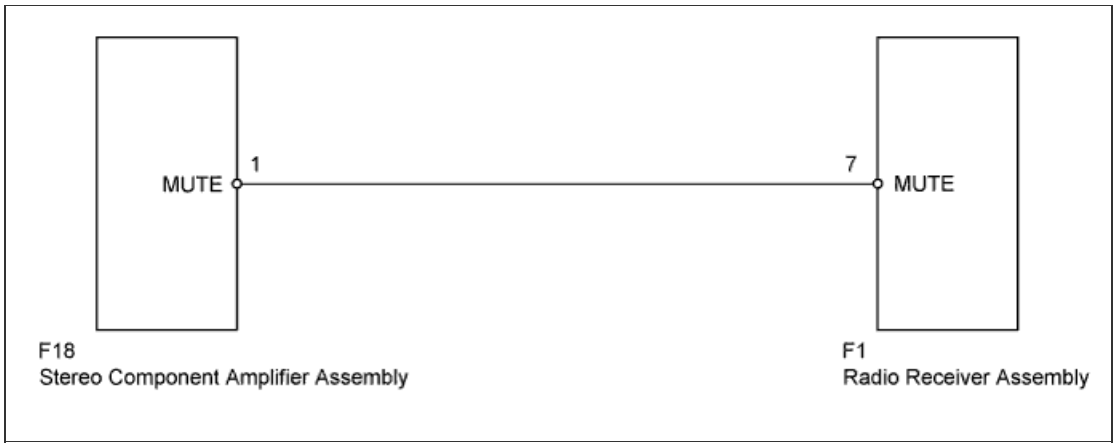
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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

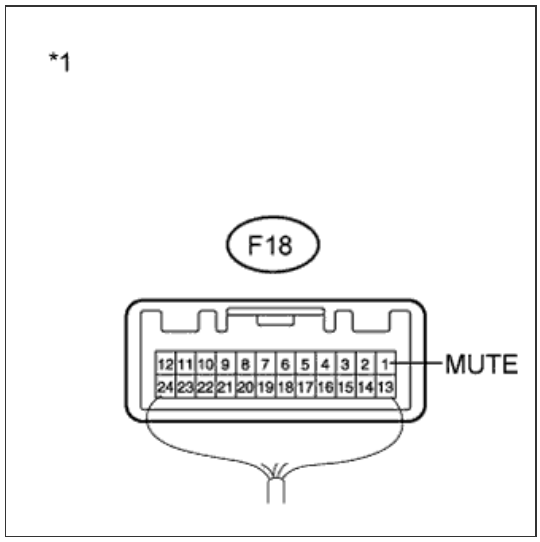
a. Measure the voltage according to the value(s) in the table below.

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

O

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

2.C EK RNESS 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 ↓

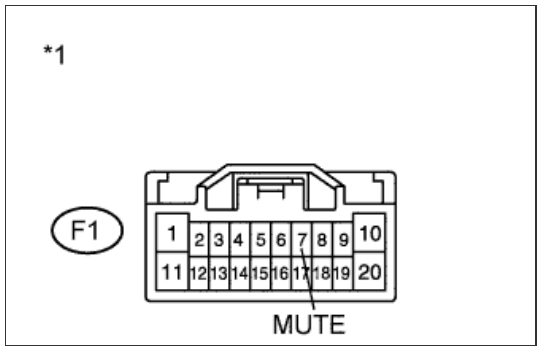
.INSPECT STEREO COMPONENT AMPLIFIER ASSEMBLY (OUTPUT SIGNAL)

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

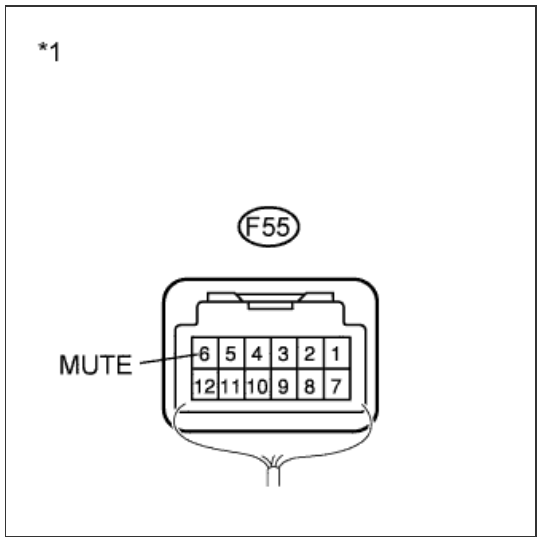
a. Measure the voltage according to the value(s) in the table below.

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

O

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

2.C EK RNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY - MULTI-MEDIA INTER CE 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

2. INSPECT MULTI-MEDIA INTERFACE ECU

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

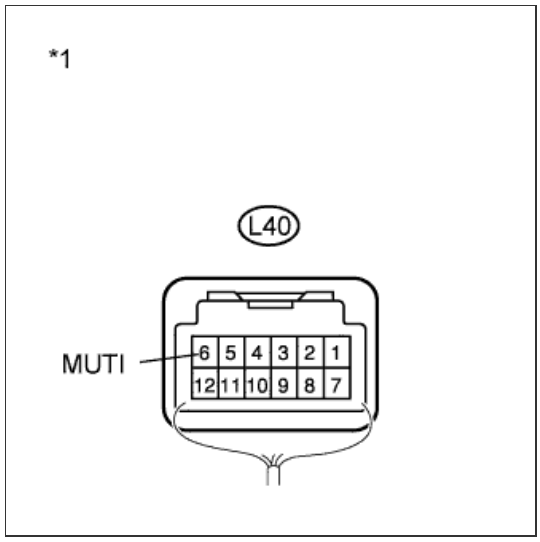
b. Measure the voltage according to the value(s) in the table below.

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.

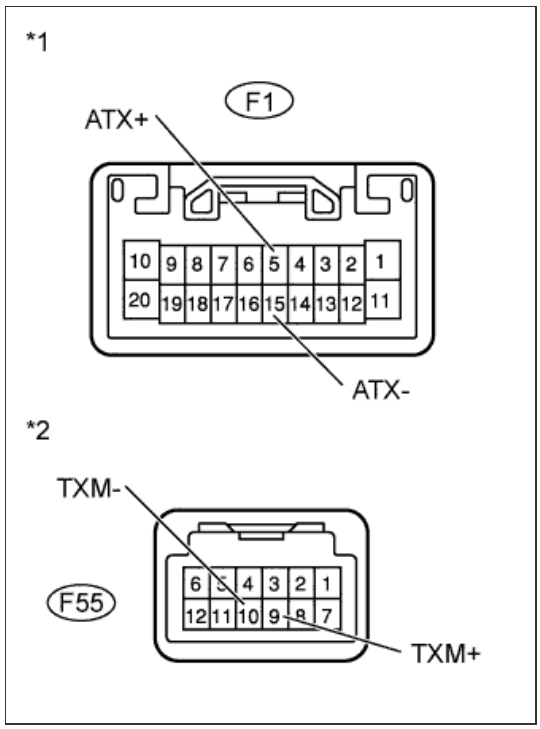
b. Measure the resistance according to the value(s) in the table below.

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).

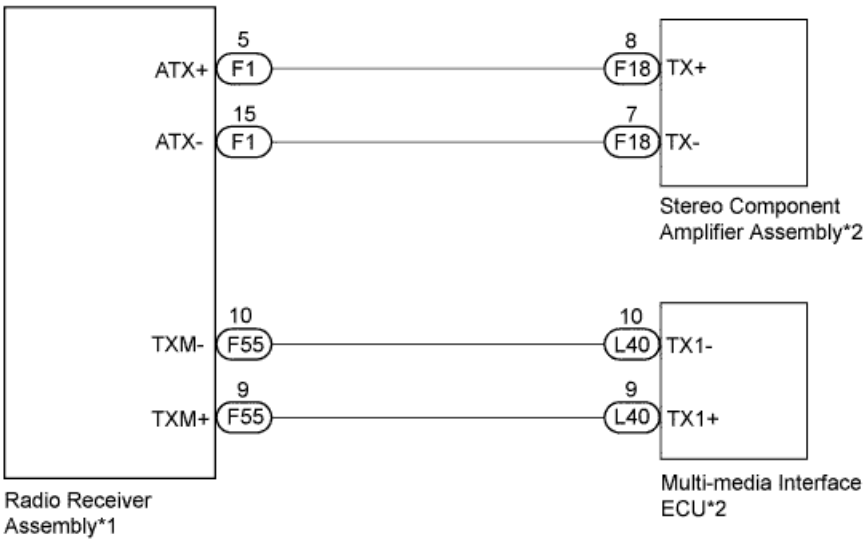
a. Referring to the following AVC-LAN wiring diagram, check all AVC-LAN circuits.

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

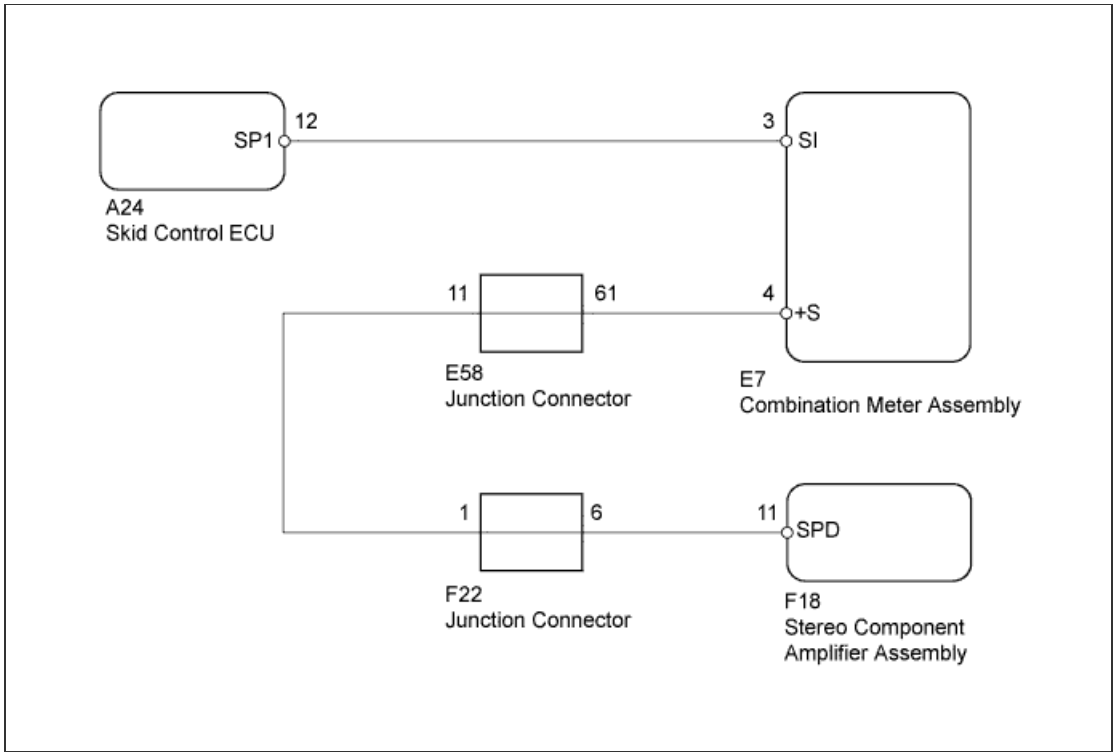
DESCRIPTION

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/ IV , 20 ms /DIV
Vehicle condition	Driving at approx. 20 km/h (12 mph)

O :

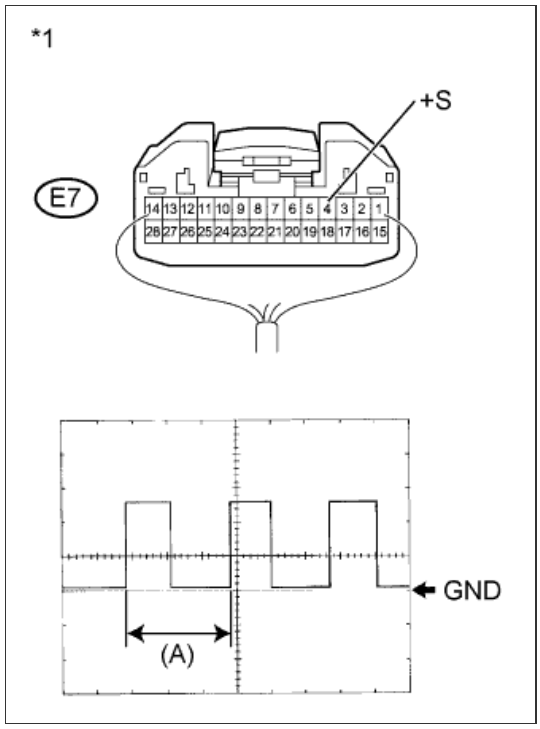
The waveform is displayed as shown in the illustration.

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.

Te t in Illustration

*1	Component with harness connected (Combination Meter Assembly)



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

O ↓

2.CHEC 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

O ↓

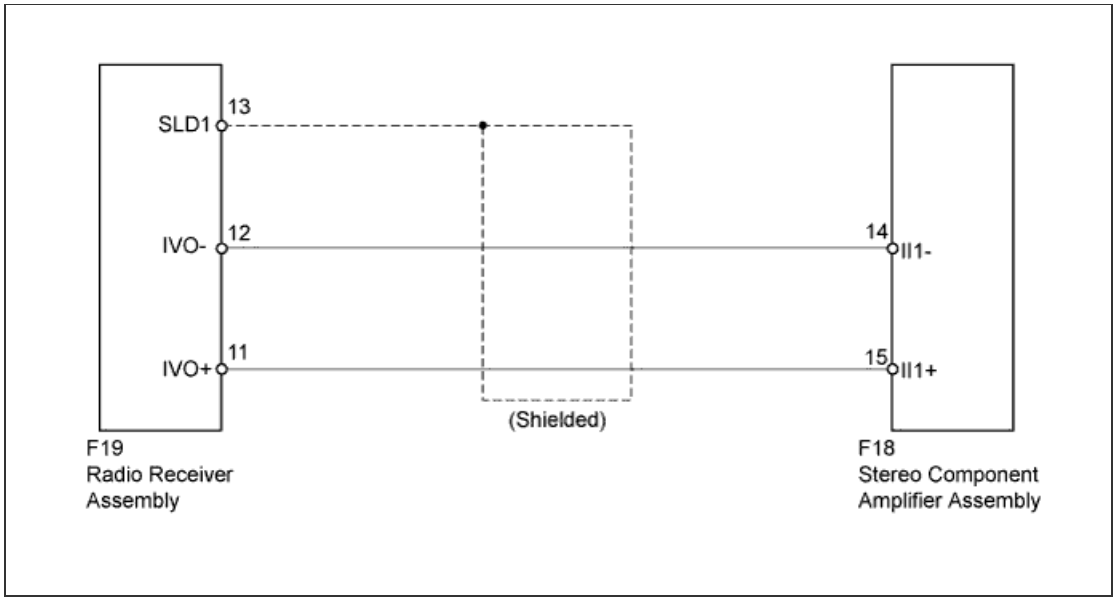
REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

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

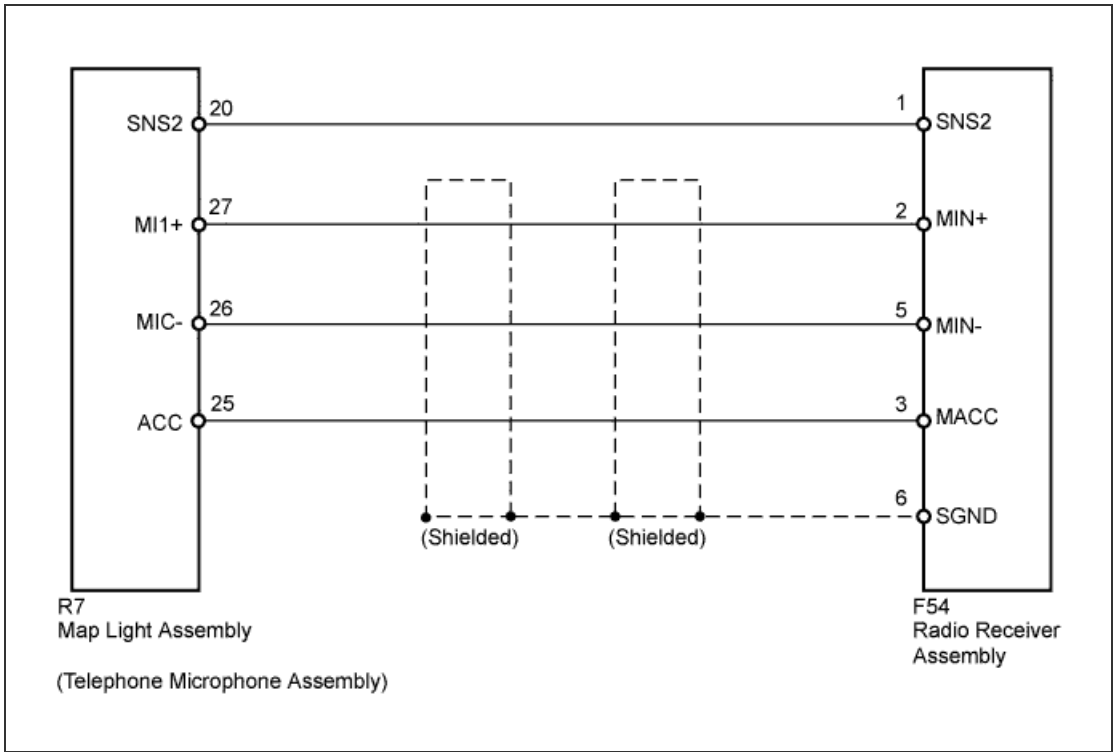
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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.

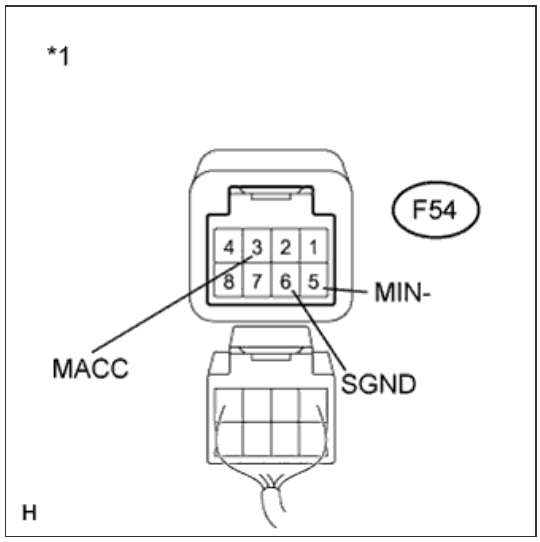
Standard Voltage:

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

.INSPECT MAP LIGHT ASSEMBLY

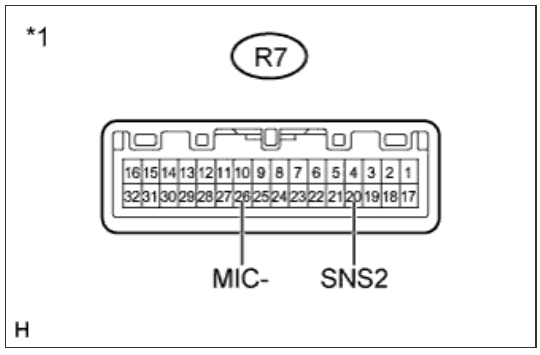
a. Measure the resistance according to the value(s) in the table below.

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

OK

4.INSPECT MAP LIGHT ASSEMBLY

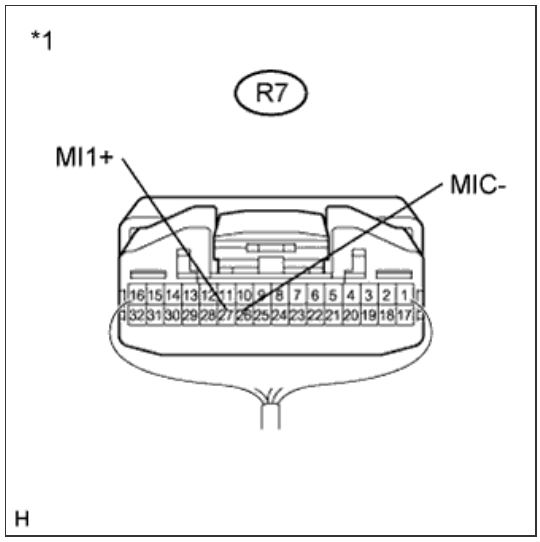
a. Reconnect the radio receiver assembly connector.

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

A

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

.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

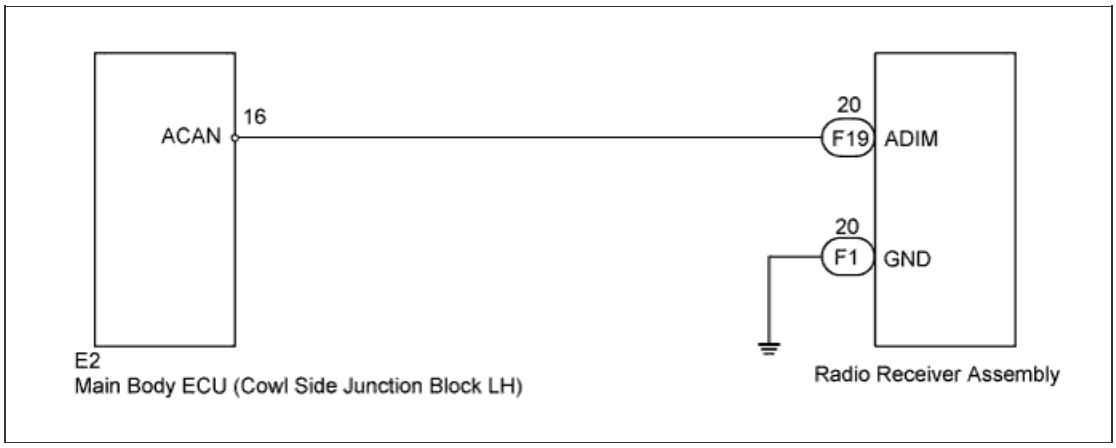
END

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.

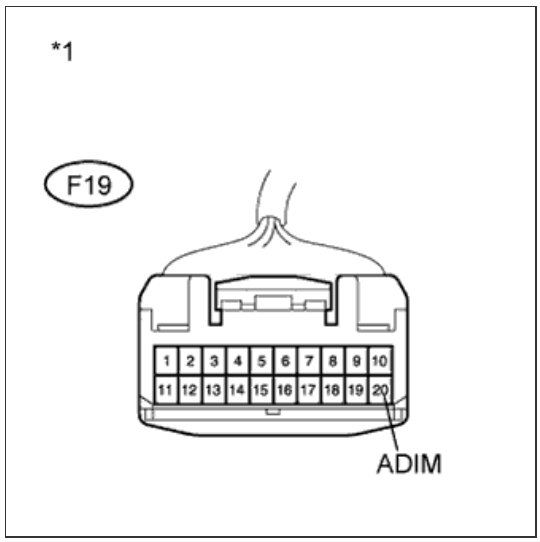
. Measure the voltage according to the value(s) in the table below.

Stan a ltage

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

Te t 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.

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

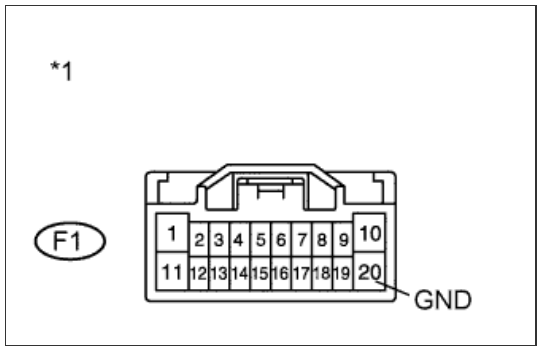
. Measure the resistance according to the value(s) in the table below

Standard Resistance

Tester Connection	Condition	Specified Condition
F1-20 (GND) - Body ground	Always	Below 1 Ω

Test 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.

. 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

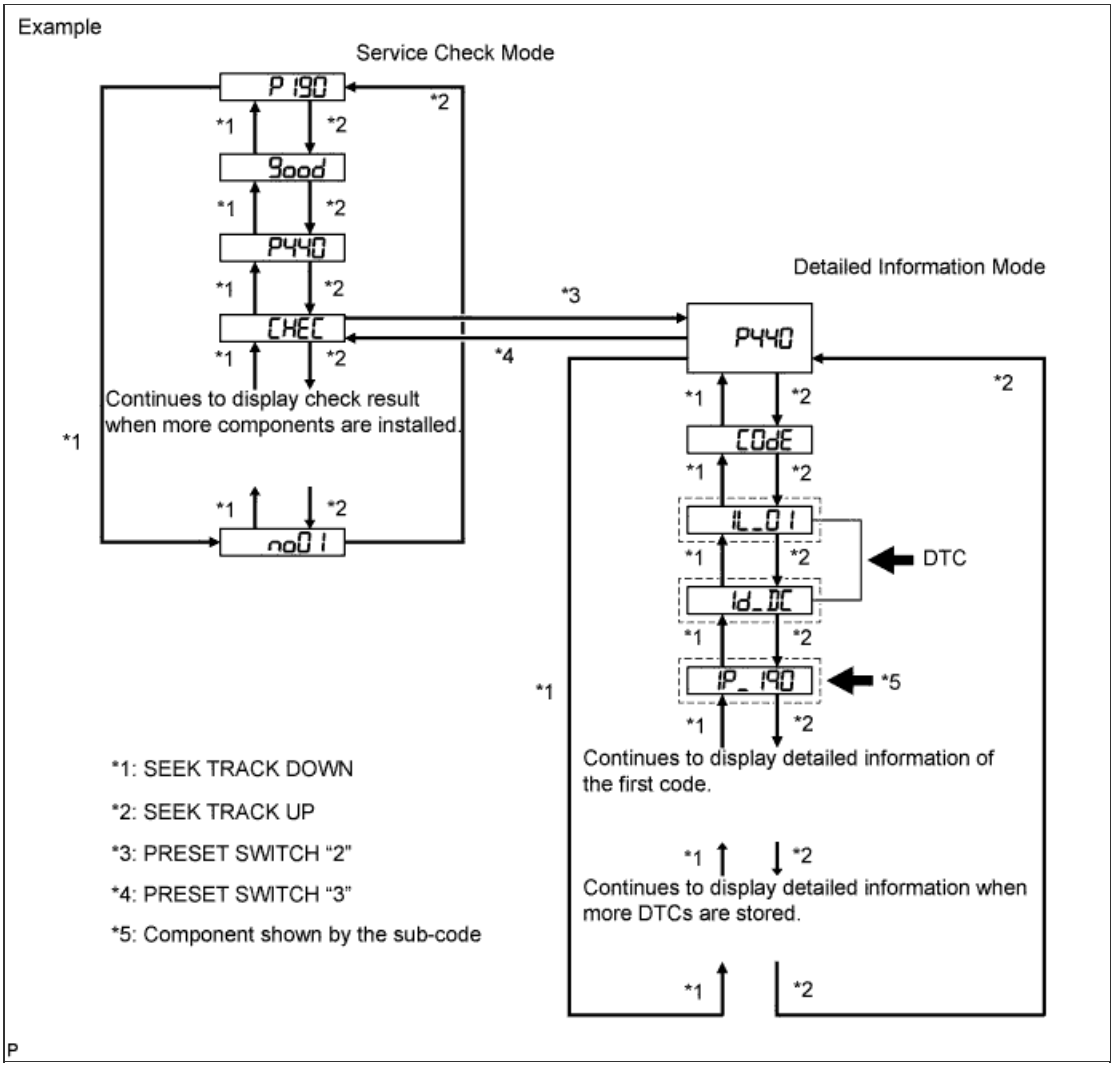
REPLACE MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)

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.

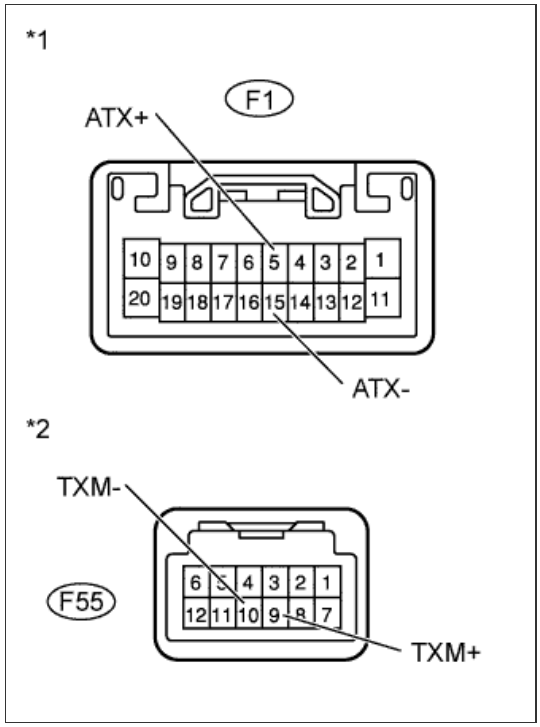
b. Measure the resistance according to the value(s) in the table below.

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).**

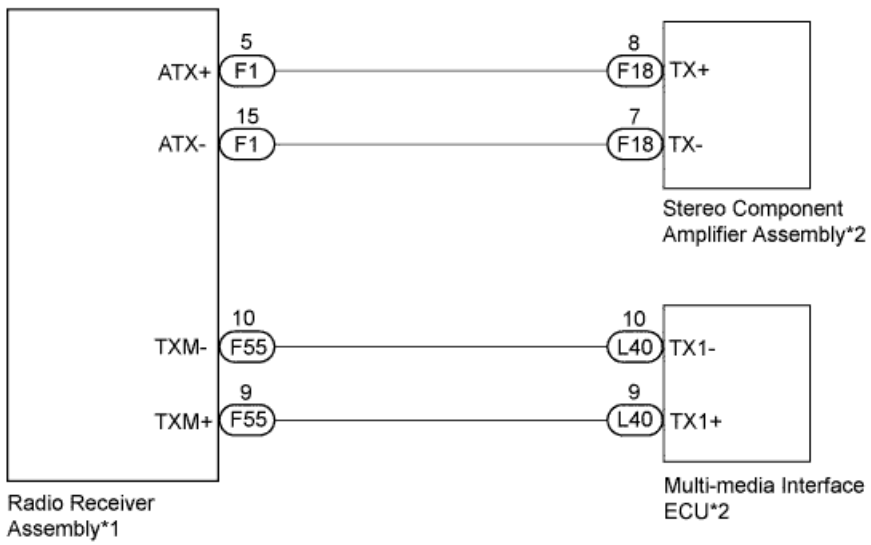
a. Referring to the following AVC-LAN wiring diagram, check the AVC-LAN circuit between the radio receiver assembly and component shown by the sub-code.

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

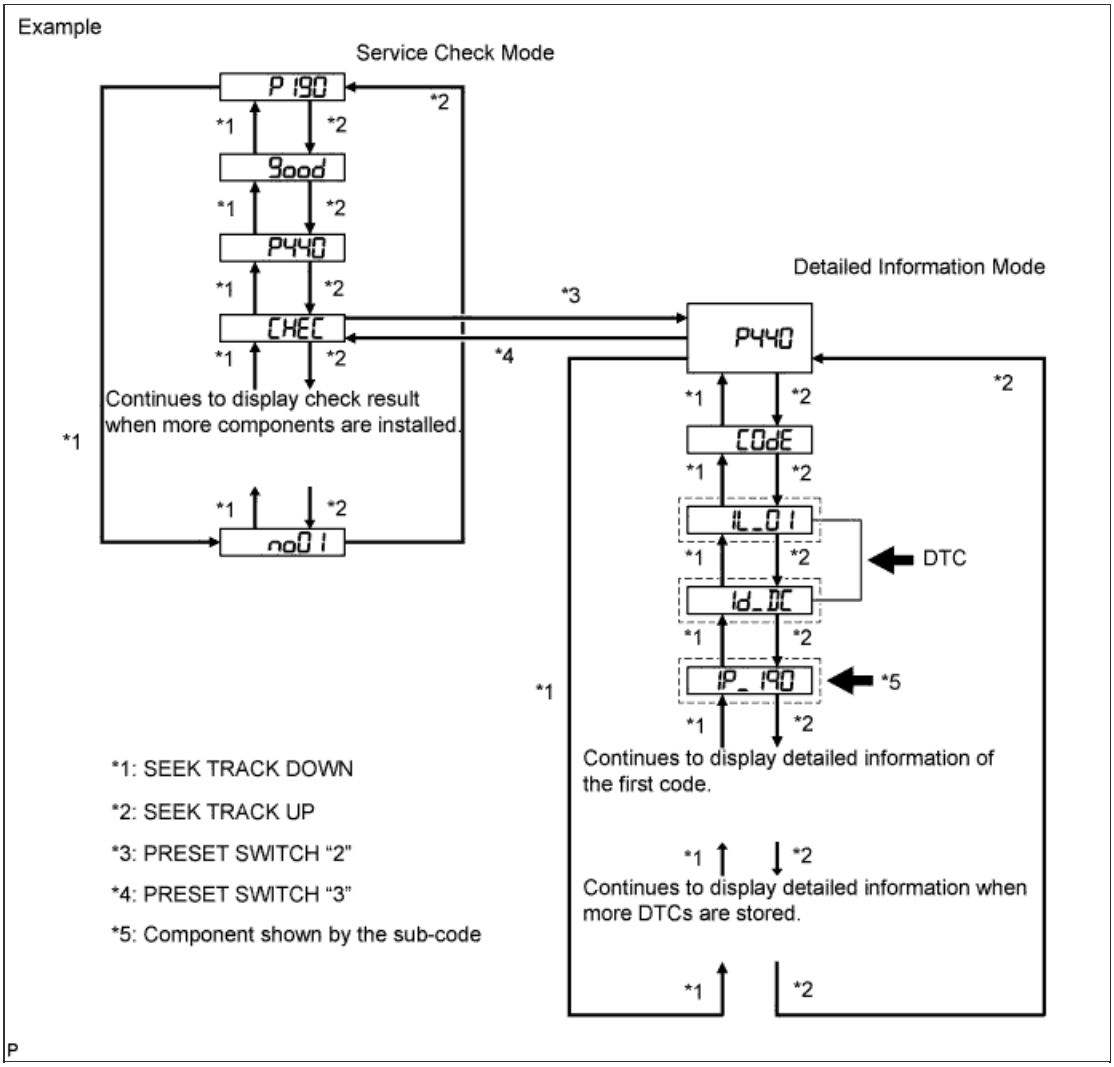
END

for Preparation Click here

INSPECTION PROCEDURE

1.IDENTIFY COMPONENT SHOWN BY SUB CODE

a. Enter diagnostic mode.



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

c. Identify the component shown by the sub-code.

HINT:

- **P t se the ra io receiver assem ly is shown in the prece ing illustration as an example.**
- **For tails of the DTC isplay, 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 Ta le

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.

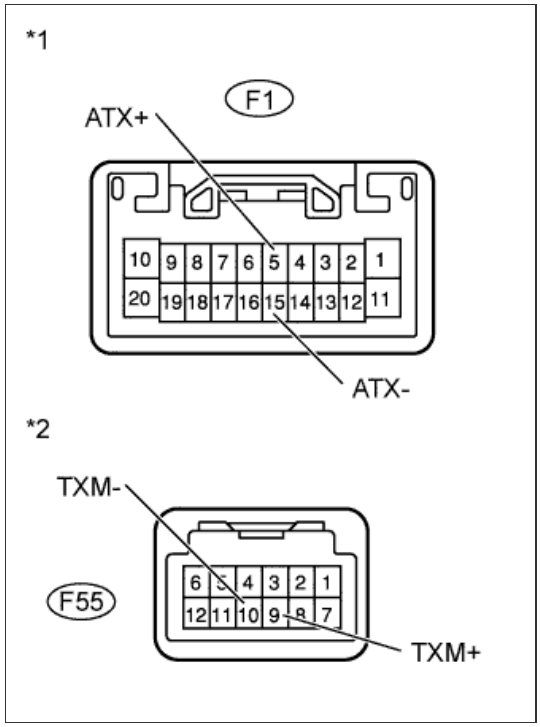
. Measure the resistance according to the value(s) in the table below.

Stan a 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

Te t ill ustration

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



N → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

.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 the su co first.**
- **For tails 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.

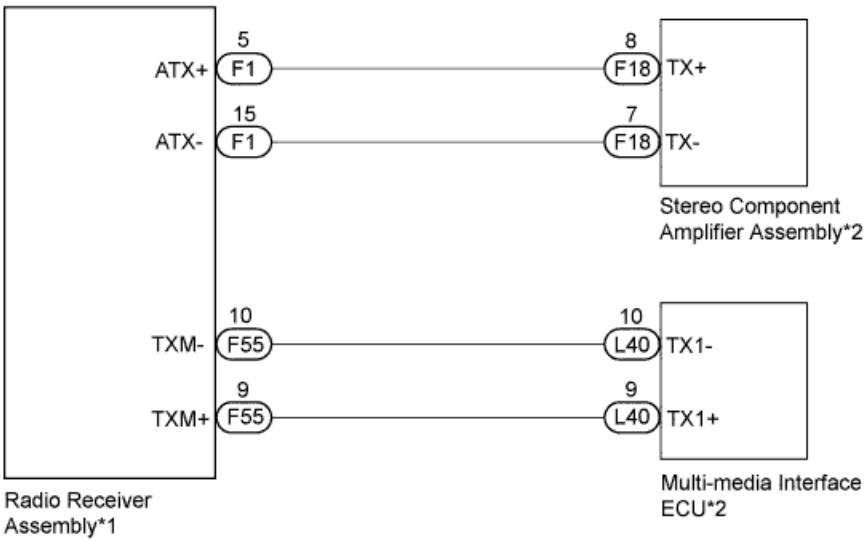
i. Disconnect all connectors between the stereo component amplifier assembly and component shown by the sub-code.

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

N → 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 isappears.

N → REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

OK →

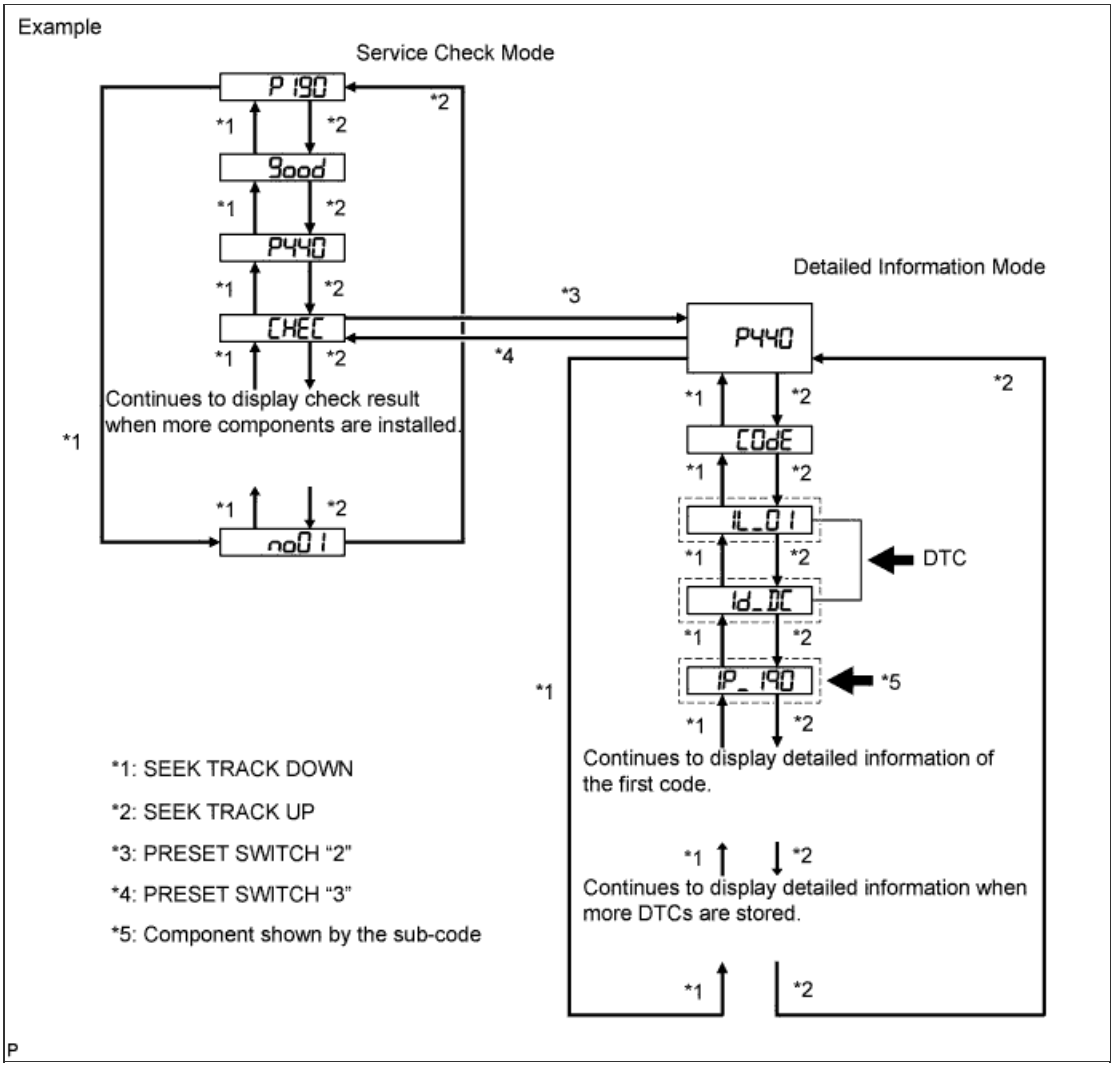
END

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.CHEC 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.

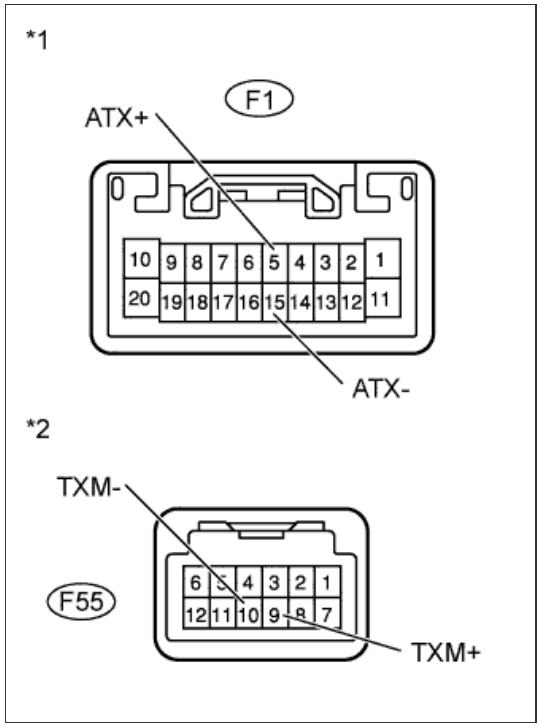
b. Measure the resistance according to the value(s) in the table below.

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)



N → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

O

.CHEC 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.

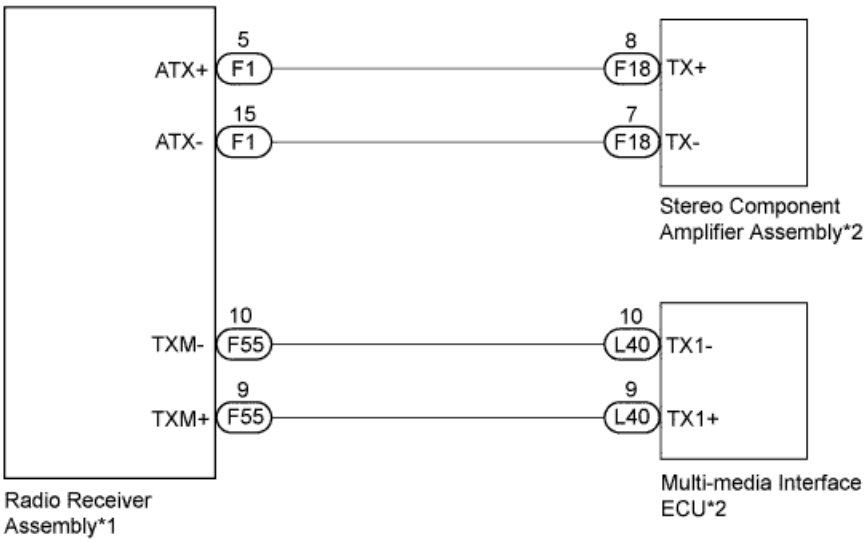
i. Disconnect all connectors between the multi-media interface ECU and component shown by the sub-code.

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

N → REPAIR OR REPLACE HARNESS OR CONNECTOR

O

.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.

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

O

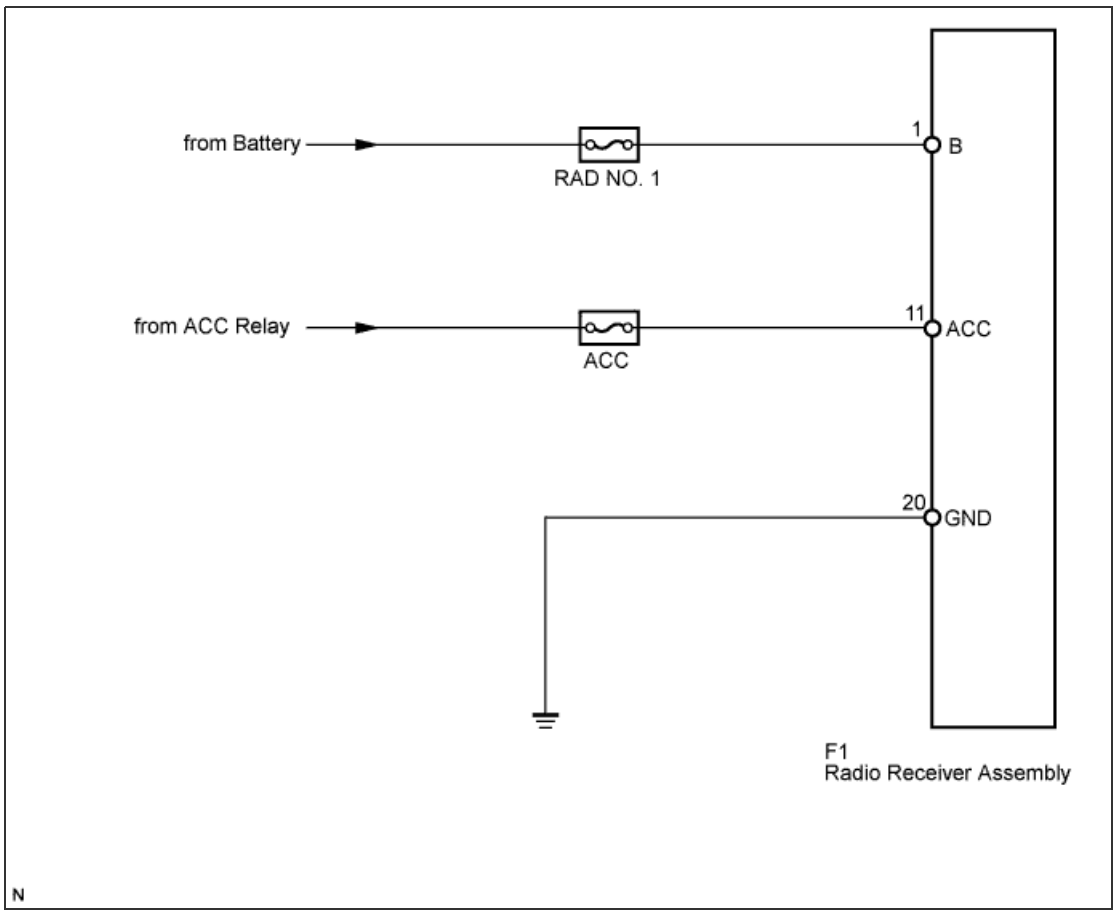
END

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.

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

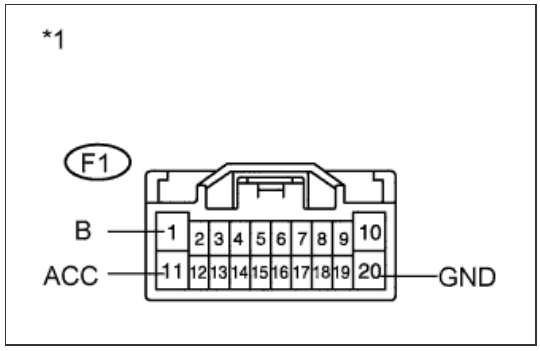
Standard Resistance:

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

O

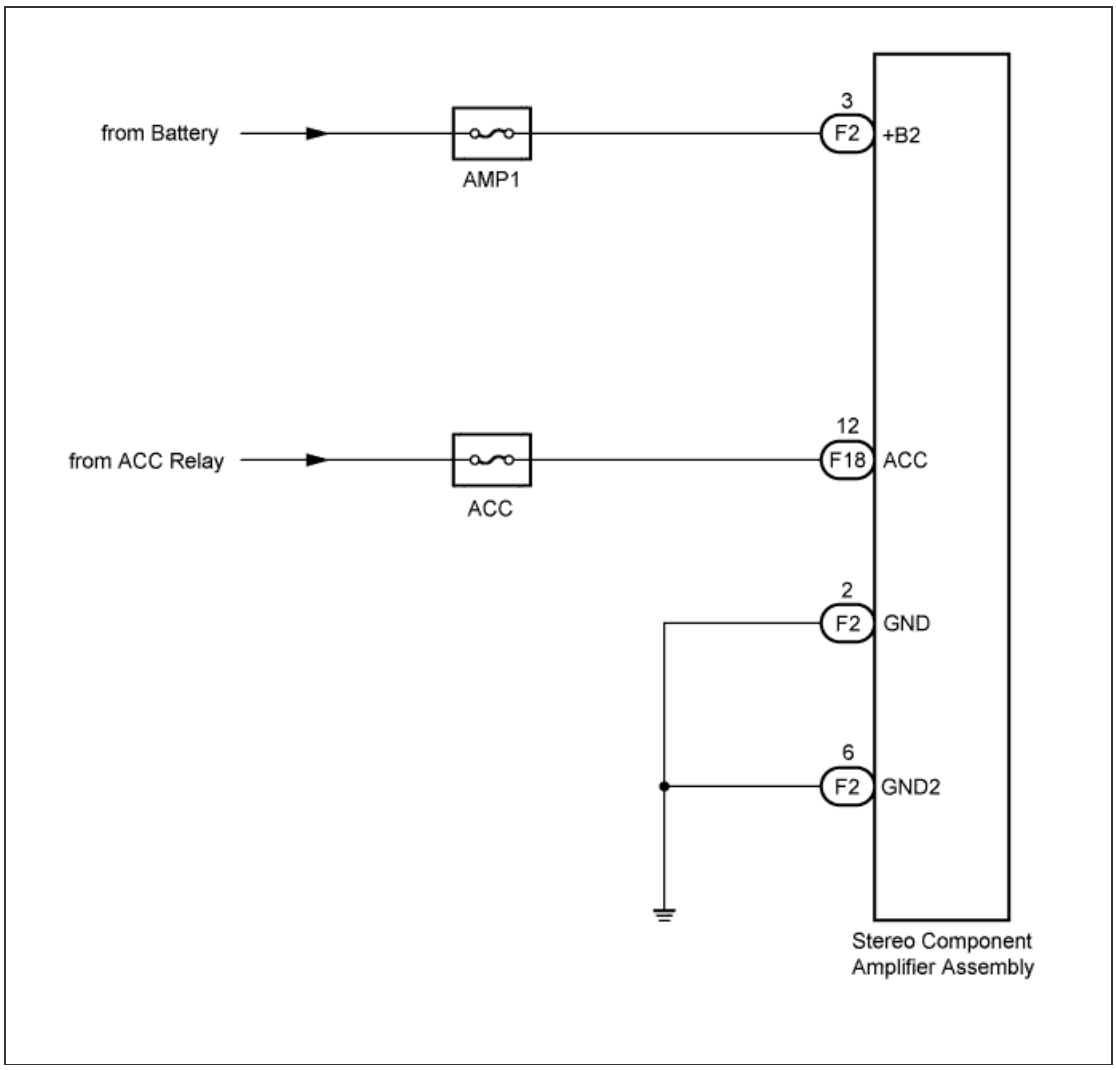
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

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.

. 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

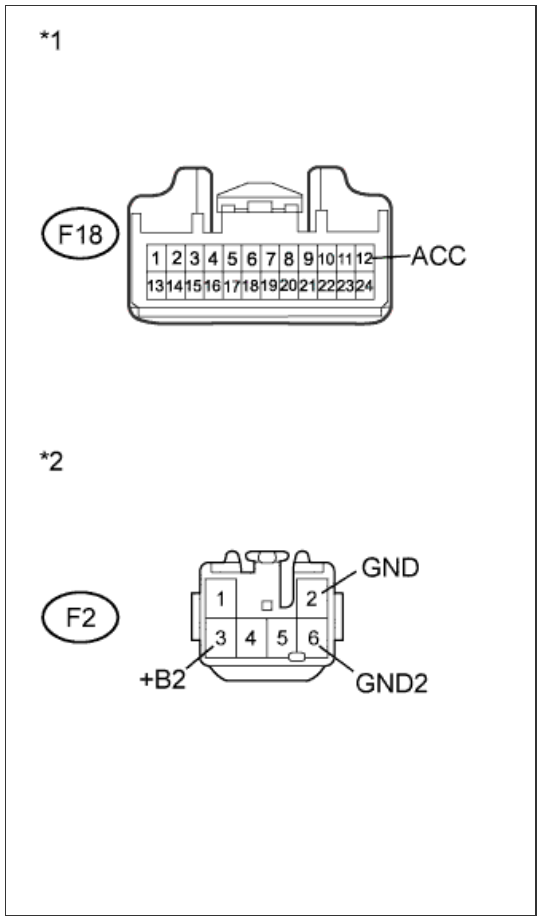
c. Measure the voltage according to the value(s) in the table below.

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

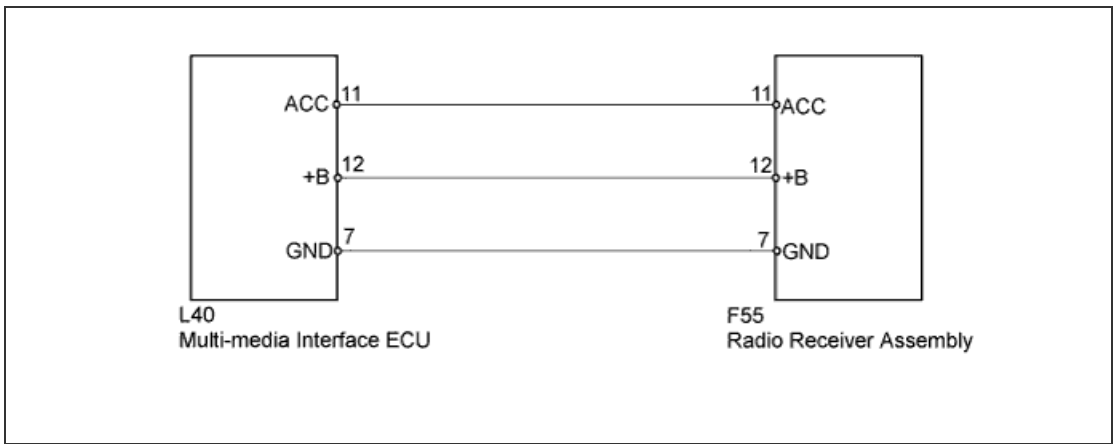
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This circuit provides power to the multi-media interface ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

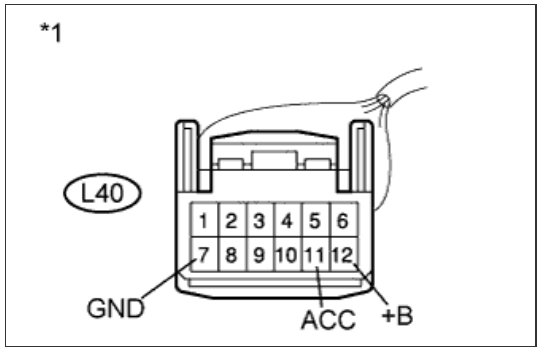
1.INSPECT MULTI-MEDIA INTERFACE ECU

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

. 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 S WN IN PRO LEM SY MPTOMS TA LE Click here)

2.C EK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - RADIO RECEIVER ASSEM LY)

a. Disconnect the F55 radio receiver assembly connector.

. 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.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

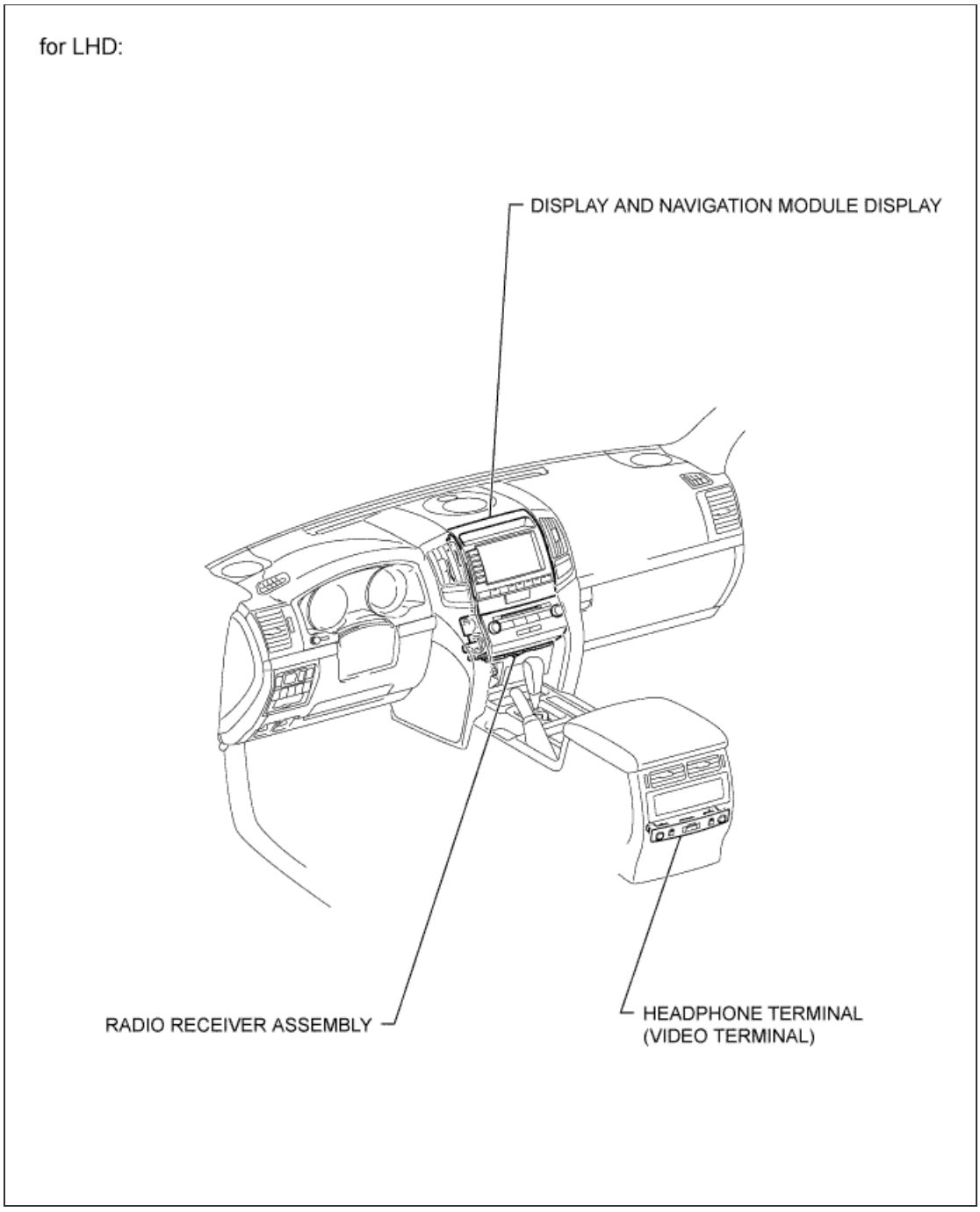
- **After the engine switch is turned off, the display and navigation module display records various types of memory and settings. As a result, after turning the engine switch off, make sure to wait for the time specified in the following table before disconnecting the cable from the negative (-) battery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

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

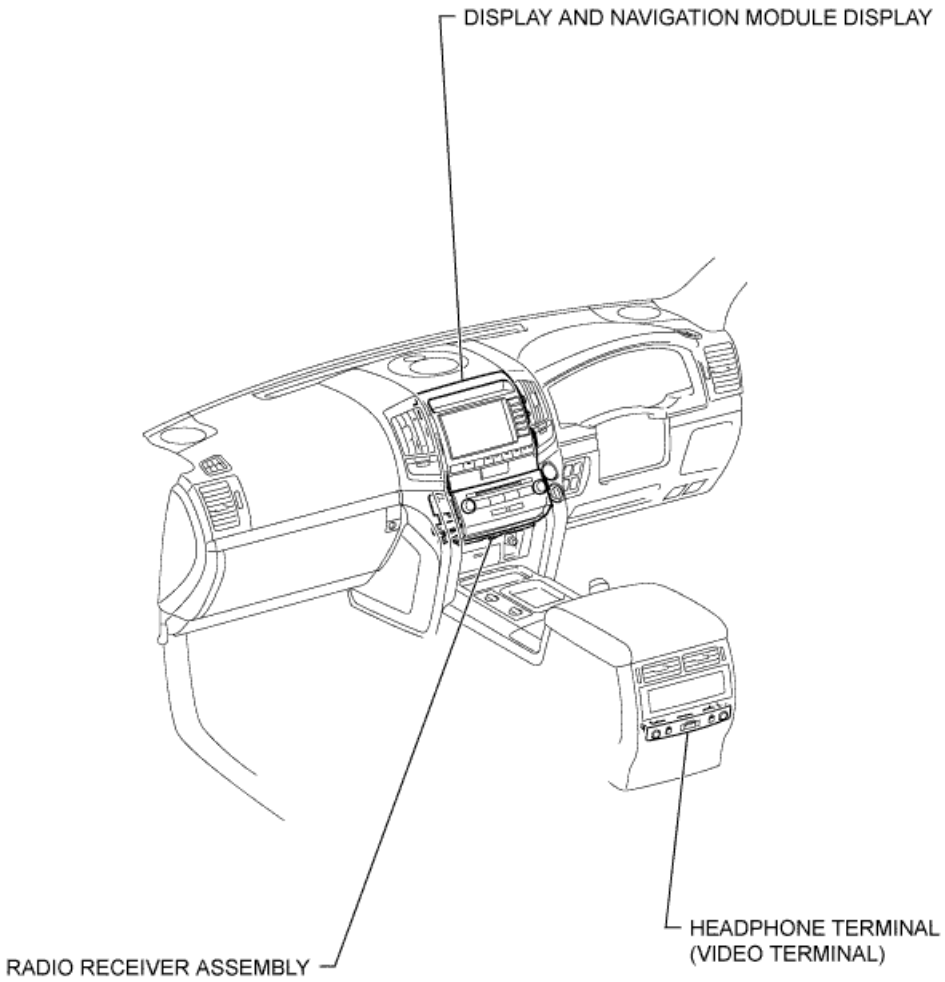
Specification	Waiting Time
w/o Telematics transceiver	60 seconds
w/ Telematics transceiver	120 seconds

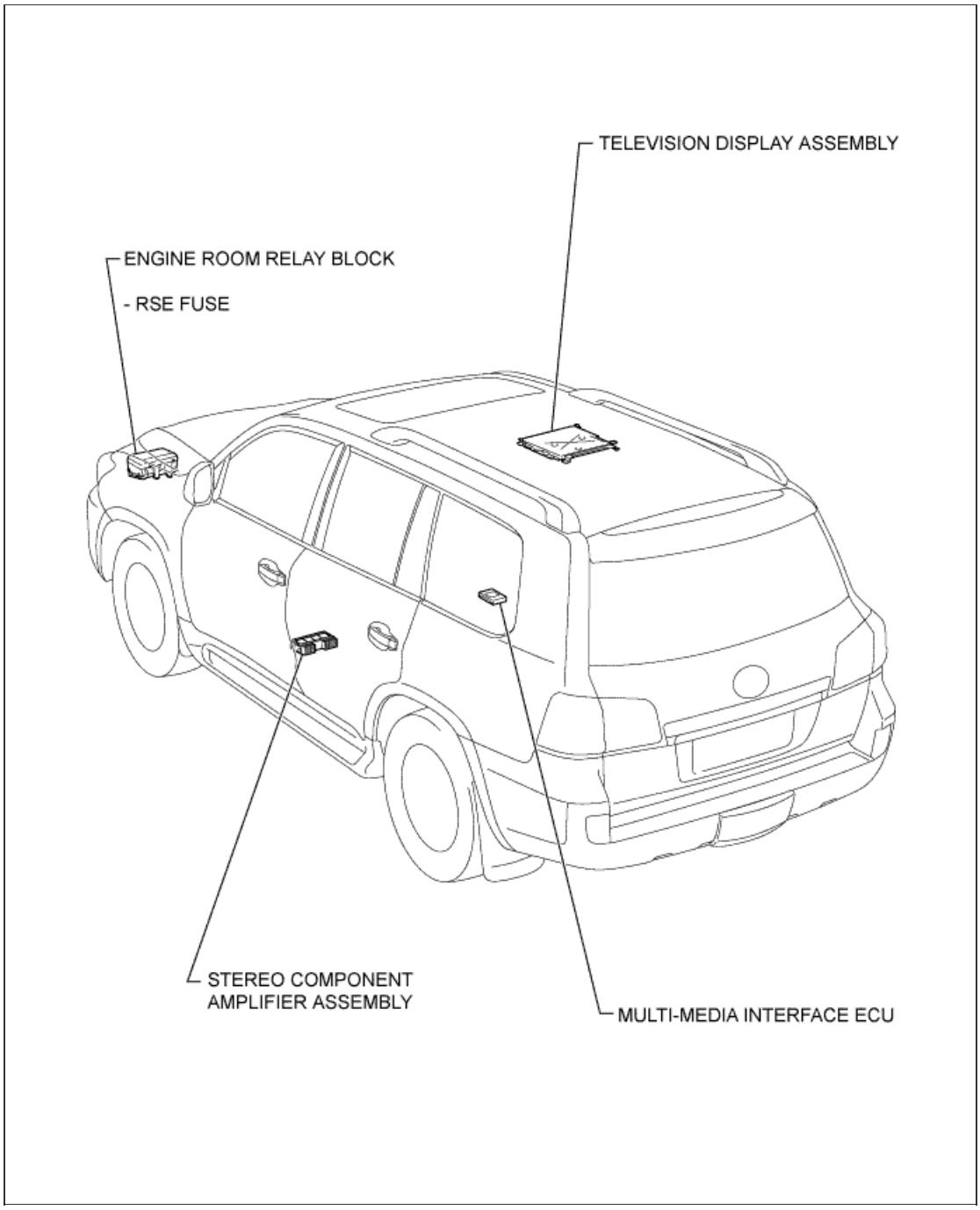
for Preparation Click here

for LHD:

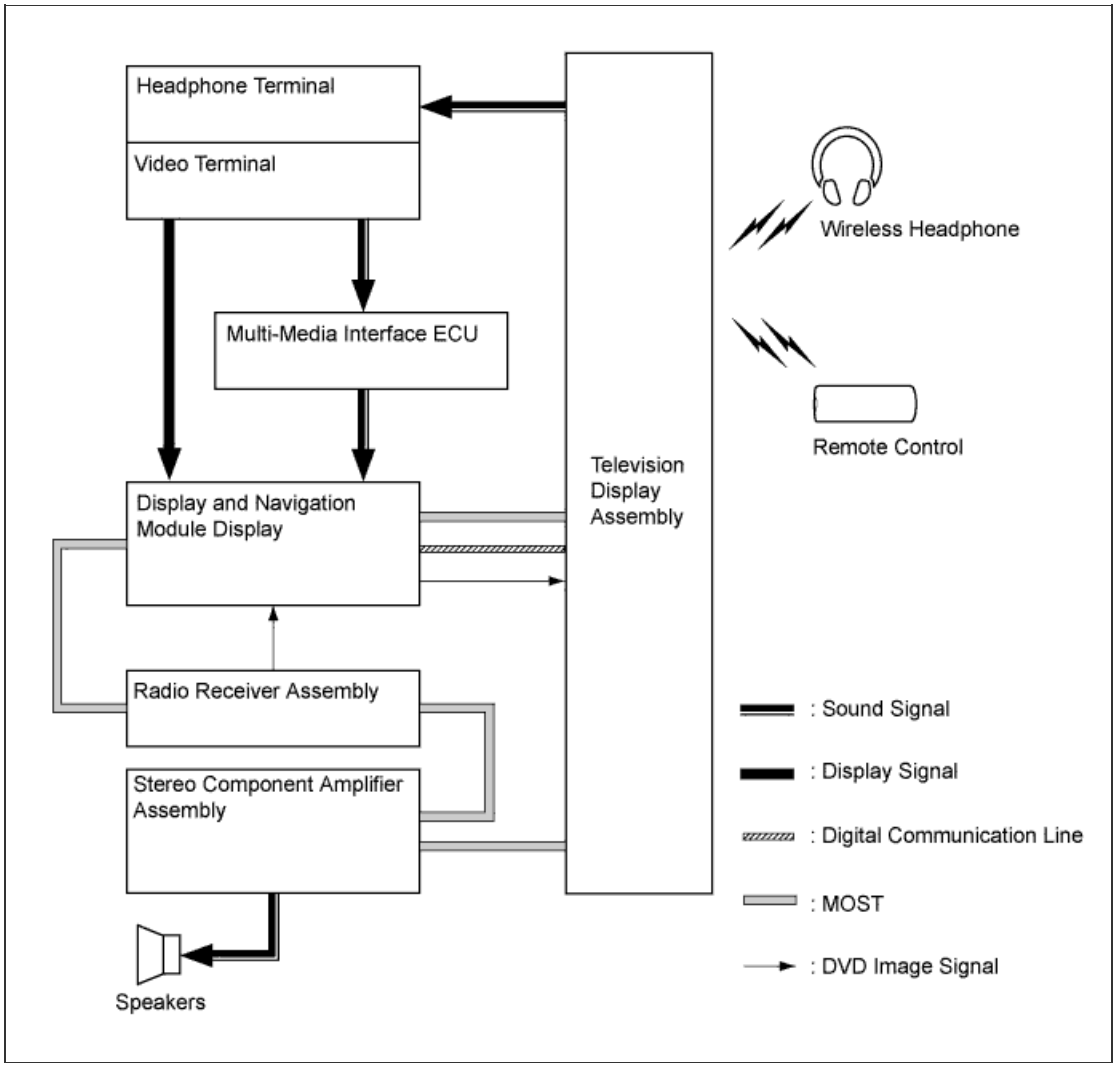


for RHD:


DISPLAY AND NAVIGATION MODULE DISPLAY
RADIO RECEIVER ASSEMBLY
HEADPHONE TERMINAL
(VIDEO TERMINAL)


TELEVISION DISPLAY ASSEMBLY
ENGINE ROOM RELAY BLOCK
- RSE FUSE
STEREO COMPONENT AMPLIFIER ASSEMBLY
MULTI-MEDIA INTERFACE ECU

for Preparation Click here



for Preparation Click here

OUTLINE

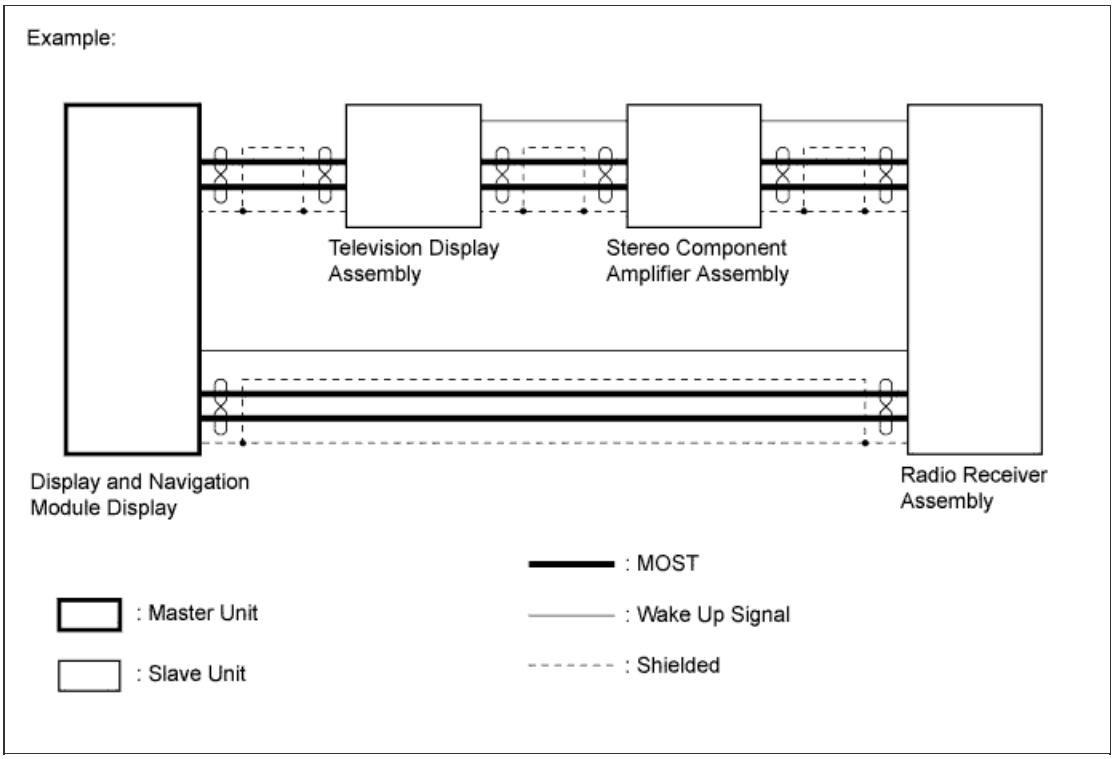
- As a unique feature of the Rear Seat Entertainment (RSE) system, the rear seat occupants can enjoy different audio-visual modes at the same time.
- The rear seat occupants can control the audio-visual modes with the remote control, and listen to audio by using wired or wireless headphones.
- The television display assembly receives image and sound signals from the display and navigation module display.
- The rear seat occupants can enjoy watching video by connecting an external device.
- MOST communication is used between the display and navigation module display and the television display assembly.
- Occupants in the front seats and rear seats can enjoy different content at the same time.

FUNCTION OF MAIN COMPONENTS

Component	Function
Television Display Assembly	• Displays DVD and video images in accordance with video signals from the display and navigation module display. • Receives signals from the remote control and outputs them to the display and navigation module display. • 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 display and navigation module display. • 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 radio receiver, and outputs them to the television display and headphone terminals.
Radio Receiver Assembly	Outputs DVD image signals to the display and navigation module display.
Remote Control	Outputs various control signals of the RSE system to the television display assembly in the form of infrared signals.
Wireless Headphone	• Receives audio signals from the television display assembly in the form of infrared signals. • 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.
Display and Navigation Module Display	Receives DVD image signals from the radio receiver assembly and sends the signals to the television display assembly.

COMMUNICATION SYSTEM

a. MOST NETWORK OUTLINE



i. Navigation system components communicate with each other via the MOST network.

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

iii. The master unit of the MOST network is the display and navigation module display.

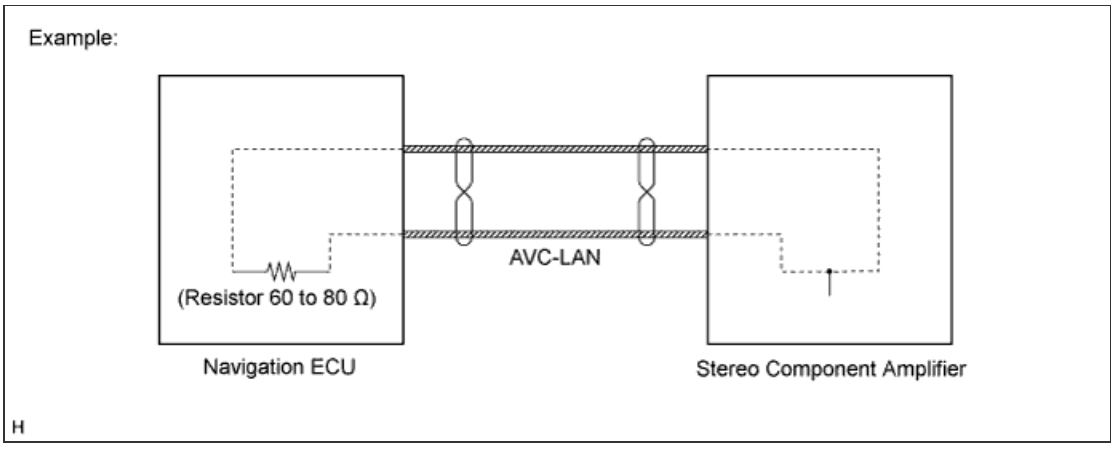
iv. MOST communication lines connect each slave unit centering around the master unit to form a MOST network ring.

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

HINT:

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

b. AVC-LAN OUTLINE



i. Components of the navigation system communicate with each other via the AVC-LAN.

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

iii. The master unit of the AVC-LAN is the display and navigation module display.

HINT:

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

DIAGNOSIS FUNCTION

a. hen the navigation system changes to the diagnosis screen, the television display assembly shows the "RSE Check" screen.

Digital Versatile Disc (DVD) PLAYER OUTLINE

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



H

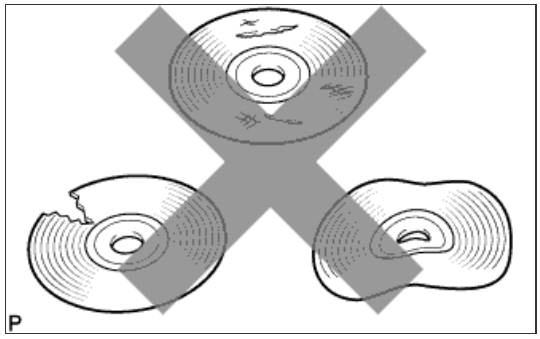
i. Precaution for use of discs

NOTICE:

- **Keep the discs away from dirt. Be careful not to damage the discs or leave your fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **Do not use uniquely-shaped CDs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be able to be inserted, ejected or played normally.**

b. Check disc

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


P

c. Disc cleaning

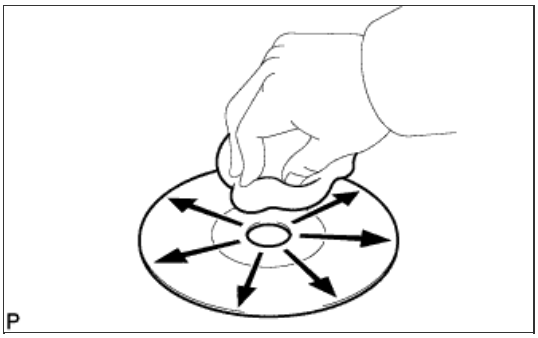
NOTICE:

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

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

NOTICE:

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



for Preparation Click here

HINT:

- **Use the following procedure to troubleshoot the rear seat entertainment system.**
- ***: Use the intelligent tester.**

1.VEHICLE BROUGHT TO WORKSHOP

NEXT

2.INSPECT BATTERY VOLTAGE

a. Inspect the battery voltage.

Standard Voltage:
11 to 14 V

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

NEXT

3.CHECK FOR DTC*

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

Result

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

HINT:

If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).

B. → Go to step 7

A

4.DTC CLEAR*

a. Clear the DTCs and finish diagnostic mode.

HINT:

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

NEXT

5.RECHECK FOR DTC*

a. Recheck for DTCs.

Result

Result	Proceed to
DTC is output.	A

DTC is not output.	B

HINT:

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

B. → **Go to step 7**

A

6.DIAGNOSTIC TROUBLE CODE CHART

a. Find the output code in the diagnostic trouble code chart (Click here).

NEXT. → **Go to step 9**

7.PROBLEM SYMPTOMS TABLE

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

Result

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

HINT:

If the symptom does not recur and no DTC is output, perform the symptom simulation method (Click here).

B. → **Go to step 9**

A

8.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

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

NEXT

9.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

NEXT

10.RECHECK FOR DIAGNOSTIC TROUBLE CODE*

HINT:

After clearing the DTCs, recheck for DTCs.

NEXT

11.PERFORM CONFIRMATION TEST


NEXT
END

for Preparation Click here

ENTER DIAGNOSTIC MODE

a. Enter diagnostic mode (Click here).

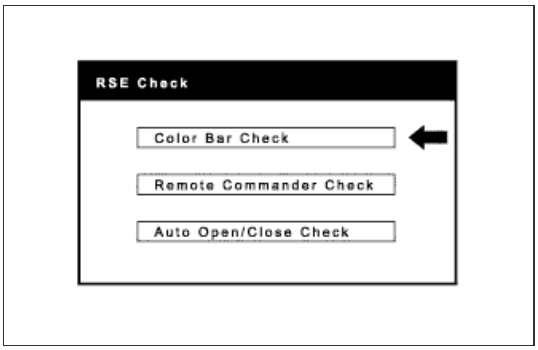
RSE CHECK

HINT:

- **Use the remote control for each inspection.**
- **This mode checks the color display on the television display assembly.**
- **The television display assembly is not a touch panel type. Do not touch the screen.**

a. Color Bar Check

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

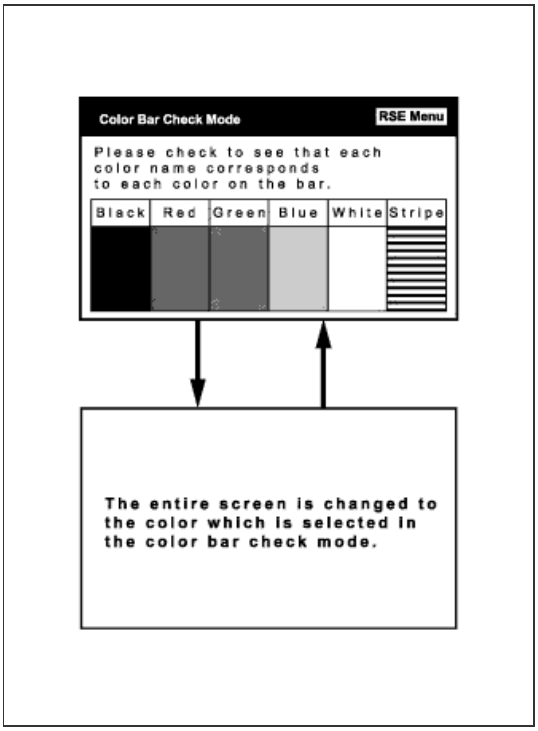


ii. Select a color bar from the "Color Bar Check Mode" screen.

iii. Check the display color.

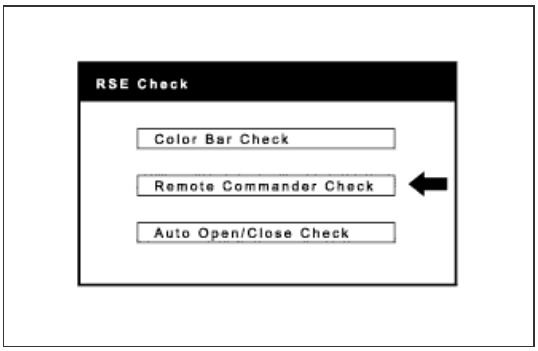
HINT:

- **The entire screen turns to the color or stripe which is selected.**
- **The screen returns to the "Color Bar Check" screen if the remote controller is operated again.**

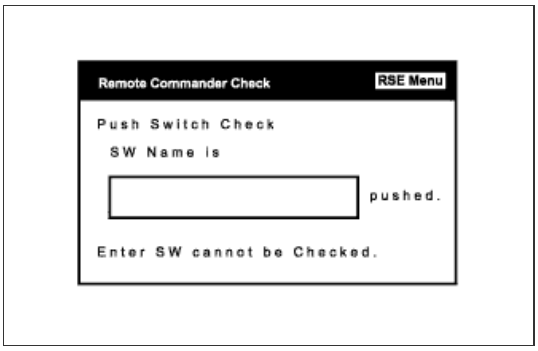


b. Remote Commander Check

i. Select "Remote Commander Check" from the "RSE Check" screen.

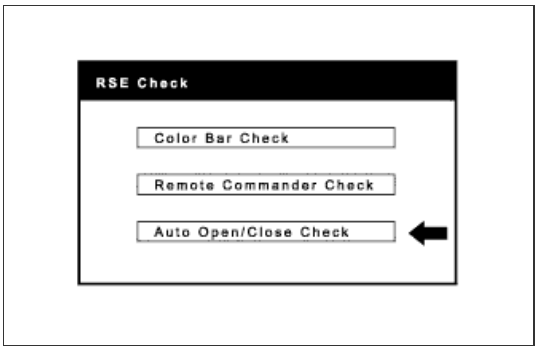


ii. Operate each switch and check that the switch name and condition are correctly displayed.



c. Auto Open/Close Check

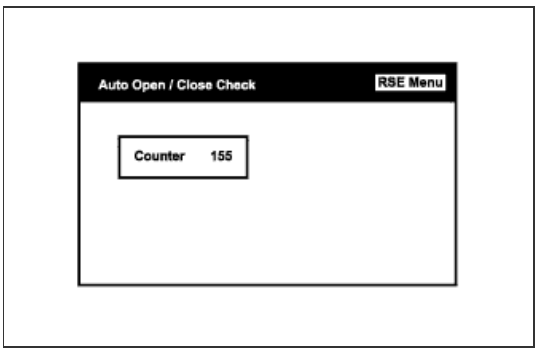
i. Select "Auto Open/Close Check" from the "RSE Check" screen.



ii. Confirm the number of open/close cycles of the television display assembly.

HINT:

The counter indicates the number of times the television display assembly has been opened to an angle of 90° or greater.



for Preparation Click here

HINT:

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

Display

Symptom	Suspected Area	See page
Black screen	Proceed to "Visual Mute Signal Circuit between Navigation ECU and Television Display"	Click here
	Proceed to "Display Signal Circuit between Television Display Assembly and Navigation Receiver Assembly"	Click here
	Television display assembly	Click here
	Display and Navigation Module Display	Click here
Color on display screen is not usual.	Adjust the settings for contrast, tint, color and brightness	-
	Proceed to "Operation Check (Color Bar Check)"	Click here
	Television display assembly	Click here
	Display and Navigation Module Display	Click here
Only DVD screen is not displayed or not stabilized.	Check and clean disc	Click here
	Proceed to "Visual Mute Signal Circuit between Navigation ECU and Television Display"	Click here
	Proceed to "DVD Image Signal Circuit between Radio Receiver and Navigation ECU"	Click here
	Proceed to "Display Signal Circuit between Television Display Assembly and Navigation Receiver Assembly"	Click here
	Television display assembly	Click here
	Radio receiver assembly	Click here
	Display and navigation module display	Click here
Only display screen of external device does not appear or is not stabilized.	Check if the external device is normal	-
	Proceed to "Display Signal Circuit between Navigation ECU and Video Terminal"	Click here
	Proceed to "Display Signal Circuit between Television Display Assembly and Navigation Receiver Assembly"	Click here
	Headphone terminal (Video terminal)	Click here
	Television display assembly	Click here
	Display and navigation module display	Click here
Television display does not turn on.	Television display power source circuit	Click here
	Proceed to "Television Display does not Turn ON"	Click here

Sound

Symptom	Suspected Area	See page

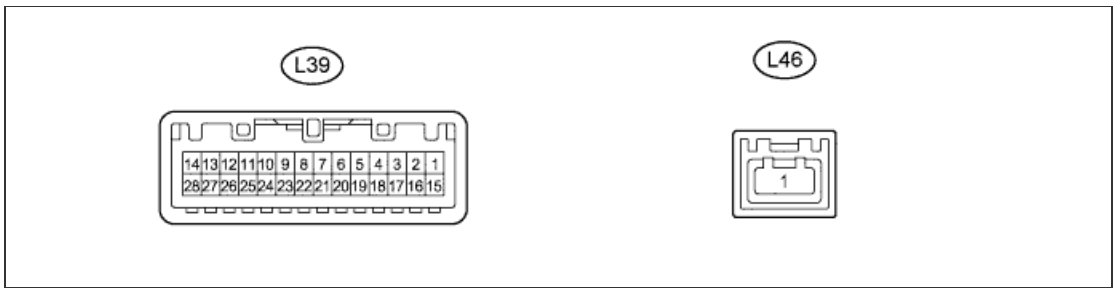
Quality of sound from wireless headphone is poor or no sound can be heard.	Proceed to "Sound from Wireless Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor"	Click here
	MOST communication line	-
	Television display assembly	Click here
Quality of sound from headphone connected to headphone terminal is poor or no sound can be heard.	Proceed to "Sound from Wired Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor"	Click here
	Proceed to "Sound Signal Circuit between Headphone Terminal and Television Display"	Click here
	MOST communication line	-
	Headphone terminal (Video terminal)	Click here
	Television display assembly	Click here
Only sound quality input from the external device is poor or no sound can be heard.	Proceed to "Sound Signal Circuit between Multi-Media Interface ECU and Video Terminal"	Click here
	Proceed to "Sound Signal Circuit between Navigation ECU and Multi-Media Interface ECU"	Click here
	MOST communication line	-
	Headphone terminal (Video terminal)	Click here
	Multi-media interface ECU	Click here
	Display and navigation module display	Click here

Remote Control

Symptom	Suspected Area	See page
A remote control system does not operate.	Proceed to "A Remote Control System does not Operate"	Click here
	Television display assembly	Click here

for Preparation Click here

TELEVISION DISPLAY ASSEMBLY



Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L39-1 (MI+)	W	MOST communication signal	-	-
L39-2 (MI-)	B	MOST communication signal	-	-
L39-3 (SLDI) - Body ground	BR - Body ground	Shield ground	Always	Below 1 V
L39-4 (SLDO) - Body ground	BR - Body ground	Shield ground	Always	Below 1 V
L39-5 (MO-)	B	MOST communication signal	-	-
L39-6 (MO+)	W	MOST communication signal	-	-
L39-7 (WUI) - L39-10 (GND)	P - W-B	MOST communication wake up signal (Input)	Engine switch on (ACC)	4.5 V or higher
			Engine switch off	Below 1 V
L39-9 (VMTR) - L39-10 (GND)	G - W-B	Mute signal	RSE is playing → Source is changed	4 V or higher → Below 0.7 V → 4 V or higher
L39-10 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
L39-11 (GND2) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
L39-14 (+B2) - L39-10 (GND)	L - W-B	Battery	Always	11 to 14 V
L39-15 (HP1L) - L39-10 (GND)	W - W-B	RSE sound signal	RSE is playing	Waveform synchronized with sound is output.
L39-16 (SLD1) - L39-10 (GND)	BR - W-B	Shield ground	Always	Below 1 V
L39-17 (HP1R) - L39-10 (GND)	B - W-B	RSE sound signal	RSE is playing	Waveform synchronized with sound is output.
L39-18 (HP2L) - L39-10 (GND)	W - W-B	RSE sound signal	RSE is playing	Waveform synchronized with sound is output.
L39-19 (SLD2) - L39-10 (GND)	BR - W-B	Shield ground	Always	Below 1 V
L39-20 (HP2R) - L39-10 (GND)	B - W-B	RSE sound signal	RSE is playing	Waveform synchronized with sound is output.
L39-21 (SLD) - L39-10 (GND)	Shield - W-B	Shield ground	Always	Below 1 V
L39-22 (SGN1) - L39-10 (GND)	W - W-B	Display signal ground	Always	Below 1 V
L39-23 (NTSC) - L39-22 (SGN1)	B - W	Display signal	RSE is playing	Waveform synchronized with display signals is output
L39-28 (+B) - L39-10 (GND)	L - W-B	Battery	Always	11 to 14 V
L46-1 (GVIF)	B	Digital communication signal	-	-

RADIO RECEIVER ASSEMBLY (Click here)

DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

for Preparation Click here

HINT

Refer to Navigation System (Click here).

for Preparation Click here

DTC Code	Detection Item	Trouble Area	See page
B15A5	Rear Seat Entertainment System Malfunction	Television Display Assembly	Click here
B15B0	Display Screen Malfunction	1. Television Display Assembly 2. Display and Navigation Module Display	Click here

DTC B15A5 Rear Seat Entertainment System Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when a malfunction occurs in the television display assembly.

DTC No.	DTC Detection Condition	Trouble Area
B15A5	• Bus or sub-microprocessor malfunction • 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 B15B0 Display Screen Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when a malfunction occurs in the television display assembly.

DTC No.	DTC Detection Condition	Trouble Area
B15B0	When either condition below is met: • Picture circuit (TFT unit) malfunction • Back light malfunction (excess current)	• Television display assembly • Display and Navigation Module Display

INSPECTION PROCEDURE

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.RECHECK DTC

a. Recheck for DTCs (Click here).

Result

Result	Proceed to
DTC B15B0 is not output.	A
DTC B15B0 is output.	B

HINT:

- **This DTC is output from the display and navigation module display or television display assembly.**
- **When the DTC is checked using the intelligent tester, whether the DTC is output from the display and navigation module display, or whether it is output from the television display assembly, cannot be distinguished. For this reason, recheck the DTC using the "System Check Mode" screen.**

i. Enter diagnostic mode and display the "Service Menu" screen (Click here).

ii. Select "Failure Diagnosis Service Check" on the "Service Menu" screen to display the "Failure Diagnosis Service Check" screen.

iii. Select "Service Check Mode" on the "Failure Diagnosis Service Check" screen and perform the service check.

iv. Recheck for DTCs and proceed to the next step according to the table below (Click here).

Result

Result	Proceed to
DTC is not output	A
DTC is output from the display and navigation module display.	B
DTC is output from a television display assembly.	C

B → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

C → **REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)**

A

USE SIMULATION METHOD TO CHECK (Click here)

for Preparation Click here

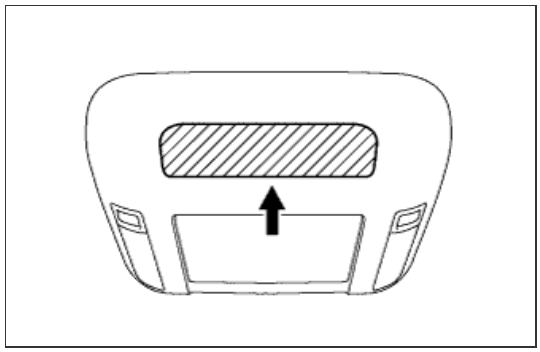
INSPECTION PROCEDURE

1.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the television display assembly.

b. Check whether the same malfunction occurs.

OK:
The function returns to normal.



NG → Go to step 2

OK →

END

2.CHECK SYSTEM

a. Check that the remote control operation of the rear system is not locked by the display and navigation module display.

i. Check if "Rear System oked" appears on the television display.

OK:
The message does not appear.

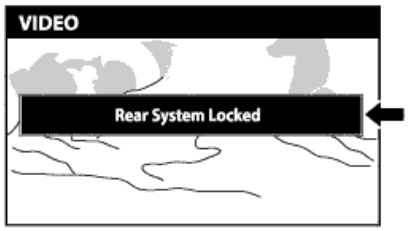
HINT:

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 oked") is displayed. If the message is displayed, enter the display and navigation module display screen setting, and change "Rear System ok" to Off.

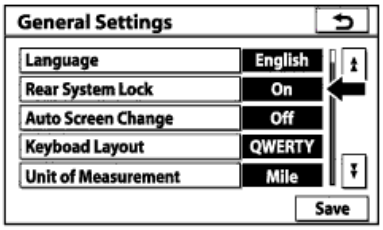
Text in Illustration

	elevision isplay ssembly
	isplay and avigation odule isplay

*1



*2



NG → RELEASE LOCK

OK →

3.CHECK REMOTE CONTROL (BATTERY)

a. Check that the dry cell battery of the remote control is not depleted.

OK:

Battery is not depleted.

NG → REPLACE REMOTE CONTROL BATTERY

OK

4.REPLACE REMOTE CONTROL

a. Replace the remote control with a new or known good one.

b. Check that the remote control system operates normally.

OK:
The remote control system operates normally.

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

OK

END (REMOTE CONTROL WAS DEFECTIVE)

for Preparation Click here

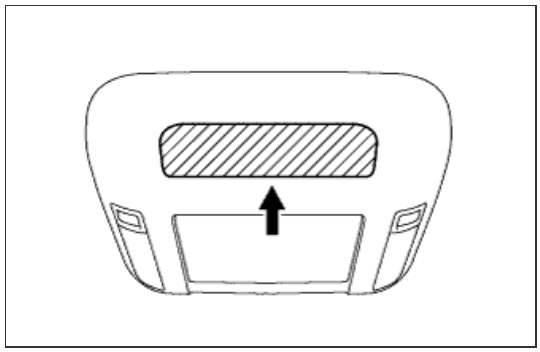
INSPECTION PROCEDURE

1.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the television display assembly.

b. Check whether the same malfunction occurs.

OK:
The function returns to normal.



NG → Go to step 2

OK →

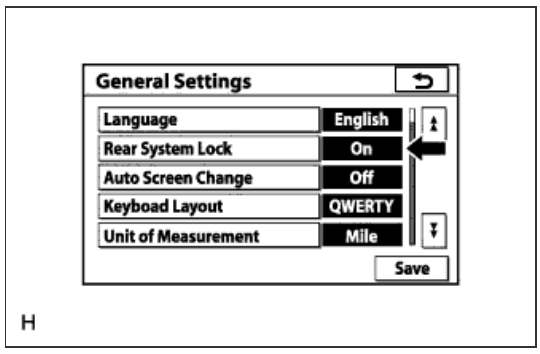
END

2.CHECK SYSTEM

a. Check that the remote control operation of the rear system is not locked by the display and navigation module display.

i. Check that "Rear System ock" is ff o the " eneral Settings screen.

OK:
"Rear System Lock" is Off.



H

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 .

ii. Check that "MUTE" is off.

OK:
The volume is not set to "0" and "MUTE" is off.

NG → SET VOLUME TO HIGH AND TURN MUTE OFF

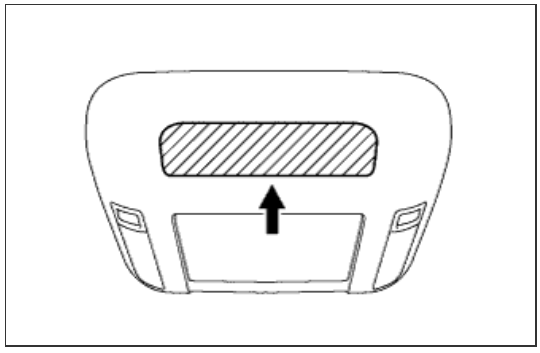
OK

3.CLEAN INFRARED RAY RECEIVING PORTION

a. Clean the infrared ray receiving portion on the television display assembly.

b. Check whether the same malfunction occurs.

OK:
The function returns to normal.



NG → Go to step 4

OK

END

4.REPLACE WIRELESS HEADPHONE

a. Replace the wireless headphone with a known good or new one and check if the same problem occurs again.

OK:
Same problem does not occur.

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

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.REPLACE HEADPHONE

a. Replace the headphone with a known good or new one and check if the same problem occurs again.

OK:
Same problem does not occur.

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

OK

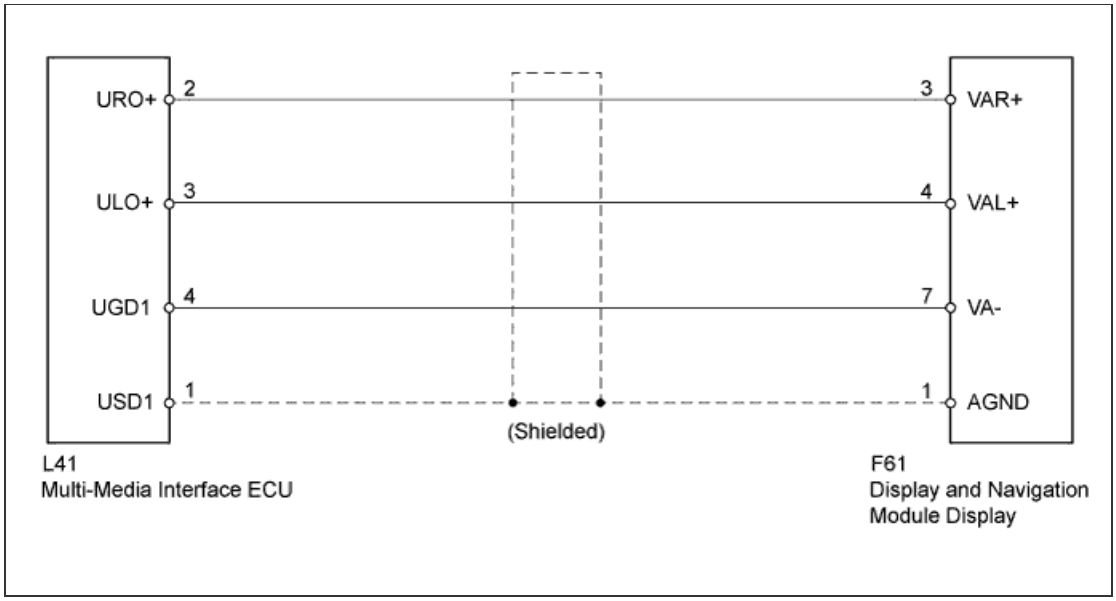
END (HEADPHONE WAS DEFECTIVE)

for Preparation Click here

DESCRIPTION

This is the sound signal circuit from the multi-media interface ECU to the display and navigation module display.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - NAVIGATION ECU)

a. Disconnect the L41 multi-media interface ECU connector.

b. Disconnect the F61 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L41-2 (URO+) - F61-3 (VAR+)	Always	Below 1 Ω
L41-3 (ULO+) - F61-4 (VAL+)		
L41-4 (UGD1) - F61-7 (VA-)		
L41-1 (USD1) - F61-1 (AGND)		
L41-2 (URO+) - Body ground	Always	10 kΩ or higher
L41-3 (ULO+) - Body ground		
L41-4 (UGD1) - Body ground		
L41-1 (USD1) - Body ground		

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

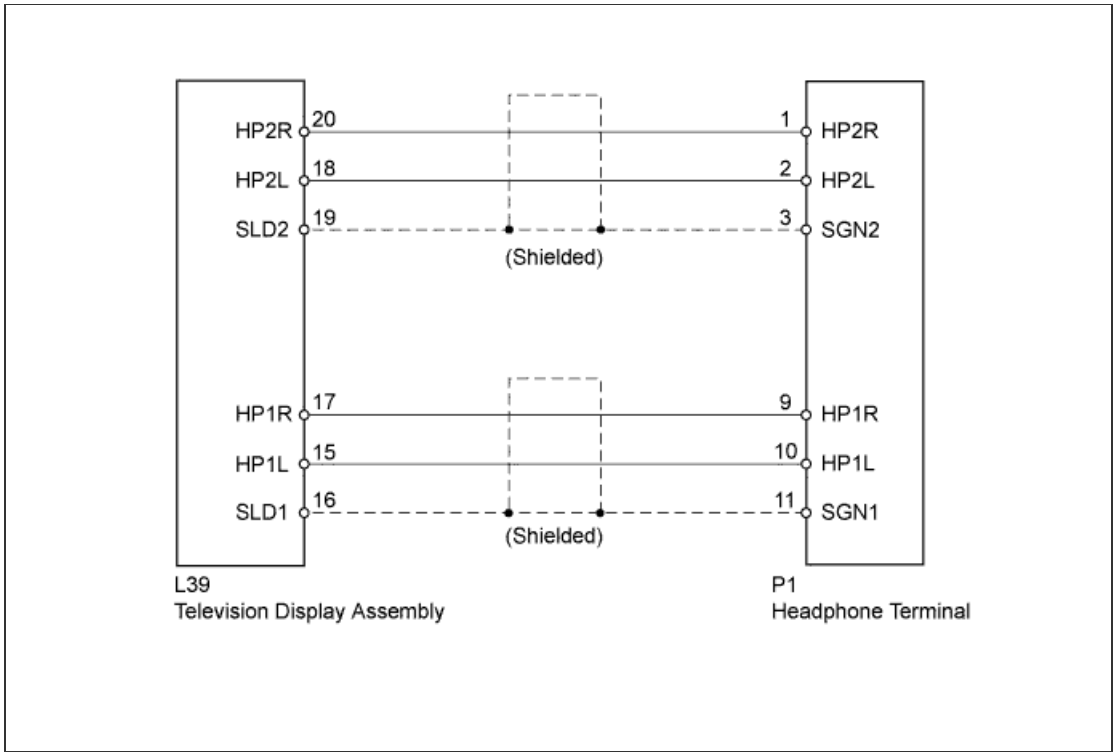
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This is the sound signal circuit from the television display assembly to the headphone terminal.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - HEADPHONE TERMINAL)

a. Disconnect the L39 television display assembly connector.

b. Disconnect the P1 headphone terminal connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L39-20 (HP2R) - P1-1 (HP2R)	Always	Below 1 Ω
L39-18 (HP2L) - P1-2 (HP2L)	Always	Below 1 Ω
L39-19 (SLD2) - P1-3 (SGN2)	Always	Below 1 Ω
L39-17 (HP1R) - P1-9 (HP1R)	Always	Below 1 Ω
L39-15 (HP1L) - P1-10 (HP1L)	Always	Below 1 Ω
L39-16 (SLD1) - P1-11 (SGN1)	Always	Below 1 Ω
L39-20 (HP2R) - Body ground	Always	10 kΩ or higher
L39-18 (HP2L) - Body ground	Always	10 kΩ or higher
L39-19 (SLD2) - Body ground	Always	10 kΩ or higher

L39-17 (HP1R) - Body ground	Always	10 kΩ or higher
L39-15 (HP1L) - Body ground	Always	10 kΩ or higher
L39-16 (SLD1) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

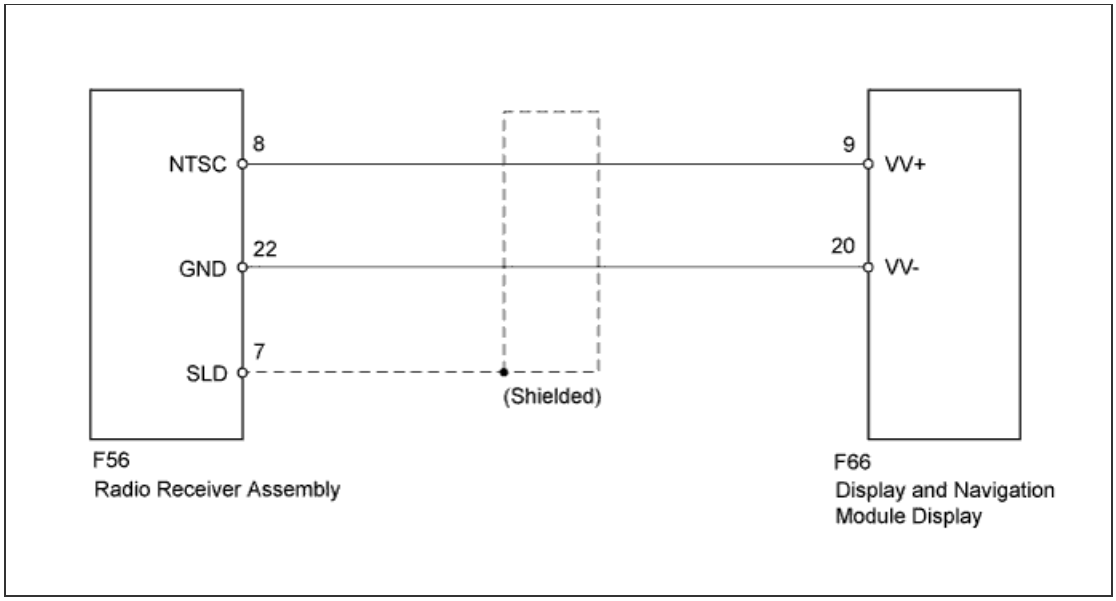
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This is the DVD image signal circuit from the radio receiver assembly to the display and navigation module display.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F56 radio receiver assembly connector.

b. Disconnect the F66 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F56-8 (NTSC) - F66-9 (VV+)	Always	Below 1 Ω
F56-22 (GND) - F66-20 (VV-)	Always	Below 1 Ω
F56-8 (NTSC) - Body ground	Always	10 kΩ or higher
F56-22 (GND) - Body ground	Always	10 kΩ or higher
F56-7 (SLD) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

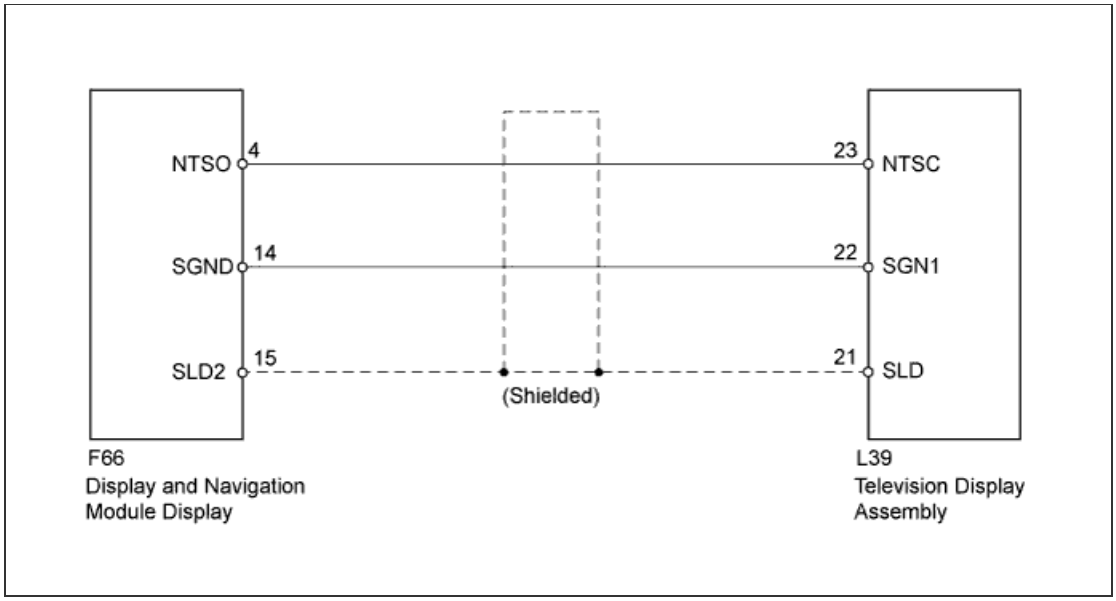
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This is the display signal circuit from the display and navigation module display to the television display assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - TELEVISION DISPLAY)

a. Disconnect the F66 display and navigation module display connector.

b. Disconnect the L39 television display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F66-4 (NTSO) - L39-23 (NTSC)	Always	Below 1 Ω
F66-14 (SGND) - L39-22 (SGN1)	Always	Below 1 Ω
F66-15 (SLD2) - L39-21 (SLD)	Always	Below 1 Ω
F66-4 (NTSO) - Body ground	Always	10 kΩ or higher
F66-14 (SGND) - Body ground	Always	10 kΩ or higher
F66-15 (SLD2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

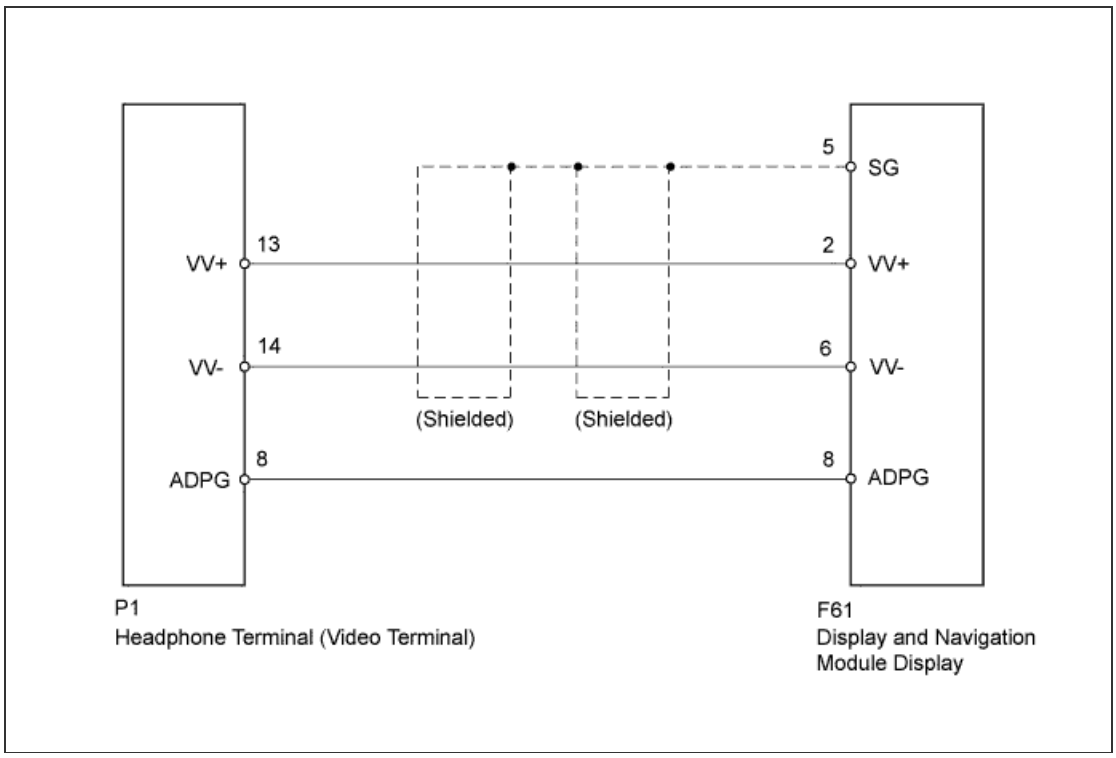
OK → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This is the display signal circuit from the video terminal to the display and navigation module display.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (VIDEO TERMINAL - NAVIGATION ECU)

a. Disconnect the P1 headphone terminal connector.

b. Disconnect the F61 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
P1-13 (VV+) - F61-2 (VV+)	Always	Below 1 Ω
P1-14 (VV-) - F61-6 (VV-)	Always	Below 1 Ω
P1-8 (ADPG) - F61-8 (ADPG)	Always	Below 1 Ω
F61-2 (VV+) - Body ground	Always	10 kΩ or higher
F61-6 (VV-) - Body ground	Always	10 kΩ or higher
F61-5 (SG) - Body ground	Always	10 kΩ or higher
F61-8 (ADPG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

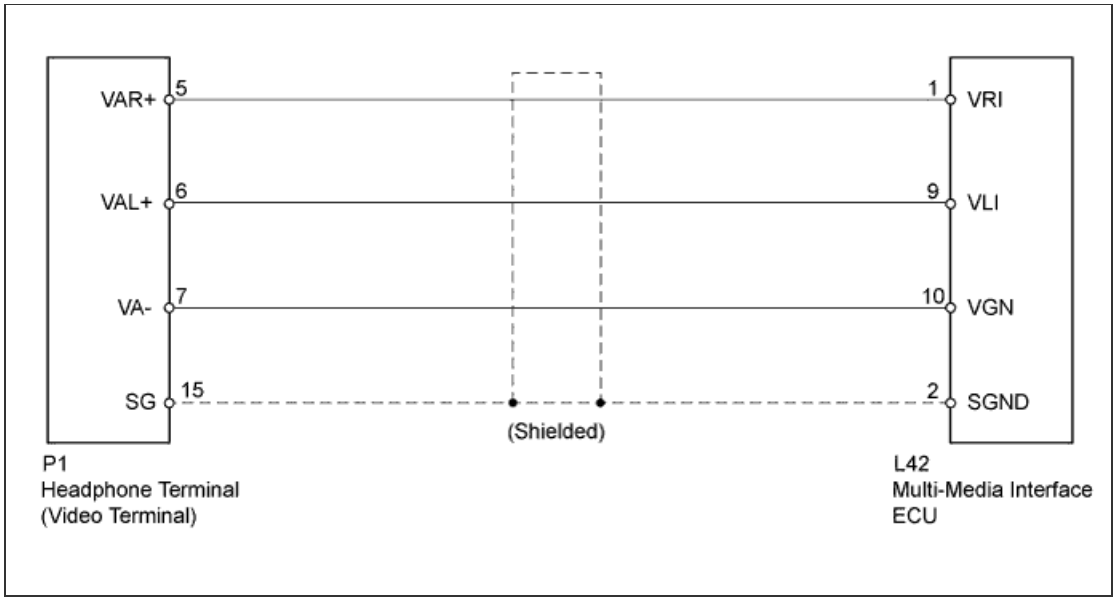
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROB EM SYMPTOMS TAB E Click here)

for Preparation Click here

DESCRIPTION

This is the sound signal circuit from the video terminal to the multi-media interface ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (VIDEO TERMINAL - MULTI-MEDIA INTERFACE ECU)

a. Disconnect the P1 video terminal connector.

b. Disconnect the L42 multi-media interface ECU connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
P1-5 (VAR+) - L42-1 (VRI)	Always	Below 1 Ω
P1-6 (VAL+) - L42-9 (VLI)	Always	Below 1 Ω
P1-7 (VA-) - L42-10 (VGN)	Always	Below 1 Ω
P1-15 (SG) - L42-2 (SGND)	Always	Below 1 Ω
P1-5 (VAR+) - Body ground	Always	10 kΩ or higher
P1-6 (VAL+) - Body ground	Always	10 kΩ or higher
P1-7 (VA-) - Body ground	Always	10 kΩ or higher
P1-15 (SG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

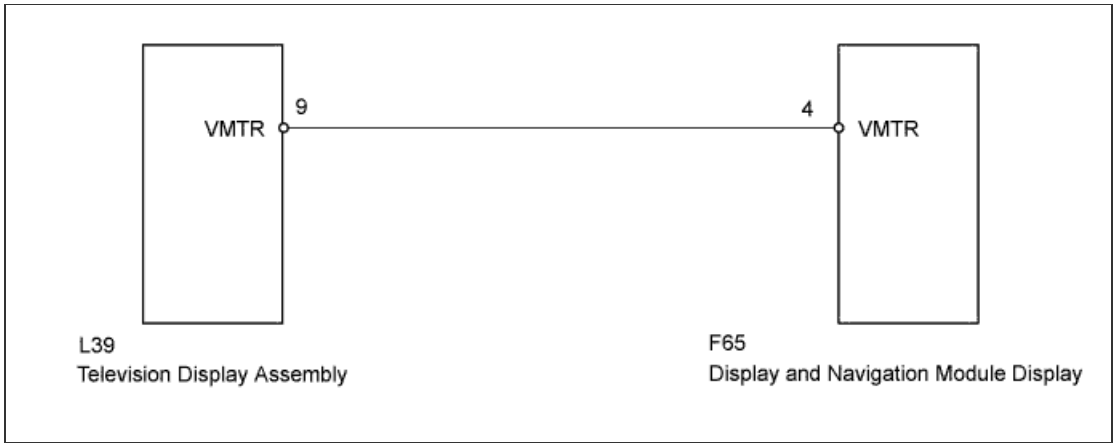
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This is the visual mute signal circuit from the display and navigation module display to the television display assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

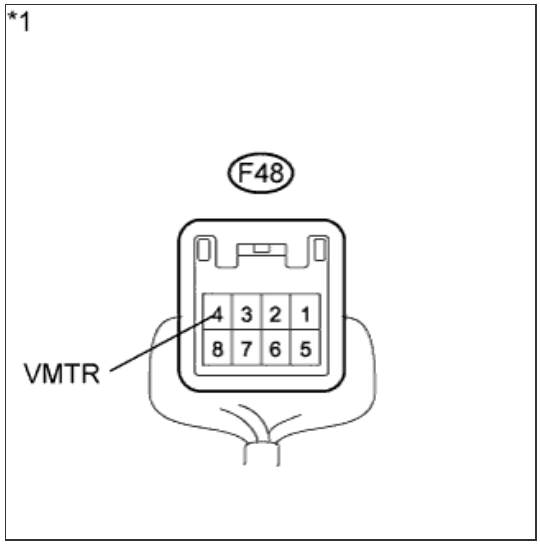
a. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
F65-4 (VMTR) - Body ground	RSE is playing → Source is changed	4 V or higher → Below 0.7 V → 4 V or higher

Text in Illustration

*1	Component with harness connected (Display and Navigation Module Display)



NG → Go to step 2

OK

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

2.CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - TELEVISION DISPLAY)

a. Disconnect the F65 display and navigation module display connector.

b. Disconnect the L39 television display assembly connector.

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

Standard Resistance:

		Specified

Tester Connection	Condition	Condition
F65-4 (VMTR) - L39-9 (VMTR)	Always	Below 1 Ω
F65-4 (VMTR) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Reconnect the F65 display and navigation module display connector.

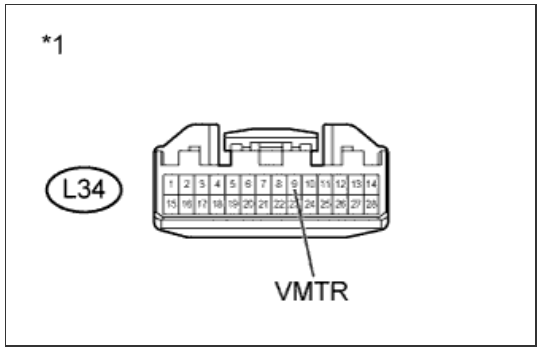
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
L39-9 (VMTR) - Body ground	Display is operating	4 V or higher

Text in Illustration

*1	Front view of wire harness connector (to Television Display Assembly)



NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

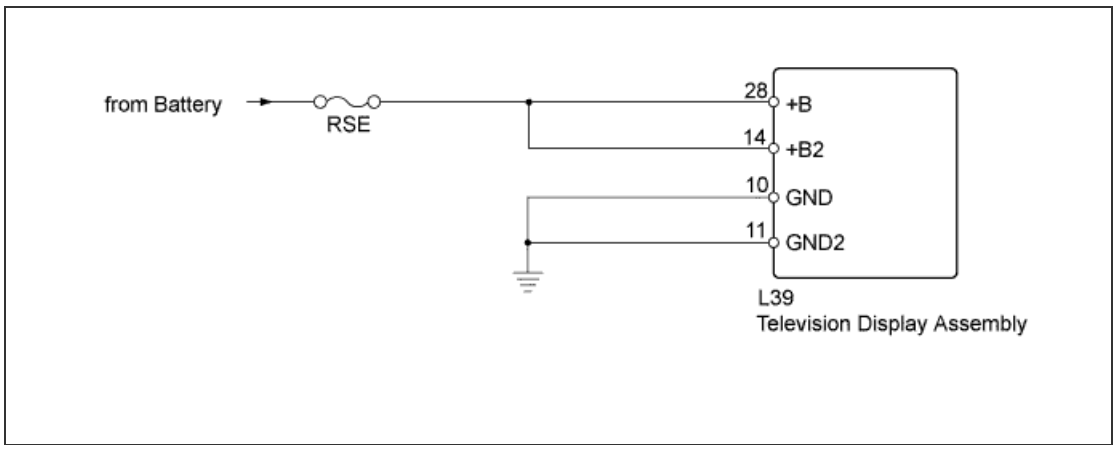
REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

for Preparation Click here

DESCRIPTION

This is the power source circuit of the television display assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

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

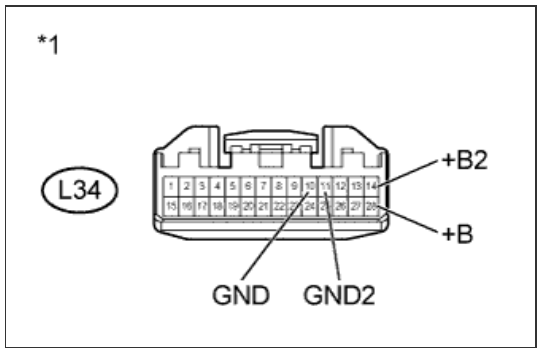
1.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - BATTERY AND BODY GROUND)

a. Disconnect the L39 television display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L39-10 (GND) - Body ground	Always	Below 1 Ω
L39-11 (GND2) - Body ground	Always	Below 1 Ω



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

Standard Voltage:

Tester Connection	Condition	Specified Condition
L39-14 (+B2) - L39-10 (GND)	Always	11 to 14 V
L39-28 (+B) - L39-10 (GND)	Always	11 to 14 V

Text in Illustration

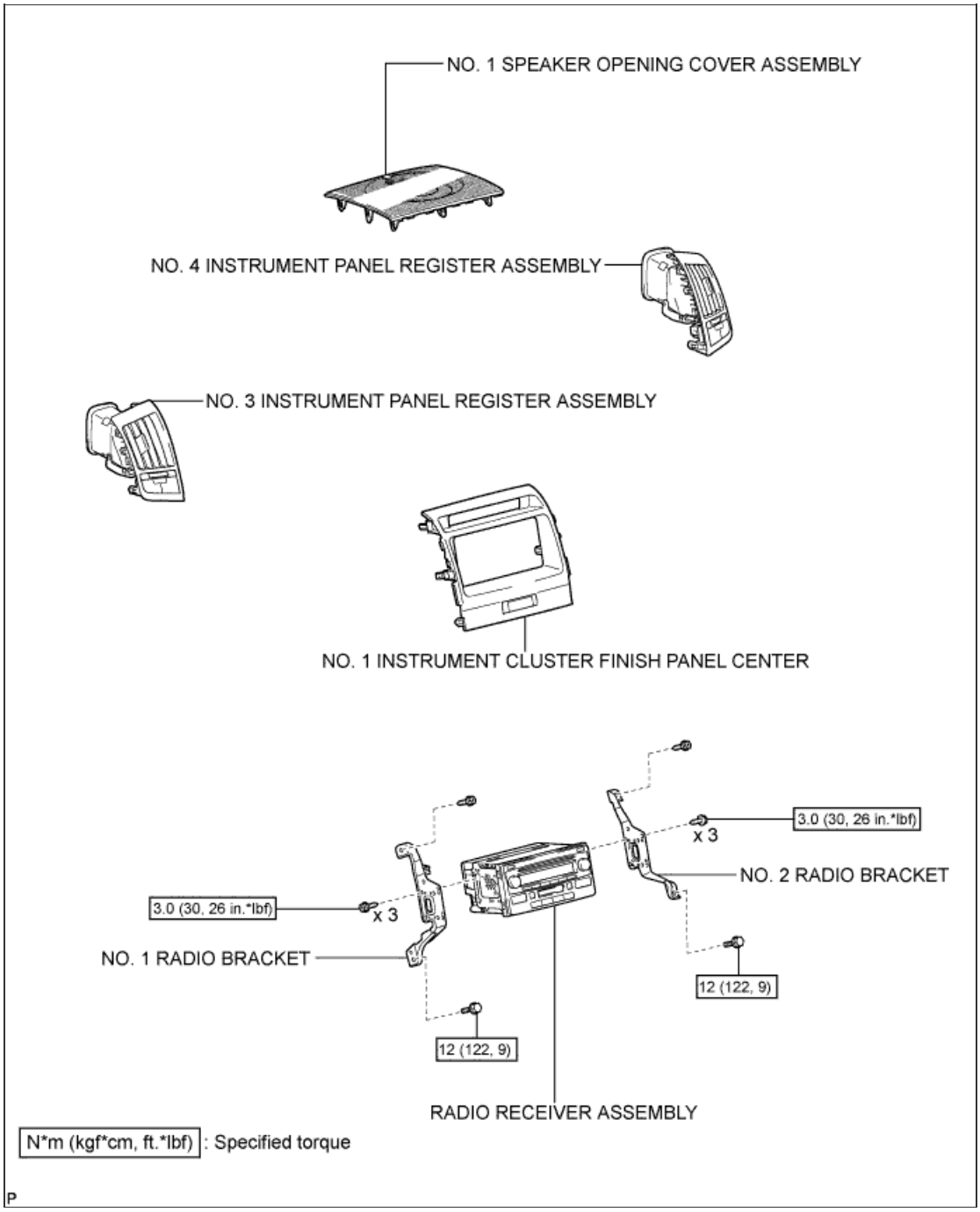
*1	Front view of wire harness connector (to Television Display Assembly)

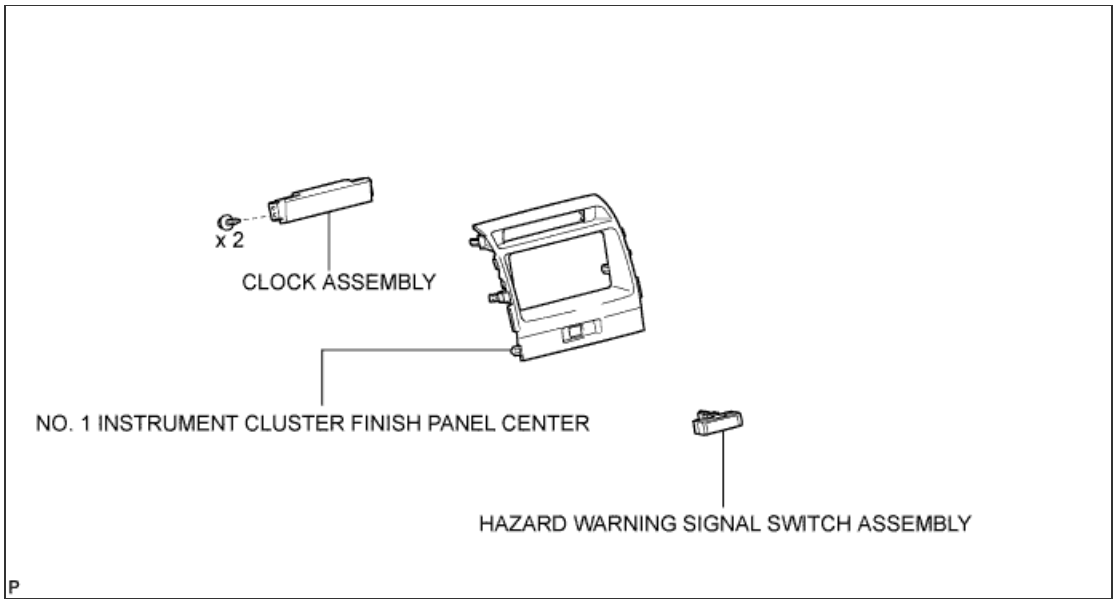
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

for Preparation Click here




x 2
CLOCK ASSEMBLY
NO. 1 INSTRUMENT CLUSTER FINISH PANEL CENTER
HAZARD WARNING SIGNAL SWITCH ASSEMBLY
P

for Preparation Click here

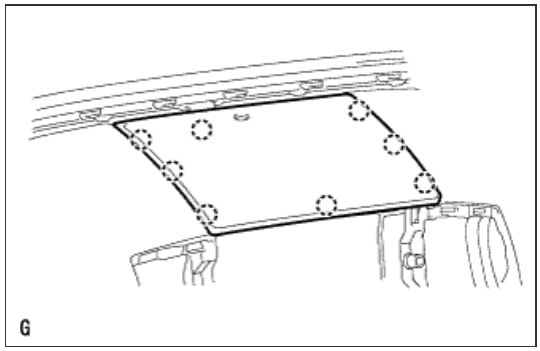
1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

2. REMOVE NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Detach the 8 claws and remove the opening cover.



3. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

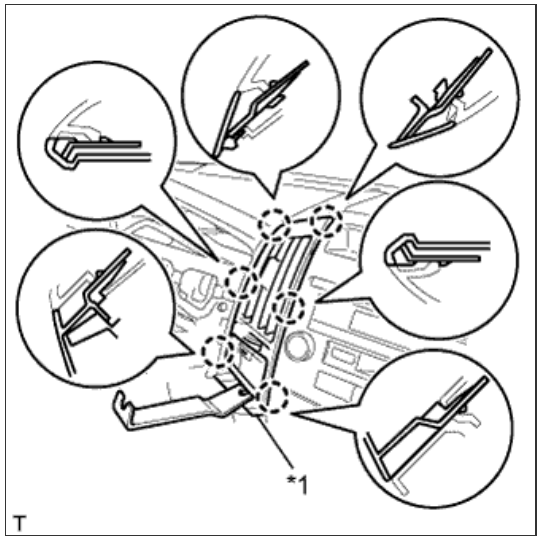
a. Place protective tape as shown in the illustration.

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.



4. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

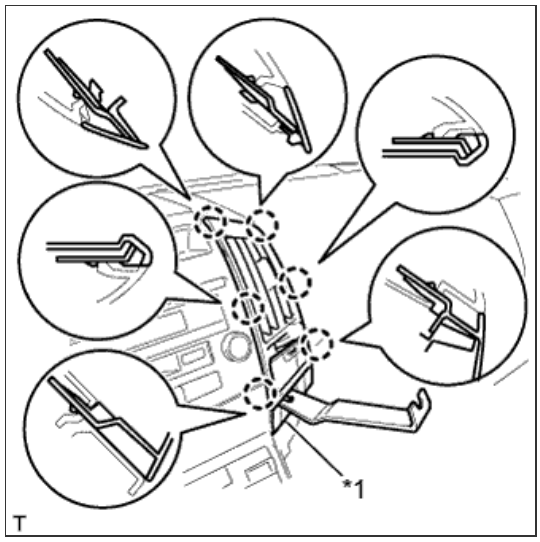
a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

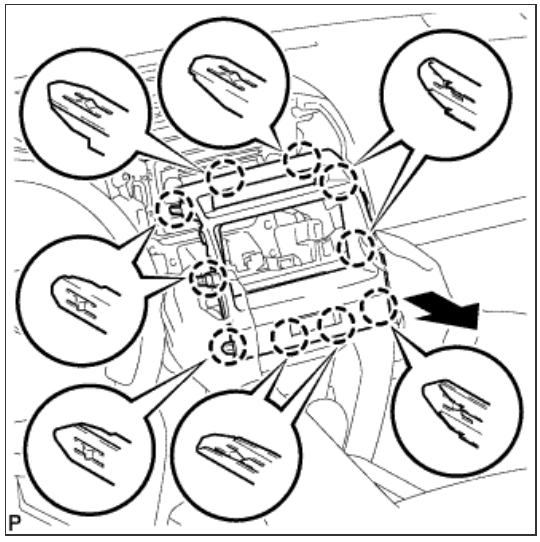
b. Using a moulding remover, detach the 6 claws.

c. Disconnect the connector and remove the No. 4 instrument panel register.



5. REMOVE NO. 1 INSTRUMENT CLUSTER FINISH PANEL CENTER

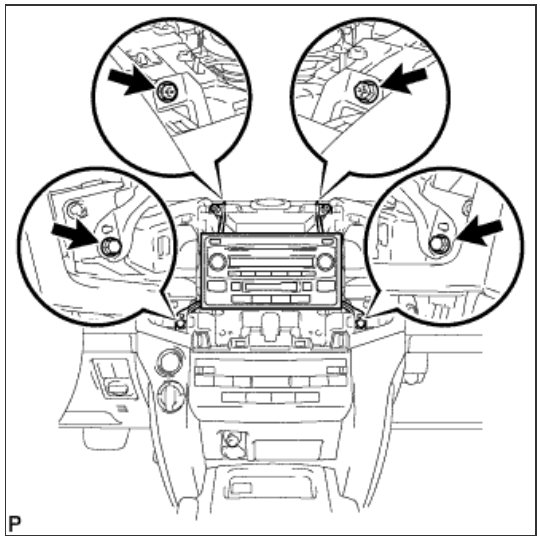
a. Detach the 10 claws on the backside of the cluster finish panel to remove it.



6. REMOVE RADIO RECEIVER ASSEMBLY WITH BRACKET

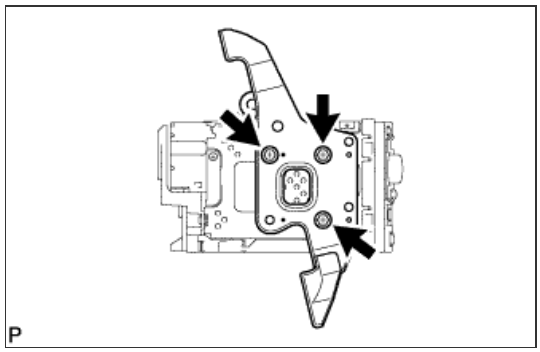
a. Remove the 2 screws and 2 bolts.

b. Disconnect the connectors and remove the radio receiver.



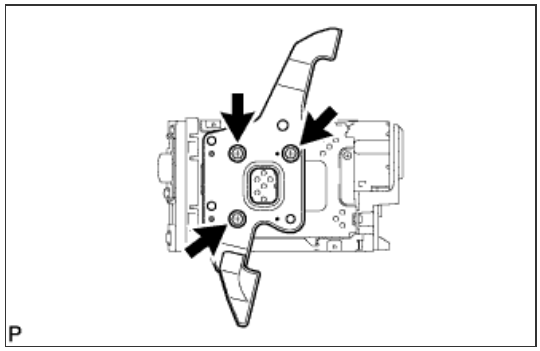
7. REMOVE NO. 1 RADIO BRACKET

a. Remove the 3 bolts and bracket.



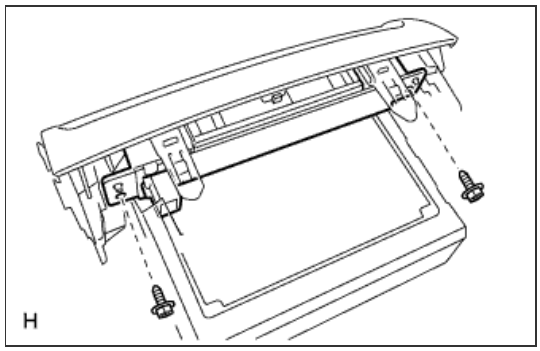
8. REMOVE NO. 2 RADIO BRACKET

a. Remove the 3 bolts and bracket.



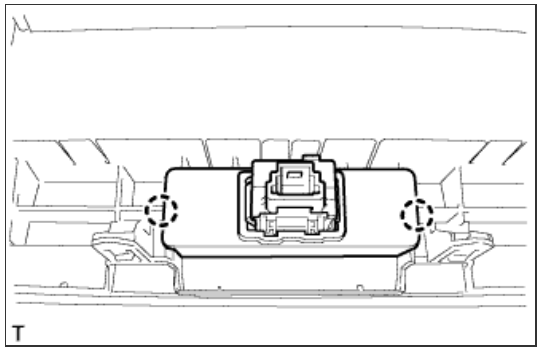
9. REMOVE CLOCK ASSEMBLY

a. Remove the 2 screws and clock.



10. REMOVE HAZARD WARNING SIGNAL SWITCH ASSEMBLY

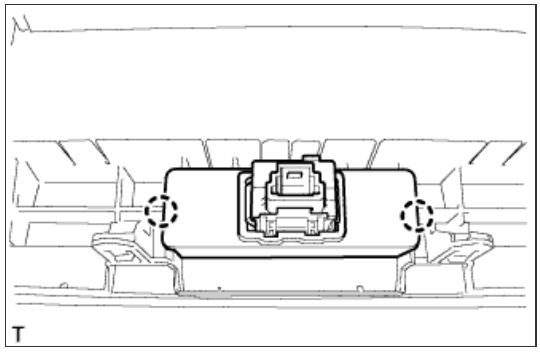
a. Detach the 2 claws and remove the hazard warning switch.



for Preparation Click here

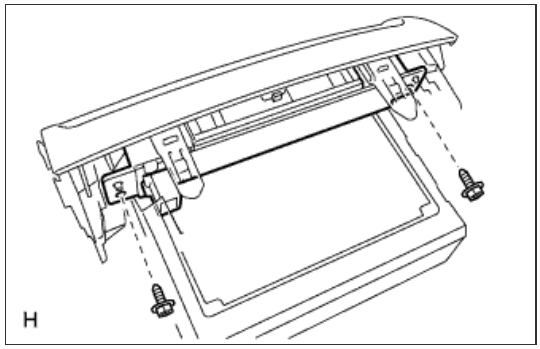
1. INSTALL HAZARD WARNING SIGNAL SWITCH ASSEMBLY

a. Attach the 2 claws to install the hazard warning switch.



2. INSTALL CLOCK ASSEMBLY

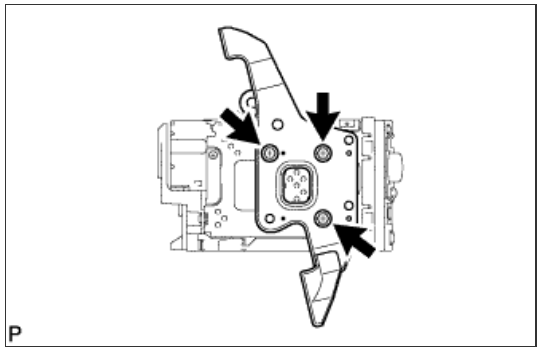
a. Install the clock with the 2 screws.



3. INSTALL NO. 1 RADIO BRACKET

a. Install the bracket with the 3 bolts.

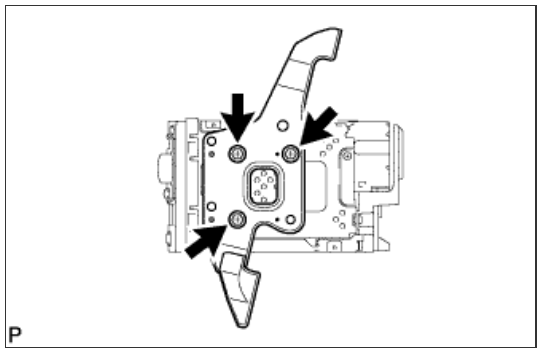
Torque:
3.0 N*m{ 30 kgf*cm , 26 in.*lbf }



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 }

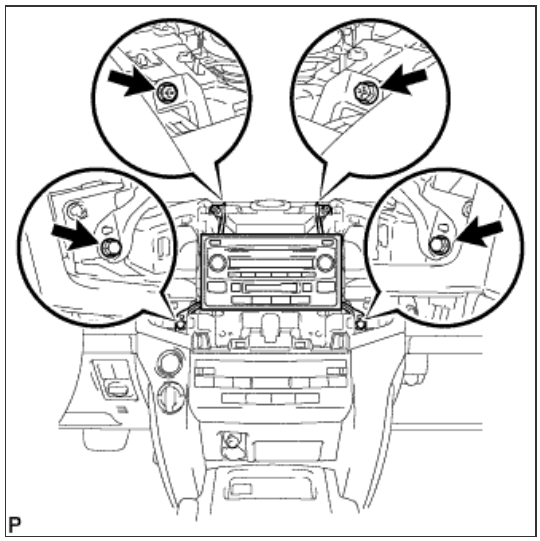


5. INSTALL RADIO RECEIVER ASSEMBLY WITH BRACKET

a. Connect the connectors.

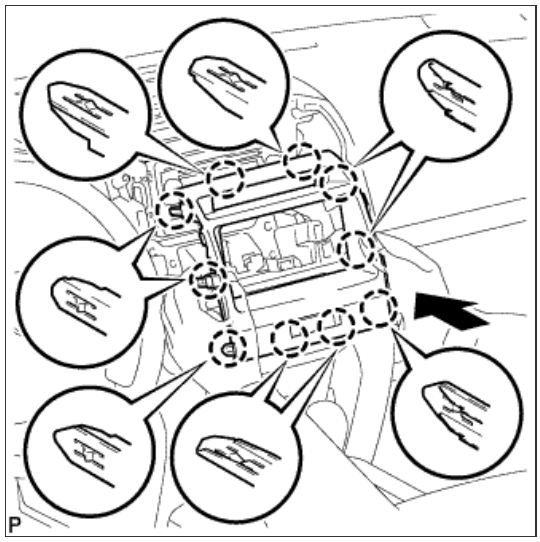
b. Install the radio receiver with the 2 screws and 2 bolts.

Torque:
Bolt:
12 N*m{ 122 kgf*cm , 9 ft.*lbf }



6. INSTALL NO. 1 INSTRUMENT CLUSTER FINISH PANEL CENTER

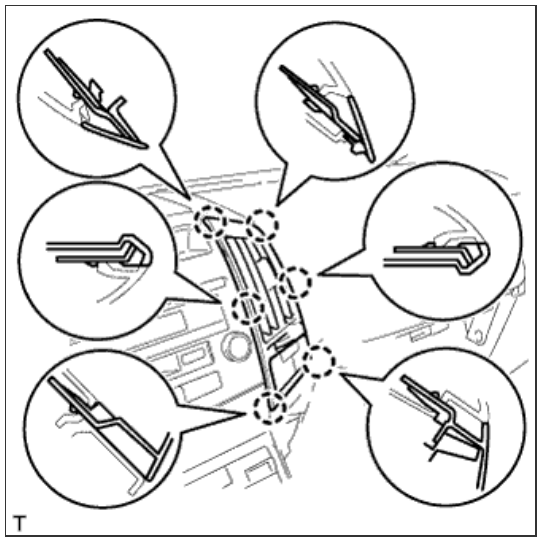
a. Insert the cluster finish panel and attach the 10 claws on its backside to install it.



7. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Connect the connector.

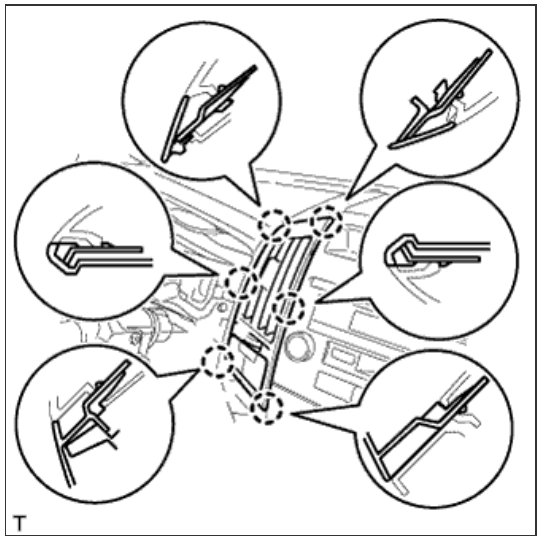
b. Attach the 6 claws to install the No. 4 instrument panel register.



8. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

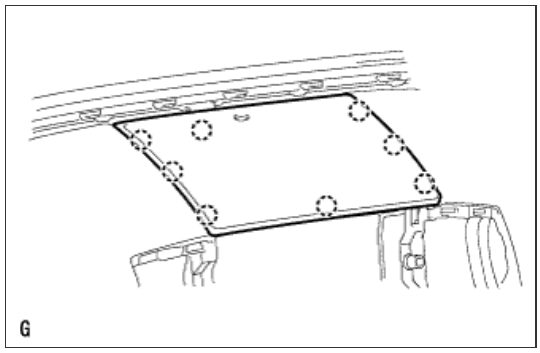
a. Connect the connector.

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.

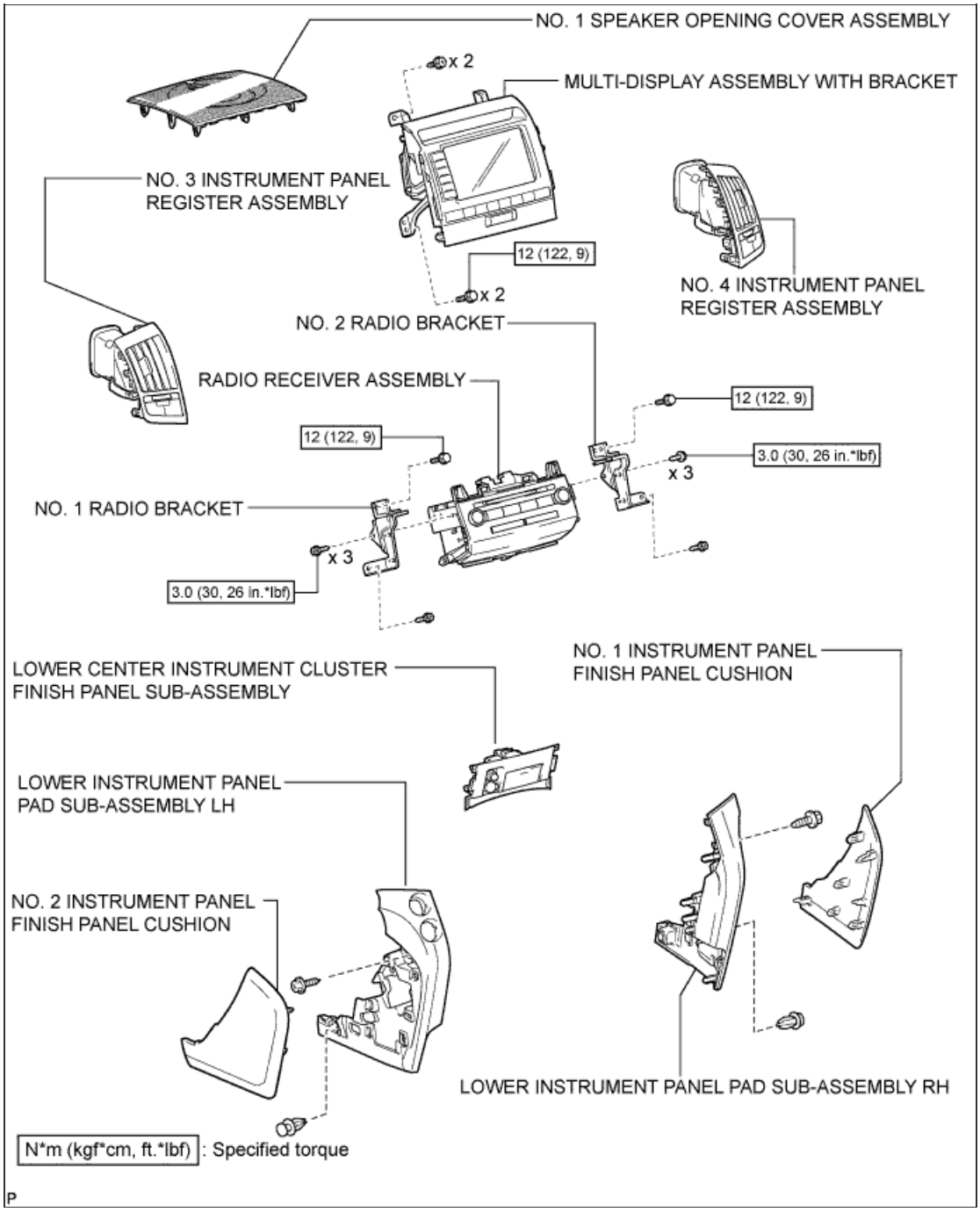


10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

for Preparation Click here



for Preparation Click here

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

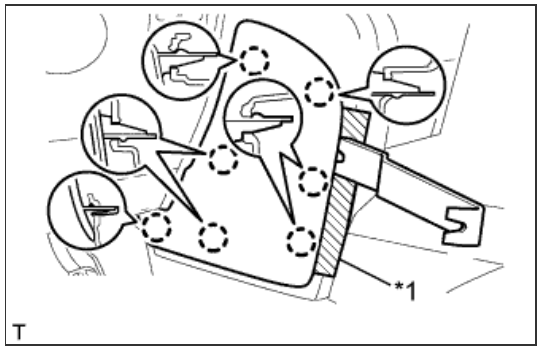
2. REMOVE NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

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.

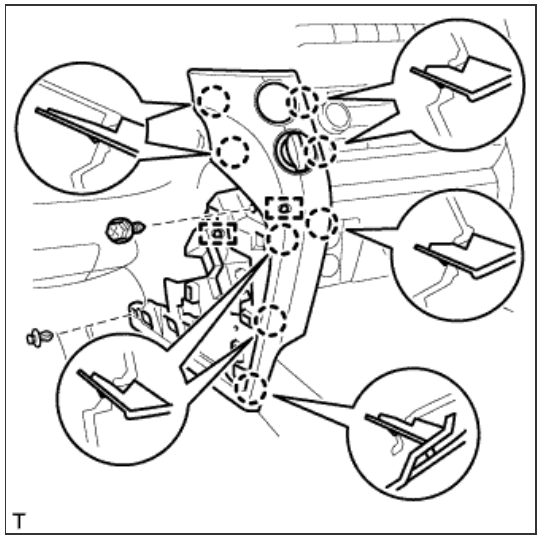


3. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Remove the clip and screw.

b. etach the 8 claws.

c. isconnect the connectors, detach the 2 clamps and remove the lower instrument panel pad sub-assembly.



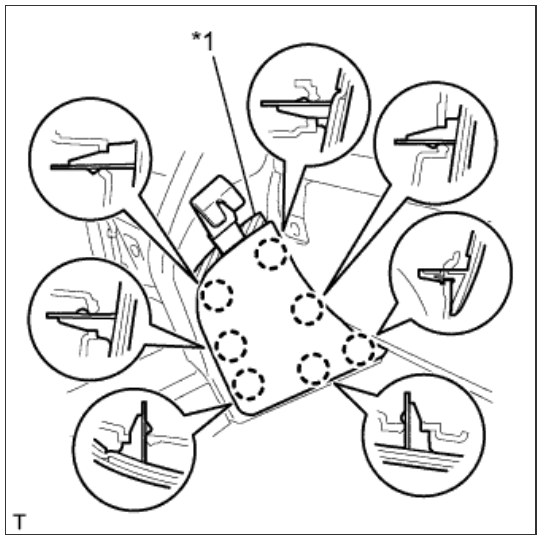
4. REMOVE NO. 1 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Put protective tape around the No. 1 instrument panel finish panel cushion.

Text in Illustration

*1	Protective Tape

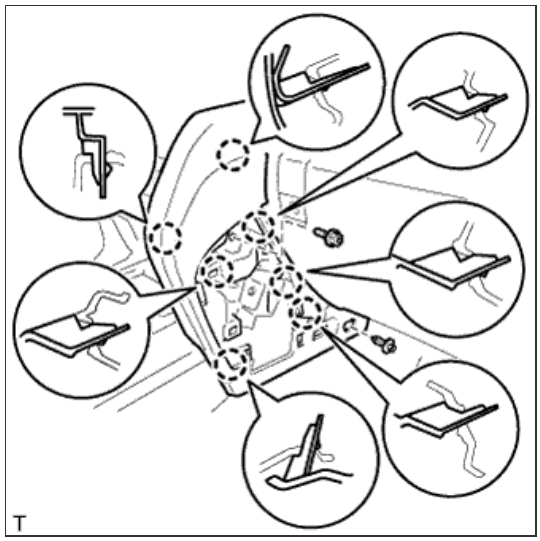
b. Using a moulding remover, detach the 7 claws and remove the No. 1 instrument panel finish panel cushion.



5. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

a. Remove the clip and screw.

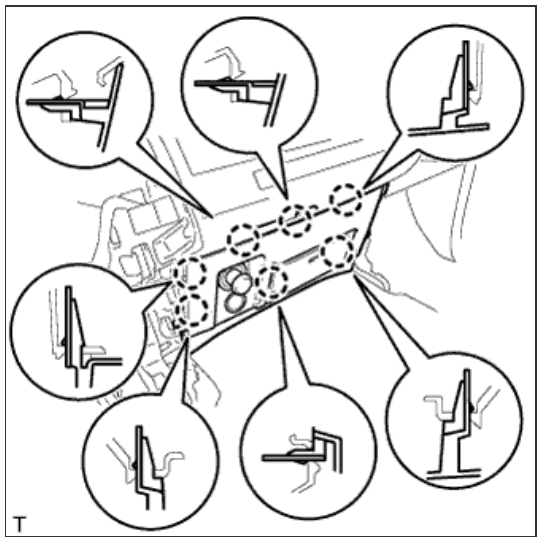
b. etach the 7 claws and remove the lower instrument panel pad sub-assembly.



6. REMOVE LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

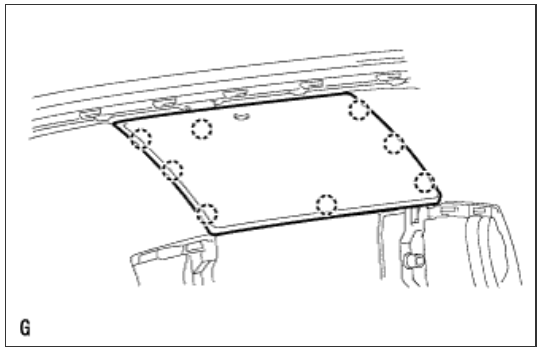
a. etach the 7 claws.

b. isconnect the connectors and remove the lower center instrument cluster finish panel sub-assembly.



7. REMOVE NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. etach the 8 claws and remove the opening cover.



8. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

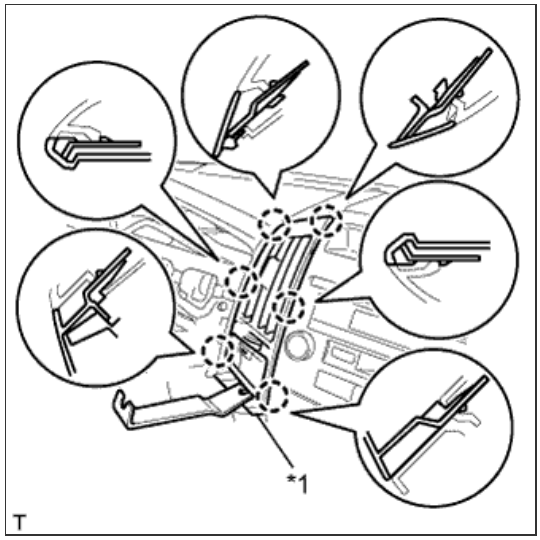
a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the claws.

c. isconnect the connector and remove the No. 3 instrument panel register.



9. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

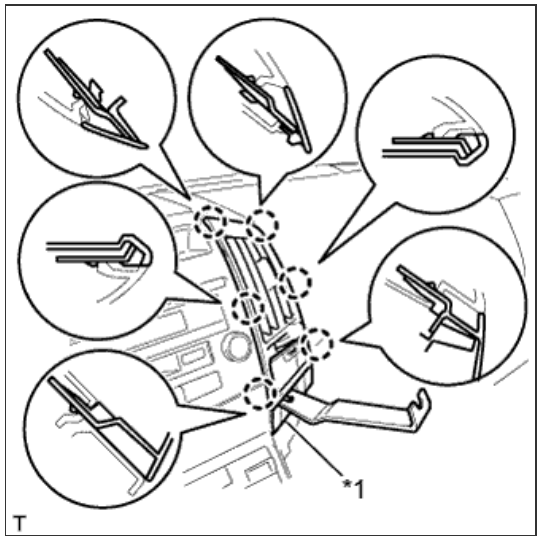
a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

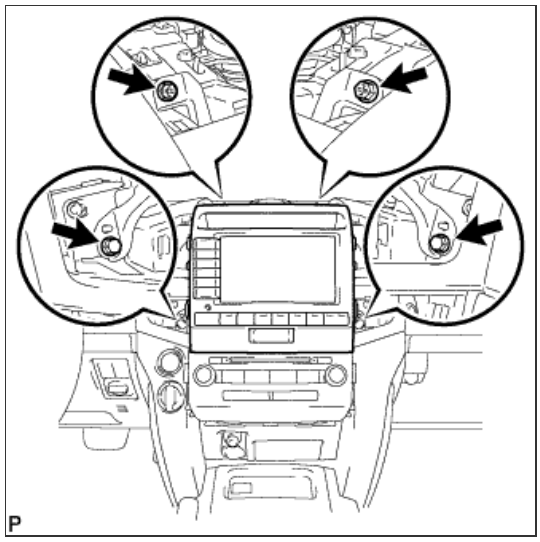
b. Using a moulding remover, detach the claws.

c. isconnect the connector and remove the No. 4 instrument panel register.



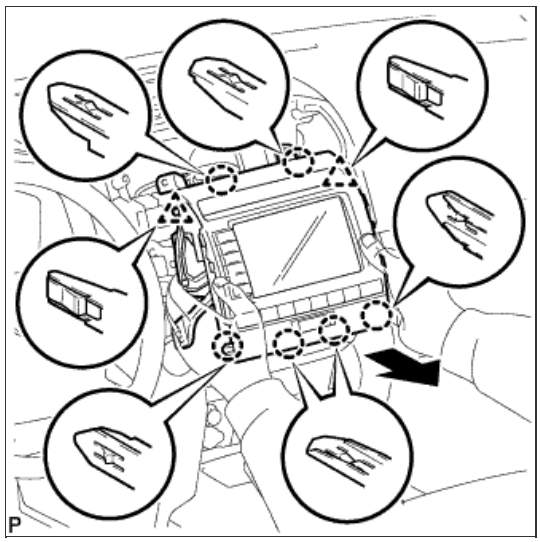
10. REMOVE MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Remove the 2 screws and 2 bolts.



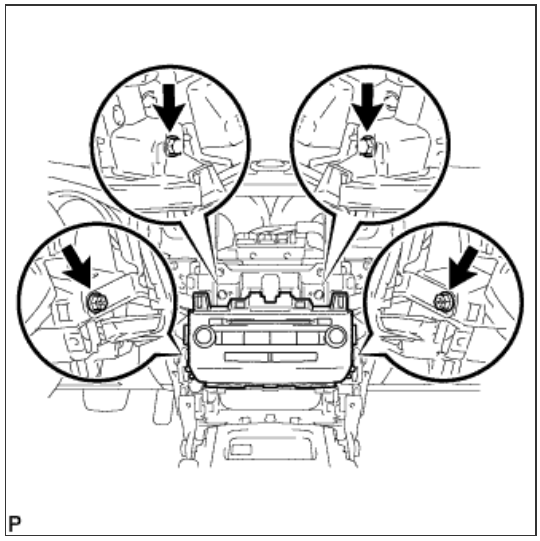
b. Pull the radio receiver to detach the 2 clips and claws on the backside of the display.

c. isconnect the connectors and remove the display.



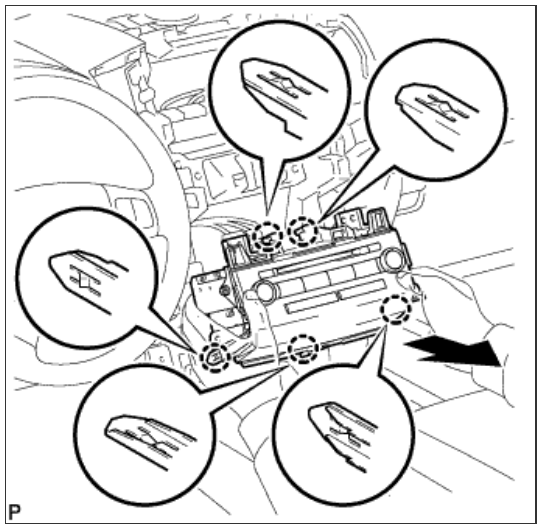
11. REMOVE RADIO RECEIVER ASSEMBLY WITH BRACKET

a. Remove the 2 screws and 2 bolts.



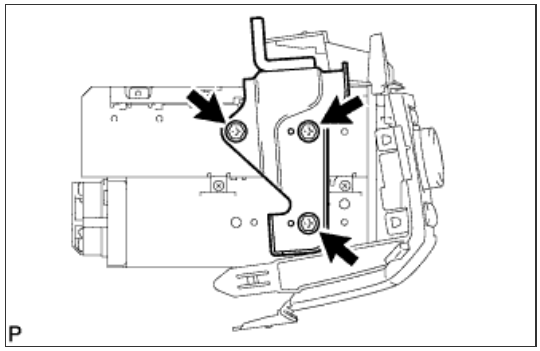
b. Pull the radio receiver to detach the 5 claws on the backside of the radio receiver.

c. isconnect the connectors and remove the radio receiver.



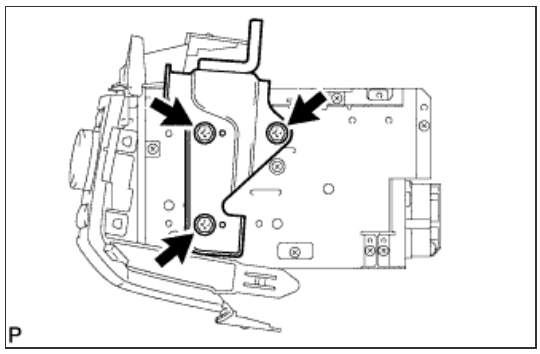
12. REMOVE NO. 1 RADIO BRACKET

a. Remove the 3 bolts and bracket.



13. REMOVE NO. 2 RADIO BRACKET

a. Remove the 3 bolts and bracket.

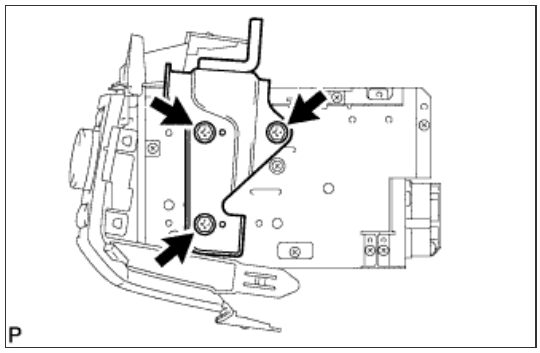


for Preparation Click here

1. INSTALL NO. 2 RADIO BRACKET

a. Install the bracket with the 3 bolts.

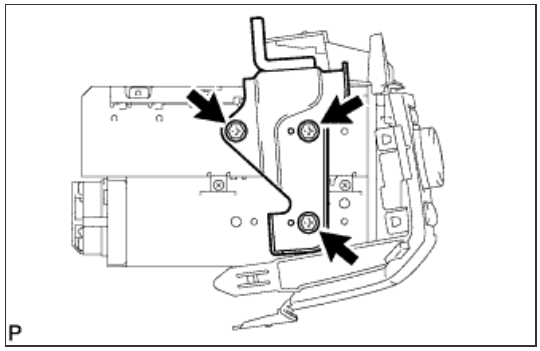
Torque:
3.0 N*m{ 30 kgf*cm , 26 in.*lbf }



2. INSTALL NO. 1 RADIO BRACKET

a. Install the bracket with the 3 bolts.

Torque:
3.0 N*m{ 30 kgf*cm , 26 in.*lbf }



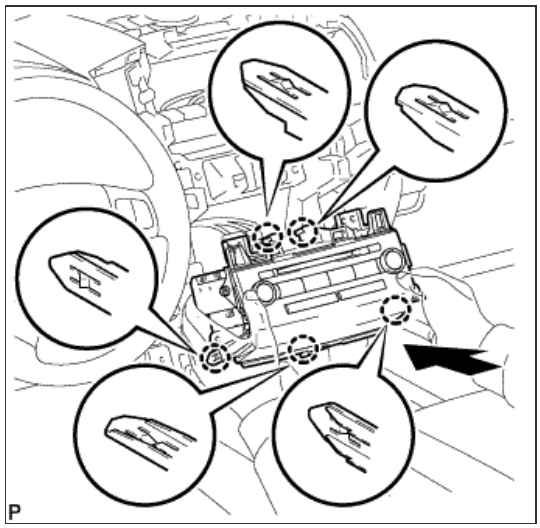
3. INSTALL RADIO RECEIVER ASSEMBLY WITH BRACKET

a. Connect the connectors.

b. Insert the radio receiver to attach the 5 claws on its backside.

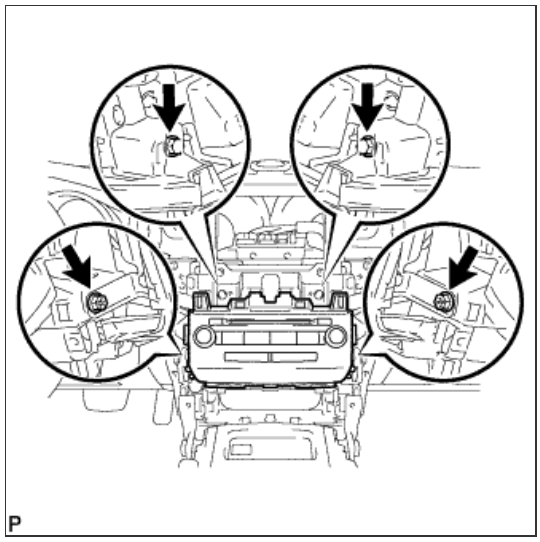
NOTICE:

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 }



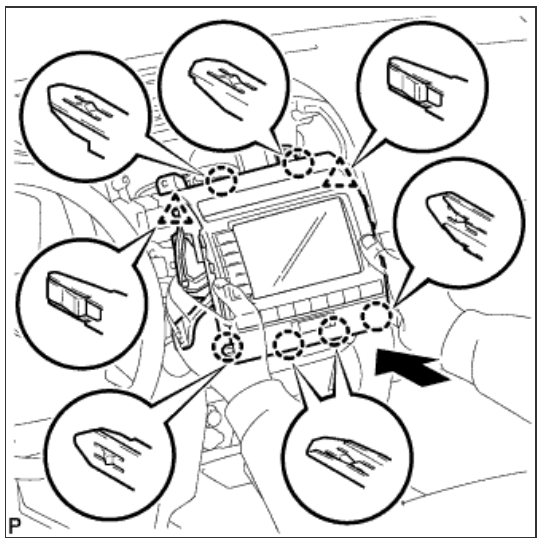
4. INSTALL MULTI-DISPLAY ASSEMBLY WITH BRACKET

a. Connect the connectors.

b. Insert the display and attach the 2 clips and 6 claws on its backside.

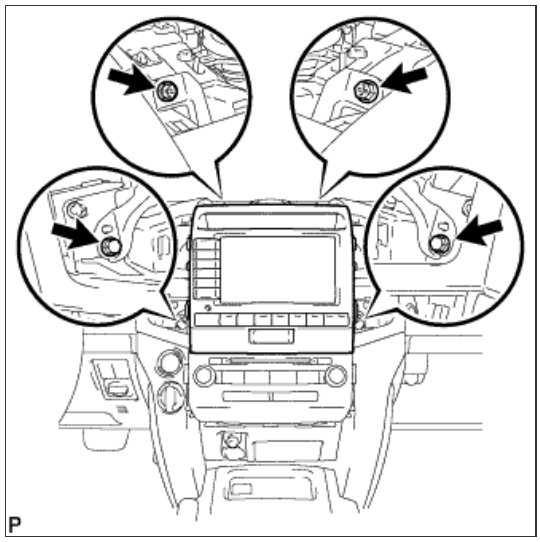
NOTICE:

When inserting the display, do not press the knobs on it.



c. Install the display with the 2 screws and 2 bolts.

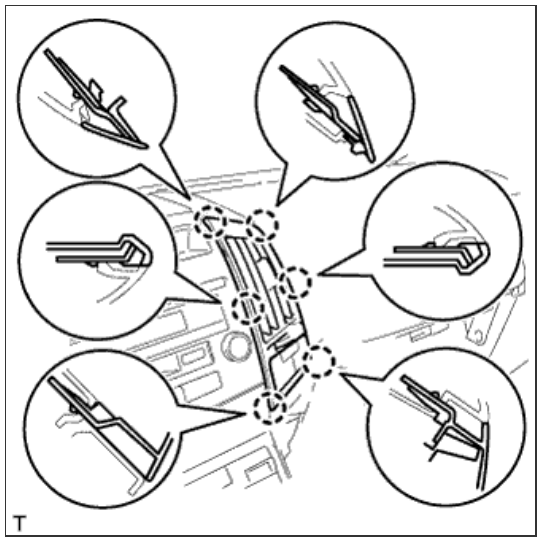
Torque:
Bolt:
12 N*m{ 122 kgf*cm , 9 ft.*lbf }



5. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Connect the connector.

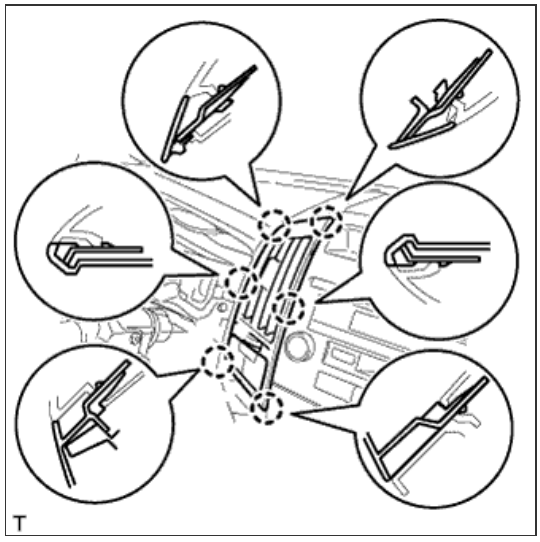
b. Attach the 6 claws to install the No. 4 instrument panel register.



6. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

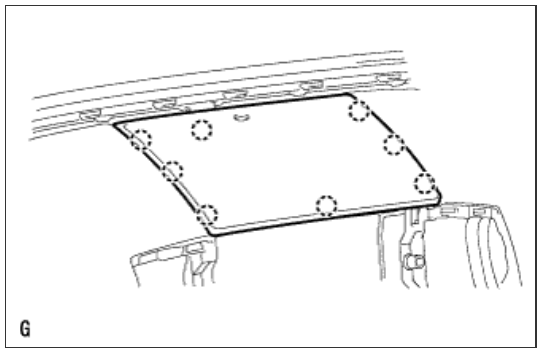
a. Connect the connector.

b. Attach the 6 claws to install the No. 3 instrument panel register.



7. INSTALL NO. 1 SPEAKER OPENING COVER ASSEMBLY

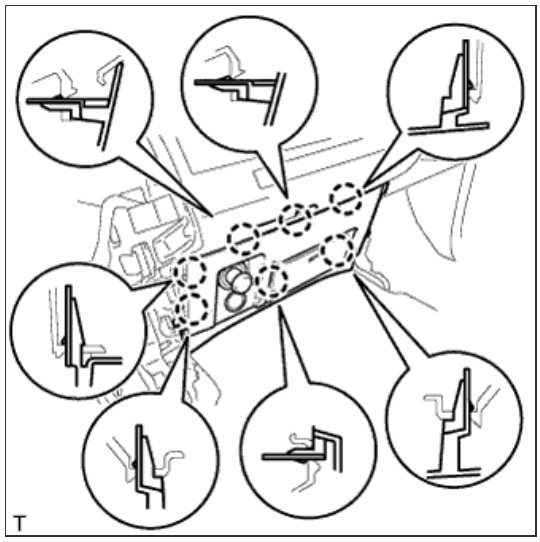
a. Attach the 8 claws to install the opening cover.



8. INSTALL LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

a. Connect the connectors.

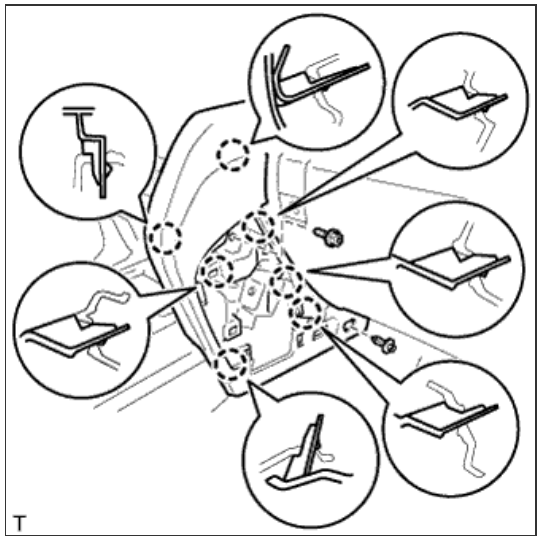
b. Attach the 7 claws to install the lower center instrument cluster finish panel sub-assembly.



9. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

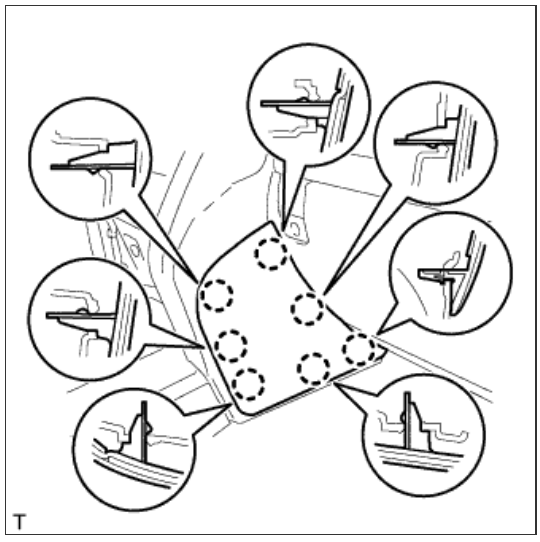
a. Attach the 7 claws to install the lower instrument panel pad sub-assembly.

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.

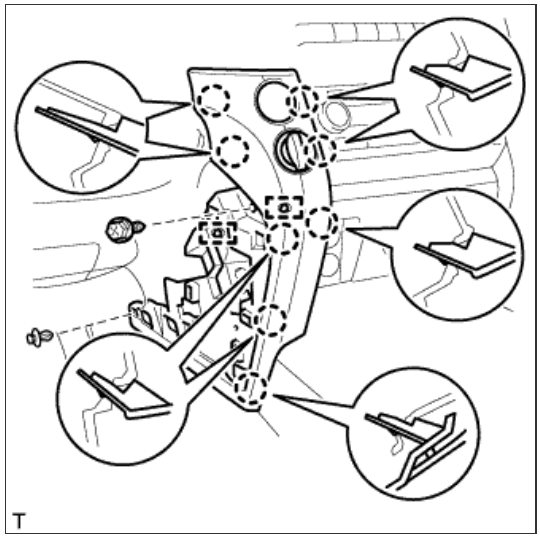


11. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connectors and attach the 2 clamps.

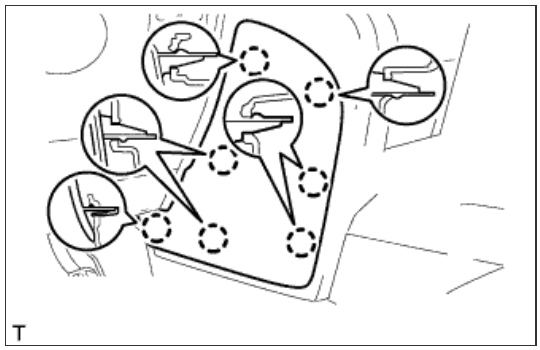
b. Attach the 8 claws to install the lower instrument panel pad sub-assembly.

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.

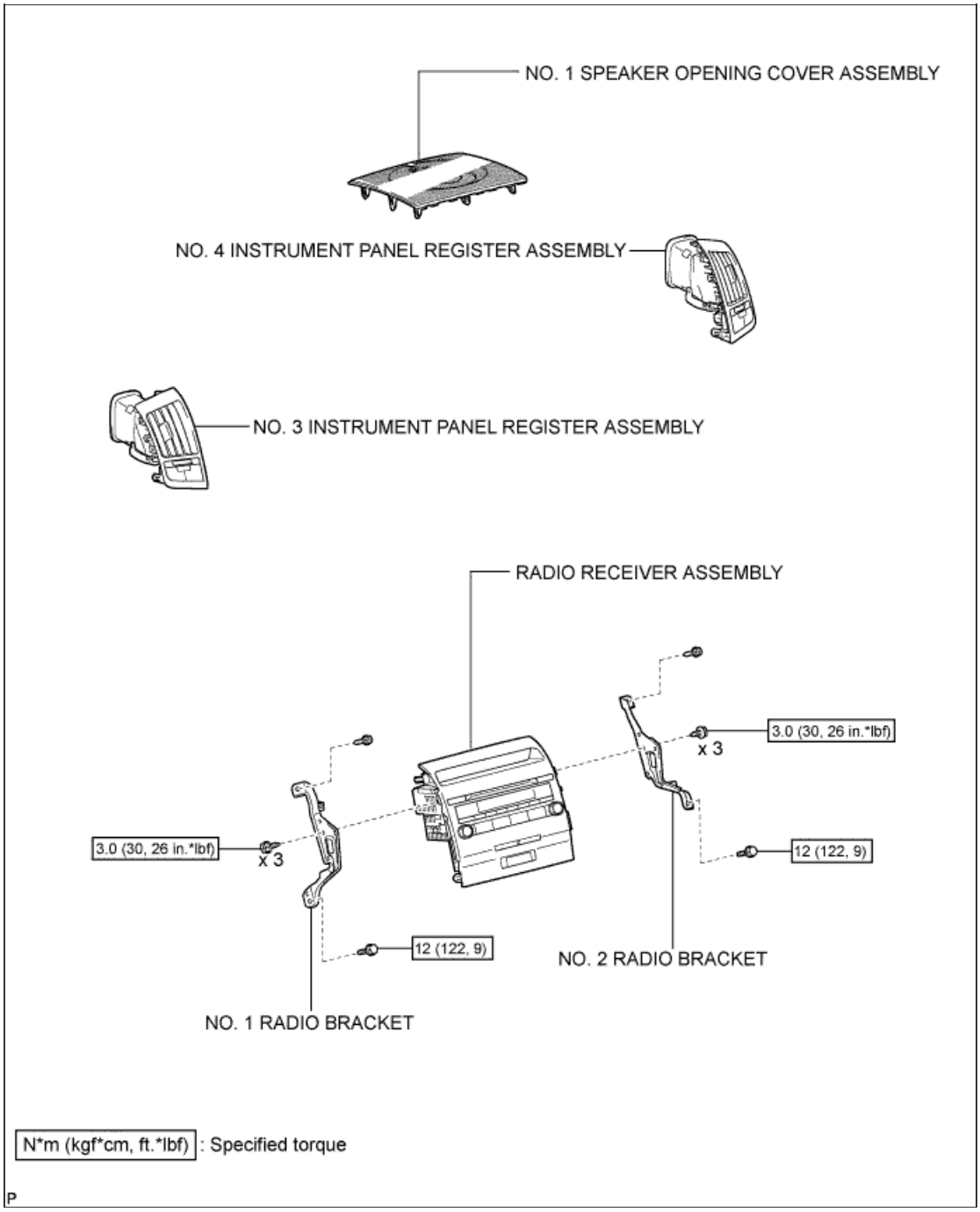


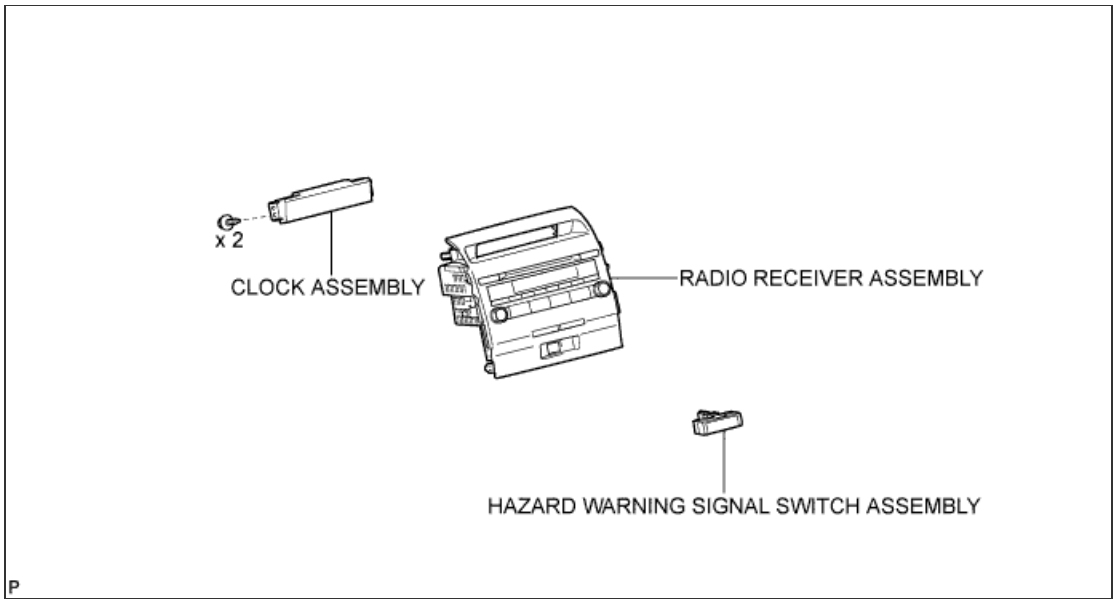
13. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

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

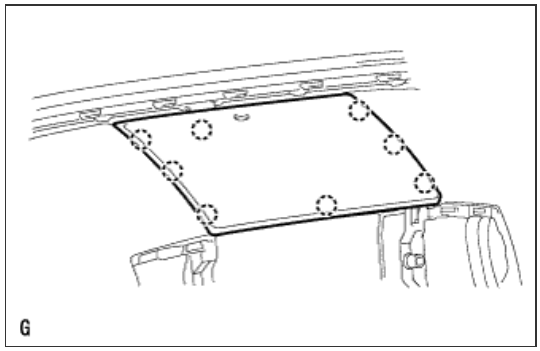
1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

2. REMOVE NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Detach the 8 claws and remove the opening cover.



3. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

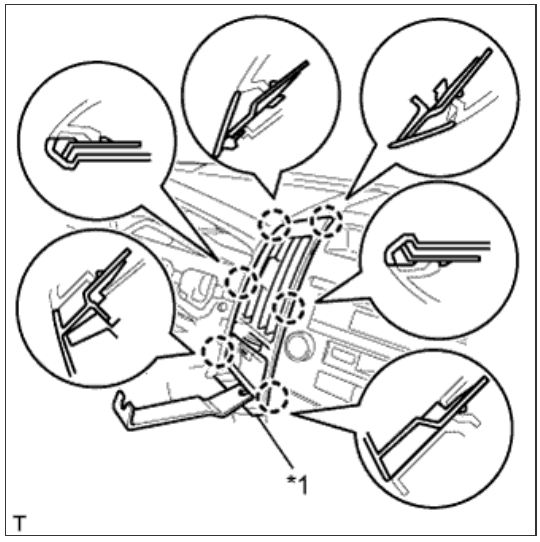
a. Place protective tape as shown in the illustration.

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.



4. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

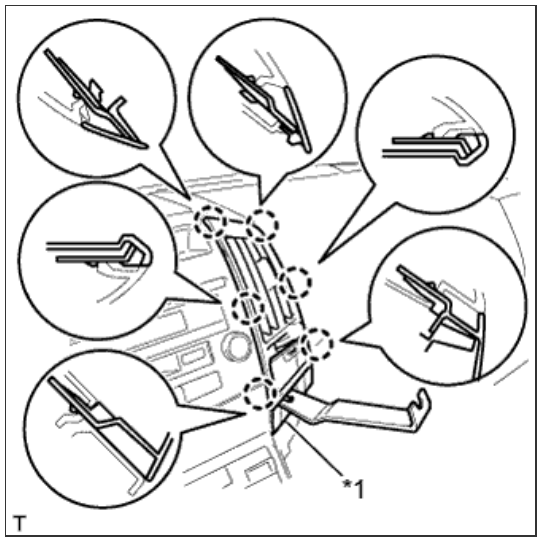
a. Place protective tape as shown in the illustration.

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.



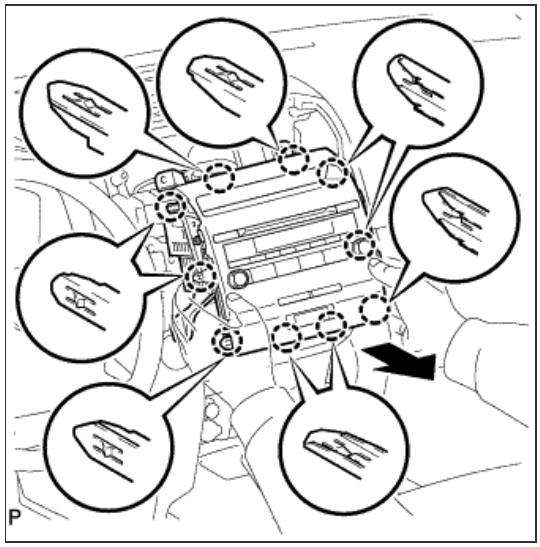
5. REMOVE RADIO RECEIVER ASSEMBLY WITH BRACKET

a. Remove the 2 screws and 2 bolts.



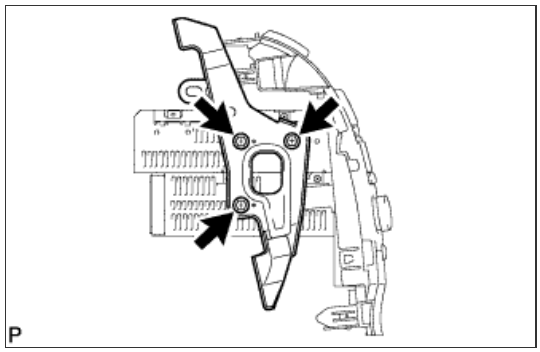
b. Pull the radio receiver to detach the 10 claws on the backside of the radio receiver.

c. Disconnect the connectors and remove the radio receiver.



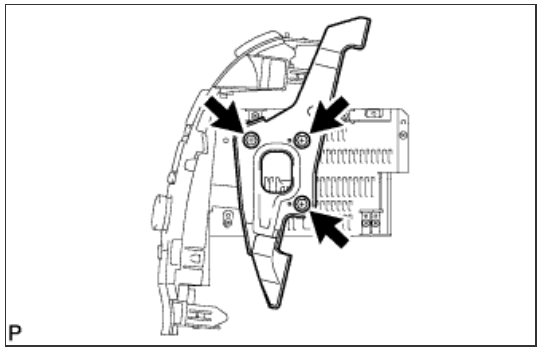
6. REMOVE NO. 1 RADIO BRACKET

a. Remove the 3 bolts and bracket.



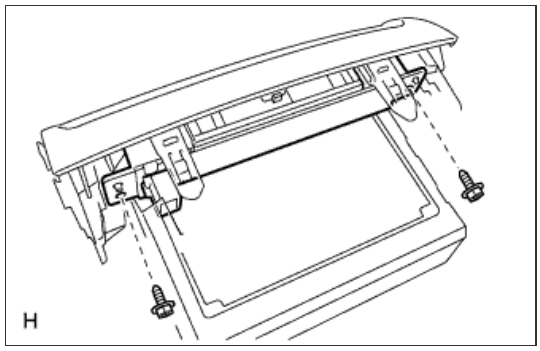
7. REMOVE NO. 2 RADIO BRACKET

a. Remove the 3 bolts and bracket.



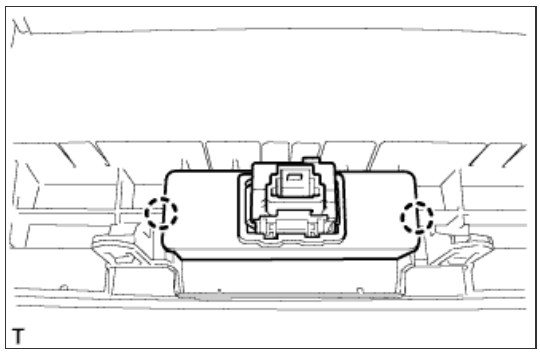
8. REMOVE CLOCK ASSEMBLY

a. Remove the 2 screws and clock.



9. REMOVE HAZARD WARNING SIGNAL SWITCH ASSEMBLY

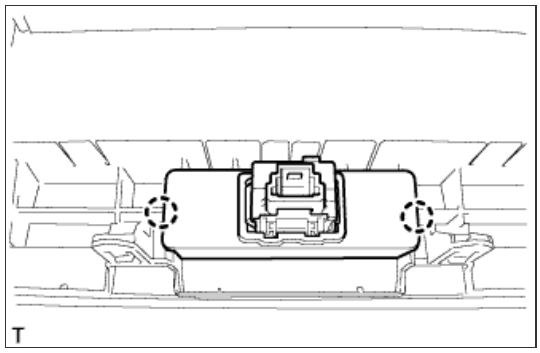
a. Detach the 2 claws and remove the hazard warning switch.



for Preparation Click here

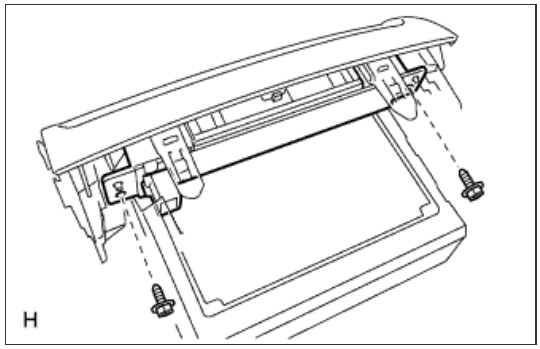
1. INSTALL HAZARD WARNING SIGNAL SWITCH ASSEMBLY

a. Attach the 2 claws to install the hazard warning switch.



2. INSTALL CLOCK ASSEMBLY

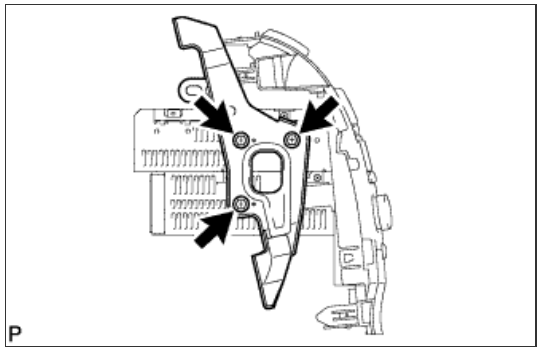
a. Install the clock with the 2 screws.



3. INSTALL NO. 1 RADIO BRACKET

a. Install the bracket with the 3 bolts.

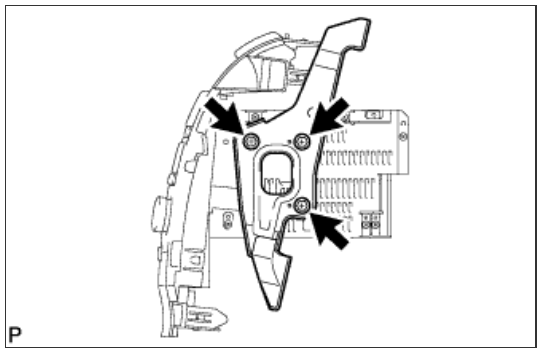
Torque:
3.0 N*m{ 30 kgf*cm , 26 in.*lbf }



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 }



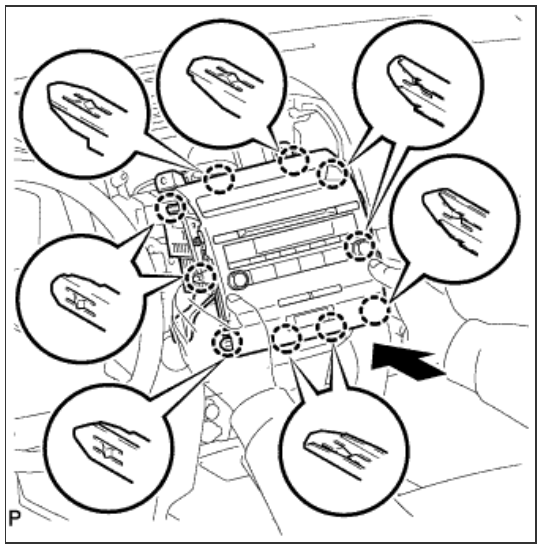
5. INSTALL RADIO RECEIVER ASSEMBLY WITH BRACKET

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.

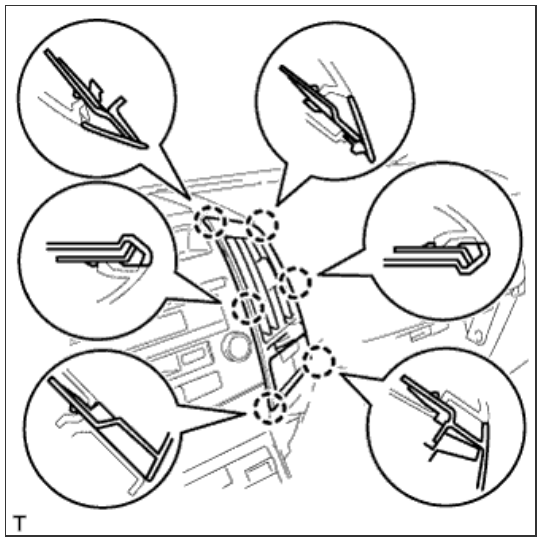
Torque:
Bolt:
12 N*m{ 122 kgf*cm , 9 ft.*lbf }



6. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Connect the connector.

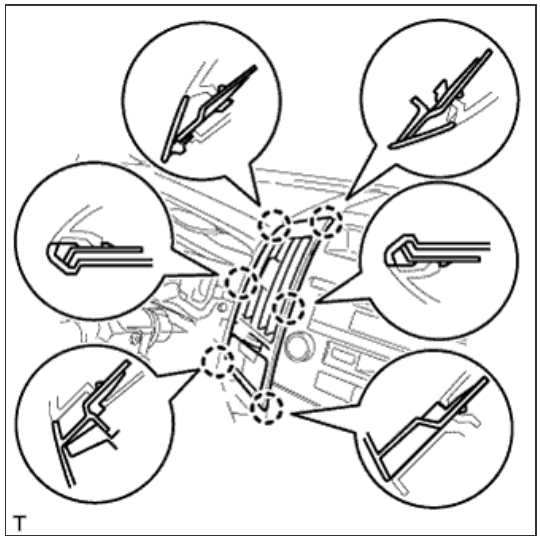
b. Attach the 6 claws to install the No. 4 instrument panel register.



. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

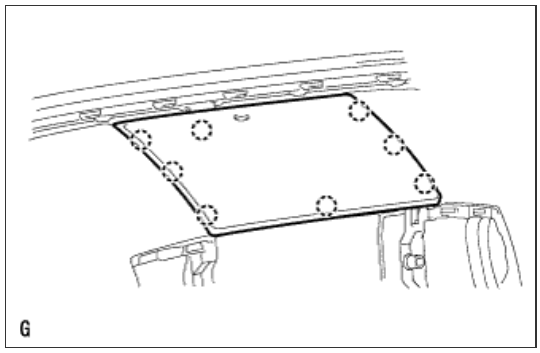
a. Connect the connector.

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.

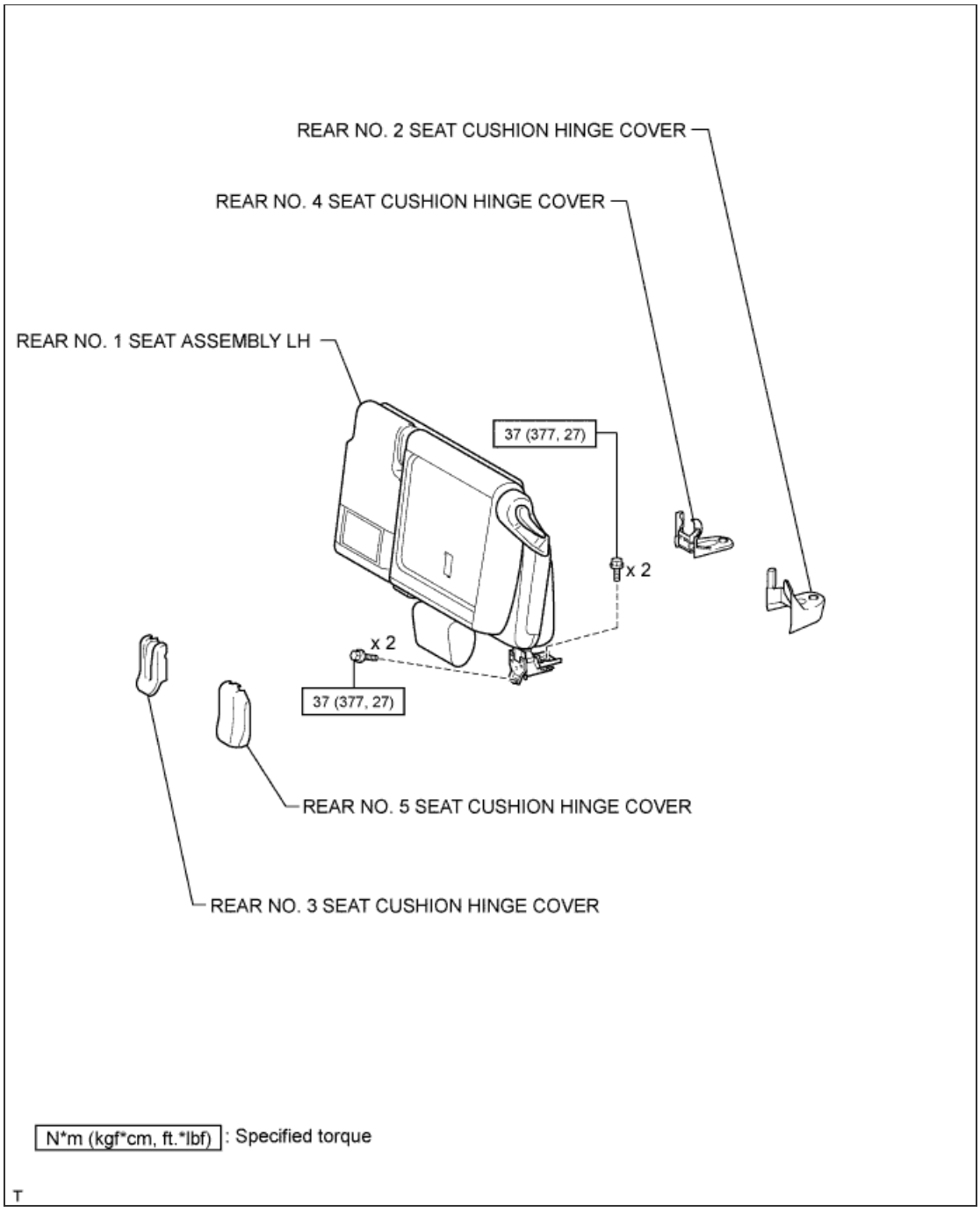


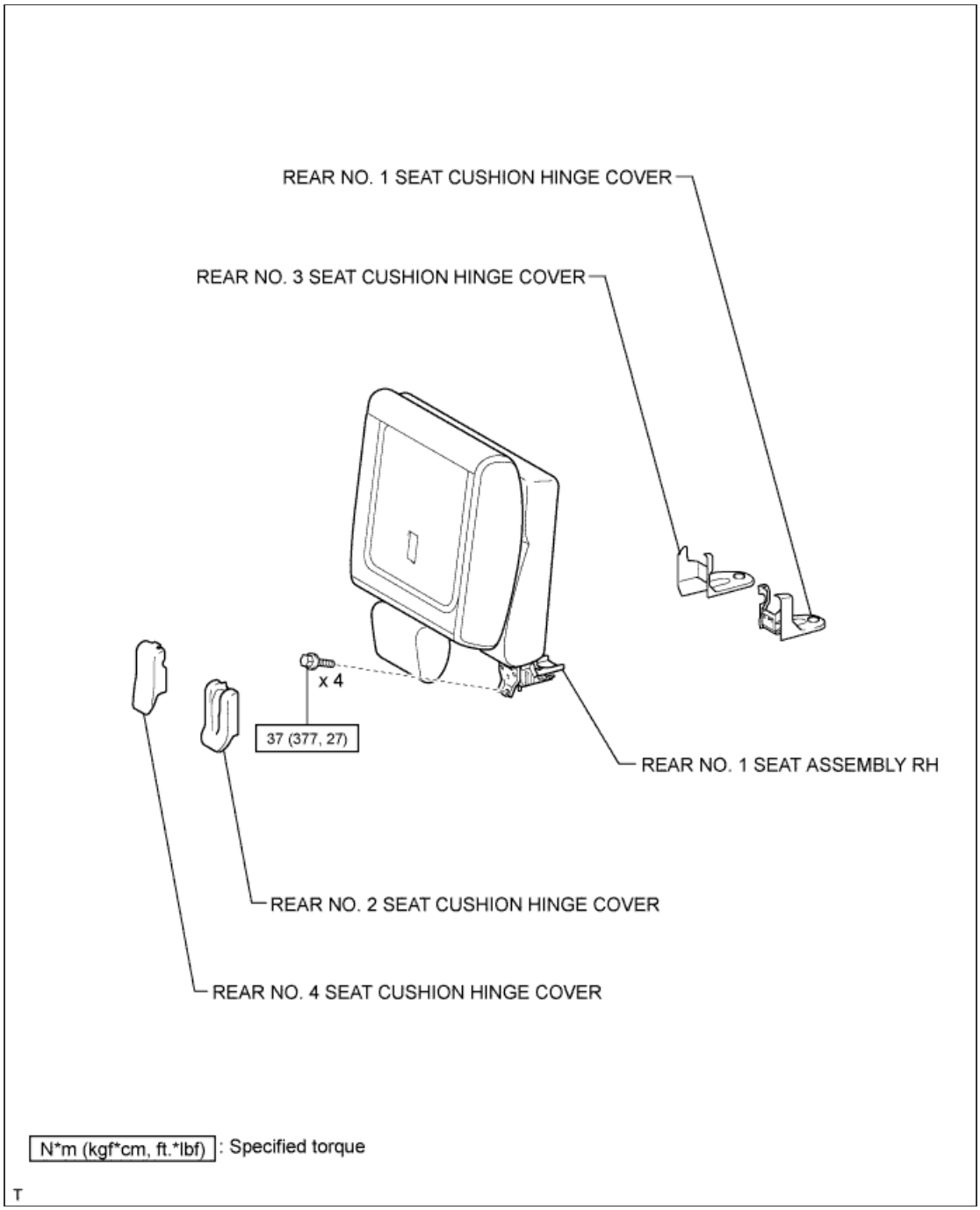
9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

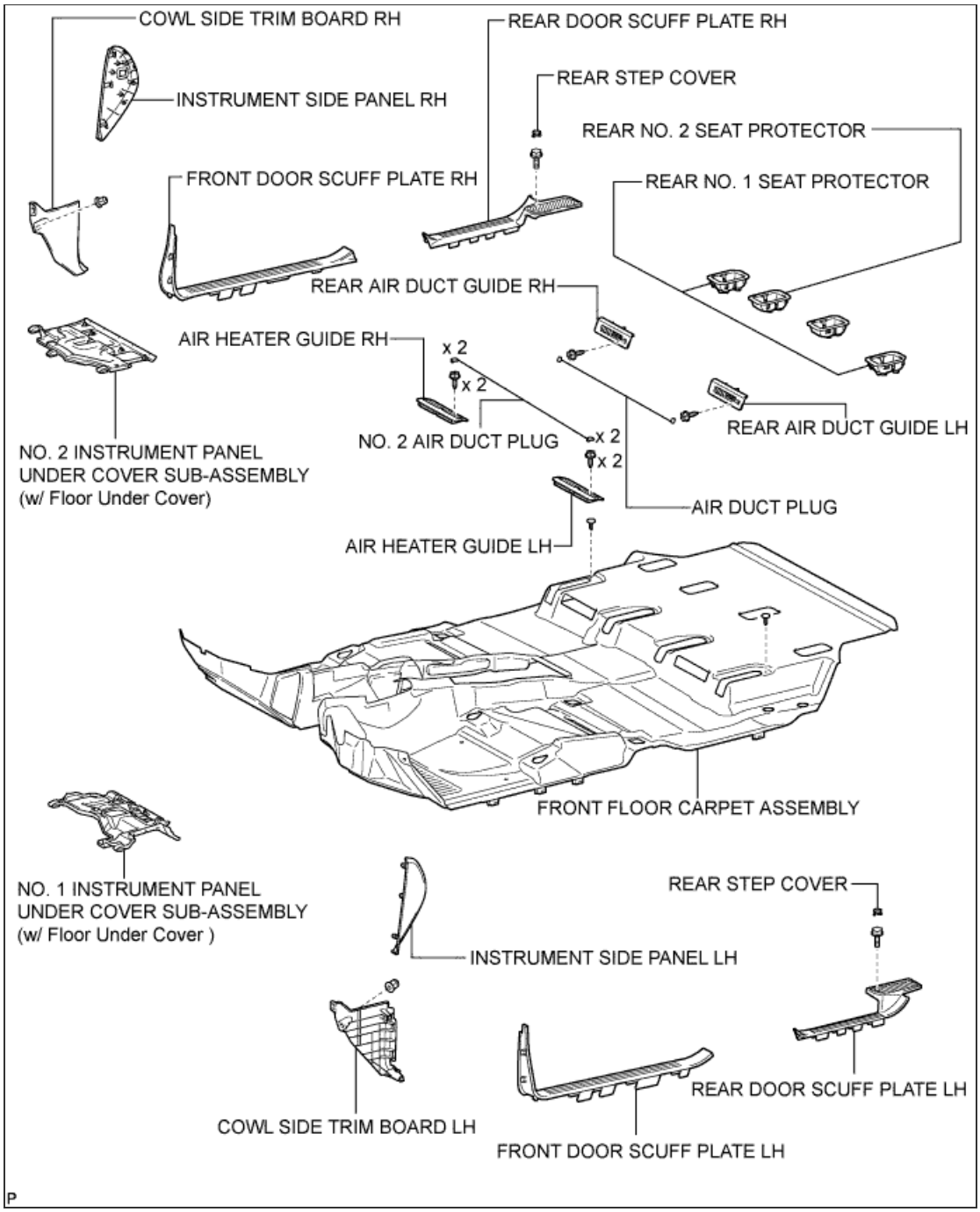
for Preparation Click here

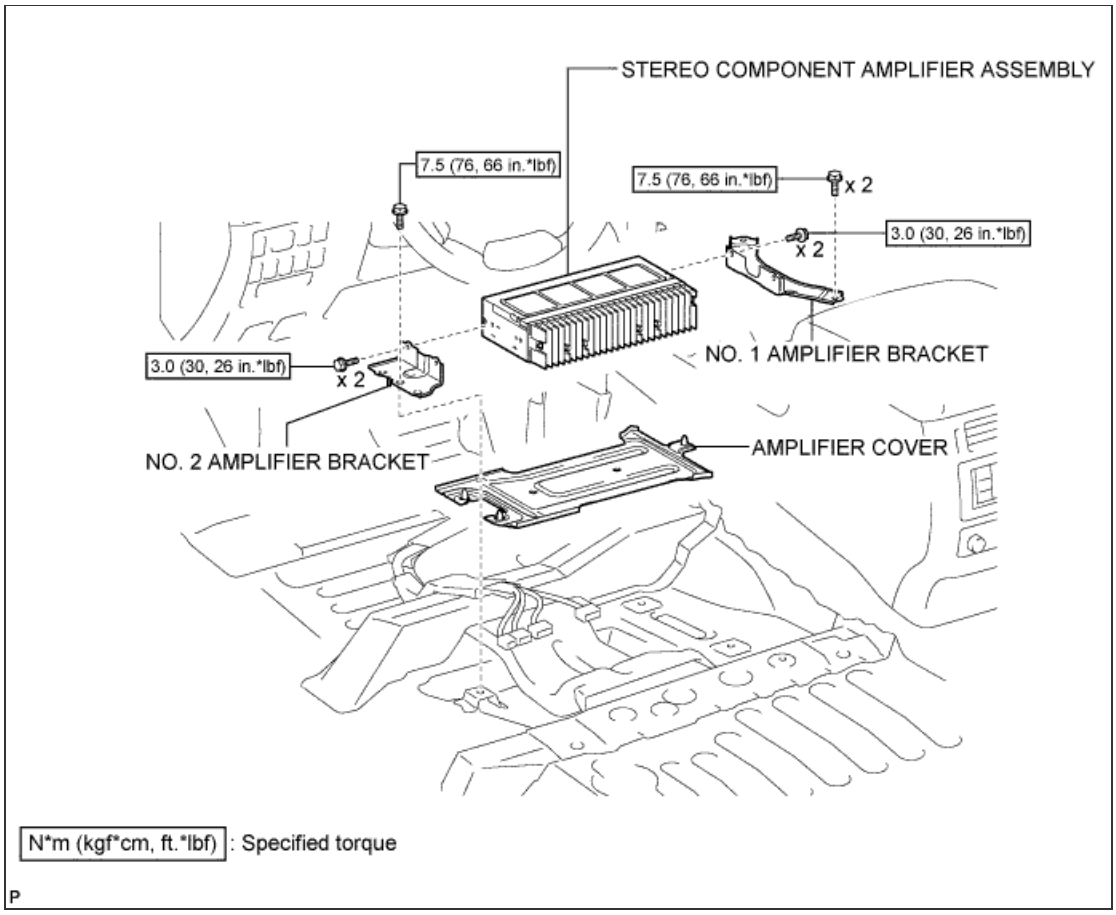




N*m (kgf*cm, ft.*lbf) : Specified torque

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. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

2. REMOVE 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).

3. 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:

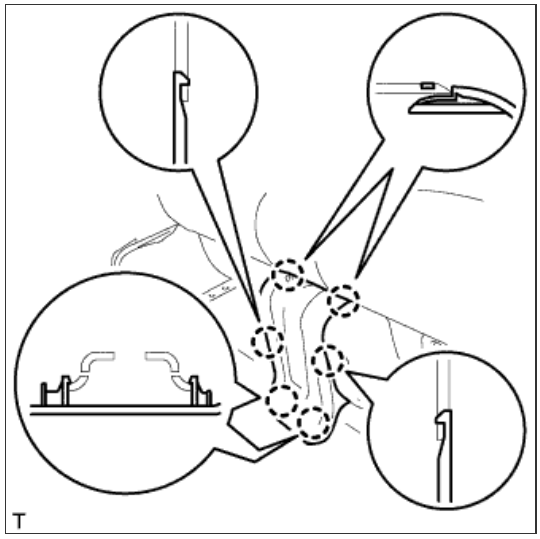
Use the same procedures described for the LH side.

4. 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.

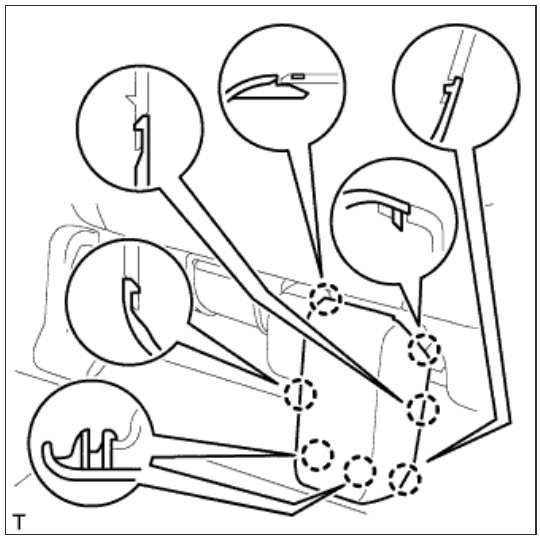


5. REMOVE REAR NO. 5 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 7 claws and remove the cover.

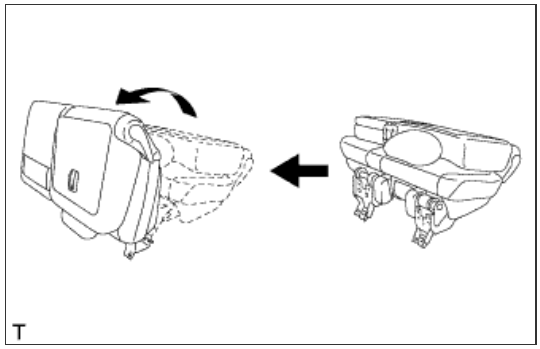
HINT:

Ta e the screwdriver tip before use.



6. REMOVE REAR NO. 2 SEAT CUSHION HINGE COVER

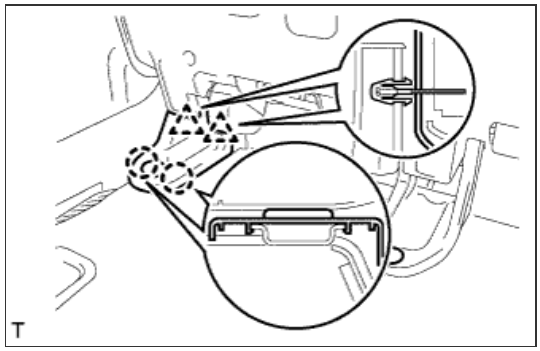
a. Operate the reclining adjuster release handle to move the seat into the position shown in the illustration.



b. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

HINT:

Tape the screwdriver tip before use.

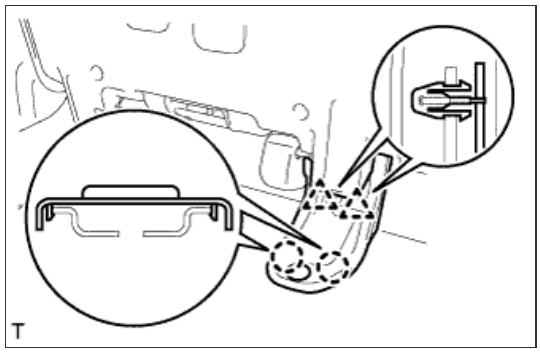


7. REMOVE REAR NO. 4 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

HINT:

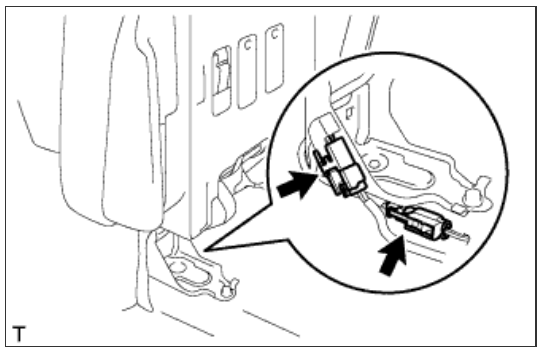
Tape the screwdriver tip before use.



8. REMOVE REAR NO. 1 SEAT ASSEMBLY LH

a. w/ Rear Seat Side Airbag:
Disconnect the connector.

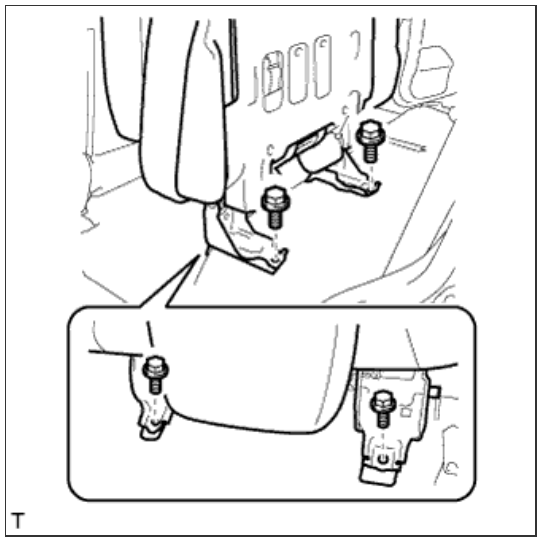
b. w/ Seat Heater System:
Disconnect the connector.



c. Remove the 4 bolts and seat assembly.

NOTICE:

Be careful not to damage the vehicle body.

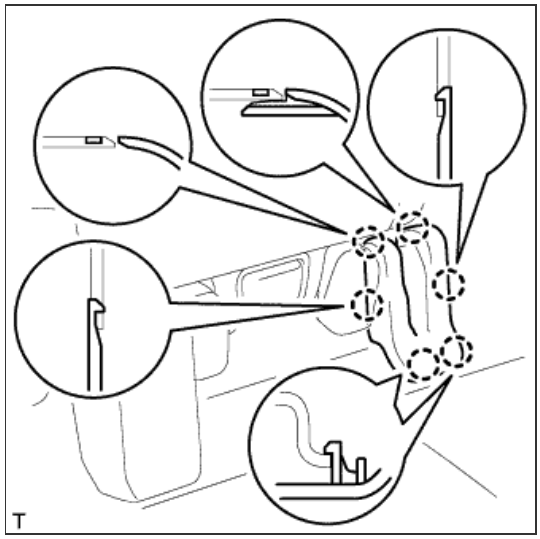


9. REMOVE REAR NO. 2 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 6 claws and remove the cover.

HINT:

Tape the screwdriver tip before use.

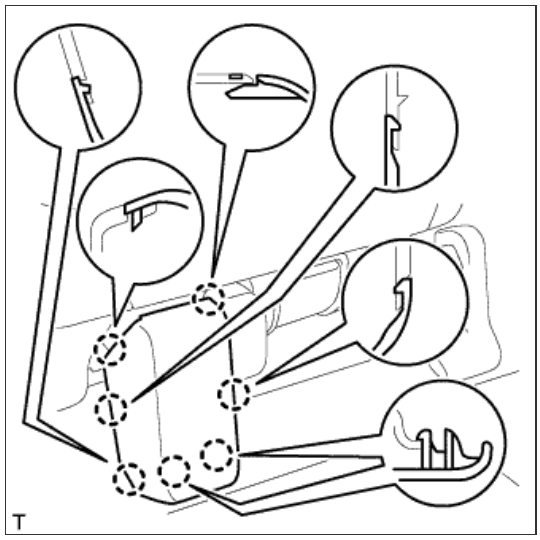


10. REMOVE REAR NO. 4 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 7 claws and remove the cover.

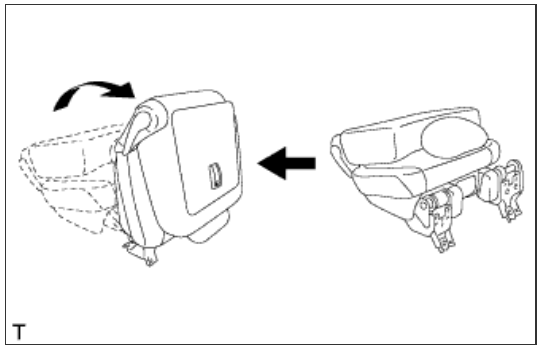
HINT:

Tape the screwdriver tip before use.



11. REMOVE REAR NO. 1 SEAT CUSHION HINGE COVER

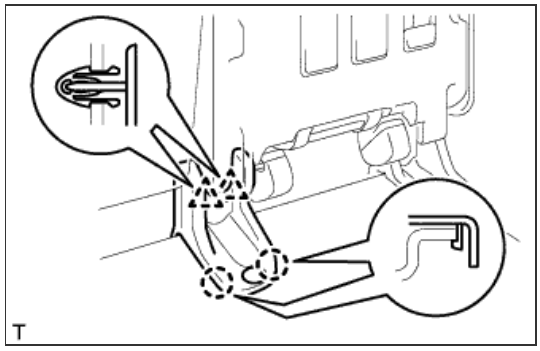
a. O erate the reclining adjuster release handle to move the seat into the position shown in the illustration.



b. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

HINT:

Tape the screwdriver tip before use.

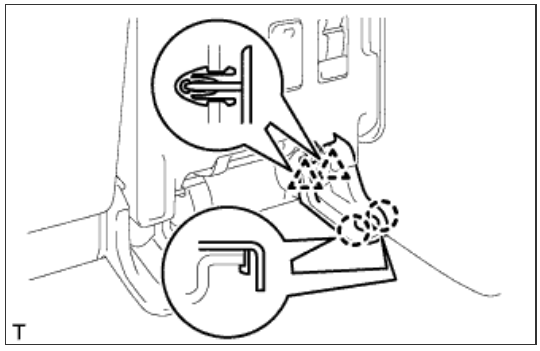


12. REMOVE REAR NO. 3 SEAT CUSHION HINGE COVER

a. Using a screwdriver, detach the 2 claws and 2 clips, and remove the cover.

HINT:

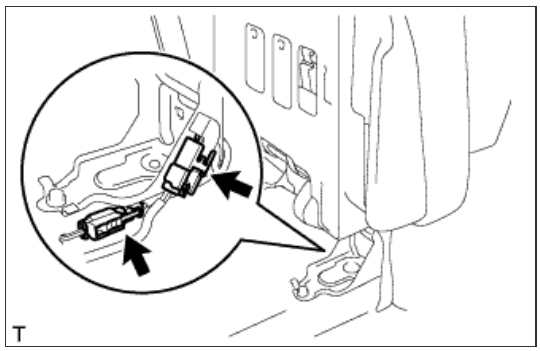
Tape the screwdriver tip before use.



13. REMOVE REAR NO. 1 SEAT ASSEMBLY RH

a. w/ Rear Seat Side Airbag:
Disconnect the connector.

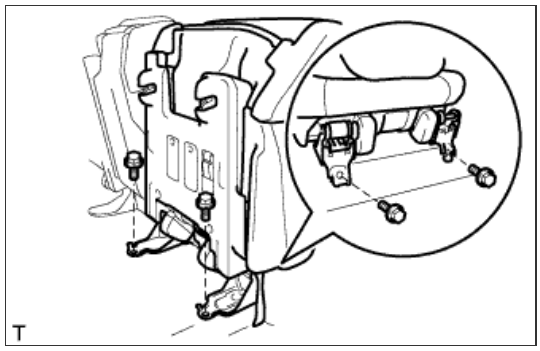
b. w/ Seat Heater System:
Disconnect the connector.



c. Remove the 4 bolts and seat assembly.

NOTICE:

Be careful not to damage the vehicle body.



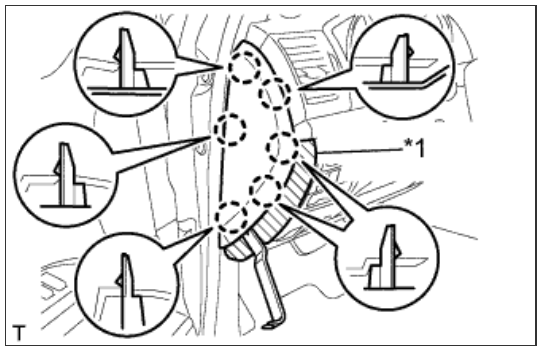
14. REMOVE INSTRUMENT SIDE PANEL LH

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.



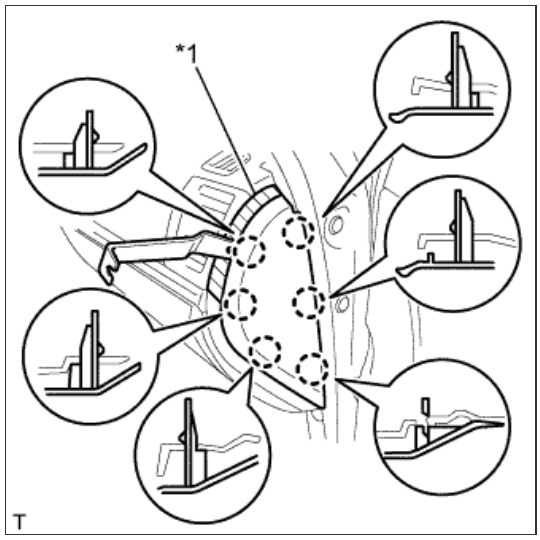
15. REMOVE INSTRUMENT SIDE PANEL RH (w/o Airbag Cut Off Switch)

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.



16. REMOVE INSTRUMENT SIDE PANEL RH (w/ Airbag Cut Off Switch)

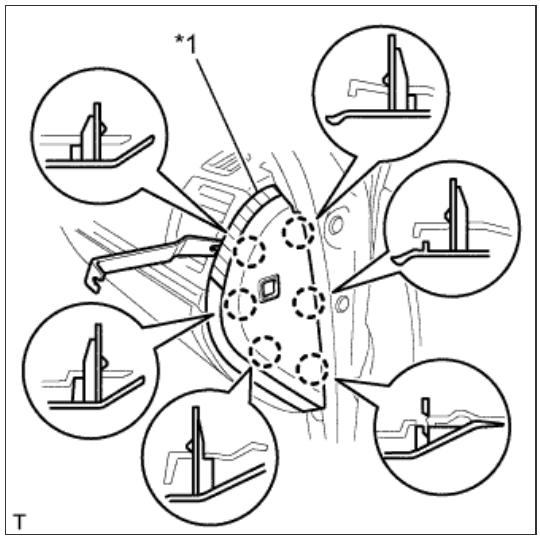
a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

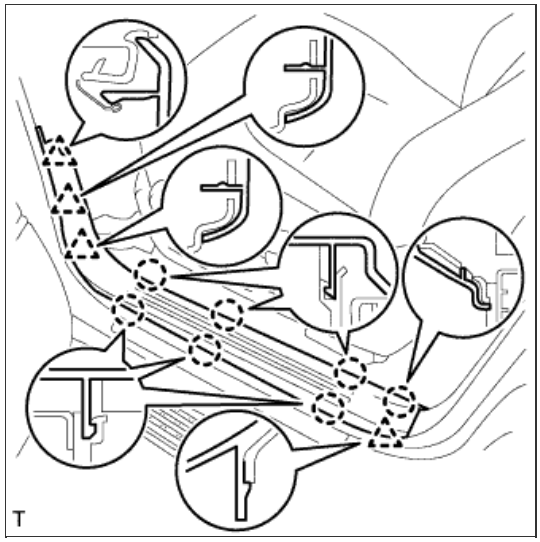
b. Using a moulding remover, detach the 6 claws.

c. Disconnect the connector and remove the instrument side panel.



17. REMOVE FRONT DOOR SCUFF PLATE LH

a. Detach the 7 claws and 4 clips, and remove the scuff plate.



18. REMOVE FRONT DOOR SCUFF PLATE RH

HINT:

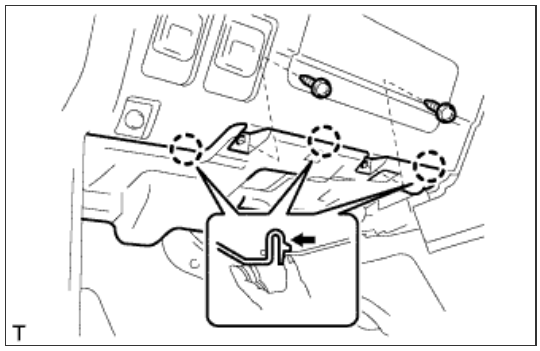
se the same procedures described for the LH side.

19. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

a. Remove the 2 screws.

b. Detach the 3 claws.

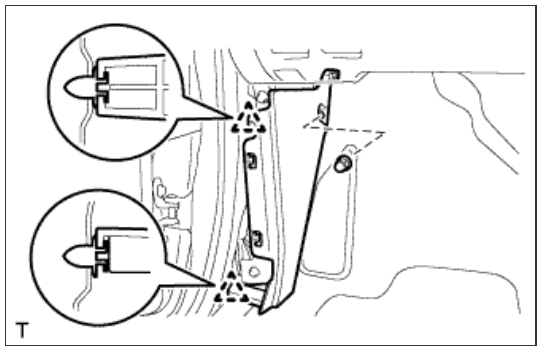
c. Disconnect the connectors and remove the No. 1 instrument panel under cover.



20. REMOVE COWL SIDE TRIM BOARD LH

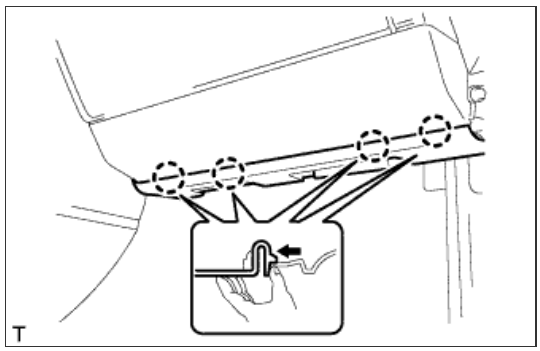
a. Remove the cap nut.

b. Detach the 2 clips and remove the cowl side trim board.



21. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

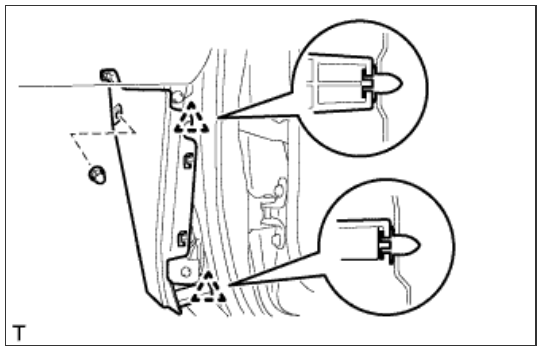
a. Detach the 4 claws and remove the No. 2 instrument panel under cover.



22. REMOVE COWL SIDE TRIM BOARD RH

a. Remove the cap nut.

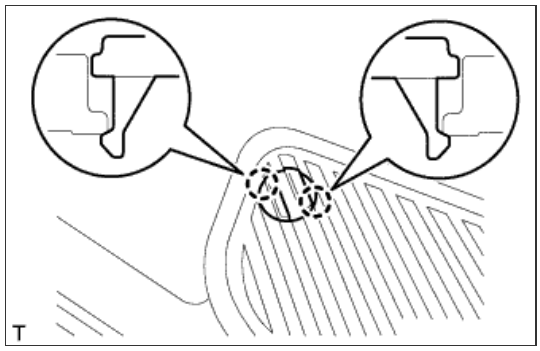
b. Detach the 2 clips and remove the cowl side trim board.



23. REMOVE REAR STEP COVER

HINT:

se the same procedure to remove the step cover on the other side.

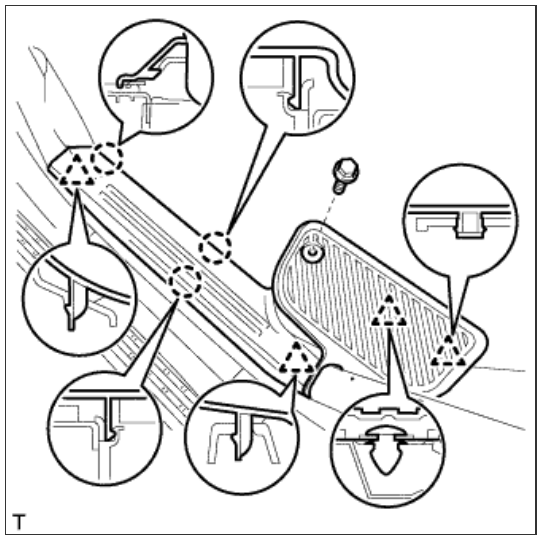


a. Detach the 2 claws and remove the step cover.

24. REMOVE REAR DOOR SCUFF PLATE LH

a. Remove the screw.

b. Detach the 3 claws and 4 clips, and remove the scuff plate.



25. REMOVE REAR DOOR SCUFF PLATE RH

HINT:

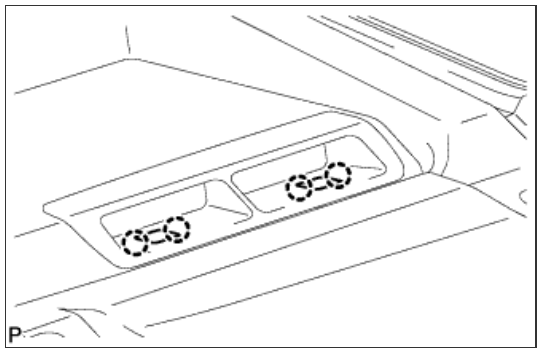
Use the same procedures described for the LH side.

26. REMOVE NO. 2 AIR DUCT PLUG

a. Detach the 4 claws and remove the 2 plugs.

HINT:

se the same procedures for both sides.

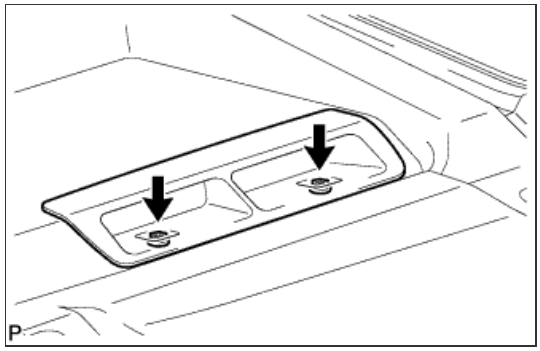


27. REMOVE AIR HEATER GUIDE

a. Remove the 2 screws and guide.

HINT:

Use the same procedures for both sides.

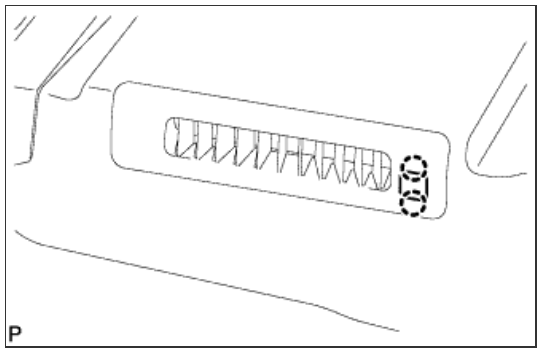


28. REMOVE AIR DUCT PLUG

a. Detach the 2 claws and remove the plug.

HINT:

Use the same procedures for both sides.



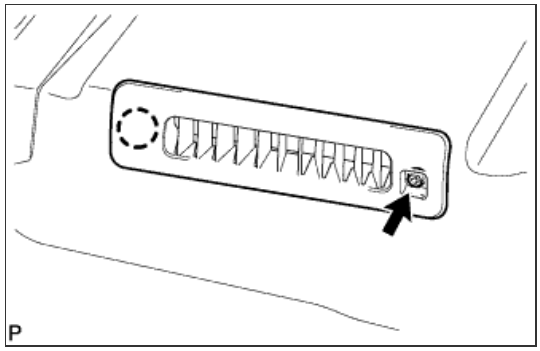
29. REMOVE REAR AIR DUCT GUIDE

a. Remove the screw.

b. Detach the claw and remove the guide.

HINT:

Use the same procedures for both sides.

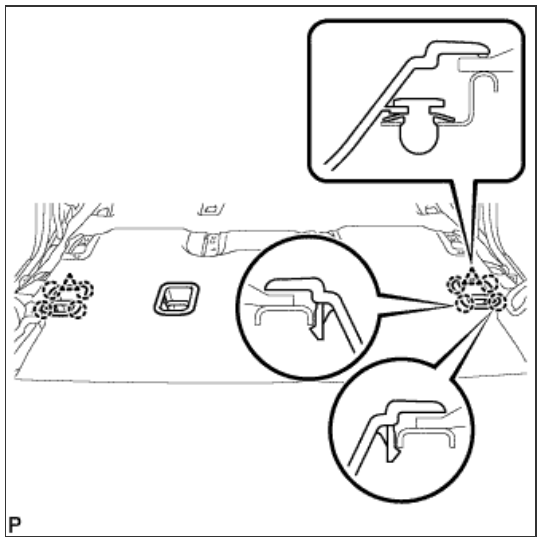


30. REMOVE REAR NO. 1 SEAT PROTECTOR

a. etach the clip and 4 claws, and remove the protector.

HINT:

Use the same procedures to remove the protector on the other side.

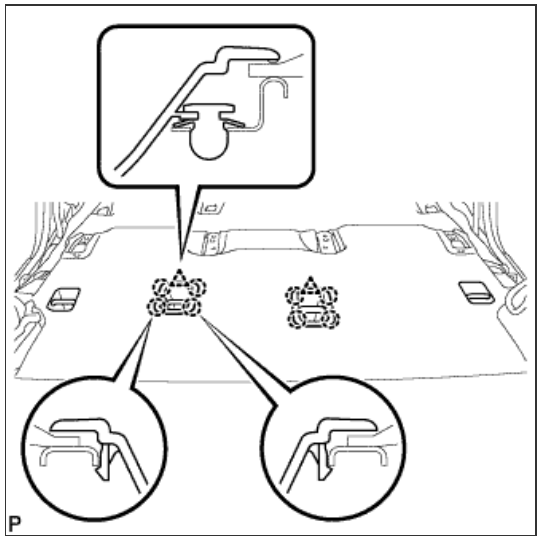


31. REMOVE REAR NO. 2 SEAT PROTECTOR

a. Detach the clip and 4 claws, and remove the protector.

HINT:

Use the same procedures to remove the protector on the other side.



32. REMOVE COOLING BOX ASSEMBLY (w/ Cool Box)

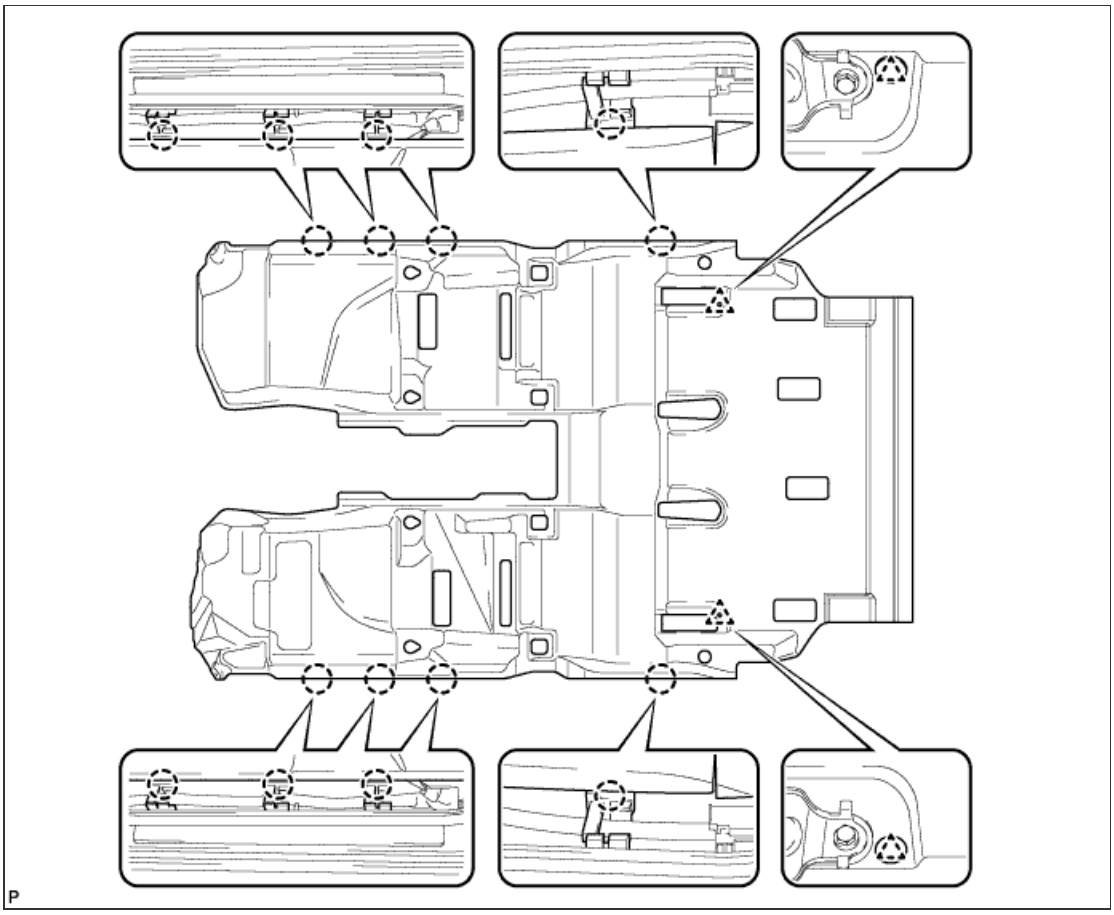
a. Remove the cooling box assembly (Click here).

33. REMOVE REAR CONSOLE BOX SUB-ASSEMBLY (w/o Cool Box)

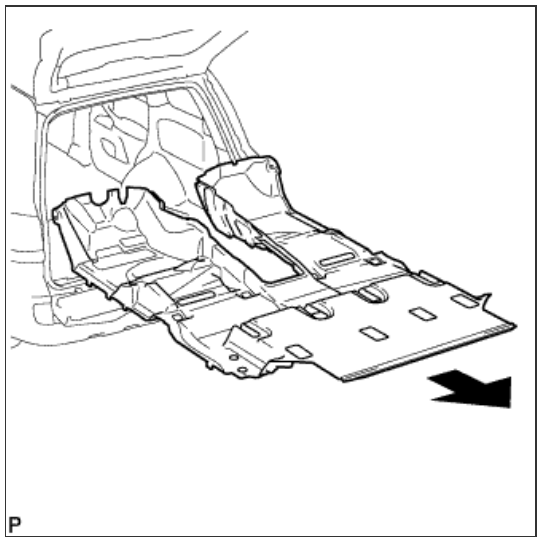
a. Remove the rear console box sub-assembly (Click here).

34. REMOVE FRONT FLOOR CARPET ASSEMBLY

a. Detach the 2 clips and 8 claws.



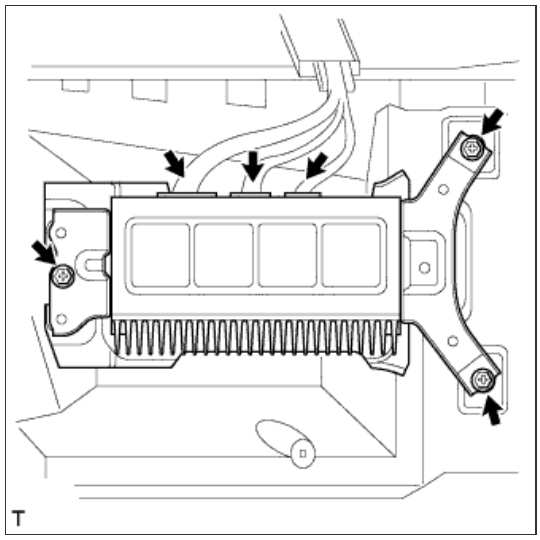
b. Remove the carpet from the floor, open the back door and tail gate, and remove the carpet from the rear of the vehicle.



35. REMOVE STEREO COMPONENT AMPLIFIER ASSEMBLY WITH BRACKET

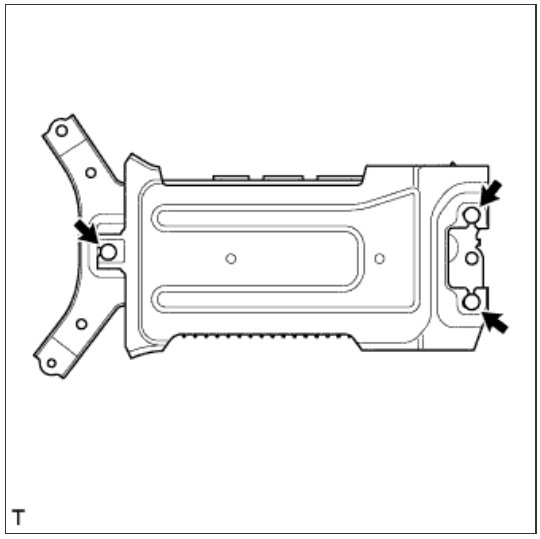
a. Disconnect the 3 connectors.

b. Remove the 3 bolts and remove the amplifier with bracket.



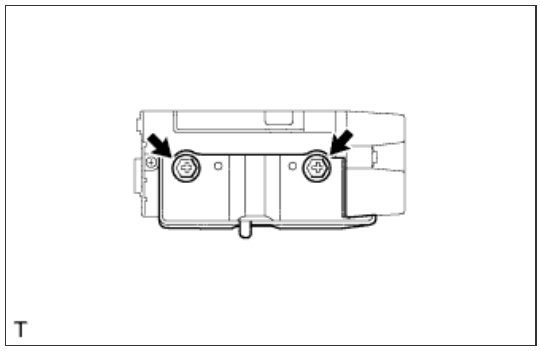
36. REMOVE AMPLIFIER COVER

a. etach the 3 clips and remove the cover.



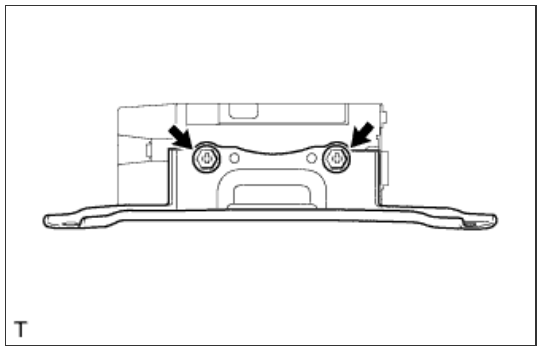
37. REMOVE NO. 1 AMPLIFIER BRACKET

a. Remove the 2 screws and bracket.



38. REMOVE NO. 2 AMPLIFIER BRACKET

a. Remove the 2 screws and bracket.



T

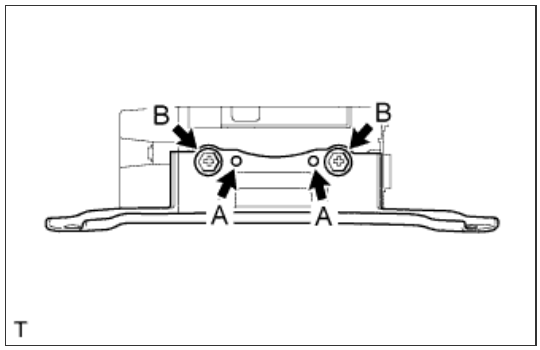
for Preparation Click here

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 }

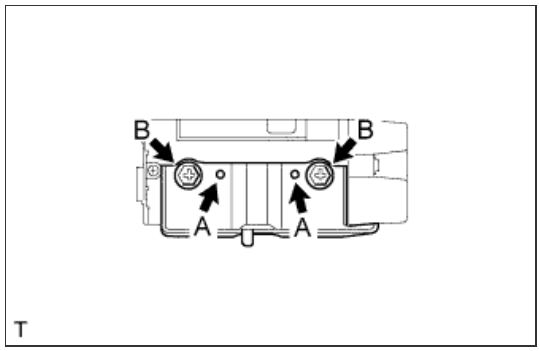


2. INSTALL NO. 1 AMPLIFIER BRACKET

a. Set the aligning protrusions of the bracket labeled A, into the holes of the amplifier.

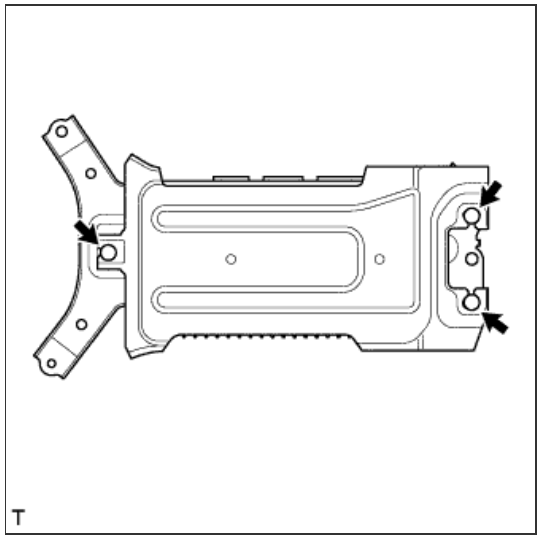
b. Install the bracket with the 2 screws labeled B.

Torque:
3.0 N*m{ 30 kgf*cm , 26 in.*lbf }



3. INSTALL AMPLIFIER COVER

a. Attach the 3 clips to install the cover.

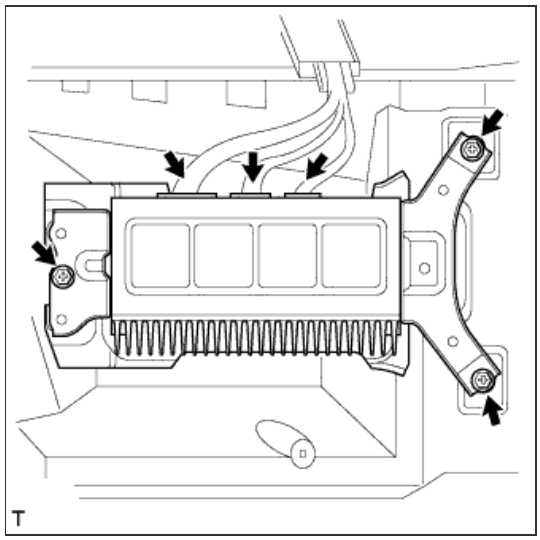


4. INSTALL STEREO COMPONENT AMPLIFIER ASSEMBLY WITH BRACKET

a. Install the amplifier with the 3 bolts.

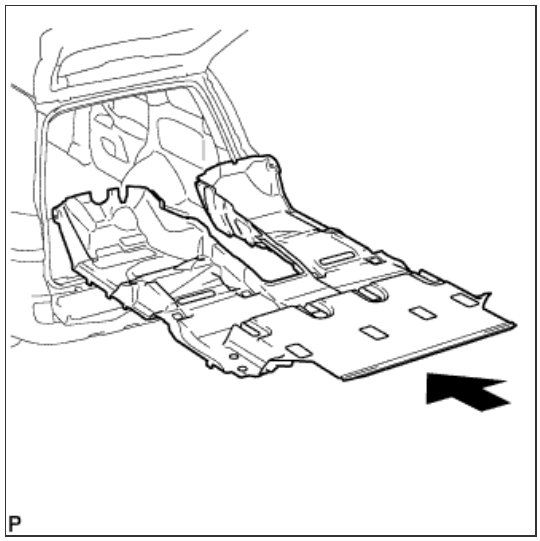
Torque:
7.5 N*m{ 76 kgf*cm , 66 in.*lbf }

b. Connect the 3 connectors.

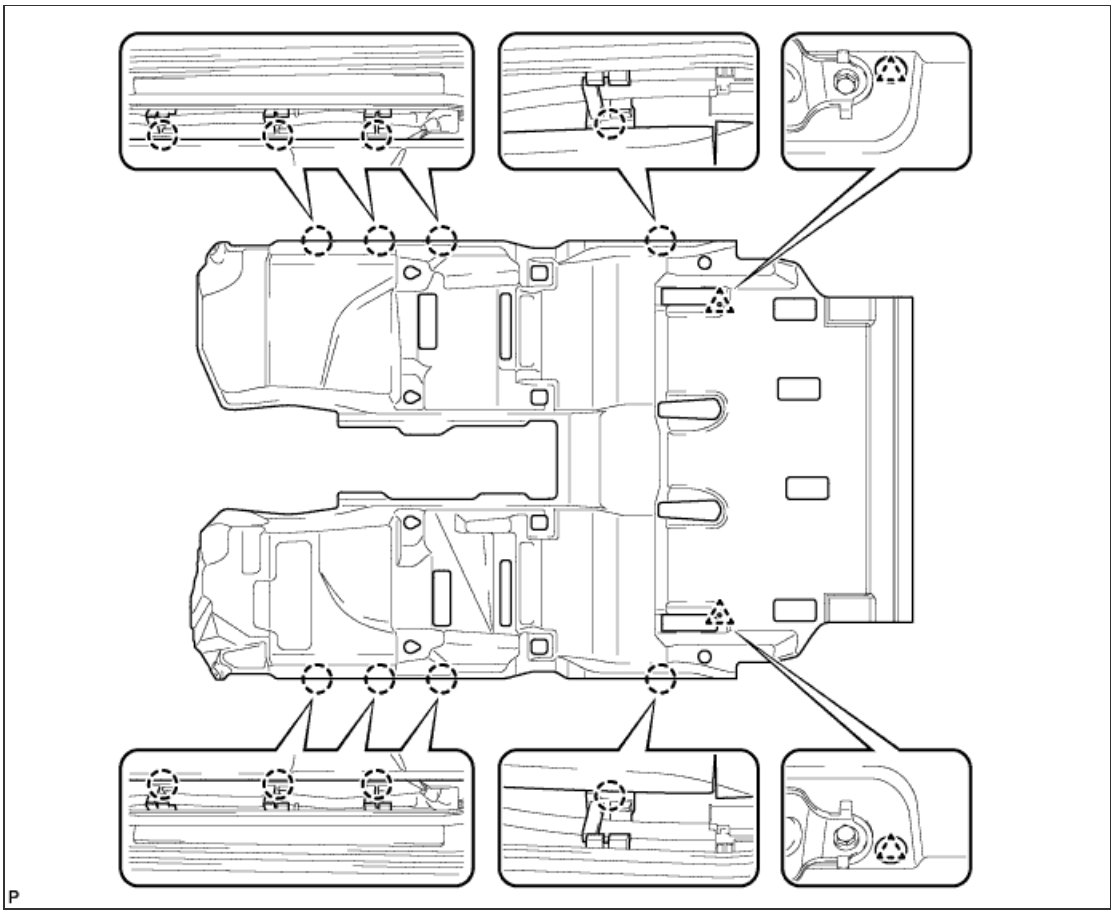


5. INSTALL FRONT FLOOR CARPET ASSEMBLY

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)

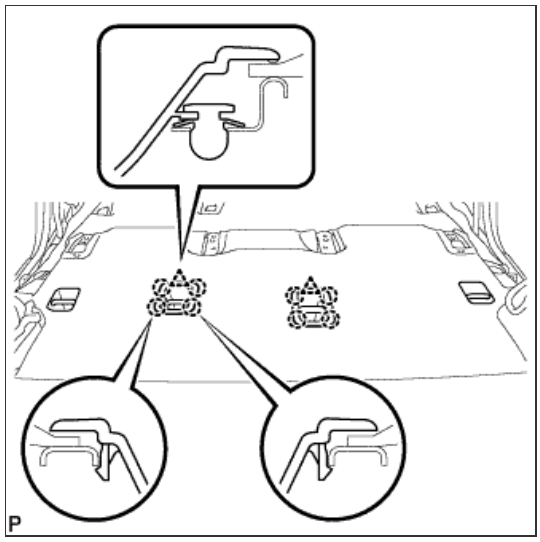
a. Install the cooling box assembly (Click here).

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.

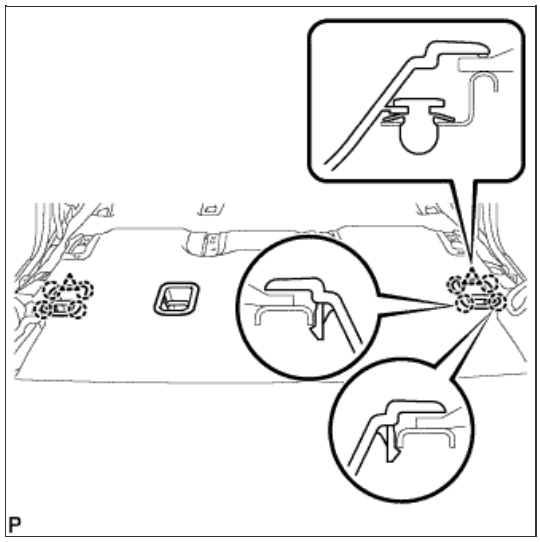


9. INSTALL REAR NO. 1 SEAT PROTECTOR

a. Attach the clip and 4 claws to install the protector.

HINT:

Use the same procedures to install the protector on the other side.



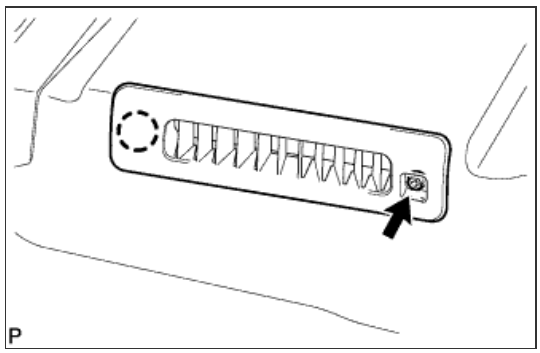
10. INSTALL REAR AIR DUCT GUIDE

a. Attach the claw to install the guide.

b. Install the screw.

HINT:

Use the same procedures for both sides.

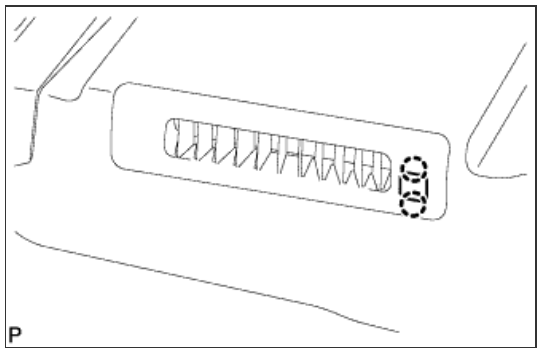


11. INSTALL AIR DUCT PLUG

a. Attach the 2 claws to install the plug.

HINT:

Use the same procedures for both sides.

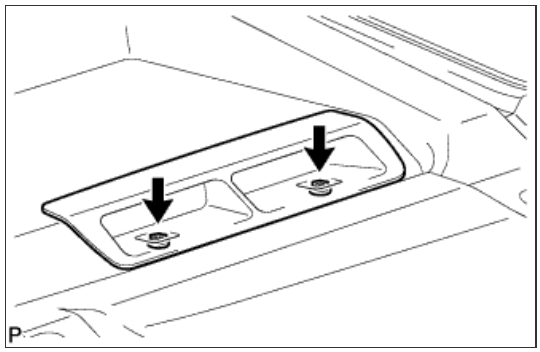


12. INSTALL AIR HEATER GUIDE

a. Install the guide with the 2 screws.

HINT:

Use the same procedures for both sides.

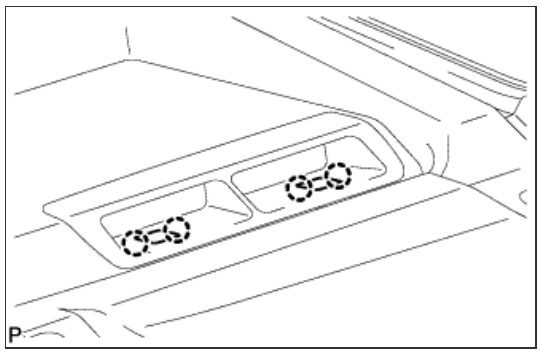


13. INSTALL NO. 2 AIR DUCT PLUG

a. Attach the 4 claws to install the 2 plugs.

HINT:

Use the same procedures for both sides.



14. INSTALL REAR DOOR SCUFF PLATE RH

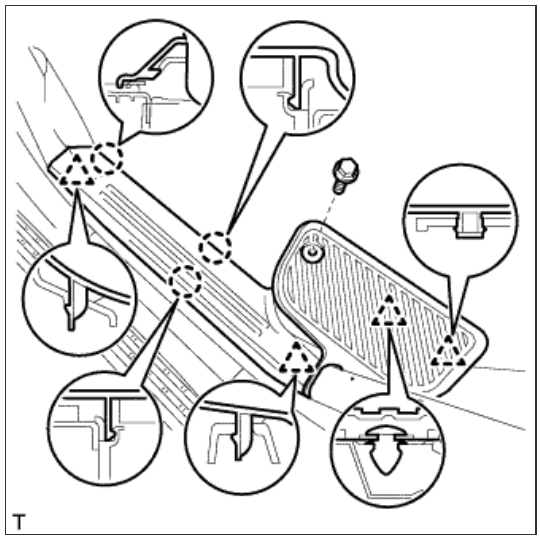
HINT:

Use the same procedures described for the LH side.

15. INSTALL REAR DOOR SCUFF PLATE LH

a. Attach the 3 claws and 4 clips to install the scuff plate.

b. Install the screw.

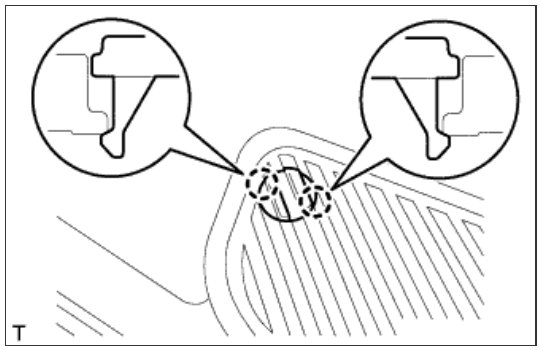


16. INSTALL REAR STEP COVER

HINT:

Use the same procedure to install the step cover on the other side.

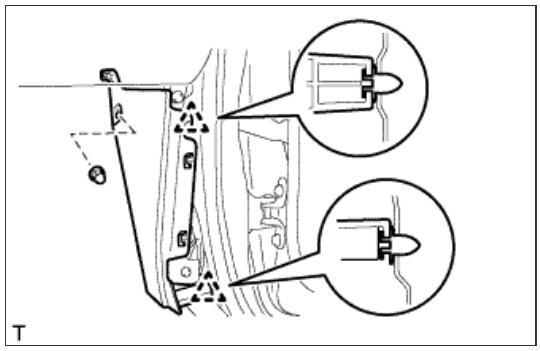
a. Attach the 2 claws to install the step cover.



17. INSTALL COWL SIDE TRIM BOARD RH

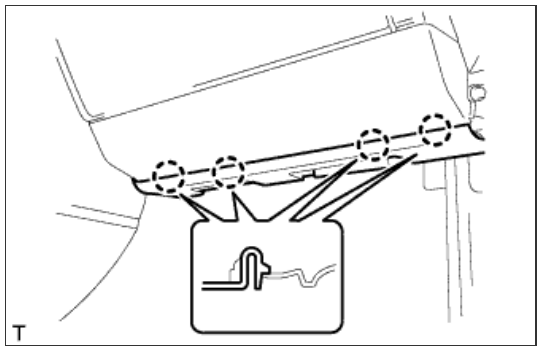
a. Attach the 2 clips to install the cowl side trim board.

b. Install the cap nut.



18. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

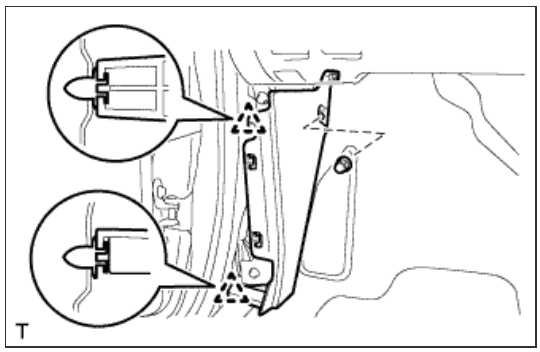
a. Attach the 4 claws to install the No. 2 instrument panel under cover.



19. INSTALL COWL SIDE TRIM BOARD LH

a. Attach the 2 clips to install the cowl side trim board.

b. Install the cap nut.

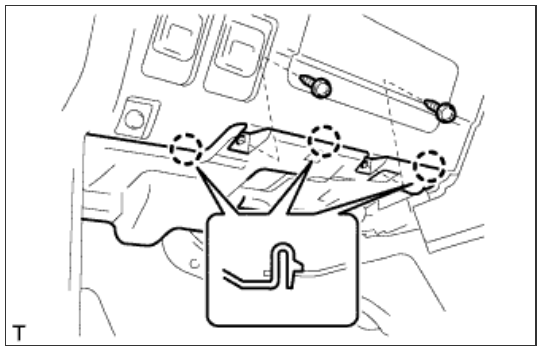


20. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

a. Connect the connectors.

b. Attach the 3 claws to install the No. 1 instrument panel under cover.

c. Install the 2 screws.



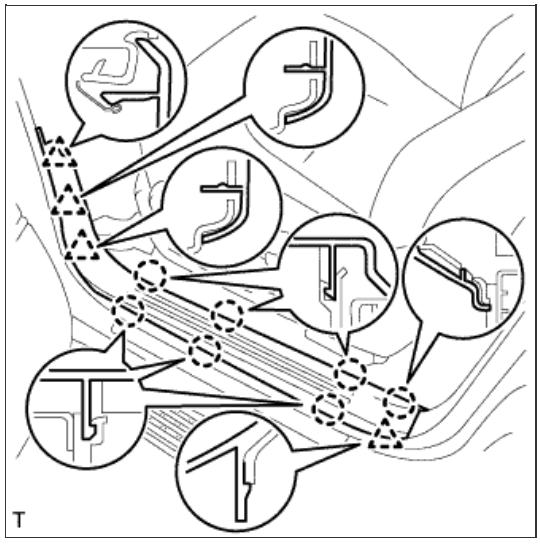
21. INSTALL FRONT DOOR SCUFF PLATE RH

HINT:

Use the same procedures described for the LH side.

22. INSTALL FRONT DOOR SCUFF PLATE LH

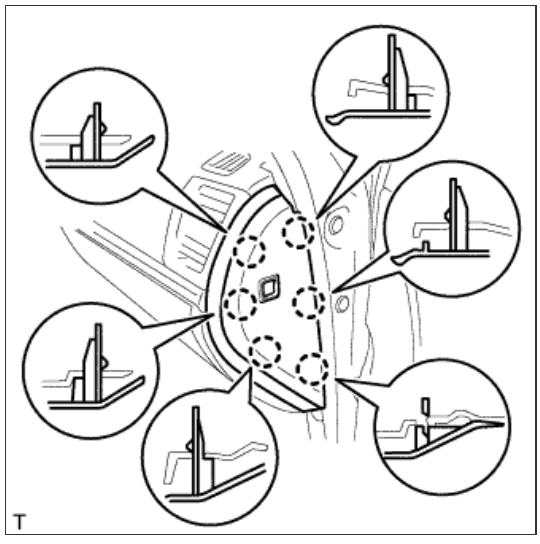
a. Attach the 7 claws and 4 clips to install the scuff plate.



23. INSTALL INSTRUMENT SIDE PANEL RH (w/ Airbag Cut Off Switch)

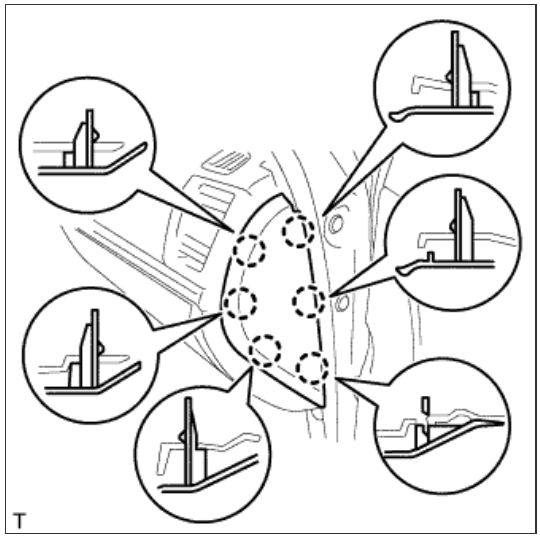
a. Connect the connector.

b. Attach the 6 claws to install the instrument side panel.



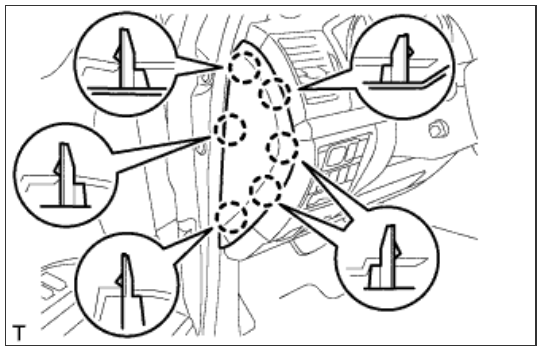
24. INSTALL INSTRUMENT SIDE PANEL RH (w/o Airbag Cut Off Switch)

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.

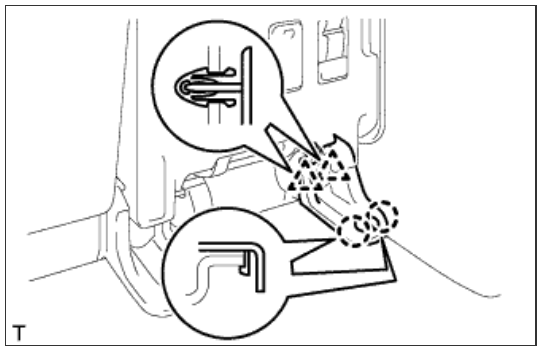


26. INSTALL REAR NO. 1 SEAT ASSEMBLY RH

a. Install the rear No. 1 seat assembly RH (Click here).

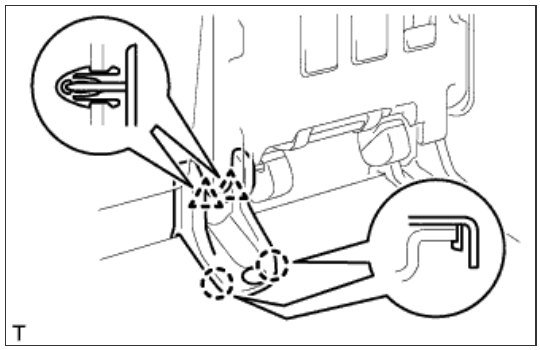
27. INSTALL REAR NO. 3 SEAT CUSHION HINGE COVER

a. Attach the 2 clips and 2 claws to install the cover.



28. INSTALL REAR NO. 1 SEAT CUSHION HINGE COVER

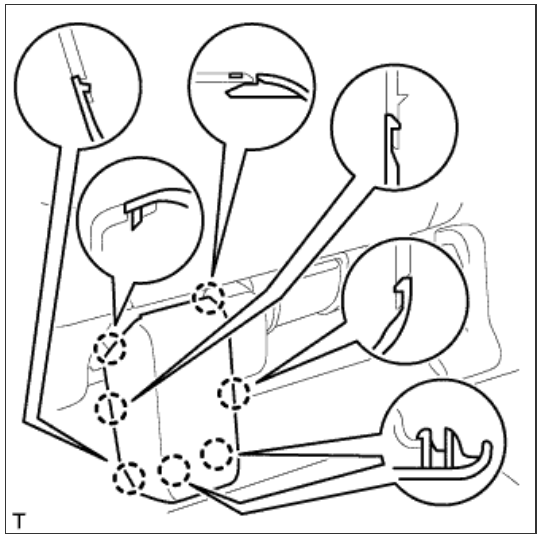
a. Attach the 2 clips and 2 claws to install the cover.



29. INSTALL REAR NO. 4 SEAT CUSHION HINGE COVER

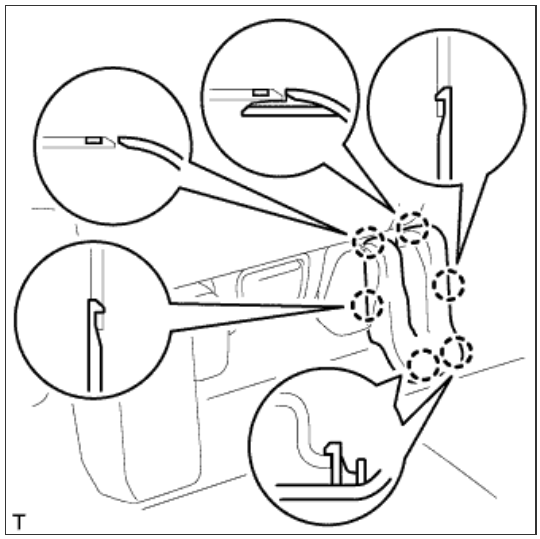
a. Return the seat to the upright position.

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

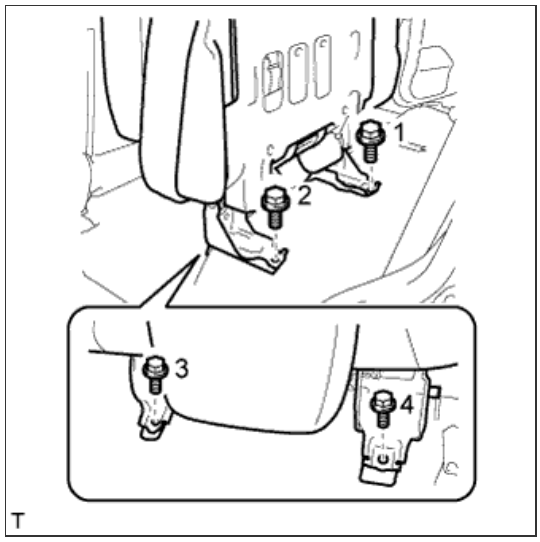
a. Temporarily install the seat assembly with the 4 bolts.

NOTICE:

Be careful not to damage the vehicle body.

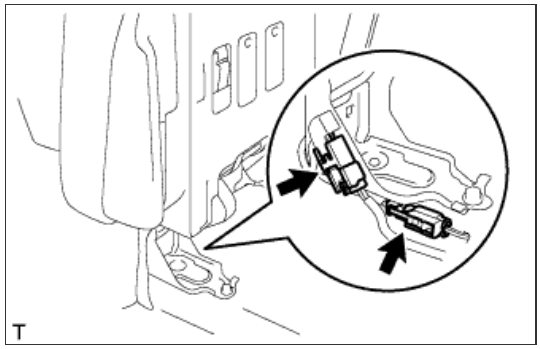
b. Tighten the bolts in the order shown in the illustration.

Torque:
37 N*m{ 377 kgf*cm , 27 ft.*lbf }



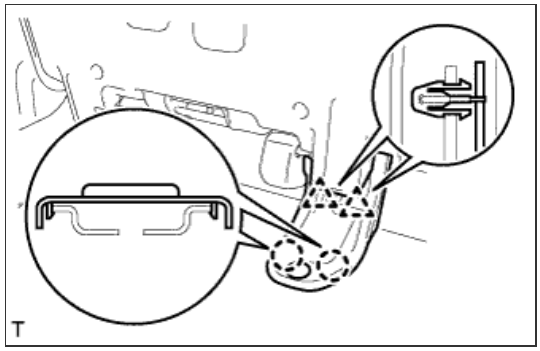
c. w/ Rear Seat Side Airbag:
Connect the connector.

d. w/ Seat Heater System:
Connect the connector.



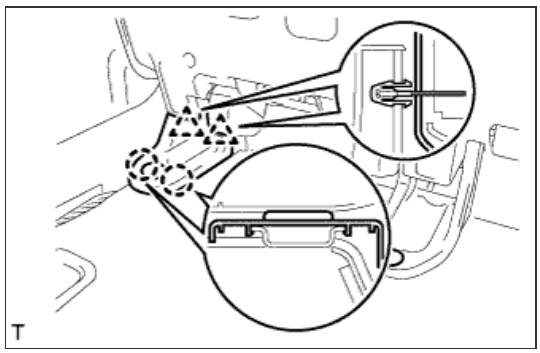
32. INSTALL REAR NO. 4 SEAT CUSHION HINGE COVER

a. Attach the 2 clips and 2 claws to install the cover.



33. INSTALL REAR NO. 2 SEAT CUSHION HINGE COVER

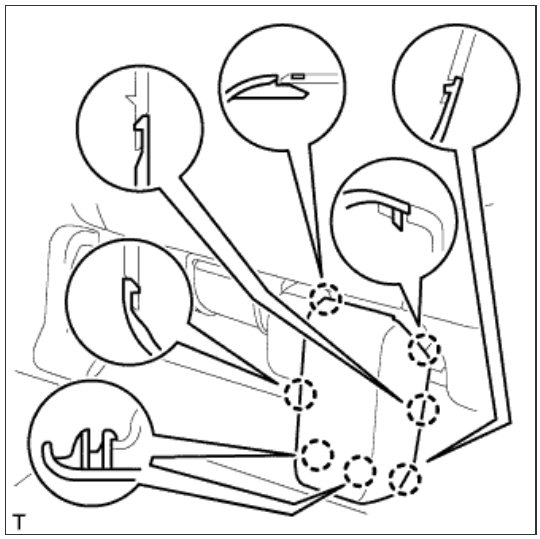
a. Attach the 2 clips and 2 claws to install the cover.



34. INSTALL REAR NO. 5 SEAT CUSHION HINGE COVER

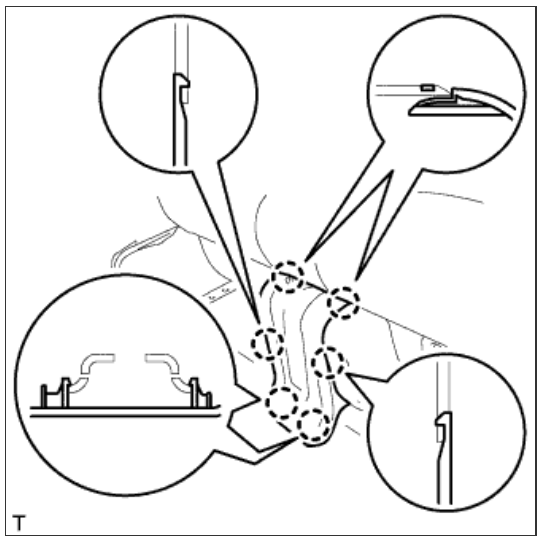
a. Return the seat to the upright position.

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:

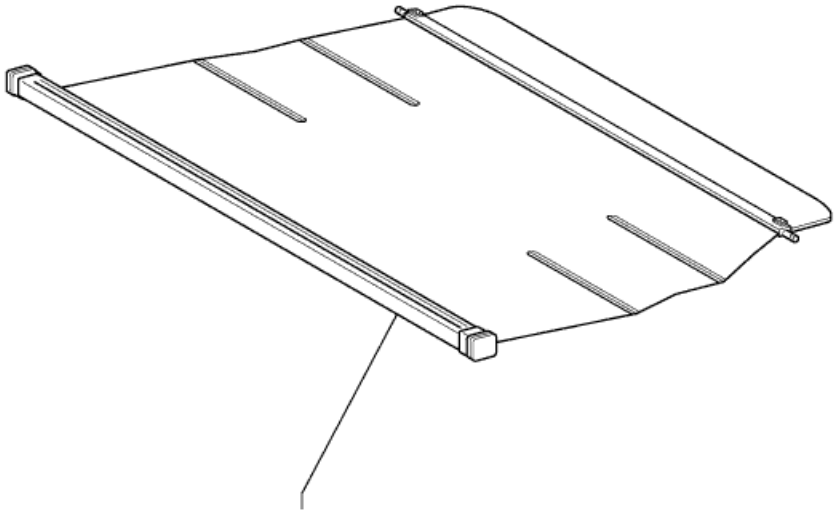
When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

39. CHECK SRS WARNING LIGHT

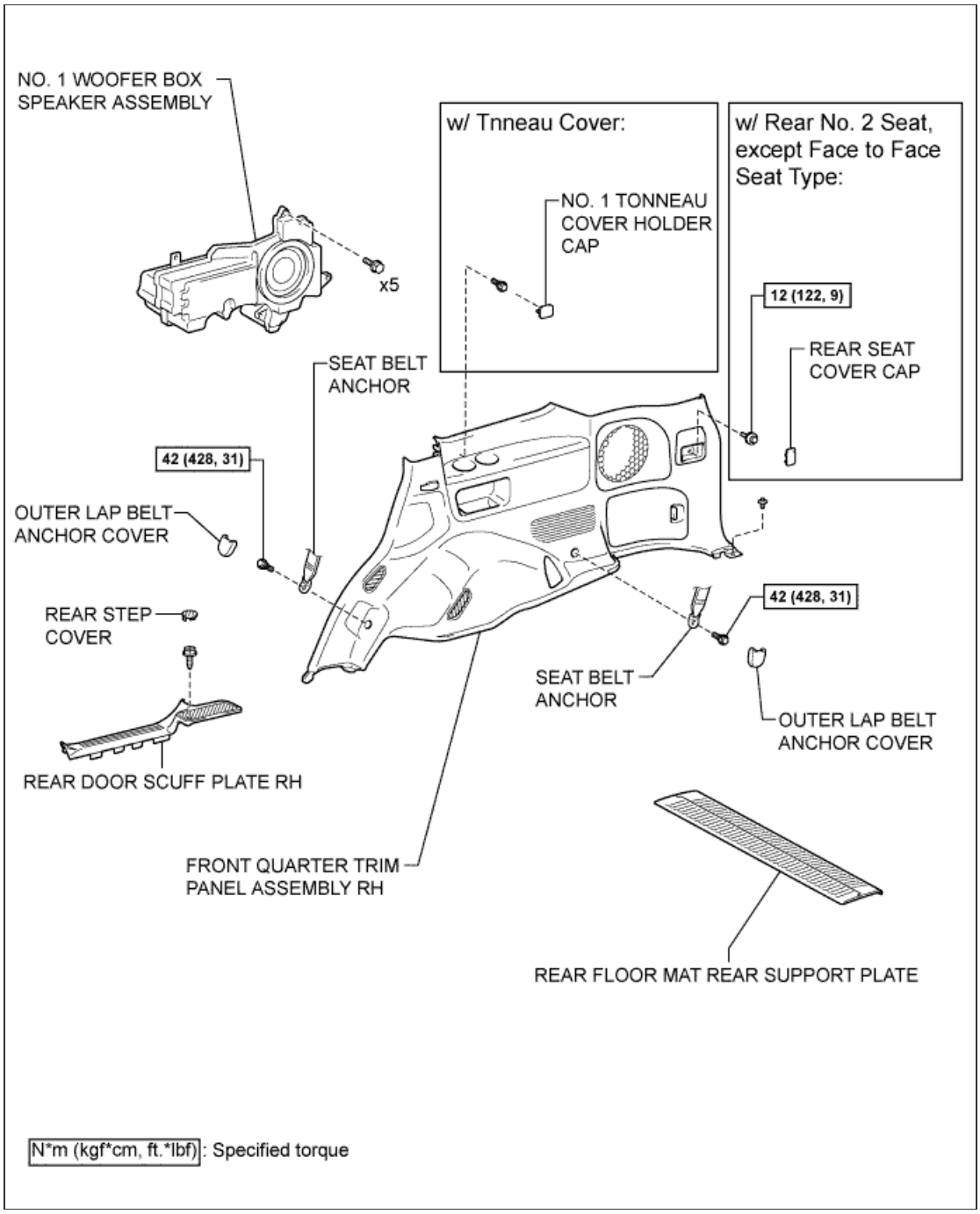
a. Check the SRS warning light (Click here).

for Preparation [Click here]

w/ Tonneau Cover:



T


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. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

2. REMOVE TONNEAU COVER ASSEMBLY (w/ Tonneau Cover)

a. Remove the tonneau cover.

3. REMOVE REAR NO. 2 SEAT ASSEMBLY RH (for Face to Face Seat Type)

HINT:

Use the same procedures described for the L side (Click here).

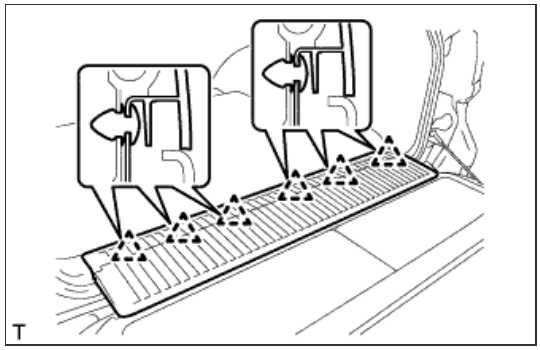
4. REMOVE REAR NO. 2 SEAT ASSEMBLY RH (except Face to Face Seat Type)

HINT:

Use the same procedures described for the L side (Click here).

5. REMOVE REAR FLOOR MAT REAR SUPPORT PLATE

a. Detach the 6 clips and remove the support plate.

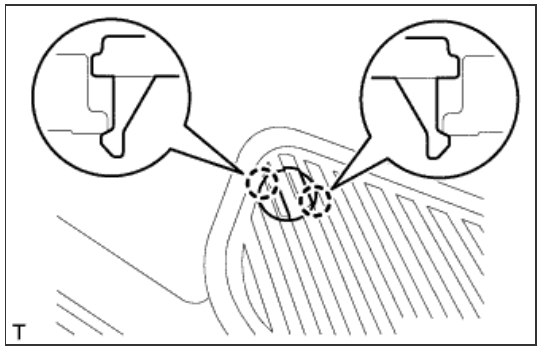


6. REMOVE REAR STEP COVER

HINT:

Use the same procedure to remove the step cover on the other side.

a. Detach the 2 claws and remove the step cover.



7. REMOVE REAR DOOR SCUFF PLATE RH

HINT:

Use the same procedures described for the L side.

8. REMOVE REAR SEAT COVER CAP (w/ Rear No. 2 Seat, except Face to Face Seat Type)

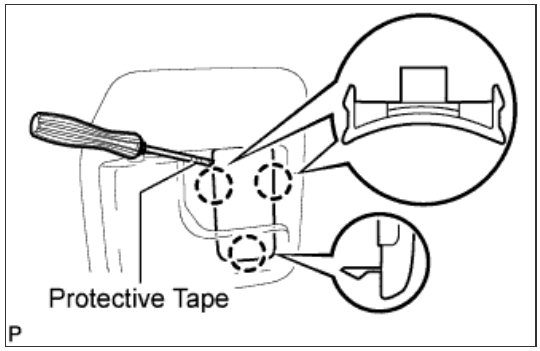
HINT:

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:

ape the screwdriver tip before use.

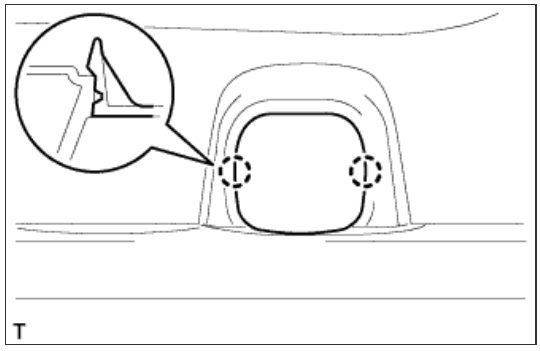


9. REMOVE NO. 1 TONNEAU COVER HOLDER CAP (w/ Tonneau Cover)

HINT:

Use the same procedure to remove the tonneau cover holder cap on the other side.

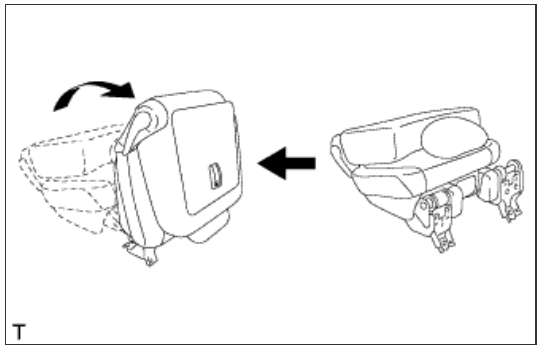
a. Detach the 2 claws and remove the tonneau cover holder cap.



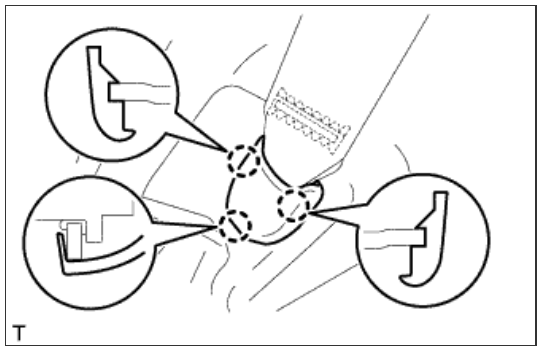
10. REMOVE FRONT QUARTER TRIM PANEL ASSEMBLY RH

HINT:

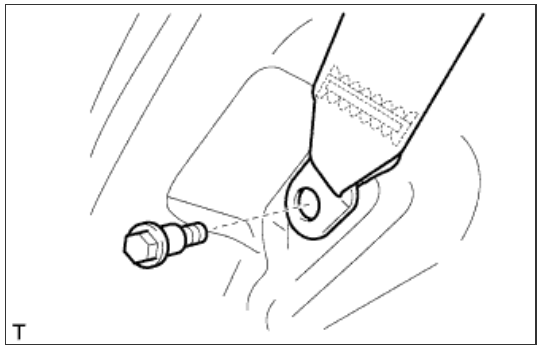
When removing the front quarter trim panel, operate the reclining adjuster release handle and move the No. 1 rear seat to the position shown in the illustration.



a. Detach the 3 claws and remove the cover.

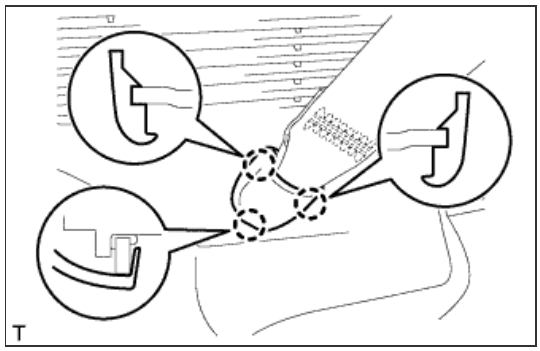


b. Remove the bolt and rear No. 1 seat belt anchor.

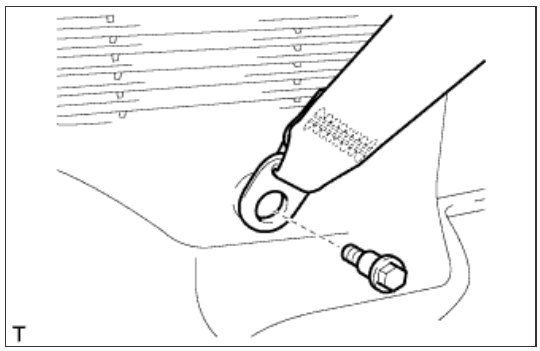


c. w/ Rear No. 2 Seat, e cept Face to Face Seat ype

i. Detach the 3 claws and remove the cover.



ii. Remove the bolt and rear No. 2 seat belt anchor.



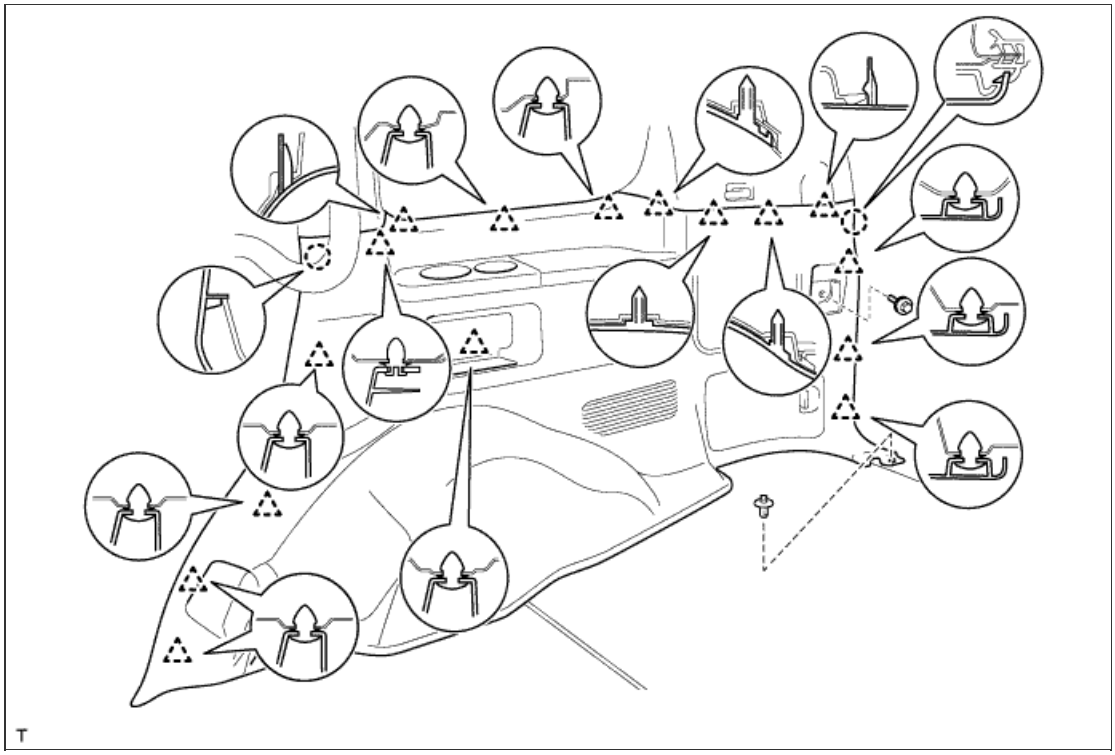
d. w/ Rear No. 2 Seat, e cept Face to Face Seat ype

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.

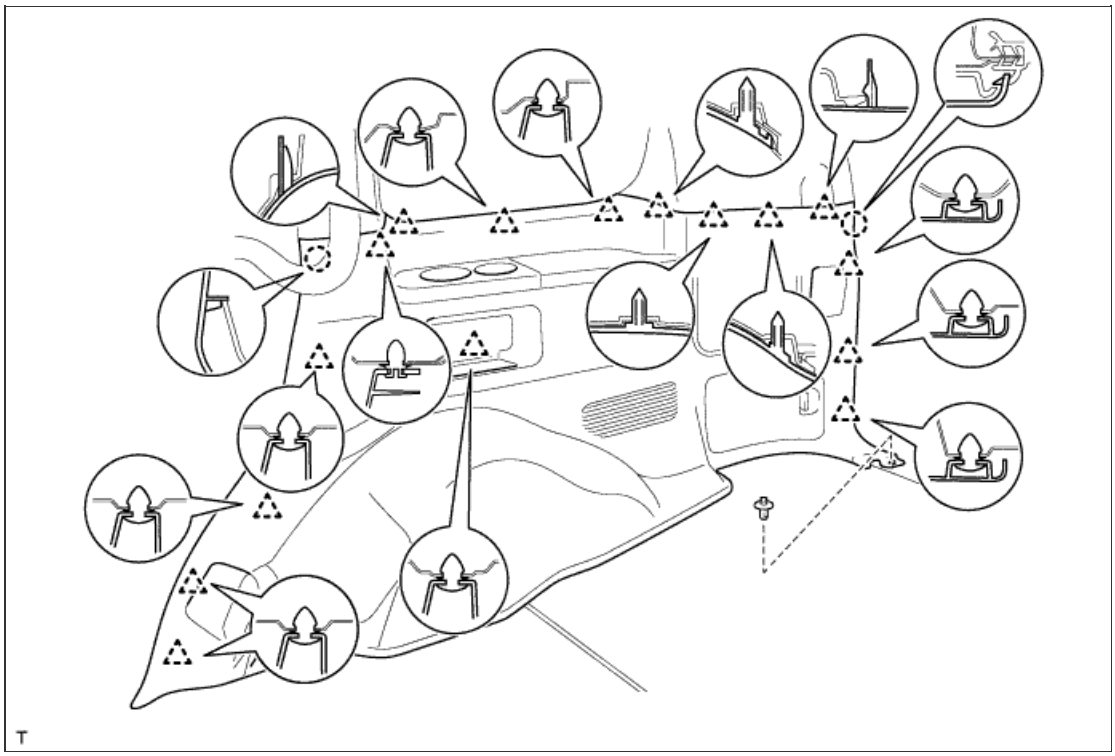
iv. w/ Rear Air Conditioning System
Disconnect the thermistor connector and rear seat lock control lever cable, and then remove the quarter trim panel.



e. w/o Rear No. 2 Seat or w/ Rear No. 2 Seat, for Face to Face Seat ype

i. Remove the clip.

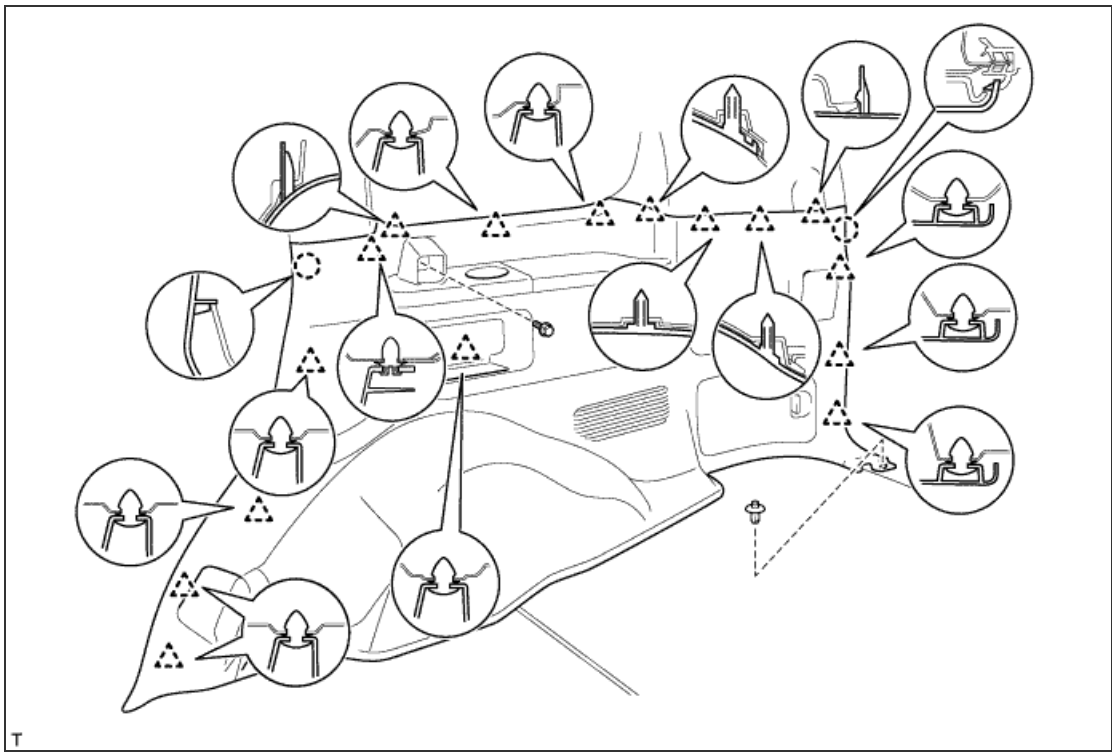
ii. Detach the 16 clips and 2 claws, and remove the quarter trim panel.



f. w/ onneau Cover

i. Remove the screw and clip.

ii. Detach the 16 clips and 2 claws, and remove the quarter trim panel.



11. REMOVE NO. 1 WOOFER BOX SPEAKER ASSEMBLY

a. Disconnect the connector.

b. Remove the 5 bolts and bo 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.

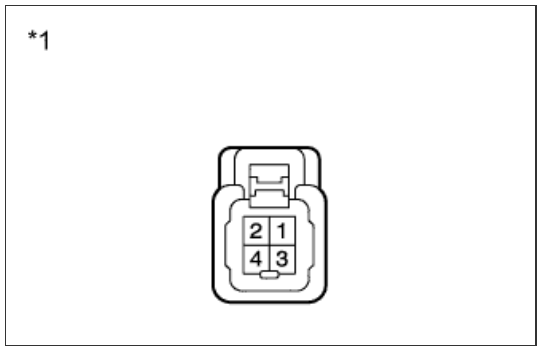
Text in Illustration

*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.

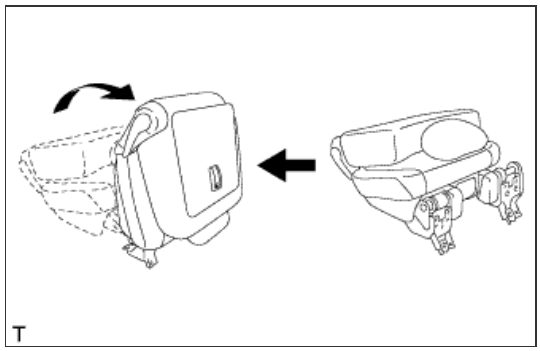
b. Connect the connector.



2. INSTALL FRONT QUARTER TRIM PANEL ASSEMBLY RH

HINT:

When installing the front quarter tri panel, operate the reclining adjuster release handle and move the No. rear seat to the position shown in the illustration.



a. w ear No. 2 eat, except Face to Face eat pe

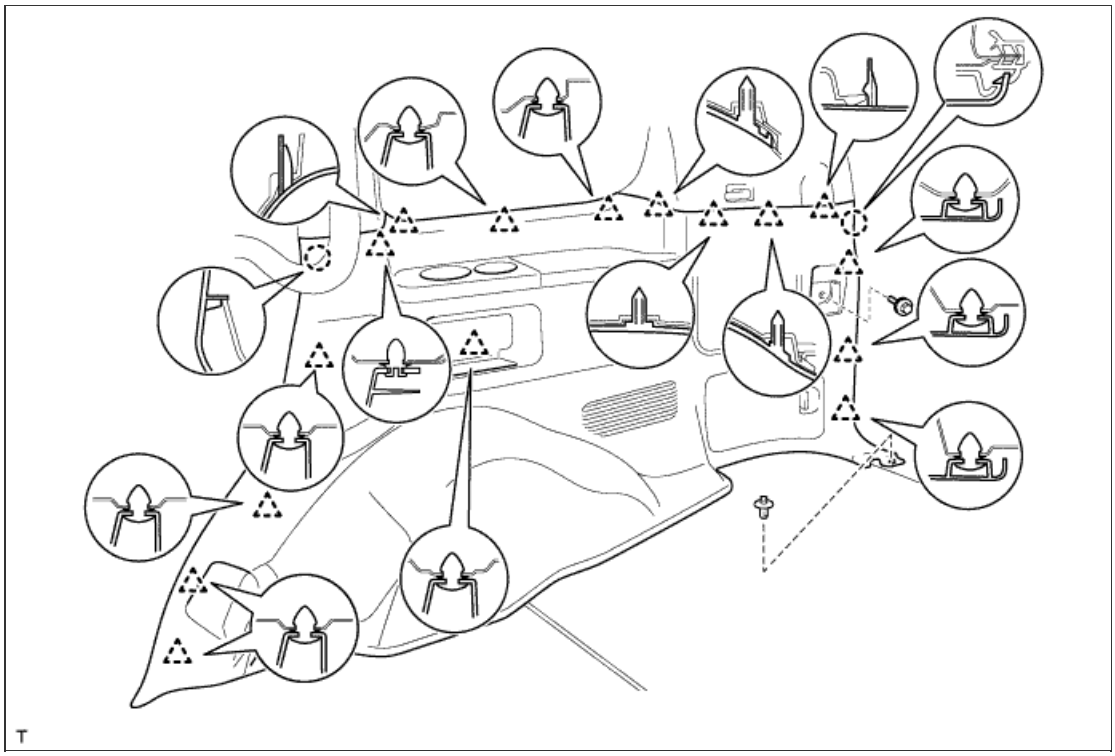
i. w o Rear Air Conditioning stem
Connect the rear seat lock control lever cable.

ii. w ear Air Conditioning stem
Connect the thermistor connector and rear seat lock control lever cable.

iii. Attach the clips and 2 claws to install the quarter tri panel.

iv. Install the clip and bolt.

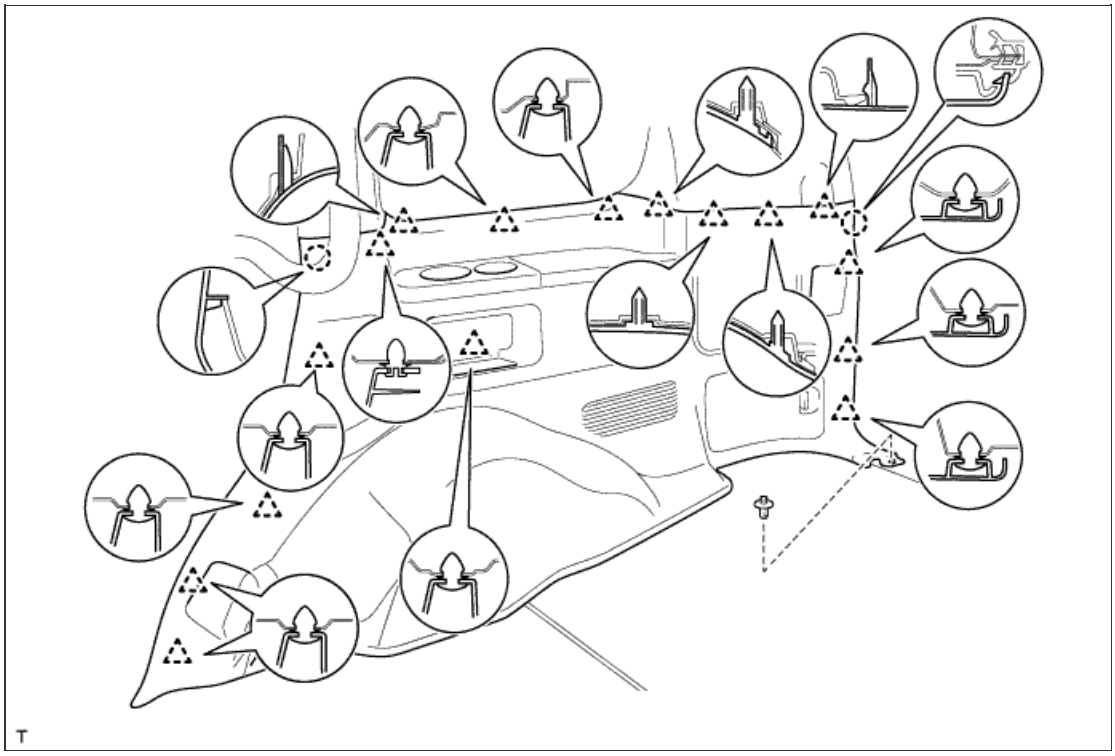
Torque:
12 N*m{ 122 kgf*cm , 9 ft.*lbf }



b. w o Rear No. 2 eat or w ear No. 2 eat, for Face to Face eat pe

i. ttach the clips and 2 claws to install the quarter tri panel.

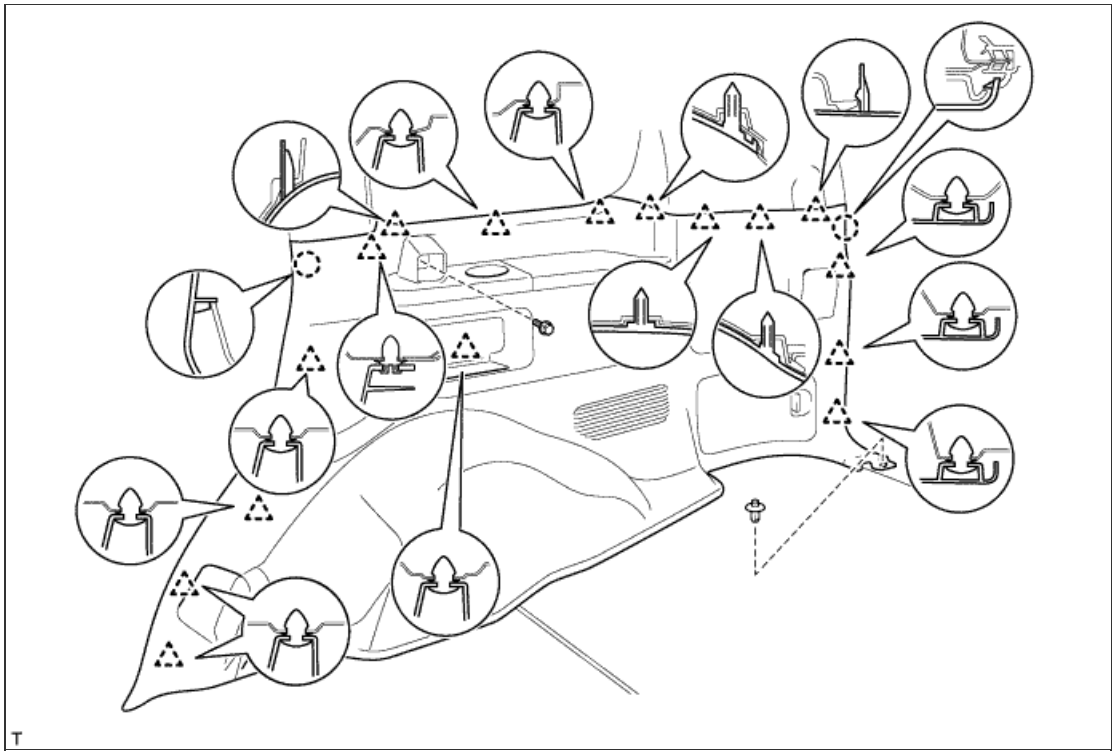
ii. Install the clip.



c. w onneau Cover

i. Attach the clips and 2 claws to install the quarter tri panel.

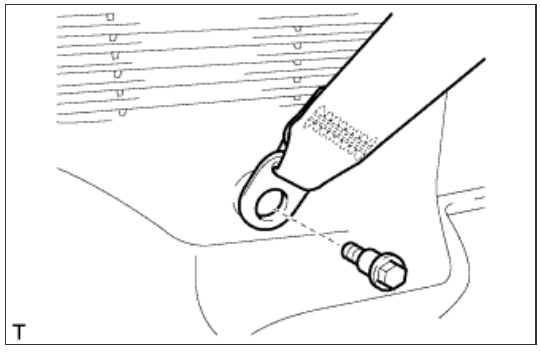
ii. Install the screw and clip.



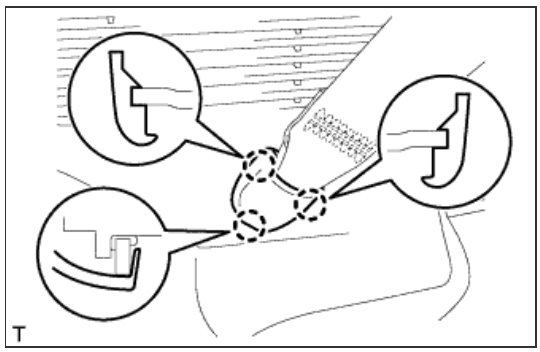
d. w ear No. 2 eat, except Face to Face eat pe

i. Install the rear No. 2 seat belt anchor with the bolt.

Torque:
42 N*m{ 428 kgf*cm , 31 ft.*lbf }

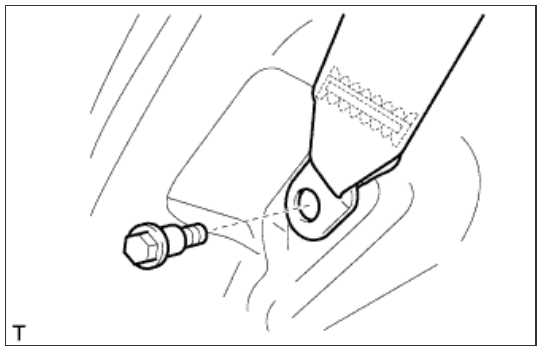


ii. Attach the 3 claws to install the cover.

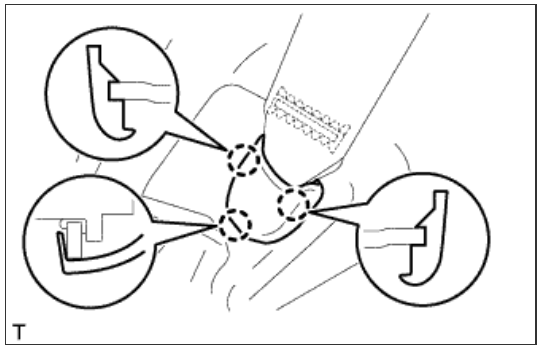


e. Install the rear No. seat belt anchor with the bolt.

Torque:
42 N*m{ 428 kgf*cm , 31 ft.*lbf }



f. Attach the 3 claws to install the cover.

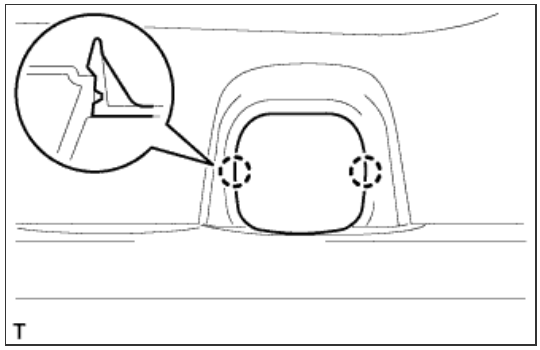


3. INSTALL NO. 1 TONNEAU COVER HOLDER CAP (w/ Tonneau Cover)

HINT:

Use the same procedure to install the tonneau cover holder cap on the other si e

a. Attach the 2 claws to install the tonneau cover holder cap.

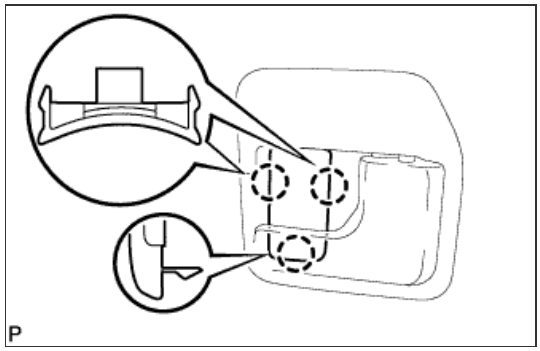


4. INSTALL REAR SEAT COVER CAP (w/ Rear No. 2 Seat, except Face to Face Seat Type)

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:

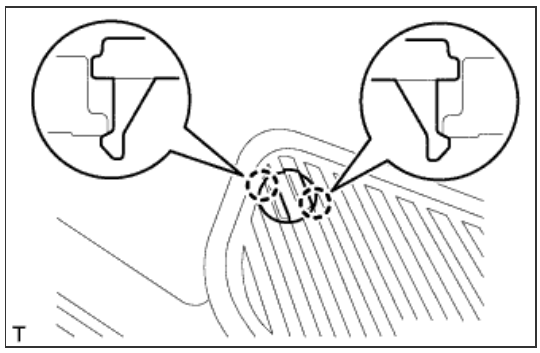
Use the same procedures described for the L side.

. INSTALL REAR STEP COVER

HINT:

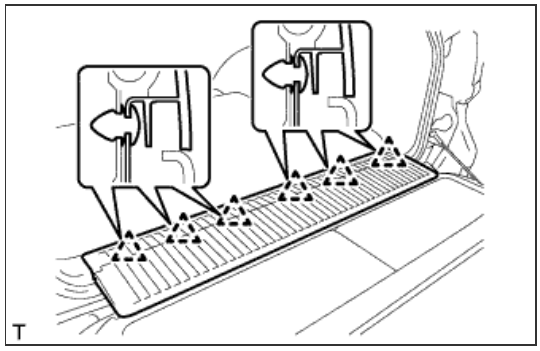
Use the same procedure to install the step cover on the other side.

a. Attach the 2 claws to install the step cover.



7. INSTALL REAR FLOOR MAT REAR SUPPORT PLATE

a. Attach the 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 L 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 L side (Click here).

10. INSTALL TONNEAU COVER ASSEMBLY (w/ Tonneau Cover)

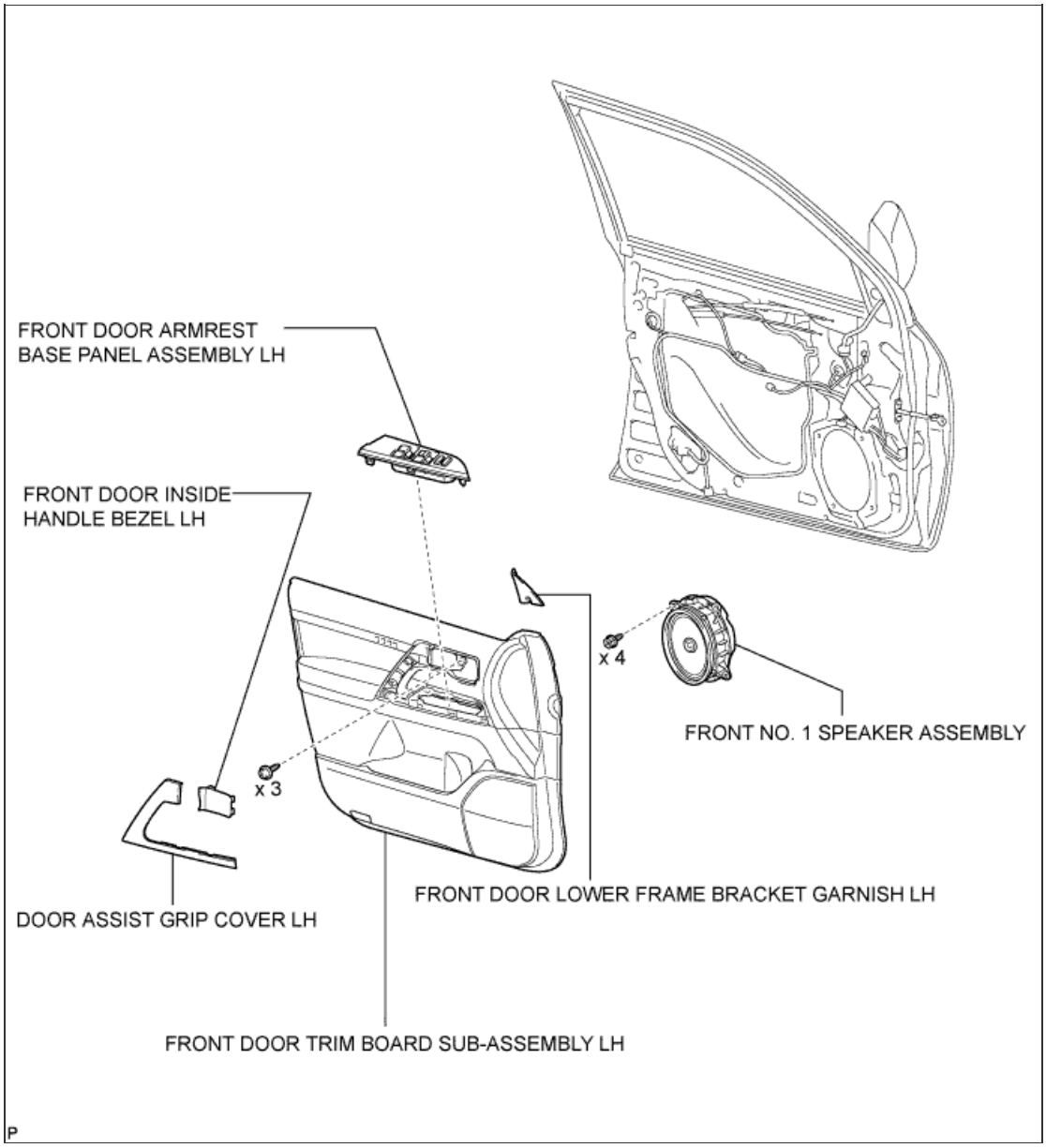
a. Install the tonneau cover assembl .

11. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some s stems 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.**

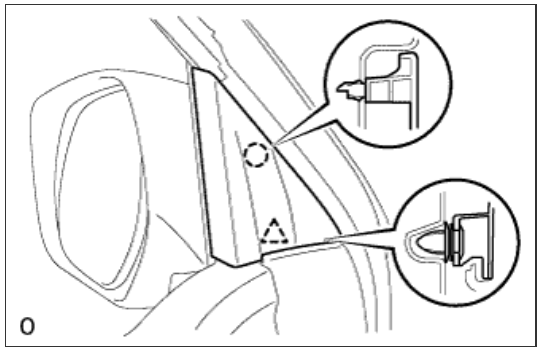
1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

2. REMOVE FRONT DOOR LOWER FRAME BRACKET GARNISH LH

a. Detach the clip and claw, remove the front lower door frame bracket garnish.

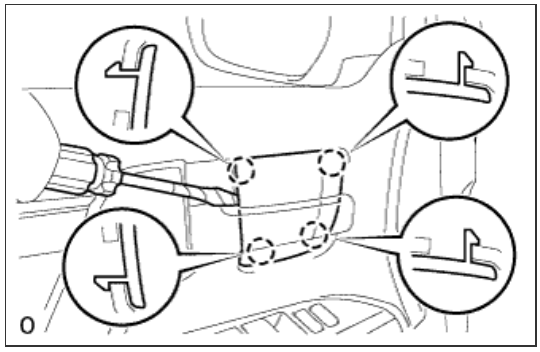


3. REMOVE FRONT DOOR INSIDE HANDLE BEZEL LH

a. Using a screwdriver, detach the 4 claws and remove the inside handle bezel.

HINT:

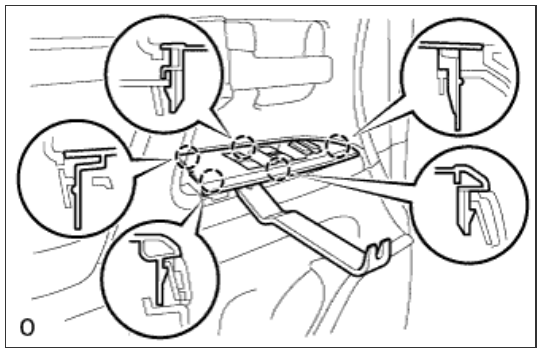
Tape the screwdriver tip before use.



4. REMOVE FRONT DOOR ARMREST BASE PANEL ASSEMBLY LH

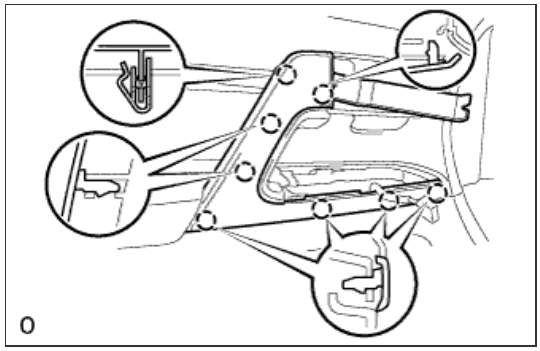
a. Using a moulding remover, detach the 5 claws.

b. Disconnect the connector and remove the armrest base panel.



5. REMOVE DOOR ASSIST GRIP COVER LH

a. Using a moulding remover, detach the 8 claws and remove the door assist grip cover.

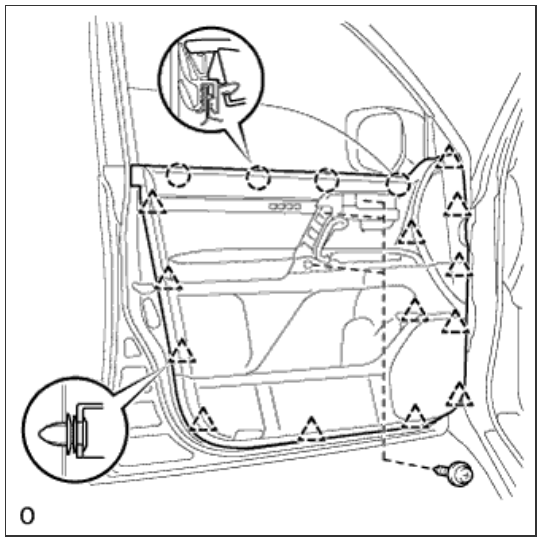


6. REMOVE FRONT DOOR TRIM BOARD SUB-ASSEMBLY LH

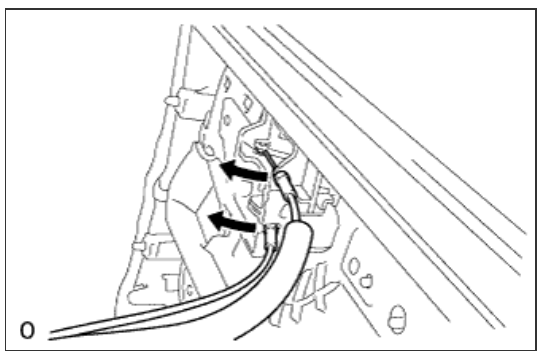
a. Remove the 3 screws.

b. Remove the 13 clips, 4 claws and trim board.

c. Disconnect the connector.



d. Disconnect the 2 cables from the inside handle.



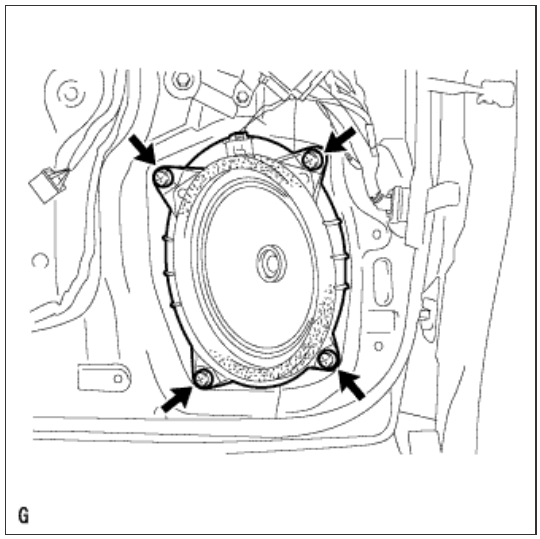
7. REMOVE FRONT NO. 1 SPEAKER ASSEMBLY

a. Disconnect the speaker connector.

b. Remove the 4 screws and speaker.

NOTICE:

Do not touch the cone part of the speaker.



for Preparation Click here

1. INSPECT FRONT NO. 1 SPEAKER ASSEMBLY

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

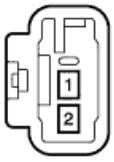
Standard Resistance:

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**

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



N

result is not as specified, replace the speaker assembly.

for Preparation Click here

HINT:

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**

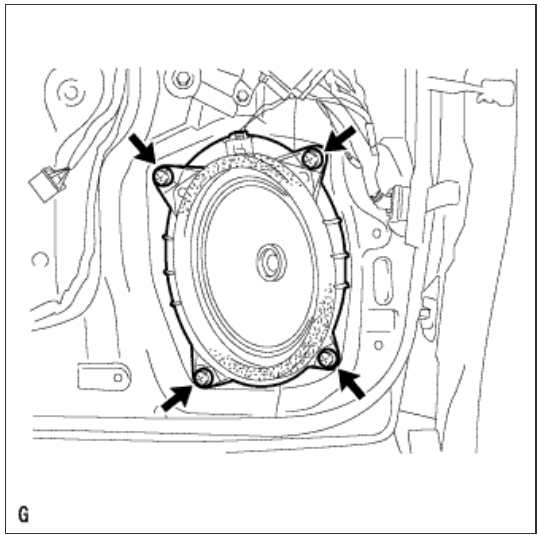
1. INSTALL FRONT NO. 1 SPEAKER ASSEMBLY

a. Connect the speaker connector.

b. Install the speaker with the 4 screws.

NOTICE:

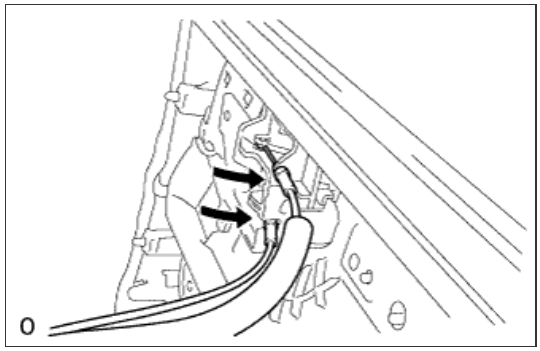
Do not touch the cone part of the speaker.



2. INSTALL FRONT DOOR TRIM BOARD SUB-ASSEMBLY LH

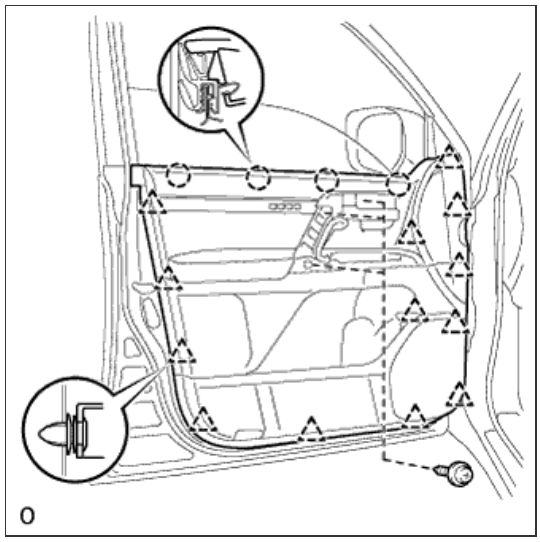
a. Connect the connector.

b. Connect the front door lock remote control cable and front door inside locking cable to the front door inside handle sub-assembly.



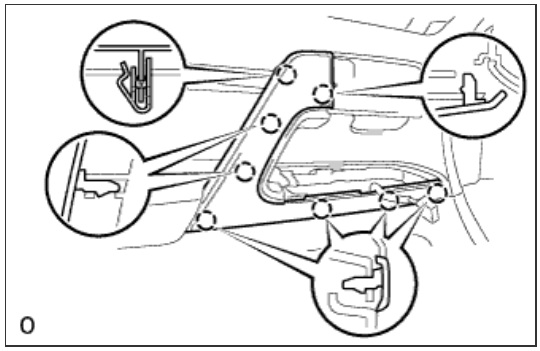
c. Attach the 4 claws and 13 clips to install the front door trim board sub-assembly.

d. Install the 3 screws.



3. INSTALL DOOR ASSIST GRIP COVER LH

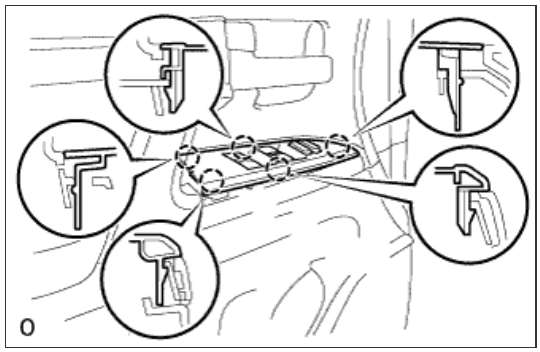
a. Attach the 8 claws to install the door assist grip cover to the door trim panel.



4. INSTALL FRONT DOOR ARMREST BASE PANEL ASSEMBLY LH

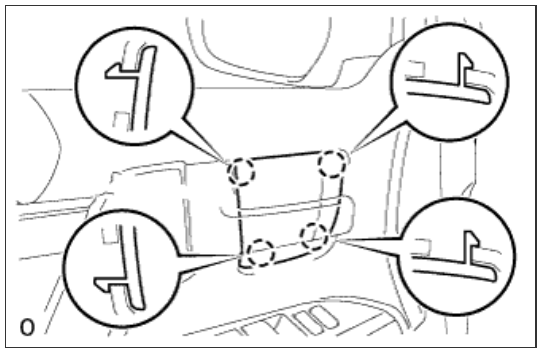
a. Connect the connector.

b. Attach the 5 claws to install the armrest base panel.



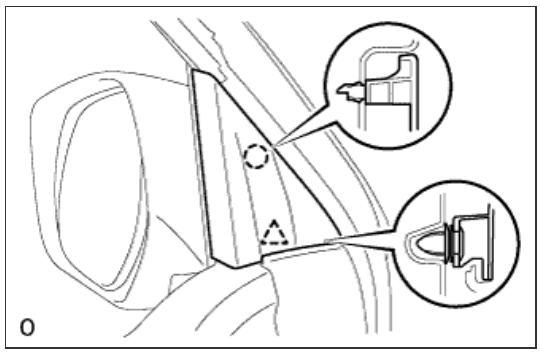
5. INSTALL FRONT DOOR INSIDE HANDLE BEZEL LH

a. Attach the 4 claws to install the bezel.



6. INSTALL FRONT DOOR LOWER FRAME BRACKET GARNISH LH

a. Attach the clip and claw, and install the front door lower frame bracket garnish.

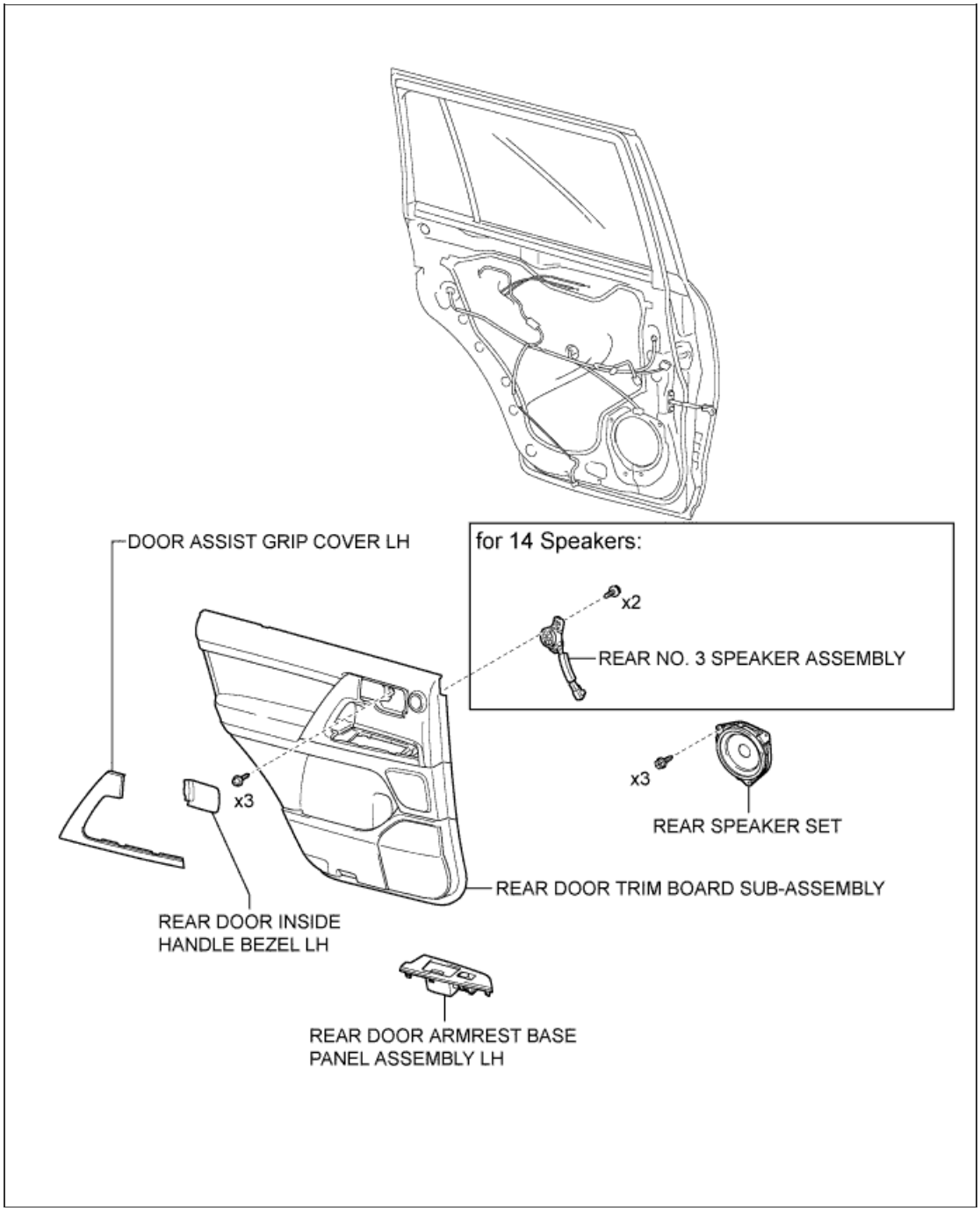


7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

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. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

2. REMOVE REAR DOOR INSIDE HANDLE BEZEL LH

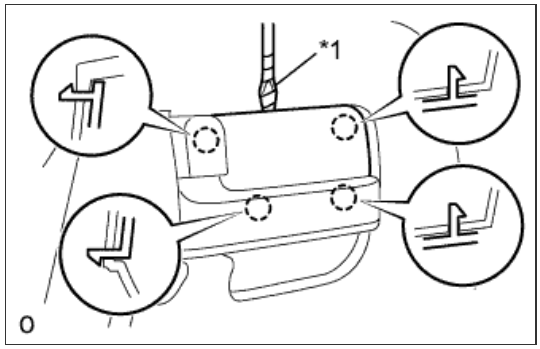
a. Using a screwdriver, detach the claws and remove the bezel.

HINT:

Tape the screwdriver tip before use.

Text in Illustration

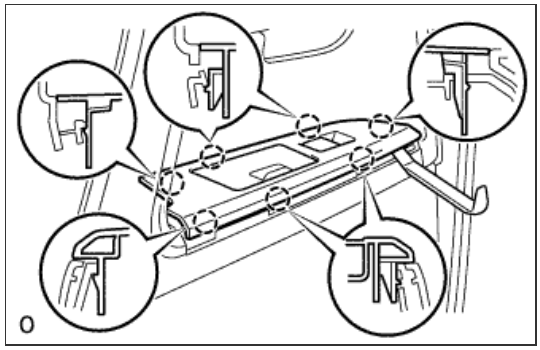
*1	Protective tape



3. REMOVE REAR DOOR ARMREST BASE PANEL ASSEMBLY LH

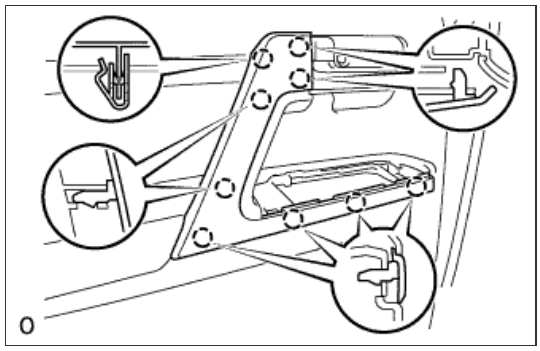
a. Using a moulding remover, detach the 7 claws.

b. Disconnect the connector and remove the armrest base panel.



4. REMOVE DOOR ASSIST GRIP COVER LH

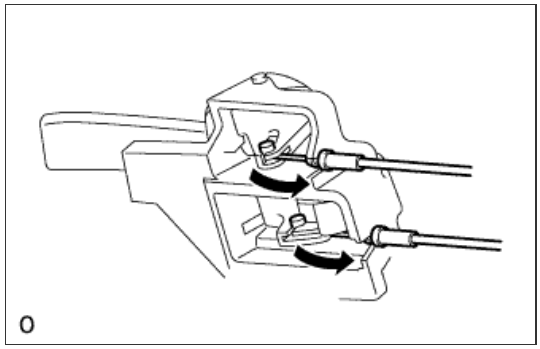
a. Attach the claws to install the door assist grip cover to the door trim panel.



5. REMOVE REAR DOOR TRIM BOARD SUB-ASSEMBLY

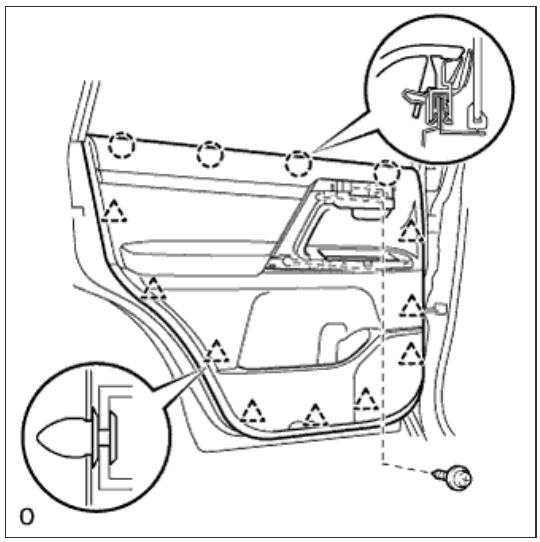
a. Connect the connector.

b. Connect the rear door lock remote control cable and rear door inside locking cable to the rear door inside handle sub assembly.



c. Attach the claws and clips to install the rear door trim board sub assembly.

d. nstall the screws.



6. REMOVE REAR SPEAKER SET

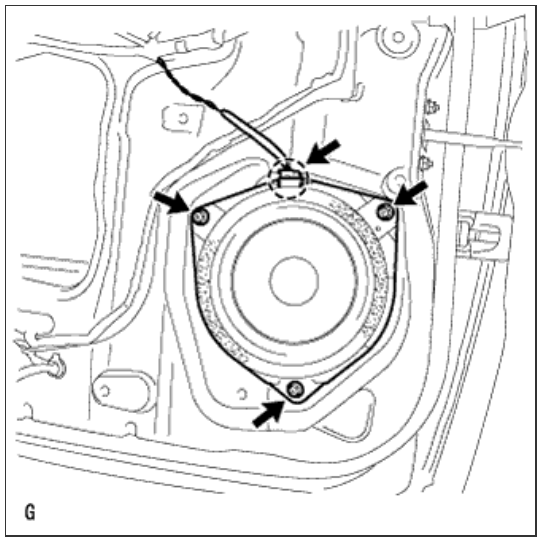
a. Disconnect the speaker connector.

b. emove the screws.

c. Detach the claw and remove the speaker.

NOTICE:

Do not touch the cone part of the speaker.



7. REMOVE REAR NO. 3 SPEAKER ASSEMBLY (for 14 Speakers)

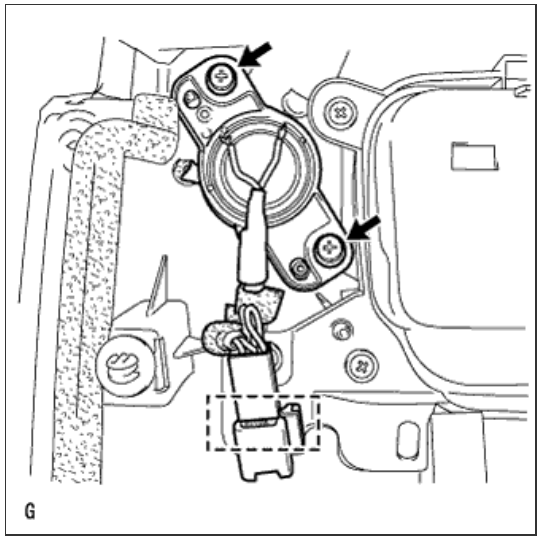
a. Disconnect the connector.

b. Detach the clamp.

c. Remove the 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.

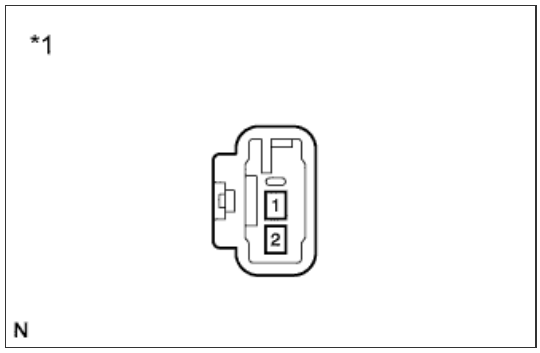
Text in Illustration

*1	Component without harness connected (Rear Speaker Set)

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 -	lways	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.

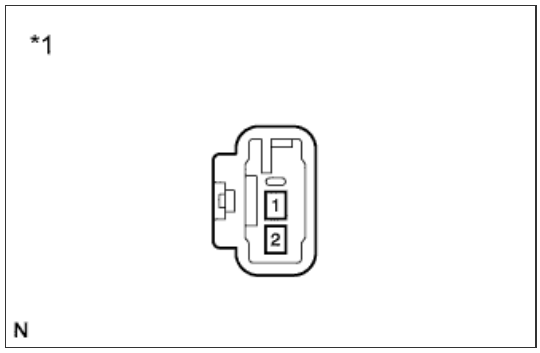
Text in Illustration

*1	Component without harness connected (Rear Speaker Set)

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 -	lways	1. d . Ω

If the result is not as specified, replace the speaker set.



3. INSPECT REAR NO. 3 SPEAKER ASSEMBLY (for 14 Speakers)

a. hen 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)

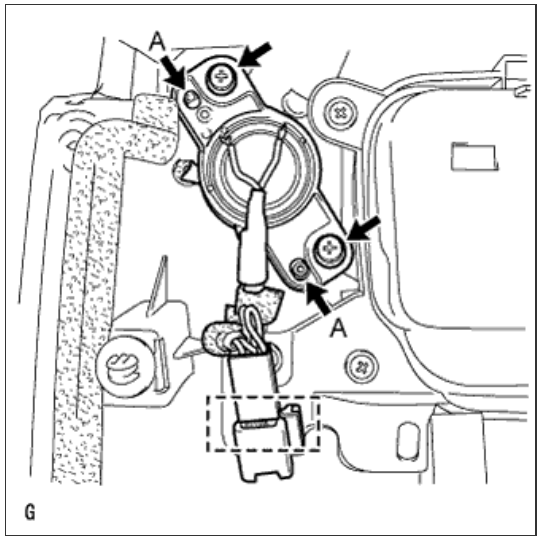
a. Align the speaker to the door position pins labeled A.

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

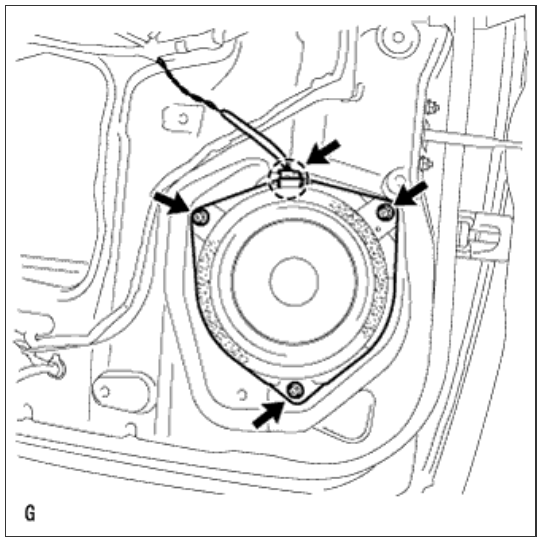
a. Temporarily install the speaker by attaching the claw of the speaker to the door panel.

b. Install the speaker with the 3 screws.

NOTICE:

Do not touch the cone part of the speaker.

c. Connect the connector.

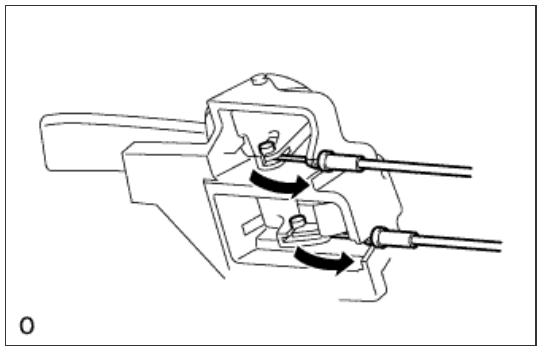


3. INSTALL REAR DOOR TRIM BOARD SUB-ASSEMBLY

a. Connect the connector.

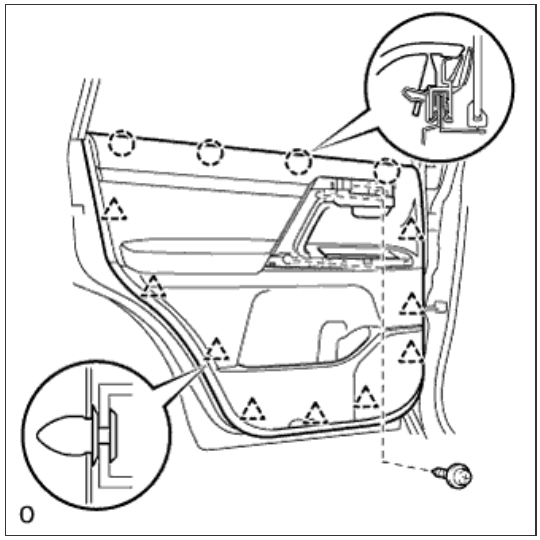
b. Connect the rear door lock remote control cable and rear door inside locking

cable to the rear door inside handle sub-assembly.



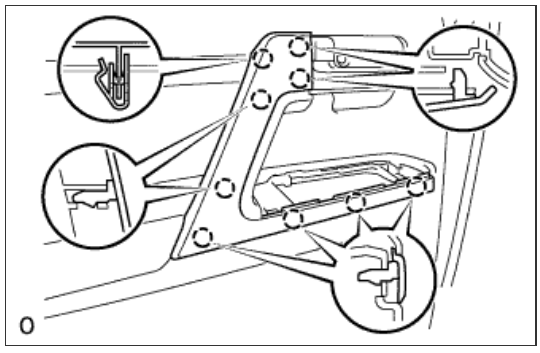
c. Attach the 4 claws and 9 clips to install the rear door trim board sub-assembly.

d. Install the 3 screws.



4. INSTALL DOOR ASSIST GRIP COVER LH

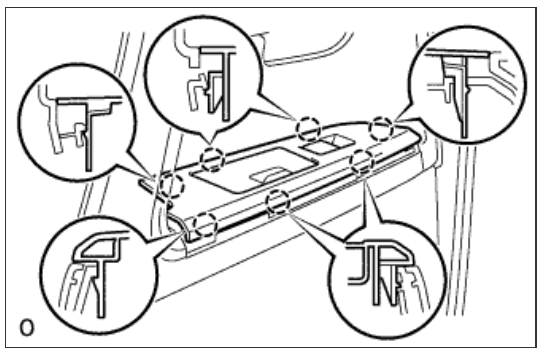
a. Attach the 9 claws to install the door assist grip cover to the door trim panel.



5. INSTALL REAR DOOR ARMREST BASE PANEL ASSEMBLY LH

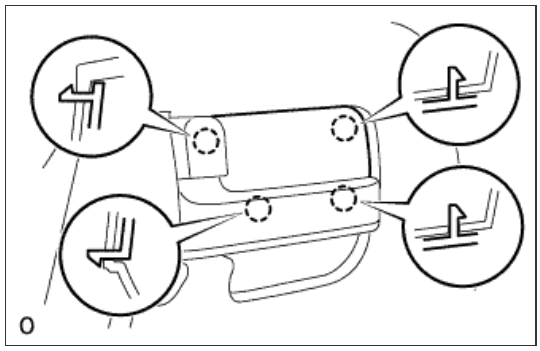
a. Connect the connector.

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 bezel.

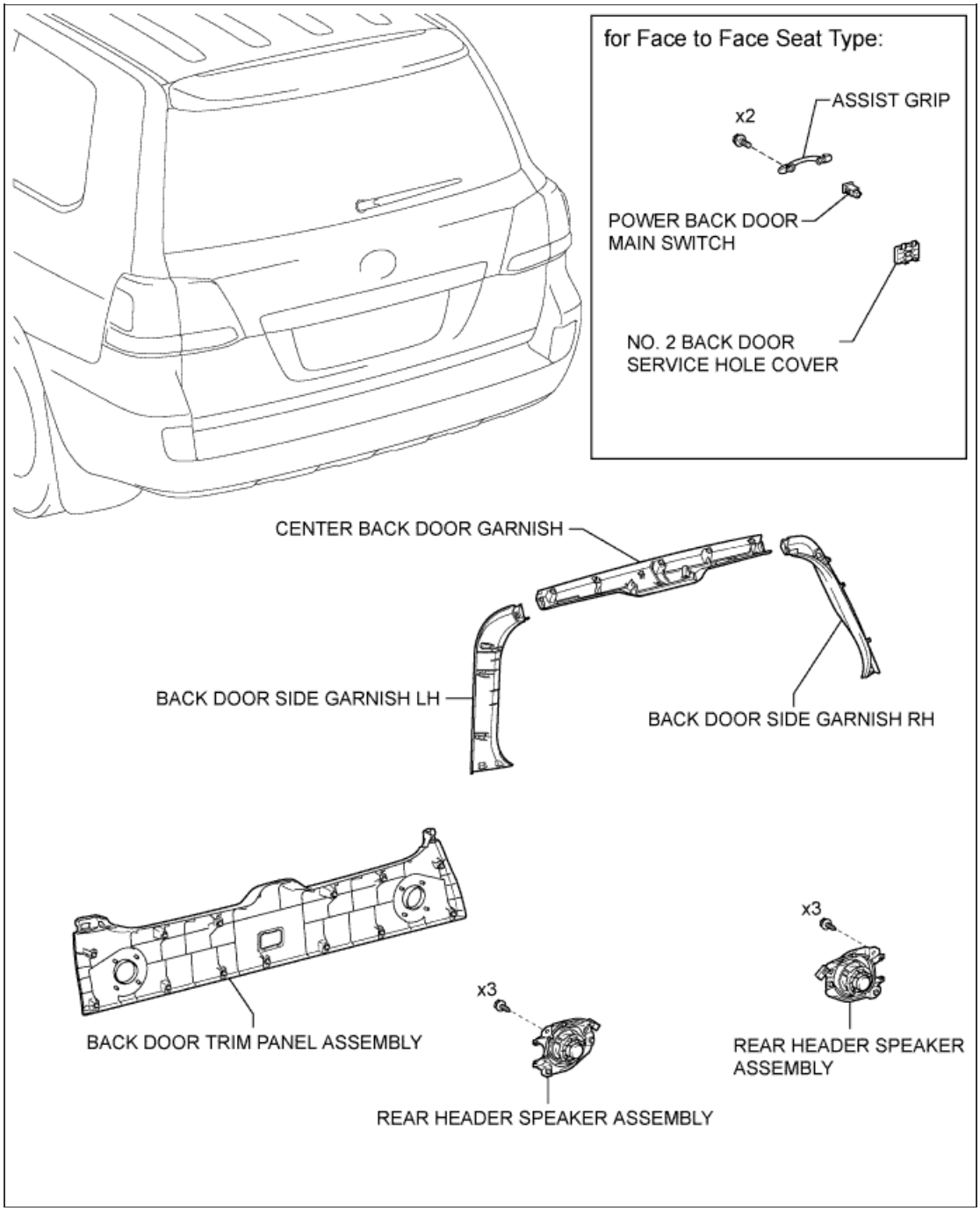


7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

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

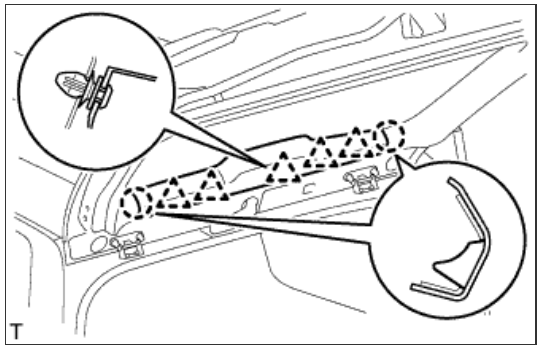
1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

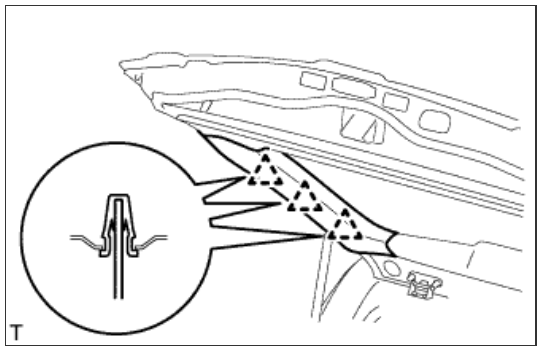
2. REMOVE CENTER BACK DOOR GARNISH

a. Detach the 5 clips and 2 claws, and remove the back door garnish.



3. REMOVE BACK DOOR SIDE GARNISH LH

a. Detach the 3 clips and remove the back door side garnish.



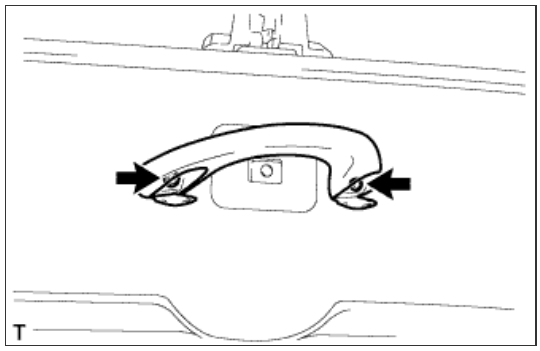
4. REMOVE BACK DOOR SIDE GARNISH RH

HINT:

Use the same procedures described for the LH side.

5. REMOVE ASSIST GRIP (for Face to Face Seat Type)

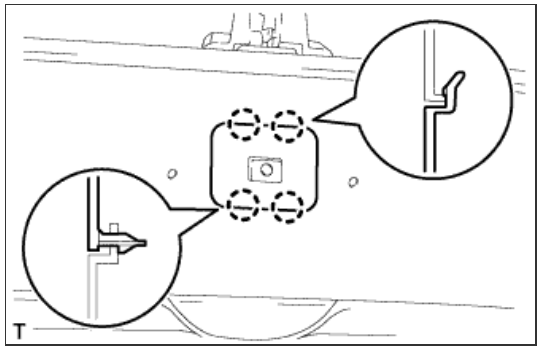
a. Remove the 2 screws and assist grip.



6. REMOVE NO. 2 BACK DOOR SERVICE HOLE COVER (for Face to Face Seat Type)

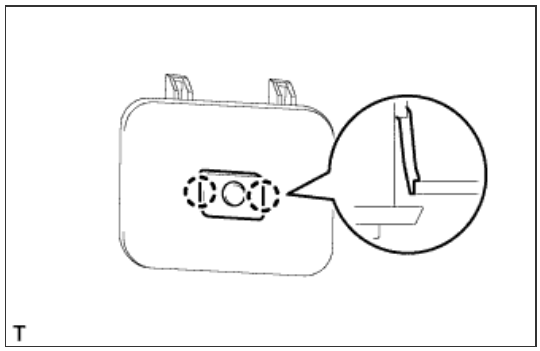
a. Using a screwdriver, detach the claws and remove the back door service hole cover.

b. Disconnect connector.



7. REMOVE POWER BACK DOOR MAIN SWITCH (for Face to Face Seat Type)

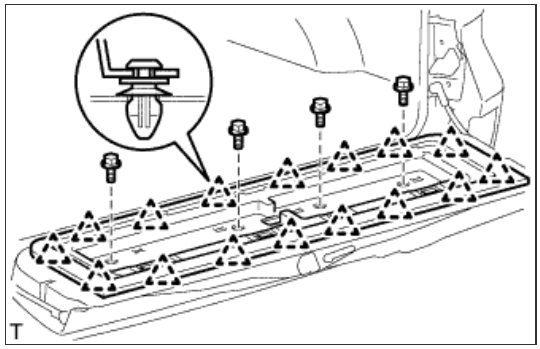
a. Detach the 2 claws and remove the power back door main switch.



8. REMOVE BACK DOOR TRIM PANEL ASSEMBLY

a. Remove the bolts.

b. Detach the 16 clips and remove the back door trim panel.



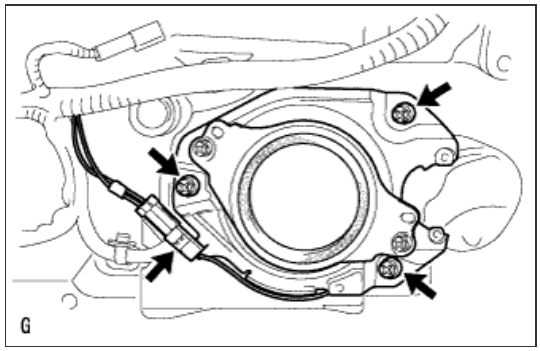
9. REMOVE REAR HEADER SPEAKER ASSEMBLY

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.

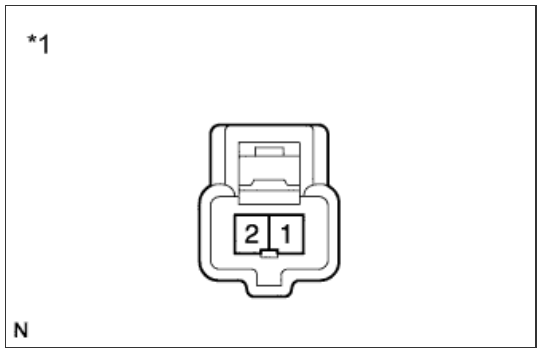
Text in Illustration

*1	Component without harness connected (Rear ader Speaker)

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 -	lways	1.5 to .5 Ω

If the result is not as specified, replace the speaker assembly.

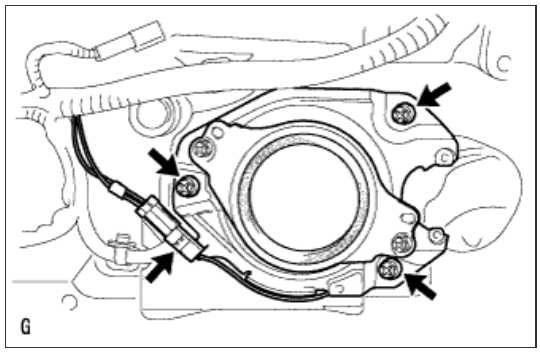


for Preparation Click here

1. INSTALL REAR HEADER SPEAKER ASSEMBLY

a. Connect the connector.

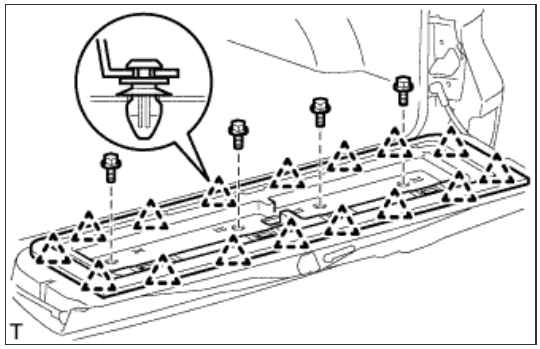
b. Install the rear header speaker assembly with the 3 screws.



2. INSTALL BACK DOOR TRIM PANEL ASSEMBLY

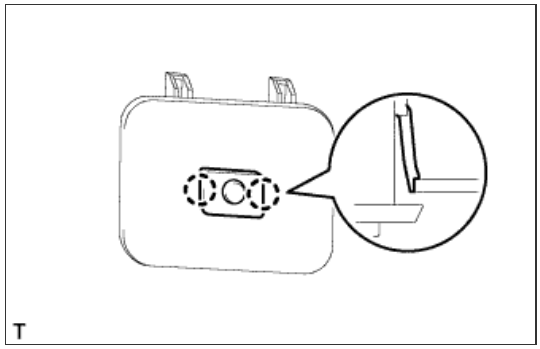
a. Attach the 16 clips to install the back door trim panel.

b. Install the 4 bolts.



3. INSTALL POWER BACK DOOR MAIN SWITCH (for Face to Face Seat Type)

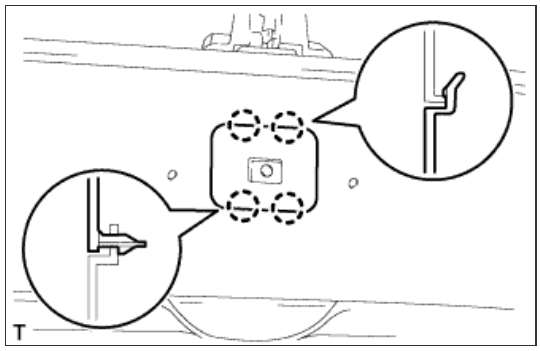
a. Attach the 2 claws to install the power back door main switch.



4. INSTALL NO. 2 BACK DOOR SERVICE HOLE COVER (for Face to Face Seat Type)

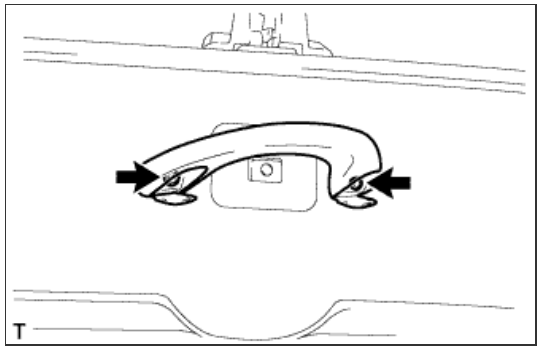
a. Connect the connector.

b. Attach the 4 claws to install service hole cover.



5. INSTALL ASSIST GRIP (for Face to Face Seat Type)

a. Install the assist grip with the 2 screws.



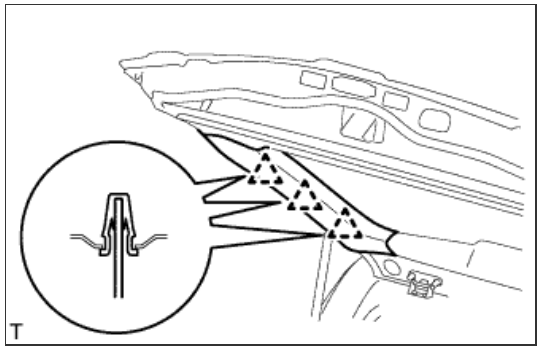
6. INSTALL BACK DOOR SIDE GARNISH RH

HINT:

Use the same procedures described for the LH side.

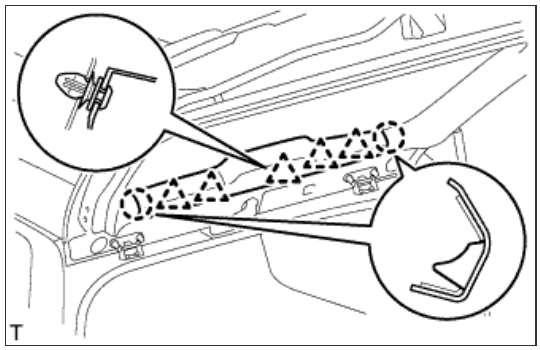
7. INSTALL BACK DOOR SIDE GARNISH LH

a. Attach the 3 clips to install the back door side garnish.



8. INSTALL CENTER BACK DOOR GARNISH

a. Attach the 5 clips and 2 claws to install the back door garnish.

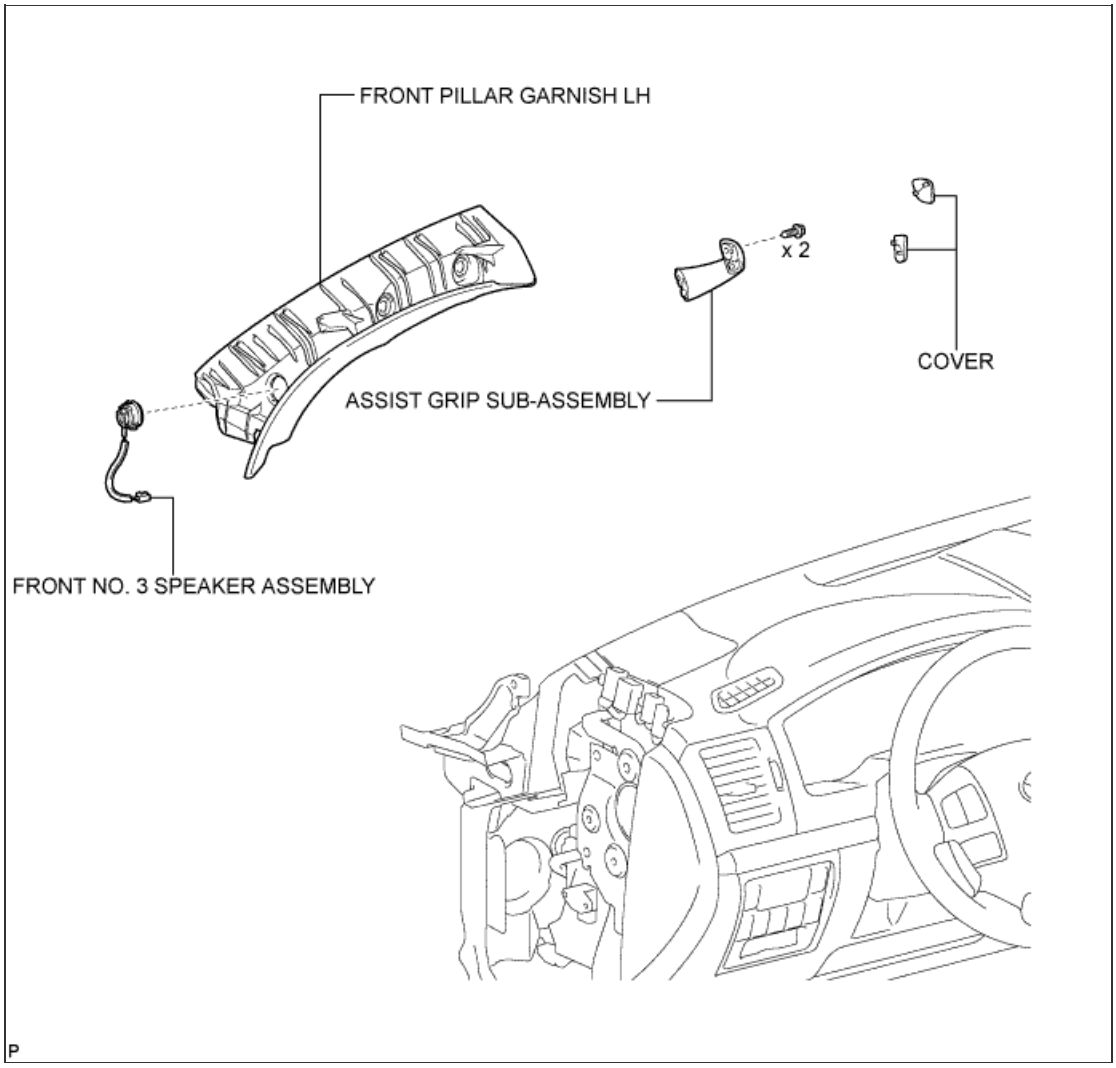


9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

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. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

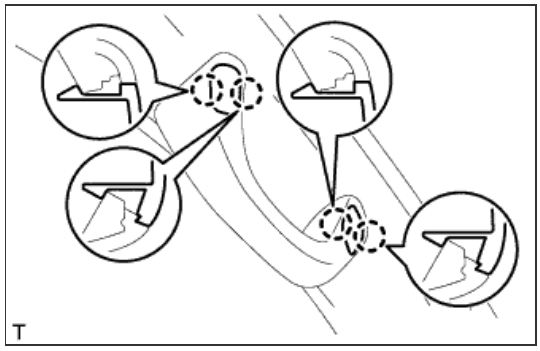
When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

2. REMOVE FRONT ASSIST GRIP SUB-ASSEMBLY

HINT:

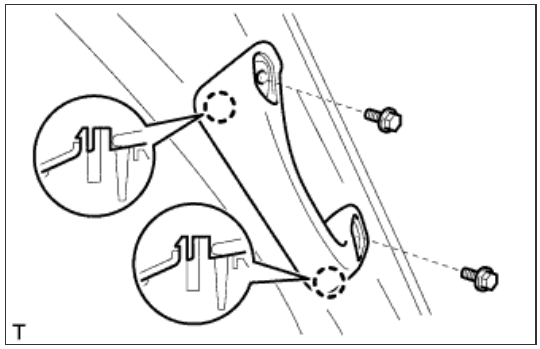
Use the same procedure to remove the front assist grip on the other side.

a. Detach the 4 claws and remove the assist grip plugs.



b. Remove the bolts.

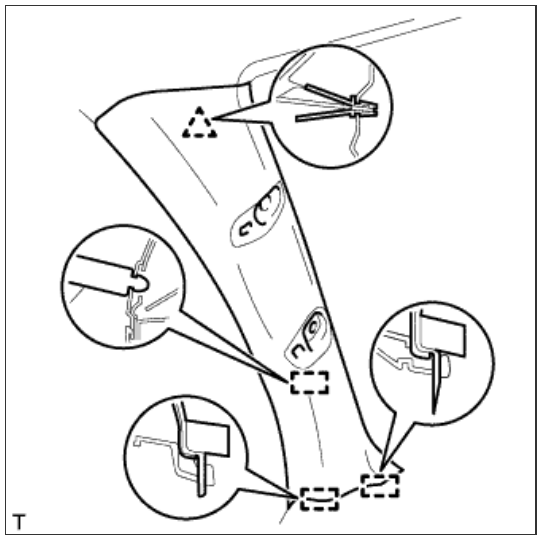
c. Detach the claws and remove the front assist grip.



3. REMOVE FRONT PILLAR GARNISH LH

a. Detach the clip and 3 guides, and remove the front pillar garnish.

b. for 9, 14 Speakers
isconnect the speaker connector and then remove the front pillar garnish.

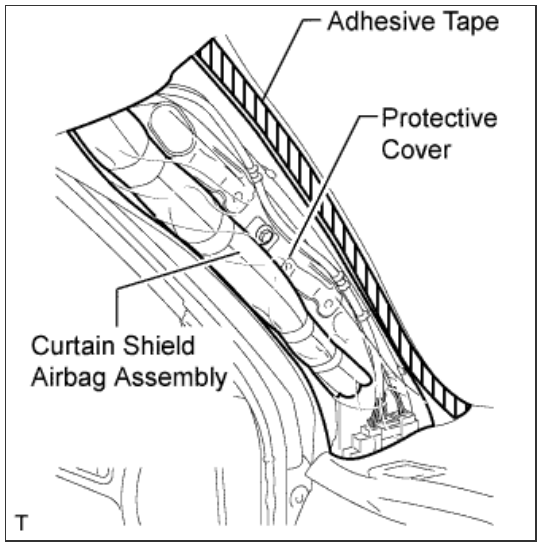


c. Protect the curtain shield airbag.

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.

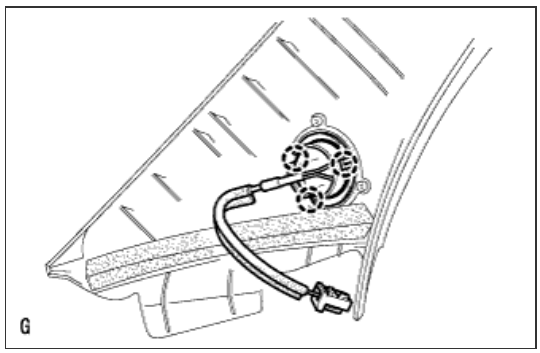
NOTICE:

Cover the curtain shield airbag with a protective cover as soon as the front pillar garnish is removed.



4. 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.

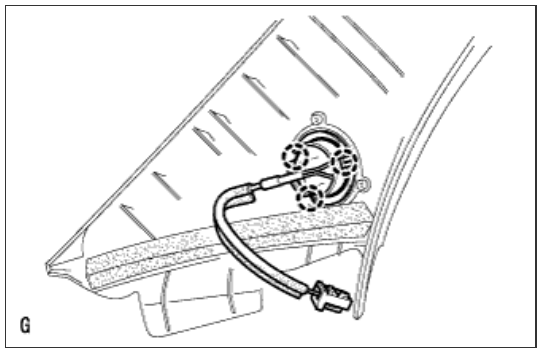
HINT:

- **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

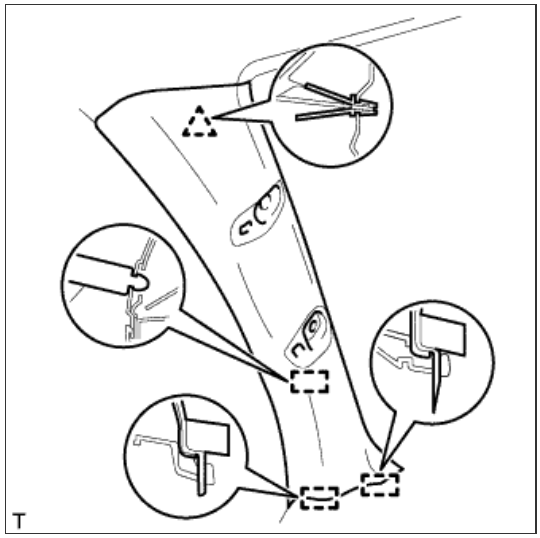
a. Attach the 3 claws to install the speaker.



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.



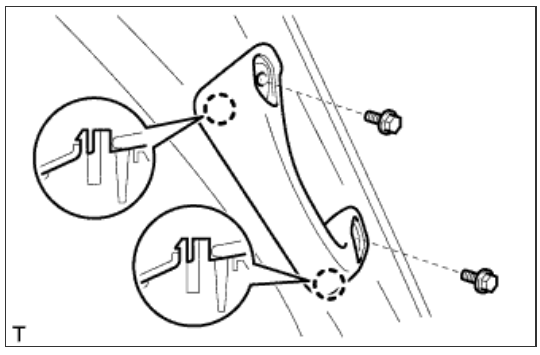
3. INSTALL FRONT ASSIST GRIP SUB-ASSEMBLY

HINT:

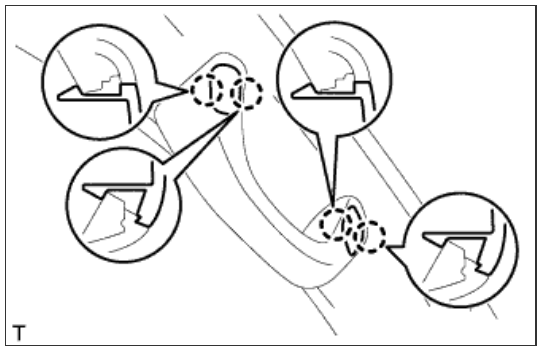
Use the same procedure to install the front assist grip on the other side.

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.

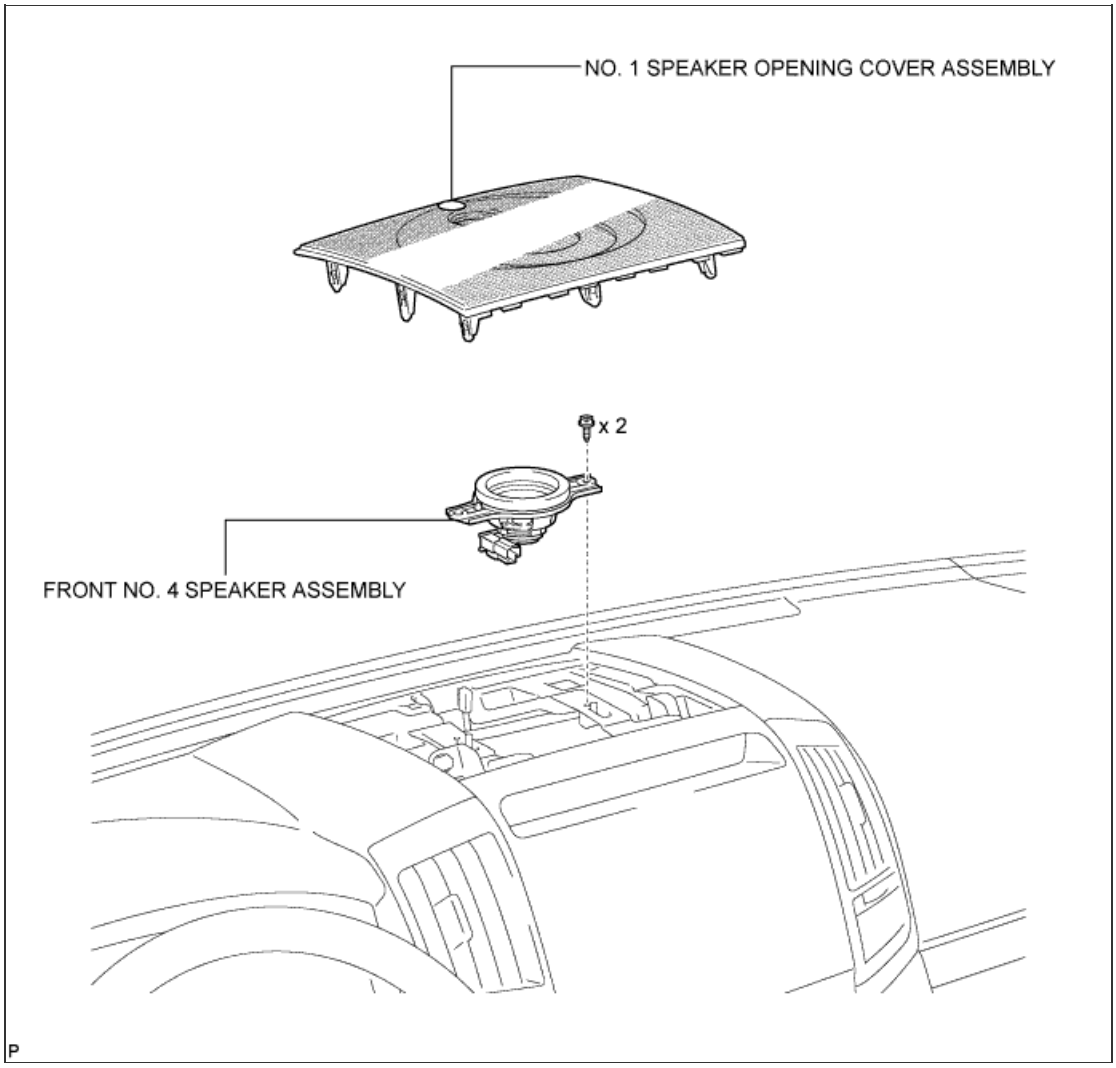


4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

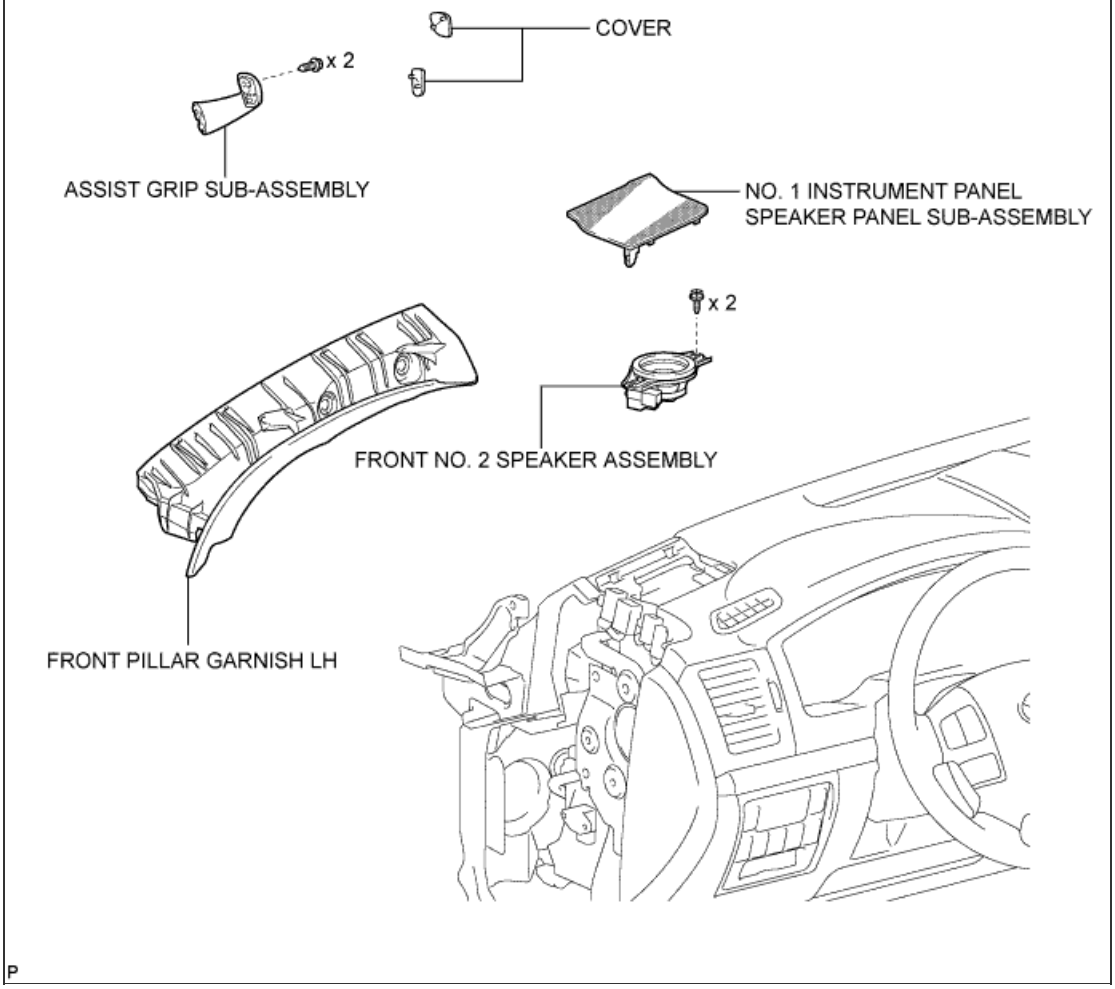
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

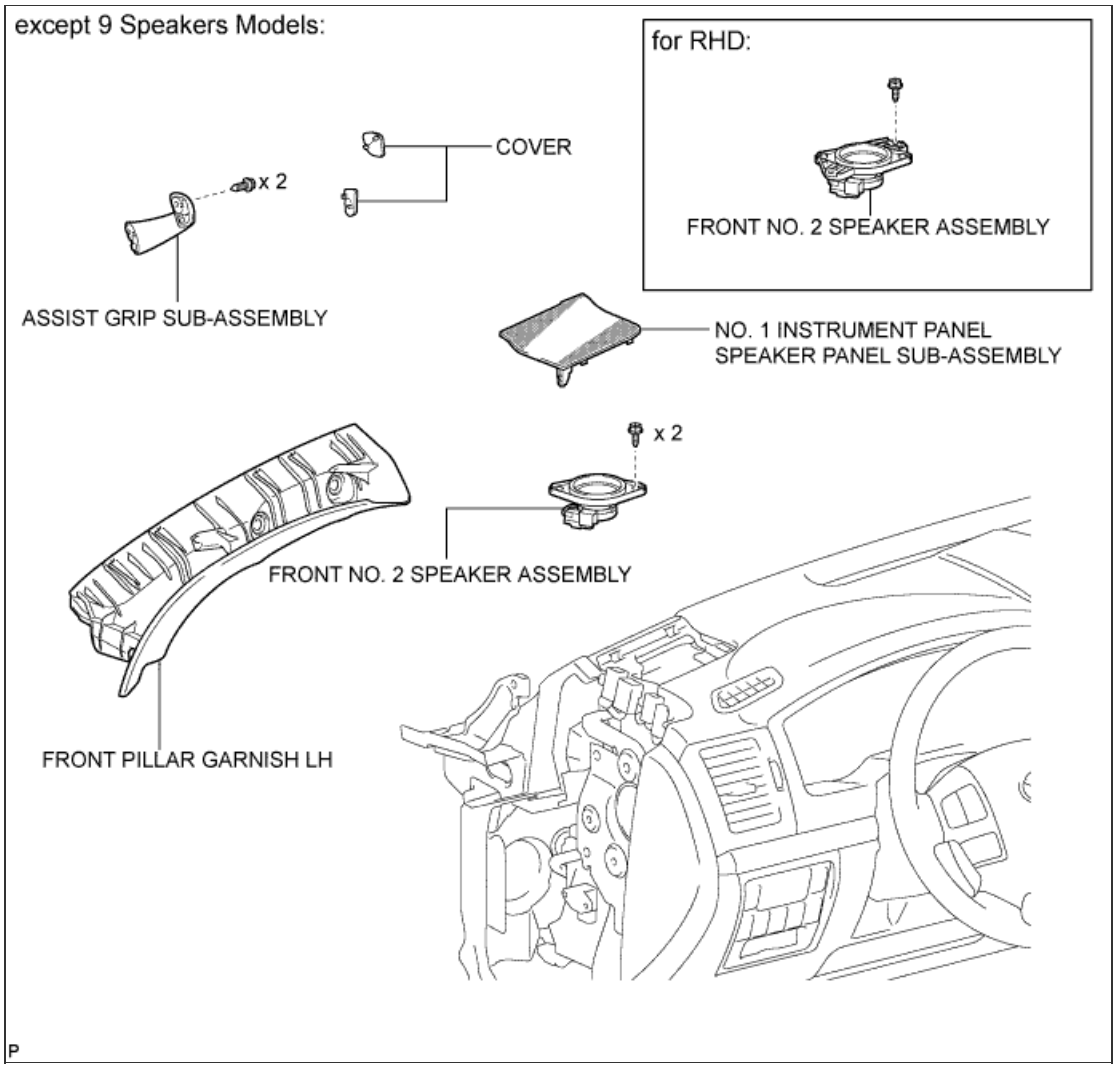
for Preparation Click here



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.**

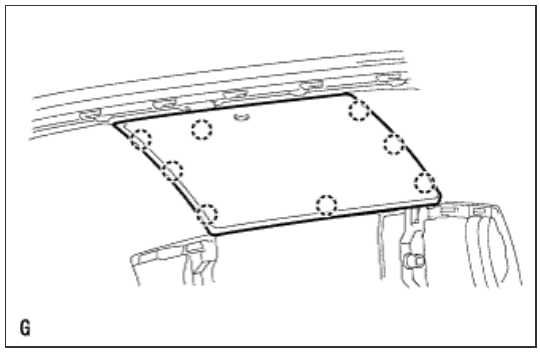
1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

2. REMOVE NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Detach the 8 claws and remove the opening cover.



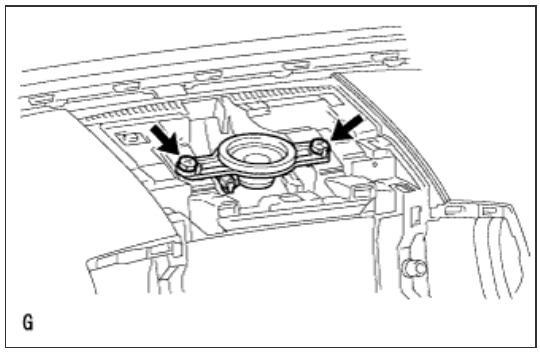
3. REMOVE FRONT NO. 4 SPEAKER ASSEMBLY

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.



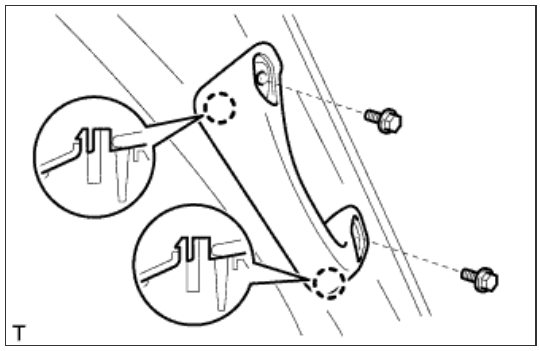
4. REMOVE FRONT ASSIST GRIP SUB-ASSEMBLY

HINT:

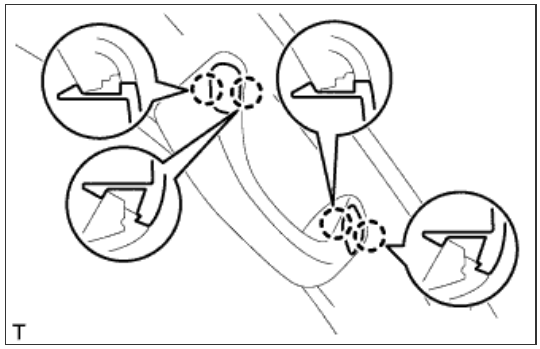
Use the same procedure to install the front assist grip on the other side.

a. Attach the 2 claws to install the front assist grip.

b. Install the 2 bolts.



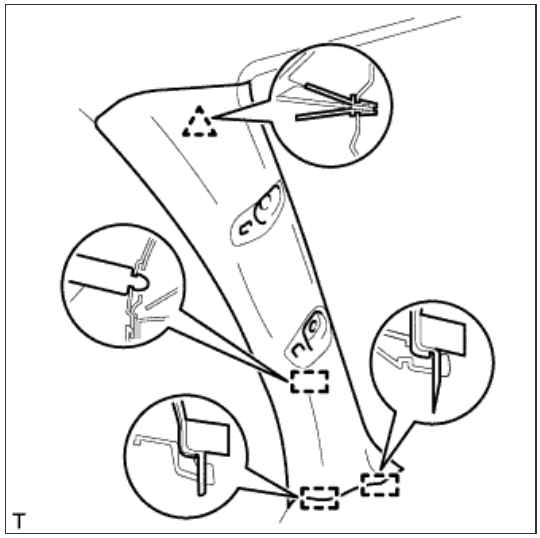
c. Attach the 4 claws to install the 2 assist grip plugs.



5. REMOVE FRONT PILLAR GARNISH LH

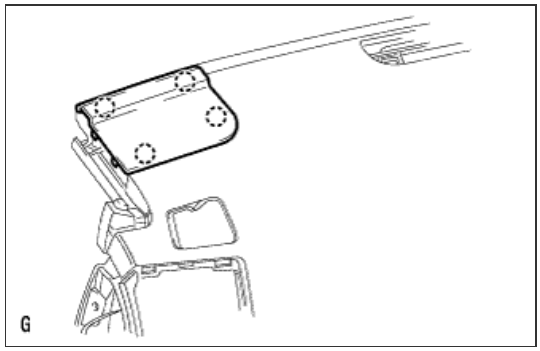
a. for 9, 14 Speakers:
Connect the speaker connector.

b. Attach the clip and 3 guides to install the front pillar garnish.



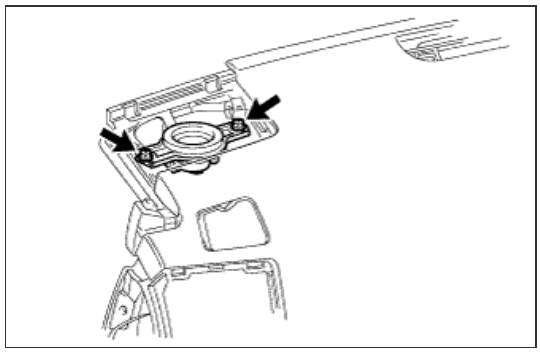
6. REMOVE NO. 1 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY

a. Detach the 4 claws and remove the speaker panel.



7. REMOVE FRONT NO. 2 SPEAKER ASSEMBLY

a. for 9 Speakers Models:



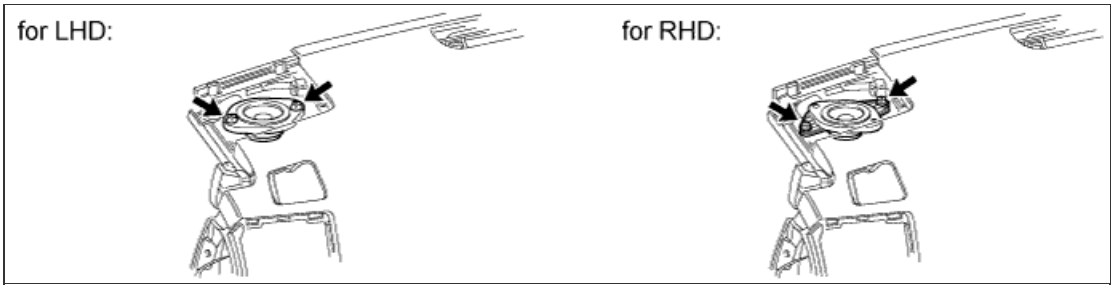
i. Remove the 2 bolts.

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

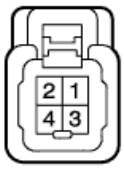
1. INSPECT FRONT NO. 2 SPEAKER ASSEMBLY

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

Component without harness connected:
(Front No. 2 Speaker)



HINT:

- ***1: for 9 Speakers Models**
- ***2: except 9 Speakers Models**

If the result is not as specified, replace the speaker asse bly.

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	Ω

If the result is not as specified, replace the speaker asse bly.

Component without harness connected:
(Front No. 4 Speaker)



N

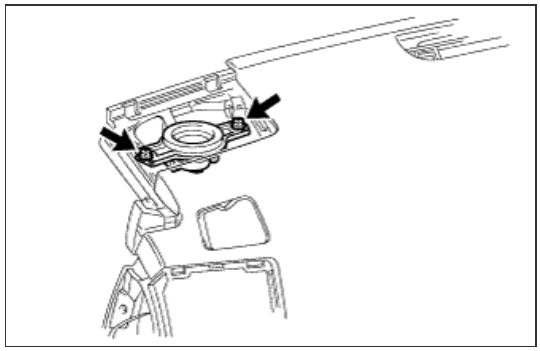
for Preparation Click here

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.

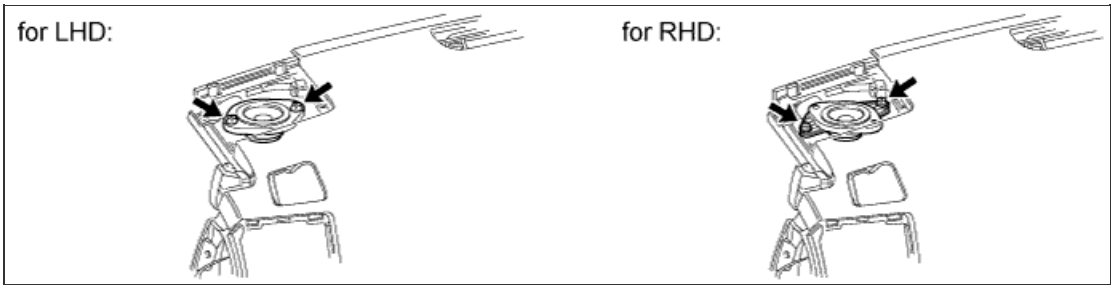
ii. Temporarily install the speaker by aligning the positioning pins of the speaker with the instrument panel.

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.

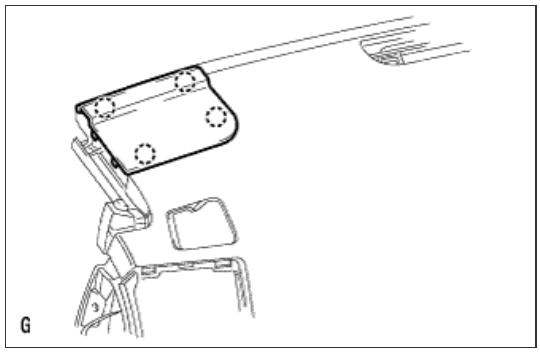
iii. Install the speaker with the 2 bolts.

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

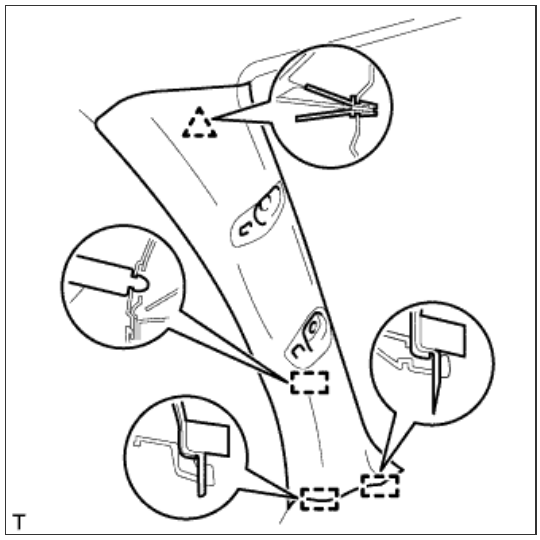
a. Attach the 4 claws to install the panel.



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.



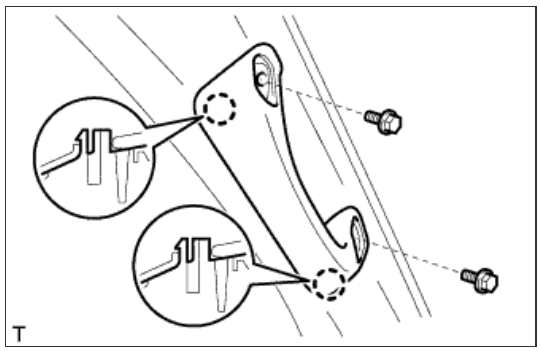
4. INSTALL FRONT ASSIST GRIP SUB-ASSEMBLY

HINT:

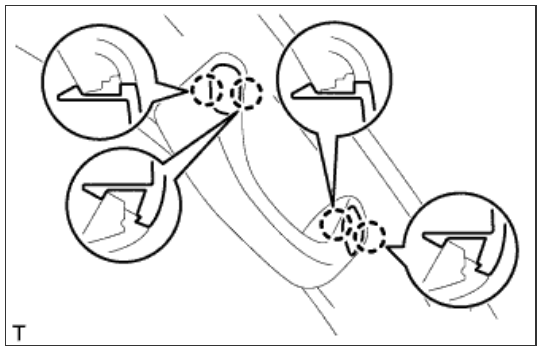
Use the same procedure to install the front assist grip on the other side.

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

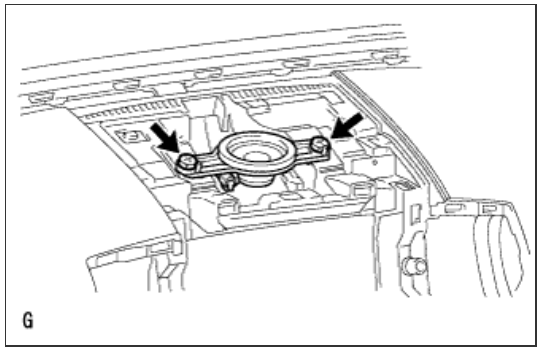
a. Connect the speaker connector.

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.

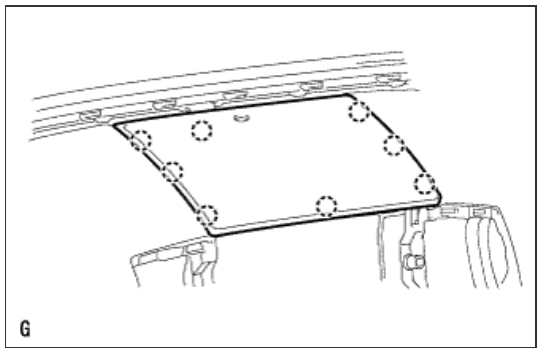
NOTICE:

- **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.

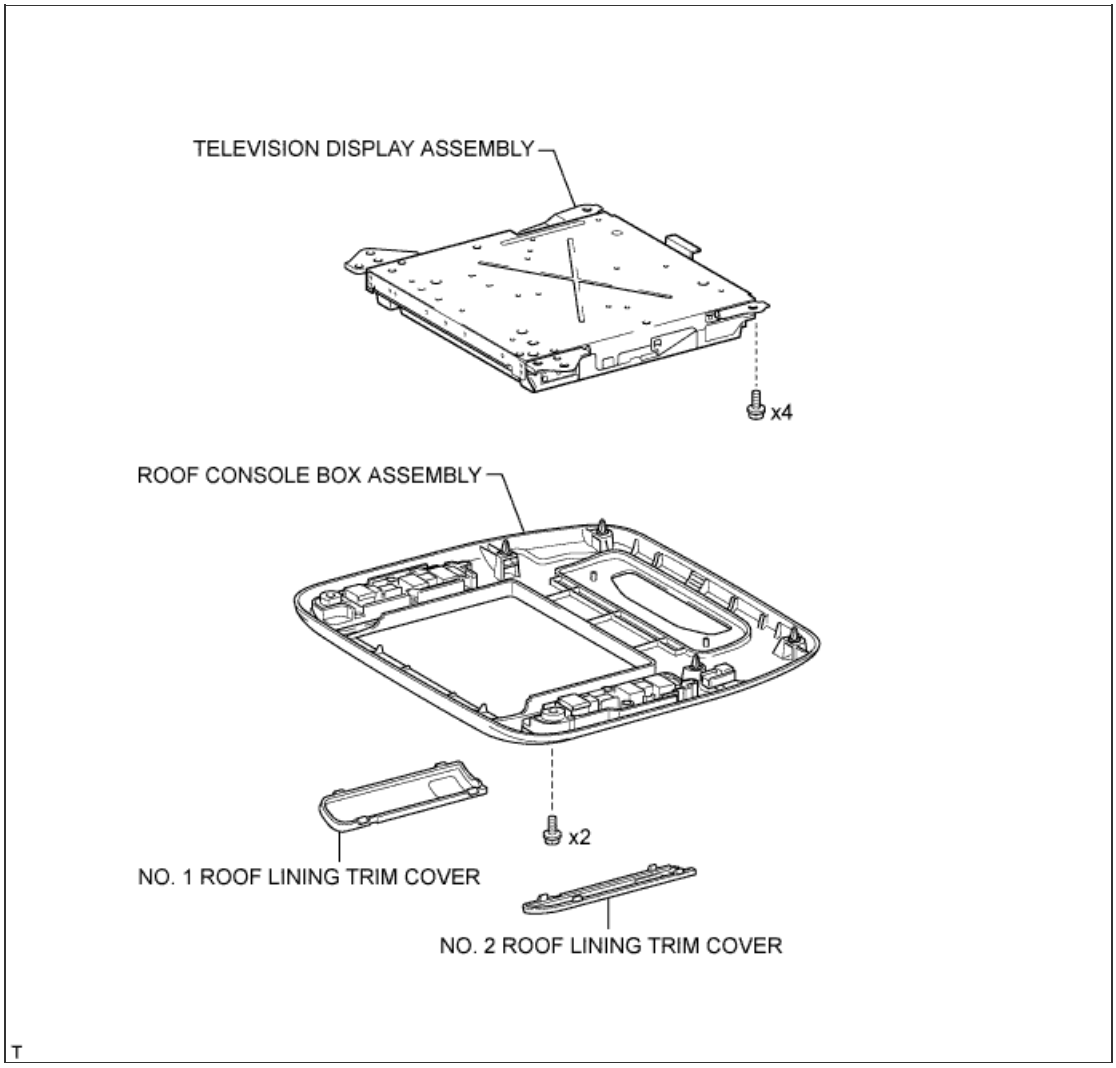


7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

for Preparation Click here

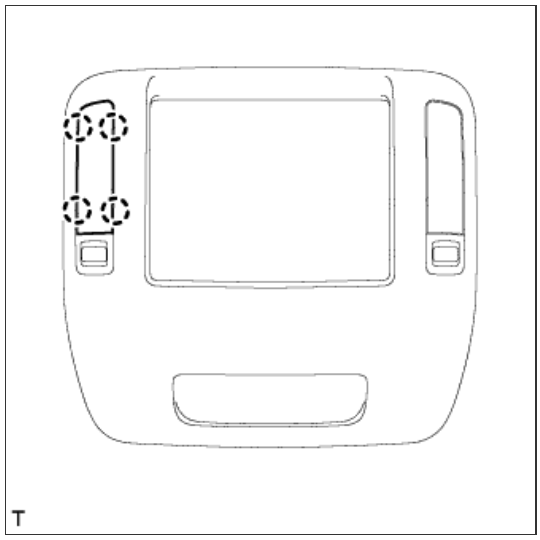


for Preparation Click here

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

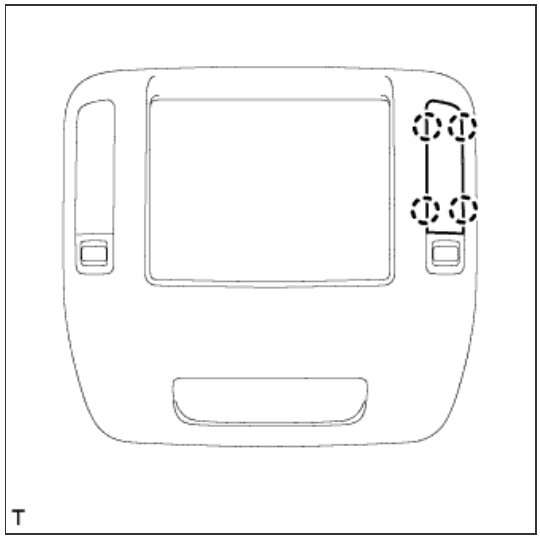
2. REMOVE NO. 1 ROOF LINING TRIM COVER

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.

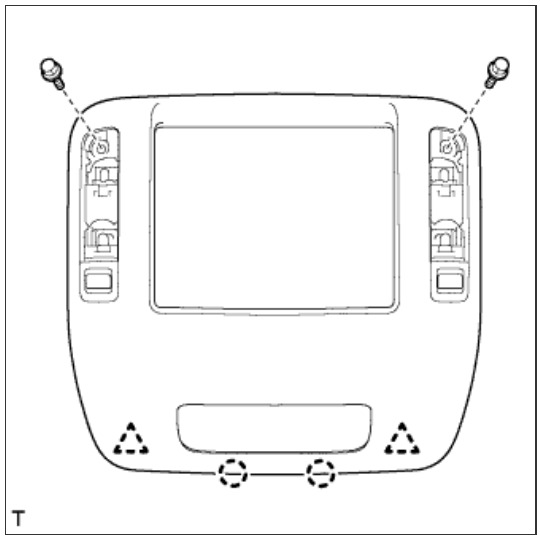


4. REMOVE ROOF CONSOLE BOX ASSEMBLY

a. Remove the 2 bolts.

b. Detach the 2 clips and 2 claws.

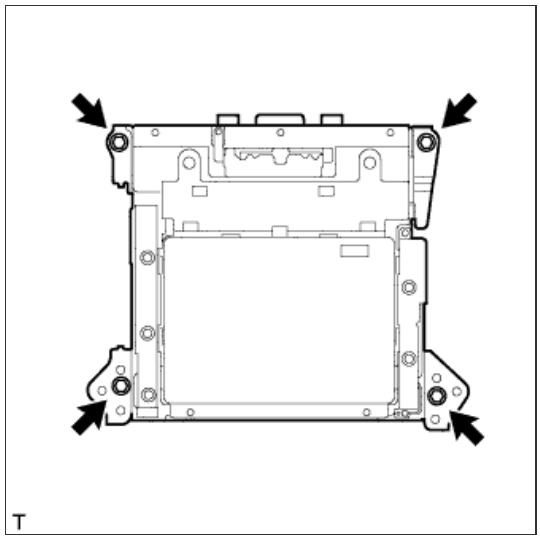
c. Disconnect the connector and remove the roof console box.



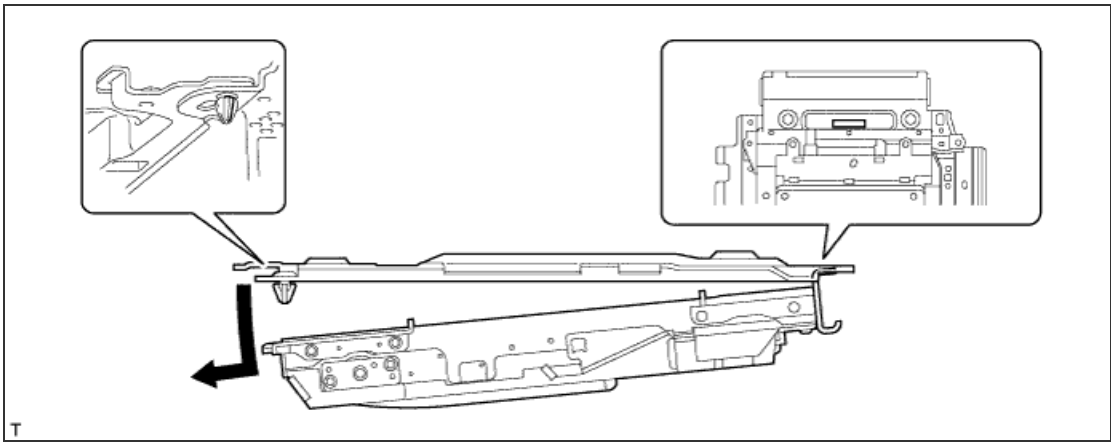
. REMOVE TELEVISION DISPLAY ASSEMBLY

a. Disconnect the connectors.

b. Remove the 4 bolts.



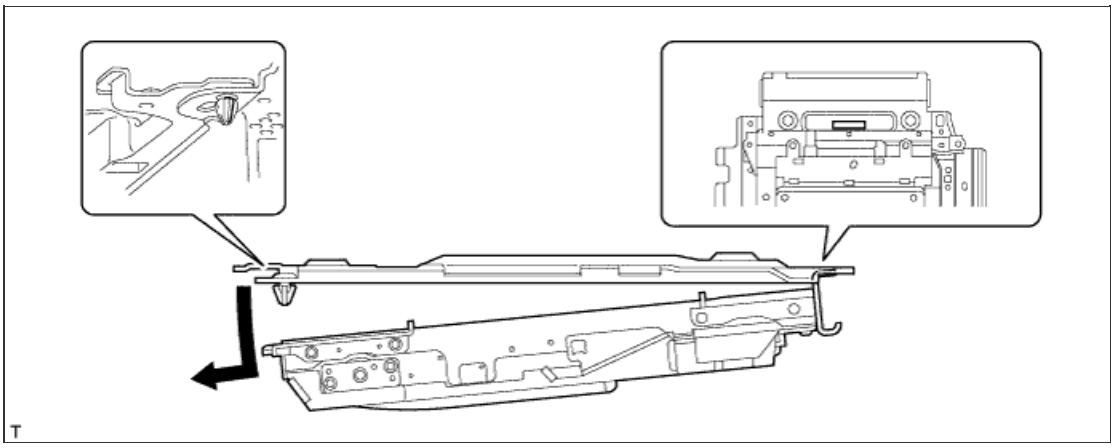
c. Detach the clips and claws to remove the television display as shown in the illustration.



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.

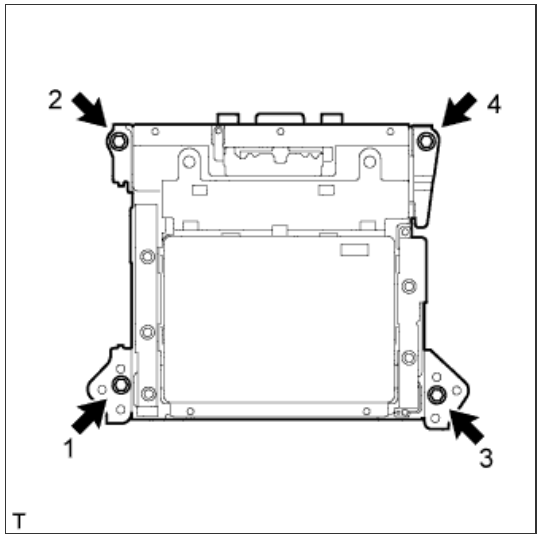


b. nstall the television display with the 4 bolts.

HINT:

nstall the bolts in the order shown in the illustration.

c. onnect the connectors.



2. INSTALL ROOF CONSOLE BOX ASSEMBLY

a. onnect the connector.

b. Attach the 2 clips and 2 claws to install the roof console bo

c. nstall the 2 bolts.

3. INSTALL NO. 2 ROOF LINING TRIM COVER

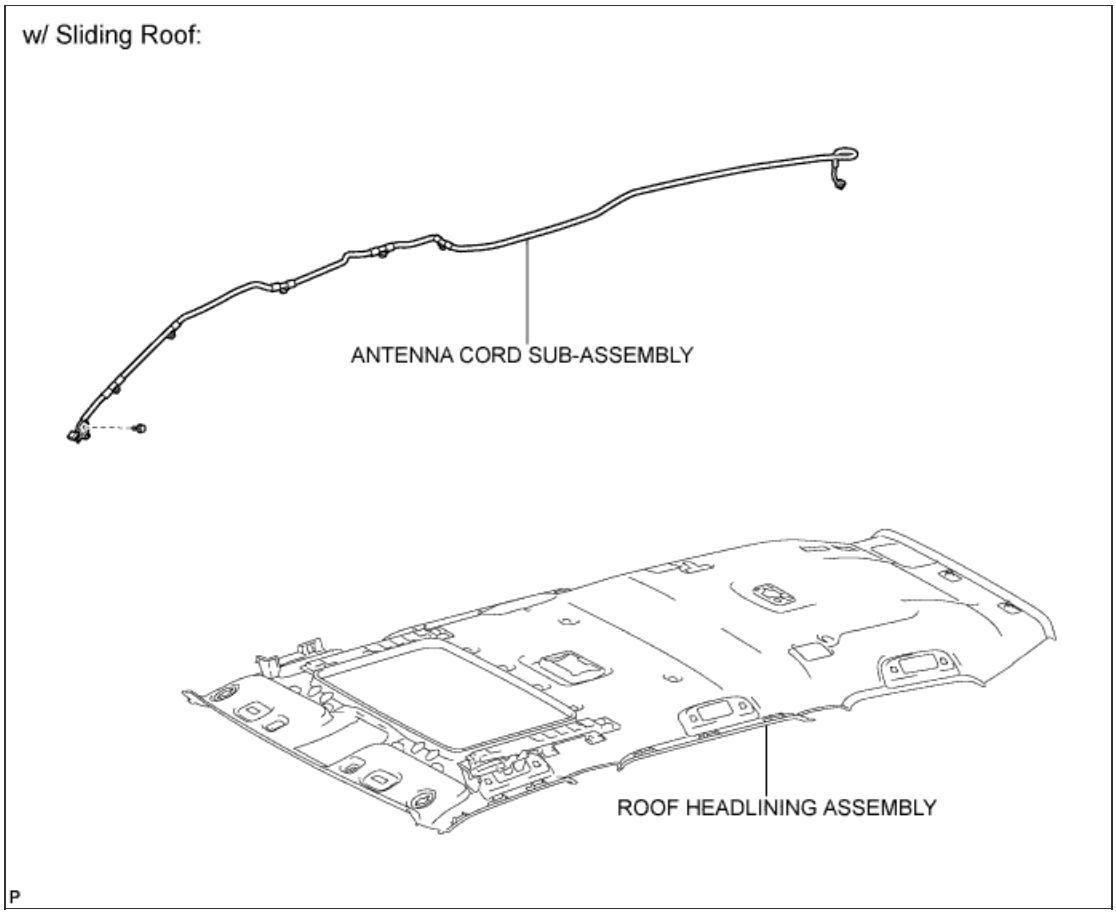
a. Attach the 4 claws to install the cover.

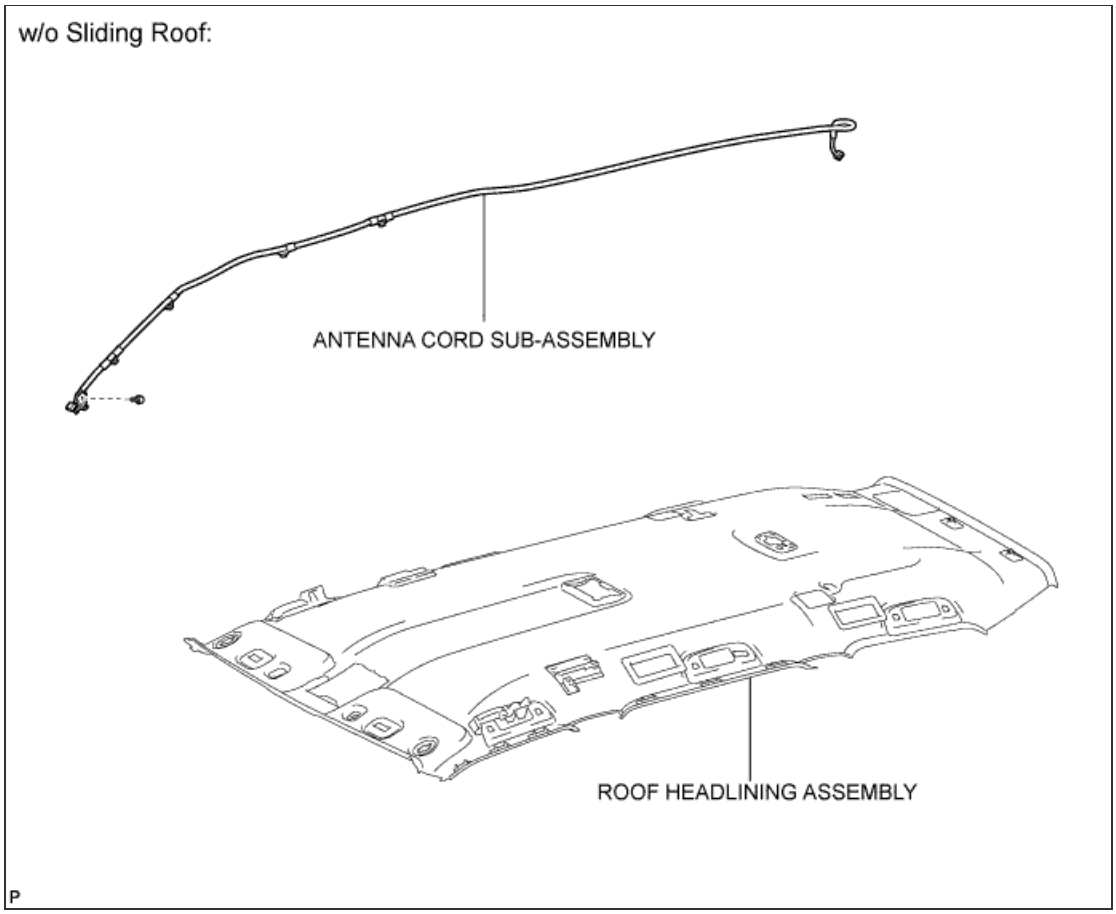
4. INSTALL NO. 1 ROOF LINING TRIM COVER

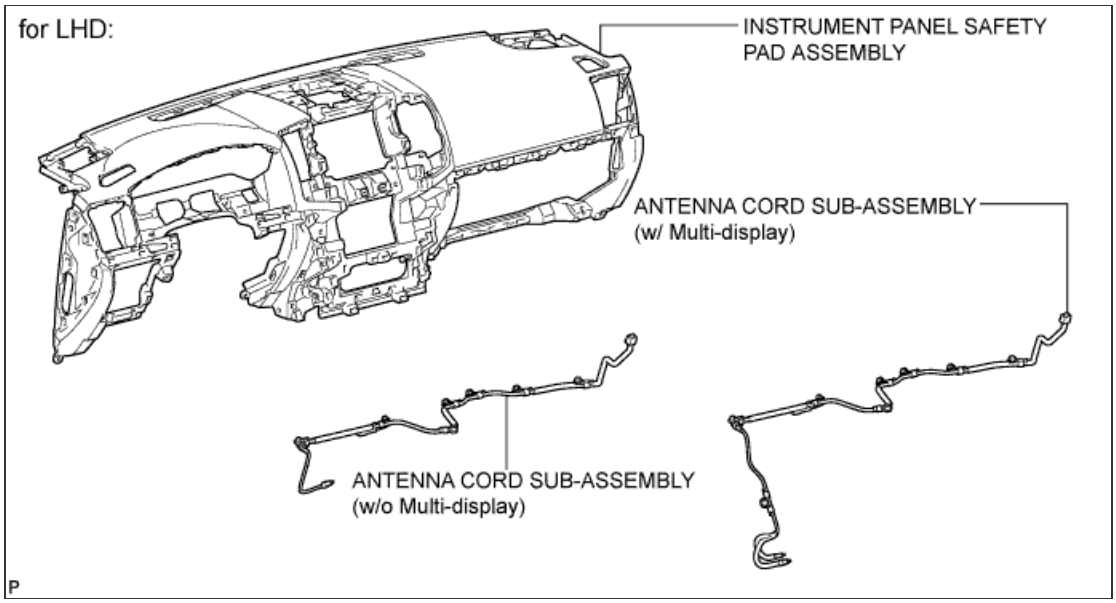
a. Attach the 4 claws to install the cover.

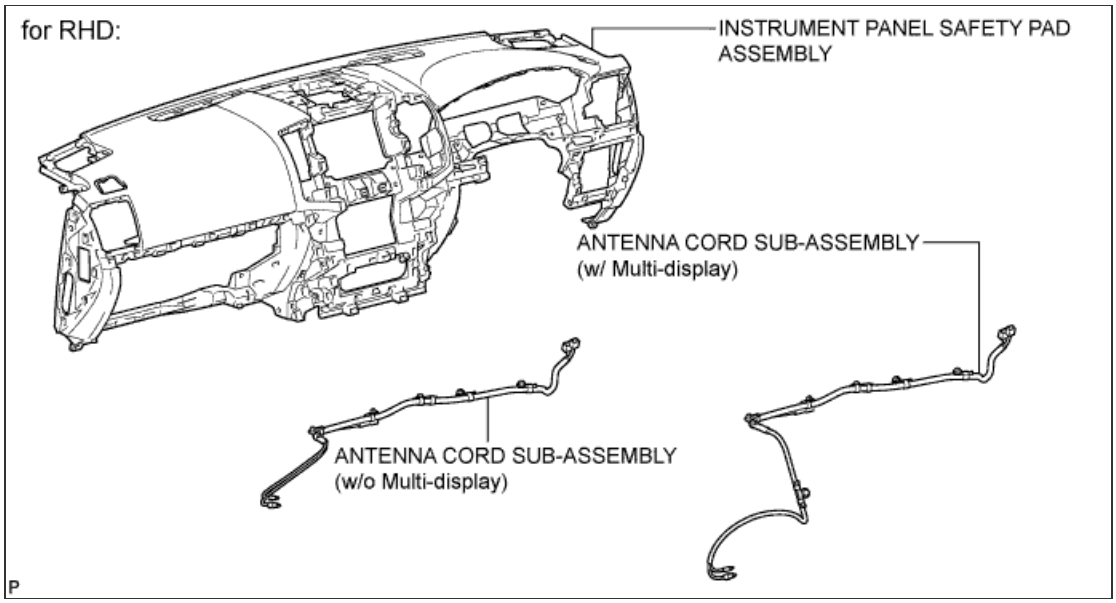
5. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

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. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

2. REMOVE ROOF HEADLINING ASSEMBLY

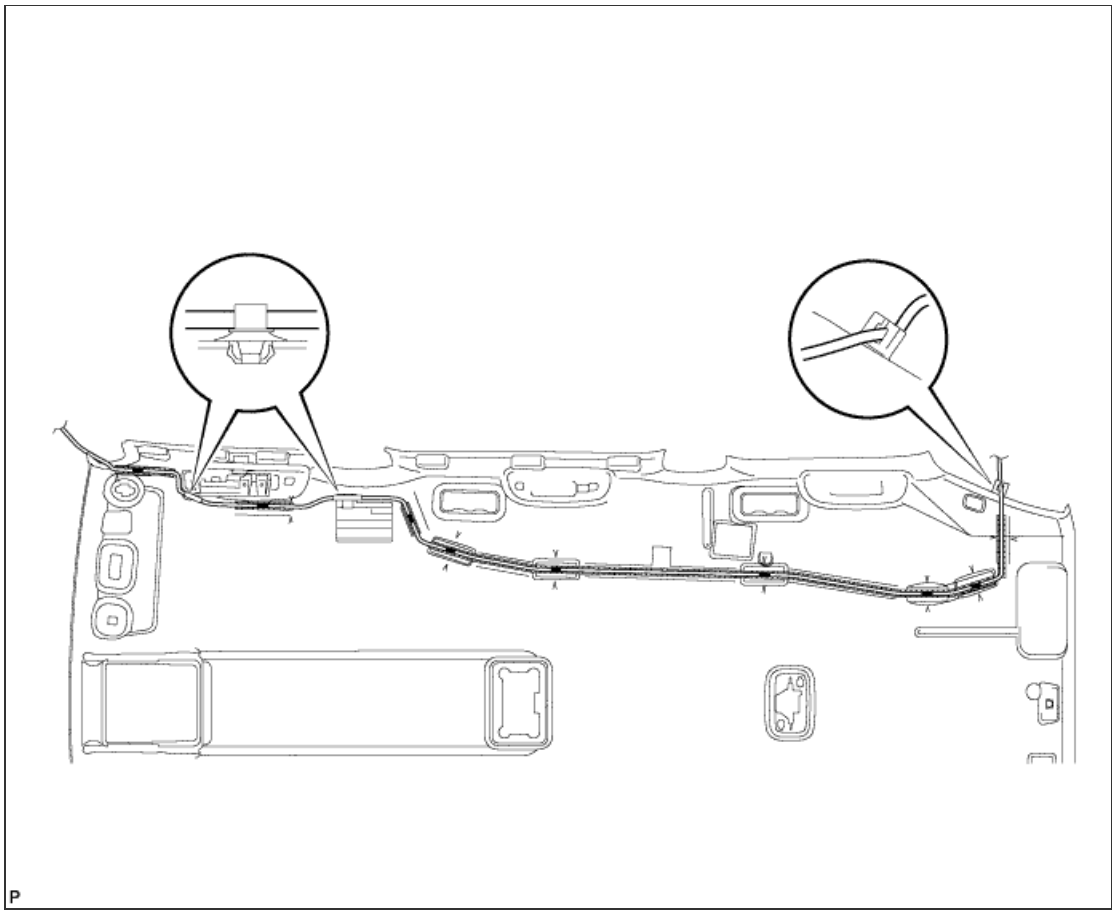
a. w/o Sliding Roof:
Remove the roof headlining assembly (Click here).

b. w/ Sliding Roof:
Remove the roof headlining assembly (Click here).

3. 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.

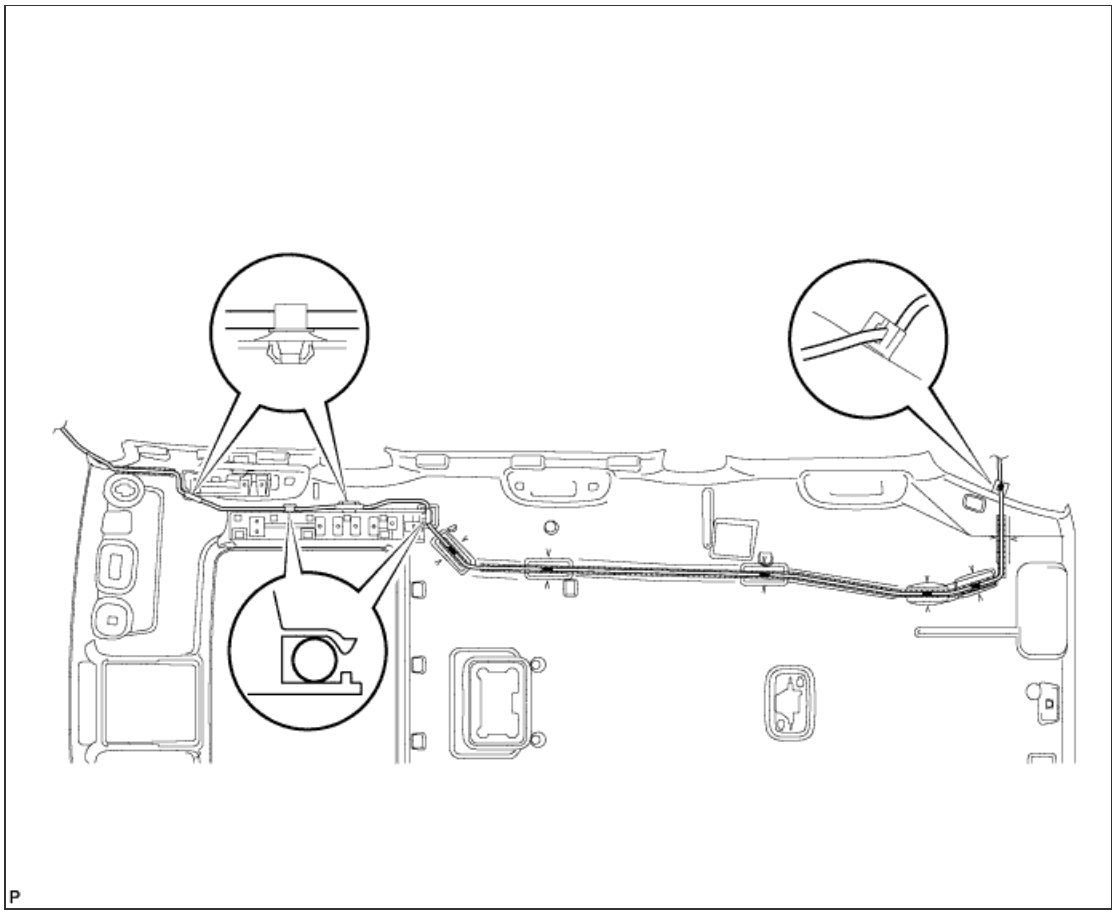


ii. Remove the antenna cord from the roof headlining.

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.

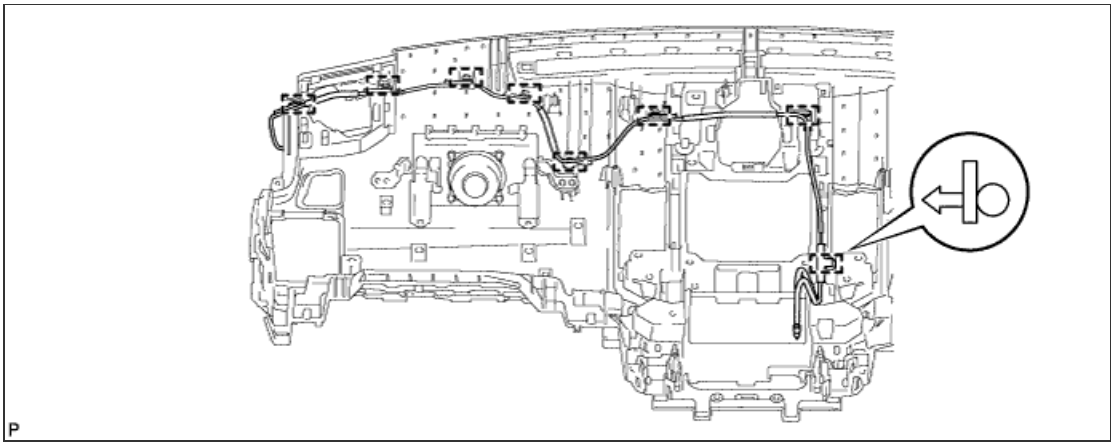
iii. Remove the double-sided tape from the roof headlining.

4. REMOVE INSTRUMENT PANEL SAFETY PAD ASSEMBLY

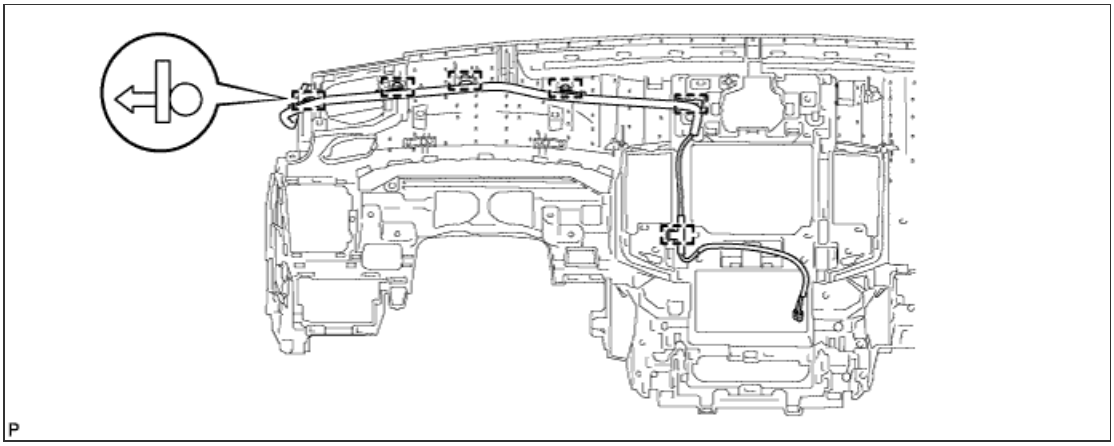
a. Remove the instrument panel safety pad (Click here).

5. REMOVE ANTENNA CORD SUB-ASSEMBLY (w/ Multi-display)

a. for LHD:
Detach the 8 clamps and remove the antenna cord.

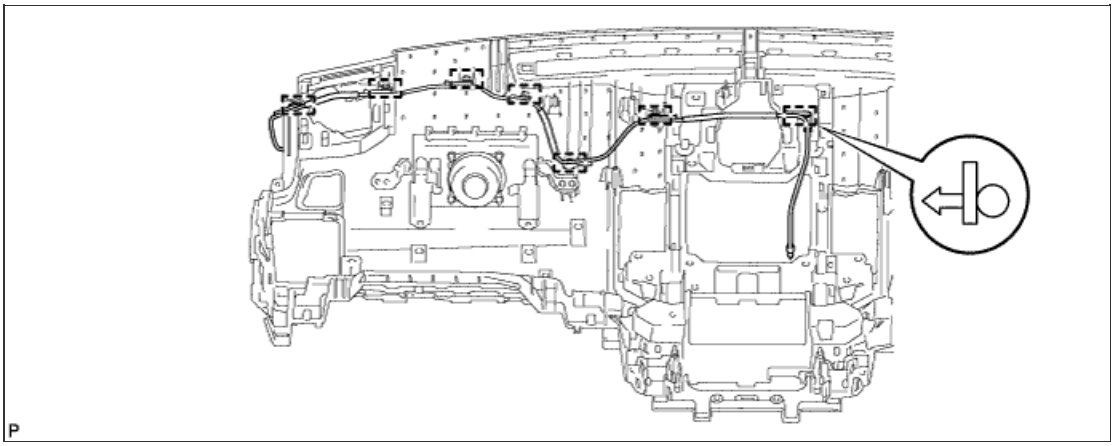


b. for RHD:
Detach the 6 clamps and remove the antenna cord.

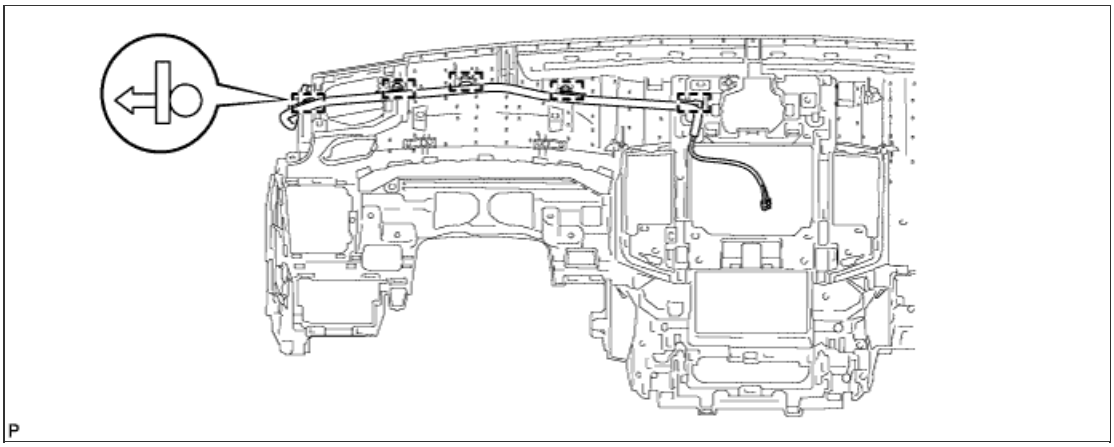


6. REMOVE ANTENNA CORD SUB-ASSEMBLY (w/o Multi-display)

a. for LHD:
Detach the 7 clamps and remove the antenna cord.



b. for RHD:
Detach the 5 clamps and remove the antenna cord.

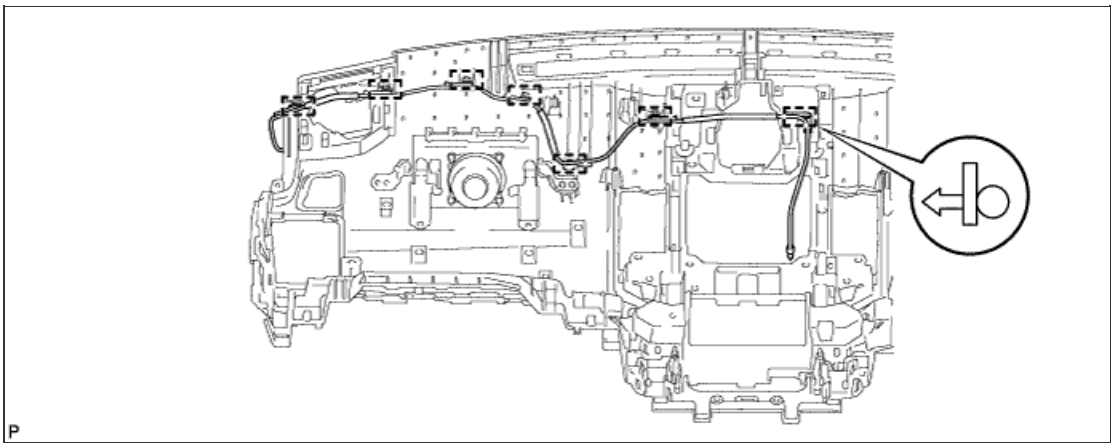


P

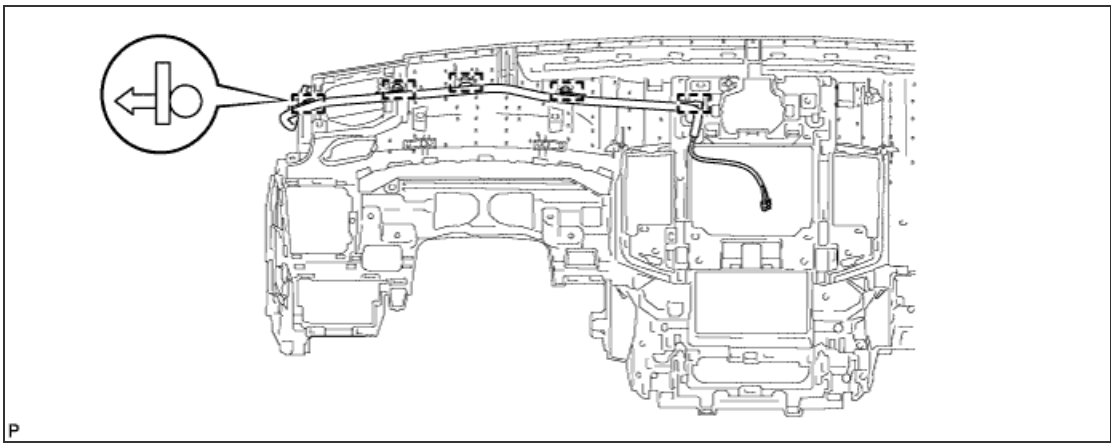
for Preparation Click here

1. INSTALL ANTENNA CORD SUB-ASSEMBLY (w/o Multi-display)

a. for LHD:
Attach the 7 clamps to install the antenna cord.

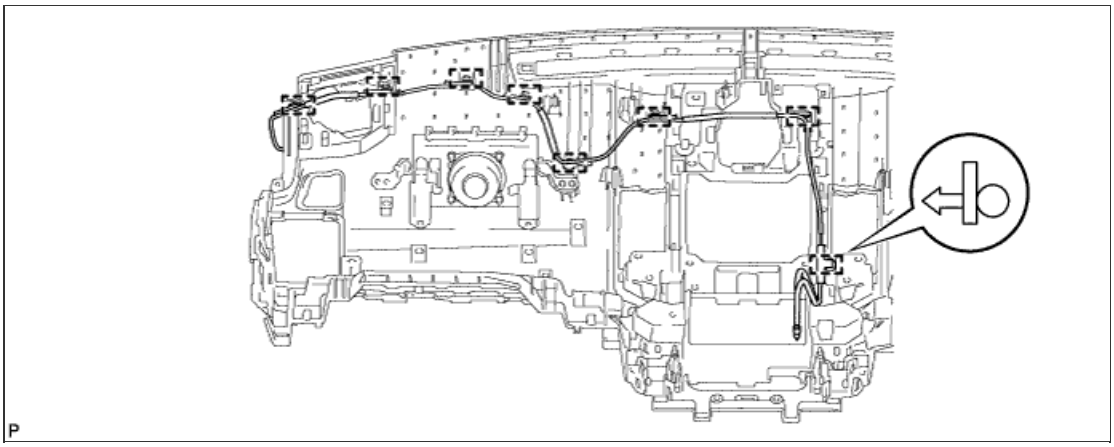


b. for RHD:
Attach the 5 clamps to install the antenna cord.

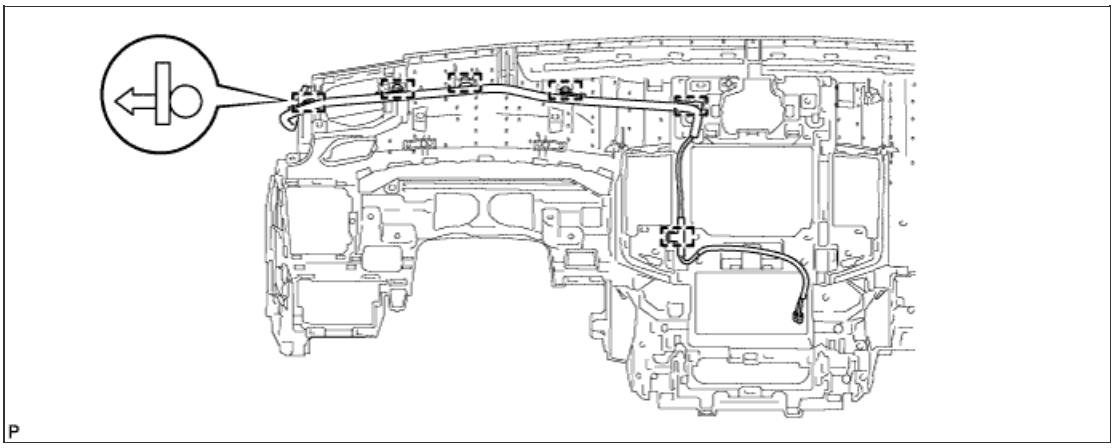


2. INSTALL ANTENNA CORD SUB-ASSEMBLY (w/ Multi-display)

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).

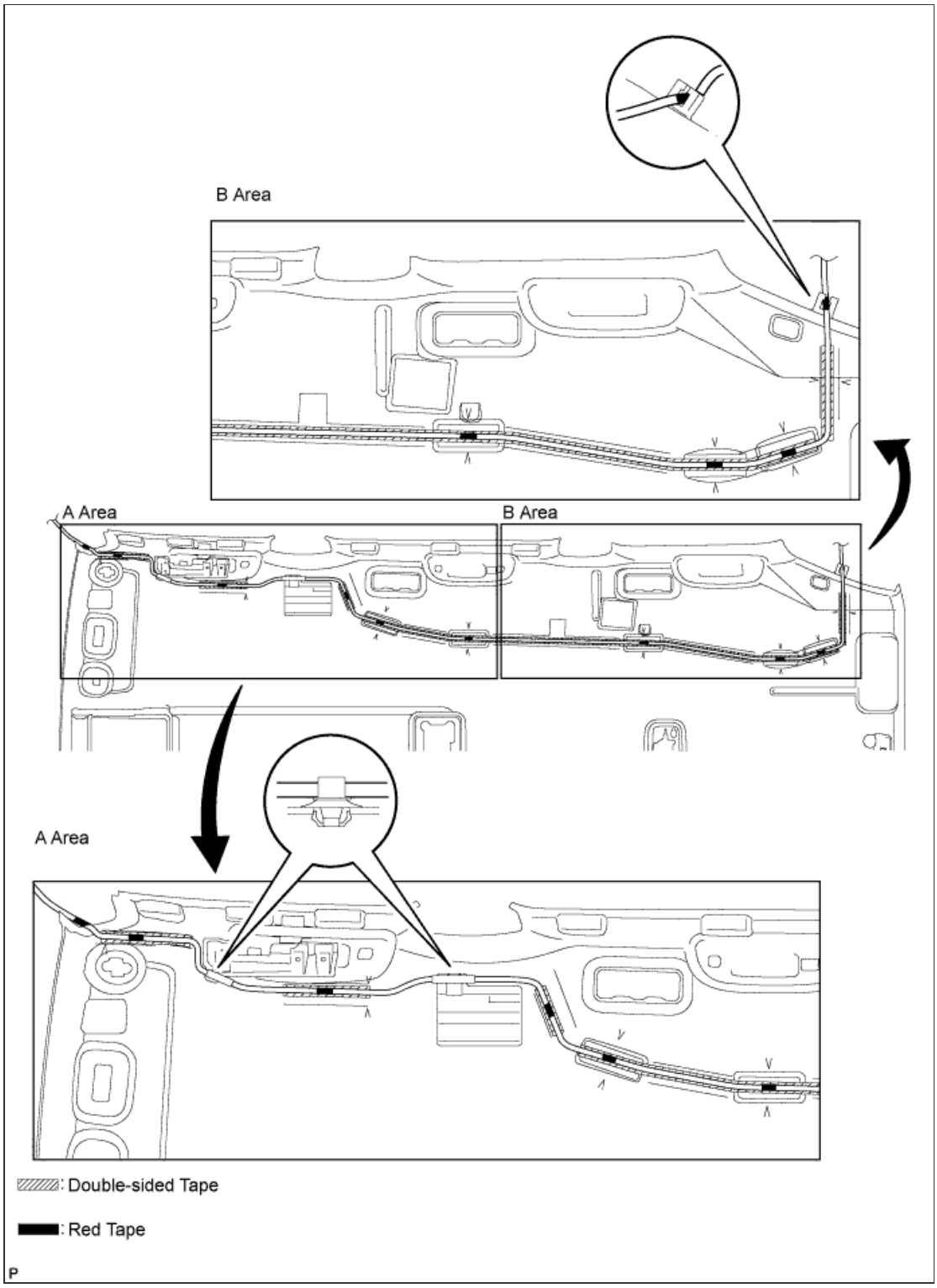
4. INSTALL ANTENNA CORD SUB-ASSEMBLY

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.

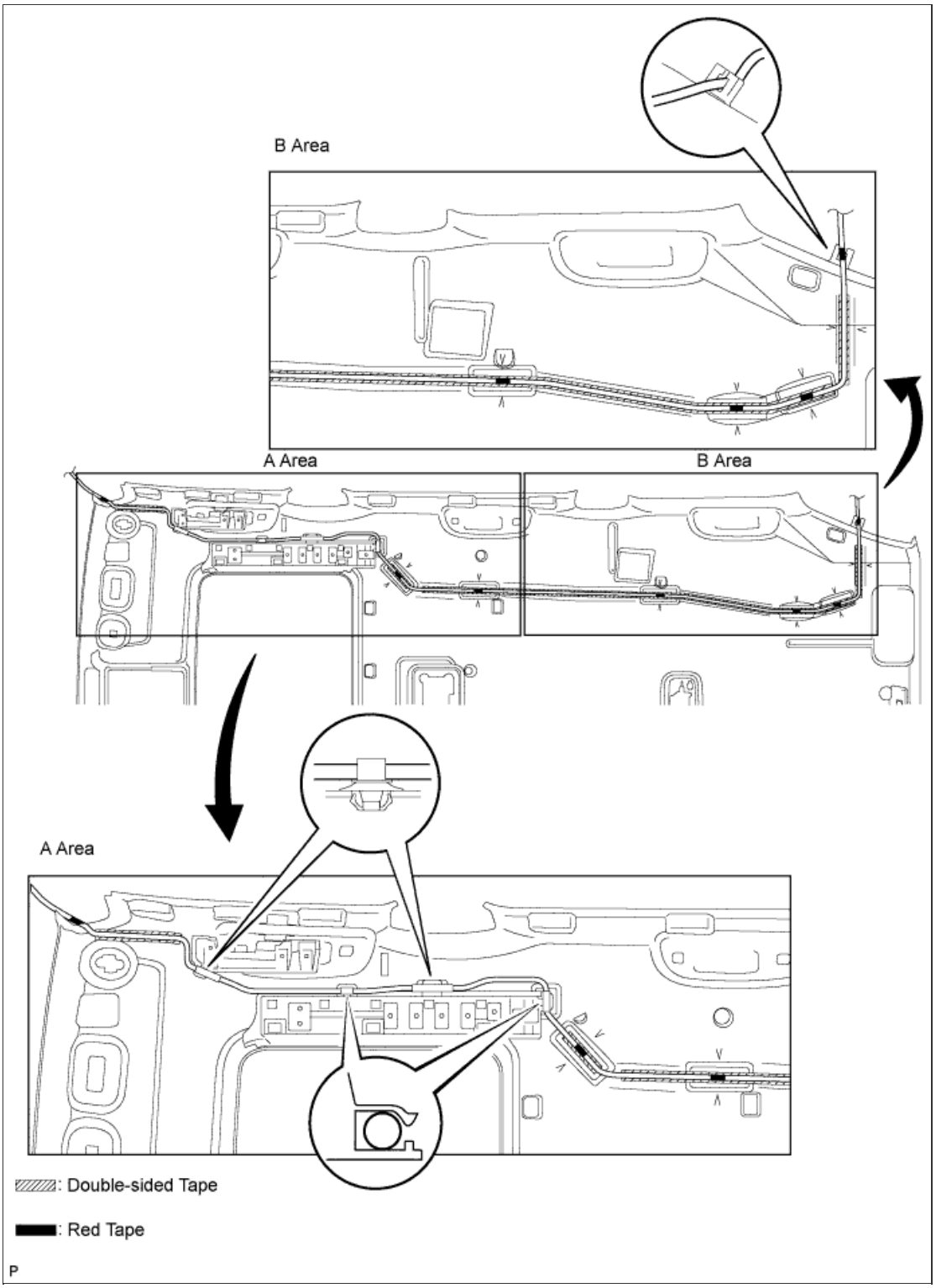
iii. Attach the 2 clamps and fit the antenna into the notch.

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

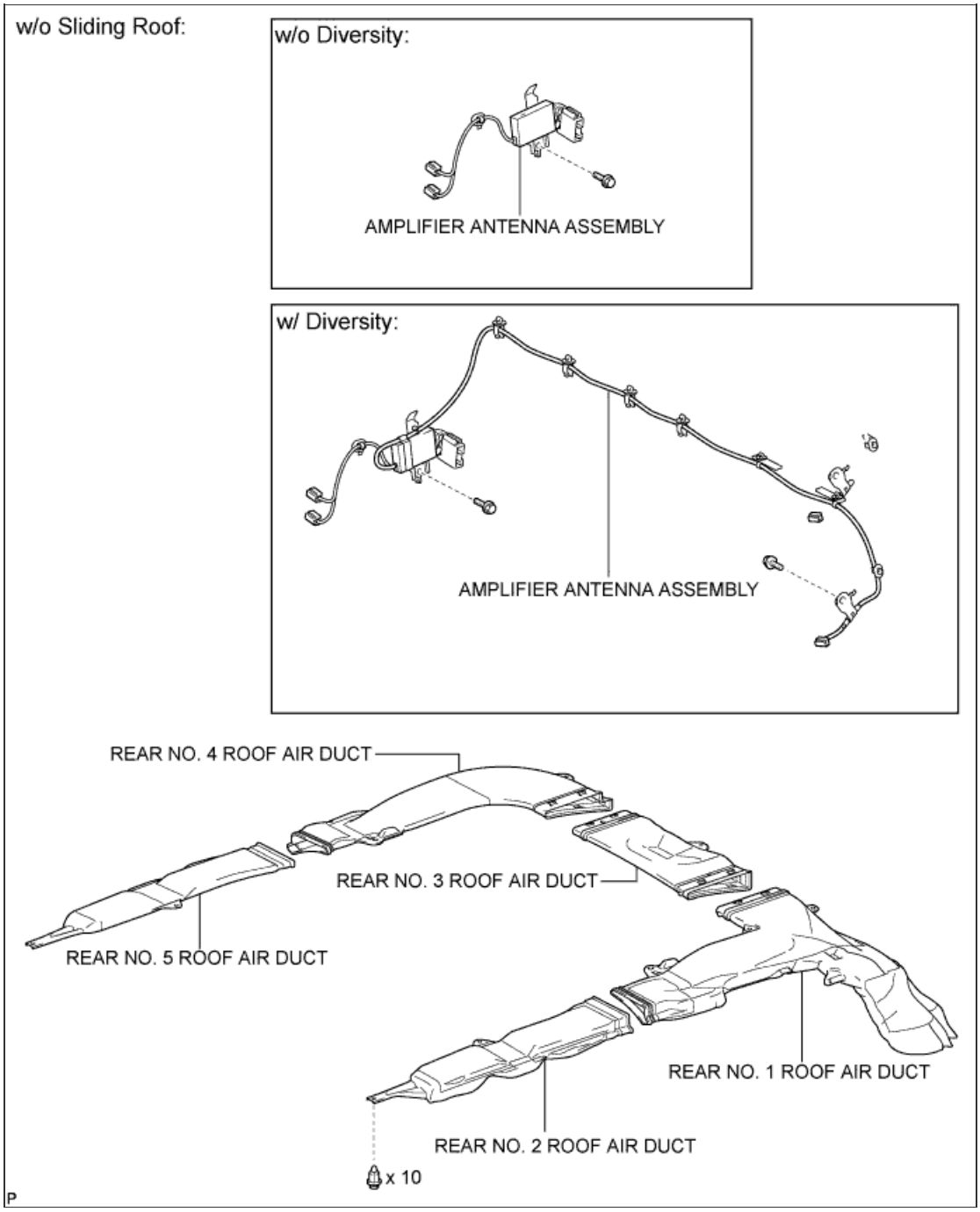
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

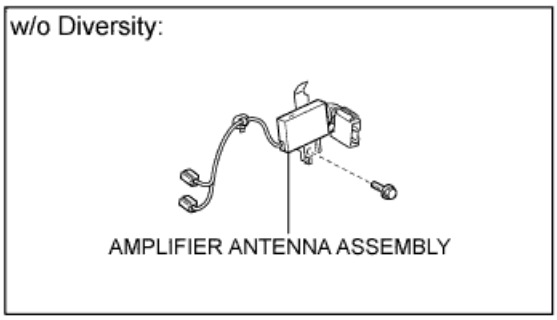
7. CHECK SRS WARNING LIGHT

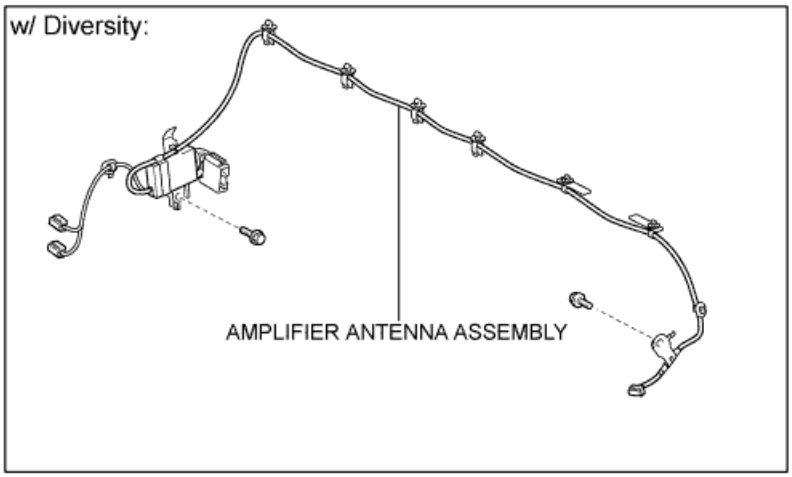
a. Check the SRS warning light (Click here).

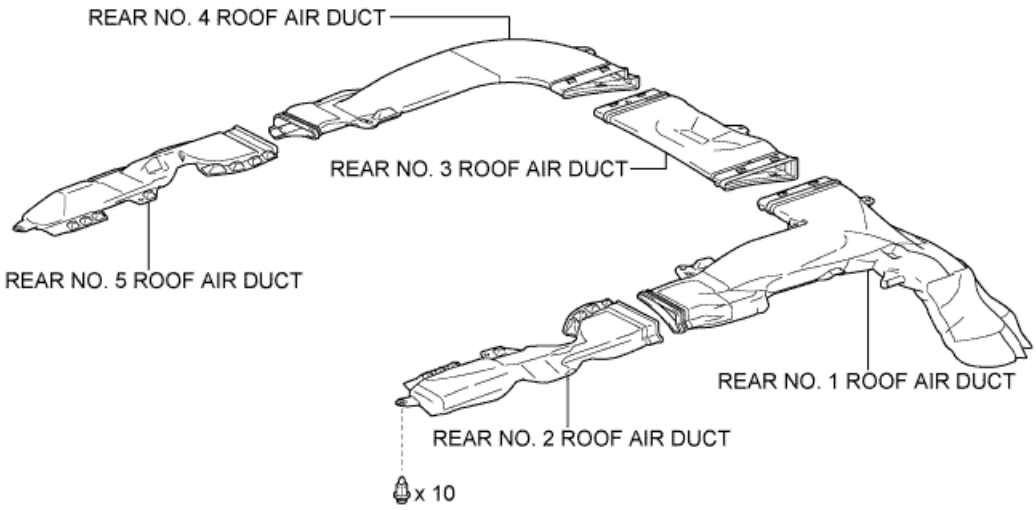
for Preparation Click here



w/ Sliding Roof:







P

for Preparation Click here

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

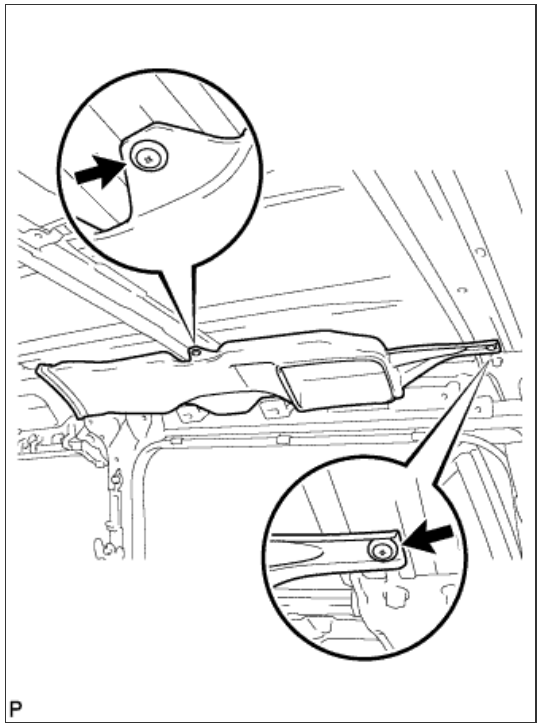
2. REMOVE ROOF HEADLINING ASSEMBLY (w/ Diversity)

a. w o Sliding Roof:
Remove the roof headlining (Click here).

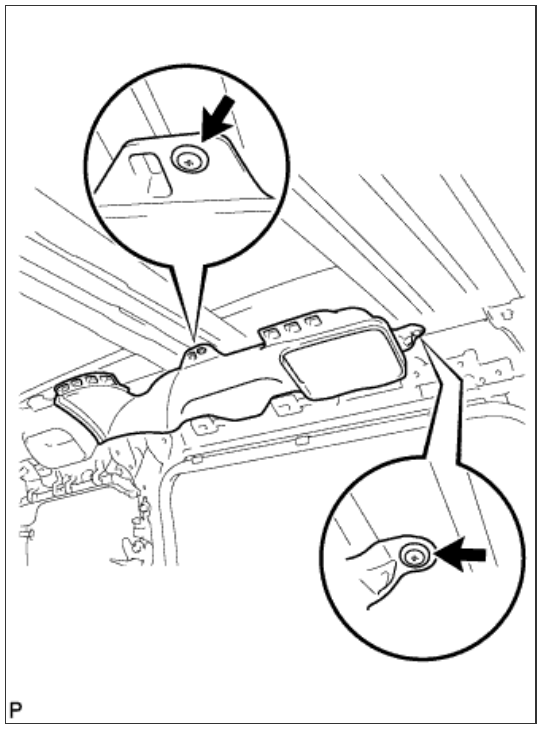
b. w Sliding Roof:
Remove the roof headlining (Click here).

3. REMOVE REAR NO. 2 ROOF AIR DUCT (w/ Diversity)

a. w o Sliding Roof:
Remove the 2 clips and duct.

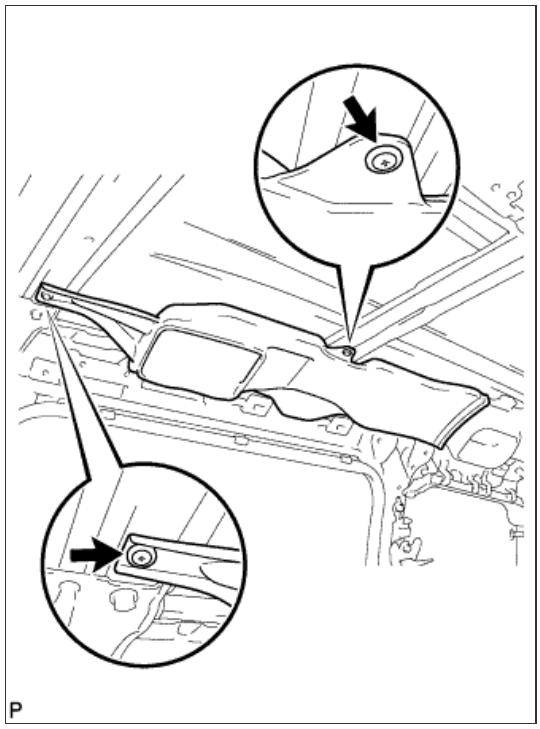


b. w Sliding Roof:
Remove the 2 clips and duct.

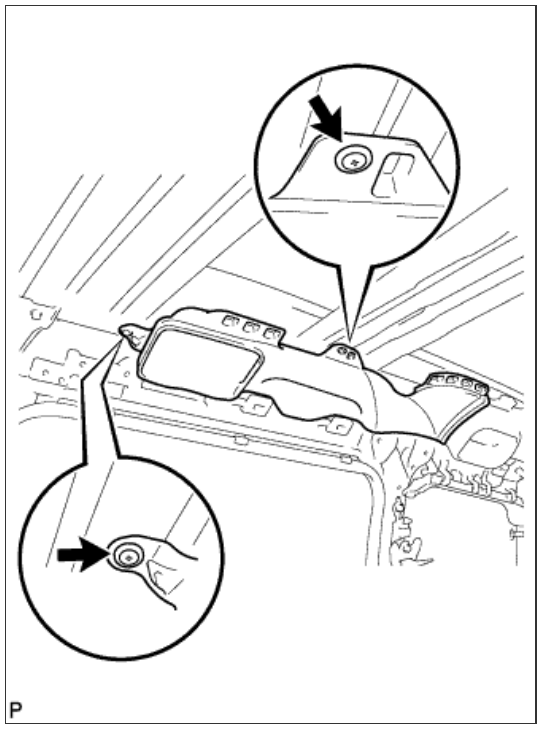


4. REMOVE REAR NO. 5 ROOF AIR DUCT (w/ Diversity)

a. w o Sliding Roof:
Remove the 2 clips and duct.



b. w Sliding Roof:
Remove the 2 clips and duct.



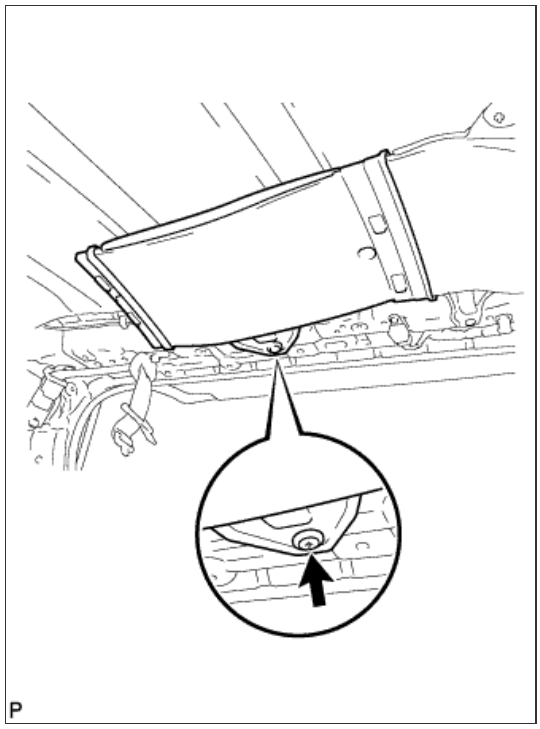
5. REMOVE REAR NO. 4 ROOF AIR DUCT (w/ Diversity)

a. Remove the 2 clips and duct.



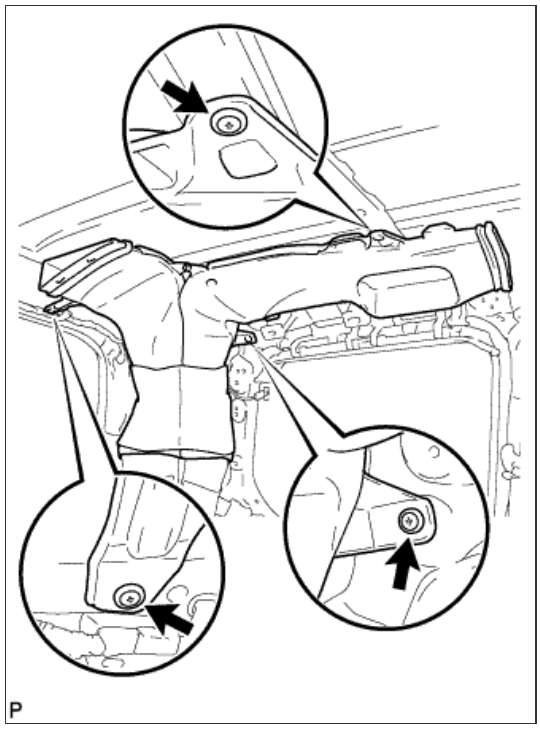
6. REMOVE REAR NO. 3 ROOF AIR DUCT (w/ Diversity)

a. Remove the clip and duct.



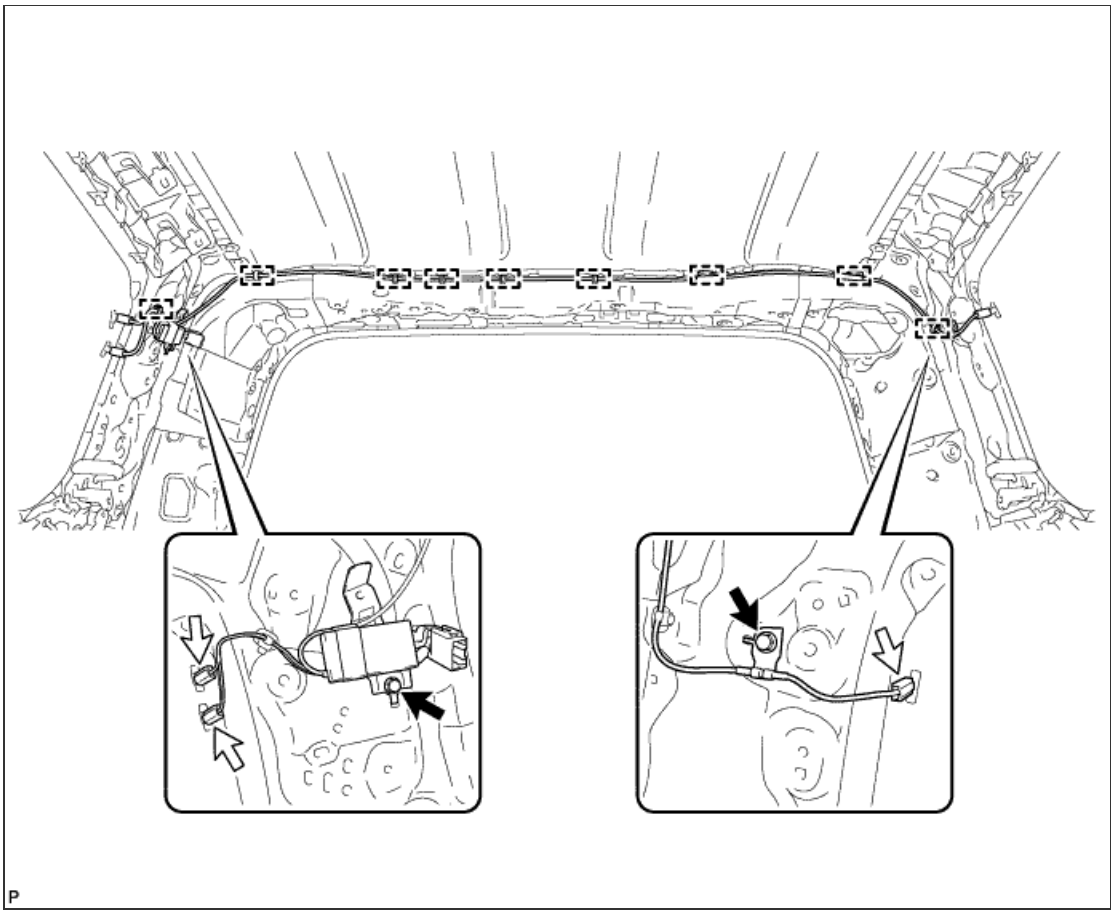
7. REMOVE REAR NO. 1 ROOF AIR DUCT (w/ Diversity)

a. Remove the 3 clips and duct.



8. REMOVE AMPLIFIER ANTENNA ASSEMBLY (w/ Diversity)

a. Disconnect the 3 connectors and remove the 2 bolts.

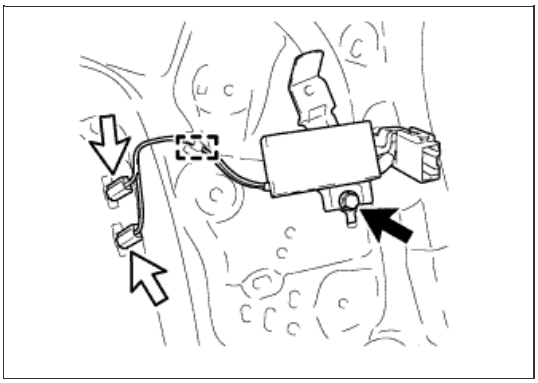


b. Detach the 9 clamps and remove the antenna.

9. REMOVE AMPLIFIER ANTENNA ASSEMBLY (w/o Diversity)

a. Disconnect the 2 connectors and detach the clamp.

b. Remove the bolt and amplifier antenna.

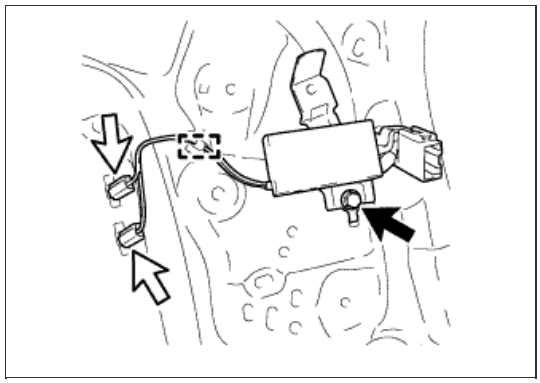


for Preparation Click here

1. INSTALL AMPLIFIER ANTENNA ASSEMBLY (w/o Diversity)

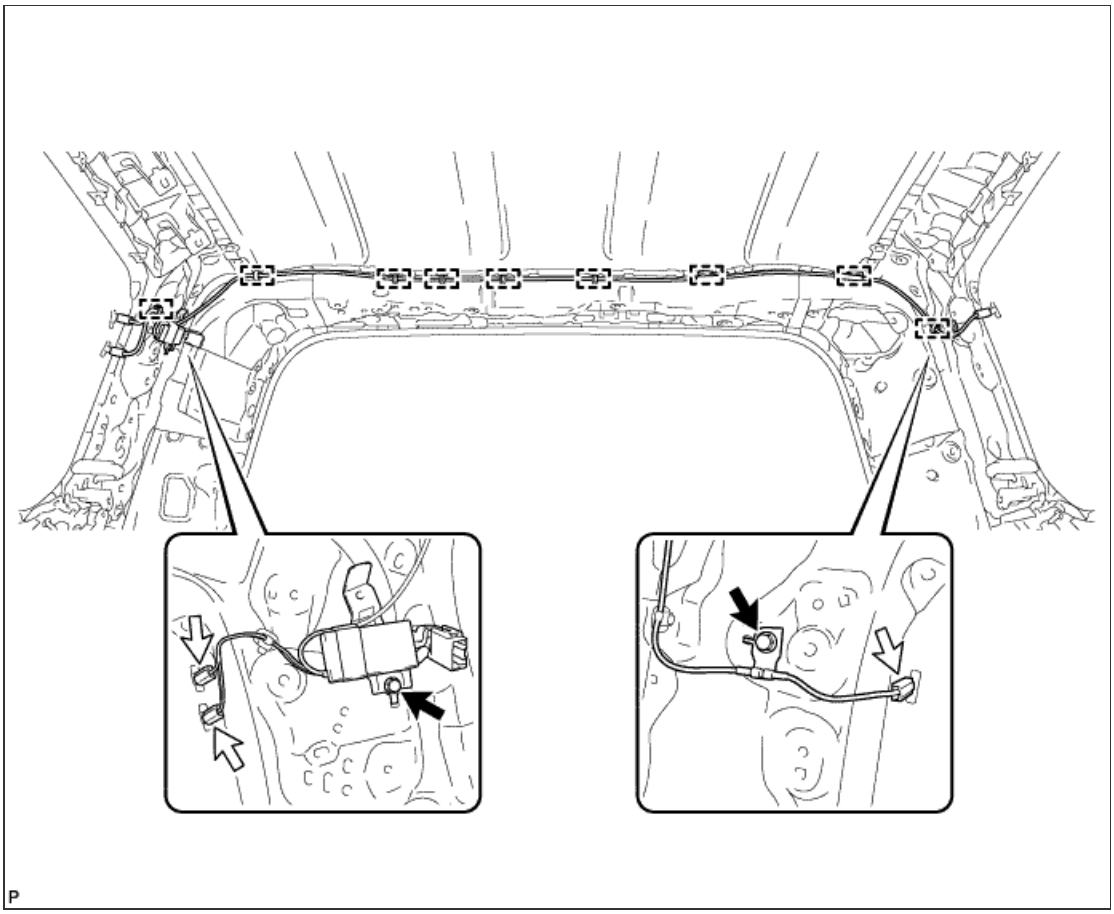
a. Install the amplifier antenna with the bolt.

b. Attach the clamp and connect the 2 connectors.



2. INSTALL AMPLIFIER ANTENNA ASSEMBLY (w/ Diversity)

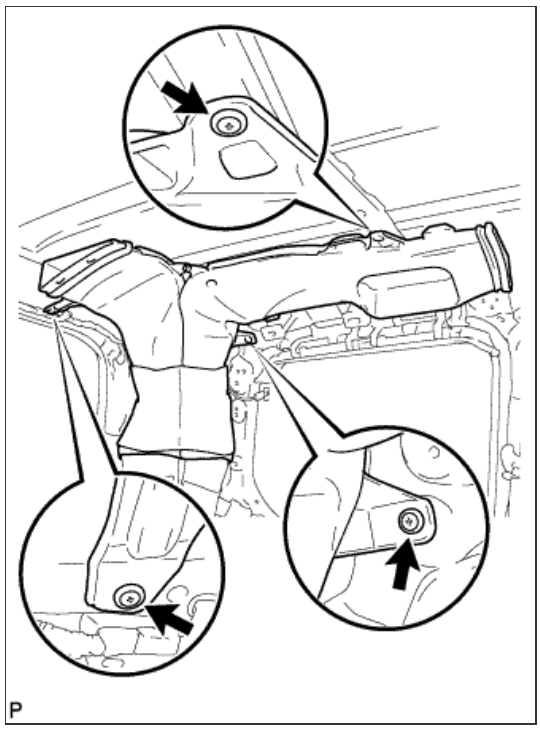
a. Attach the 9 clamps to install antenna.



b. Connect the 3 connectors and install the 2 bolts.

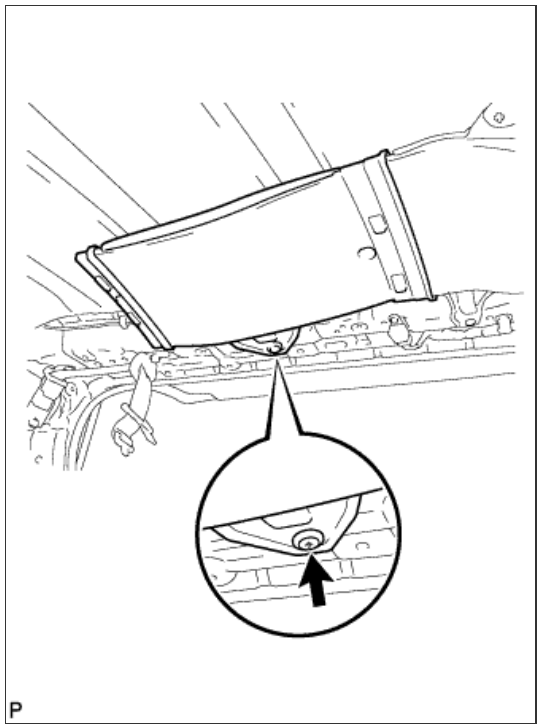
3. INSTALL REAR NO. 1 ROOF AIR DUCT (w/ Diversity)

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.



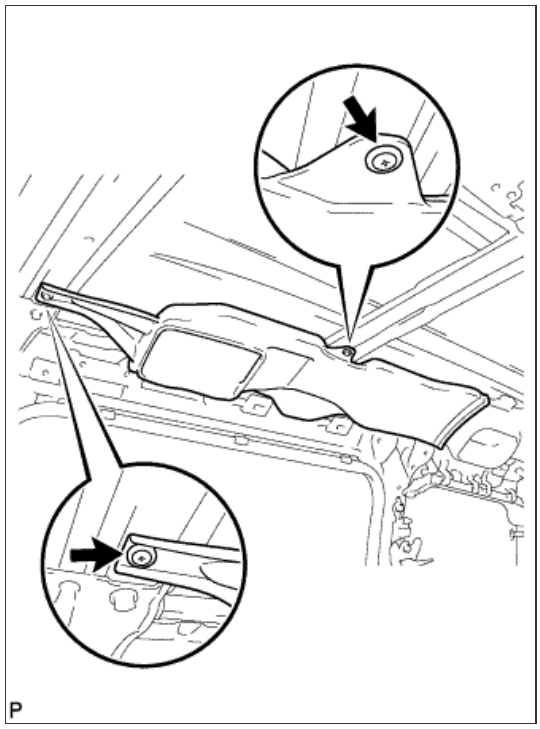
5. INSTALL REAR NO. 4 ROOF AIR DUCT (w/ Diversity)

a. Install the duct with the 2 clips.

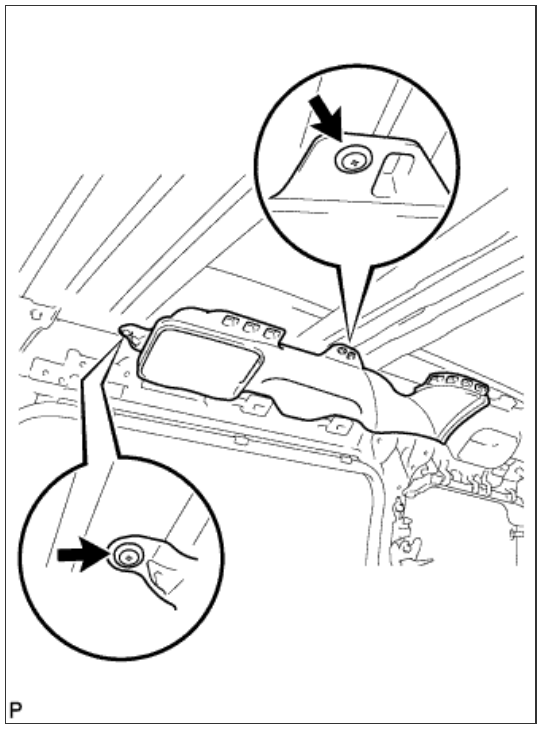


6. INSTALL REAR NO. 5 ROOF AIR DUCT (w/ Diversity)

a. w/o Sliding Roof:
Install the duct with the 2 clips.

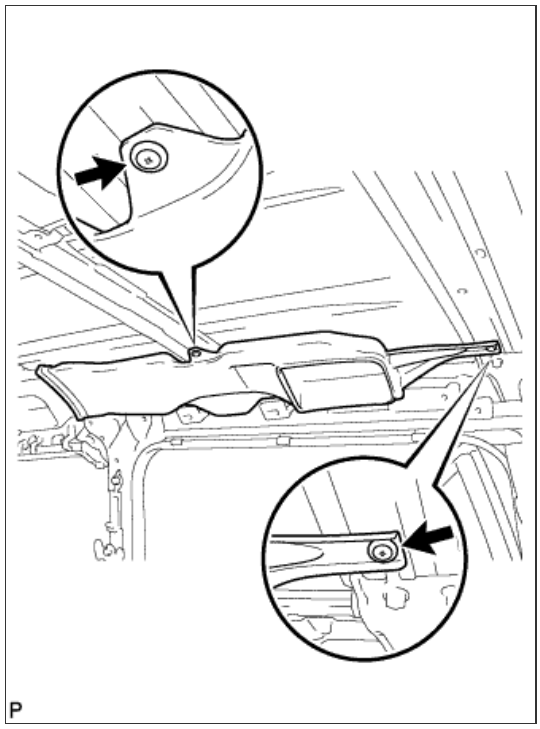


b. w/ Sliding Roof:
Install the duct with the 2 clips.

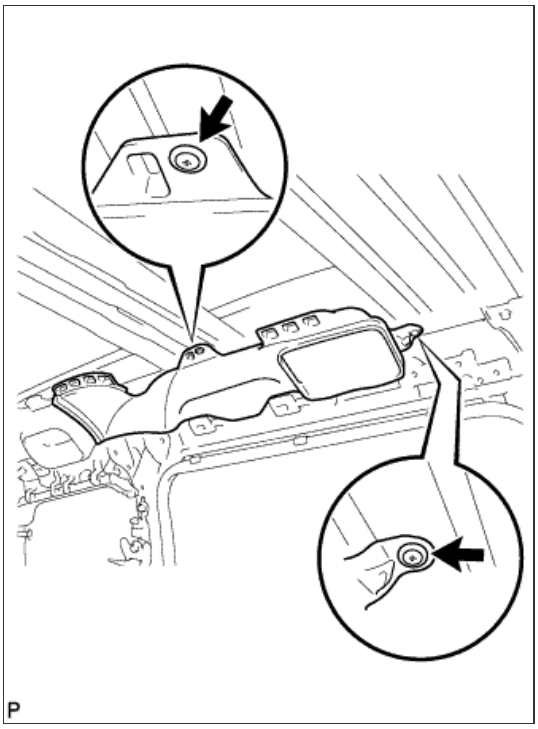


7. INSTALL REAR NO. 2 ROOF AIR DUCT (w/ Diversity)

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).

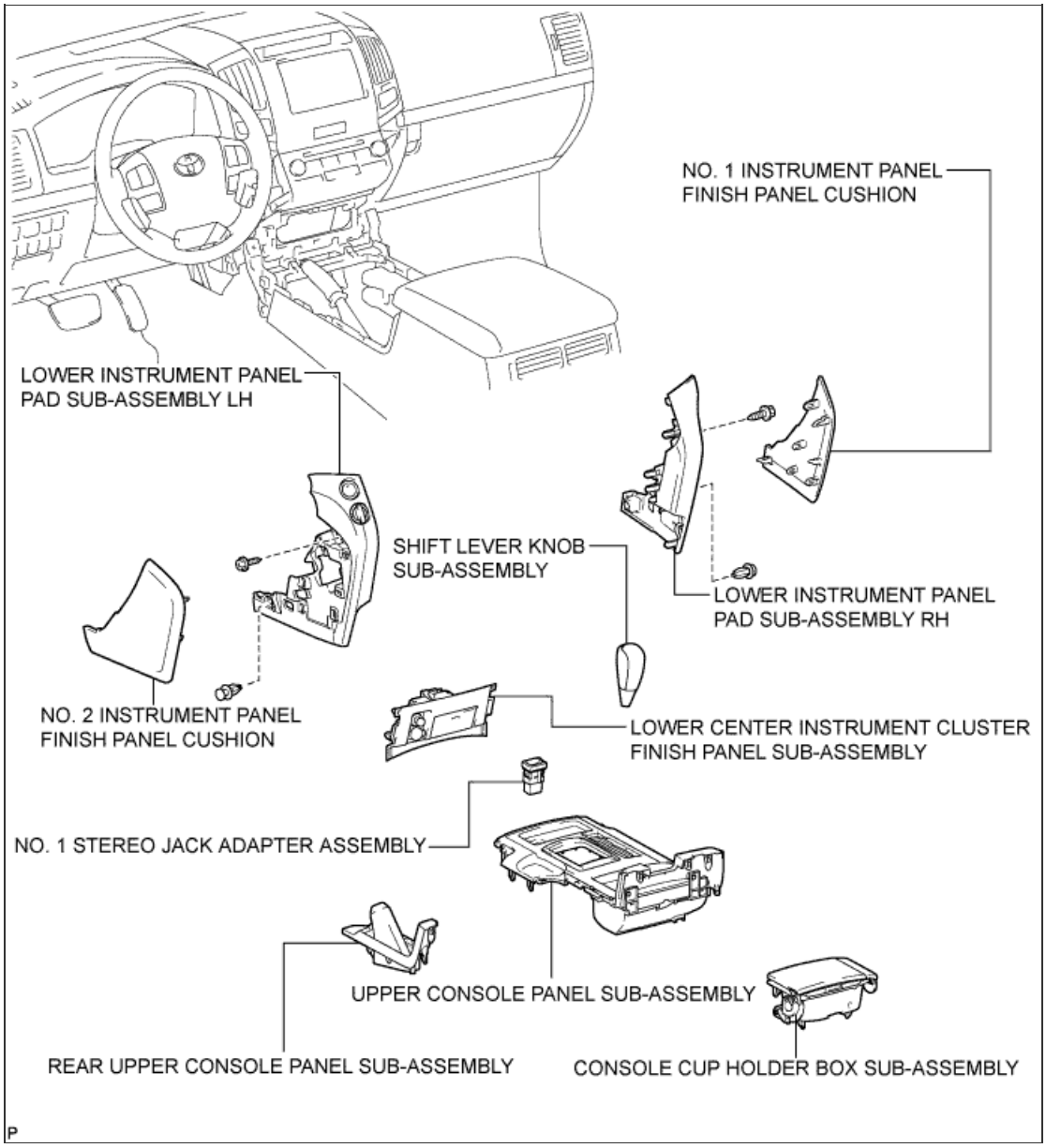
b. w/ Sliding Roof:
Install the roof headlining (Click here).

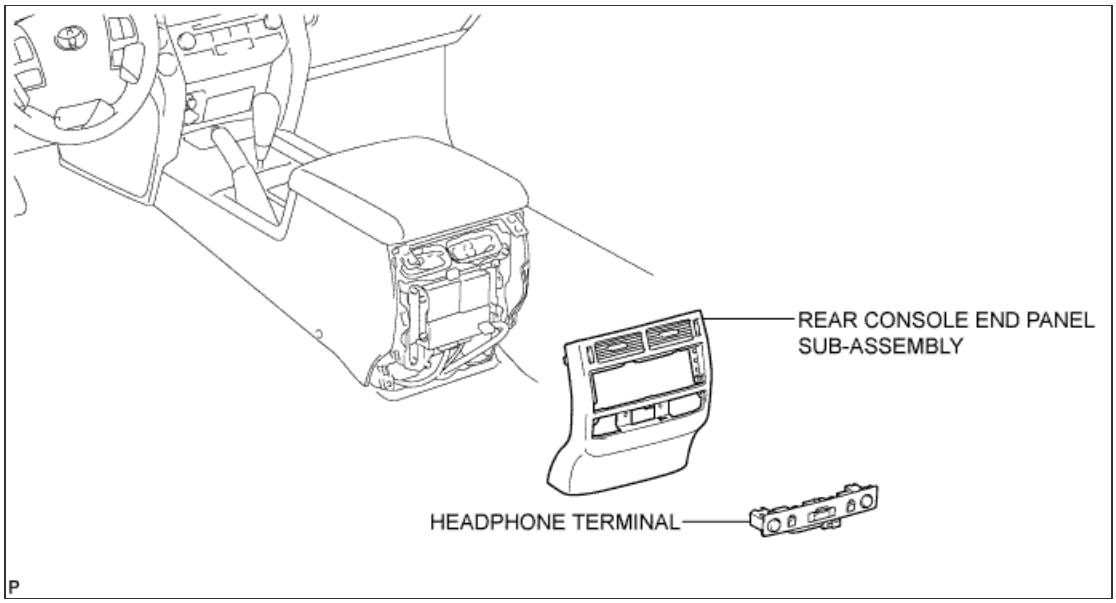
9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

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

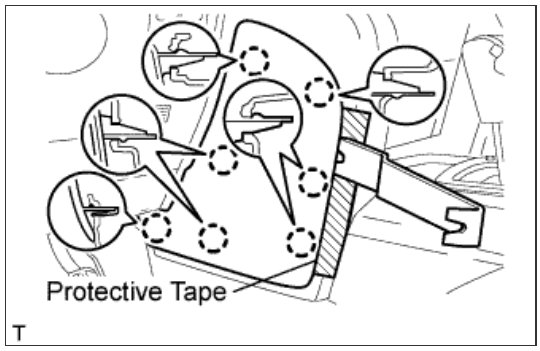
for Preparation Click here

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

2. 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.



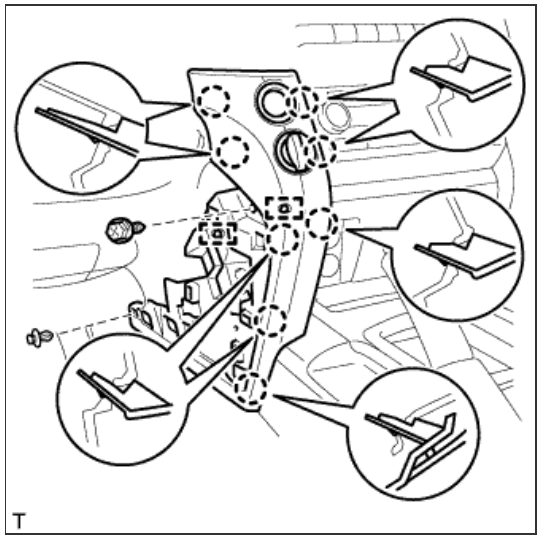
3. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

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.



4. 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.

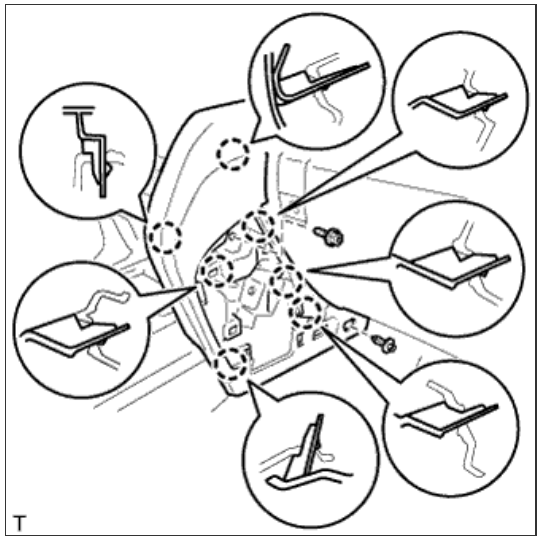


5. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

a. Remove the clip.

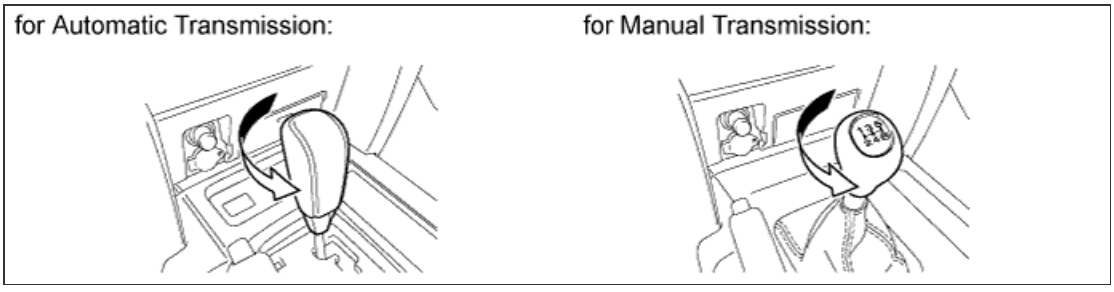
b. Remove the screw.

c. Detach the 7 claws and remove the panel.



6. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY

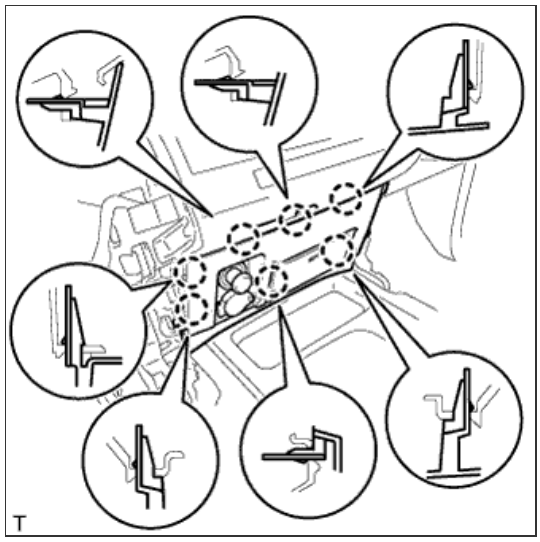
a. Twist the shift lever knob in the direction indicated by the arrow and remove it.



7. REMOVE LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

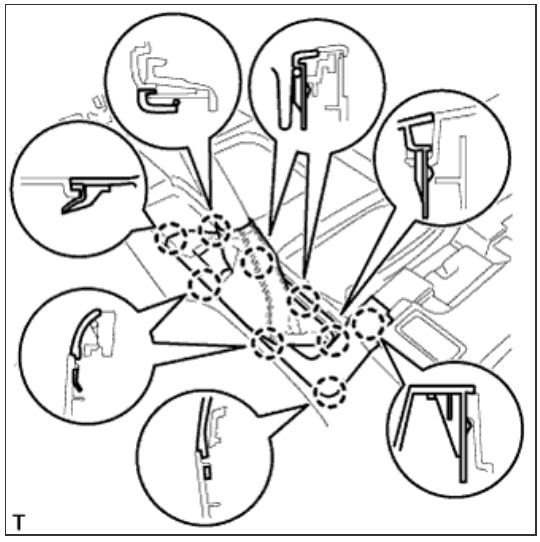
a. Detach the 7 claws.

b. Disconnect the connectors and remove the panel.



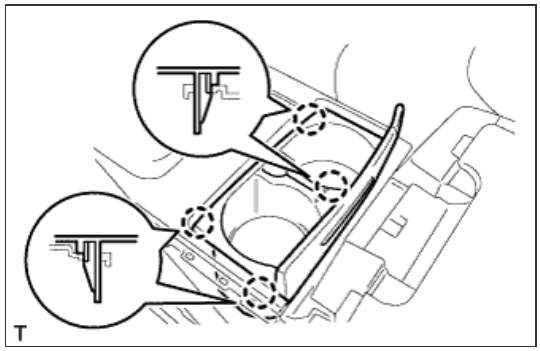
8. REMOVE REAR UPPER CONSOLE PANEL SUB-ASSEMBLY

a. Detach the 9 claws and remove the panel.



9. REMOVE CONSOLE CUP HOLDER BOX SUB-ASSEMBLY

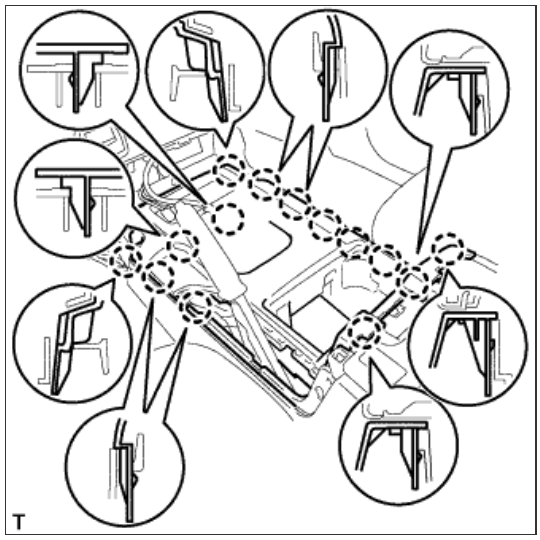
a. Detach the 4 claws and remove the box.



10. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY

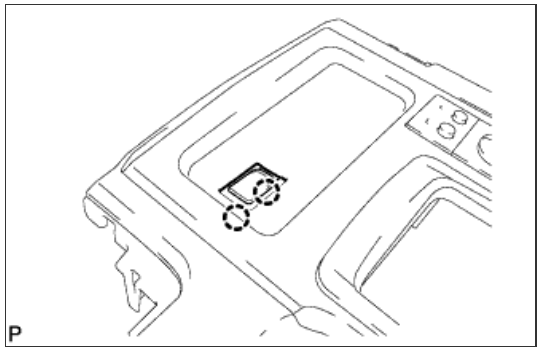
a. Detach the 14 claws.

b. Disconnect the connectors and remove the console panel.



11. REMOVE NO. 1 STEREO JACK ADAPTER ASSEMBLY

a. Detach the 2 claws and remove the stereo jack adapter.

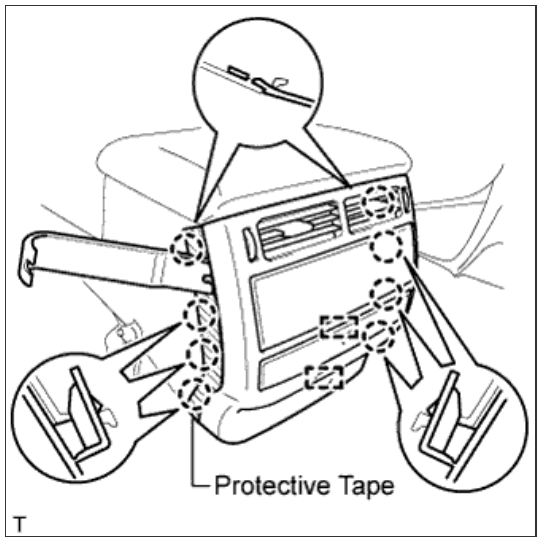


12. REMOVE REAR CONSOLE END PANEL SUB-ASSEMBLY

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 8 claws.

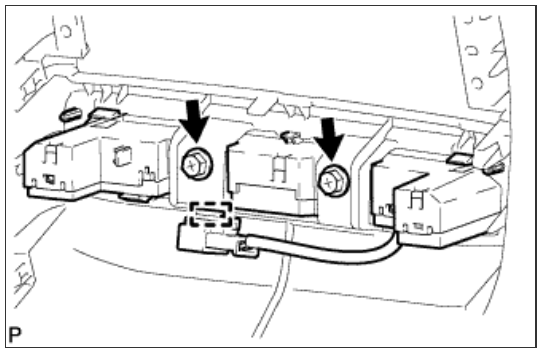
c. Remove the end panel and disconnect the connectors and 2 clamps.



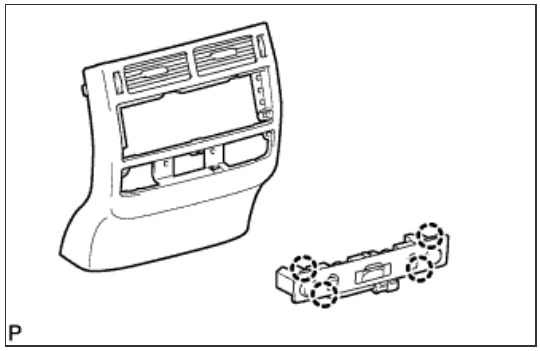
13. REMOVE HEADPHONE TERMINAL

a. Remove the 2 screws.

b. Detach the connector clamp.



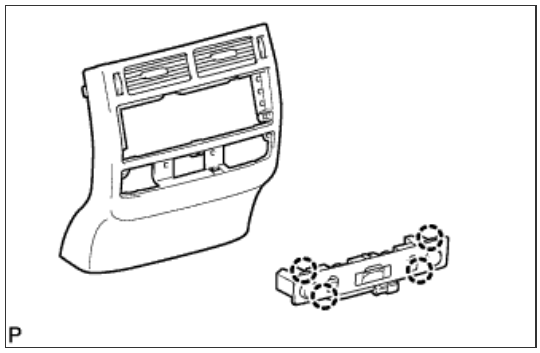
c. Detach the 4 claws and remove the terminal.



for Preparation Click here

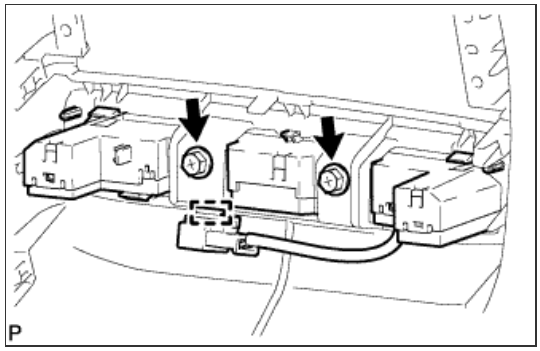
1. INSTALL HEADPHONE TERMINAL

a. Attach the 4 claws to install the headphone terminal.



b. Install the 2 screws.

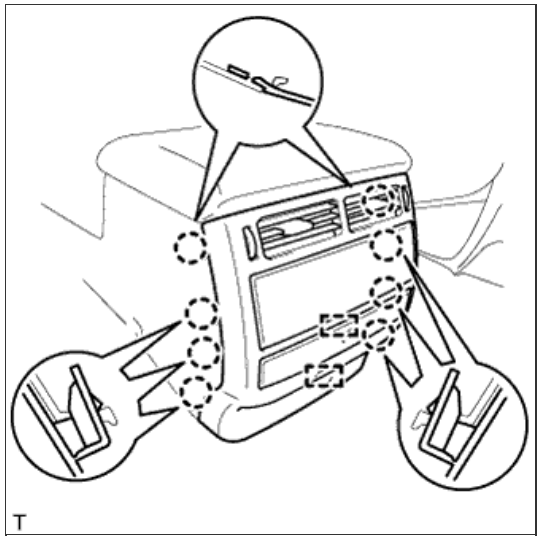
c. Attach the connector clamp.



2. INSTALL REAR CONSOLE END PANEL SUB-ASSEMBLY

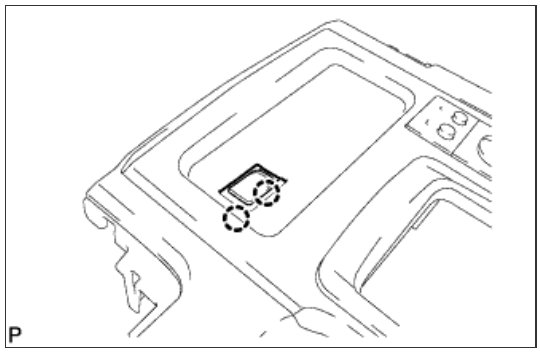
a. Connect the connectors and 2 clamps.

b. Attach the 8 claws to install the end panel.



3. INSTALL NO. 1 STEREO JACK ADAPTER ASSEMBLY

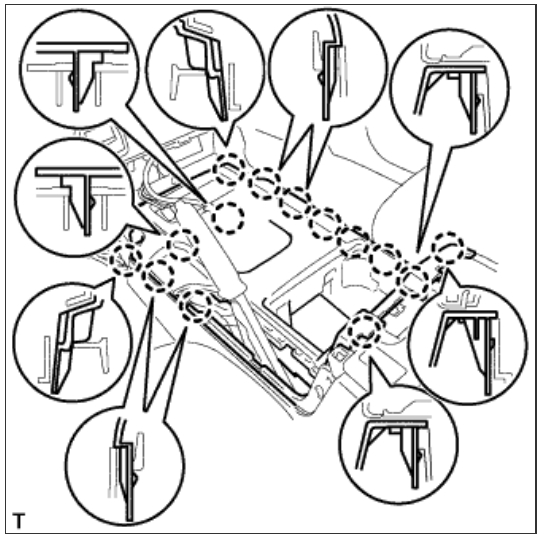
a. Attach the 2 claws to install the stereo jack adapter.



4. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY

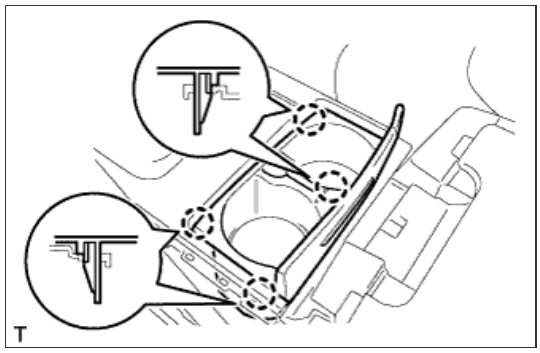
a. Connect the connectors.

b. Attach the 14 claws to install the console panel.



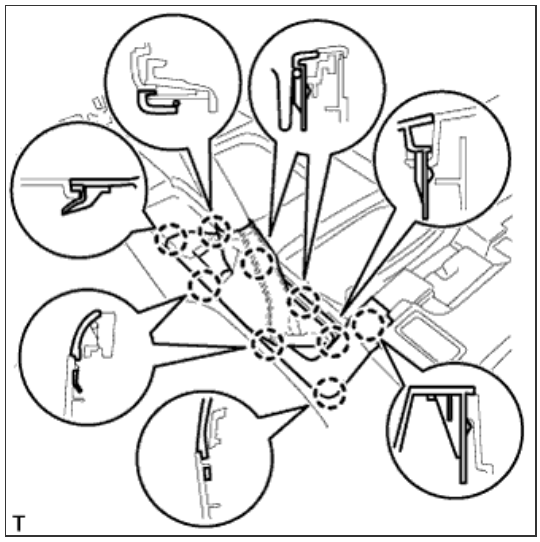
5. INSTALL CONSOLE CUP HOLDER BOX SUB-ASSEMBLY

a. Attach the 4 claws to install the box.



6. INSTALL REAR UPPER CONSOLE PANEL SUB-ASSEMBLY

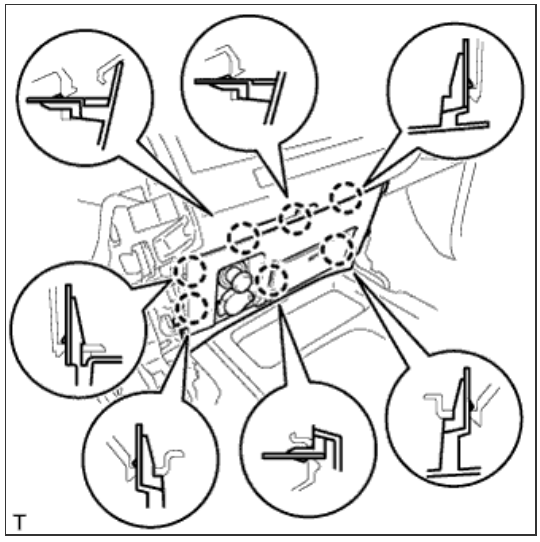
a. Attach the 9 claws to install the panel.



7. INSTALL LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

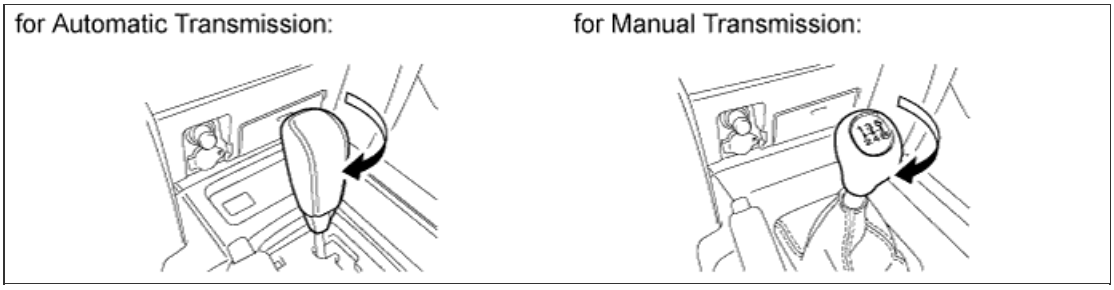
a. Connect the connectors.

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.

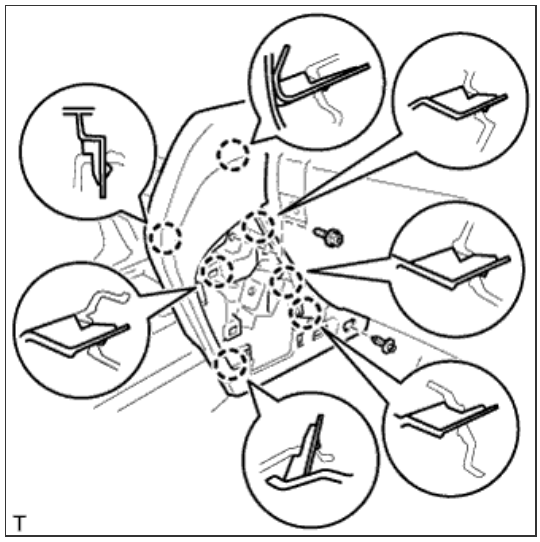


9. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

a. Attach the 7 claws to install the panel pad.

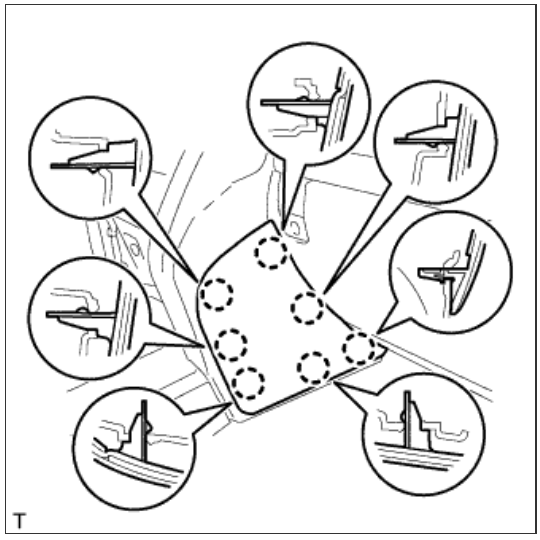
b. Install the screw.

c. Install the clip.



10. INSTALL NO. 1 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Attach the 7 claws to install the panel cushion.



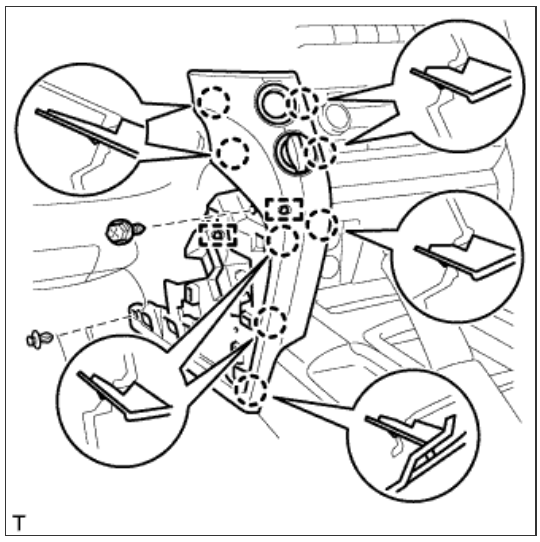
11. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connectors and 2 clamps.

b. Attach the 8 claws to install the panel pad.

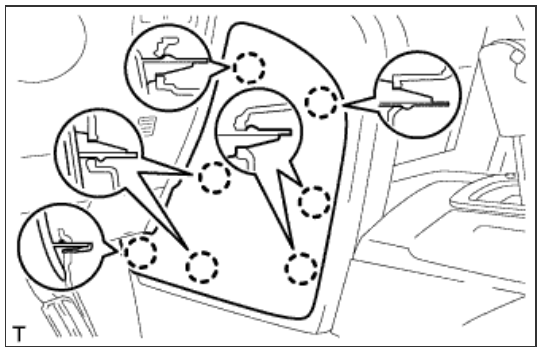
c. Install the screw.

d. Install the clip.



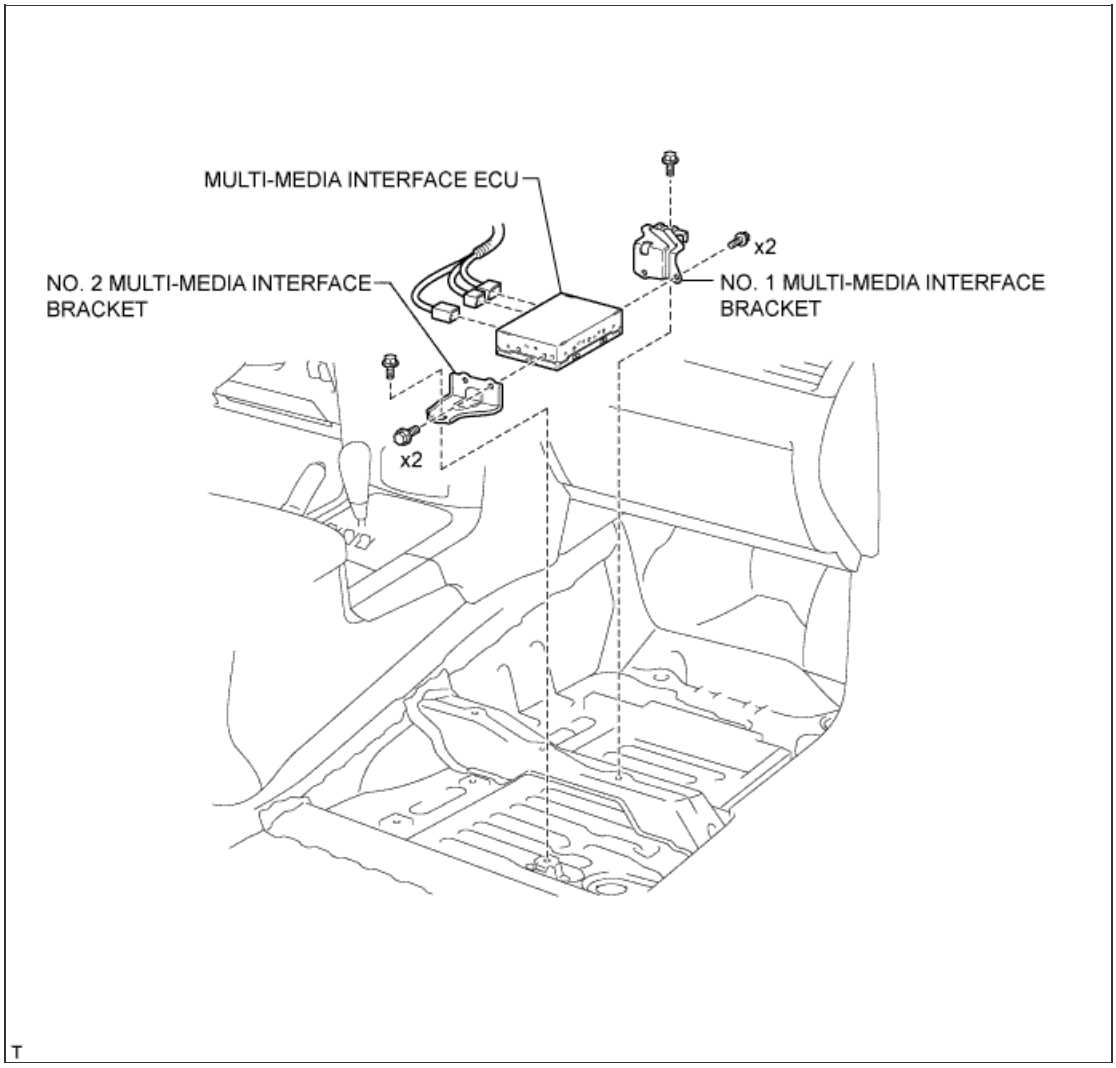
12. INSTALL NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Attach the 7 claws to install the panel cushion.



13. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

for Preparation Click here



for Preparation Click here

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

NOTICE:

- **w/ Navigation System:**
  After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal
- **When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).**

2. REMOVE FRONT SEAT ASSEMBLY RH (for Manual Seat)

a. Remove the front seat assembly R (Click here).

3. REMOVE FRONT SEAT ASSEMBLY RH (for Power Seat)

a. Remove the front seat assembly R (Click here).

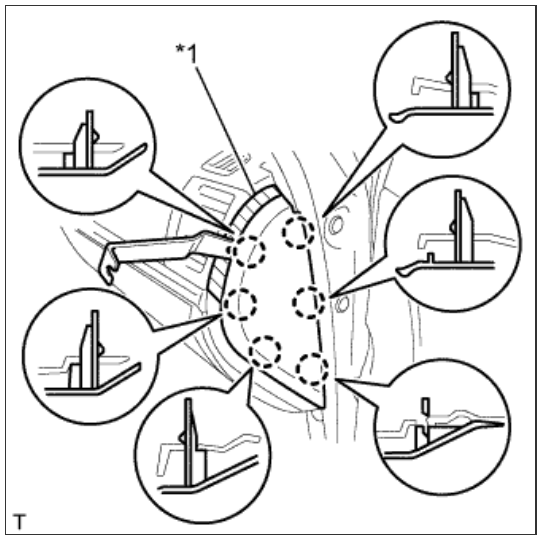
4. REMOVE INSTRUMENT SIDE PANEL RH (w/o Airbag Cut Off Switch)

a. Place protective tape as shown in the illustration.

Text in Illustration

	rotective Tape

b. Using a moulding remover, detach the 6 claws and remove the instrument side panel.



5. REMOVE INSTRUMENT SIDE PANEL RH (w/ Airbag Cut Off Switch)

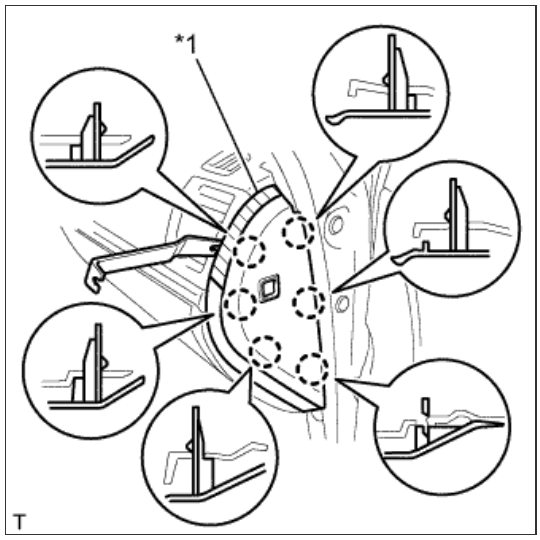
a. Place protective tape as shown in the illustration.

Text in Illustration

	rotective Tape

b. Using a moulding remover, detach the 6 claws.

c. Disconnect the connector and remove the instrument side panel.



6. REMOVE FRONT DOOR SCUFF PLATE RH

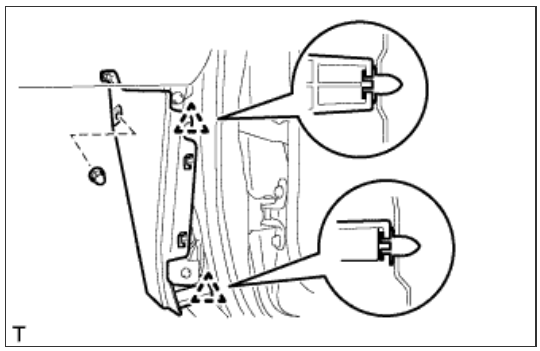
HINT:

Use the same procedures described for the L side.

7. REMOVE COWL SIDE TRIM BOARD RH

a. Remove the cap nut.

b. Detach the 2 clips and remove the cowl side trim board.



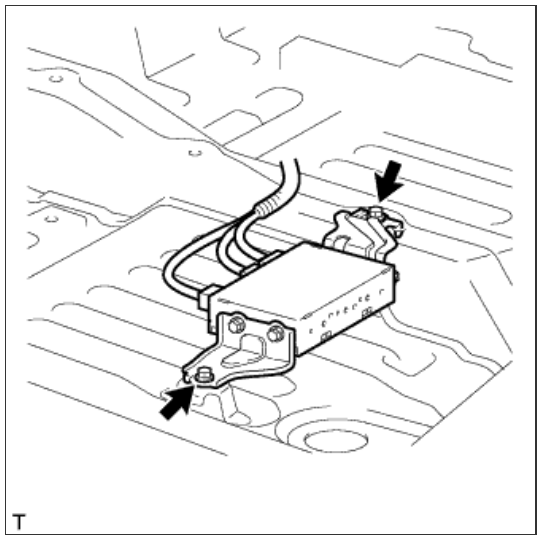
8. REMOVE FRONT FLOOR CARPET ASSEMBLY

a. Pull back the carpet far enough so that the selector can be removed. For further details, refer to the removal procedure (Click here).

9. REMOVE MULTI-MEDIA INTERFACE ECU

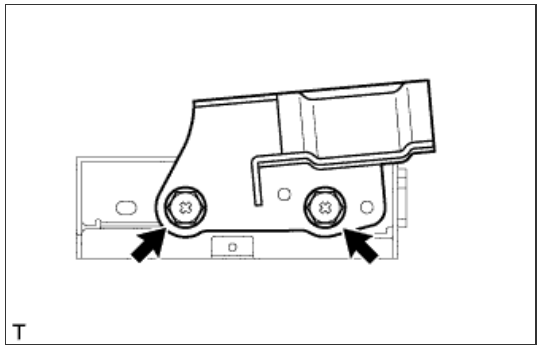
a. Disconnect the connectors.

b. Remove the 2 bolts and multi-media interface CU.



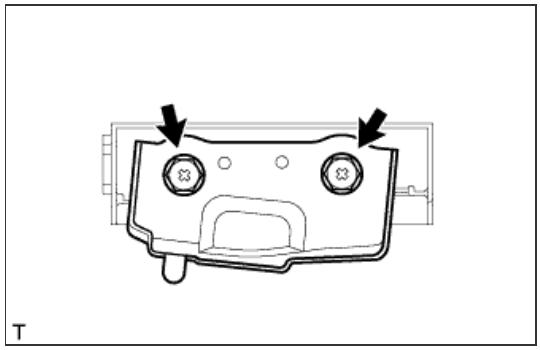
1 REMOVE NO. 1 MULTI-MEDIA INTERFACE BRACKET

a. Remove the 2 bolts and bracket.



11. 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

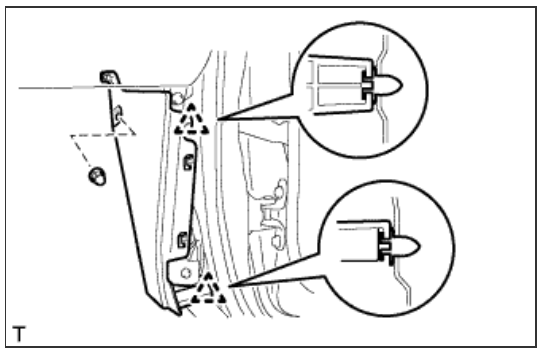
HINT:

Use the same procedures described for the LH side.

6. INSTALL COWL SIDE TRIM BOARD RH

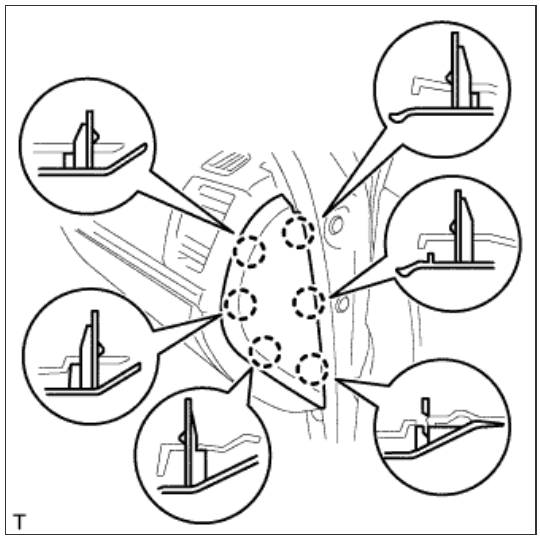
a. Attach the 2 clips to install the cowl side trim board.

b. Install the cap nut.



7. INSTALL INSTRUMENT SIDE PANEL RH (w/o Airbag Cut Off Switch)

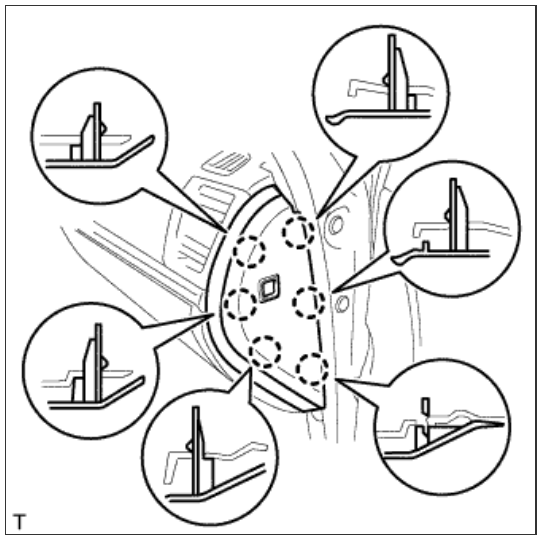
a. Attach the 6 claws to install the instrument side panel.



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

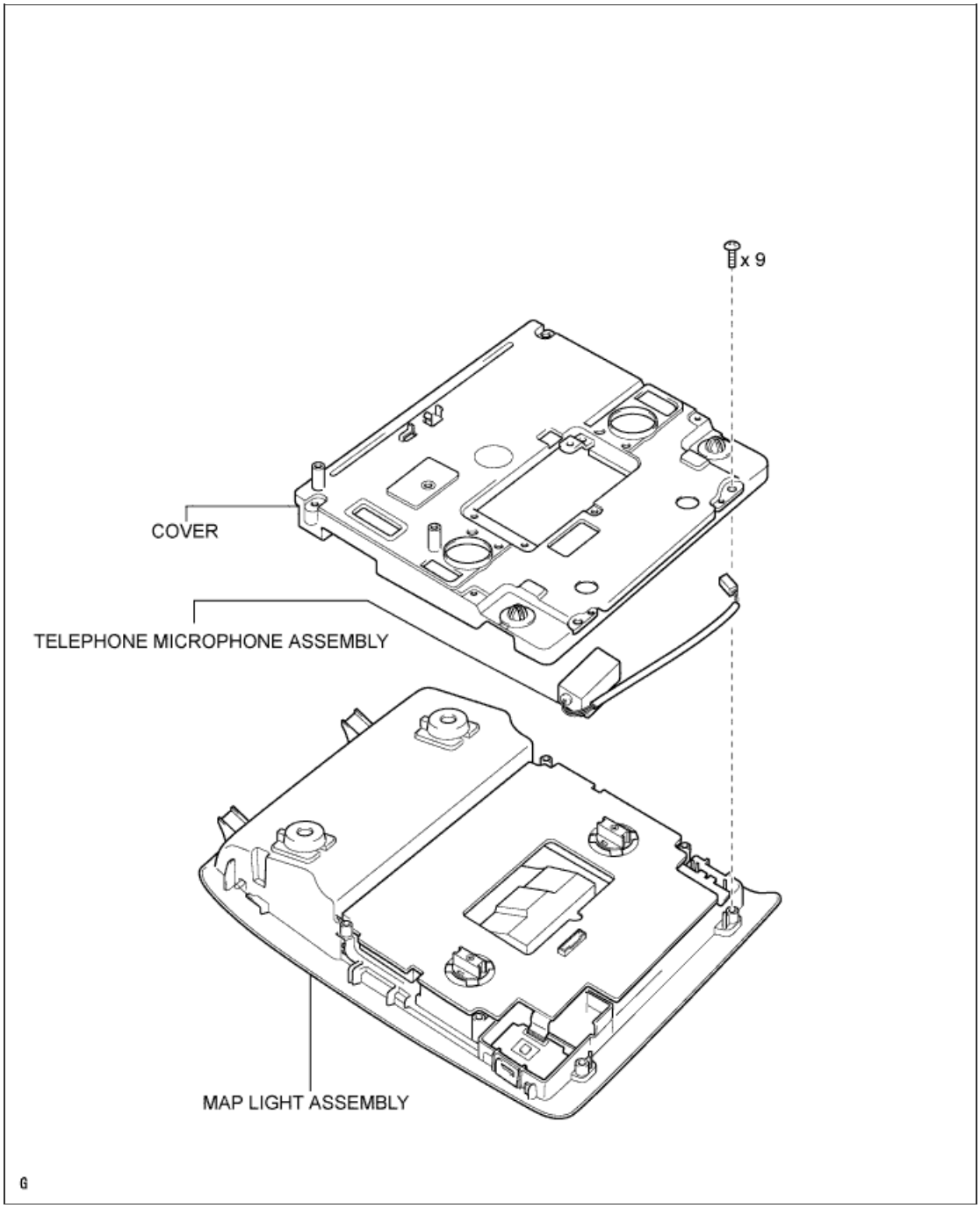
NOTICE:

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

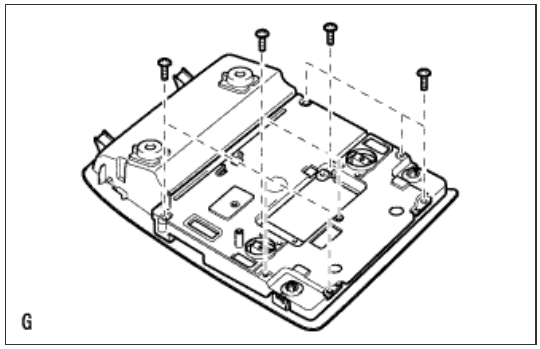
1. REMOVE MAP LIGHT ASSEMBLY

a. w/o Sliding Roof:
Remove the map light (Click here).

b. w/ Sliding Roof:
Remove the map light (Click here).

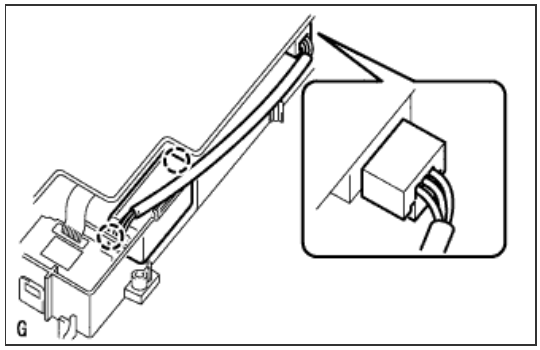
2. REMOVE TELEPHONE MICROPHONE ASSEMBLY

a. Remove the 9 screws and cover.



b. Disconnect the connector.

c. Detach the 2 claws and remove the microphone.

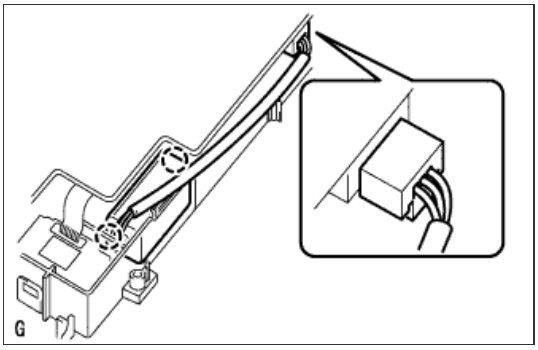


for Preparation Click here

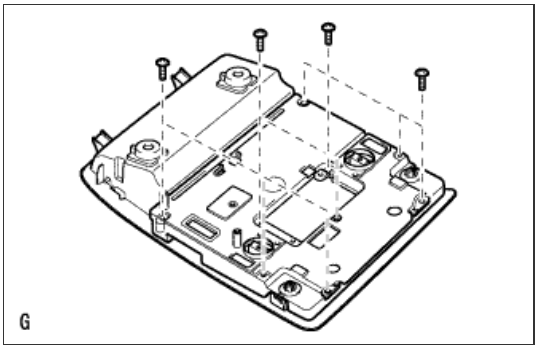
1. INSTALL TELEPHONE MICROPHONE ASSEM L

a. Attach the 2 claws to install the microphone.

. Connect the connector.



c. Install the cover with the 9 screws.



. INSTALL MAP LI HT ASSEM L

a. w/o Sliding Roof:
Install the map light (Click here).

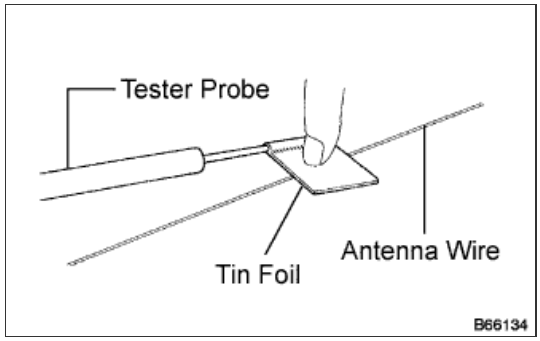
. w/ Sliding Roof:
Install the map light (Click here).

for Preparation Click here

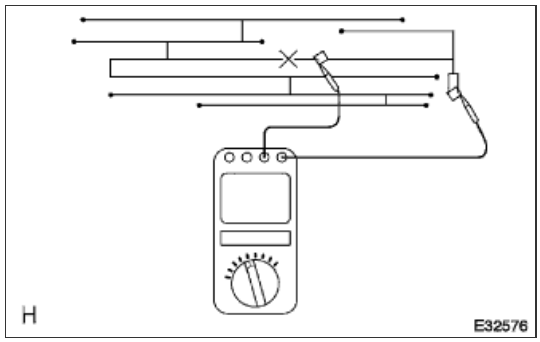
1. INSPECT WINDOW GLASS ANTENNA WIRE

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.

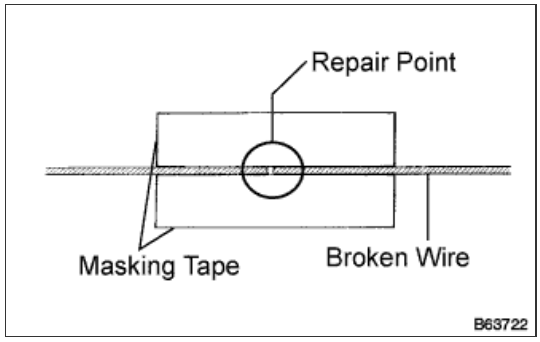


2. REPAIR WINDOW GLASS ANTENNA WIRE

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).

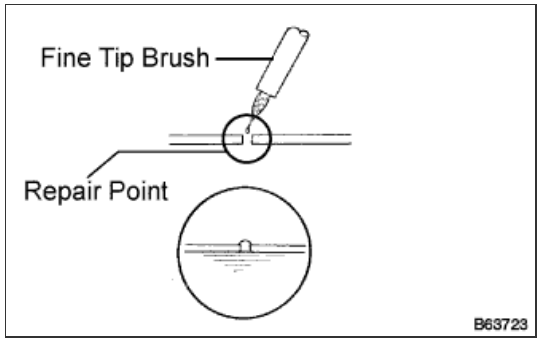


d. Using a fine tip brush, apply a small amount of the repair agent to the wire.

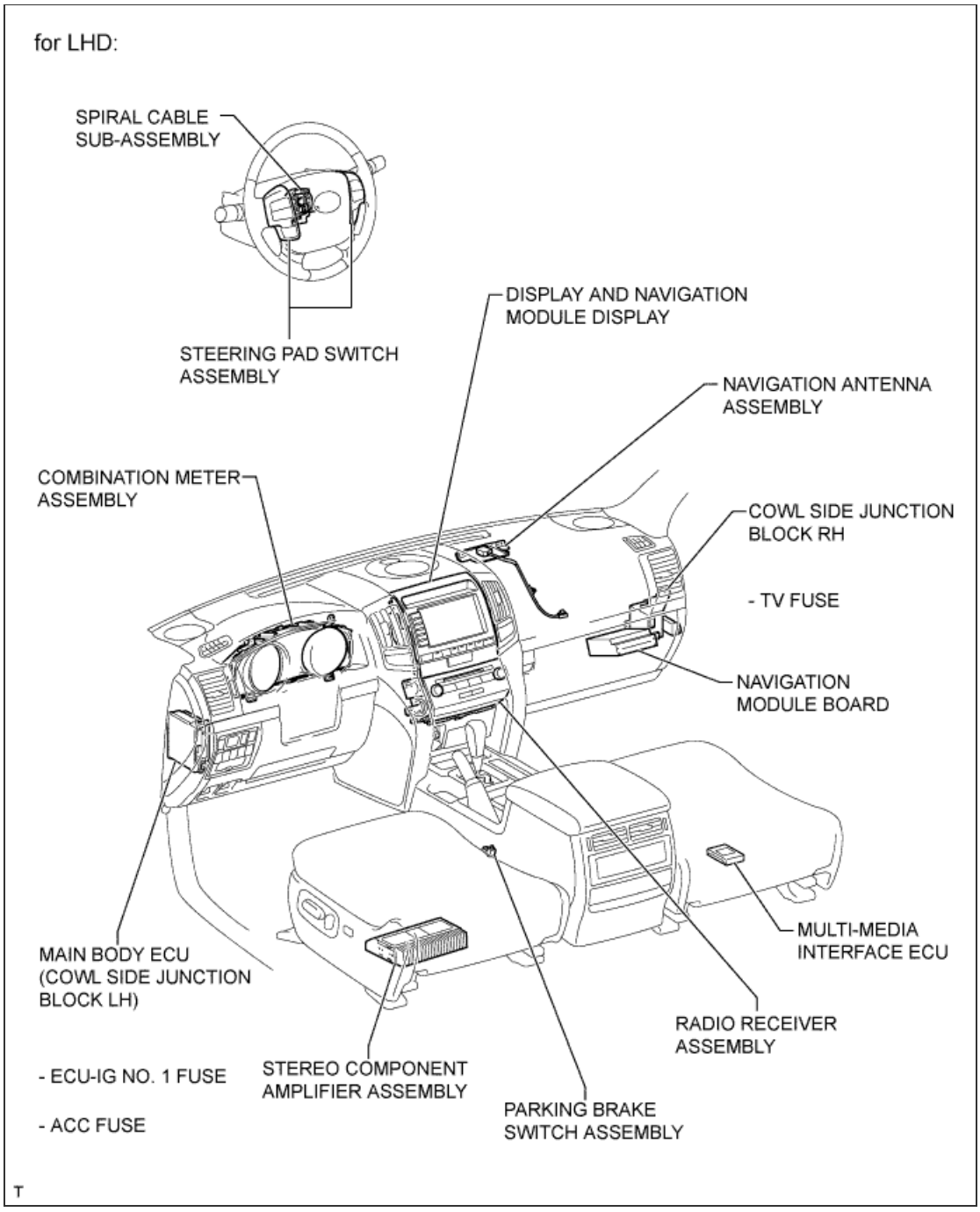
e. After a few minutes, remove the masking tape.

NOTICE:

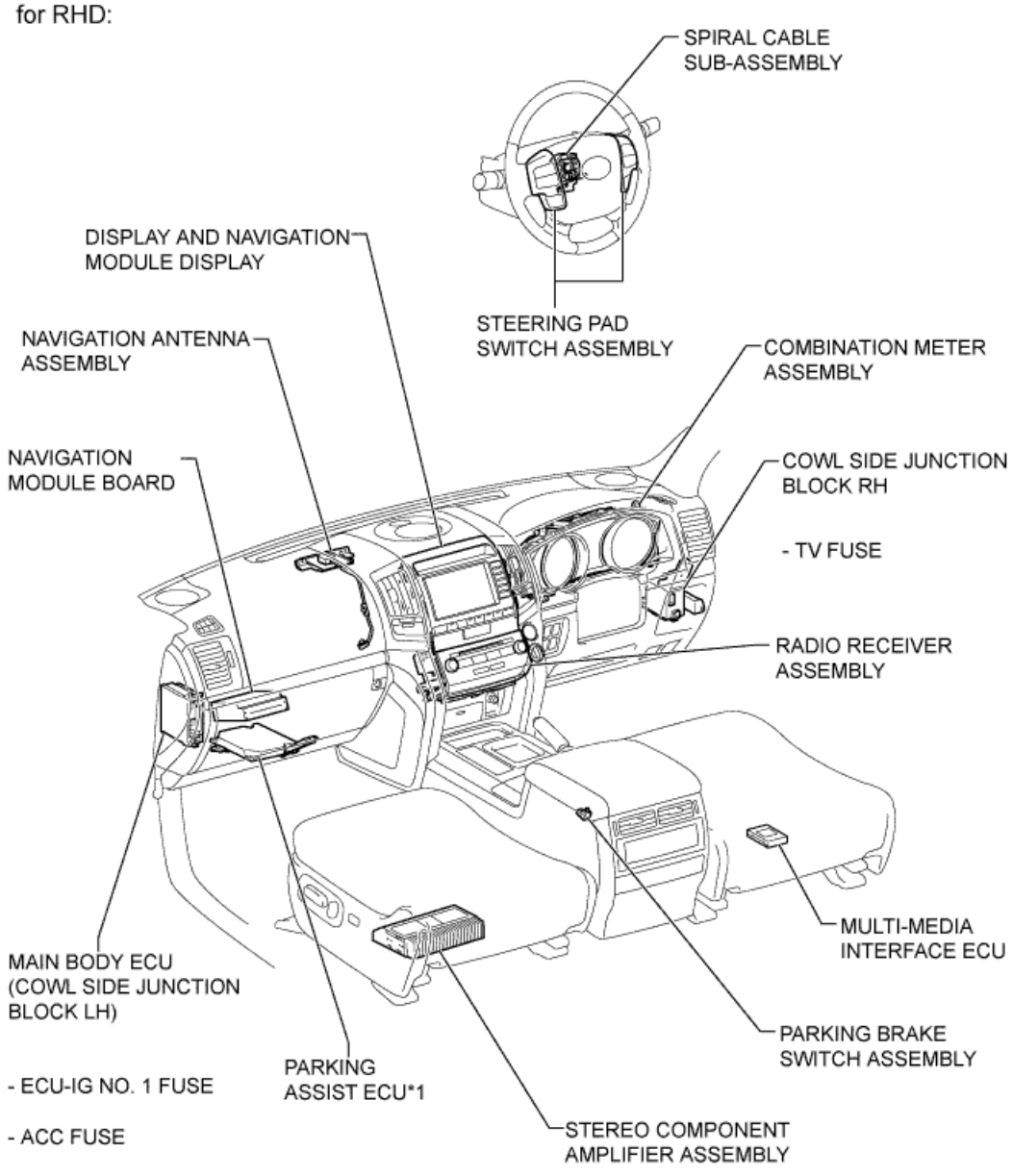
Do not allow electricity to flow in the antenna wire for at least 24 hours.



for Preparation Click here

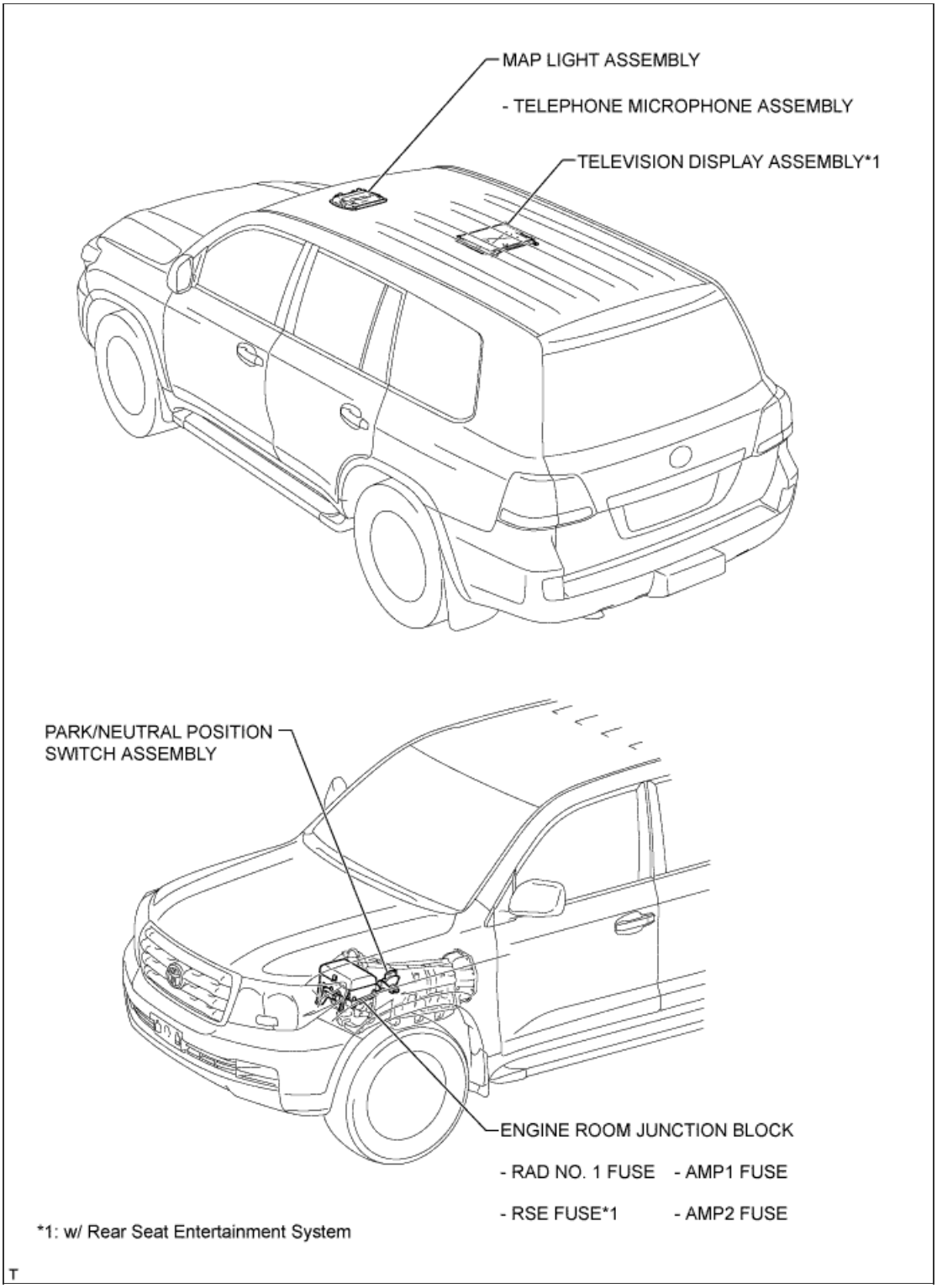


for RHD:



*1: Parking Assist Monitor System

T

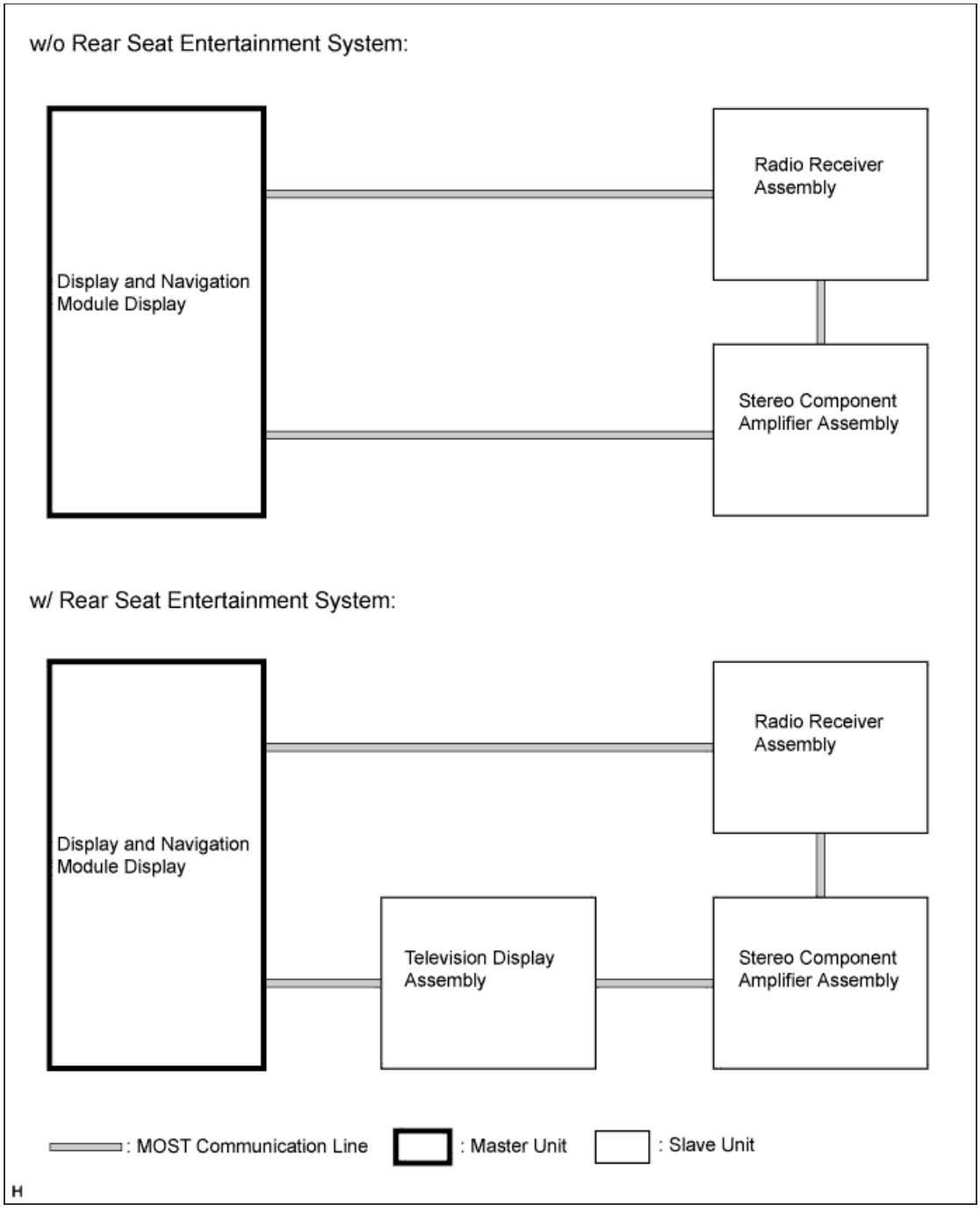


*1: w/ Rear Seat Entertainment System

T

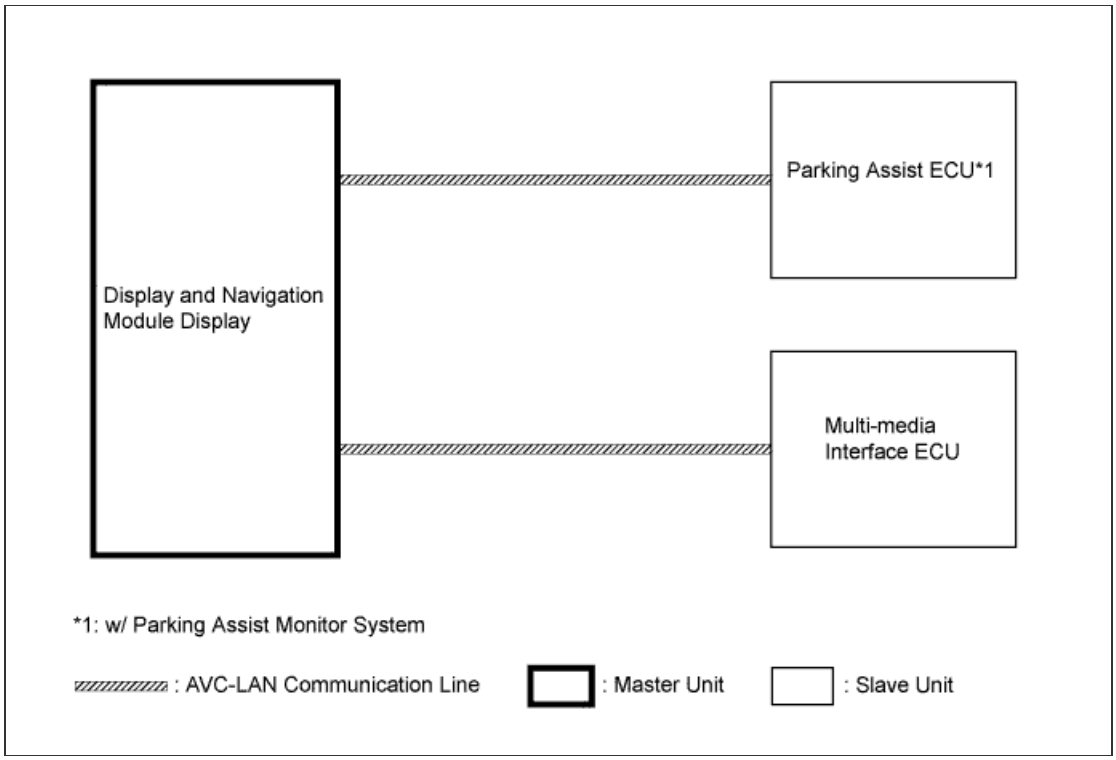
for Preparation Click ee

MOST Co cation ine

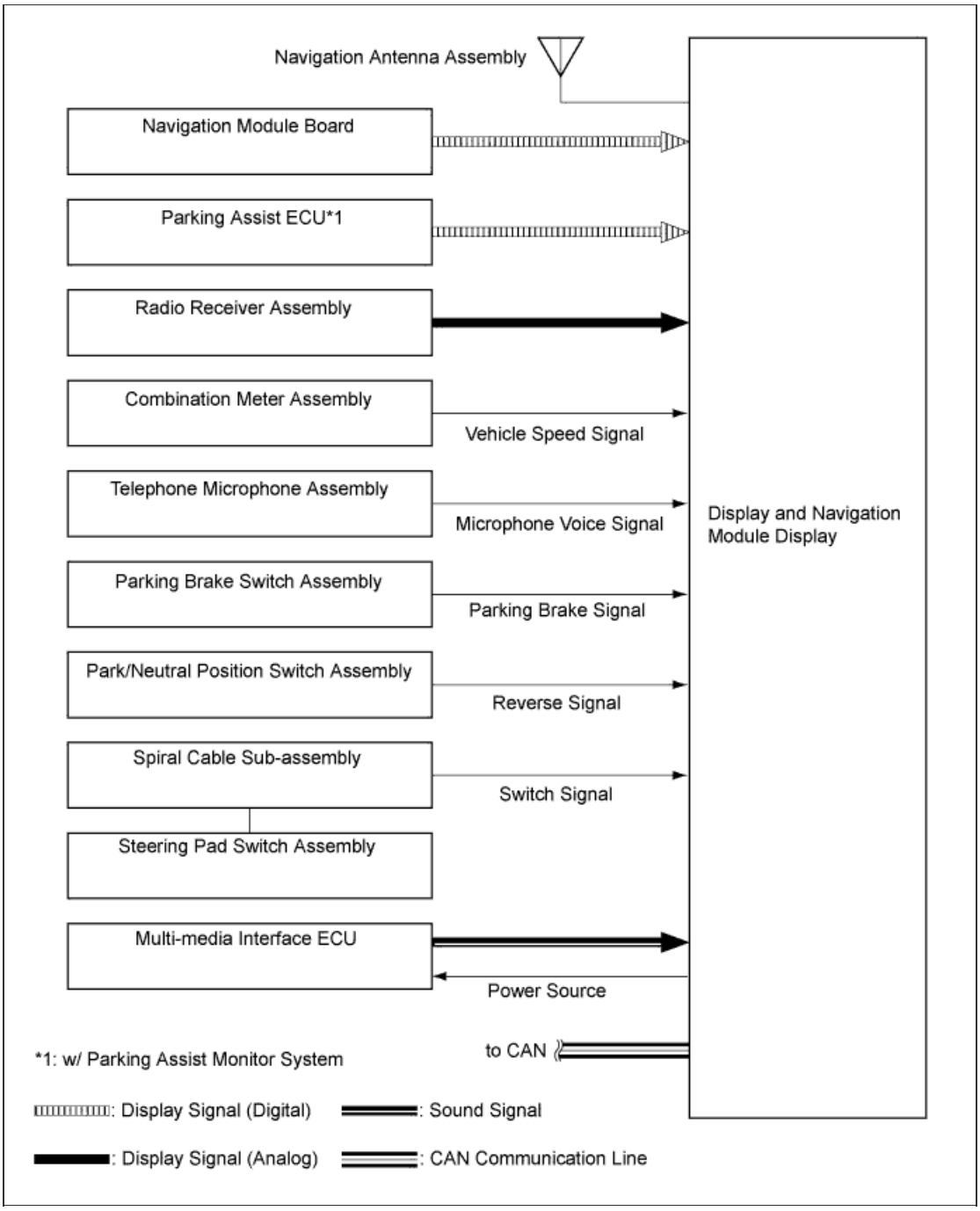


H

AVC AN Co cation ine


Display and Navigation Module Display
Parking Assist ECU*1
Multi-media Interface ECU
*1: w/ Parking Assist Monitor System
: AVC-LAN Communication Line
: Master Unit
: Slave Unit

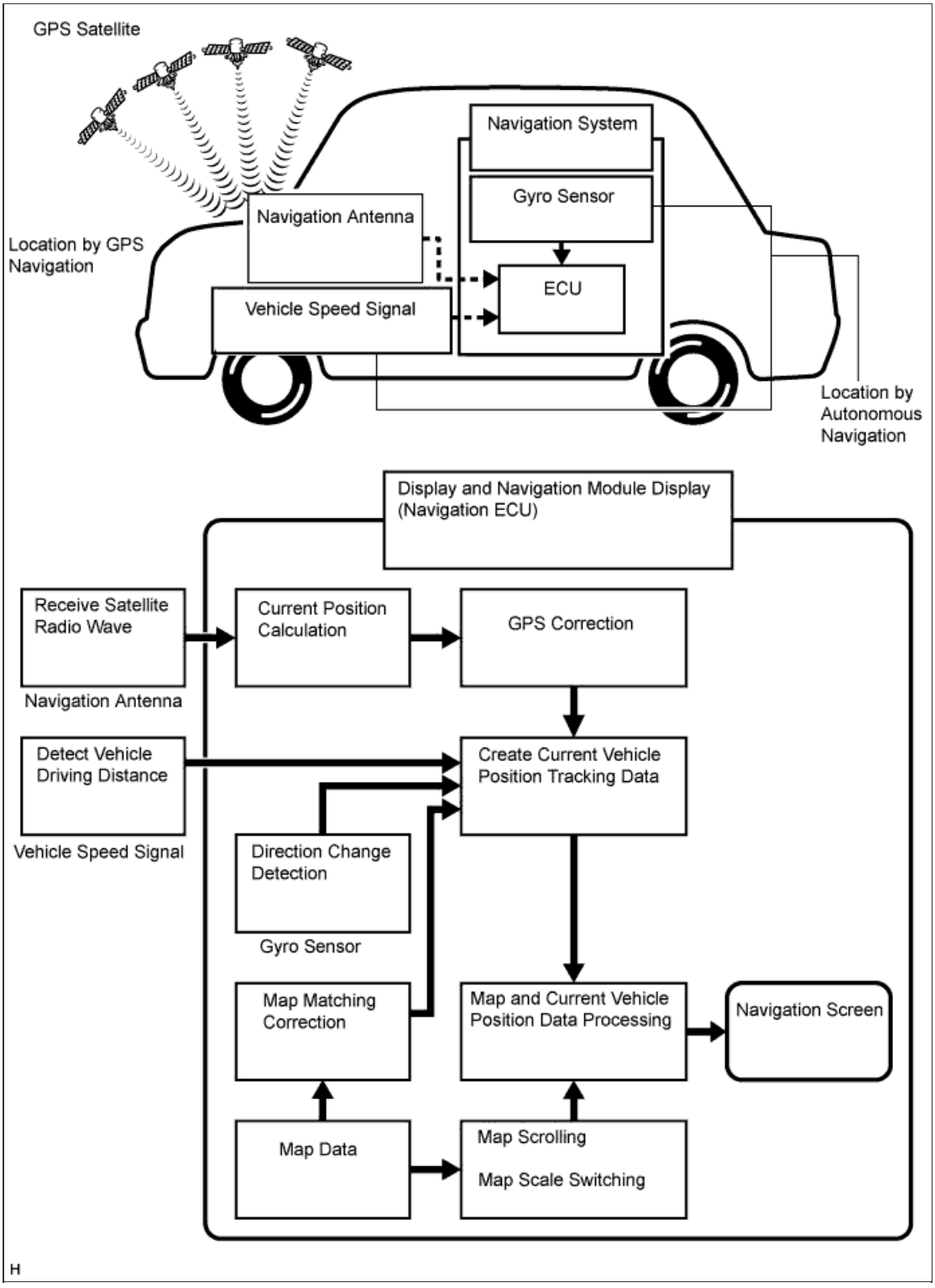
Ot e


Navigation Antenna Assembly
Navigation Module Board
Parking Assist ECU*1
Radio Receiver Assembly
Combination Meter Assembly
Vehicle Speed Signal
Telephone Microphone Assembly
Microphone Voice Signal
Parking Brake Switch Assembly
Parking Brake Signal
Park/Neutral Position Switch Assembly
Reverse Signal
Spiral Cable Sub-assembly
Switch Signal
Steering Pad Switch Assembly
Multi-media Interface ECU
Power Source
to CAN
Display and Navigation Module Display
*1: w/ Parking Assist Monitor System
: Display Signal (Digital)
: Sound Signal
: Display Signal (Analog)
: CAN Communication Line

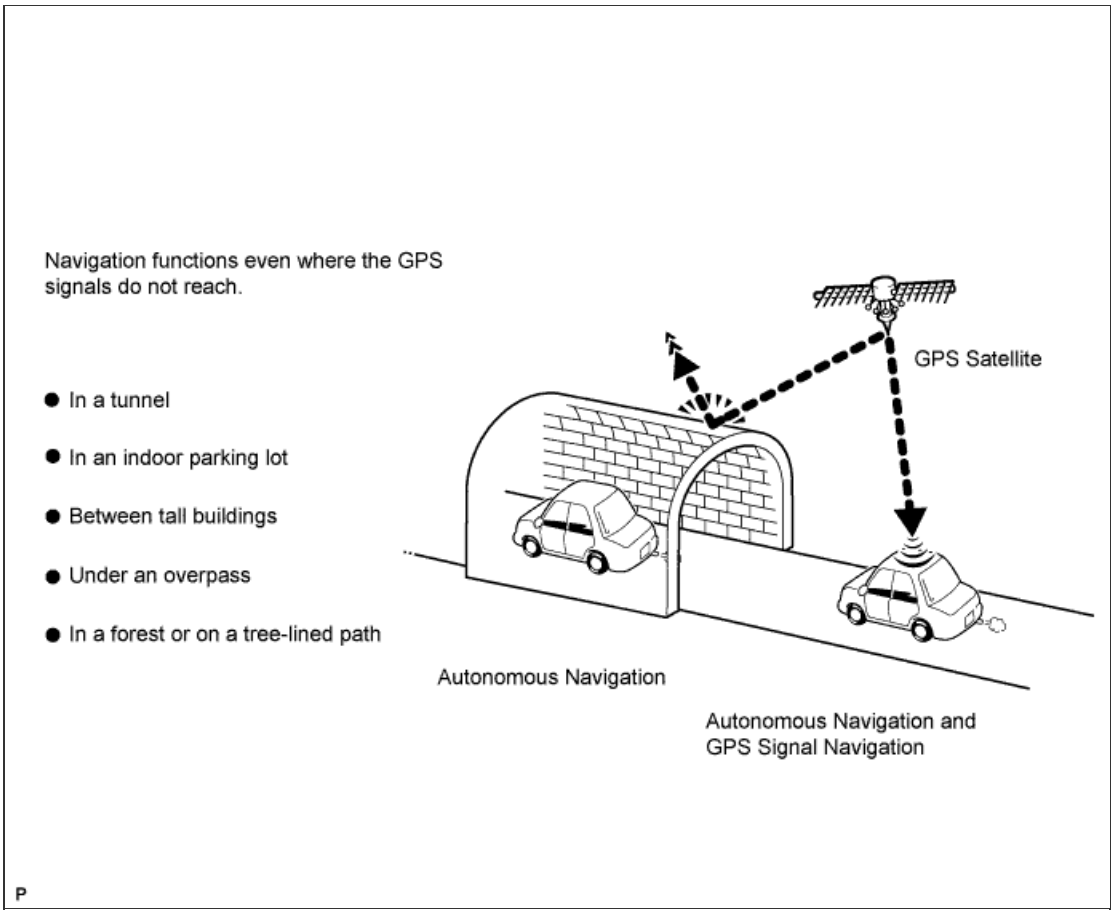
for Preparation Click here

NAVIGATION SYSTEM OUTLINE

a. Vehicle position tracking methods
It is essential that the navigation system correctly tracks the current vehicle position and displays it on the map. There are 2 methods to track the current vehicle position; autonomous (dead reckoning) and GPS* (satellite) navigation. Both navigation methods are used in conjunction with each other.
*GPS (Global Positioning System)



Operation	Description
Vehicle Position Calculation	The display and navigation module display calculates the current vehicle position (direction and current position) using the direction deviation signal from the gyro sensor and the running distance signal from the vehicle speed sensor and creates the driving route.
Map Display Processing	The display and navigation module display displays the vehicle track on the map by processing the vehicle position data, vehicle running track and map data from the map disc.
Map Matching	The map data from the map disc is compared to the vehicle position and running track data. Then, the vehicle position is matched with the nearest road.
GPS Correction	The vehicle position is matched to the position measured by GPS. Then, the GPS measurement position data is compared with the vehicle position and running track data. If the position is widely different, the GPS measurement position is used.
Distance Correction	The vehicle speed signal includes the error caused by tire wear and slippage between the tires and road surface. Distance correction is performed to account for this. The display and navigation module display automatically offsets the signal to make up for the difference between it and the distance data of the map. The offset is automatically updated.



HINT:

The combination of autonomous and GPS navigation makes it possible to display the vehicle position even when the vehicle is in places where the GPS cannot receive a signal. When only autonomous navigation is used, however, the mapping accuracy may slightly decrease.

b. Autonomous navigation

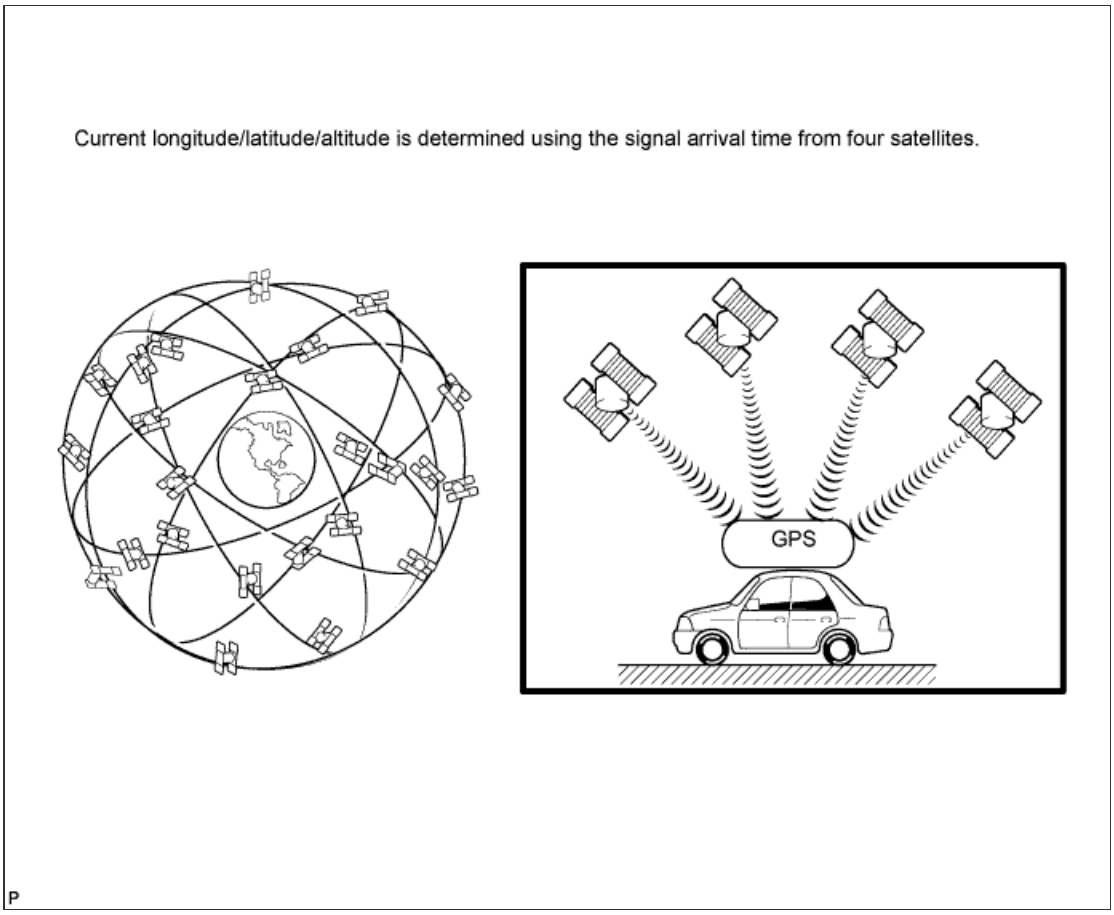
This method determines the relative vehicle position based on the running track determined by the gyro located in the display and navigation module display and the vehicle speed sensor's signal.

i. Gyro sensor
Used to calculate the direction by detecting angular velocity. It is located in the display and navigation module display.

ii. Vehicle speed sensor signal
Used to calculate the vehicle running distance.

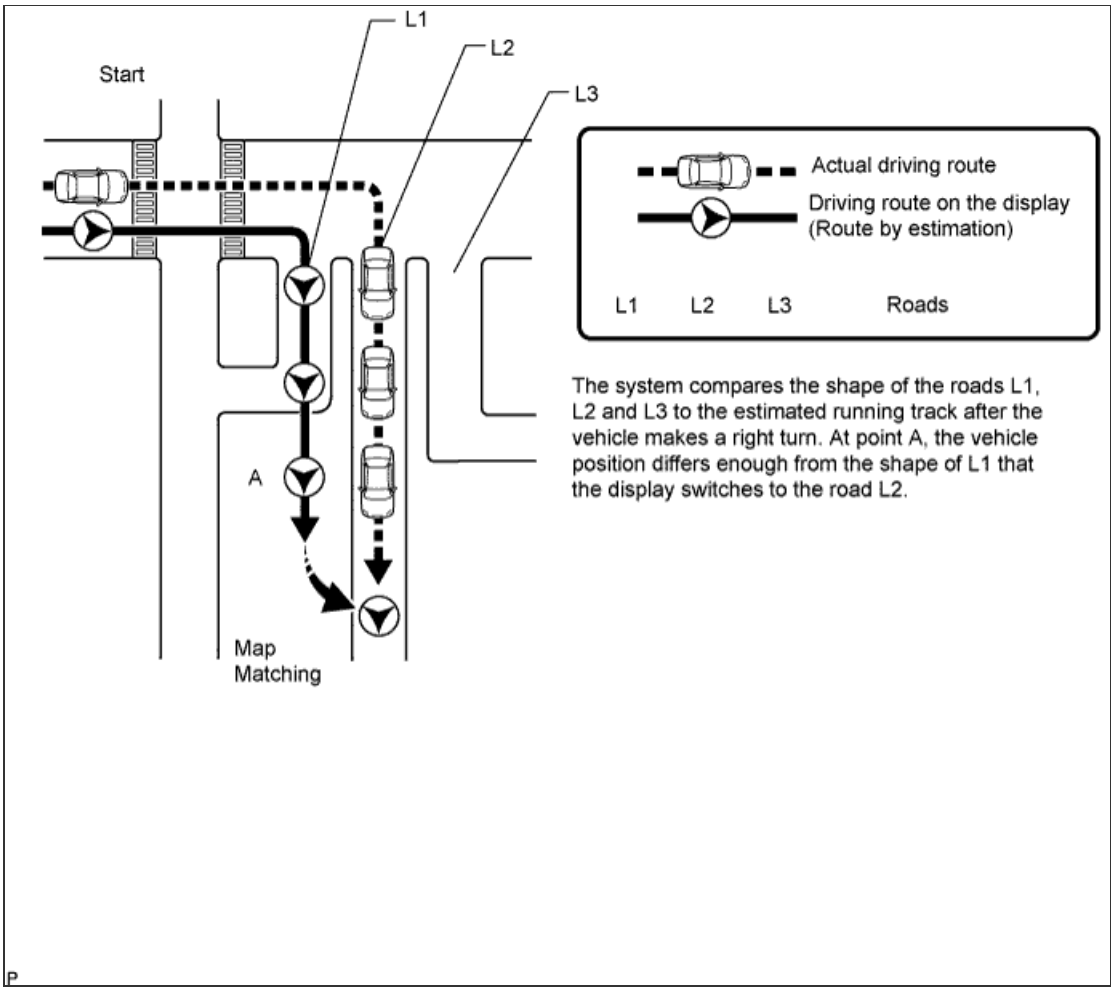
c. GPS* navigation (Satellite navigation)

This method detects the absolute vehicle position using radio waves from GPS satellites.
*GPS satellites were launched by the U.S. Department of Defense for military purposes.

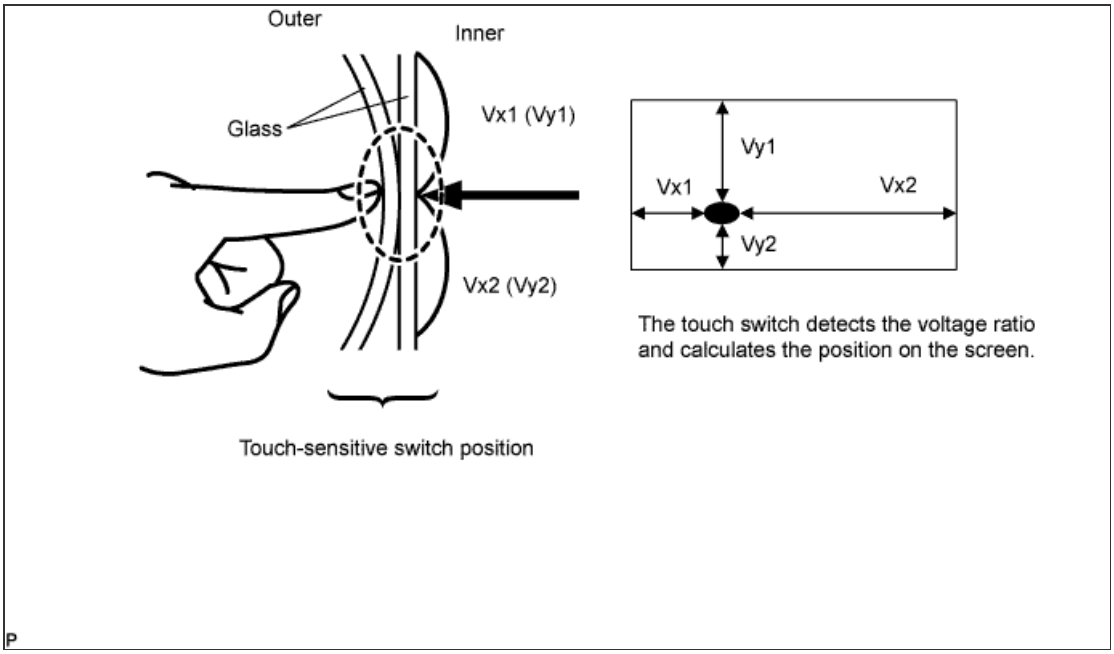


Number of Satellites	Measurement	Description
2 or less	Measurement impossible	Vehicle position cannot be obtained because the number of satellites is not enough.
3	2-dimensional measurement is possible	Vehicle position is obtained based on the current longitude and latitude. (This is less precise than 3-dimensional measurement.)
4	3-dimensional measurement is possible	Vehicle position is obtained based on the current longitude, latitude and altitude.

d. Map matching
The current driving route is calculated by autonomous navigation (according to the gyro sensor and vehicle speed sensor) and GPS navigation. This information is then compared with possible road shapes from the map data in the map disc and the vehicle position is set onto the most appropriate road.



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



DVD (Digital Versatile Disc) PLAYER OUTLINE (Navigation Map)

a. The navigation module board uses a laser pickup to read the digital signals recorded on a DVD.

CAUTION:

Because the navigation system uses an invisible laser beam, do not look directly at the laser pickup. Be sure to only operate the navigation system as instructed.

NOTICE:

- **Do not disassemble any part of the navigation module board.**
- **Do not apply oil to the navigation module board.**
- **Do not insert anything but a DVD into the navigation module board.**

DVD (Digital Versatile Disc) PLAYER OUTLINE (DVD Changer)

a. The DVD player can only play DVD videos, DVD audio and video CDs that have any of the following marks:



i. Precaution for use of discs

NOTICE:

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

b. Cleaning

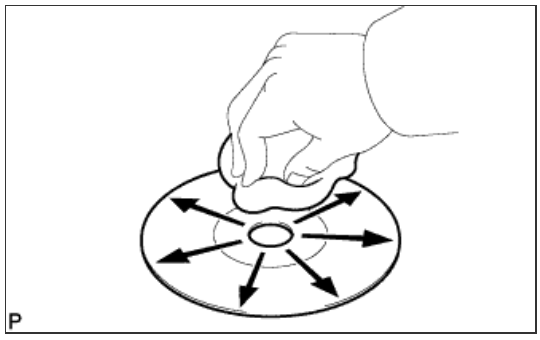
NOTICE:

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

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

NOTICE:

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



CD (Compact Disc) PLAYER OUTLINE

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

CAUTION:

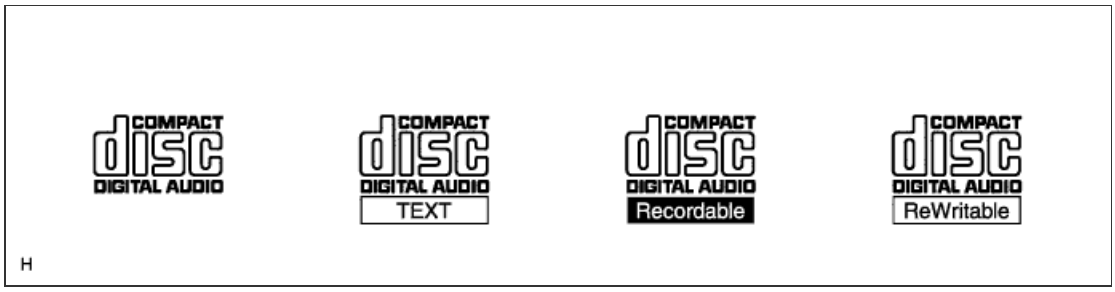
Do not look directly at the laser pickup because the CD player uses an invisible laser beam. Be sure to operate the player only as instructed.

NOTICE:

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

b. Usable discs

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



H

c. Precautions for use of discs

NOTICE:

- **Copy-protected CDs cannot be played.**
- **CD-Rs and CD-RWs may not be played depending on the recording conditions or characteristics of the discs, or due to damage, dirt or deterioration caused by leaving the discs in the cabin for a long time.**
- **Unfinalized CD-Rs and CD-RWs cannot be played.**
- **DualDiscs that combine DVD recorded material on one side with CD digital audio material on the other cannot be played.**
- **Keep the discs away from dirt. Be careful not to damage the discs or leave your fingerprints on them.**
- **Hold discs by the outer edge and center hole with the label side up.**
- **Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.**
- **If discs have adhesive tape, stickers, CD labels or any traces of such attached, the discs may not be ejected or player malfunctions may result.**
- **Keep the discs away from direct sunlight. (Exposure to direct sunlight may cause deformation of the disc, making the disc unusable.)**
- **Do not use odd-shaped CDs because these may cause player malfunctions.**
- **Do not use discs whose recording portion is transparent or translucent because they may not be inserted, ejected or played normally.**

HINT:

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

d. Cleaning

NOTICE:

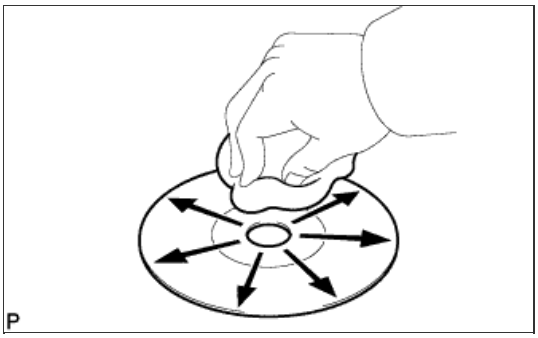
Do not use a lens cleaner because it may cause a malfunction in the pickup portion of the player.

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

a radial direction.

NOTICE:

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



MP3/WMA OUTLINE

a. Playable MP3 file standards

Compatible standard	MP3 (MPEG1 LAYER 3, MPEG2 LSF LAYER 3)
Compatible sampling frequency	• MPEG1 LAYER 3: 32, 44.1, 48 (kHz) • MPEG2 LSF LAYER 3: 16, 22.05, 24 (kHz)
Compatible bit rate	• MPEG1 LAYER 3: 64, 80, 96, 112, 128, 160, 192, 224, 256, 320 (kbps) • MPEG2 LSF LAYER 3: 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 (Only compatible with 2-channel playback)	• Ver. 7, 8: CBR48, 64, 80, 96, 128, 160, 192 (kbps) • Ver. 9: CBR48, 64, 80, 96, 128, 160, 192, 256, 320 (kbps)

c. ID3 tag and WMA tag

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

HINT:

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

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

d. Usable media

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

NOTICE:

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

e. Usable media format

i. Usable media format

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

HINT:

- **As for MP3/WMA files written in any unlisted format, the contents of the files may not be played normally or the file names or folder names may not be displayed correctly.**
- **This player is compatible with multi-session discs and can play CD-Rs and CD-RWs on which MP3/WMA files**

are added. However, only the first session can be played.

- **Discs whose first session includes both music data and MP3 or WMA format data cannot be played.**

ii. Standard and restrictions

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

f. File names

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

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

NOTICE:

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

"Bluetooth" OUTLINE

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

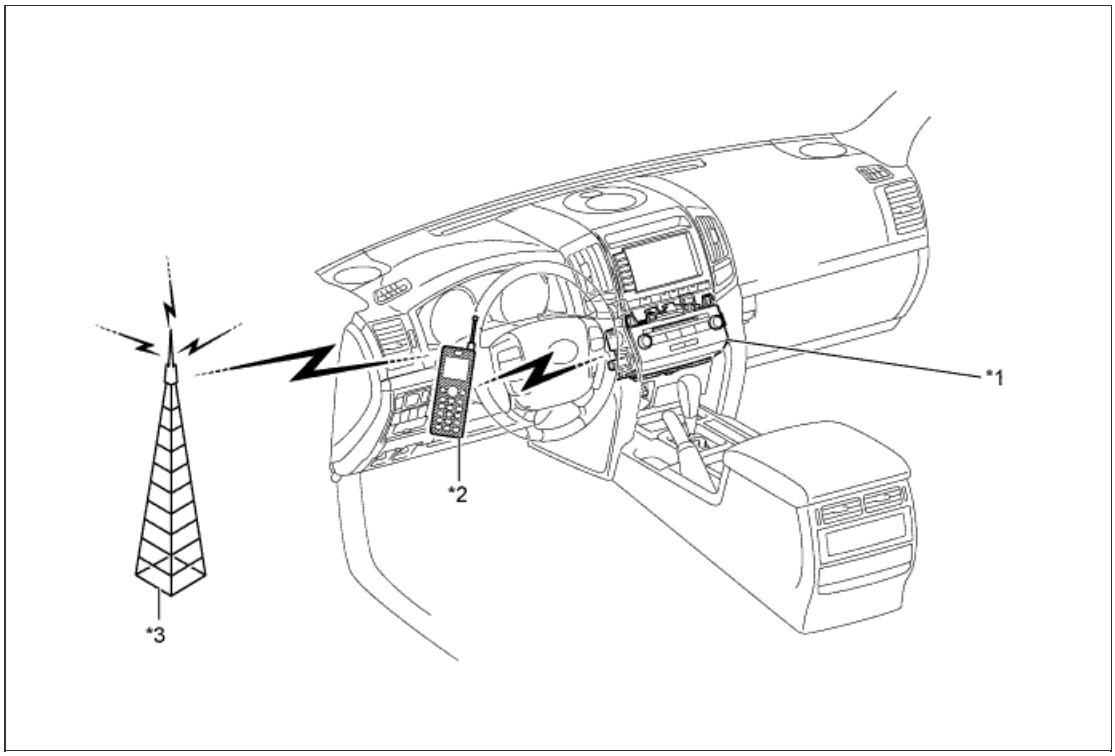
b. "Bluetooth" is a new wireless connection technology that uses the 2.4 GHz frequency band.

HINT:

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

c. Hands-free function

i. The "Bluetooth" built-in radio receiver and a "Bluetooth" compatible cellular phone*1 can be connected using a "Bluetooth" wireless connection. This enables use of the hands-free function on the cellular phone even though the phone may be in a pocket or bag. For this reason, it is not necessary to use a connector or cable to connect the cellular phone.
*1: Some versions of "Bluetooth" compatible cellular phones may not function.



Text in Illustration

*1	Radio Receiver Assembly (Built-in "Bluetooth" Receiver Antenna)	*2	Cellular Phone ("Bluetooth" Type)
*3	Cellular Tower	-	-

VEHICLE CUSTOMIZATION OUTLINE

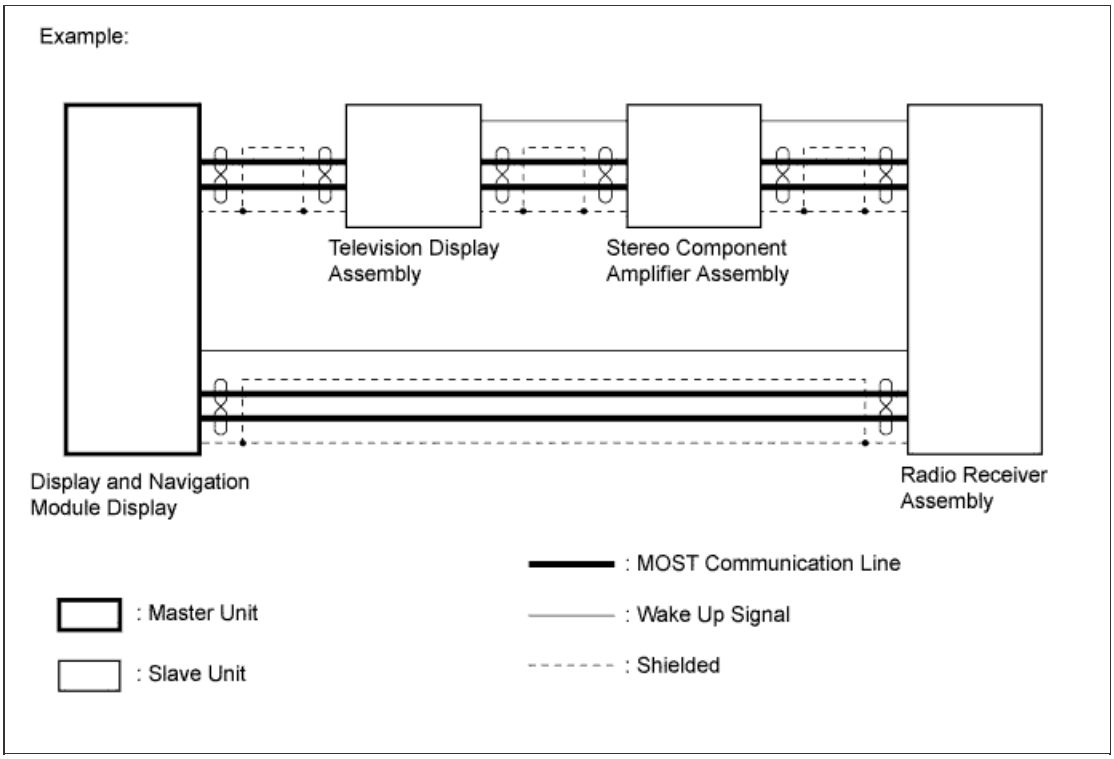
a. Customization of functions can be performed on the multi display screen. Refer to the owner's manual for further information on customizable items for the navigation system.

HINT:

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

COMMUNICATION SYSTEM

a. MOST Network Outline



i. Navigation system components communicate with each other via the MOST network.

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

iii. The master unit of the MOST network is the display and navigation module display (navigation ECU).

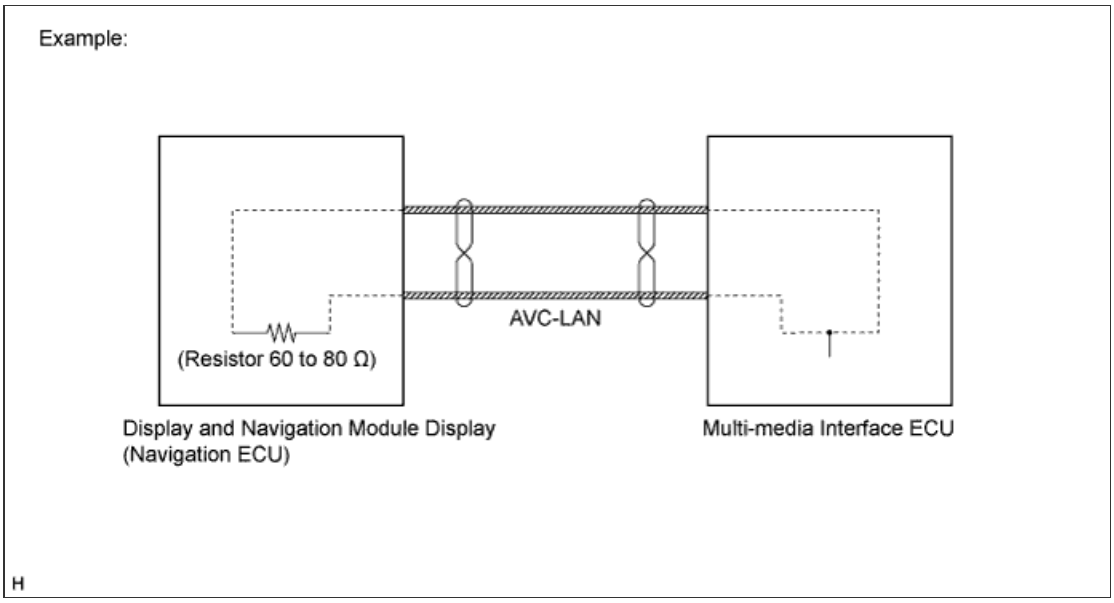
iv. MOST communication lines connect each slave unit centering around the master unit to form a MOST network ring.

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

HINT:

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

b. AVC-LAN Outline



i. Components of the navigation system communicate with each other via the AVC-LAN.

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

iii. The master unit of the AVC-LAN is the display and navigation module display (navigation ECU).

HINT:

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

DIAGNOSTIC FUNCTION OUTLINE

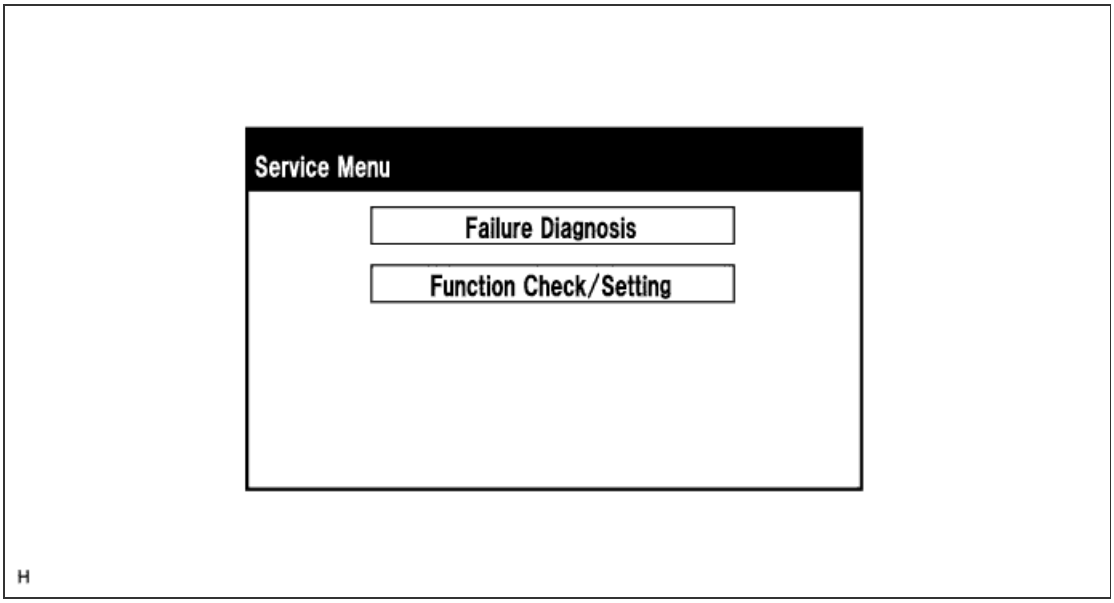
a. The navigation system has a diagnostic function (the result will be displayed on the master unit or the intelligent tester).

DIAGNOSIS DISPLAY DETAILED DESCRIPTION

HINT:

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

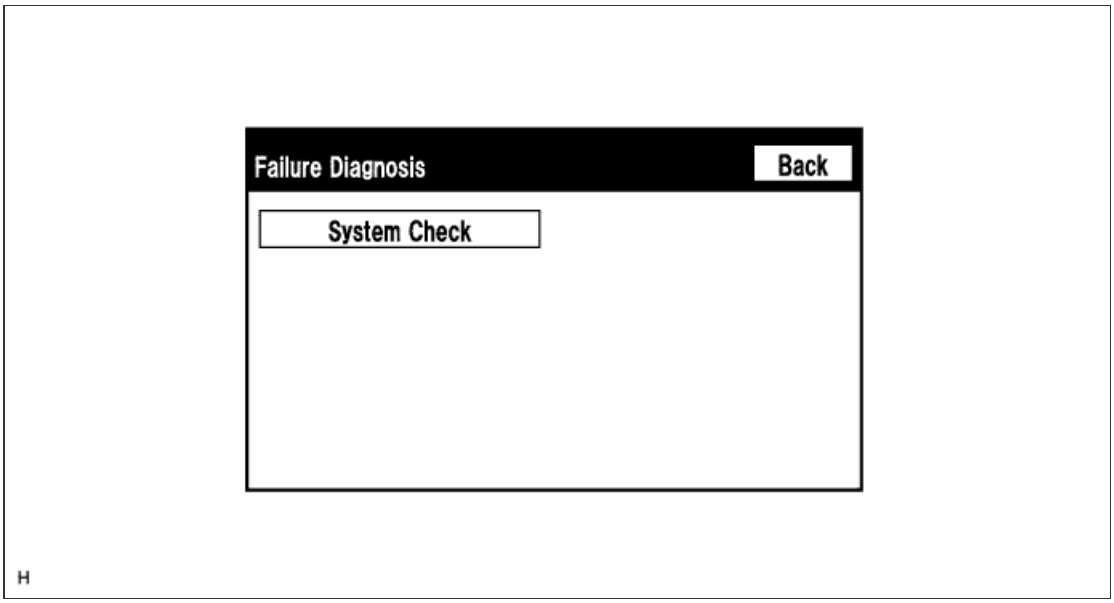
a. Service Menu Screen



HINT:

Each item is grayed out or not displayed based on the device settings.

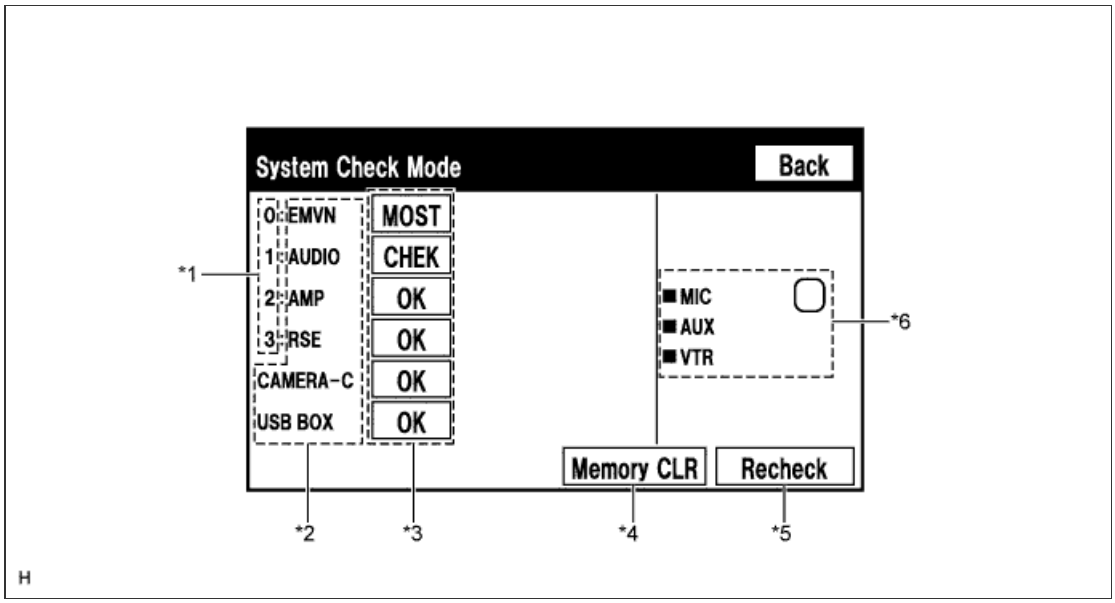
b. Failure Diagnosis Screen



HINT:

Each item is grayed out or not displayed based on the device settings.

i. System Check Mode Screen



*1: Node position number for devices connected to the MOST network.

HINT:

MOST node position numbers are provided for devices connected to the MOST network.

*2: Device Name List No. 1

HINT:

- **Device Name List No. 1 displays some of the devices that make up the navigation system.**
- **The names of the components from Device Name List No. 1 are shown in the following table.**

Name	Component	Connection Method
EMVN	Display and navigation module display	-
AUDIO	Radio receiver assembly	Communication line for MOST network
AMP	Stereo component amplifier assembly	Communication line for MOST network

RSE	Television display assembly	Communication line for MOST network
CAMERA-C	Parking assist ECU	Communication line for AVC-LAN
USB BOX	Multi-media interface ECU	Communication line for AVC-LAN

*3: Check Result

HINT:

- **Result codes for all devices are displayed.**
- **When "MOST" is displayed for the result, press "MODE" on the steering pad switch assembly to display the "MOST Line Check" screen.**

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

*4: Memory Clear

HINT:

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

*5: Recheck

HINT:

- **A system check will be performed again after the memory is cleared.**
- **The "Recheck" switch will dim during a system check.**

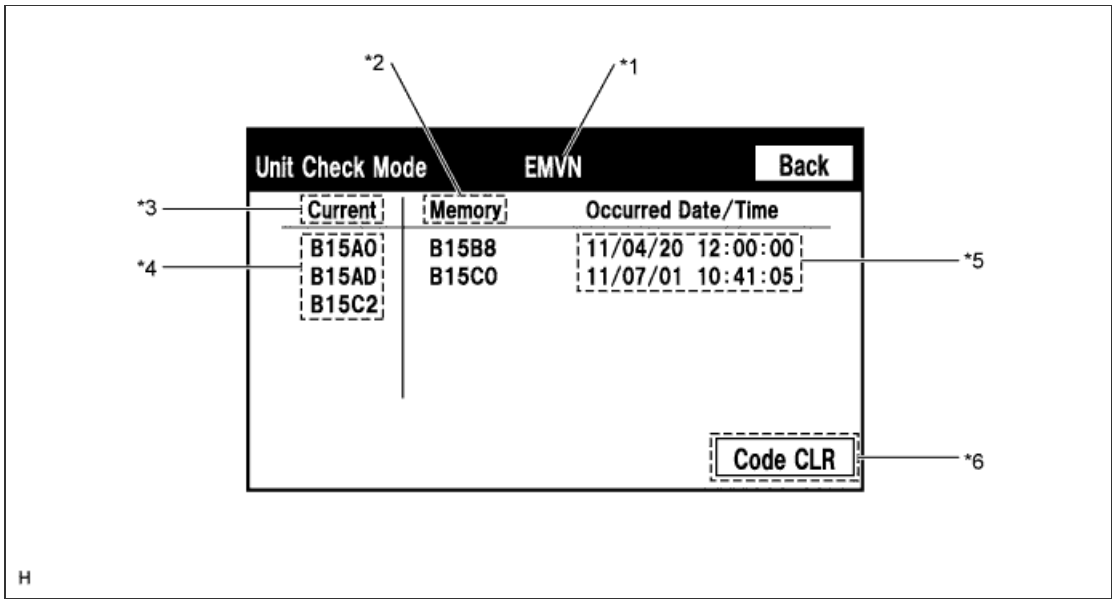
*6: Device Name List No. 2

HINT:

- **Device Name List No. 2 displays some of the devices that make up the navigation system.**
- **The names of the components from Device Name List No. 2 are shown in the following table.**

Name	Component	Connection Method
MIC	Telephone microphone assembly	Vehicle wire harness
AUX	Stereo jack adapter assembly	Vehicle wire harness
VTR	Video (video adapter) terminal	Vehicle wire harness

ii. Unit Check Mode Screen



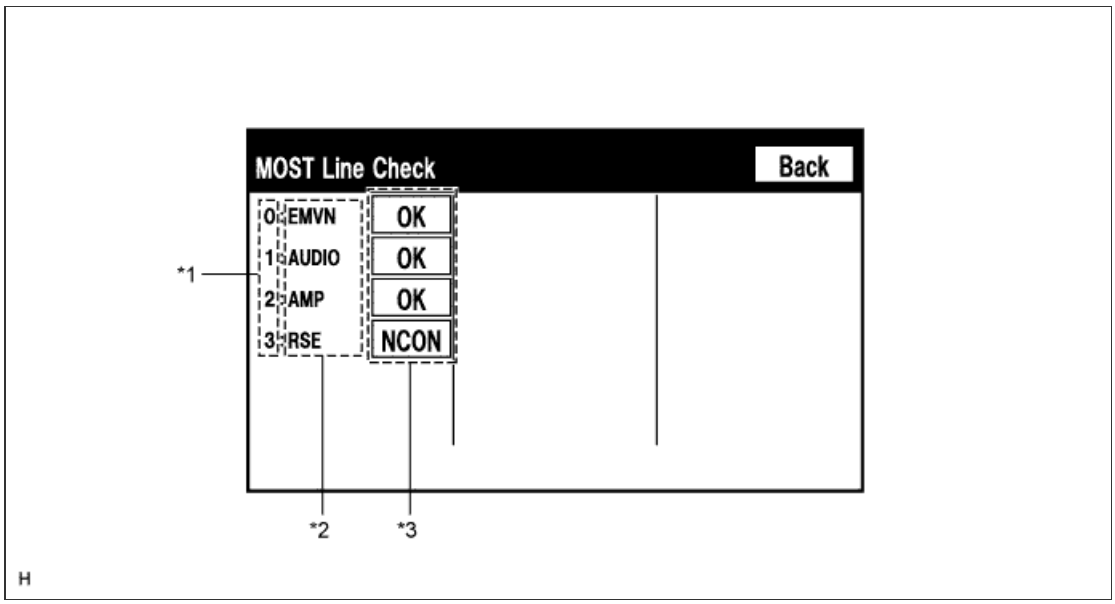
Screen Description

Display	Content
*1: Device name	Target device
*2: History DTC	Diagnostic memory results and stored DTCs are displayed.
*3: Present DTC	DTCs output in the service check are displayed.
*4: DTC	DTC (Diagnostic Trouble Code)
*5: Timestamp	The time and date of history DTCs are displayed. (The year is displayed in 2-digit format.)
*6: Diagnosis clear switch	Pushing this switch for 3 seconds clears the diagnostic memory data of the target device. (Both response to diagnostic system check result and the displayed data are cleared.)

iii. MOST Line Check Screen

HINT:

- **The inspection will be performed at the time the screen changes from "System Check Mode" to "MOST Line Check".**
- **The master unit checks the connection of each device on the MOST network.**



*1: Node position number for devices connected to the MOST network.
*2: Device Name List

HINT:

- **Device Name List displays some of the devices that make up the navigation system.**
- **The names of the components from Device Name List are shown in the following table.**

Name	Component
EMVN	Display and navigation module display
AUDIO	Radio receiver assembly
AMP	Stereo component amplifier assembly
RSE	Television display assembly

*3: Check Result

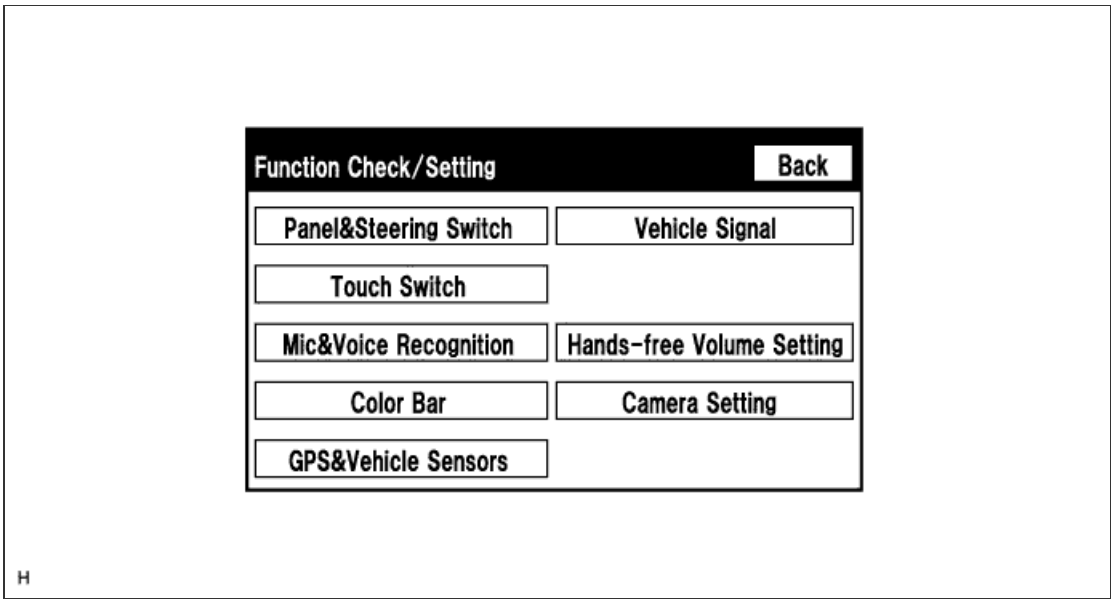
HINT:

- **The master unit displays the check result on the screen based on the response information from each slave unit.**
- **Result codes for all devices are displayed.**

Result	Meaning
OK	There was a response for the connection check during the MOST line check.
NCON	There was no response for the connection check during the MOST line check.

- **The device name and result will not be displayed if there is no system registration record and no response for the connection check during the MOST line check even if the device is connected to the MOST network.**

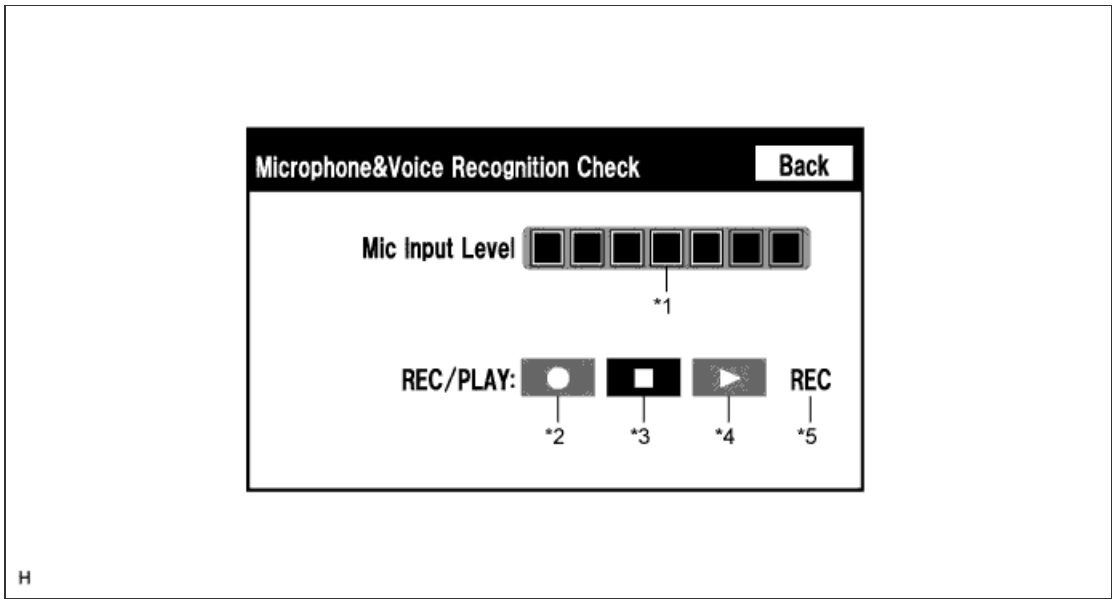
c. Function Check/Setting Screen



HINT:

Each item is grayed out or not displayed based on the device settings.

i. Microphone & Voice Recognition Check Screen



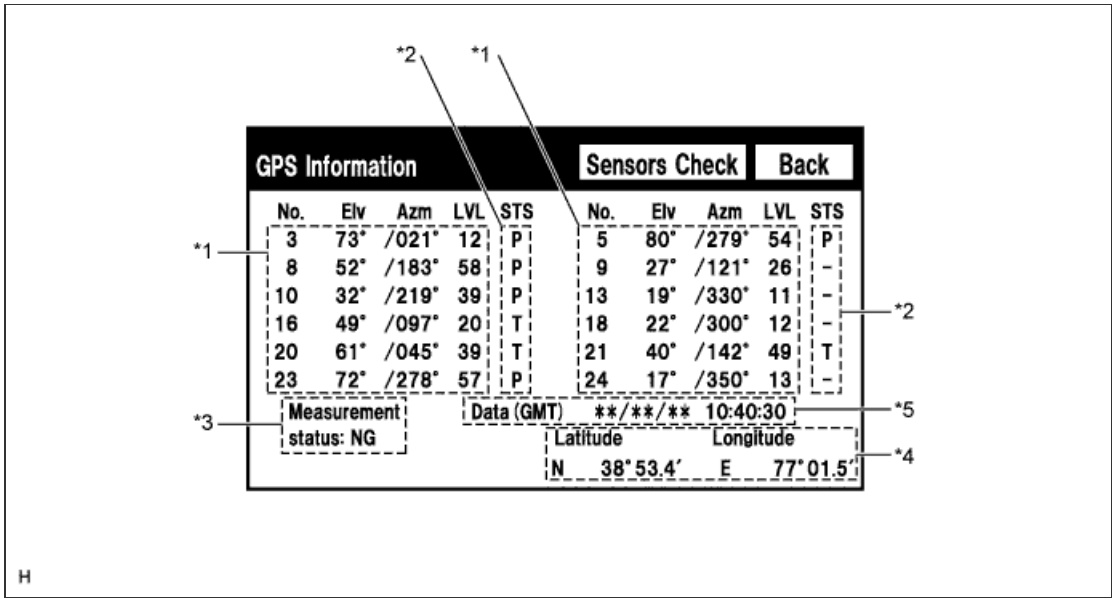
Screen Description

Display	Content
*1: Microphone input level meter	Monitors the microphone input level every 0.1 sec. and displays the results in 8 different levels.
*2: Recording switch	Starts recording.
*3: Stop switch	Stops recording and playing.
*4: Play switch	Plays the recorded voice.
*5: Recording indicator	Comes on while recording.

HINT:

- **The microphone is active at all times when this screen is displayed.**
- **While recording or playing, the switches other than the stop switch cannot be pushed.**
- **When no recording is present, the play switch cannot be pushed.**
- **Recording will stop after 5 seconds or when the stop switch is pushed.**

ii. GPS Information Screen



*1: Satellite information

HINT:

Information from a maximum of 12 satellites is displayed on the screen. This information includes the target GPS satellite number, elevation angle, direction and signal level.

*2: Receiving condition

Screen Description

Display	Content
T	The system is receiving a GPS signal, but is not using it for location.
P	The system is using the GPS signal for location.
-	The system cannot receive a GPS signal.

*3: Measurement information

Screen Description

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

*4: Position information

Screen Description

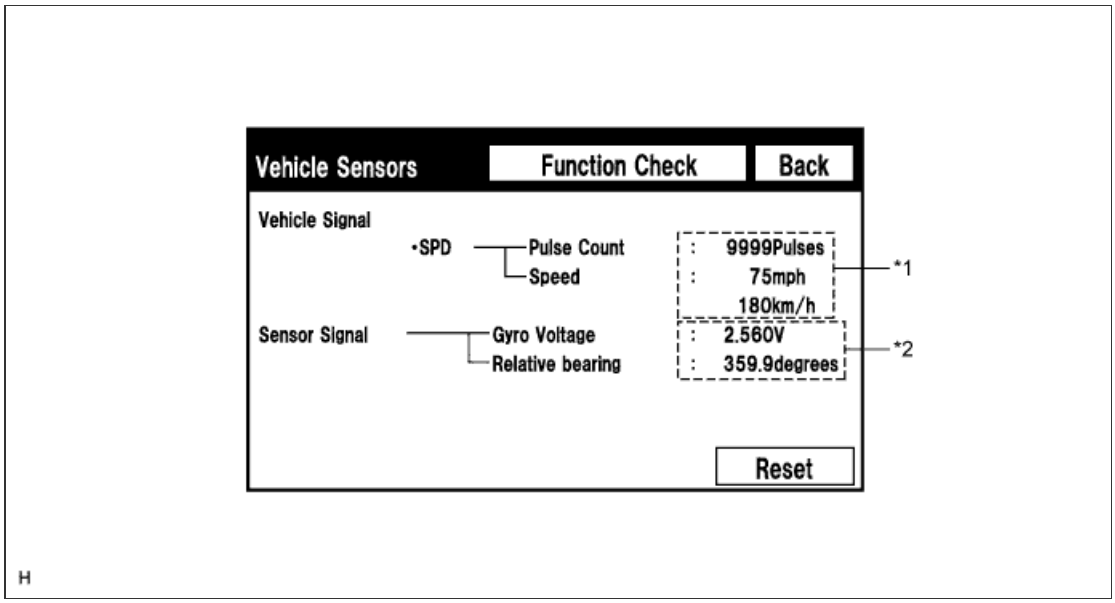
Display	Content
Position	Latitude and longitude information on the current position is displayed.

*5: Date information

Screen Description

Display	Content
Date	The date/time information obtained from GPS signal is displayed in Greenwich Mean Time (GMT). The last 4 digits are displayed.

iii. Vehicle Sensors Screen



Vehicle Signal

Display	Content
*1: SPD	SPD signal condition is displayed.

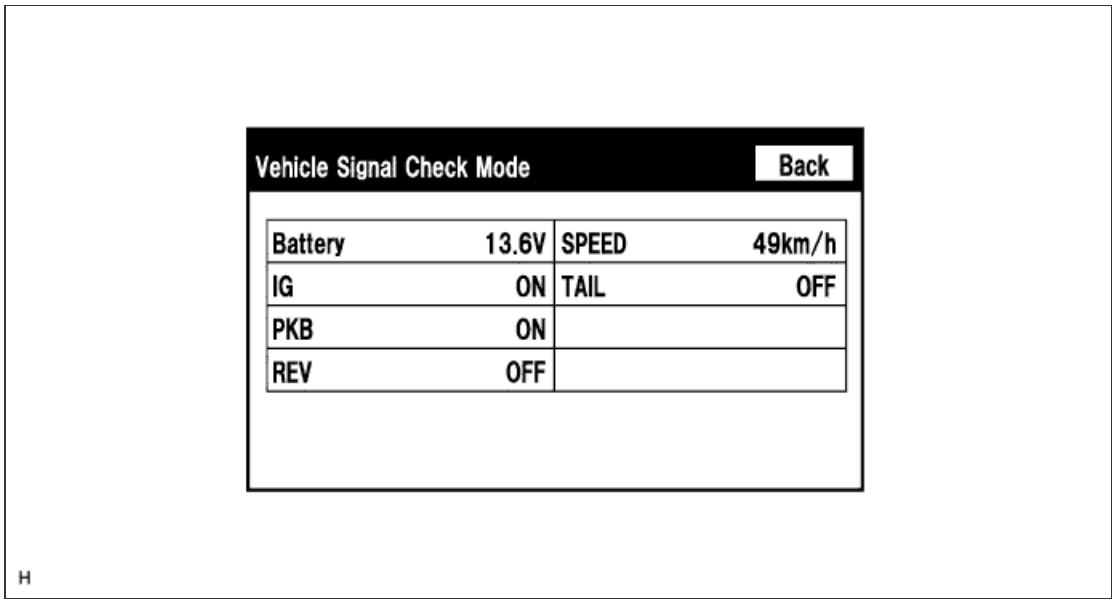
Sensor Signal

Display	Content
*2: Gyro sensor	Gyro sensor output condition is displayed. 2.1 to 2.9 V

HINT:

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

iv. Vehicle Signal Check Mode Screen



Screen Description

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

HINT:

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

for Preparation Click here

HINT:

- **Use the following procedure to troubleshoot the navigation system (for DVD).**
- ***: Use the intelligent tester.**

1.VEHICLE BROUGHT TO WORKSHOP

NEXT

2.INSPECT BATTERY VOLTAGE

a. Inspect the battery voltage.

Standard Voltage:
11 to 14 V

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

NEXT

3.DIAGNOSTIC QUESTIONING AND SYMPTOM CONFIRMATION

a. Ask the customer about symptoms and confirm malfunctions.

Result

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

B. → **Go to step 10, AND PROCEED TO "BLACK SCREEN"**

A

4.OPERATION CHECK

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

Result

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

B. → **SYMPTOM IS NORMAL OPERATION**

A

5.CHECK CAN COMMUNICATION SYSTEM*

a. Check for DTC output.

HINT:

- **for LHD (Click here)**
- **for RHD (Click here)**

Result

Result	Proceed to
TC is not output.	A
DTC is output. (for LHD)	B
DTC is output. (for RHD)	C

B. GO TO CAN COMMUNICATION SYSTEM (Click here)

C. GO TO CAN COMMUNICATION SYSTEM (Click here)

A

6.CHECK FOR DTC*

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

Result

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

HINT:

If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).

B. Go to step 10

A

7.DTC CLEAR*

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

HINT:

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

NEXT

8.RECHECK FOR DTC*

Result

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

HINT:

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

B. Go to step 10

A

9.DIAGNOSTIC TROUBLE CODE CHART

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

NOTICE:

- **The navigation system outputs DTCs for the following system.**
- **When DTCs other than those in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the system.**
- **Audio and visual system (w/ navigation system) (Click here)**
- **Rear seat entertainment system (w/ rear seat entertainment system) (Click here)**
- **Parking assist monitor system (w/ parking assist monitor system) (Click here).**

Result

Result	Proceed to
TCs for the navigation system are output.	A
DTCs for the audio and visual system (w/ navigation system) are output.	B
DTCs for the rear seat entertainment system (w/ rear seat entertainment system) are output.	C
DTCs for the parking assist monitor system (w/ parking assist monitor system) are output.	D

A.	**Go to step 12**
B.	**GO TO AUDIO AND VISUAL SYSTEM (w/ Navigation System) (Click here)**
C.	**GO TO REAR SEAT ENTERTAINMENT SYSTEM (Click here)**
D.	**GO TO PARKING ASSIST MONITOR SYSTEM (Click here)**

10.PROBLEM SYMPTOMS TABLE

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

Result

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

HINT:

If the symptom does not recur and no DTC is output, perform the symptom reproduction method (Click here).

B.	**Go to step 12**

A

11.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

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

NEXT

12.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

NEXT

13.RECHECK FOR DIAGNOSTIC TROUBLE CODE

HINT:

After clearing the DTCs, recheck for DTCs.

NEXT

14.PERFORM CONFIRMATION TEST

NEXT

END

for Preparation Click here

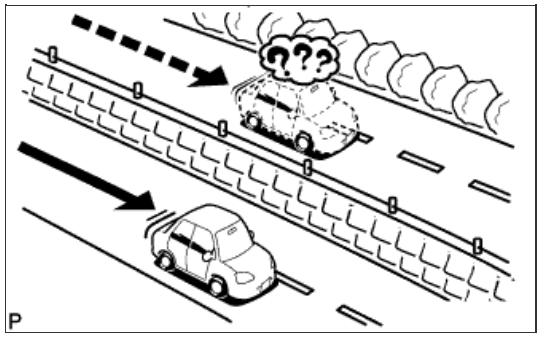
CHECK SYSTEM NORMAL CONDITION

a. If the symptom is applicable to any of the following, it is intended behavior, and not a malfunction.

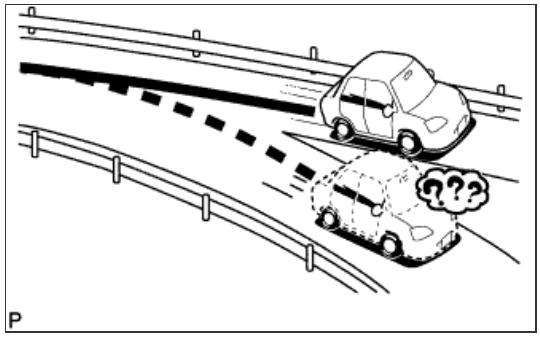
Symptom	Answer
A longer route than expected is chosen.	Depending on the road conditions, the display and navigation module display may determine that a longer route is quicker.
Even when distance priority is high, the shortest route is not shown.	Some routes may not be advised due to safety concerns.
When the vehicle is put into motion immediately after the engine starts, the navigation system deviates from the actual position.	If the vehicle starts before the navigation system activates, the system may not react.
When running on certain types of roads, especially new roads, the vehicle position deviates from the actual position.	When the vehicle is driving on new roads not available on the map disc, the system attempts to match it to another nearby road, causing the position mark to deviate.

b. The following symptoms are not malfunctions, but are caused by errors inherent in the GPS, gyro sensor, speed sensor or display and navigation module display.

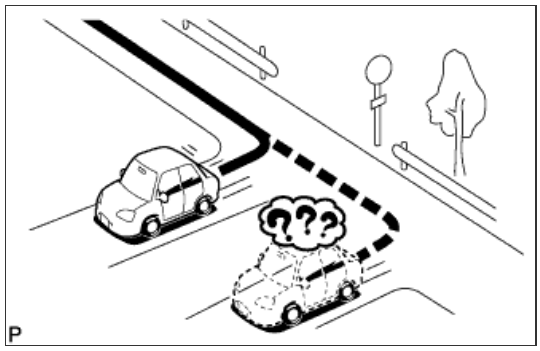
i. The current position mark may be displayed on a nearby parallel road.



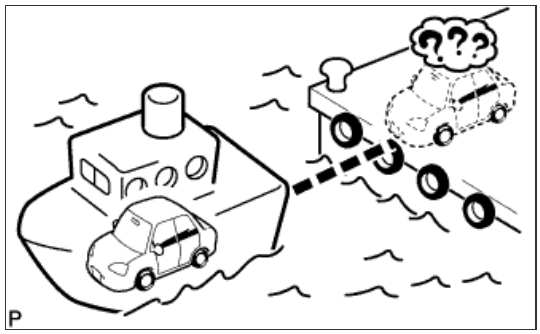
ii. Immediately after a fork in the road, the current vehicle position mark may be displayed on the wrong road.



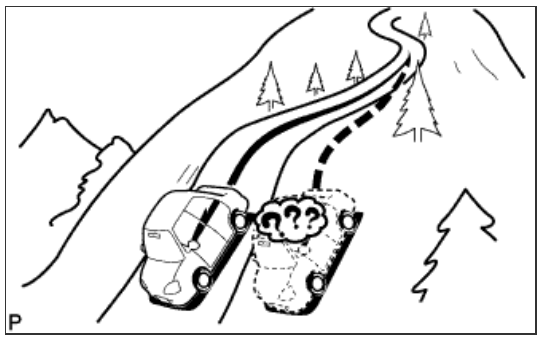
iii. When the vehicle turns right or left at an intersection, the current vehicle position mark may be displayed on a nearby parallel road.



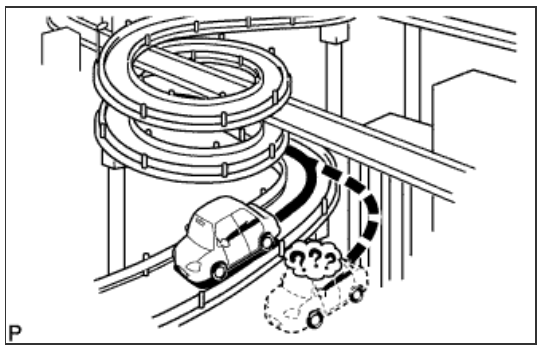
iv. When the vehicle is carried, such as on a ferry, and the vehicle itself is not running, the current vehicle position mark may be displayed in the position where the vehicle was until a measurement can be performed by GPS.



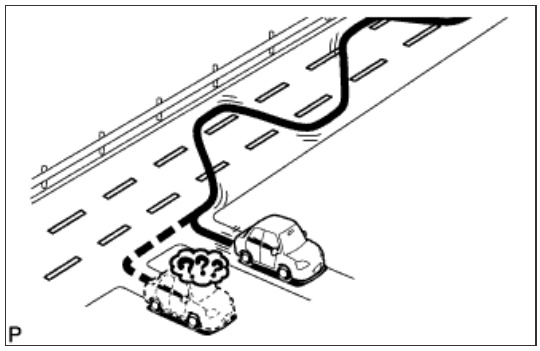
v. When the vehicle travels on a steep hill, the current vehicle position mark may deviate from the correct position.



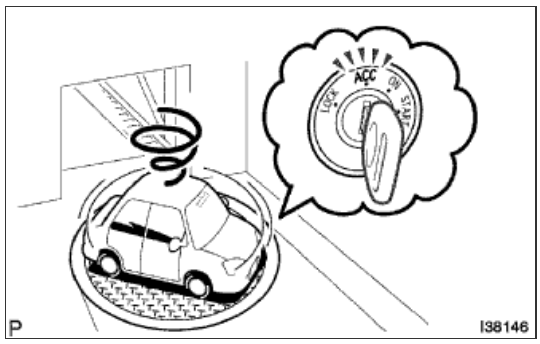
vi. When the vehicle makes a continuous turn (e.g. 360, 720, 1080 degrees) the current vehicle position mark may deviate from the correct position.



vii. When the vehicle moves erratically, such as constant lane changes, the current vehicle position mark may deviate from the correct position.



viii. When the engine switch is turned on (ACC or IG) on a turntable before parking, the current vehicle position mark may not indicate the correct direction. The same will occur when the vehicle comes out of the parking garage.



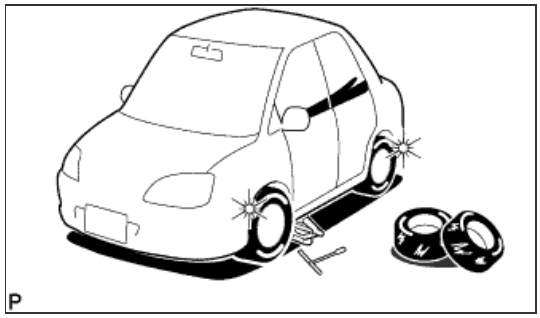
ix. When the vehicle travels on a snowy road or a mountain path with the chains installed or using a spare tire, the current vehicle position mark may deviate from the correct position.



x. When the tires are changed, the current vehicle position mark may deviate from the correct position.

HINT:

- **A change in tire diameter may cause a speed sensor error.**
- **Performing "tire change" in calibration mode will allow the system to correct the current vehicle position faster.**



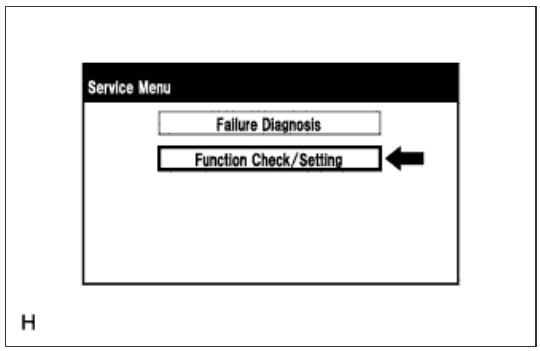
CHECK PANEL & STEERING SWITCH

HINT:

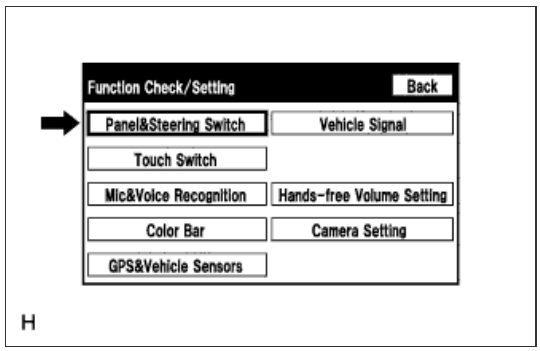
- **The display and navigation module display panel switches, radio receiver assembly panel switches and steering switches are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas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

a. Enter diagnostic mode (Click here).

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

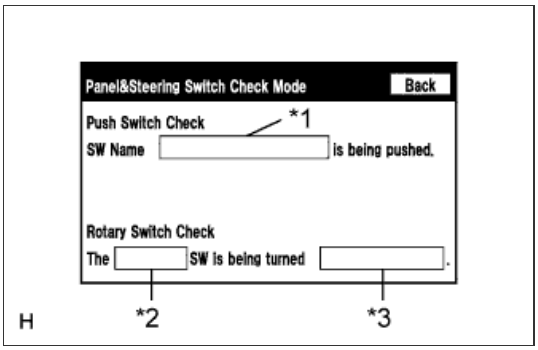


c. Select "Panel & Steering Switch" from the "Function Check/Setting" screen.



d. Panel & Steering Switch Check Mode

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



Screen Description

Display	Content
*1: Push switch name	• Name of the pressed switch is displayed. • If more than one switch is pressed, "MULTIPLE" will be displayed.
*2: Rotary switch name	Name of the rotary switch is displayed.
*3: Rotary switch direction	Direction of the rotary switch is displayed.

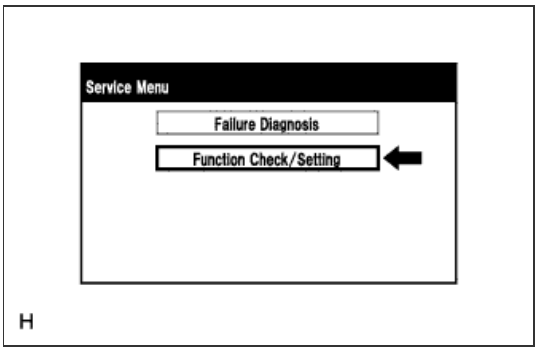
CHECK TOUCH SWITCH

HINT:

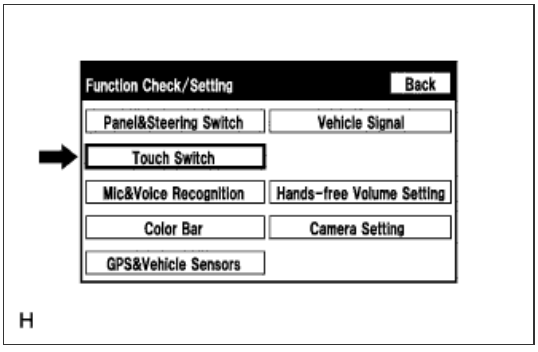
- **The touch switches on the screen are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

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



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



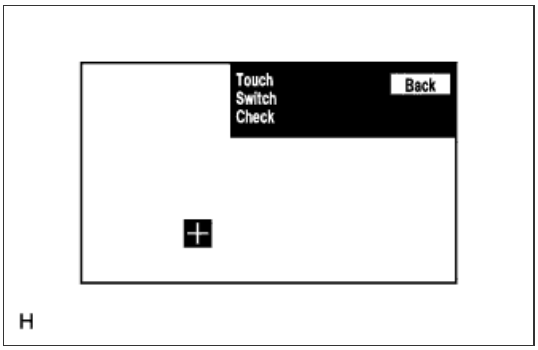
d. Touch Switch Check

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

HINT:

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

finger is removed.



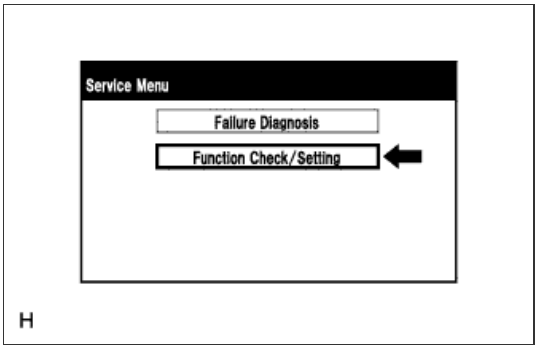
CHECK MIC & VOICE RECOGNITION

HINT:

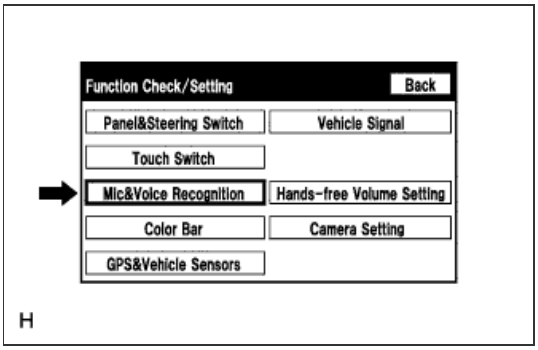
- **The microphone and microphone input level are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

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



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



d. Microphone & Voice Recognition Check

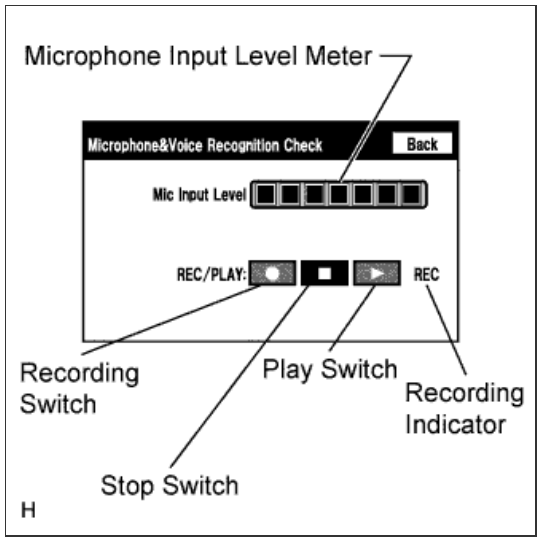
i. When speaking into the microphone, check that the microphone input level meter changes according to the input level.

ii. Push the recording switch and perform voice recording.

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

HINT:

- **For details of this function, refer to Diagnosis Display Detailed Description (Click here).**
- **This function is controlled by the display and navigation module display (built-in navigation ECU).**



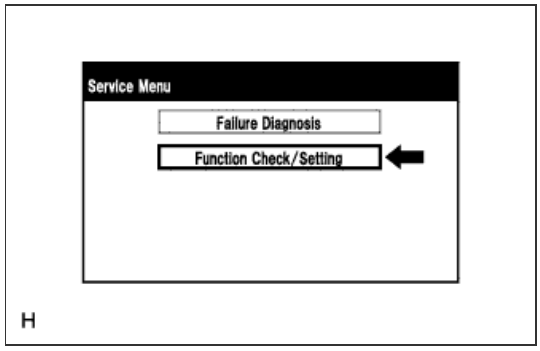
CHECK COLOR BAR

HINT:

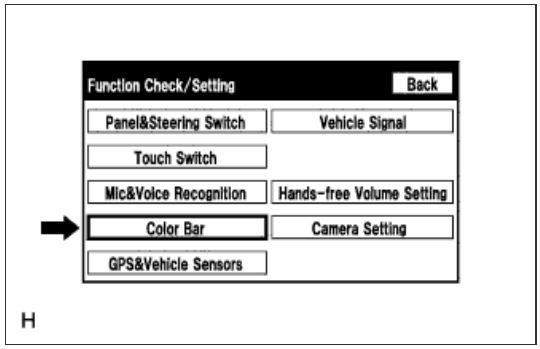
- **The display color on the screen is checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

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



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



d. Color Bar Check Mode

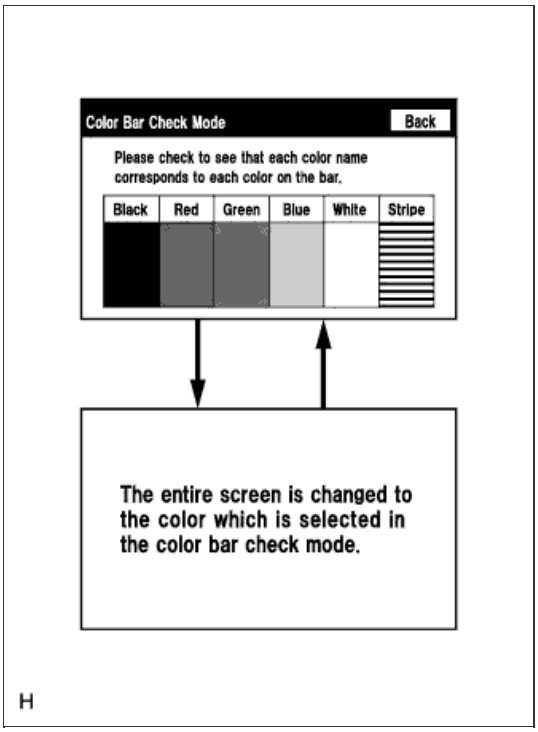
i. Select a color bar from the "Color Bar Check Mode" screen.

ii. Check the display color.

HINT:

- **The entire screen turns to the color or stripe selected.**

- **Touching the display will return to the "Color Bar Check" screen.**



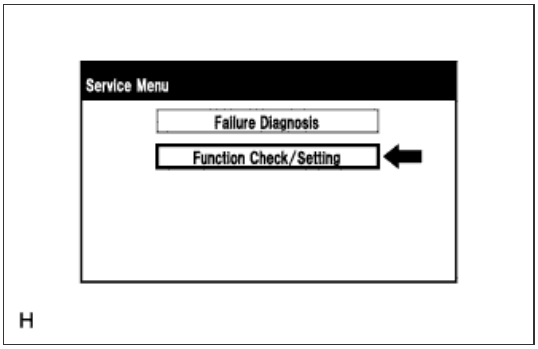
CHECK GPS & VEHICLE SENSORS

HINT:

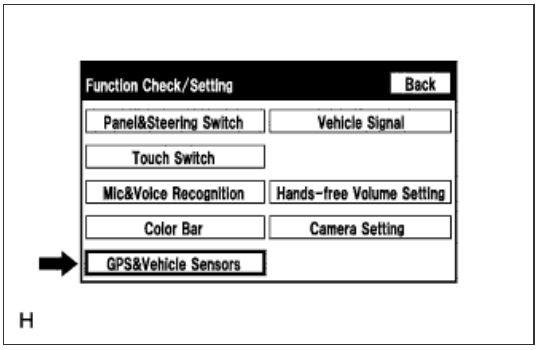
- **GPS information, vehicle signals and sensor signals are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

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



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

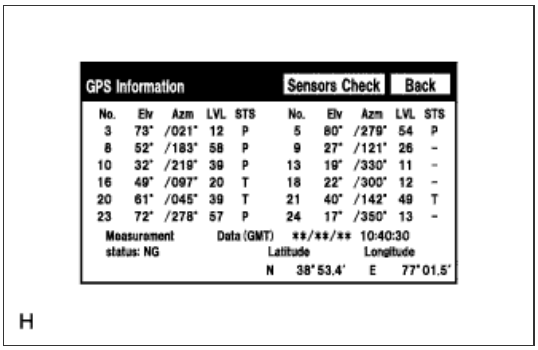


d. GPS information

i. When GPS information is displayed, check the GPS conditions.

HINT:

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



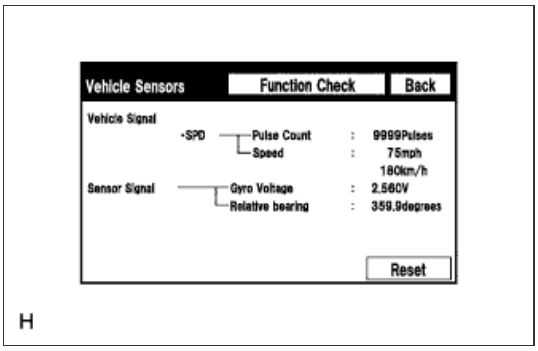
e. Select "Sensors Check" from the "GPS Information" screen.

f. Vehicle Sensors

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

HINT:

- **This screen is updated once per second when input signals to the vehicle are changed.**
- **This screen displays vehicle signals input to the display and navigation module display (built-in navigation ECU).**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**



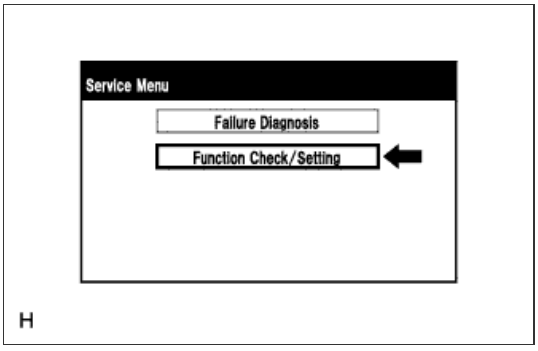
CHECK VEHICLE SIGNAL

HINT:

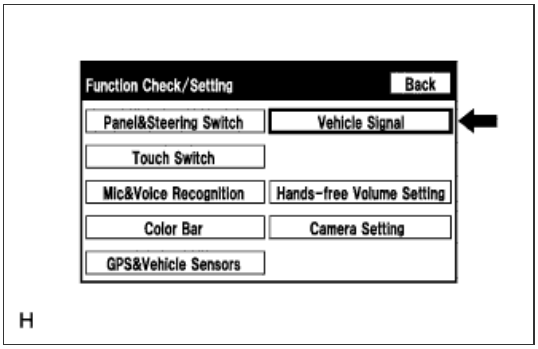
- **Vehicle signals received by the display and navigation module display are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual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

a. Enter diagnostic mode (Click here).

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



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

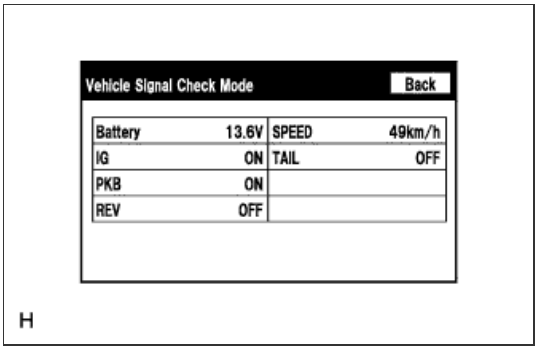


d. Vehicle Signal Check Mode

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

HINT:

- **Only conditions having inputs are displayed.**
- **This screen displays vehicle signals input to the display and navigation module display.**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**



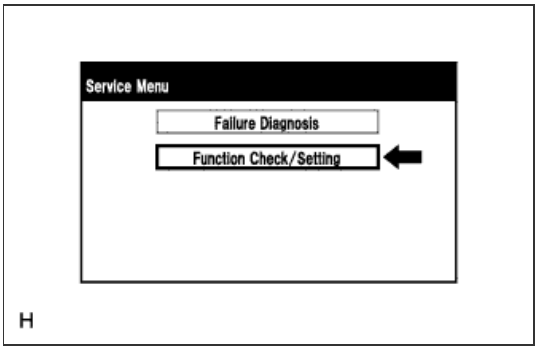
CHECK HANDS-FREE VOLUME SETTING

HINT:

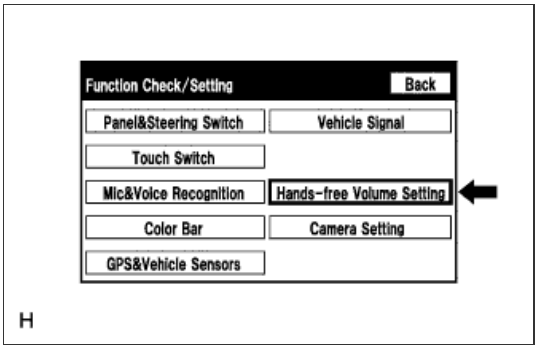
- **The hands-free volume of a "Bluetooth" compatible phone can be adjusted using the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle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

a. Enter diagnostic mode (Click here).

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

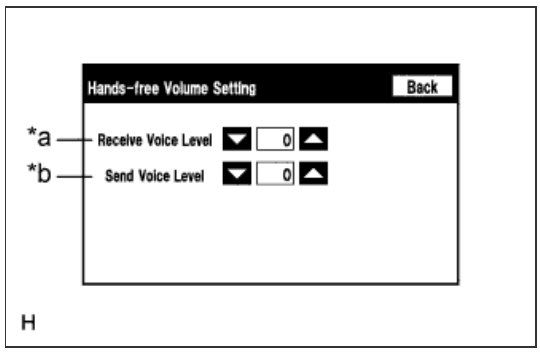


c. Select "Hands-free Volume Setting" from the "Function Check/Setting" screen.



d. Hands-free Volume Setting

i. Check the hands-free volume level.



Screen Description

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

NOTICE:

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

HINT:

Sound quality of sent voice may deteriorate when the send voice level is adjusted.

CHECK CAMERA SETTING (w/ Parking Assist Monitor System)

a. Refer to the parking assist monitor system for further information (Click here).

for Preparation Click here

HINT:

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

Display Function

Symptom	Suspected Area	See page
Black screen (No image appears on navigation/audio screen).	Proceed to "Black Screen"	Click here
	Display and navigation module display	Click here
Illumination for panel switch does not come on with tail switch on.	Proceed to "Illumination for Panel Switch does not Come on with Tail Switch ON"	Click here
	Proceed to "Illumination Circuit"	Click here
	Display and navigation module display	Click here
Display does not dim with tail switch on.	Proceed to "Display does not Dim when Light Control Switch is Turned ON"	Click here
	Display and navigation module display	Click here
Panel switches do not function.	Proceed to "Panel Switches do not Function"	Click here
	Proceed to "Steering Pad Switch Circuit"	Click here
	Display and navigation module display	Click here
Touch panel switch does not function.	Proceed to "Touch Panel Switch does not Function"	Click here
	Display and navigation module display	Click here
Screen is distorted.	Proceed to "Navigation ECU Power Source Circuit"	Click here
	Display and navigation module display	Click here
Screen flicker or color distortion.	Proceed to "Screen Flicker or Color Distortion"	Click here
	Display and navigation module display	Click here
DVD image cannot be displayed on front screen (Parking brake is on).	Proceed to "DVD Image Signal Circuit between Radio receiver and Navigation ECU"	Click here
	Proceed to "Parking Brake Switch Circuit"	Click here
	Radio receiver assembly	Click here
	Display and navigation module display	Click here
Navigation function switches can be operated while vehicle is running.	Display and navigation module display	Click here

Navigation Function

Symptom	Suspected Area	See page
Map disc cannot be inserted.	Proceed to "Map Disc cannot be Inserted"	Click here
	Navigation module board	-

Map disc cannot be ejected.	Navigation module board	-
Map display incomplete.	Proceed to "Map Display Incomplete"	Click here
	Navigation module board	-
Vehicle position mark deviates.	Proceed to "Vehicle Position Mark Deviates Greatly"	Click here
	Navigation antenna assembly	Click here
	Display and navigation module display	Click here
Cursor or map rotates when vehicle is stopped.	Proceed to "Cursor or Map Rotates When Vehicle Stopped"	Click here
	Display and navigation module display	Click here
Vehicle position mark is not updated.	Proceed to "Vehicle Position Mark is not Updated"	Click here
	Map disc	-
	Navigation module board	-
	Display and navigation module display	Click here
Current position display does not appear.	Proceed to "Current Position Display does not Appear"	Click here
	Map disc	-
	Navigation antenna assembly	Click here
	Navigation module board	-
	Display and navigation module display	Click here
GPS mark is not displayed.	Proceed to "GPS Mark is not Displayed"	Click here
	Navigation antenna assembly	Click here
	Display and navigation module display	Click here
Voice guidance does not function.	Proceed to "Voice Guidance does not Function"	Click here
	Proceed to "Speaker Circuit"	Click here
	Map disc	-
	Navigation module board	-
	Display and navigation module display	Click here
	Stereo component amplifier assembly	Click here
	Radio receiver assembly	Click here
Route cannot be calculated.	Proceed to "Route cannot be Calculated"	Click here
	Map disc	-
	Navigation module board	-
	Display and navigation module display	Click here
Voice recognition is difficult.	Proceed to "Voice Recognition Difficulty"	Click here
	Proceed to "Microphone Circuit between Microphone and Navigation ECU"	Click here
	Display and navigation module display	Click here
Voice is not recognized.	Proceed to "Voice is not Recognized"	Click here
	Proceed to "Microphone Circuit between Microphone and Navigation ECU"	Click here
		Click

	Proceed to "Steering Pad Switch Circuit"	here
	Display and navigation module display	Click here
Customizable parameters cannot be changed. (Customizable parameters can be changed by using the intelligent tester)	Display and navigation module display	Click here
Reverse signal does not change in the vehicle signal check mode screen.	Proceed to "Reverse Signal Circuit"	Click here
	Display and navigation module display.	Click here
"MIC" is not displayed on system check mode screen.	Proceed to "Microphone Circuit between Microphone and Navigation ECU"	Click here
	Display and navigation module display	Click here
"AUX" is not displayed on system check mode screen.	Proceed to "Sound Signal Circuit between Radio Receiver Assembly and Stereo Jack Adapter"	Click here
	Radio receiver assembly	Click here
	Display and navigation module display	Click here

Steering Pad Switch Function

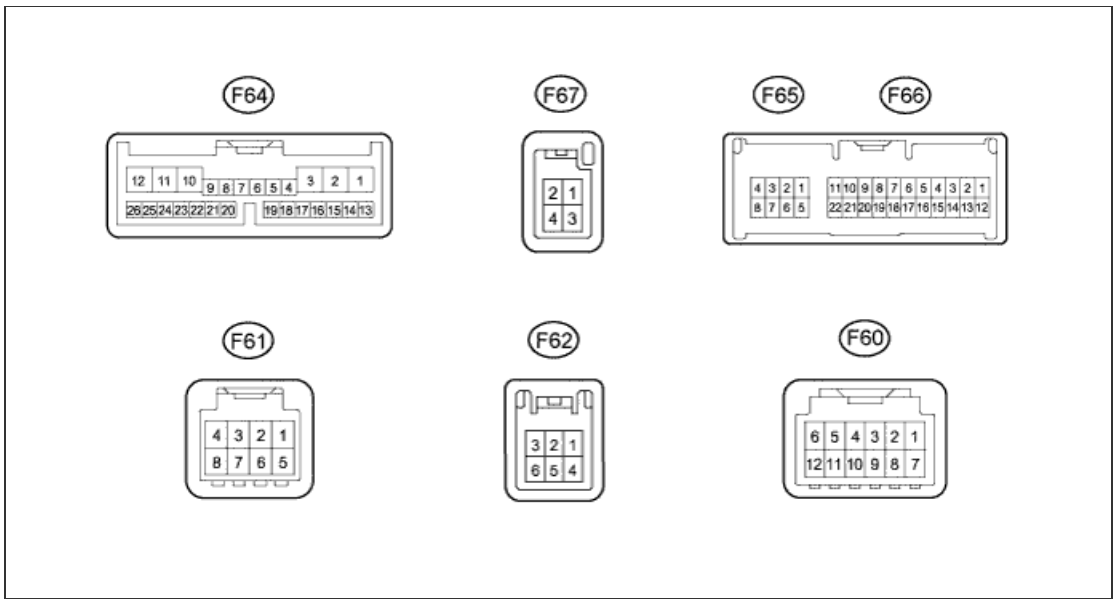
Symptom	Suspected Area	See page
System cannot be operated by steering pad switch.	Proceed to "Steering Pad Switch Circuit"	Click here
	Display and navigation module display	Click here
Illumination for steering pad switch does not come on with tail switch on.	Proceed to "Illumination Circuit"	Click here
	Display and navigation module display	Click here

"Bluetooth" Hands-free Function

Symptom	Suspected Area	See page
Cellular phone registration failure, phone directory transfer failure.	Proceed to "Cellular Phone Registration Failure, Phone Directory Transfer Failure"	Click here
Cellular phone cannot send/receive.	Proceed to "Cellular Phone cannot Send / Receive"	Click here
	Proceed to "Steering Pad Switch Circuit"	Click here
	Radio receiver assembly	Click here
Cellular phone cannot make calls in a certain place.	Proceed to "Cannot Call in a Certain Place"	Click here
Other caller's voice cannot be heard, is too quiet, or distorted.	Proceed to "The Other Caller's Voice cannot be Heard, is too Quiet, or Distorted"	Click here
	Radio receiver assembly	Click here
	Stereo component amplifier assembly	Click here
	Display and navigation module display	Click here
Other caller cannot hear your voice, or your voice is too quiet or distorted.	Proceed to "The Other Caller cannot Hear Your Voice, or Your Voice is too Quiet or Distorted"	Click here
	Proceed to "Microphone Circuit between Microphone and Navigation ECU"	Click here
	Radio receiver assembly	Click here

for Preparation Click here

DISPLAY AND NAVIGATION MODULE DISPLAY



Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
F64-1 (+B1) - F64-10 (GND1)	R - W-B	Power source (Back-up)	Always	11 to 14 V
F64-2 (ACC) - F64-10 (GND1)	GR - W-B	Power source (ACC)	Engine switch off	Below 1 V
			Engine switch on (ACC)	11 to 14 V
F64-3 (IG) - F64-10 (GND1)	G - W-B	Power source (IG)	Engine switch off	Below 1 V
			Engine switch on (IG)	11 to 14 V
F64-4 (MACC) - F64-10 (GND1)	W - W-B	Microphone AMP power supply	Engine switch off	Below 1 V
			Engine switch on (IG)	4.5 to 5.5 V
F64-5 (MIN+) - F64-10 (GND1)	B - W-B	Microphone voice signal	See "Microphone & Voice Recognition Check" in Operation Check (Click here)	-
F64-6 (MIN-) - Body ground	R - Body ground	Microphone voice signal	See "Microphone & Voice Recognition Check" in Operation Check (Click here)	-
F64-7 (SGND) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
F64-12 (ILL+) - F64-10 (GND1)	G - W-B	Illumination signal	Light control switch off	Below 1 V
			Light control switch tail or on	11 to 14 V
F64-16 (REV) - F64-10 (GND1)	L - W-B	Reverse signal	See "Vehicle Signal Check Mode" in Operation Check (Click here)	-
F64-17 (PKB) - F64-10 (GND1)	Y - W-B	Parking brake signal	See "Vehicle Signal Check Mode" in Operation Check (Click here)	-
F64-18 (SPD) - F64-10 (GND1)	V - W-B	Vehicle speed signal	See "Vehicle Signal Check Mode" in Operation Check (Click here)	-
F64-20 (SNS2) - F64-10 (GND1)	GR - W-B	Voice recognition and microphone connection detection signal	Always	Below 1 V
F64-21 (CANH)	P	CAN communication signal	-	-
F64-22 (CANL)	B	CAN communication signal	-	-

F64-23 (SWG) - Body ground	W - Body ground	Steering pad switch signal	Always	Below 1 V
F64-24 (SW2) - F64-23 (SWG)	P - W	Steering pad switch signal	No switch pushed → MODE switch pushed → On Hook switch pushed → Off Hook switch pushed → Voice switch pushed	4.44 to 5.43 V → 0.45 to 0.65 V → 1.19 to 1.49 V → 2.09 to 2.54 V → 3.2 to 3.88 V
F64-25 (SW1) - F64-23 (SWG)	L - W	Steering pad switch signal	No switch pushed → Seek+ switch pushed → Seek- switch pushed → Volume+ switch pushed → Volume- switch pushed	4.44 to 5.43 V → 0.45 to 0.65 V → 1.19 to 1.49 V → 2.09 to 2.54 V → 3.2 to 3.88 V
F60-7 (GND) - F64-10 (GND1)	B - W-B	Ground	Always	Below 1 V
F60-9 (TX2+)	W	AVC-LAN communication signal	-	-
F60-10 (TX2-)	L	AVC-LAN communication signal	-	-
F60-11 (ACC) - F64-10 (GND1)	GR - W-B	Accessory (ON)	Engine switch on (ACC)	11 to 14 V
			Engine switch off	Below 1 V
F60-12 (+B) - F64-10 (GND1)	R - W-B	Battery	Always	11 to 14 V
F61-1 (AGND) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
F61-3 (VAR+) - F61-7 (VA-)	W - R	Sound signal (Right)	USB audio device playing (When stereo jack adapter used)	A waveform synchronized with sounds is output.
F61-4 (VAL+) - F61-7 (VA-)	B - R	Sound signal (Left)	USB audio device playing (When stereo jack adapter used)	A waveform synchronized with sounds is output.
F61-7 (VA-) - F64-10 (GND1)	R - W-B	Sound signal ground	Always	Below 1 V
F62-1 (HILL) - F64-10 (GND1)	W - W-B	Illumination signal	Light control switch off	Below 1 V
			Light control switch tail or head (Light intensity is not max. or min.)	Pulse generation
F62-6 (SEUC) - F64-10 (GND1)	V - W-B	Security indicator signal	Security indicator operation	11 to 14 V
F65-1 (MI+)	W	MOST communication signal	-	-
F65-2 (SLDI) - F64-10 (GND1)	BR - W-B	Shield ground	Always	Below 1 V
F65-3 (MO+)	B	MOST communication signal	-	-
F65-4 (VMTR)*1 - F64-10 (GND1)	G - W-B	Visual mute signal	When image on display switches	4 V or higher → Below 0.7 V → 4 V or higher
F65-5 (MI-)	B	MOST communication signal	-	-
F65-6 (SLDO) - F64-10 (GND1)	BR - W-B	Shield ground	Always	Below 1 V
F65-7 (MO-)	W	MOST communication signal	-	-
F65-8 (WUO) - F64-10 (GND1)	R - W-B	MOST communication wake-up signal	Engine switch on (ACC)	4.5 V or higher
			Engine switch off	Below 1 V
F66-1 (TX1+)*2	W	AVC-LAN communication signal	-	-
F66-2 (TX1-)*2	L	AVC-LAN communication signal	-	-
F66-4 (NTSO)*1 - F64-10 (GND1)	B - W-B	Display signal	DVD played on the display and navigation module display	A waveform synchronized with display signals is output. (Refer to waveform 1)
F66-5 (V+)*3 - F64-10 (GND1)	R - W-B	Television camera image signal	Engine switch on (IG) Shift lever in R Under normal conditions	Pulse generation (Refer to waveform 2)
			Engine switch on (IG)	

			Shift lever in R Camera lens covered, blacking out screen	Pulse generation (Refer to waveform 3)
F66-6 (CA+)*3 - F64-10 (GND1)	B - W-B	Television camera power supply	Engine switch on (IG) Shift lever in R	5.5 to 7 V
F66-9 (VV+) - F64-10 (GND1)	W - W-B	Display signal	DVD is playing	A waveform synchronized with display signals is output. (Refer to waveform 4)
F66-14 (SGND)*1 - F64- 10 (GND1)	W - W-B	Ground	Always	Below 1 V
F66-15 (SLD2)*1 - F64-10 (GND1)	Shield - W-B	Shield ground	Always	Below 1 V
F66-16 (V-)*3 - F64-10 (GND1)	W - W-B	Ground	Always	Below 1 V
F66-17 (CGND)*3 - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
F66-20 (VV-) - F64-10 (GND1)	B - W-B	Ground	Always	Below 1 V
F67-1 (+B2) - F64-10 (GND1)	V - W-B	Battery	Always	11 to 14 V
F67-2 (ACC2) - F64-10 (GND1)	GR - W-B	Accessory (ON)	Engine switch on (ACC)	11 to 14 V
			Engine switch off	Below 1 V
F67-4 (G) - F64-10 (GND1)	B - W-B	Ground	Always	Below 1 V

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

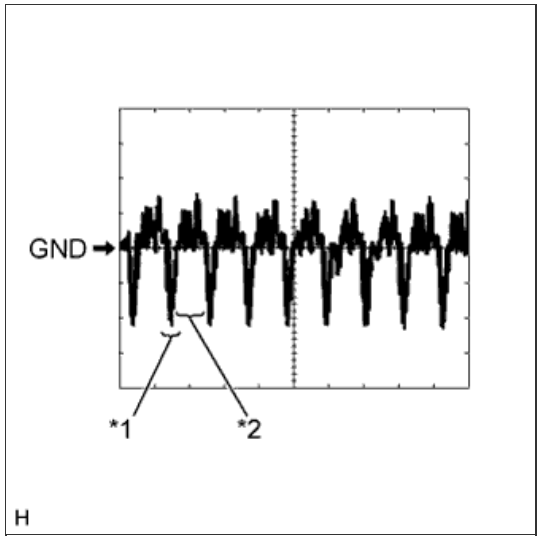
a. Reference (Oscilloscope waveform):

i. Waveform 1

Item	Content
Measurement terminal	F66-4 (NTSO) - F64-10 (GND1)
Measurement setting	200 mV/DIV., 50 µsec./DIV.
Condition	DVD is played on the display and navigation module display

Text in Illustration

*1	Synchronization Signal
*2	Video Waveform



HINT:

The video waveform changes according to the image output from the display and navigation module display to the television display assembly, but the synchronization signal does not change.

b. Reference (Oscilloscope waveform):

i. Waveform 2 (under normal conditions)

Item	Content
Measurement terminal	F66-5 (V+) - F64-10 (GND1)
Measurement setting	200 mV/DIV., 50 µsec./DIV.
Condition	Engine switch on (IG), shift lever in R

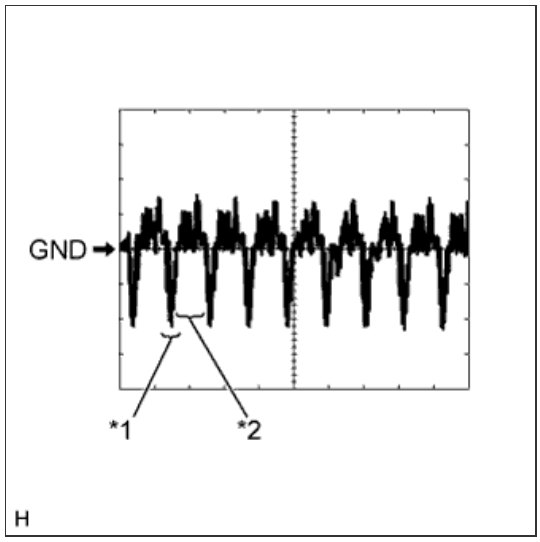
Text in Illustration

*1	Synchronization Signal

*2	Video Waveform

HINT:

The video waveform changes according to the image from the television camera assembly.



c. Reference (Oscilloscope waveform):

i. Waveform 3 (camera lens is covered, blacking out the screen)

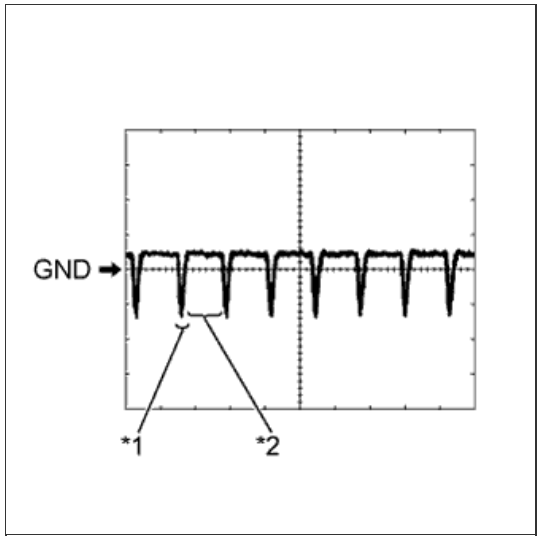
Item	Content
Measurement terminal	F66-5 (V+) - F64-10 (GND1)
Measurement setting	200 mV/DIV., 50 µsec./DIV.
Condition	Engine switch on (IG), shift lever in R

Text in Illustration

*1	Synchronization Signal
*2	Video Waveform

HINT:

The video waveform changes according to the image that the television camera assembly projects.



d. Reference (Oscilloscope waveform):

i. Waveform 4

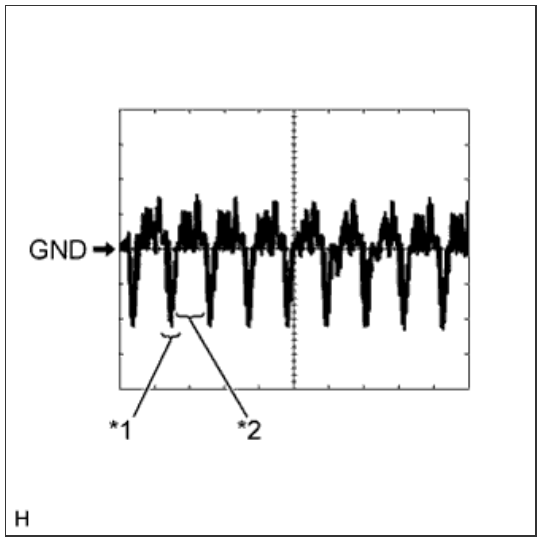
Item	Content
Measurement Terminal	F66-9 (VV+) - F64-10 (GND1)
Measurement Setting	200 mV/DIV., 10 µs/DIV.
Condition	DVD is playing

Text in Illustration

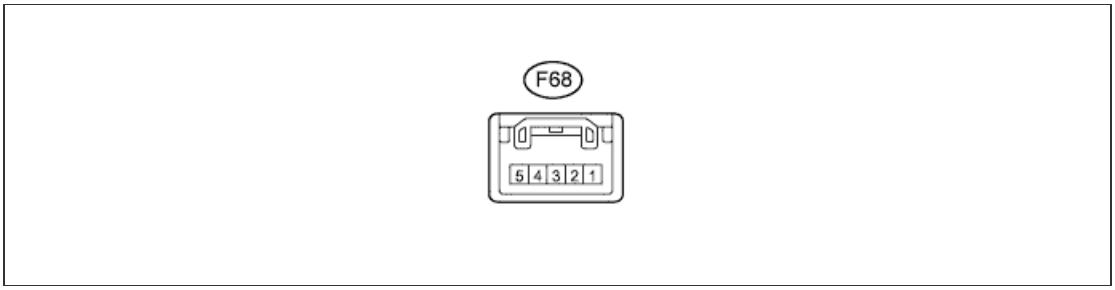
*1	Synchronization Signal
*2	Video Waveform

HINT:

The video waveform changes according to the image input from the radio receiver assembly to the display and navigation module display, but the synchronization signal does not change.



NAVIGATION MODULE BOARD



Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
F68-1 (+B) - F68-5 (G)	V - B	Battery	Always	11 to 14 V
F68-3 (ACC) - F68-5 (G)	GR - B	Power source (ACC)	Engine switch off	Below 1 V
			Engine switch on (ACC)	11 to 14 V
F68-5 (G) - Body ground	B - Body ground	Ground	Always	Below 1 V

RADIO RECEIVER ASSEMBLY (Click here)

STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

MULTI-MEDIA INTERFACE ECU (Click here)

TELEVISION DISPLAY ASSEMBLY (w/ Rear Seat Entertainment System) (Click here)

PARKING ASSIST ECU (w/ Parking Assist Monitor System) (Click here)

for Preparation Click here

CHECK DTC (CHECK USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / DTC.

e. Check for DTC(s) and freeze frame data, and then write them down.

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

NOTICE:

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

System	Proceed to
Audio and visual system (w/ Navigation System)	Click here
Rear seat entertainment system (w/ Rear Seat Entertainment)	Click here
Parking assist monitor system (w/ Parking Assist Monitor System)	Click here

CLEAR DTC (CLEAR USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Navigation System / DTC.

e. Clear DTCs.

START DIAGNOSTIC MODE

HINT:

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

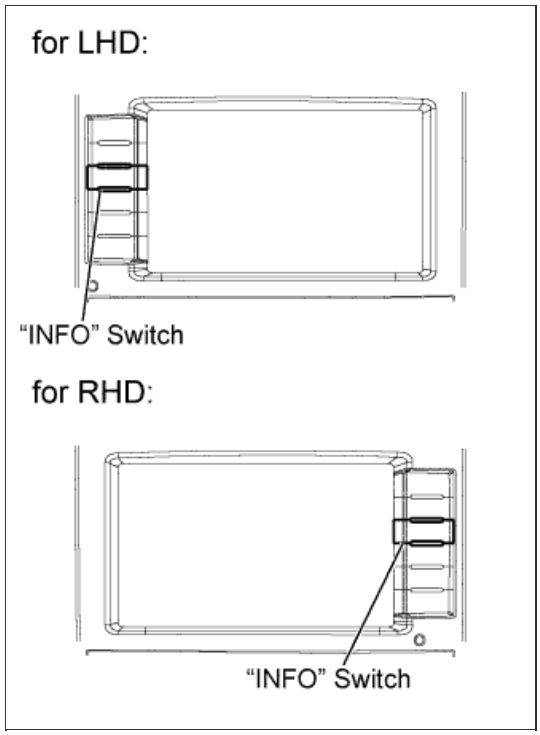
a. There are 2 methods to start diagnostic mode. Start the mode by using one of them.

b. Method 1

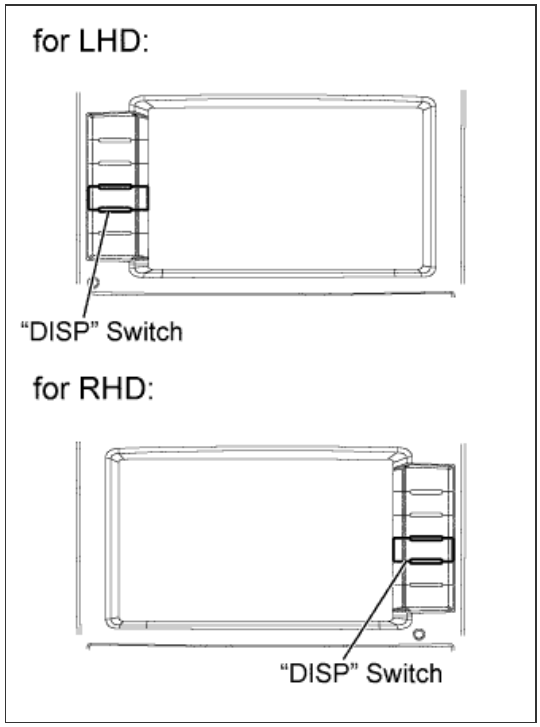
i. Start the engine.

ii. While pressing and holding the "INFO" switch, operate the light control switch: off → Turn on → Turn off → Turn on → Turn off → Turn on → Turn off.

iii. The diagnostic mode starts and the "System Check Mode" screen will be displayed.



c. Method 2

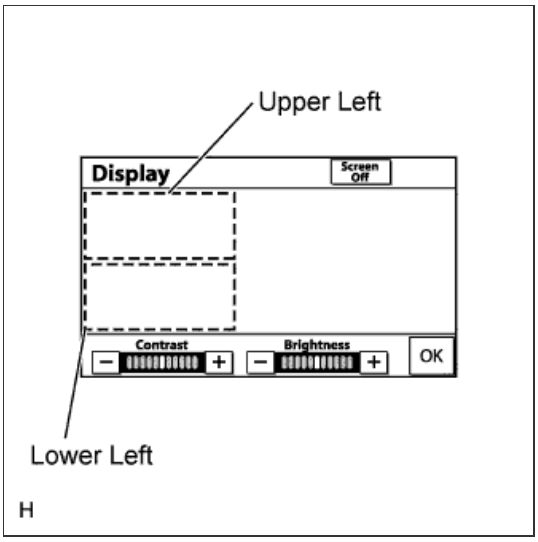


i. Start the engine.

ii. Press the "DISP" switch.

iii. From the display quality adjustment screen, touch the upper and lower left corners of the screen in the following: Upper left → Lower left → Upper left → Lower left → Upper left → Lower left.

iv. Diagnostic mode starts and the "System Check Mode" screen will be displayed. Service inspection starts automatically and the result will be displayed.

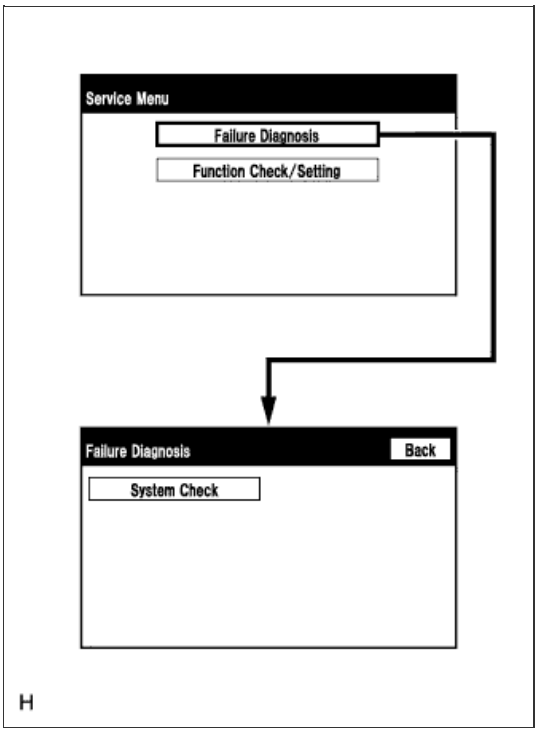


FINISH DIAGNOSTIC MODE

a. Turn the engine switch off.

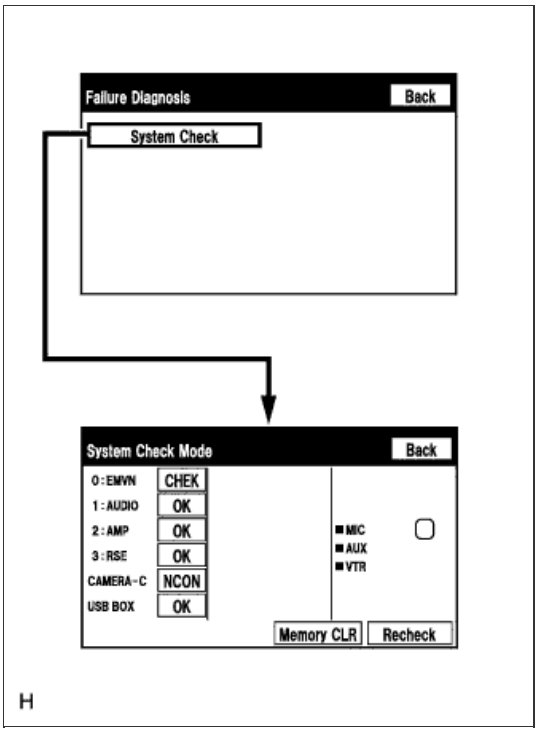
FAILURE DIAGNOSIS

a. The "Failure Diagnosis" screen is displayed when the "Failure Diagnosis" switch on the "Service Menu" screen is selected.



SYSTEM CHECK

a. The "System Check Mode" screen is displayed when the "System Check" switch on the "Failure Diagnosis" screen is selected.



H

CHECK DTC (CHECK USING SYSTEM CHECK MODE SCREEN)

HINT:

Refer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen (Click here).

a. Read the system check result.

i. When the result is "EXCH" or "CHEK", select the icon which displays the result, and check and record each DTC displayed on the "Unit Check Mode" screen.

NOTICE:

A maximum of 6 DTCs can be displayed by the display and navigation module display. When more than 6 DTCs are expected, check DTCs using the intelligent tester.

HINT:

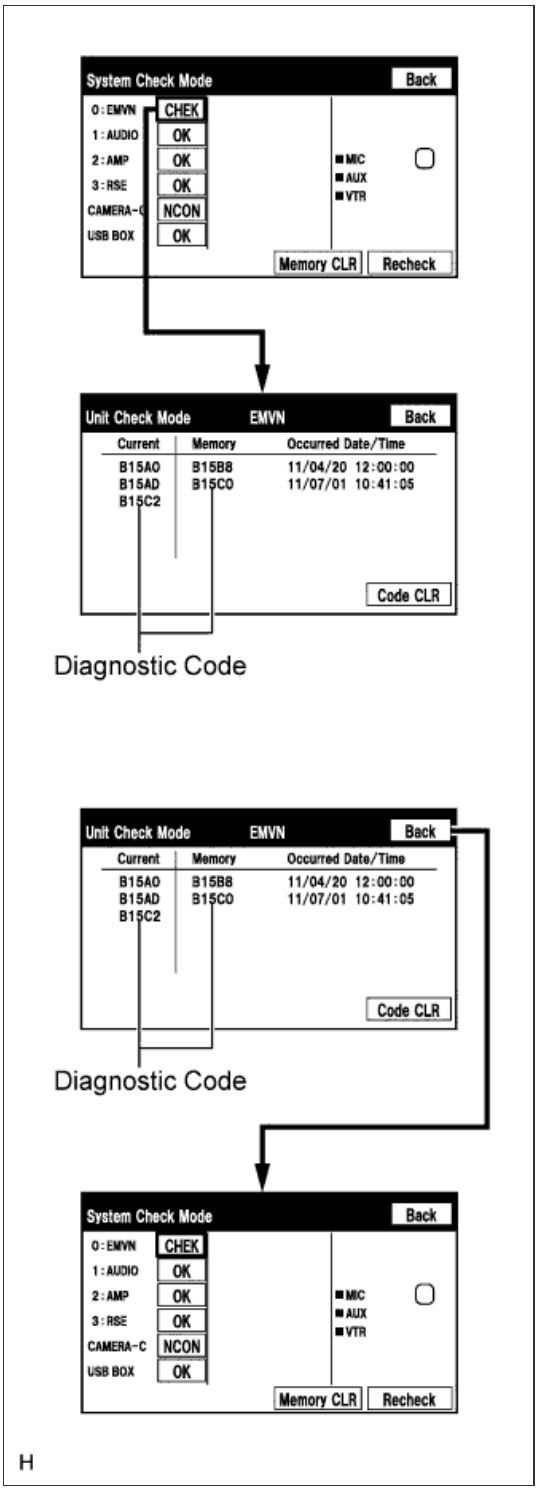
- **Refer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen (Click here).**
- **When all results are "OK", this means that no DTCs are present.**
- **When "MOST" is displayed for the result, selecting "MOST" displays the "MOST Line Check" screen and performs the MOST line check.**
- **Changing to the "MOST Line Check" screen is possible only when the MOST network is malfunctioning and "MOST" is displayed for the result.**
- **If the MOST network had a malfunction in the past, the DTCs will be displayed in the Memory column.**
- **Refer to Diagnosis Display Detailed Description for further details on the "MOST Line Check" screen (Click here).**
- **When "NCON" is displayed for all devices connected using the AVC-LAN, or when all device names are not displayed, check if there is a short circuit in the AVC-LAN or devices connected to the AVC-LAN. Repair or replace parts as necessary (Click here).**
- **When proceeding to view the results of another device, press the "Back" switch to return to the "System Check Mode" screen. Repeat the step above to view the results of other devices.**

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

NOTICE:

The navigation system outputs DTCs for the following system. When DTCs other than the codes in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the system.

System	Proceed to
Audio and visual system (w/ Navigation System)	Click here
Rear seat entertainment system (w/ Rear Seat Entertainment System)	Click here
Parking assist monitor system (w/ Parking Assist Monitor System)	Click here



H

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

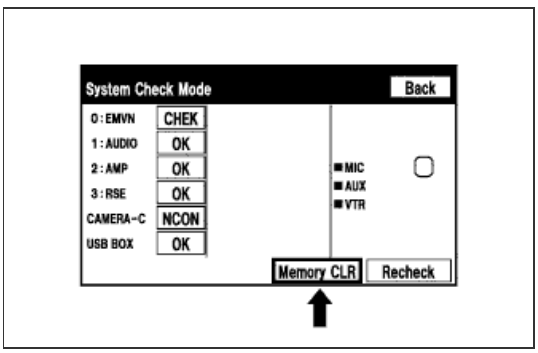
a. Clear DTC

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

ii. The check results are cleared.

HINT:

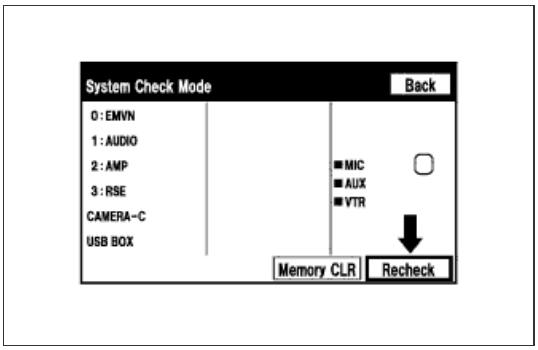
- **To clear the DTC for a specific device, clear the DTC using the "Unit Check Mode" screen.**
- **When clearing a DTC using the "Unit Check Mode" screen, press the "Code CLR" switch for 3 seconds.**



b. Recheck

b. Recheck

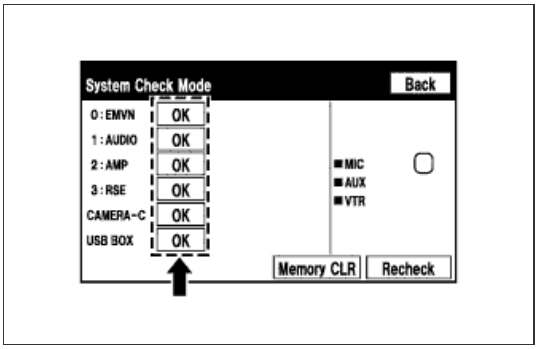
i. Press the "Recheck" switch.



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

HINT:

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



for Preparation Click here

Navigation System

DTC Code	Detection Item	Trouble Area	See page
B1569	DVD-ROM Deck Disconnected	- Navigation module board power source circuit - IEEE cable - Display and navigation module display - Navigation module board	Click here
B156B	Multi-media Interface ECU Disconnected	- Multi-media interface ECU power source circuit - AVC-LAN circuit between display and navigation module display and multi-media interface ECU - Multi-media interface ECU - Display and navigation module display	Click here
B156E	No Response from Multi-media Interface ECU	- Multi-media interface ECU power source circuit - AVC-LAN circuit between display and navigation module display and multi-media interface ECU - Multi-media interface ECU - Display and navigation module display	Click here
B1582	Map Disk Reading Malfunction	- Map disc - Navigation module bord	Click here
B1591	No Response from Audio HU	- Radio receiver assembly power source circuit - MOST circuit between display and navigation module display and radio receiver assembly - MOST circuit between radio receiver assembly and stereo component amplifier assembly - Radio receiver assembly - Stereo component amplifier assembly - Display and navigation module display	Click here
B1593	No Response from Stereo Component Amplifier	- Stereo component amplifier assembly power source circuit - MOST circuit between radio receiver assembly and stereo component amplifier assembly - MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System) - MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System) - Stereo component amplifier assembly - Display and navigation module display	Click here
B1595	No Response from Rear Seat Entertainment System	- Television display assembly power source circuit - MOST circuit between stereo component amplifier assembly and television display assembly - MOST circuit between television display assembly and display and navigation module display - Television display assembly - Display and navigation module display	Click here
B15A0	LAN Master Malfunction	Display and navigation module display	Click here
B15AD	Navigation Processor Malfunction	Display and navigation module display	Click here
B15B0	Display Screen Malfunction	Display and navigation module display	Click here
B15B9	DVD-ROM Deck Malfunction	Navigation module board	Click here
B15C0	Short in GPS Antenna	- Wire harness - Navigation antenna assembly - Display and navigation module display	Click here
B15C1	Open in GPS Antenna	- Wire harness - Navigation antenna assembly - Display and navigation module display	Click here
B15C2	Speed Signal Malfunction	- Combination meter assembly - Display and navigation module display - Wire harness or connector	Click here
		- MOST Line Check - MOST communication line connector - Wire harness or connector	

B15D0	MOST Communication Malfunction	- MOST communication line - Radio receiver assembly - Stereo component amplifier assembly - Television display assembly (w/ Rear Seat Entertainment System) - Display and navigation module display	Click here
B15D1	Audio HU Disconnected	- Radio receiver assembly power source circuit - MOST circuit between display and navigation module display and radio receiver assembly - MOST circuit between radio receiver assembly and stereo component amplifier assembly - Radio receiver assembly - Stereo component amplifier assembly - Display and navigation module display	Click here
B15D3	Stereo Component Amplifier Disconnected	- Stereo component amplifier assembly power source circuit - MOST circuit between radio receiver assembly and stereo component amplifier assembly - MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System) - MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System) - Stereo component amplifier assembly - Display and navigation module display	Click here
B15D5	Rear Seat Entertainment System Disconnected	- Television display assembly power source circuit - MOST circuit between stereo component amplifier assembly and television display assembly - MOST circuit between television display assembly and display and navigation module display - Television display assembly - Display and navigation module display	Click here
B15D8	Monitor Disconnected	- Parking assist ECU power source circuit - AVC-LAN circuit between display and navigation module display and parking assist ECU - Parking assist ECU - Display and navigation module display	Click here
B15F5	A/C ECU Vehicle Information Reading/Writing Processor Malfunction	- CAN communication system - Air conditioning system - A/C ECU (air conditioning amplifier assembly) - Display and navigation module display	Click here
B15F6	Main Body ECU Vehicle Information Reading/Writing Process Malfunction	- CAN communication system - Power door lock control system - Wireless door lock control system - Lighting system - Main body ECU - Display and navigation module display	Click here
B15F7	Certification ECU Vehicle Information Reading/Writing Process Malfunction	- CAN communication system - Entry and start system (for entry function) - Entry and start system (for start function) - Certification ECU (smart key ECU assembly) - Display and navigation module display	Click here
U0073	Control Module Communication Bus Off	CAN communication system	Click here
U0155	Lost Communication with Combination Meter	- Combination meter assembly - CAN communication system	Click here
U0164	Lost Communication with A/C ECU	- Air conditioning amplifier assembly - CAN communication system	Click here
U1110	Lost Communication with Clearance Warning ECU	- Clearance warning ECU assembly - CAN communication system	Click here

DTC B1569 DVD-ROM Deck Disconnected

for Preparation Click here

DESCRIPTION

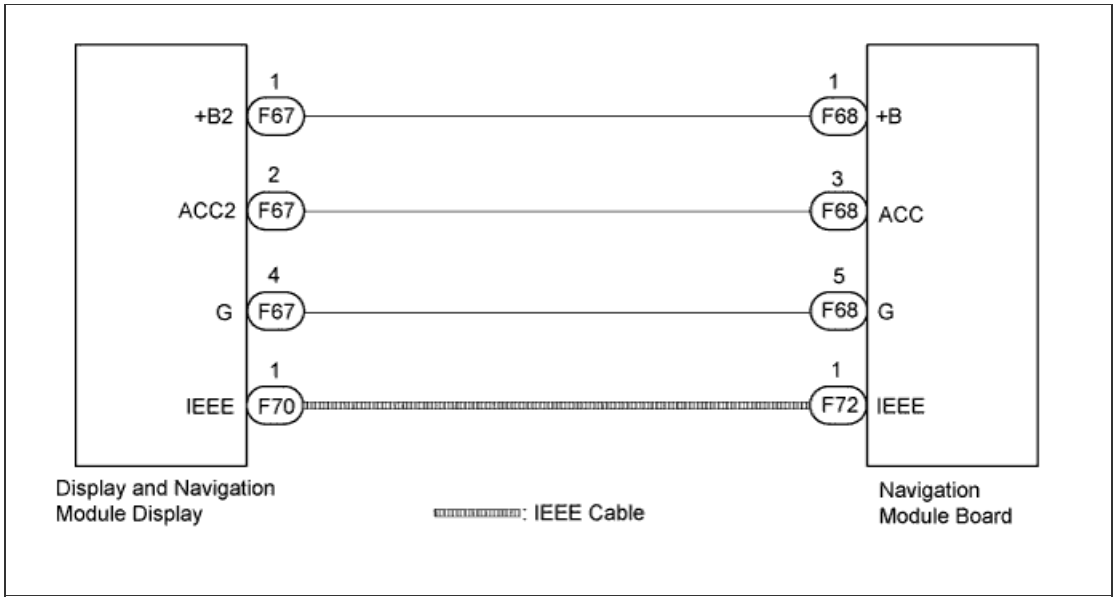
The display and navigation module display and navigation module board are connected by the IEEE cable.
When an IEEE communication error occurs between the display and navigation module display and navigation module board, this DTC will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B1569	When either of the conditions below is met: • Navigation module board is/was not connected while the engine switch is on (IG or ACC). • Communication between the master unit and navigation module board is not possible when the engine is started.	• Navigation module board power source circuit • IEEE cable • Display and navigation module display • Navigation module board

HINT:

- **Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

Result	Proceed to
Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect IEEE communication.**
- **This DTC may be stored when an IEEE communication error occurs due to electrical noise.**

B → Go to step

A

.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → Go to step 4

OK

END

4.CHECK HARNESS AND CONNECTOR (NAVIGATION MODULE BOARD POWER SOURCE)

a. Disconnect the F68 navigation module board connector.

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

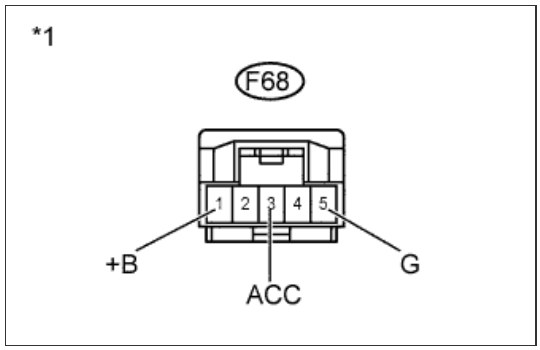
Standard Resistance:

Tester Connection	Condition	Specified Condition
F68-5 (G) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

Tester Connection	Condition	Specified Condition
F68-1 (+B) - F68-5 (G)	Always	11 to 14 V
F68-3 (ACC) - F68-5 (G)	Engine switch on (ACC)	11 to 14 V



Text in Illustration

*1	Front view of wire harness connector (to Navigation Module Board)

NG → Go to step 8

OK

5.CHECK IEEE CABLE CONNECTOR

a. Check for the IEEE cable connector.

i. Check if the IEEE cable connectors between the navigation module board and the display and navigation module display have any connection problems (Click here).

b. Check that the screen display is normal.

OK:
Screen display is normal.

NG → Go to step 6

OK

END

6.REPLACE IEEE CABLE

a. Replace the IEEE cable between the navigation module board and the display and navigation module display.

b. Check that the screen display is normal.

OK:
Screen display is normal.

NG → Go to step 7

OK

END

7.REPLACE NAVIGATION MODULE BOARD

a. Replace the navigation module board (Click here).

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

END

8.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - NAVIGATION MODULE BOARD)

a. Disconnect the F67 display and navigation module display connector.

b. Disconnect the F68 navigation module board connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F67-1 (+B2) - F68-1 (+B)	Always	Below 1 Ω
F67-2 (ACC2) - F68-3 (ACC)	Always	Below 1 Ω
F67-4 (G) - F68-5 (G)	Always	Below 1 Ω
F67-1 (+B2) - Body ground	Always	10 kΩ or higher
F67-2 (ACC2) -		

Body ground	Always	10 kΩ or higher
F67-4 (G) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

DTC B15B9 DVD-ROM Deck Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when a malfunction occurs in the navigation module board.

DTC No.	DTC Detection Condition	Trouble Area
B15B9	When either of the conditions below is met: • RAM error • Internal power supply malfunction	Navigation module board

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE NAVIGATION MODULE BOARD (Click here

OK ↓

USE SIMULATION METHOD TO CHECK (Click here

DTC B156B Multi-media Interface ECU Disconnected

DTC B156E No Response from Multi-media Interface ECU

for Preparation Click here

DESCRIPTION

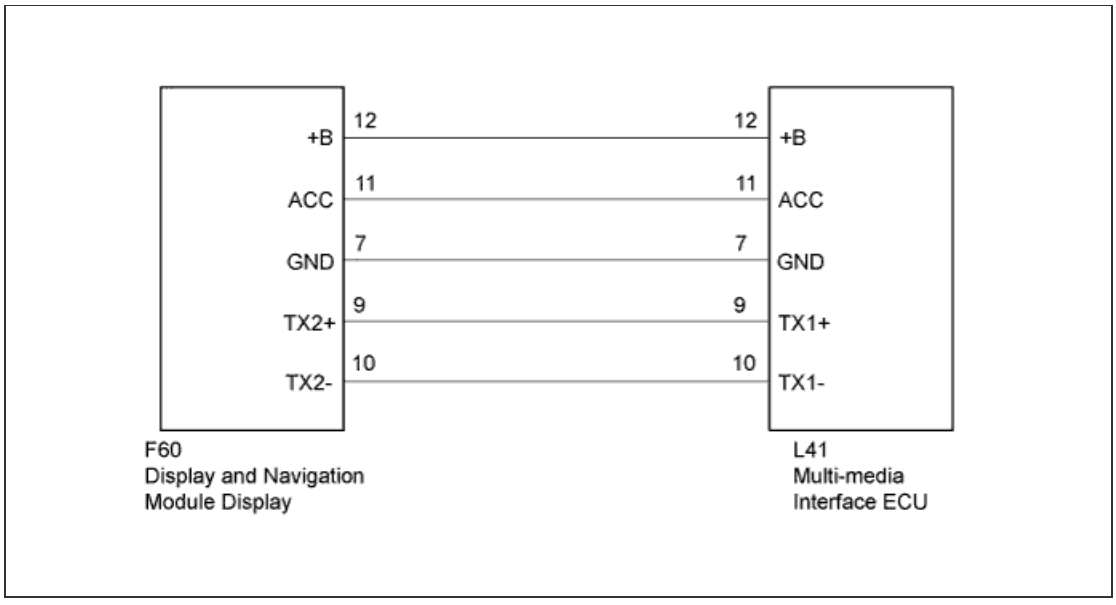
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and the multi-media interface ECU, these DTCs will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B156B*1	When either condition below is met: • Multi-media interface ECU is/was not connected while the engine switch is on (ON or ACC). • Communication between the master unit and multi-media interface ECU is not possible when the engine is started.	• Multi-media interface ECU power source circuit • AVC-LAN circuit between display and navigation module display and multi-media interface ECU • Multi-media interface ECU • Display and navigation module display
B156E	Within the time-out period, there was no response from the display and navigation module display to the following requests from the master unit: • System inspection request • System inspection result request • Diagnostic memory request	

HINT:

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

Result	Proceed to

Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

B → **Go to step 3**

A

2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → **Go to step 4**

OK

END

4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L41 multi-media interface ECU connector.

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

Standard Resistance:

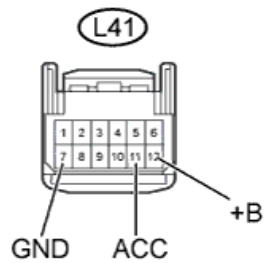
Tester Connection	Condition	Specified Condition
L41-7 (GND) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

Tester Connection	Condition	Specified Condition
L41-12 (+B) - L41-7 (GND)	Always	11 to 14 V
L41-11 (ACC) - L41-7 (GND)	Engine switch on (ACC)	11 to 14 V

*1



Text in Illustration

	Front view of wire harness connector

*1	(to Multi-media Interface ECU)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - DISPLAY AND NAVIGATION MODULE)

a. Disconnect the L41 multi-media interface ECU connector.

b. Disconnect the F60 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L41-9 (TX1+) - F60-9 (TX2+)	Always	Below 1 Ω
L41-10 (TX1-) - F60-10 (TX2-)	Always	Below 1 Ω
L41-9 (TX1+) - Body ground	Always	10 kΩ or higher
L41-10 (TX1-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

6.REPLACE MULTI-MEDIA INTERFACE ECU

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK ↓

END

DTC B15C0 Short in GPS Antenna

DTC B15C1 Open in GPS Antenna

for Preparation Click here

DESCRIPTION

These DTCs are stored when a malfunction occurs in the navigation antenna assembly.

DTC No.	DTC Detection Condition	Trouble Area
B15C0	Navigation antenna assembly error	• Wire harness • Navigation antenna assembly • Display and navigation module display
B15C1	Error of the power source to the navigation antenna assembly	

INSPECTION PROCEDURE

1.CHECK CONNECTION OF ANTENNA CABLE

a. Check if the navigation antenna cable is securely connected to the display and navigation module display.

OK:
Navigation antenna cable is securely connected.

NG → **SECURELY CONNECT NAVIGATION ANTENNA CABLE**

OK ↓

2.REPLACE NAVIGATION ANTENNA ASSEMBLY

a. Replace the navigation antenna assembly with a known good one and recheck for DTCs (Click here).

i. Clear the DTCs (Click here).

ii. Recheck for DTCs.

OK:
No DTCs are output.

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK ↓

END

DTC B156B Multi-media Interface ECU Disconnected

DTC B156E No Response from Multi-media Interface ECU

for Preparation Click here

DESCRIPTION

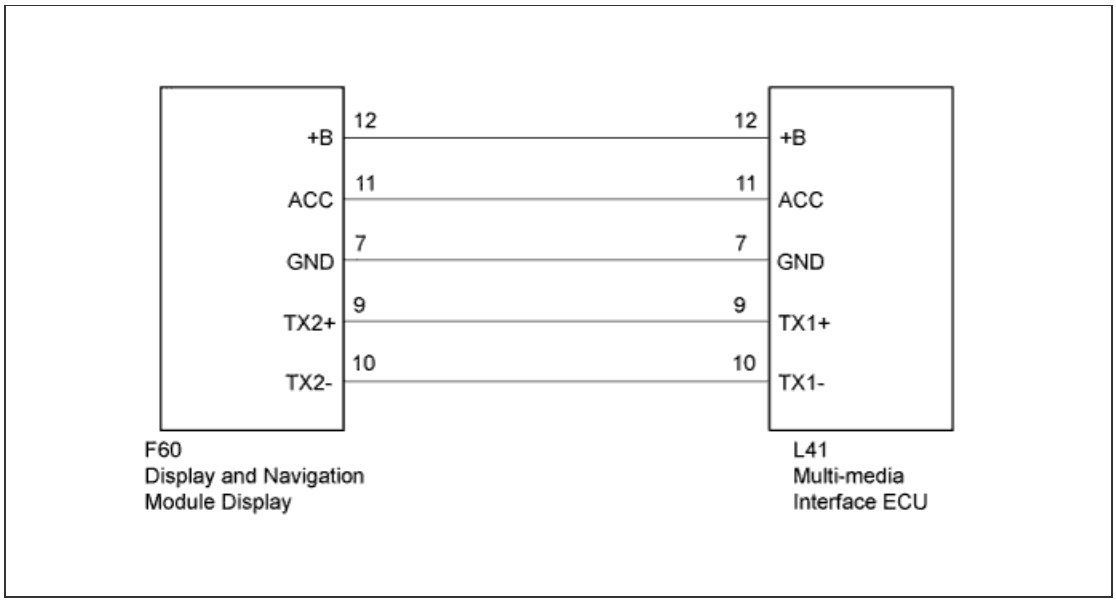
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and the multi-media interface ECU, these DTCs will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B156B*1	When either condition below is met: • Multi-media interface ECU is/was not connected while the engine switch is on (ON or ACC). • Communication between the master unit and multi-media interface ECU is not possible when the engine is started.	• Multi-media interface ECU power source circuit • AVC-LAN circuit between display and navigation module display and multi-media interface ECU • Multi-media interface ECU • Display and navigation module display
B156E	Within the time-out period, there was no response from the display and navigation module display to the following requests from the master unit: • System inspection request • System inspection result request • Diagnostic memory request	

HINT:

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

Result	Proceed to

Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

B → **Go to step 3**

A

2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → **Go to step 4**

OK

END

4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L41 multi-media interface ECU connector.

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

Standard Resistance:

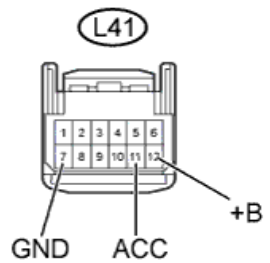
Tester Connection	Condition	Specified Condition
L41-7 (GND) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

Tester Connection	Condition	Specified Condition
L41-12 (+B) - L41-7 (GND)	Always	11 to 14 V
L41-11 (ACC) - L41-7 (GND)	Engine switch on (ACC)	11 to 14 V

*1



Text in Illustration

	Front view of wire harness connector

*1	(to Multi-media Interface ECU)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - DISPLAY AND NAVIGATION MODULE)

a. Disconnect the L41 multi-media interface ECU connector.

b. Disconnect the F60 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L41-9 (TX1+) - F60-9 (TX2+)	Always	Below 1 Ω
L41-10 (TX1-) - F60-10 (TX2-)	Always	Below 1 Ω
L41-9 (TX1+) - Body ground	Always	10 kΩ or higher
L41-10 (TX1-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

6.REPLACE MULTI-MEDIA INTERFACE ECU

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK ↓

END

DTC B15C0 Short in GPS Antenna

DTC B15C1 Open in GPS Antenna

for Preparation Click here

DESCRIPTION

These DTCs are stored when a malfunction occurs in the navigation antenna assembly.

DTC No.	DTC Detection Condition	Trouble Area
B15C0	Navigation antenna assembly error	• Wire harness • Navigation antenna assembly • Display and navigation module display
B15C1	Error of the power source to the navigation antenna assembly	

INSPECTION PROCEDURE

1.CHECK CONNECTION OF ANTENNA CABLE

a. Check if the navigation antenna cable is securely connected to the display and navigation module display.

OK:
Navigation antenna cable is securely connected.

NG → **SECURELY CONNECT NAVIGATION ANTENNA CABLE**

OK ↓

2.REPLACE NAVIGATION ANTENNA ASSEMBLY

a. Replace the navigation antenna assembly with a known good one and recheck for DTCs (Click here).

i. Clear the DTCs (Click here).

ii. Recheck for DTCs.

OK:
No DTCs are output.

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK ↓

END

DTC B1582 Map Disk Reading Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when the navigation module board cannot read the map disc.

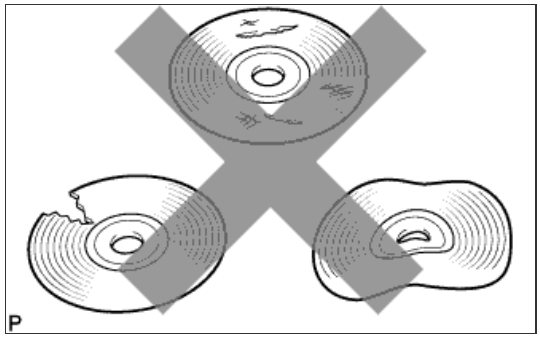
DTC No.	DTC Detection Condition	Trouble Area
B1582	• Player error • Scratches or dirt on the disc • Access to an invalid address due to software error	• Map disc • Navigation module board

INSPECTION PROCEDURE

1.CHECK MAP DISC

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

OK:
No deformations or cracks on the map disc



NG → REPLACE MAP DISC

OK

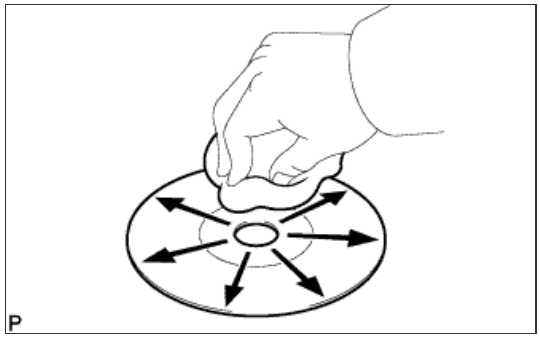
2.DISC CLEANING

a. Disc cleaning

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

NOTICE:

Do not use a conventional record cleaner or anti-static preservative.



NEXT

3.CHECK DTC

a. Clear the DTC (Click here).

b. eheck for DTCs and check if the same trouble occurs again.

OK:
No DTC is output.

NG → REPLACE NAVIGATION MODULE BOARD (Click here)

OK

USE SIMULATION METHOD TO CHECK (Click here)

DTC B15C2 Speed Signal Malfunction

for Preparation Click here

DESCRIPTION

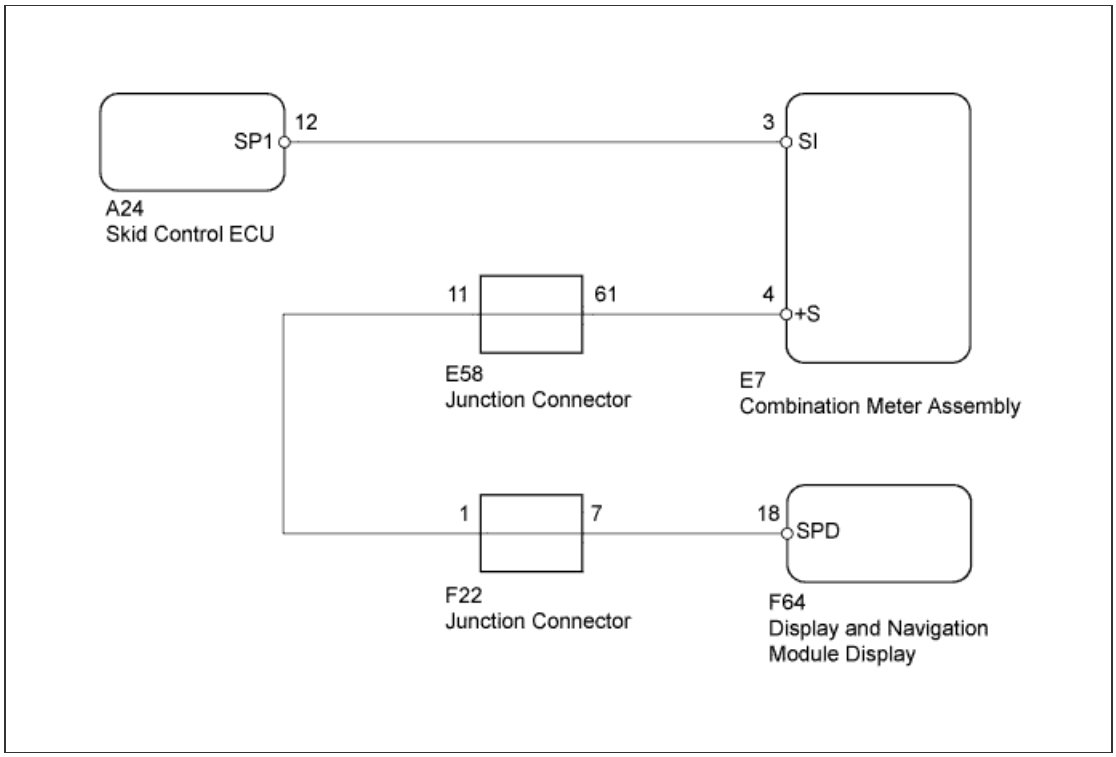
The display and navigation module display receives a vehicle speed signal from the combination meter assembly and information about the GPS antenna, and then adjusts vehicle position.
The display and navigation module display stores this DTC when the difference between the speed information that the GPS antenna receives and the SPD pulse received from the combination meter assembly becomes large.

HINT:

- **A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter assembly. The signal is changed to a pulse signal at the transistor in the combination meter assembly. Each ECU controls the respective systems based on the pulse signal.**
- **If a short occurs in any of the ECUs or in the wire harness connected to an ECU, all systems in the diagram below will not operate normally.**

DTC No.	DTC Detection Condition	Trouble Area
B15C2	A difference between the GPS speed and SPD pulse is detected.	• Combination meter assembly • Wire harness or connector • Display and navigation module display

WIRING DIAGRAM



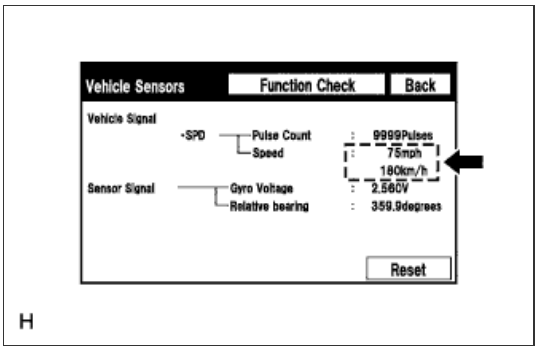
INSPECTION PROCEDURE

1.CHECK VEHICLE SENSOR (OPERATION CHECK)

a. Enter the "Vehicle Sensors" screen. Refer to check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "SPD" indicator to the reading on the speedometer. Check if these readings are almost equal.

OK:
The readings are almost equal.



NG → Go to step 2

OK

REP ACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

2.INSPECT COMBINATION METER ASSEMBLY (OUTPUT WAVEFORM)

a. Check the input waveform.

i. Remove the combination meter assembly with the connector(s) still connected.

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

iii. Turn the engine switch on (IG).

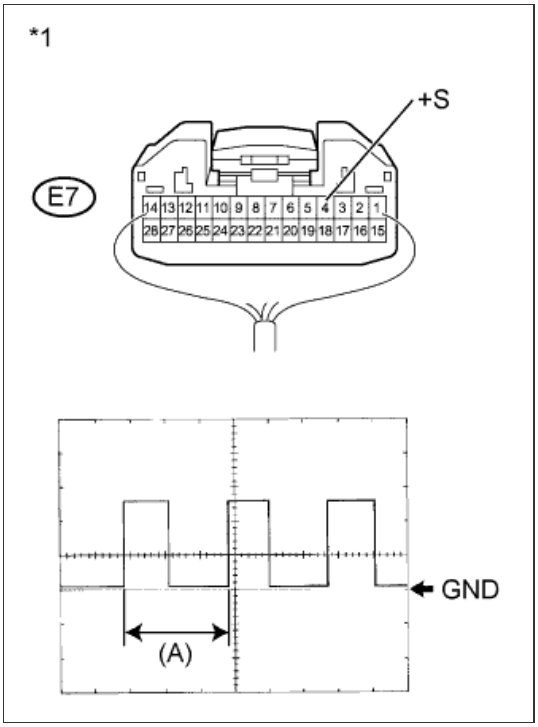
iv. Turn the wheel slowly.

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)

Text in Illustration

*1	Component with harness connected (Combination Meter Assembly)



OK:

The waveform is displayed as shown in the illustration.

HINT:

When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.

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

OK

3.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - COMBINATION METER)

a. Disconnect the F64 display and navigation module display 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
F64-18 (SPD) - E7-4 (+S)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

DTC B1591 No Response from Audio HU

DTC B15D1 Audio HU Disconnected

for Preparation Click here

DESCRIPTION

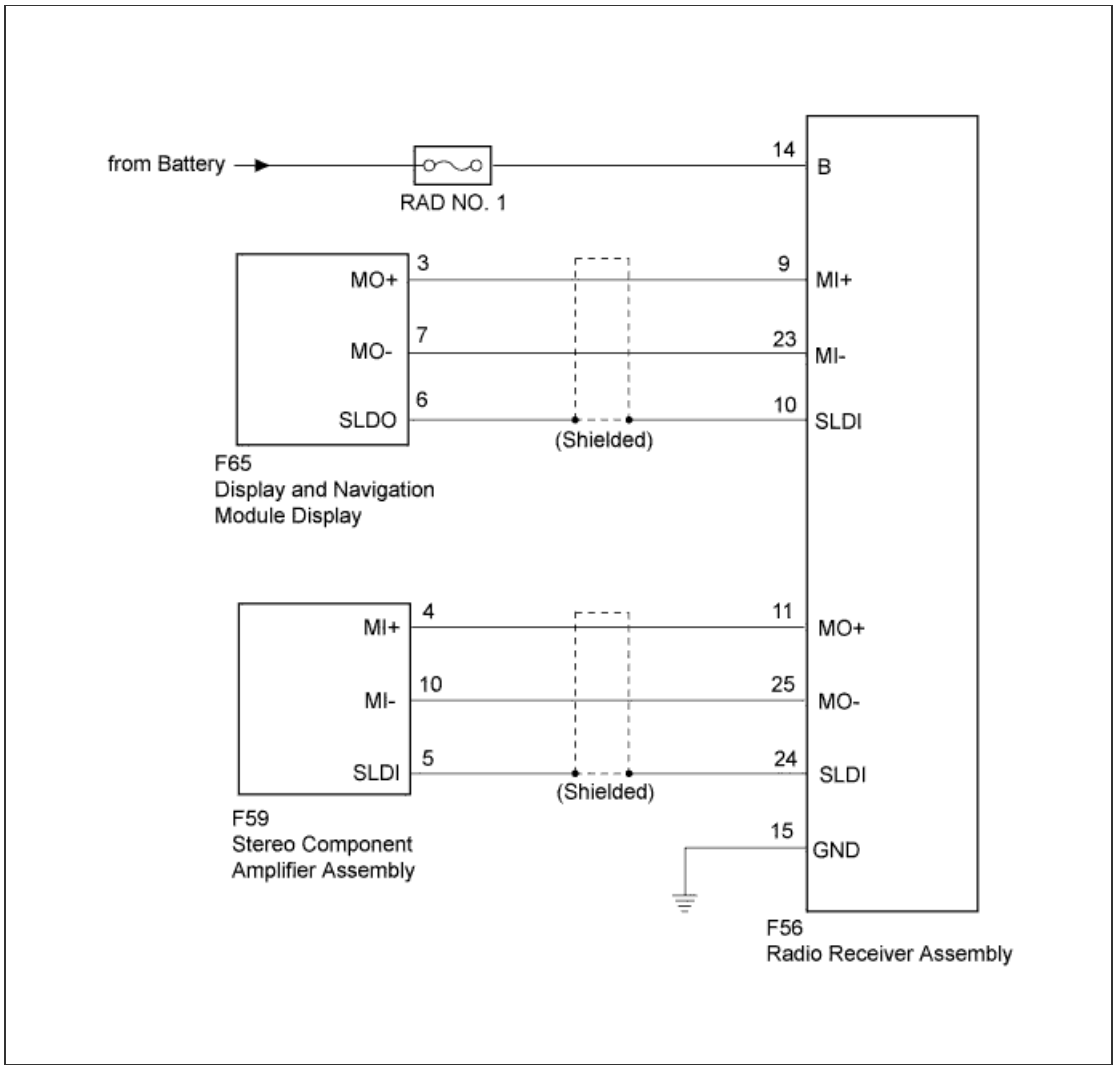
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and the radio receiver assembly, these DTCs will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B1591	Within the time-out period, there was no response from the radio receiver assembly to the following requests from the master unit: • System inspection request • System inspection result request • Diagnostic memory request	• Radio receiver assembly power source circuit • MOST circuit between display and navigation module display and radio receiver assembly • MOST circuit between radio receiver assembly and stereo component amplifier assembly • Radio receiver assembly • Display and navigation module display
B15D1*1	When either of the conditions below is met: • Radio receiver assembly is/was not connected while the engine switch is on (IG or ACC). • Communication between the master unit and the radio receiver assembly is not possible when the engine is started.	

HINT:

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

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

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

Result	Proceed to
Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → Go to step 4

OK

END

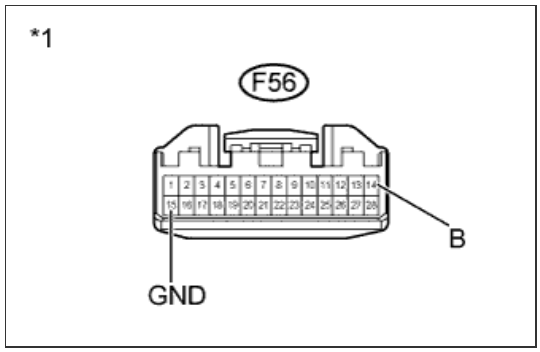
4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F56-15 (GND) - Body ground	Always	Below 1 Ω



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

Standard Voltage:

Tester Connection	Condition	Specified Condition
F56-14 (B) - F56-15 (GND)	Always	11 to 14 V

Text in Illustration

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

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the F65 display and navigation module display connector.

b. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F65-3 (MO+) - F56-9 (MI+)	Always	Below 1 Ω
F65-7 (MO-) - F56-23 (MI-)	Always	Below 1 Ω

F65-6 (SLDO) - F56-10 (SLDI)	Always	Below 1 Ω
F65-3 (MO+) - Body ground	Always	10 kΩ or higher
F65-7 (MO-) - Body ground	Always	10 kΩ or higher
F65-6 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the F56 radio receiver assembly connector.

b. Disconnect the F59 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
F56-11 (MO+) - F59-4 (MI+)	Always	Below 1 Ω
F56-25 (MO-) - F59-10 (MI-)	Always	Below 1 Ω
F56-24 (SLDI) - F59-5 (SLDI)	Always	Below 1 Ω
F56-11 (MO+) - Body ground	Always	10 kΩ or higher
F56-25 (MO-) - Body ground	Always	10 kΩ or higher
F56-24 (SLDI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.REPLACE RADIO RECEIVER ASSEMBLY

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

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

END

DTC B15D0 MOST Communication Malfunction

for Preparation Click here

DESCRIPTION

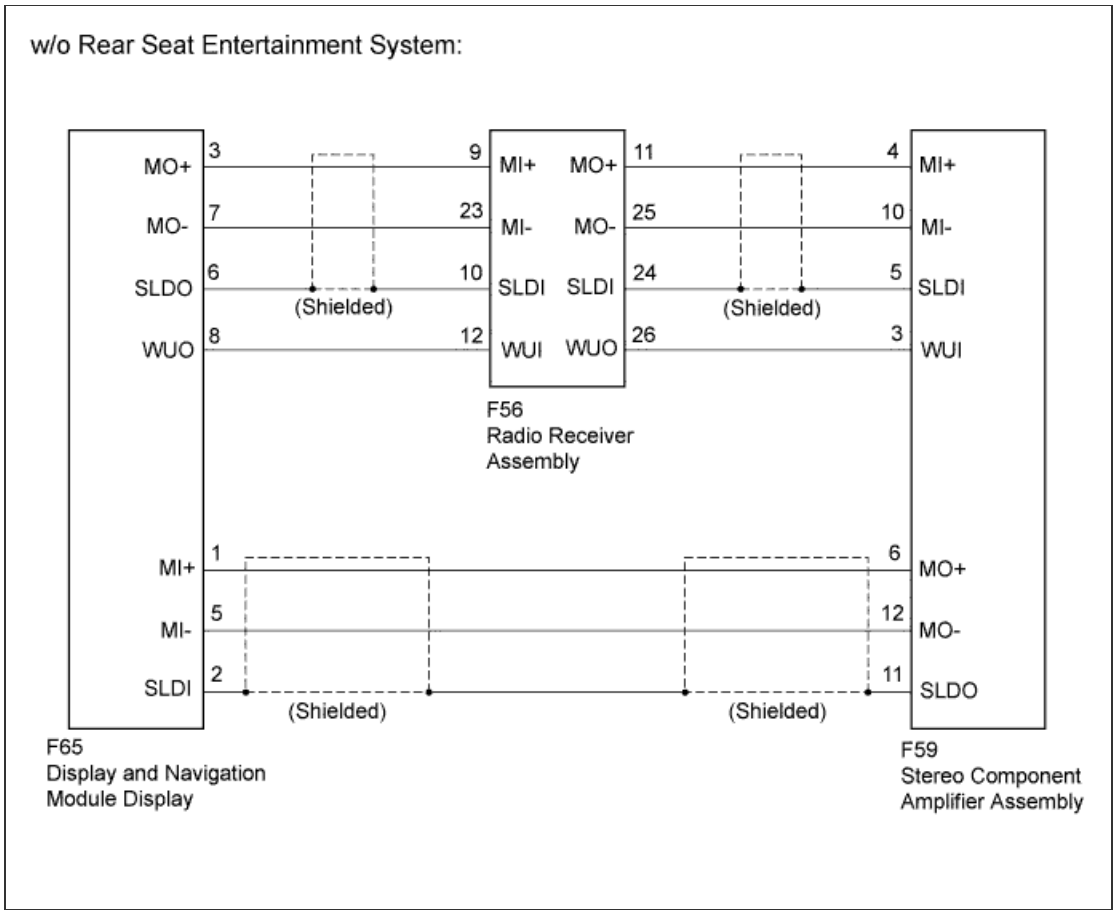
This DTC is stored when the MOST network cannot be established after the master unit is activated.

DTC No.	DTC Detection Condition	Trouble Area
B15D0	MOST network cannot be established.	• MOST line check • MOST communication line connector • Wire harness or connector • MOST communication line • Radio receiver assembly • Stereo component amplifier assembly • Television display assembly (w/ Rear Seat Entertainment System) • Display and navigation module display

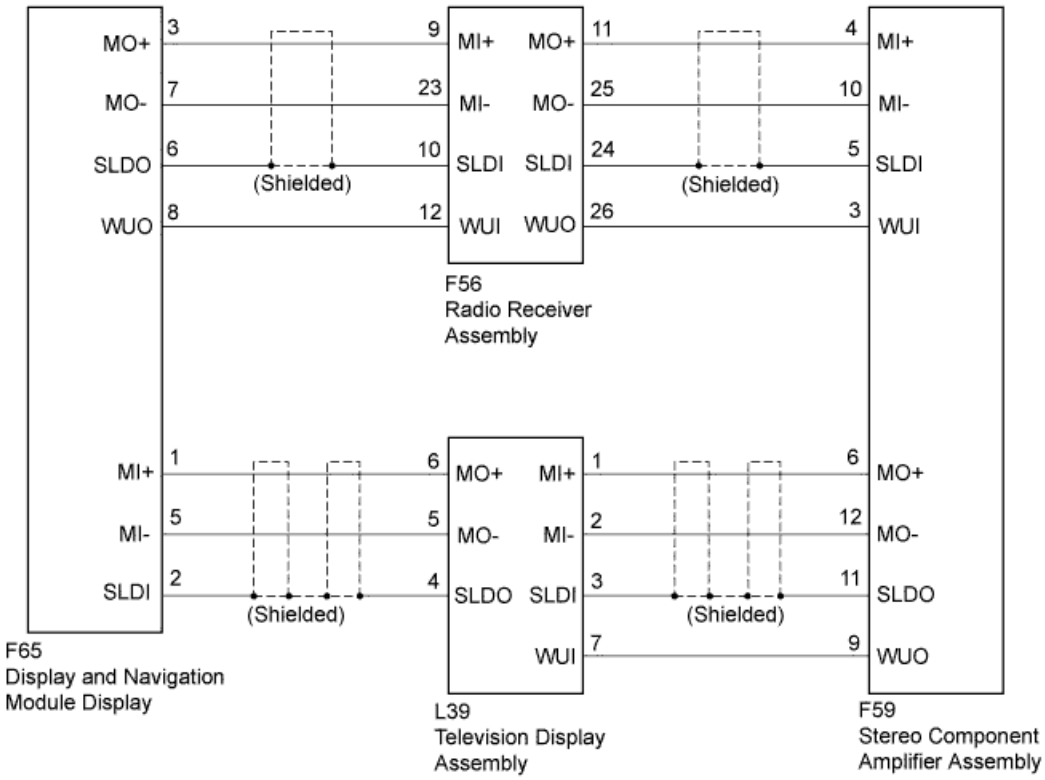
HINT:

- **For the MOST network, the display and navigation module display is the master unit.**
- **Errors may occur in MOST communication between devices due to problems such as electrical noise.**

WIRING DIAGRAM



w/ Rear Seat Entertainment System:

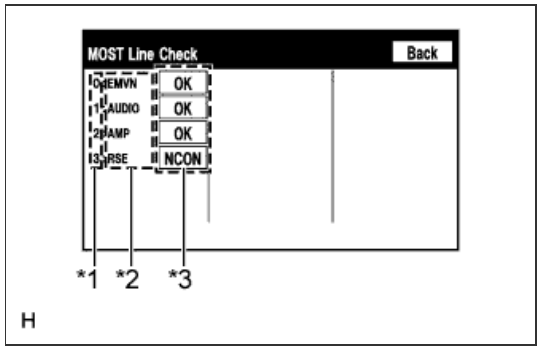


INSPECTION PROCEDURE

1.PERFORM MOST LINE CHECK

a. Display the "MOST Line Check" screen (Click here).

b. Check the result on the "MOST Line Check" screen.



Result

Result	Proceed to
"NCON" is displayed for "AUDIO".	A
"NCON" is displayed for "AMP".	B
"NCON" is displayed for "RSE" (w/ rear seat entertainment system).	C
"OK" is displayed for all items.	D

HINT:

- **When "NCON" is displayed for more than 1 item, proceed to the step for the device that has the smallest node position number.**
- **The "MOST Line Check" screen can be displayed only when DTC B15D0 is stored.**

Text in Illustration

*1	Node position number for devices that use MOST communication
*2	Device name
*3	Result

B	Go to step 5

C → Go to step 8

D → Go to step 11

A

2.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the display and navigation module display and radio receiver assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result (Click here).

Result

Result	Proceed to
"NCON" is displayed for "AUDIO".	A
The screen cannot be changed to the "MOST Line Check" screen.	B

HINT:

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

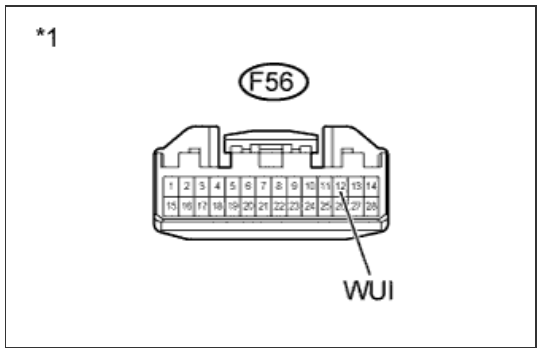
3.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the F56 radio receiver assembly connector.

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

Standard Voltage:

Tester Connection	Condition	Specified Condition
F56-12 (WUI) - Body ground	Engine switch on (ACC)	4.5 V or higher



Text in Illustration

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

NG → Go to step 4

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F56 radio receiver assembly connector.

b. Disconnect the F65 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F56-12 (WUI) - F65-8 (WUO)	Always	Below 1 Ω

F56-12 (WUI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

5.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the radio receiver assembly and stereo component amplifier assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result (Click here).

Result

Result	Proceed to
"NCON" is displayed for "AMP".	A
The screen cannot be changed to the "MOST Line Check" screen.	B

HINT:

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

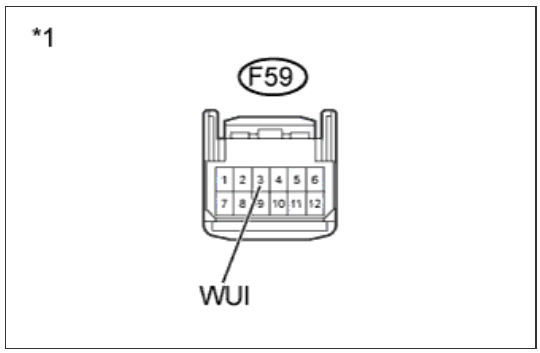
6.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the F59 stereo component amplifier assembly connector.

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

Standard Voltage:

Tester Connection	Condition	Specified Condition
F59-3 (WUI) - Body ground	Engine switch on (ACC)	4.5 V or higher



Text in Illustration

*1	Front view of wire harness connector (to Stereo Component Amplifier Assembly)

NG → Go to step 7

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

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

a. Disconnect the F59 stereo component amplifier assembly connector.

b. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified

		Condition
F59-3 (WUI) - F56-26 (WUO)	Always	Below 1 Ω
F59-3 (WUI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

8.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the stereo component amplifier assembly and television display assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result (Click here).

Result

Result	Proceed to
"NCON" is displayed for "RSE".	A
The screen cannot be changed to the "MOST Line Check" screen.	B

HINT:

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

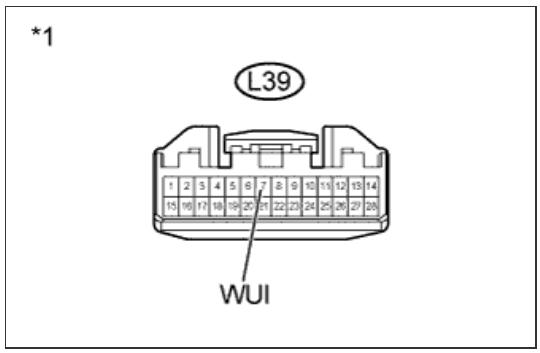
9.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the L39 television display assembly connector.

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

Standard Voltage:

Tester Connection	Condition	Specified Condition
L39-7 (WUI) - Body ground	Engine switch on (ACC)	4.5 V or higher



Text in Illustration

*1	Front view of wire harness connector (to Television Display Assembly)

NG → Go to step 10

OK

REPLACE TELEVISION DISPLAY ASSEMBLY (Click here)

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

a. Disconnect the L39 television display assembly connector.

b. Disconnect the F59 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
L39-7 (WUI) - F59-9 (WUO)	Always	Below 1 Ω
L39-7 (WUI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

11.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - RADIO RECEIVER)

a. Disconnect the F65 display and navigation module display connector.

b. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F65-3 (MO+) - F56-9 (MI+)	Always	Below 1 Ω
F65-7 (MO-) - F56-23 (MI-)	Always	Below 1 Ω
F65-6 (SLDO) - F56-10 (SLDI)	Always	Below 1 Ω
F65-3 (MO+) - Body ground	Always	10 kΩ or higher
F65-7 (MO-) - Body ground	Always	10 kΩ or higher
F65-6 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the F56 radio receiver assembly connector.

b. Disconnect the F59 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
F56-11 (MO+) - F59-4 (MI+)	Always	Below 1 Ω
F56-25 (MO-) - F59-10 (MI-)	Always	Below 1 Ω
F56-24 (SLDI) - F59-5 (SLDI)	Always	Below 1 Ω
F56-11 (MO+) - Body ground	Always	10 kΩ or higher
F56-25 (MO-) - Body ground	Always	10 kΩ or higher
F56-24 (SLDI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

13.CONFIRM MODEL

a. Choose the model to be inspected.

Result

Result	Proceed to
w/o Rear Seat Entertainment System	A
w/ Rear Seat Entertainment System	B

B → Go to step 16

A

14.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F59 stereo component amplifier assembly connector.

b. Disconnect the F65 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F59-6 (MO+) - F65-1 (MI+)	Always	Below 1 Ω
F59-12 (MO-) - F65-5 (MI-)	Always	Below 1 Ω
F59-11 (SLDO) - F65-2 (SLDI)	Always	Below 1 Ω
F59-6 (MO+) - Body ground	Always	10 kΩ or higher
F59-12 (MO-) - Body ground	Always	10 kΩ or higher
F59-11 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

15.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

USE SIMULATION METHOD TO CHECK (Click here)

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

a. Disconnect the F59 stereo component amplifier assembly connector.

b. Disconnect the L39 television display assembly.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F59-6 (MO+) - L39-1 (MI+)	Always	Below 1 Ω
F59-12 (MO-) - L39-2 (MI-)	Always	Below 1 Ω
F59-11 (SLDO) - L39-3 (SLDI)	Always	Below 1 Ω
F59-6 (MO+) - Body ground	Always	10 kΩ or higher
F59-12 (MO-) - Body ground	Always	10 kΩ or higher
F59-11 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

17.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the L39 television display assembly.

b. Disconnect the F65 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L39-6 (MO+) - F65-1 (MI+)	Always	Below 1 Ω
L39-5 (MO-) - F65-5 (MI-)	Always	Below 1 Ω
L39-4 (SLDO) - F65-2 (SLDI)	Always	Below 1 Ω
L39-6 (MO+) - Body ground	Always	10 kΩ or higher
L39-5 (MO-) - Body ground	Always	10 kΩ or higher
L39-4 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

18.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

USE SIMULATION METHOD TO CHECK (Click here)

DTC B1591 No Response from Audio HU

DTC B15D1 Audio HU Disconnected

for Preparation Click here

DESCRIPTION

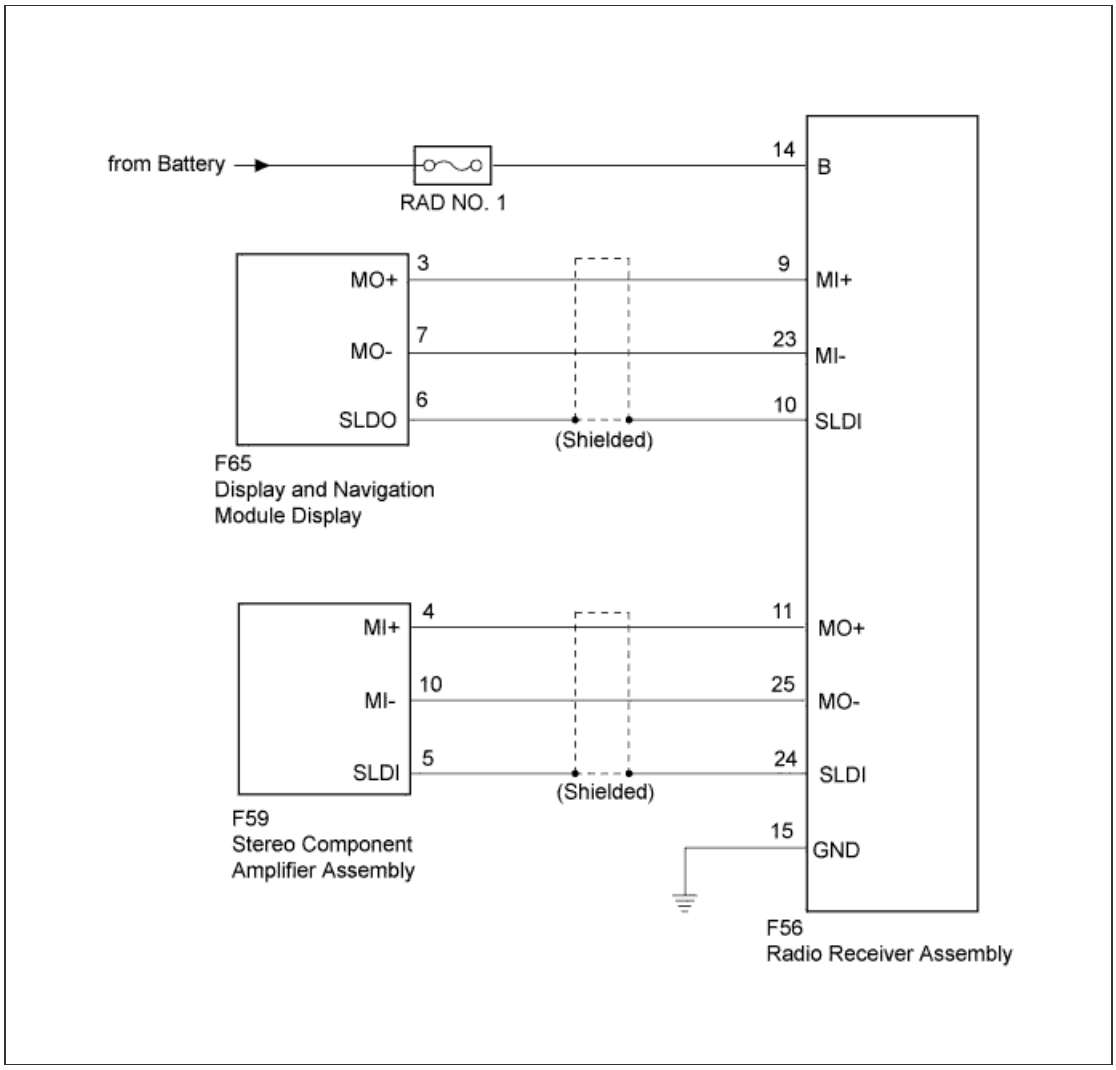
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and the radio receiver assembly, these DTCs will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B1591	Within the time-out period, there was no response from the radio receiver assembly to the following requests from the master unit: • System inspection request • System inspection result request • Diagnostic memory request	• Radio receiver assembly power source circuit • MOST circuit between display and navigation module display and radio receiver assembly • MOST circuit between radio receiver assembly and stereo component amplifier assembly • Radio receiver assembly • Display and navigation module display
B15D1*1	When either of the conditions below is met: • Radio receiver assembly is/was not connected while the engine switch is on (IG or ACC). • Communication between the master unit and the radio receiver assembly is not possible when the engine is started.	

HINT:

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

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

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

Result	Proceed to
Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → Go to step 4

OK

END

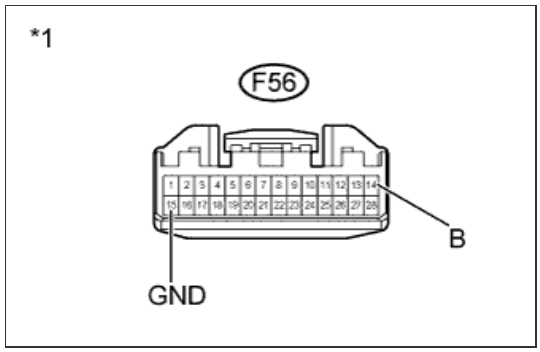
4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F56-15 (GND) - Body ground	Always	Below 1 Ω



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

Standard Voltage:

Tester Connection	Condition	Specified Condition
F56-14 (B) - F56-15 (GND)	Always	11 to 14 V

Text in Illustration

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

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the F65 display and navigation module display connector.

b. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F65-3 (MO+) - F56-9 (MI+)	Always	Below 1 Ω
F65-7 (MO-) - F56-23 (MI-)	Always	Below 1 Ω

F65-6 (SLDO) - F56-10 (SLDI)	Always	Below 1 Ω
F65-3 (MO+) - Body ground	Always	10 kΩ or higher
F65-7 (MO-) - Body ground	Always	10 kΩ or higher
F65-6 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the F56 radio receiver assembly connector.

b. Disconnect the F59 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
F56-11 (MO+) - F59-4 (MI+)	Always	Below 1 Ω
F56-25 (MO-) - F59-10 (MI-)	Always	Below 1 Ω
F56-24 (SLDI) - F59-5 (SLDI)	Always	Below 1 Ω
F56-11 (MO+) - Body ground	Always	10 kΩ or higher
F56-25 (MO-) - Body ground	Always	10 kΩ or higher
F56-24 (SLDI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.REPLACE RADIO RECEIVER ASSEMBLY

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

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

END

DTC B15D8 Monitor Disconnected

for Preparation Click here

DESCRIPTION

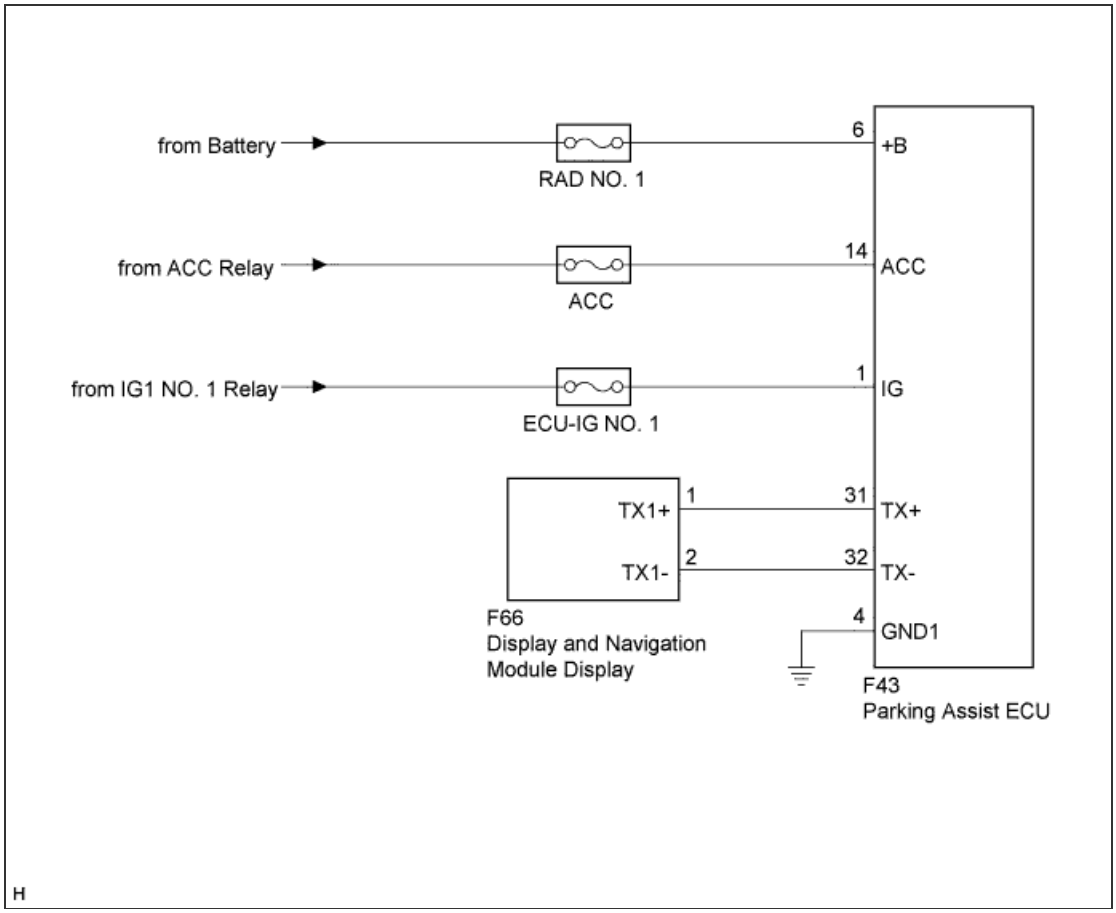
The display and navigation module display and parking assist ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and parking assist ECU, this DTC will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B15D8	A device that is listed in the AVC-LAN connected device record of the master unit is missing.	• Parking assist ECU power source circuit • AVC-LAN circuit between display and navigation module display and parking assist ECU • Parking assist ECU • Display and navigation module display

HINT:

The display and navigation module display is the master unit.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

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

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

	Proceed

Result	to
Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

B → Go to step 3

A

2.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → Go to step 4

OK

END

4.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU POWER SOURCE)

a. Disconnect the F43 parking assist ECU connector.

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

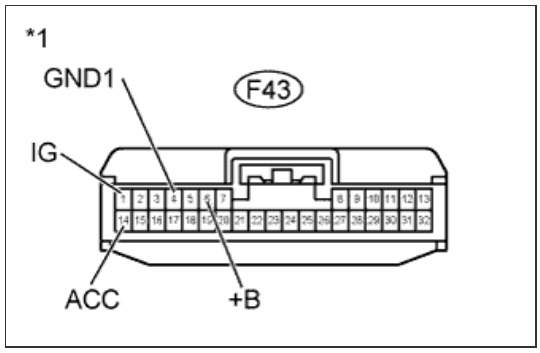
Standard Resistance:

Tester Connection	Condition	Specified Condition
F43-4 (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
F43-6 (+B) - F43-4 (GND1)	Always	11 to 14 V
F43-1 (IG) - F43-4 (GND1)	Engine switch on (IG)	11 to 14 V
F43-14 (ACC) - F43-4 (GND1)	Engine switch on (ACC)	11 to 14 V



Text in Illustration

*1	Front view of wire harness connector (to Parking Assist ECU)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F43 parking assist ECU connector.

b. Disconnect the F66 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F43-31 (TX+) - F66-1 (TX1+)	Always	Below 1 Ω
F43-32 (TX-) - F66-2 (TX1-)	Always	Below 1 Ω
F43-31 (TX+) - Body ground	Always	10 kΩ or higher
F43-32 (TX-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.REPLACE PARKING ASSIST ECU

a. Replace the parking assist ECU (Click here).

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

END

DTC B1593 No Response from Stereo Component Amplifier

DTC B15D3 Stereo Component Amplifier Disconnected

for Preparation Click here

DESCRIPTION

The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and stereo component amplifier assembly, these DTCs will be stored.

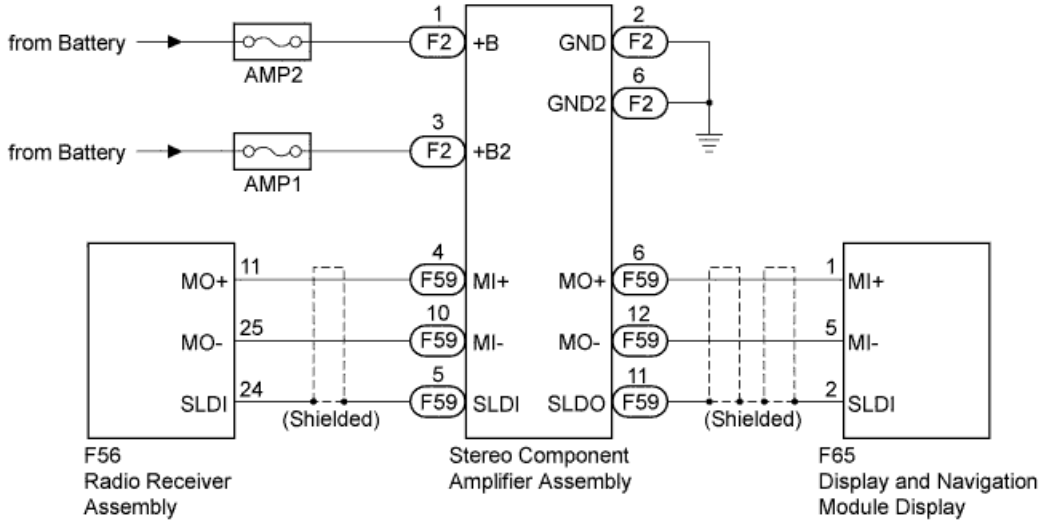
DTC No.	DTC Detection Condition	Trouble Area
B1593	No response to the diagnostic memory request from the master unit.	• Stereo component amplifier assembly power source circuit • MOST circuit between radio receiver assembly and stereo component amplifier assembly • MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System) • MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System) • Stereo component amplifier assembly • Display and navigation module display
B15D3	A device that is listed in the MOST network connected device record of the master unit is missing.	

HINT:

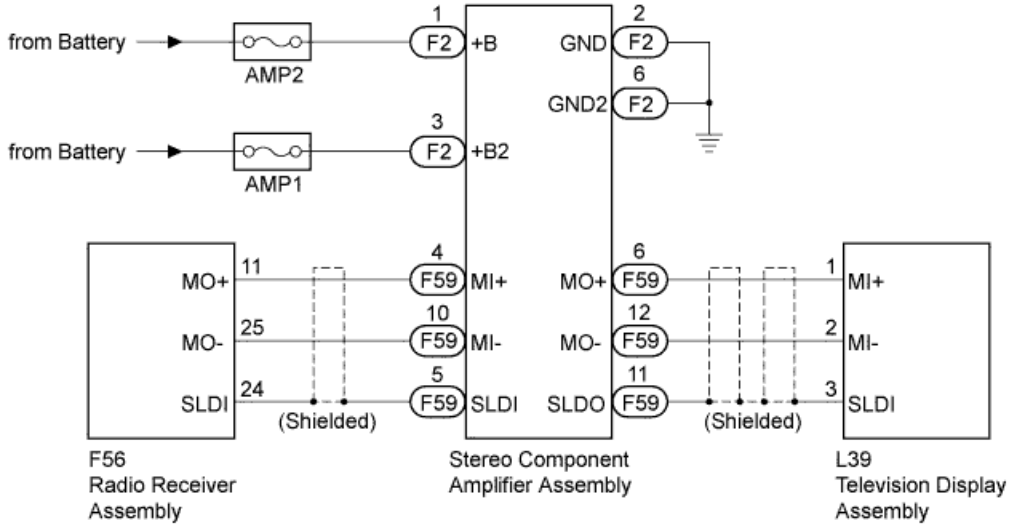
For the MOST network, the display and navigation module display is the master unit.

WIRING DIAGRAM

w/o Rear Seat Entertainment System:



w/ Rear Seat Entertainment System:



H

INSPECTION PROCEDURE

NOTICE:

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

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

Result	roceed to
Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → Go to step 4

OK

END

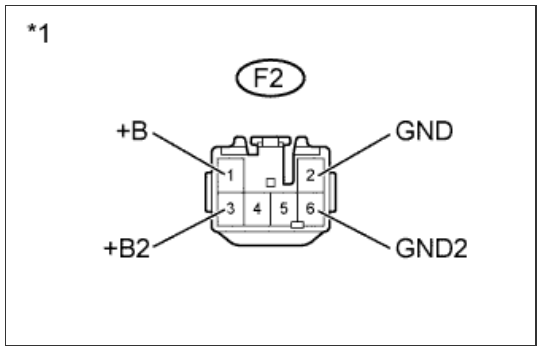
4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the F2 stereo component amplifier assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F2-2 (GND) - Body ground	Always	Below 1 Ω
F2-6 (GND2) - Body ground	Always	Below 1 Ω



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

Standard Voltage:

Tester Connection	Condition	Specified Condition
F2-1 (+B) - F2-2 (GND)	Always	11 to 14 V
F2-3 (+B2) - F2-2 (GND)	Always	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Stereo Component Amplifier Assembly)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the F59 stereo component amplifier assembly connector.

b. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F59-4 (MI+) - F56-11 (MO+)	Always	Below 1 Ω
F59-10 (MI-) - F56-25 (MO-)	Always	Below 1 Ω
F59-5 (SLDI) - F56-24 (SLDI)	Always	Below 1 Ω
F59-4 (MI+) - Body ground	Always	10 kΩ or higher
F59-10 (MI-) - Body ground	Always	10 kΩ or higher
F59-5 (SLDI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.CONFIRM MODEL

a. Choose the model to be inspected.

Result

Model	Proceed to
w/o Rear Seat Entertainment System	A
w/ Rear Seat Entertainment System	B

B → Go to step 9

A

7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - DISPLAY AND NAVIGATION MODULE)

a. Disconnect the F59 stereo component amplifier assembly connector.

b. Disconnect the F65 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F59-6 (MO+) - F65-1 (MI+)	Always	Below 1 Ω
F59-12 (MO-) - F65-5 (MI-)	Always	Below 1 Ω
F59-11 (SLDO) - F65-2 (SLDI)	Always	Below 1 Ω
F59-6 (MO+) - Body ground	Always	10 kΩ or higher
F59-12 (MO-) - Body ground	Always	10 kΩ or higher
F59-11 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

END

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

a. Disconnect the F59 stereo component amplifier assembly connector.

b. Disconnect the L39 television display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F59-6 (MO+) - L39-1 (MI+)	Always	Below 1 Ω
F59-12 (MO-) - L39-2 (MI-)	Always	Below 1 Ω
F59-11 (SLDO) - L39-3 (SLDI)	Always	Below 1 Ω
F59-6 (MO+) - Body ground	Always	10 kΩ or higher
F59-12 (MO-) - Body ground	Always	10 kΩ or higher
F59-11 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

10.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

```
END
```

DTC B15F5 A/C ECU Vehicle Information Reading/Writing Processor Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when items controlled by the A/C ECU (air conditioning amplifier assembly) cannot be customized via the navigation system vehicle customization screen.

HINT:

The A/C ECU (air conditioning amplifier assembly) controls the air conditioning system related items that are customizable via the navigation system screen.

DTC No.	DTC Detection Condition	Trouble Area
B15F5	A/C ECU (air conditioning amplifier assembly) vehicle setting processing error.	• CAN communication system • Air conditioning system • A/C ECU (air conditioning amplifier assembly) • Display and navigation module display

INSPECTION PROCEDURE

1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

HINT:

- **for LHD (Click here)**
- **for RHD (Click here)**

OK:

CAN communication DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

2.CHECK AIR CONDITIONING SYSTEM

a. Check if the air conditioning system is malfunctioning (Click here).

HINT:

Customization may not be possible depending on the malfunction in the air conditioning system.

OK:

No malfunctions are present in the air conditioning system.

NG → GO TO AIR CONDITIONING SYSTEM (Click here)

OK

3.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

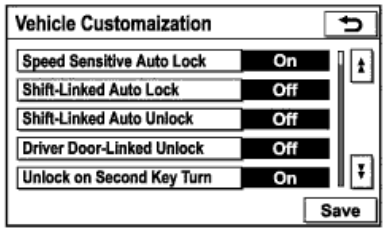
. Make a note of the customizable items for the air conditioning system.

HINT:

These air conditioning system items shown as customizable via the navigation system vehicle customization screen can also be changed using the intelligent tester. In the following steps, the intelligent tester will be used.

i. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the air conditioning system related items that can be customized via the navigation system screen (Click here).

Example:



c. Using the intelligent tester, confirm that it is possible to change the settings of the air conditioning system related customize parameters that are shown as customizable via the navigation system screen.

OK:

The items available for customization via the navigation system screen can be customized successfully using the intelligent tester.

NG → REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY (Click here)

OK → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

DTC B1593 No Response from Stereo Component Amplifier

DTC B15D3 Stereo Component Amplifier Disconnected

for Preparation Click here

DESCRIPTION

The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and stereo component amplifier assembly, these DTCs will be stored.

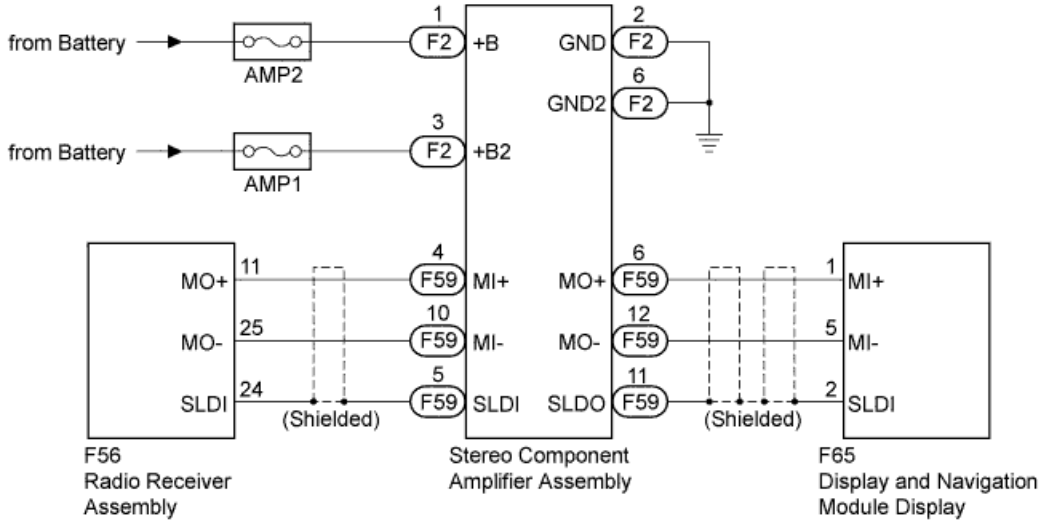
DTC No.	DTC Detection Condition	Trouble Area
B1593	No response to the diagnostic memory request from the master unit.	• Stereo component amplifier assembly power source circuit • MOST circuit between radio receiver assembly and stereo component amplifier assembly • MOST circuit between stereo component amplifier assembly and display and navigation module display (w/o Rear Seat Entertainment System) • MOST circuit between stereo component amplifier assembly and television display assembly (w/ Rear Seat Entertainment System) • Stereo component amplifier assembly • Display and navigation module display
B15D3	A device that is listed in the MOST network connected device record of the master unit is missing.	

HINT:

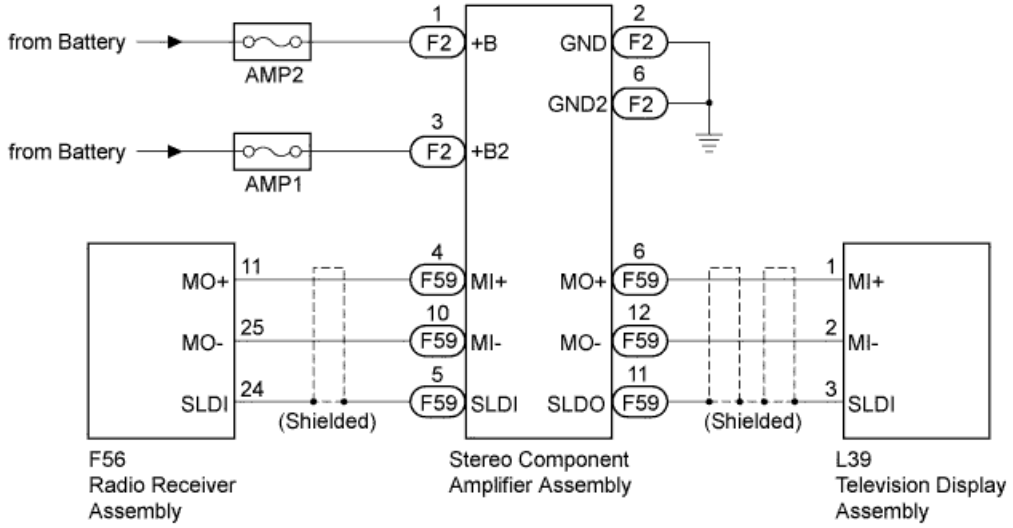
For the MOST network, the display and navigation module display is the master unit.

WIRING DIAGRAM

w/o Rear Seat Entertainment System:



w/ Rear Seat Entertainment System:



H

INSPECTION PROCEDURE

NOTICE:

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

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

Result	roceed to
Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → Go to step 4

OK

END

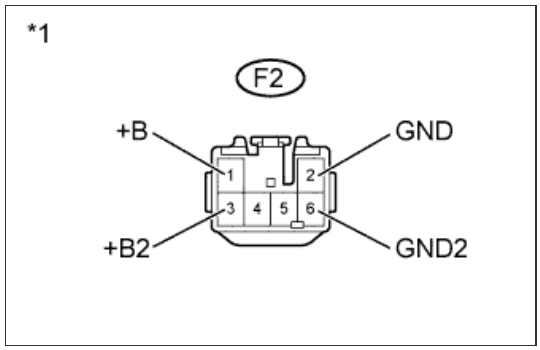
4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the F2 stereo component amplifier assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F2-2 (GND) - Body ground	Always	Below 1 Ω
F2-6 (GND2) - Body ground	Always	Below 1 Ω



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

Standard Voltage:

Tester Connection	Condition	Specified Condition
F2-1 (+B) - F2-2 (GND)	Always	11 to 14 V
F2-3 (+B2) - F2-2 (GND)	Always	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Stereo Component Amplifier Assembly)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the F59 stereo component amplifier assembly connector.

b. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F59-4 (MI+) - F56-11 (MO+)	Always	Below 1 Ω
F59-10 (MI-) - F56-25 (MO-)	Always	Below 1 Ω
F59-5 (SLDI) - F56-24 (SLDI)	Always	Below 1 Ω
F59-4 (MI+) - Body ground	Always	10 kΩ or higher
F59-10 (MI-) - Body ground	Always	10 kΩ or higher
F59-5 (SLDI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.CONFIRM MODEL

a. Choose the model to be inspected.

Result

Model	Proceed to
w/o Rear Seat Entertainment System	A
w/ Rear Seat Entertainment System	B

B → Go to step 9

A

7.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER - DISPLAY AND NAVIGATION MODULE)

a. Disconnect the F59 stereo component amplifier assembly connector.

b. Disconnect the F65 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F59-6 (MO+) - F65-1 (MI+)	Always	Below 1 Ω
F59-12 (MO-) - F65-5 (MI-)	Always	Below 1 Ω
F59-11 (SLDO) - F65-2 (SLDI)	Always	Below 1 Ω
F59-6 (MO+) - Body ground	Always	10 kΩ or higher
F59-12 (MO-) - Body ground	Always	10 kΩ or higher
F59-11 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

8.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

END

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

a. Disconnect the F59 stereo component amplifier assembly connector.

b. Disconnect the L39 television display assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F59-6 (MO+) - L39-1 (MI+)	Always	Below 1 Ω
F59-12 (MO-) - L39-2 (MI-)	Always	Below 1 Ω
F59-11 (SLDO) - L39-3 (SLDI)	Always	Below 1 Ω
F59-6 (MO+) - Body ground	Always	10 kΩ or higher
F59-12 (MO-) - Body ground	Always	10 kΩ or higher
F59-11 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

10.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

```
END
```

DTC B15F6 Main Body ECU Vehicle Information Reading/Writing Process Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when items controlled by the main body ECU cannot be customized via the navigation system vehicle customization screen.

HINT:

The main body ECU controls the items for the following systems that are customizable via the navigation system screen:

- **Power door lock control system**
- **Wireless door lock control system**
- **Lighting system**

DTC No.	DTC Detection Condition	Trouble Area
B15F6	Main body ECU vehicle setting processing error.	• CAN communication system • Power door lock control system • Wireless door lock control system • Lighting system • Main body ECU • Display and navigation module display

INSPECTION PROCEDURE

1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

HINT:

- **for LHD (Click here)**
- **for RHD (Click here)**

OK:
CAN communication DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

2.CHECK POWER DOOR LOCK CONTROL SYSTEM

a. Check if the power door lock control system is malfunctioning (Click here).

HINT:

Customization may not be possible depending on the malfunction in the power door lock control system.

OK:
No malfunctions are present in the power door lock control system.

NG → GO TO POWER DOOR LOCK CONTROL SYSTEM (Click here)

OK

3.CHECK WIRELESS DOOR LOCK CONTROL SYSTEM

a. Check if the wireless door lock control system is malfunctioning (Click here).

HINT:

Customization may not be possible depending on the malfunction in the wireless door lock control system.

OK:

No malfunctions are present in the wireless door lock control system.

NG → GO TO WIRELESS DOOR LOCK CONTROL SYSTEM (**Click here**)

OK

4.CHECK LIGHTING SYSTEM

a. Check if the lighting system is malfunctioning (Click here).

HINT:

Customization may not be possible depending on the malfunction in the lighting system.

OK:

No malfunctions are present in the lighting system.

NG → GO TO LIGHTING SYSTEM (**Click here**)

OK

5.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

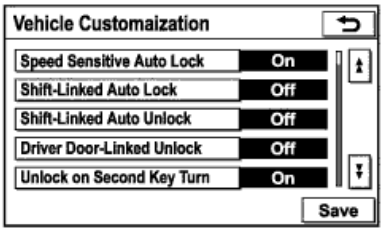
b. Make a note of the customizable items for each main body ECU related system.

HINT:

These items shown as customizable via the navigation system vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the power door lock control system related items that can be customized via the navigation system screen (Click here).

Example:



ii. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the wireless door lock control system related items that can be customized via the navigation system screen (Click here).

iii. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the lighting system related items that can be customized via the navigation system screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the customize parameters that are available for customization via the navigation system screen.

OK:

The items available for customization via the navigation system screen can be customized successfully using the intelligent tester.

NG → REPLACE MAIN BODY ECU

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

DTC B1595 No Response from Rear Seat Entertainment System

DTC B15D5 Rear Seat Entertainment System Disconnected

for Preparation Click here

DESCRIPTION

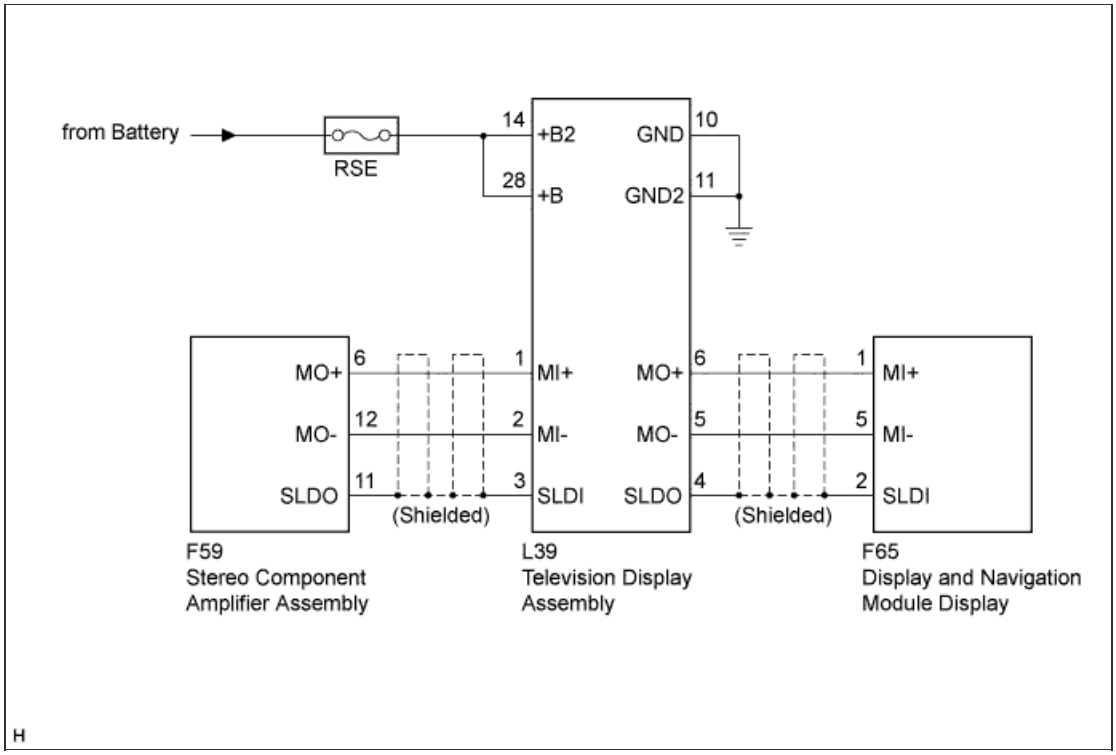
The display and navigation module display and television display assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and television display assembly, these DTCs will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B1595	No response to the diagnostic memory request from the master unit.	• Television display assembly power source circuit • MOST circuit between stereo component amplifier assembly and television display assembly • MOST circuit between television display assembly and display and navigation module display • Television display assembly • Display and navigation module display
B15D5	A device that is listed in the MOST network connected device record of the master unit is missing.	

HINT:

For the MOST network, the display and navigation module display is the master unit.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

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

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

Result	Proceed to
Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → Go to step 4

OK

END

4.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY POWER SOURCE)

a. Disconnect the television display assembly connector.

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

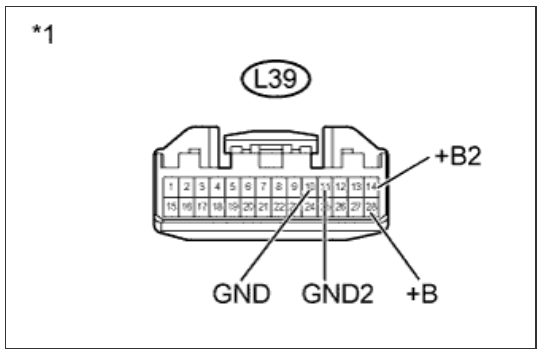
Standard Resistance:

Tester Connection	Condition	Specified Condition
190 (ND) Body ground	Always	Below 1 Ω
191 (ND 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
194 (+B 190 (ND)	Always	11 to 14 V



9 (+B) 10 (ND)	9 Always	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Television Display Assembly)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the L39 television display assembly connector.

b. Disconnect the F59 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
L39-1 (MI+) - F59-6 (MO+)	Always	Below 1 Ω
L39-2 (MI-) - F59-12 (MO-)	Always	Below 1 Ω
L39-3 (SLDI) - F59-11 (SLDO)	Always	Below 1 Ω
L39-1 (MI+) - Body ground	Always	10 kΩ or higher
L39-2 (MI-) - Body ground	Always	10 kΩ or higher
L39-3 (SLDI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the L39 television display assembly connector.

b. Disconnect the F65 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L39-6 (MO+) - F65-1 (MI+)	Always	Below 1 Ω
L39-5 (MO-) - F65-5 (MI-)	Always	Below 1 Ω
L39-4 (SLDO) - F65-2 (SLDI)	Always	Below 1 Ω
L39-6 (MO+) - Body ground	Always	10 kΩ or higher
L39-5 (MO-) - Body ground	Always	10 kΩ or higher
L39-4 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.REPLACE TELEVISION DISPLAY ASSEMBLY

a. Replace the television display assembly (Click here).

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

END

DTC B15F7 Certification ECU Vehicle Information Reading/Writing Process Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when items controlled by the certification ECU (smart key ECU assembly) cannot be customized via the navigation system vehicle customization screen.

HINT:

The certification ECU (smart key ECU assembly) controls the items for the following systems that are customizable via the navigation system screen:

- **Entry and start system (for Entry Function)**
- **Entry and start system (for Start Function)**

DTC No.	DTC Detection Condition	Trouble Area
B15F7	Certification ECU (smart key ECU assembly) vehicle setting processing error.	• CAN communication system • Entry and start system (for entry function) • Entry and start system (for start function) • Certification ECU (smart key ECU assembly) • Display and navigation module display

INSPECTION PROCEDURE

1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

HINT:

- **for LHD (Click here)**
- **for RHD (Click here)**

OK:
CAN communication DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → **GO TO CAN COMMUNICATION SYSTEM (Click here)**

C → **GO TO CAN COMMUNICATION SYSTEM (Click here)**

A

2.CHECK ENTRY AND START SYSTEM (for Entry Function)

a. Check if the entry and start system (for entry function) is malfunctioning (Click here).

HINT:

Customization may not be possible depending on the malfunction in the entry and start system (for entry function).

OK:
No malfunctions are present in the entry and start system (for entry function).

NG → **GO TO ENTRY AND START SYSTEM (for Entry Function) (Click here)**

OK

3.CHECK ENTRY AND START SYSTEM (for Start Function)

a. Check if the entry and start system (for start function) is malfunctioning (Click here).

HINT:

Customization may not be possible depending on the malfunction in the entry and start system (for start function).

OK:

No malfunctions are present in the entry and start system (for start function).

NG → GO TO ENTRY AND START SYSTEM (for Start Function) (**Click here**)

OK ↓

4.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

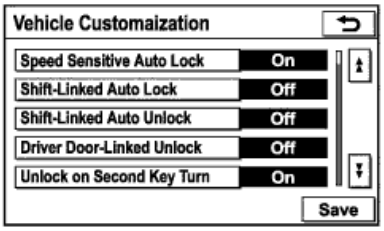
b. Make a note of the customizable items for each certification ECU related system.

HINT:

These items shown as customizable via the navigation system vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the entry and start system (for entry function) related items that can be customized via the navigation system screen (Click here).

Example:



ii. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the entry and start system (for start function) related items that can be customized via the navigation system screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the customize parameters that are available for customization via the navigation system screen.

OK:

The items available for customization via the navigation system screen can be customized successfully using the intelligent tester.

NG → REPLACE SMART KEY ECU ASSEMBLY

OK ↓

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

DTC B1595 No Response from Rear Seat Entertainment System

DTC B15D5 Rear Seat Entertainment System Disconnected

for Preparation Click here

DESCRIPTION

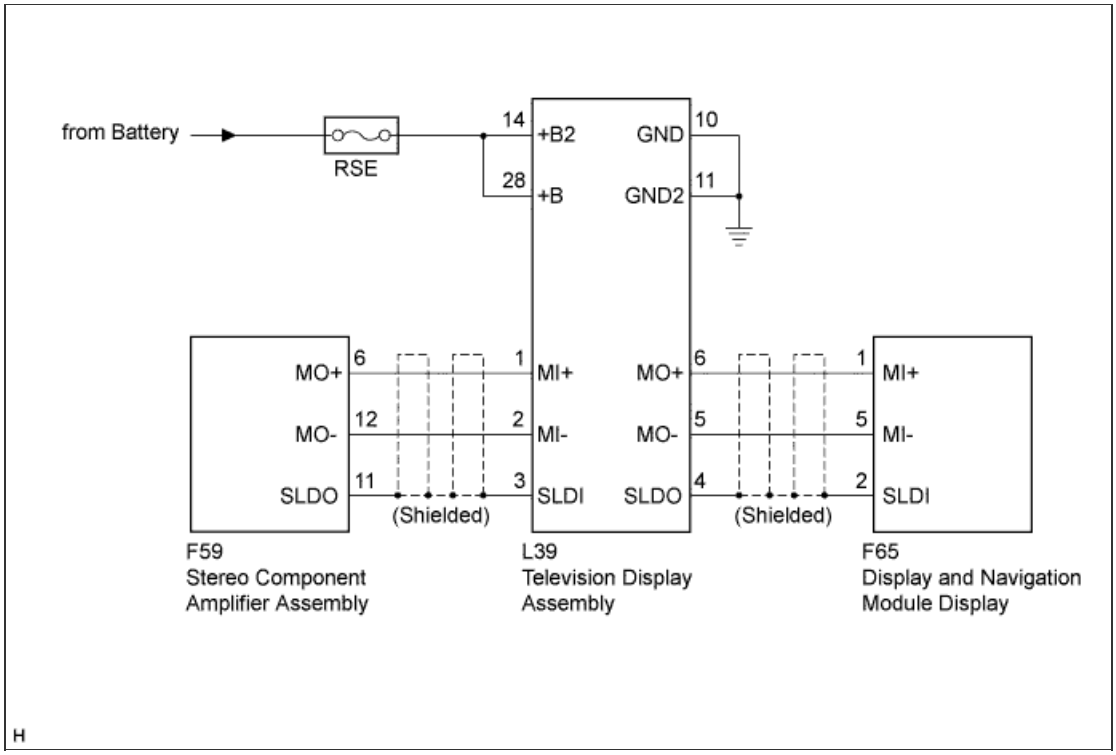
The display and navigation module display and television display assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and television display assembly, these DTCs will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B1595	No response to the diagnostic memory request from the master unit.	• Television display assembly power source circuit • MOST circuit between stereo component amplifier assembly and television display assembly • MOST circuit between television display assembly and display and navigation module display • Television display assembly • Display and navigation module display
B15D5	A device that is listed in the MOST network connected device record of the master unit is missing.	

HINT:

For the MOST network, the display and navigation module display is the master unit.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

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

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

Result	Proceed to
Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → Go to step 4

OK

END

4.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY ASSEMBLY POWER SOURCE)

a. Disconnect the television display assembly connector.

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

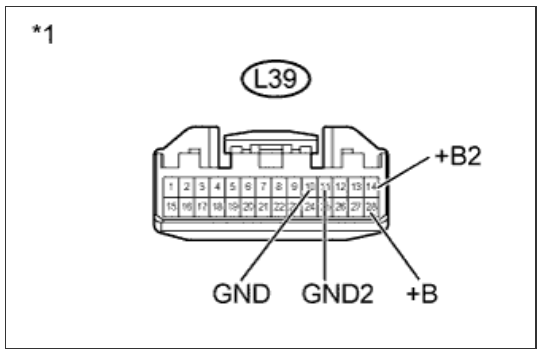
Standard Resistance:

Tester Connection	Condition	Specified Condition
190 (ND) Body ground	Always	Below 1 Ω
191 (ND 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
194 (+B 190 (ND)	Always	11 to 14 V



9 (+B) 10 (ND)	9 Always	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Television Display Assembly)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the L39 television display assembly connector.

b. Disconnect the F59 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
L39-1 (MI+) - F59-6 (MO+)	Always	Below 1 Ω
L39-2 (MI-) - F59-12 (MO-)	Always	Below 1 Ω
L39-3 (SLDI) - F59-11 (SLDO)	Always	Below 1 Ω
L39-1 (MI+) - Body ground	Always	10 kΩ or higher
L39-2 (MI-) - Body ground	Always	10 kΩ or higher
L39-3 (SLDI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the L39 television display assembly connector.

b. Disconnect the F65 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L39-6 (MO+) - F65-1 (MI+)	Always	Below 1 Ω
L39-5 (MO-) - F65-5 (MI-)	Always	Below 1 Ω
L39-4 (SLDO) - F65-2 (SLDI)	Always	Below 1 Ω
L39-6 (MO+) - Body ground	Always	10 kΩ or higher
L39-5 (MO-) - Body ground	Always	10 kΩ or higher
L39-4 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.REPLACE TELEVISION DISPLAY ASSEMBLY

a. Replace the television display assembly (Click here).

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

END

DTC U0073 Control Module Communication Bus Off

DTC U0155 Lost Communication with Combination Meter

DTC U0164 Lost Communication with A/C ECU

DTC U1110 Lost Communication with Clearance Warning ECU

for Preparation Click here

DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by the display and navigation module display self check.

DTC No.	DTC Detection Condition	Trouble Area
U0073	CAN connection malfunction	CAN communication system
U0155	No communication with combination meter assembly	• Combination meter assembly • CAN communication system
U0164	No communication with A/C amplifier	• Air conditioning amplifier assembly • CAN communication system
U1110	No communication with clearance warning ECU	• Clearance warning ECU assembly • CAN communication system

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:

No DTCs are output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC B15A0 LAN Master Malfunction

DTC B15AD Navigation Processor Malfunction

for Preparation Click here

DESCRIPTION

These DTCs are stored when a malfunction occurs in the display and navigation module display.

DTC No.	DTC Detection Condition	Trouble Area
B15A0	When either of the conditions below is met: • Bus malfunction • Sub-microprocessor malfunction	Display and navigation module display
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.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

USE SIMULATION METHOD TO CHECK (Click here)

DTC U0073 Control Module Communication Bus Off

DTC U0155 Lost Communication with Combination Meter

DTC U0164 Lost Communication with A/C ECU

DTC U1110 Lost Communication with Clearance Warning ECU

for Preparation Click here

DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by the display and navigation module display self check.

DTC No.	DTC Detection Condition	Trouble Area
U0073	CAN connection malfunction	CAN communication system
U0155	No communication with combination meter assembly	• Combination meter assembly • CAN communication system
U0164	No communication with A/C amplifier	• Air conditioning amplifier assembly • CAN communication system
U1110	No communication with clearance warning ECU	• Clearance warning ECU assembly • CAN communication system

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:

No DTCs are output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC B15A0 LAN Master Malfunction

DTC B15AD Navigation Processor Malfunction

for Preparation Click here

DESCRIPTION

These DTCs are stored when a malfunction occurs in the display and navigation module display.

DTC No.	DTC Detection Condition	Trouble Area
B15A0	When either of the conditions below is met: • Bus malfunction • Sub-microprocessor malfunction	Display and navigation module display
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.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

USE SIMULATION METHOD TO CHECK (Click here)

DTC U0073 Control Module Communication Bus Off

DTC U0155 Lost Communication with Combination Meter

DTC U0164 Lost Communication with A/C ECU

DTC U1110 Lost Communication with Clearance Warning ECU

for Preparation Click here

DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by the display and navigation module display self check.

DTC No.	DTC Detection Condition	Trouble Area
U0073	CAN connection malfunction	CAN communication system
U0155	No communication with combination meter assembly	• Combination meter assembly • CAN communication system
U0164	No communication with A/C amplifier	• Air conditioning amplifier assembly • CAN communication system
U1110	No communication with clearance warning ECU	• Clearance warning ECU assembly • CAN communication system

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:

No DTCs are output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC B15B0 Display Screen Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when a malfunction occurs in the display and navigation module display.

DTC No.	DTC Detection Condition	Trouble Area
B15B0	Picture circuit (TFT unit) malfunction	Display and navigation module display

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same trouble occurs again.

OK:
No DTC is output.

NG → **REPLACE DISPLAY AND NA IGATION MODULE DISPLAY (Click here)**

OK

USE SIMULATION METHOD TO CHECK (Click here)

DTC U0073 Control Module Communication Bus Off

DTC U0155 Lost Communication with Combination Meter

DTC U0164 Lost Communication with A/C ECU

DTC U1110 Lost Communication with Clearance Warning ECU

for Preparation Click here

DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by the display and navigation module display self check.

DTC No.	DTC Detection Condition	Trouble Area
U0073	CAN connection malfunction	CAN communication system
U0155	No communication with combination meter assembly	• Combination meter assembly • CAN communication system
U0164	No communication with A/C amplifier	• Air conditioning amplifier assembly • CAN communication system
U1110	No communication with clearance warning ECU	• Clearance warning ECU assembly • CAN communication system

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:

No DTCs are output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

for Preparation Click here

INSPECTION PROCEDURE

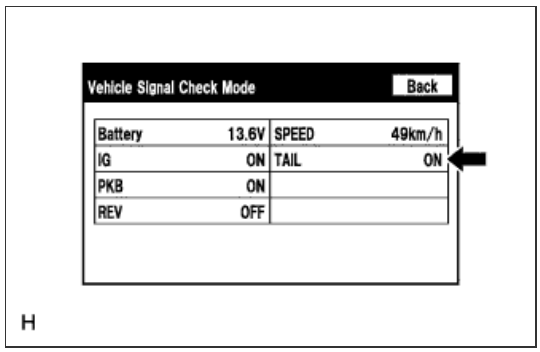
1.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.



OK:

Light Control Switch Condition	Display Condition
TAIL or HEAD	ON
OFF	OFF

HINT:

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

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

OK → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

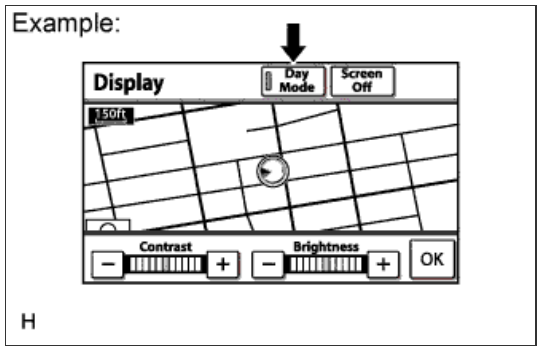
1.CHECK IMAGE QUALITY SETTING

a. Enter the display adjustment screen by pressing the "DISP" switch.

b. Turn the light control switch to the tail position.

c. Check if "Day Mode" on the display adjustment is on.

OK:
"Day Mode" is on.



NG → Go to step 2

OK →

TURN "Day Mode" SETTING OFF

2.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

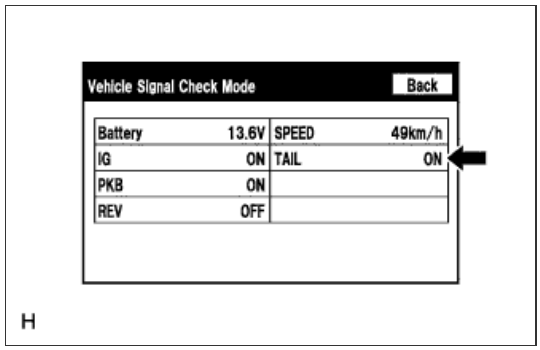
b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.

OK:

Light Control Switch Condition	Display Condition
TAIL or HEAD	ON
OFF	OFF



HINT:

The display is updated once per second. It is normal for the display to lag behind the actual switch operation.

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

OK →

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK PANEL SWITCH

a. Check for foreign matter around the switches that might prevent operation.

OK:
No foreign atter is found.

NG → REMOVE ANY FOREIGN MATTER FOUND

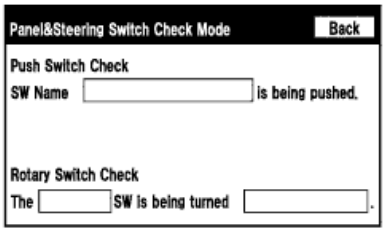
OK ↓

2.CHECK PANEL SWITCH (OPERATION CHECK)

a. Enter the "Panel & Steering Switch Check Mode" screen. Refer to Check Panel & Steering Switch in Operation Check (Click here).

b. Operate the abnormal switch and check if the switch name and status are correctly displayed.

OK:
The switch na e and status are correctly displayed as operated.



H

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

OK ↓

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK TOUCH PANEL

a. Check for foreign matter on the display.

OK:
The displa is clean.

NG → CLEAN DISPLAY AND RECHECK TOUCH PANEL

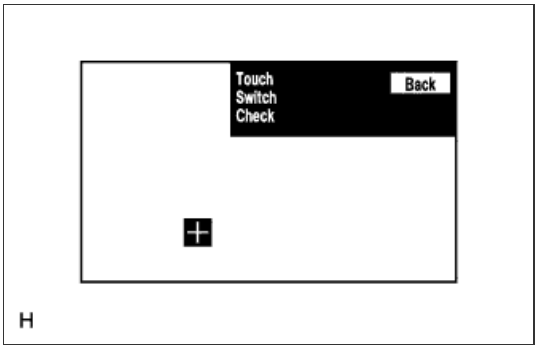
OK

2.CHECK TOUCH SWITCH (OPERATION CHECK)

a. Enter the "Touch Switch Check" screen. Refer to Check Touch Switch in pration Check (Click here).

b. Touch the display in the area where the switch malfunction occurs.

OK:
A " ark appears at the touched position.



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

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

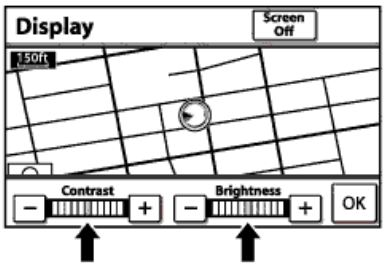
1.CHECK DISPLAY SETTING

a. Enter the display adjustment screen by pressing the "DISP" switch.

b. Reset display settings (contrast, brightness) and check that the screen appears normal.

OK:
The display returns to normal.

Example:



H

NG → Go to step 2

OK →

END

2.CHECK CABIN

a. Check that the temperature in the cabin is neither -20°C (-4°F) or lower nor 65°C (149°F) or higher.

HINT:

The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

Standard:
Temperature in the cabin is between -20°C (-4°F) and 65°C (149°F).

NG → SET CABIN TO APPROPRIATE TEMPERATURE

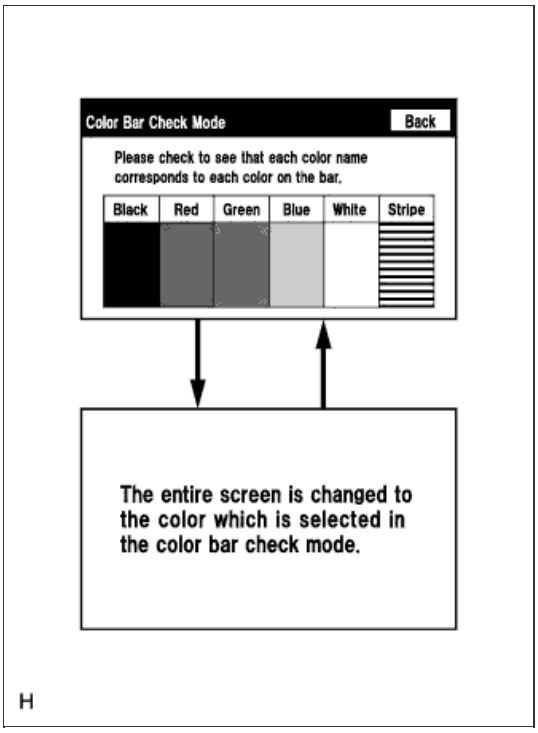
OK →

3.CHECK COLOR BAR (OPERATION CHECK)

a. Enter the "Color Bar Check Mode" screen. Refer to Check Color Bar in Operation Check (Click here).

b. Check that the color bars match the displayed names.

OK:
Color bars match the displayed names.



NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

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

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK NAVIGATION MODULE BOARD

a. Display the "Map DVD" screen.

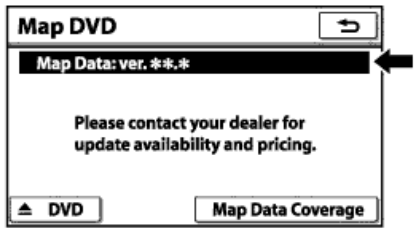
b. Check if a disc is inserted into the map disc slot.

i. Check if the map data version is displayed in the "Map Data" section.

Result

Result	Proceed to
The map data version is not displayed.	A
The map data version is displayed.	B

Example:



H

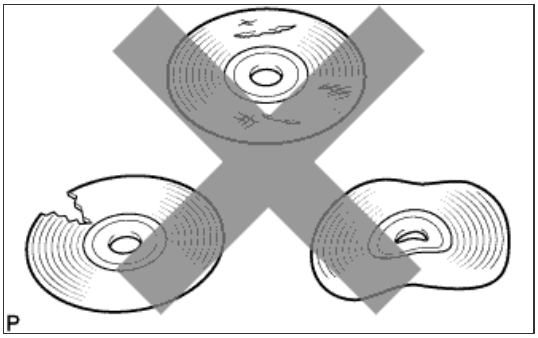
B → EJECT MAP DISC

A

2.CHECK MAP DISC

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

OK:
No deformations or cracks on the map disc



P

NG → REPLACE MAP DISC

OK

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

for Preparation Click here

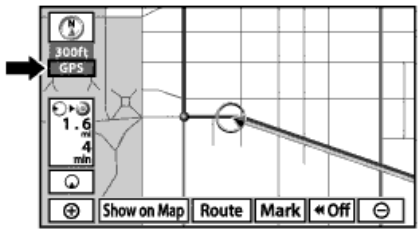
INSPECTION PROCEDURE

1.CHECK GPS MARK

a. Check that the GPS mark is displayed.

OK:
GPS mark is displayed.

Example:



H

NG → GO TO "GPS MARK IS NOT DISPLAYED" IN PROBLEM SYMPTOMS TABLE (Click here)

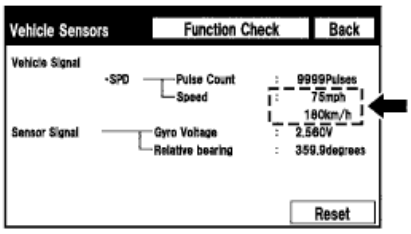
OK

2.CHECK VEHICLE SENSOR (OPERATION CHECK)

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check that these readings are almost equal.

OK:
The readings are almost equal.



H

NG → CHECK DTC OUTPUT (Click here)

OK

3.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Check that the display changes between ON and OFF according to the shift lever operation.

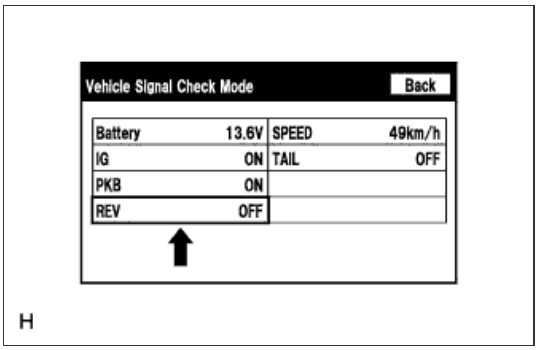
OK:

Shift Lever Position	Display
Except R	OFF
R	ON

HINT:

The display is updated once per second. It is normal for the display to lag

behind the actual switch operation.



NG → CHECK DTC OUTPUT (Click here)

OK

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

for Preparation Click here

INSPECTION PROCEDURE

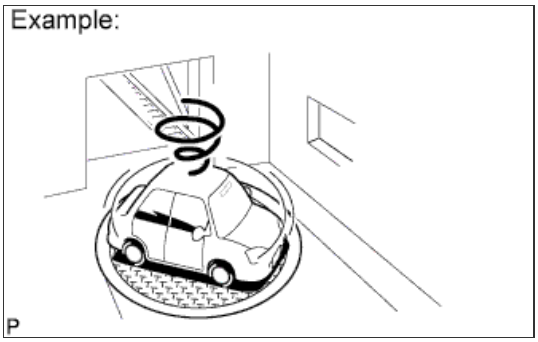
CHECK CONDITION

a. Check with the customer if the vehicle has been turned by a turntable.

OK:
Vehicle has not been turned by turntable.

HINT:

If the vehicle is turned on a turntable with the engine switch on (I the system may store the angular velocity. As a result, the vehicle position cursor may deviate.



NG → TURN ENGINE SWITCH ON (IG) WHEN VEHICLE IS COMPLETELY STOPPED

OK

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

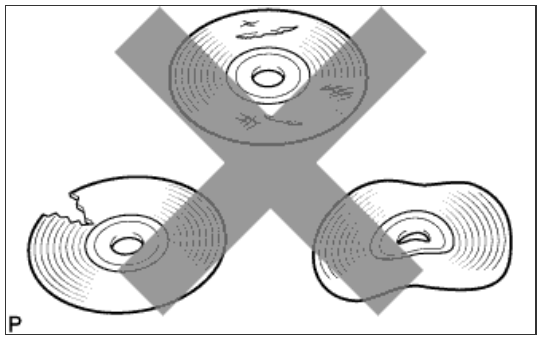
for Preparation Click here

INSPECTION PROCEDURE

1.CHECK MAP DISC

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

OK:
No deformations or cracks on the map disc



NG → REPLACE MAP DISC

OK

2.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

HINT:

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

OK:
Condensation is not likely being produced and the temperature is not high or extremely low.

NG → SET CABIN TO APPROPRIATE TEMPERATURE

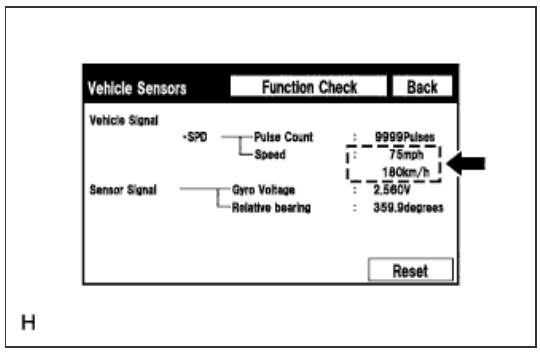
OK

3.CHECK VEHICLE SENSOR (OPERATION CHECK)

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check if these readings are almost equal.

OK:
The readings are almost equal.



NG → CHECK DTC OUTPUT (Click here)

OK

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

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK NAVIGATION MODULE BOARD

a. Display the "Map DVD" screen.

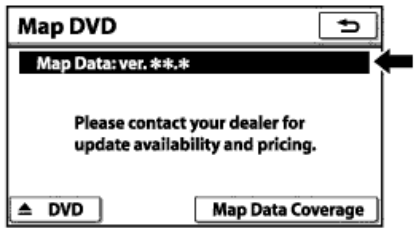
b. Check if a disc is inserted into the map disc slot.

i. Check if the map data version is displayed in the "Map Data" section.

Result

Result	Proceed to
The map data version is displayed.	A
The map data version is not displayed.	B

Example:



H

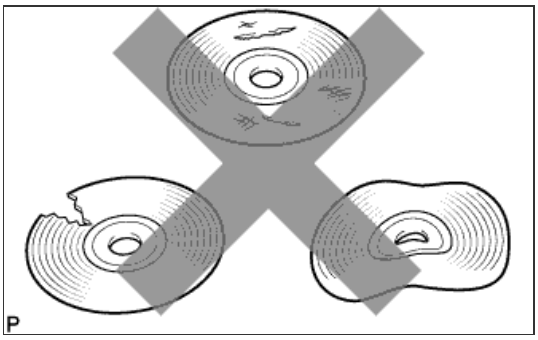
B → INSERT MAP DISC IN MAP DISC SLOT

A

2.CHECK MAP DISC

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

OK:
No deformations or cracks on the map disc



P

NG → REPLACE MAP DISC

OK

3.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

HINT:

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

OK:
Condensation is not likely being produced and the temperature is not high or extremely low.

NG → CABIN TO APPROPRIATE TEMPERATURE

OK

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

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK CABIN

a. Check the cabin for any object that might interrupt radio reception on the instrument panel. If such an object exists, remove it and check if the GPS mark reappears.

HINT:

The GPS uses extremely faint radio waves originating from satellites. If the signal is interrupted by obstructions or other radio waves, the GPS may not be able to properly receive the signal.

OK:
The GPS ark appears.

NG → Go to step 2

OK

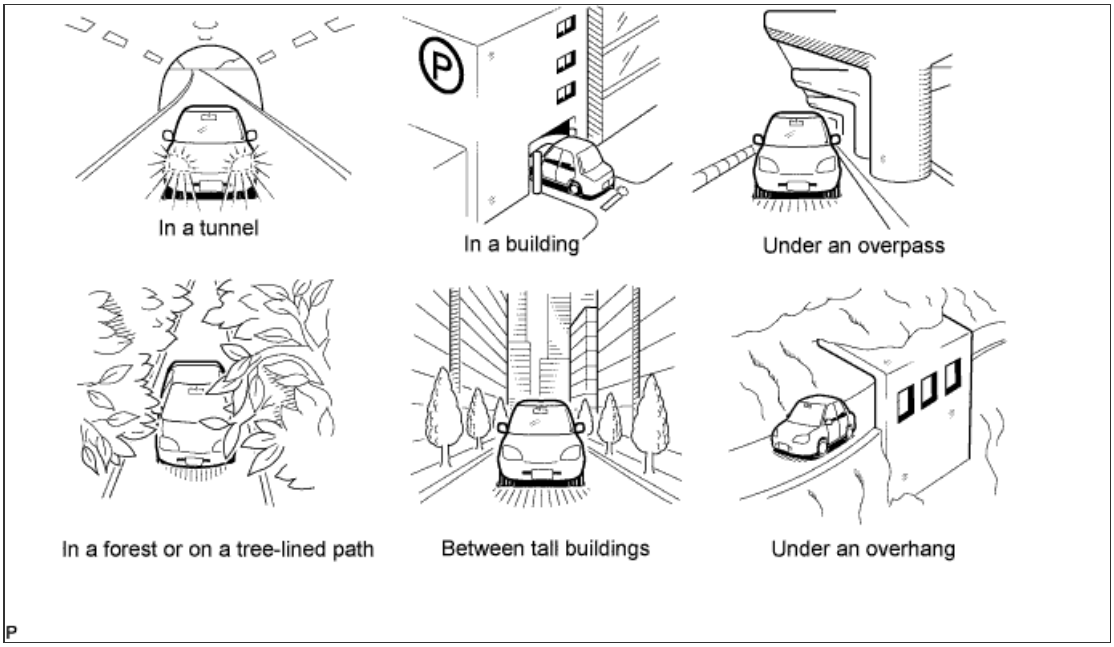
NORMAL OPERATION

2.CHECK SURROUNDINGS

a. Check if the vehicle is in a location where GPS signal reception is poor. If the vehicle is in such a place, relocate the vehicle and check if the GPS mark reappears.

HINT:

The GPS uses 24 satellites in 6 orbits. At any point in time, 4 satellites should be able to pinpoint your vehicle. However, GPS signals may not reach the vehicle due to influence from the surroundings, vehicle direction and time. For examples, see the following illustration.



OK:
The GPS ark is displayed.

NG → Go to step 3

OK

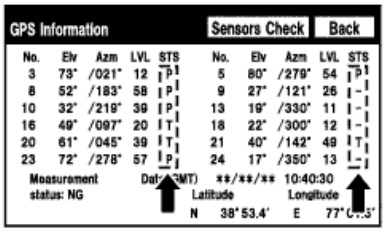
SYSTEM RETURNS TO NORMAL

3.CHECK GPS INFORMATION (OPERATION CHECK)

a. Enter the "GPS Information" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. Check how many of the following codes appear in the "STS" column.

OK:
At least 3 codes appear.



H

NG → PROCEED TO NE T SUSPECTED AREA SHO N IN PROBLEM SYMPTOMS TABLE (Click here)

OK → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

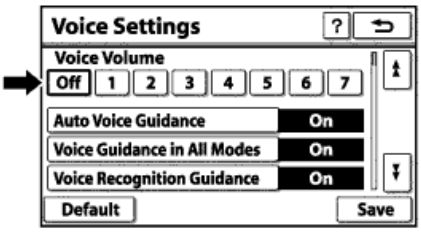
1.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Voice Volume" is not "Off".

OK:
Voice volume is not "Off".

Example:



H

NG → TURN VOICE VOLUME EXCEPT "Off"

OK

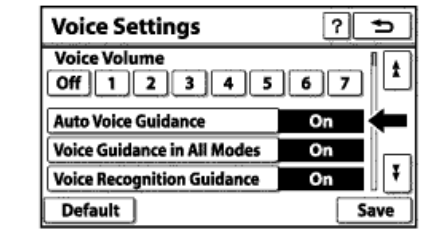
2.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Auto Voice Guidance" is not "Off".

OK:
Auto voice guidance is not "Off".

Example:



H

NG → TURN AUTO VOICE GUIDANCE "On"

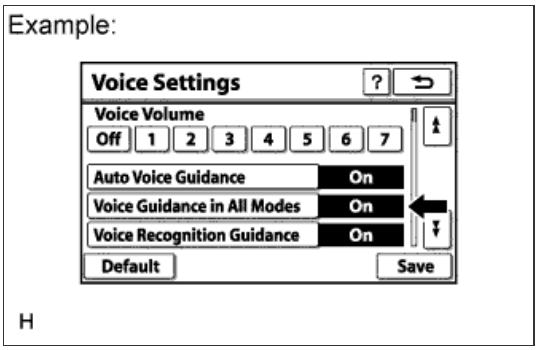
OK

3.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Voice Guidance in All Modes" is not "Off".

OK:
Voice guidance in all modes is not "Off".



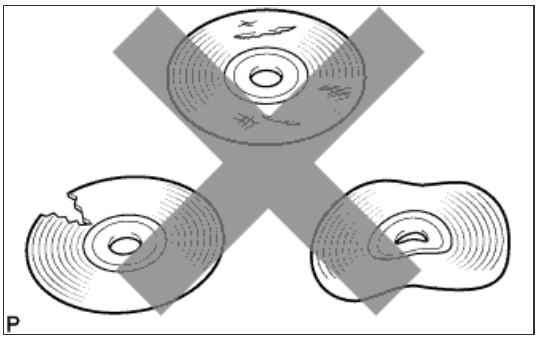
NG → TURN VOICE GUIDANCE IN ALL MODES "On"

OK

4.CHECK MAP DISC

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

OK:
No deformations or cracks on the map disc



NG → REPLACE MAP DISC

OK

5.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

HINT:

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

OK:
Condensation is not likely being produced and the temperature is not high or extremely low.

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK

6.CHECK AUDIO FUNCTION

a. Check that audio sound can be heard from the driver side speaker.

OK:
Sound can be heard from the audio system.

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

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

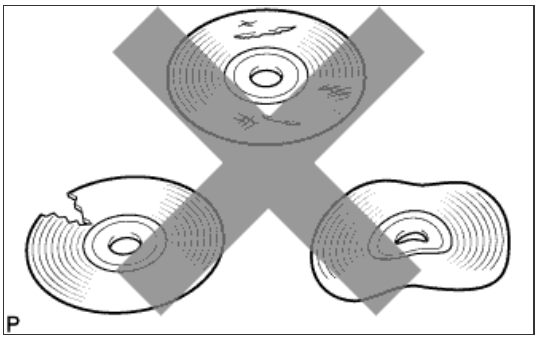
for Preparation Click here

INSPECTION PROCEDURE

1.CHECK MAP DISC

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

OK:
No deformations or cracks on the map disc



NG → REPLACE MAP DISC

OK

2.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

HINT:

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

OK:
Condensation is not likely being produced and the temperature is not high or e tremely low.

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK

3.CHECK NAVIGATION DISPLAY

a. Check that displays other than the navigation display are complete.

OK:
No other incomplete displays are found.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

PROCEED TO NE T SUSPECTED AREA SHO N IN PROBLEM SYMPTOMS TABLE (Click here)

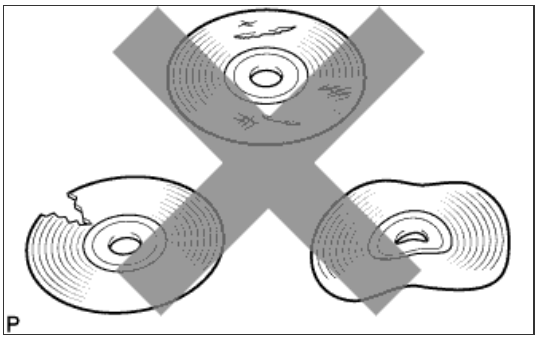
for Preparation Click here

INSPECTION PROCEDURE

1.CHECK MAP DISC

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

OK:
No deformations or cracks on the map disc



NG → REPLACE MAP DISC

OK

2.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

HINT:

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

OK:
Condensation is not likely being produced and the temperature is not high or extremely low.

NG → CABIN TO APPROPRIATE TEMPERATURE

OK

3.SET DESTINATION

a. et another destination and check if the system can calculate the route correctly.

OK:
Route can be correctly calculated.

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

OK

NORMAL OPERATION

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK CONDITION

a. Check if the system voice recognition level is low when recognizing a particular voice.

Result

Result	Proceed to
System voice recognition level is low with any voice.	A
System voice recognition level is low only for a particular voice.	B

HINT:

System voice recognition level varies depending on voice and pronunciation. This is not a malfunction.

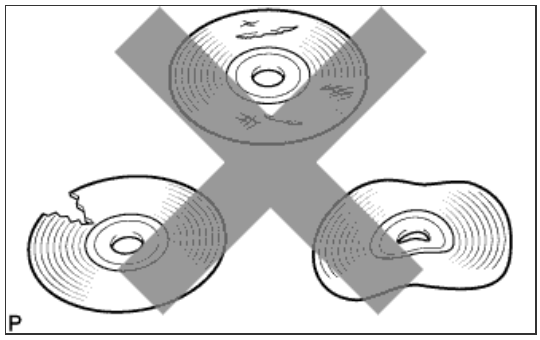
B → END

A

2.CHECK MAP DISC

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

OK:
No deformations or cracks on the map disc



NG → REPLACE MAP DISC

OK

3.CHECK MAP DISC

a. Check for dirt on the map disc surface.

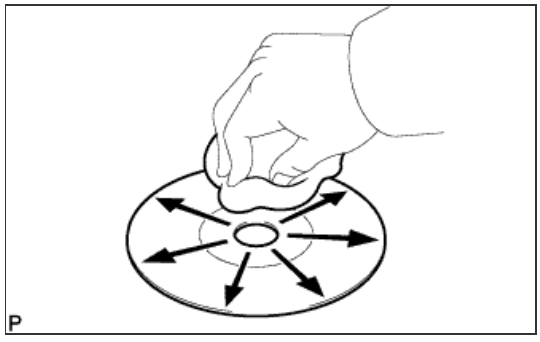
OK:
No dirt is on the map disc surface.

NOTICE:

Do not use a conventional record cleaner or anti-static preservative.

HINT:

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



NG → CLEAN MAP DISC

OK

4.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

HINT:

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

OK:
Condensation is not likely being produced and the temperature is not high or extremely low.

NG → CABIN TO APPROPRIATE TEMPERATURE

OK

5.CHECK MICROPHONE (OPERATION CHECK)

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

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

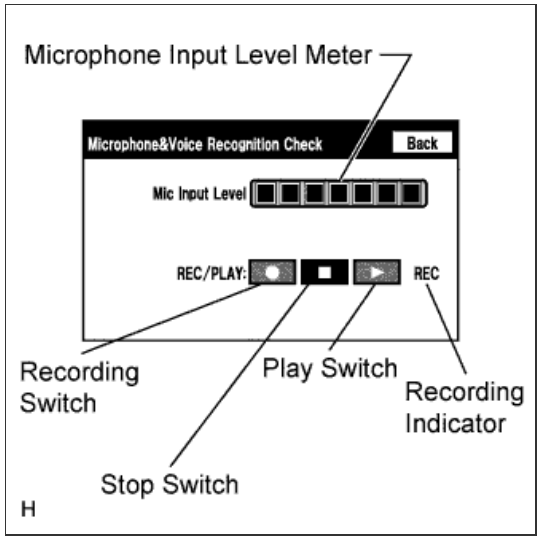
c. Push the recording switch and perform voice recording.

HINT:

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

OK:
All check results are normal.



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

OK

END

for Preparation Click here

INSPECTION PROCEDURE

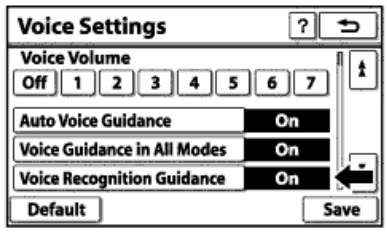
1.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Voice Recognition Guidance" is not "Off".

OK:
"Voice Recognition Guidance" is not "Off".

Example:



H

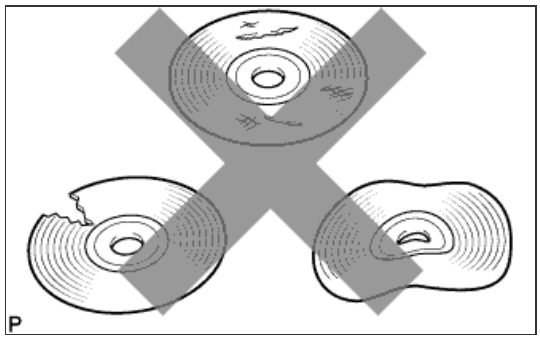
NG → TURN VOICE RECOGNITION GUIDANCE "On"

OK

2.CHECK MAP DISC

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

OK:
No deformations or cracks on the map disc



P

NG → REPLACE MAP DISC

OK

3.CHECK MAP DISC

a. Check for dirt on the map disc surface.

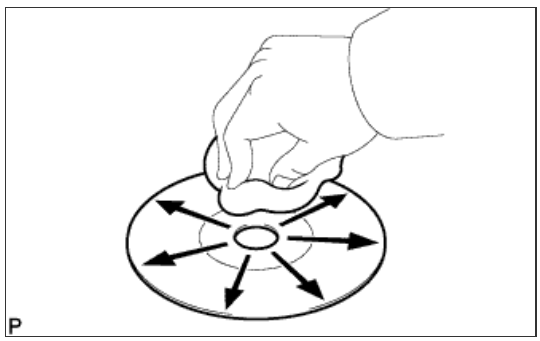
OK:
No dirt is on the map disc surface.

NOTICE:

Do not use a conventional record cleaner or anti-static preservative.

HINT:

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



P

NG → CLEAN MAP DISC

OK

4.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.

HINT:

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

OK:
Condensation is not likely being produced and the temperature is not high or extremely low.

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK

5.CHECK MICROPHONE (OPERATION CHECK)

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

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

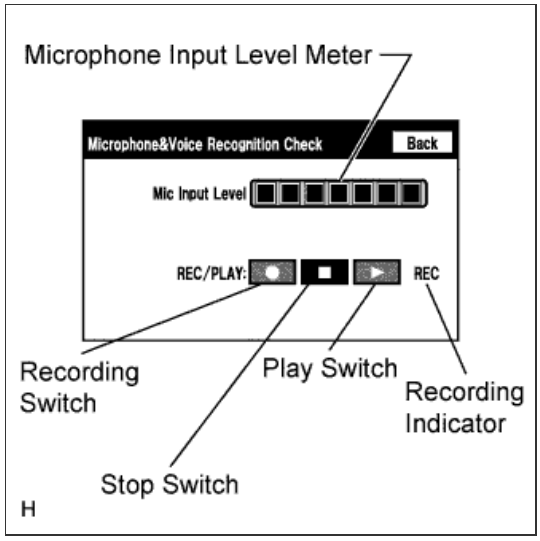
c. Push the recording switch and perform voice recording.

HINT:

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

OK:
All check results are normal.



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

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK CURRENT CONDITIONS

a. Proceed to the next step according to the table below.

Result

Result	Proceed to
Another "Bluetooth" compatible cellular phone is present.	A
Another "Bluetooth" compatible vehicle is present.	B
None of the above	C

B → Go to step 3

C → Go to step 4

A

2.CHECK USING ANOTHER CELLULAR PHONE

a. Check if the system functions using another "Bluetooth" compatible cellular phone.

HINT:

- **Confirm that either the same or a different version of another "Bluetooth" compatible cellular phone complies with the system.**
- **Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.**

OK:
The system functions.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

USE A "Bluetooth" COMPATIBLE CELLULAR PHONE

3.CHECK USING ANOTHER "Bluetooth" COMPATIBLE VEHICLE

a. Register the cellular phone with another vehicle and check if the system functions normally.

HINT:

Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.

OK:
The system functions.

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

4.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

HINT:

Some versions of "Bluetooth" compatible cellular phones may not function.

OK:

The phone is "Bluetooth" compatible.

NG → USE A "Bluetooth" COMPATIBLE CELLULAR PHONE

OK ↓

5.CHECK CELLULAR PHONE

a. Check if a call can be made from the cellular phone.

HINT:

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

OK:

A call can be made from the cellular phone.

NG → REPAIR OR REPLACE CELLULAR PHONE

OK ↓

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK "Bluetooth" SETTINGS

a. Check if the "Bluetooth" settings are correct.

OK:
"Bluetooth" settings are correct.

NG → SET SETTINGS CORRECTLY

OK

2.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

HINT:

Some versions of "Bluetooth" compatible cellular phones may not function.

OK:
The phone is "Bluetooth" compatible.

NG → END (ONLY A "Bluetooth" COMPATIBLE CELLULAR PHONE CAN BE USED)

OK

3.CHECK SETTINGS

a. Check if the cellular phone functions.

HINT:

The cellular phone is unable to call under any of the following conditions:

- **The cellular phone is locked.**
- **The directory is being transferred.**
- **The line is crossed.**
- **Outside service range**
- **The power is off.**
- **The cellular phone is not connected to "Bluetooth" ("BT" is displayed while connected).**

OK:
None of the above conditions exist.

NG → SET SETTINGS CORRECTLY

OK

4.CHECK CELLULAR PHONE

a. Check if the cellular phone can make a call.

HINT:

When the battery is low, calls cannot be made or received.

OK:
Cellular phone can make a call.

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

5.CHECK RECEPTION

a. Set the cellular phone so that it can receive calls.

b. Place the cellular phone close to the radio receiver assembly.

c. Check if the cellular phone has reception according to the radio receiver assembly.

OK:
The cellular phone has reception.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

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

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK SURROUNDING CONDITIONS

a. Check if the cellular phone can make calls in a certain place.

OK:
It can ake calls.

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

OK

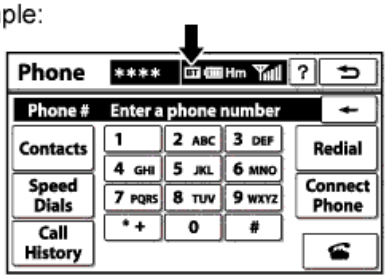
2.CHECK RECEPTION

a. Display the "Phone" screen and check the "Bluetooth" connection indicator ("BT" indicator).

Result

Result	Proceed to
"BT" indicator color is yellow.	A
"BT" indicator color is blue.	B
No connection mark is displayed.	C

Example:



H

B → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

C → SELECT A REGISTERED CELLULAR PHONE OR REGISTER "Bluetooth" COMPATIBLE PHONE

A

MOVE CELLULAR PHONE TO LOCATION WHERE "BT" MARK TURNS BLUE

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK CELLULAR PHONE

a. Check if the voice on the other side can be heard using a cellular phone.

OK:
Voice can be heard.

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

2.CHECK NAVIGATION SYSTEM

a. Check that navigation sound can be heard from the driver side speaker.

OK:
Sound can be heard from the audio system.

NG → GO TO "VOICE GUIDANCE DOES NOT FUNCTION" IN PROBLEM SYMPTOMS TABLE (Click here)

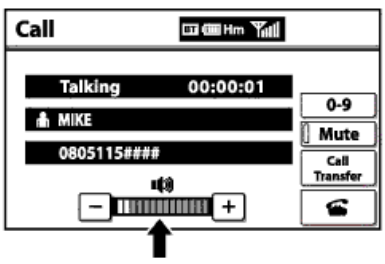
OK

3.CHECK SETTINGS

a. Check if the volume level is set to low on the "Call" screen.

OK:
The level is not set lo .

Example:



H

NG → SET VOLUME TO HIGH

OK

4.CHECK SETTINGS (OPERATION CHECK)

a. Enter the "Hands-free Volume Setting" screen. Refer to Check Hands-free Volume Setting in Operation Check (Click here).

b. Check if the receive voice level is set to "0".

HINT:

The receive voice level can be set to 11 different levels, -5 to +5, with a 3 dB difference.

c. Check if the receive voice level is set to the minimum or maximum level.

HINT:

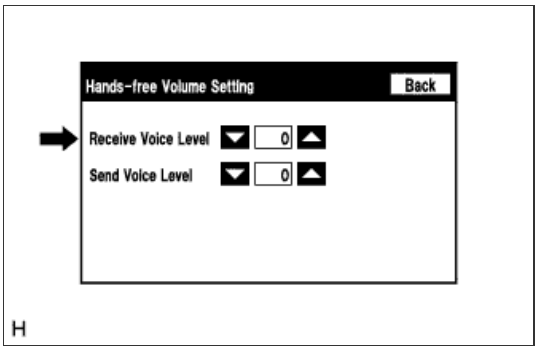
When the receive voice level is set to the minimum or maximum level, the sound may be distorted.

NOTICE:

"Voice Quality Type" should not be changed.

OK:

The receive voice level is set to " ."



NG	SET RECEIVE VOICE LEVEL TO " "

OK

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

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK CELLULAR PHONE

a. Check if the other caller can hear your voice correctly.

OK:
Your voice can be heard correctl .

NG → REPLACE CELLULAR PHONE

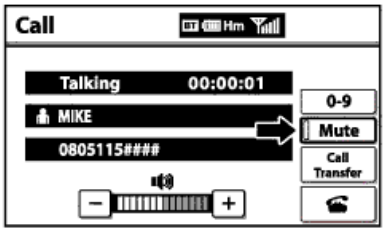
OK

2.CHECK SETTINGS

a. Check if the mute switch is set to on.

OK:
Mute switch is not set to on.

Example:



H

NG → TURN MUTE S ITCH OFF

OK

3.CHECK SETTINGS (OPERATION CHECK)

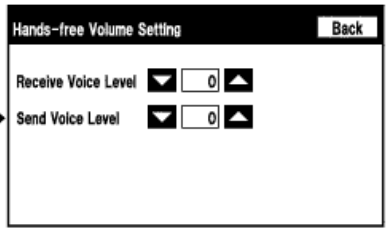
a. Enter the "Hand-free Volume Setting" screen. Refer to "Check Hands-free Volume Setting" in Operation Check (Click here).

b. Adjust "Send Voice Level" and check that the other caller an hear your voice.

HINT:

- **Adjusting Send Voice Level a deteriorate the sound qualit .**
- **The Send Voice Level can be set to 10 different levels, -5 to .**

OK:
Malfunction disappears.



H

NG → Go to step

OK

END

.CHECK MICROPHONE (OPERATION CHECK)

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

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

c. Push the recording switch and perform voice recording.

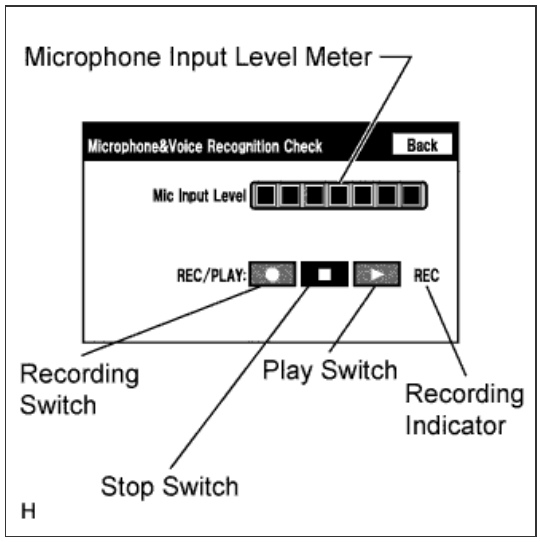
HINT:

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

OK:

All check results are nor al.



NG → PROCEED TO NEXT SUSPECTED AREA SHO N IN PRO LEM SYMPTOMS TA LE (**Click here**)

OK

5.REPLACE RADIO RECEIVER ASSEM LY

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

b. Check symptoms again.

OK:

The other caller can hear our voice loud enough without noise or distortion.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

END

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK DISPLAY SETTING

a. Check that the display is not in "Screen Off" mode.

OK:
The display setting is not in "Screen Off" mode.

NG → CHANGE SCREEN TO "Screen On" MODE

OK

2.CHECK IMAGE QUALITY SETTING

a. Check that the screen color quality can be set.

OK:
Setting is possible.

NG → Go to step 3

OK

PRESS REMOTE TOUCH SWITCH "DISP" AND SET SCREEN COLOR QUALITY TO NORMAL

3.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely lo in the cabin.

HINT:

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

OK:
Condensation is not likely being produced and the temperature is not high or extremely low.

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK

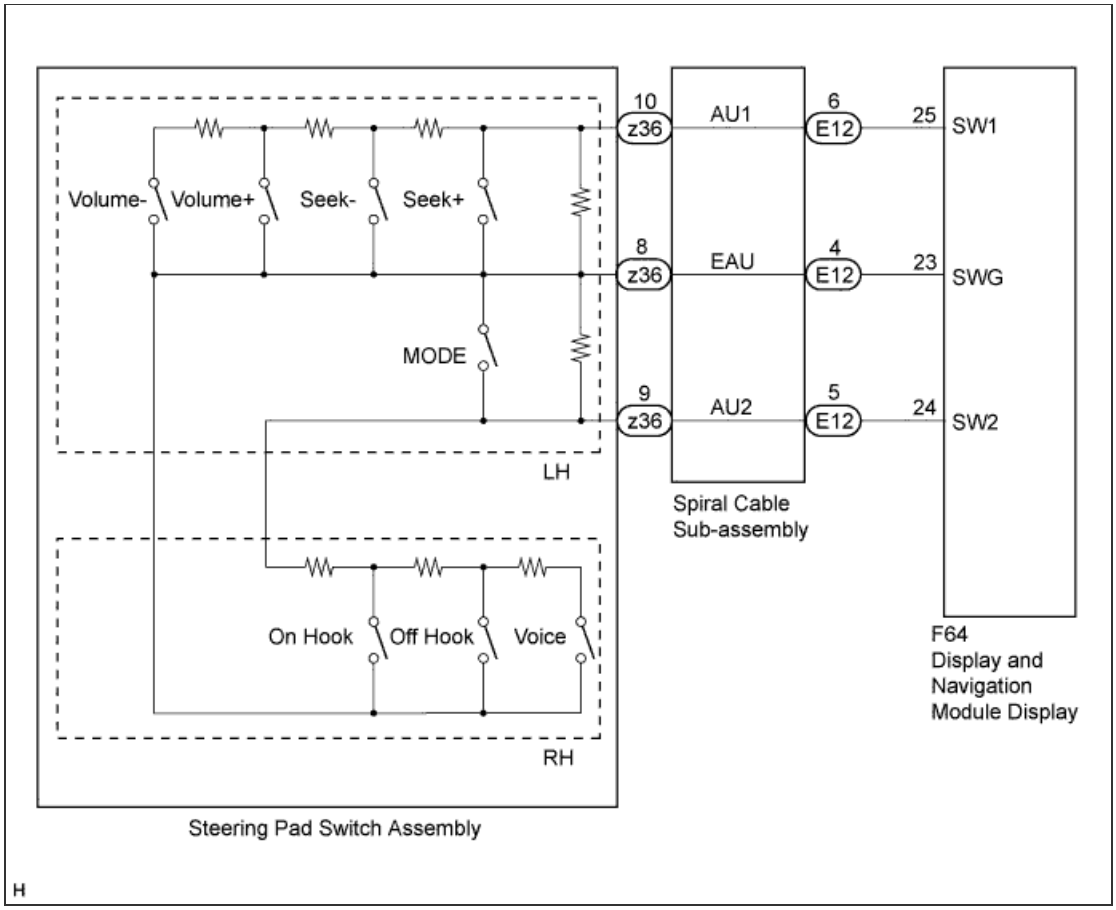
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This circuit sends an operation signal from the steering pad switch assembly to the display and navigation module display.
If there is an open in the circuit, the navigation system cannot be operated using the steering pad switch assembly.
If there is a short in the circuit, the resulting condition is the same as if the switch were continuously pressed. Therefore, the display and navigation module display cannot be operated using the steering pad switch assembly, and the display and navigation module display itself cannot function.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

The vehicle is equipped with an Supplemental Restraint System (SRS). Before servicing (including removal or installation of parts), be sure to read the precaution for Supplemental Restraint System (Click here).

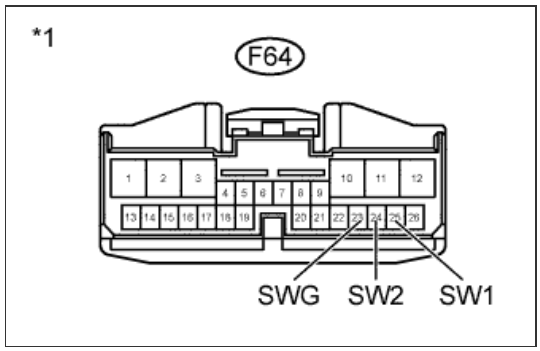
1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Disconnect the F64 display and navigation module display connector.

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

Standard Re itance:

Tester Connection	Switch Condition	Specified Condition
F64-25 (SW1) - F64-23 (SWG)	o switch pushed	5 to 105 kΩ
F64-25 (SW1) - F64-23 (SWG)	Seek switch pushed	Below 2.5 Ω
F64-25 (SW1) -	Seek- switch	312 to 345 Ω



F64-23 (SWG)	pushed	
F64-25 (SW1) - F64-23 (SWG)	olume switch pushed	50 to 1050 Ω
F64-25 (SW1) - F64-23 (SWG)	olume- switch pushed	2 54 to 3265 Ω
F64-24 (SW2) - F64-23 (SWG)	o switch pushed	5 to 105 kΩ
F64-24 (SW2) - F64-23 (SWG)	M D switch pushed	Below 2.5 Ω
F64-24 (SW2) - F64-23 (SWG)	oice switch pushed	2 54 to 3265 Ω
F64-24 (SW2) - F64-23 (SWG)	n Hook switch pushed	312 to 345 Ω
F64-24 (SW2) - F64-23 (SWG)	ff Hook switch pushed	50 to 1050 Ω

Text in Illu tration

*1	Front view of wire harness connector (to Display and avigation Module Display)

NG → Go to tep 2

OK

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

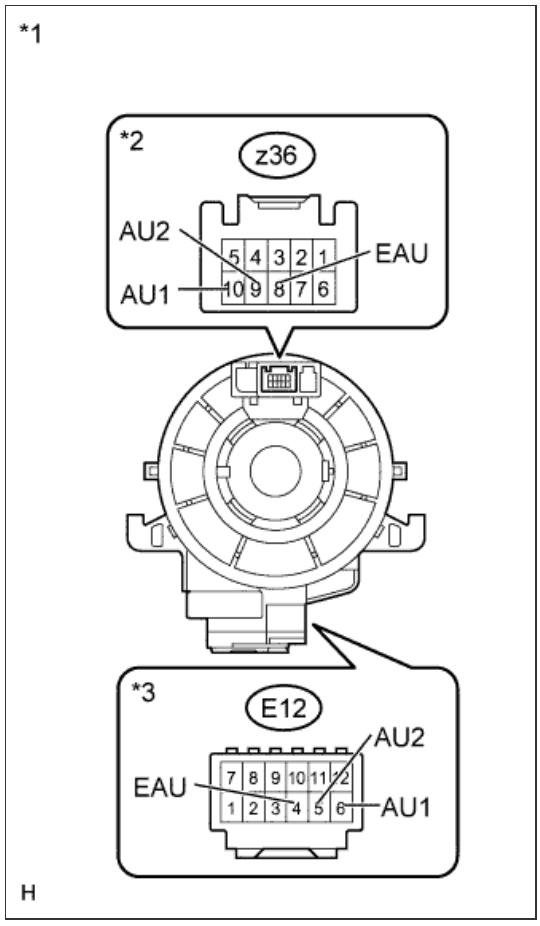
2.INSPECT SPIRAL CABLE SUB-ASSEMBLY

a. Disconnect the 36 and 2 spiral cable sub-assembly connectors.

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

Standard Re itance:

Tester Connection	Condition	Specified Condition
z36- (E) - E12-4 (E)	Center	Below 1 Ω
	2.5 rotations to the left	
	2.5 rotations to the right	
z36-10 ( ) - E12-6 ( )	Center	Below 1 Ω
	2.5 rotations to the left	
	2.5 rotations to the right	
z36- ( ) - E12-5 ( )	Center	Below 1 Ω
	2.5 rotations to the left	
	2.5 rotations to the right	



NOTICE:

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Refer to the pages shown in the brackets.

HINT:

- **Remo al (Click here)**
- **In tallation (Click here)**

Text in Illu tration

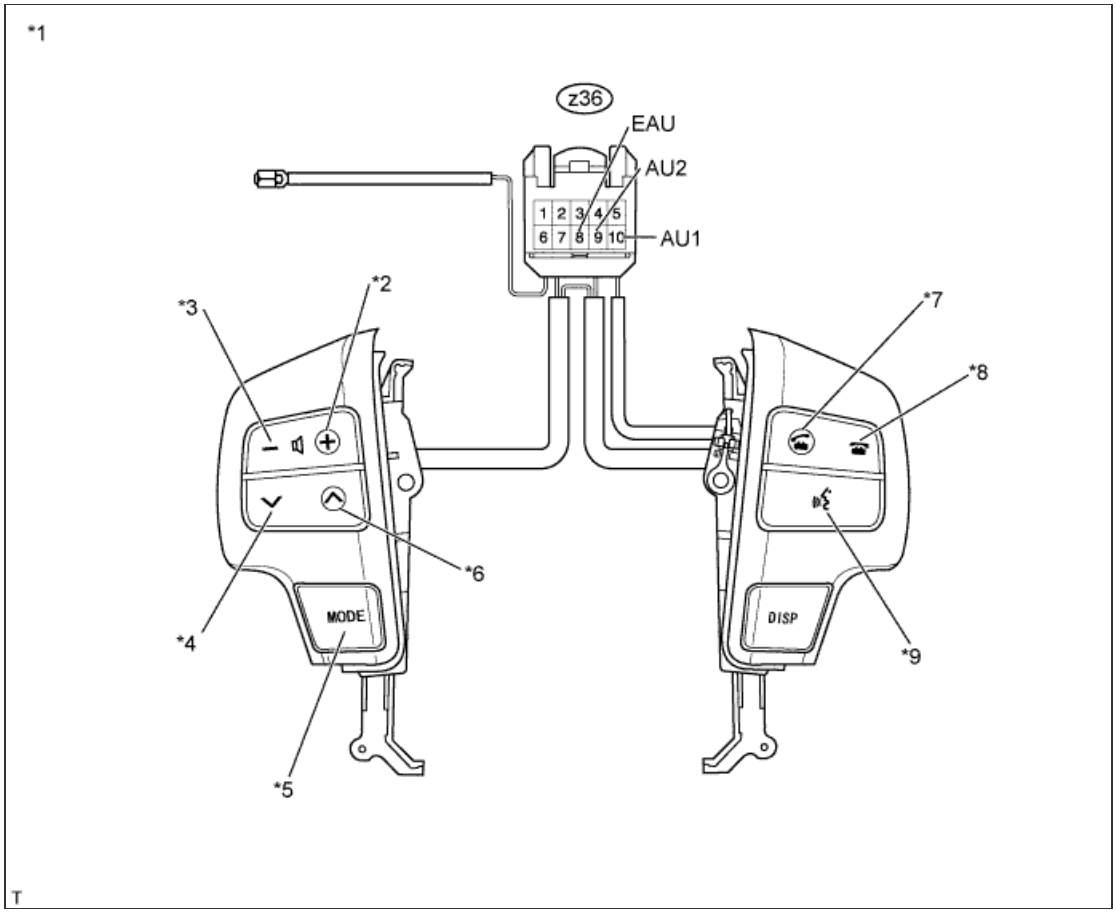
*1	Component without harness connected (Spiral Cable Sub-assembly)

*2	Steering ad Switch Side
*3	ehicle Side

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

OK

3.INSPECT STEERING PAD SWITCH ASSEMBLY



Text in Illu tration

*1	Component without harness connected (Steering ad Switch ssembly)	*2	olume+
*3	olume-	*4	Seek-
*5	M DE	*6	Seek+
*	ff Hook	*	n Hook
*	oice	-	-

a. Disconnect the z36 steering pad switch assembly connector.

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

Standard Re itance:

Tester Connection	Switch Condition	Specified Condition
z36-10 ( ) - z36- (E)	No switch pushed	to 105 kΩ
z36-10 ( ) - z36- (E)	Seek+ switch pushed	Below 2.5 Ω
z36-10 ( ) - z36- (E)	Seek- switch pushed	312 to 345 Ω
z36-10 ( ) - z36- (E)	olume+ switch pushed	to 1050 Ω
z36-10 ( ) - z36- (E)	olume- switch pushed	2 4 to 3265 Ω
z36- ( ) - z36- (E)	No switch pushed	to 105 kΩ
z36- ( ) - z36- (E)	M DE switch pushed	Below 2.5 Ω

z36- ( ) - z36- (E)	oice switch pushed	2 4 to 3265 Ω
z36- ( ) - z36- (E)	n Hook switch pushed	312 to 345 Ω
z36- ( ) - z36- (E)	ff Hook switch pushed	to 1050 Ω

NG → REPLACE STEERING PAD SWITCH ASSEMBLY (Click here)

OK

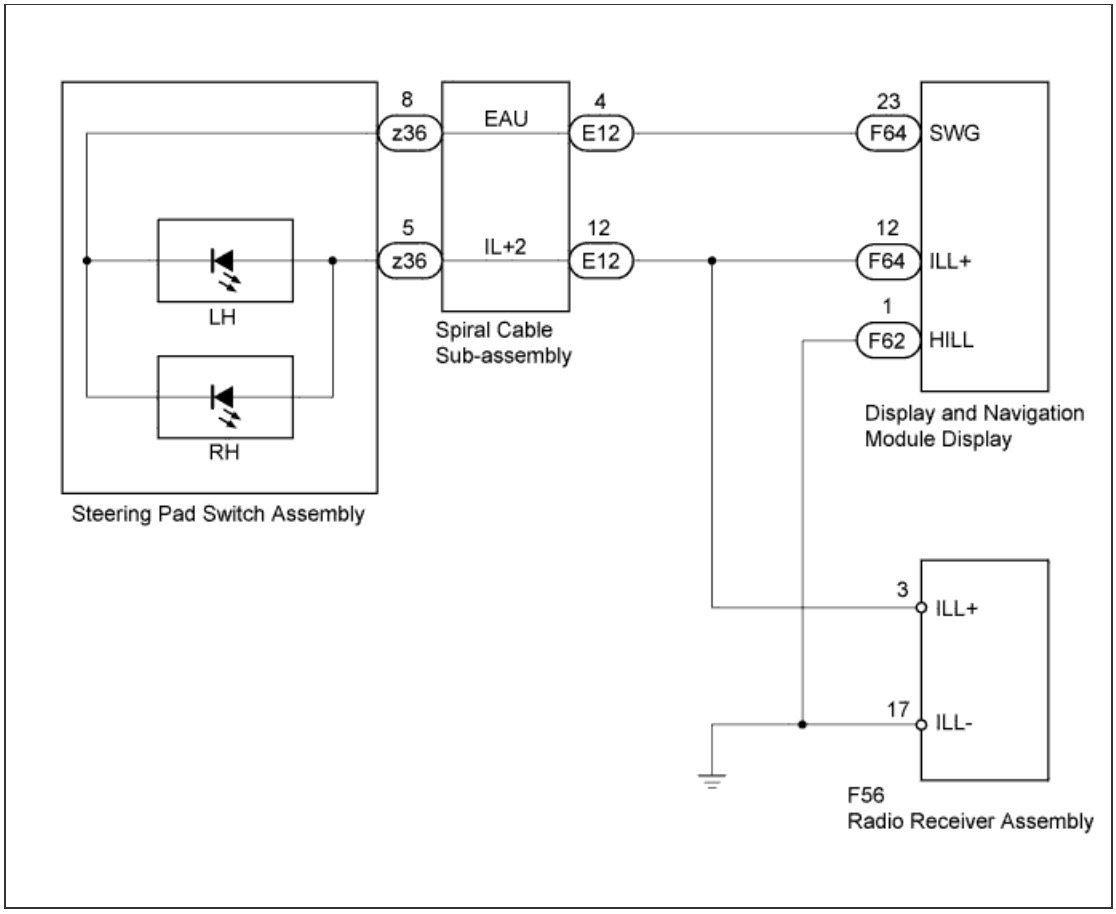
REPAIR OR REPLACE HARNESS OR CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - SPIRAL CABLE)

for Preparation Click here

DESCRIPTION

Power is supplied to the display and navigation module display, radio receiver assembly and steering pad switch assembly illumination when the light control switch is in the TAIL or HEAD position.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the Precaution in the Supplemental Restraint System (Click here).

1.CHECK ILLUMINATION

a. Check if the illumination for the display and navigation module display, steering pad switch, glove box light, cigarette lighter, or other parts (seat heater switch, front seat memory switch, etc.) comes on when the light control switch is turned to the HEAD or TAIL position.

Result

Result	Proceed to
Illumination comes on for all components except steering pad switch assembly.	A
Illumination comes on for all components except radio receiver assembly.	B
Illumination comes on for all components except display and navigation module display.	C
No illumination comes on for all components.	D

B	Go to step 6
C	Go to step 7

D → GO TO LIGHTING SYSTEM (Click here)

A

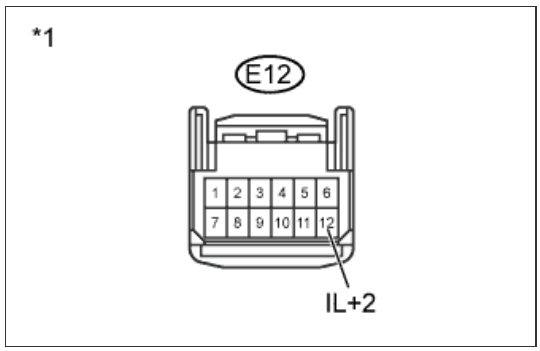
2.CHECK HARNESS AND CONNECTOR (BATTERY - SPIRAL CABLE SUB-ASSEMBLY)

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

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

Standard Voltage:

Tester Connection	Condition	Specified Condition
E12-12 (IL+2) - Body ground	Light control switch in tail or head	11 to 14 V



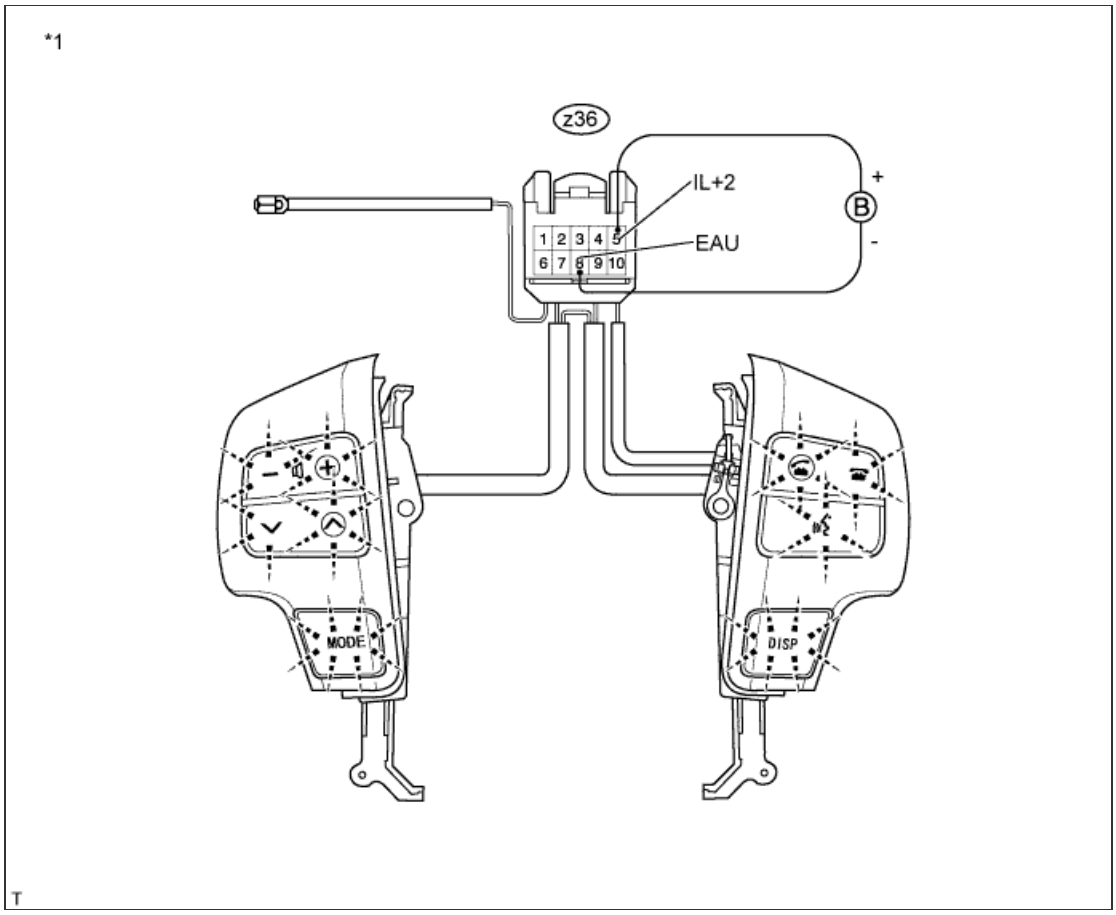
Text in Illustration

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

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT STEERING PAD SWITCH ASSEMBLY



Text in Illustration

*1	Component without harness connected (Steering Pad Switch Assembly)	-	-

a. Disconnect the z36 steering pad switch assembly connector.

b. Connect a positive (+) lead from the battery to terminal 5 (IL+2) and a negative (-) lead from the battery to terminal 8 (EAU) of the steering pad switch assembly connector.

c. Check if the illumination for the steering pad switch assembly comes on.

OK:

Illumination for the steering pad switch assembly comes on.

NG → REPLACE STEERING PAD SWITCH ASSEMBLY (Click here)

OK

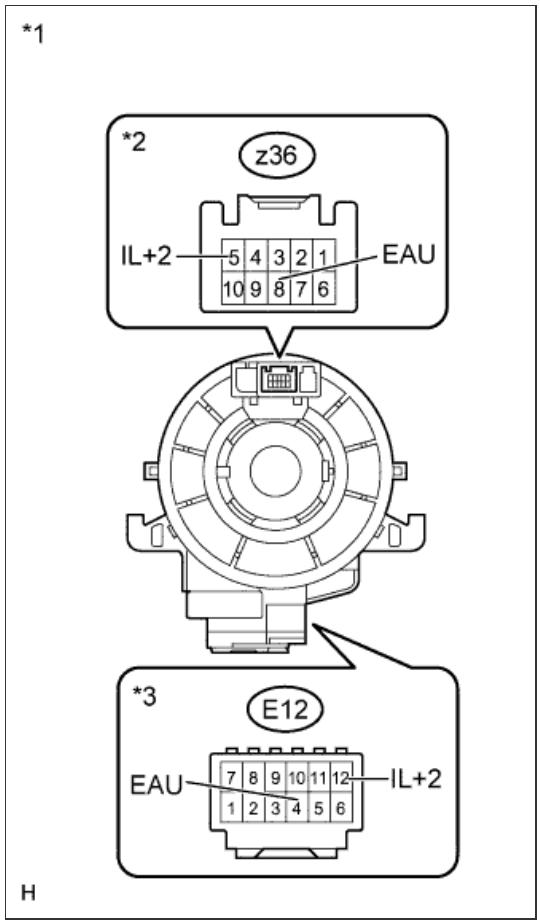
4.INSPECT SPIRAL CABLE SUB-ASSEMBLY

a. Disconnect the z36 and E12 spiral cable sub-assembly connectors.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
z36-5 (IL+2) - E12-12 (IL+2)	Center	Below 1 Ω
	2.5 rotations to the left	
	2.5 rotations to the right	
z36-8 (EAU) - E12-4 (EAU)	Center	Below 1 Ω
	2.5 rotations to the left	
	2.5 rotations to the right	



Text in Illustration

*1	Component without harness connected (Spiral Cable Sub-assembly)
*2	Steering Pad Switch Side
*3	Vehicle Side

NOTICE:

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

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

OK

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

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

b. Disconnect the F64 display and navigation module display connector.

c. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
E12-12 (IL+2) -		

F64-12 (ILL+)	Always	Below 1 Ω
E12-12 (IL+2) - F56-3 (ILL+)	Always	Below 1 Ω
E12-4 (EAU) - F64-23 (SWG)	Always	Below 1 Ω
E12-12 (IL+2) - Body ground	Always	10 kΩ or higher
E12-4 (EAU) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

6.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - BATTERY AND BODY GROUND)

a. Disconnect the F56 radio receiver assembly connector.

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

Standard Voltage:

Tester Connection	Condition	Specified Condition
F56-3 (ILL+) - Body ground	Light control switch in TAIL or HEAD	11 to 14 V

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F56-17 (ILL-) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

7.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - BATTERY AND BODY GROUND)

a. Disconnect the F64 and F62 display and navigation module display connector.

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

Standard Voltage:

Tester Connection	Condition	Specified Condition
F64-12 (ILL+) - Body ground	Light control switch in TAIL or HEAD	11 to 14 V

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F62-1 (HILL) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

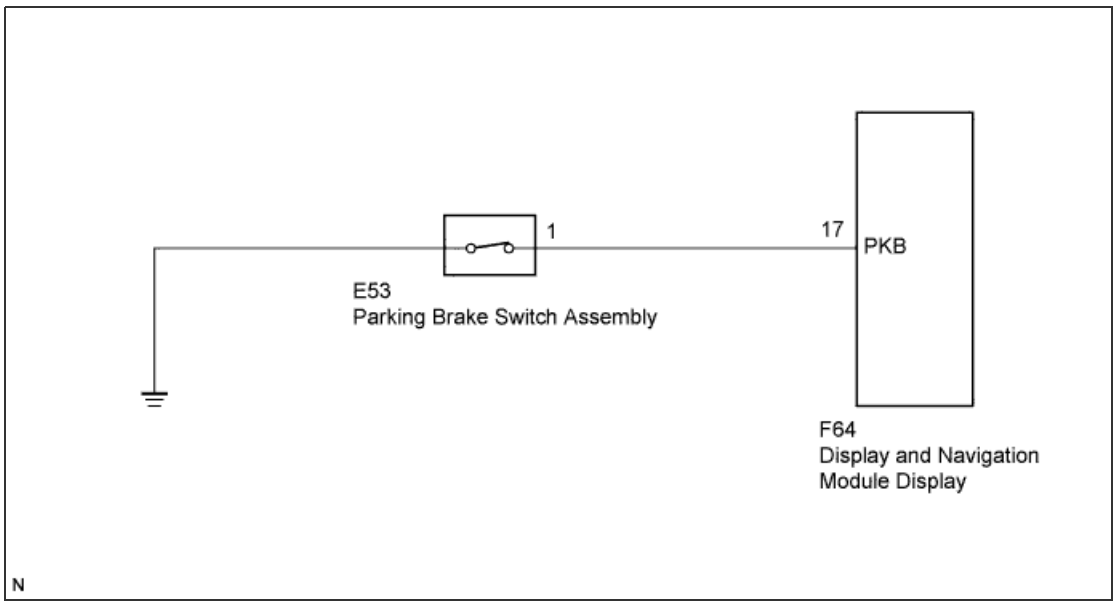
REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

for Preparation Click here

DESCRIPTION

This circuit is from the parking brake switch assembly to the display and navigation module display.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK BRAKE WARNING LIGHT

a. Check that the brake warning light comes on when the parking brake is applied and goes off when it is released.

OK:

The brake warning light operates as specified above.

NG → Go to step 3

OK ↓

2.CHECK HARNESS AND CONNECTOR (PARKING BRAKE SWITCH - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F64 display and navigation module display connector.

. Disconnect the E53 parking brake switch assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F64-17 (PKB) - E53-1	Always	Below 1 Ω
F64-17 (PKB) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

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

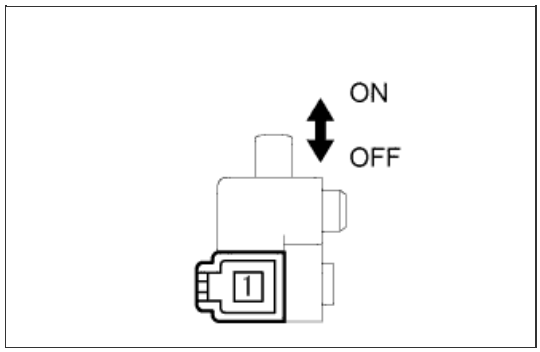
3.INSPECT PARKING BRAKE SWITCH ASSEMBLY

a. Disconnect the parking brake switch assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 - Switch body	ON (When shaft is not pressed)	Below 1 Ω
1 - Switch body	OFF (When shaft is pressed)	10 kΩ or higher



NG → REPLACE PARKING BRAKE SWITCH ASSEMBLY

OK → REPAIR OR REPLACE HARNESS OR CONNECTOR (PARKING BRAKE SWITCH - BODY GROUND)

for Preparation Click here

DESCRIPTION

Each unit of the navigation system connected to the AVC-LAN (communication bus) transfers switch signals by the audio visual communication local area network.
If a short to +B or short to ground occurs in this AVC-LAN, the navigation system will not function normally as communication is stopped.

INSPECTION PROCEDURE

HINT:

The display and navigation module display is the master unit.

1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

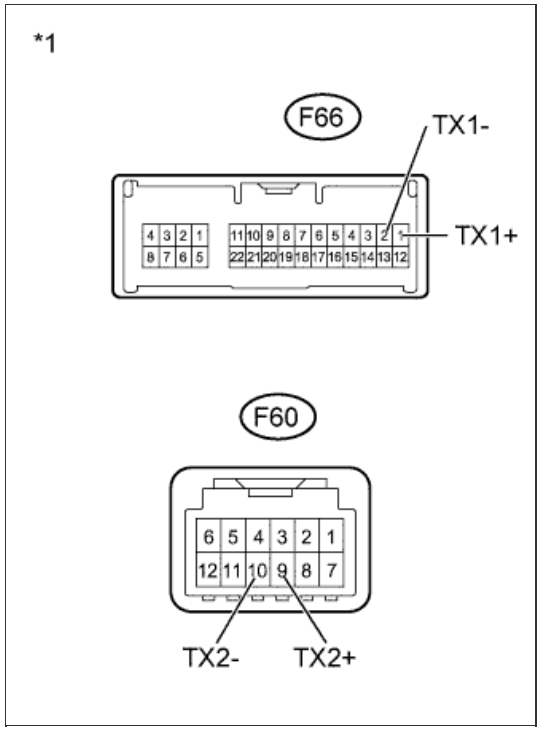
a. Disconnect the F66 display and navigation module display connector.

b. Disconnect the F60 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F66-1 (TX1+) - F66-2 (TX1-)	Always	60 to 80 Ω
F60-9 (TX2+) - F60-10 (TX2-)	Always	60 to 80 Ω



Text in Illustration

*1	Component without harness connected (Display and Navigation Module Display)

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

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

HINT:

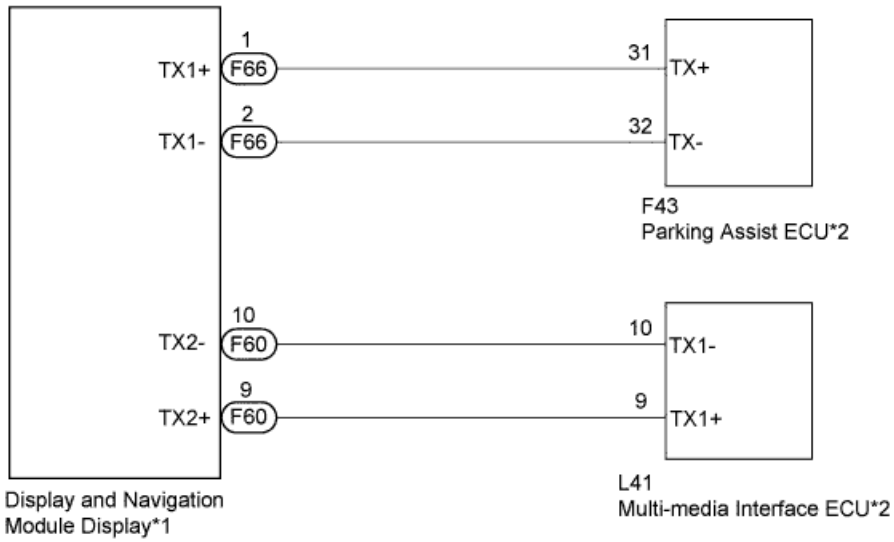
For details of the connectors, refer to Terminals of ECU (Click here).

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

i. Disconnect all connectors in all AVC-LAN circuits.

ii. Check for an open or short in all AVC-LAN circuits.

AVC-LAN WIRING DIAGRAM:



*1: Master Unit

*2: Slave Unit

OK:

There is no open or short circuit.

NG	REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT MALFUNCTIONING PARTS

a. Disconnect and reconnect each slave unit one by one until the master unit returns to normal operation.

HINT:

- **Check all slave units.**
- **If disconnecting a slave unit causes the master unit to return to normal operation, the slave unit is defective and should be replaced.**

OK:

Master unit returns to normal operation.

NG	REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

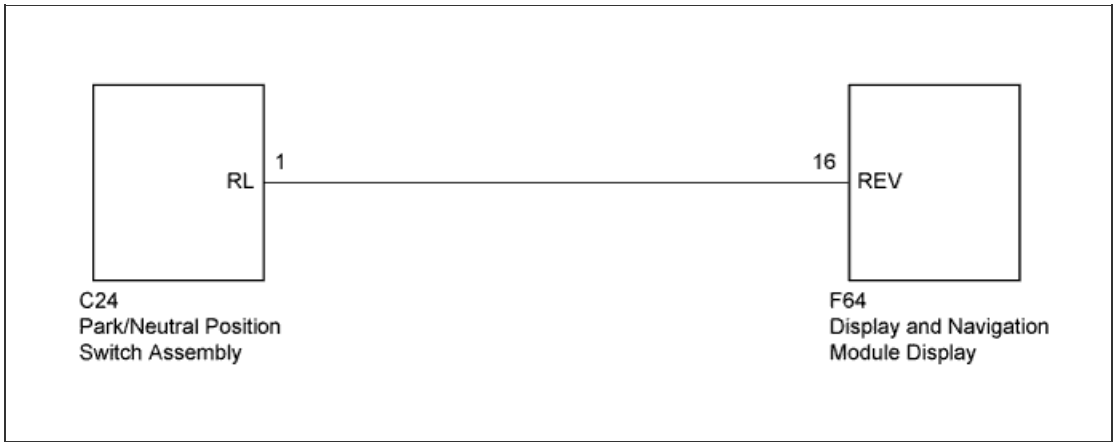
REPLACE MALFUNCTIONING PARTS

for Preparation Click here

DESCRIPTION

The display and navigation module display receives a reverse signal from the park/neutral position switch and information about the navigation antenna assembly, and then adjusts the vehicle position on the navigation display.

WIRING DIAGRAM

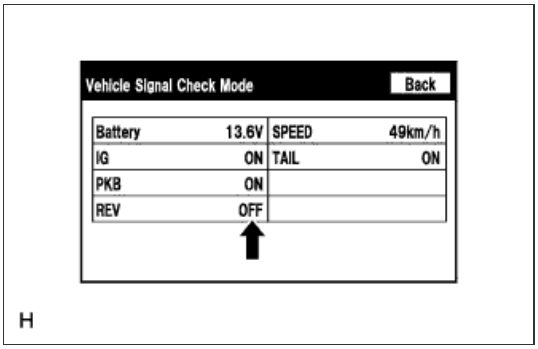


INSPECTION PROCEDURE

1.CHECK REVERSE SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Check that the display changes between ON and OFF according to the shift lever operation.



OK:

Condition	Display
Shift lever in R	ON
Shift lever in any position except R	OFF

HINT:

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

NG → Go to step 2

OK

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

2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Disconnect the F64 display and navigation module display connector.

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

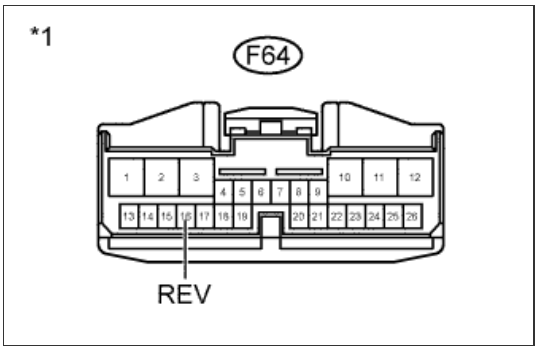
Standard Voltage:

Tester Connection	Condition	Specified Condition
F64-16 (REV) - Body ground	Engine switch on (IG)	11 to 14 V

	Shift lever in R	
F64-16 (REV) - Body ground	Engine switch on (IG) Shift lever in any position except R	Below 1 V

Text in Illustration

*1	Front view of wire harness connector (to Display and Navigation Module Display)



NG → Go to step 3

OK →

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

3.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - PNP SWITCH)

a. Disconnect the F64 display and navigation module display 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
F64-16 (REV) - C24-1 (RL)	Always	Below 1 Ω
F64-16 (REV) - Body ground	Always	10 kΩ or higher

Result

Result	Proceed to
NG	A
OK (for AB60F Automatic Transaxle)	B
OK (for AB750F Automatic Transaxle)	C

B → REPLACE PARK/NEUTRAL POSITION SWITCH ASSEMBLY (Click here)

C → REPLACE PARK/NEUTRAL POSITION SWITCH ASSEMBLY (Click here)

A →

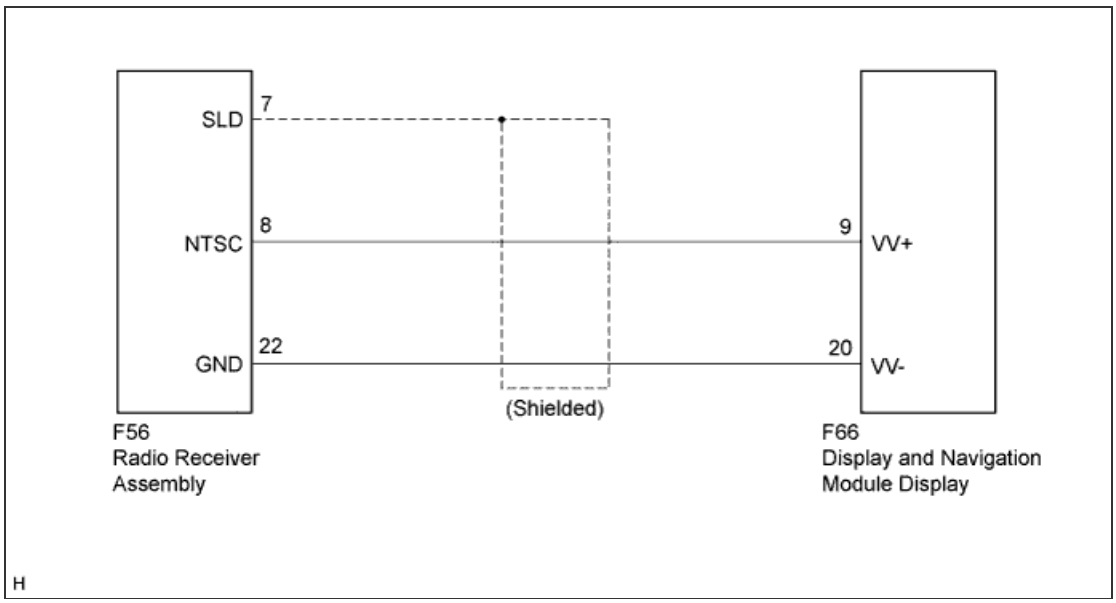
REPAIR OR REPLACE HARNESS OR CONNECTOR

for Preparation Click here

DESCRIPTION

This circuit sends a DVD image signal from the radio receiver assembly to the display and navigation module display.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F56 radio receiver assembly connector.

b. Disconnect the F66 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F56-8 (NTSC) - F66-9 (VV+)	Always	Below 1 Ω
F56-22 (GND) - F66-20 (VV-)	Always	Below 1 Ω
F56-8 (NTSC) - Body ground	Always	10 kΩ or higher
F56-22 (GND) - Body ground	Always	10 kΩ or higher
F56-7 (SLD) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.INSPECT RADIO RECEIVER ASSEMBLY (DVD IMAGE SIGNAL)

a. Reconnect the F56 radio receiver assembly connector.

b. Check the waveform according to the table below.

Oscilloscope Waveform

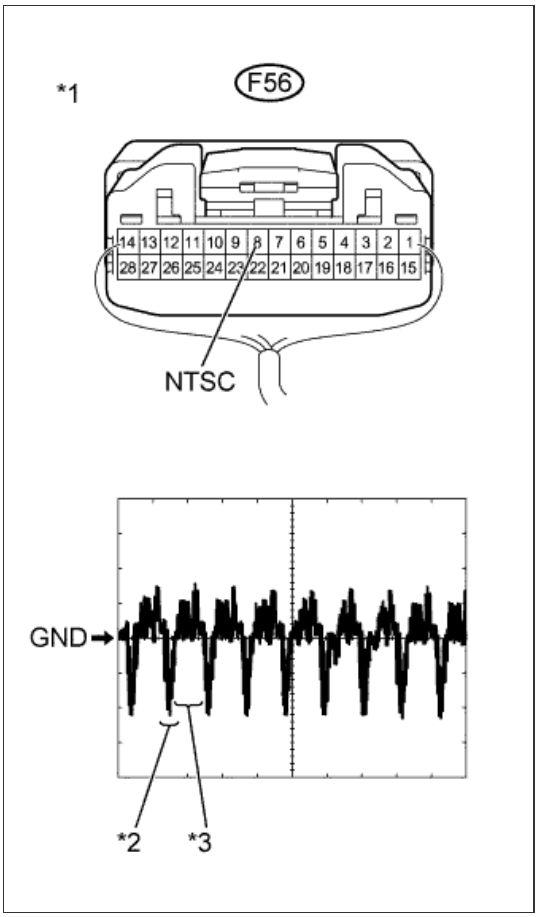
Item	Content
Measurement terminal	F56-8 (NTSC) - Body ground
Tool setting	200 mV/DIV., 10 µs/DIV.
Condition	DVD display is on

HINT:

The video waveform changes according to the image output from the radio receiver assembly to the display and navigation module display, but the synchronization signal does not change.

Text in Illustration

*1	Component with harness connected (Radio Receiver Assembly)
*2	Synchronization Signal
*3	Video Waveform



NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

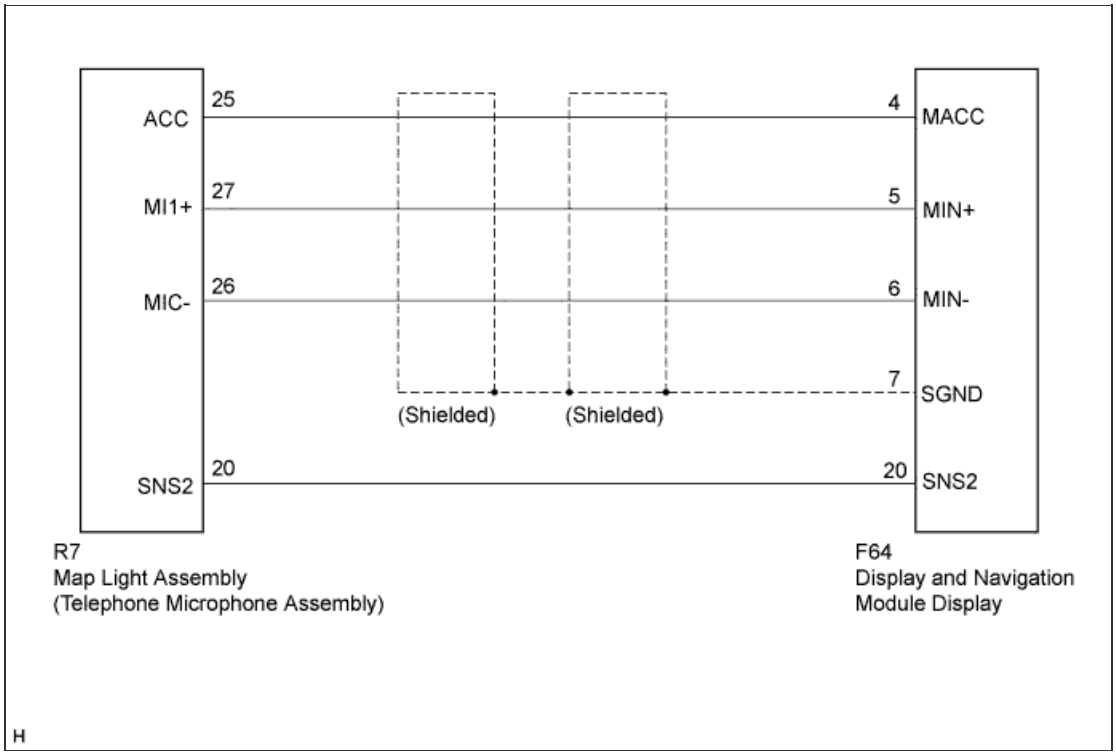
OK → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This circuit sends a microphone signal from the map light assembly (telephone microphone assembly) to the display and navigation module display. It also supplies power from the display and navigation module display to the map light assembly (telephone microphone assembly).

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - MAP LIGHT ASSEMBLY)

a. Disconnect the F64 display and navigation module display connector.

b. Disconnect the R7 map light assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F64-20 (SNS2) - R7-20 (SNS2)	Always	Below 1 Ω
F64-4 (MACC) - R7-25 (ACC)	Always	Below 1 Ω
F64-5 (MIN+) - R7-27 (MI1+)	Always	Below 1 Ω
F64-6 (MIN-) - R7-26 (MIC-)	Always	Below 1 Ω
F64-20 (SNS2) - Body ground	Always	10 kΩ or higher
F64-4 (MACC) - Body ground	Always	10 kΩ or higher
F64-5 (MIN+) - Body ground	Always	10 kΩ or higher
F64-6 (MIN-) - Body ground	Always	10 kΩ or higher
F64-7 (S ND) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Reconnect the F64 display and navigation module display connector.

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

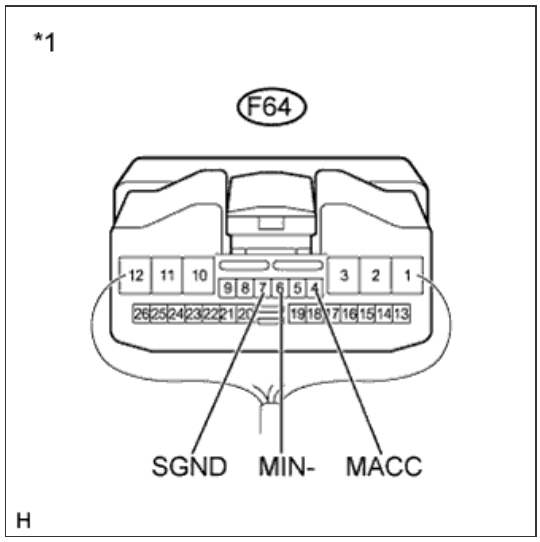
Standard Voltage:

Tester Connection	Condition	Specified Condition
F64-4 (MACC) - Body ground	Engine switch on (ACC)	4 to 6 V

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F64-7 (S ND) - Body ground	Always	Below 1 Ω
F64-6 (MIN-) - Body ground	Always	Below 1 Ω



Text in Illumination

*1	Component with harness connected (Display and Navigation Module Display)

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

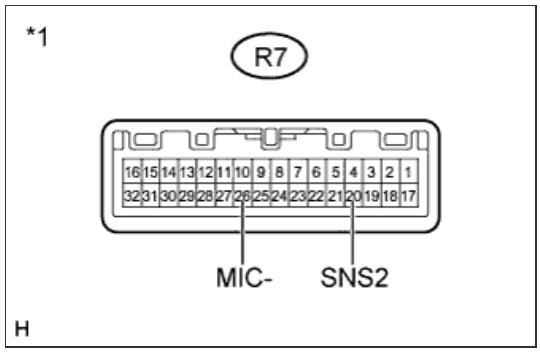
OK

3.INSPECT MAP LIGHT ASSEMBLY

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
R7-20 (SNS2) - R7-26 (MIC-)	Always	Below 1 Ω



Text in Illumination

*1	Component without harness connected (Map Light Assembly)

NG → Go to step 5

OK

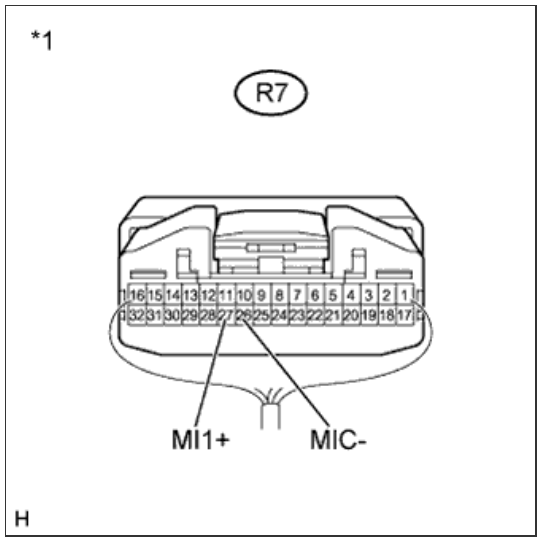
4.INSPECT MAP LIGHT ASSEMBLY

a. Reconnect the R7 map light assembly connector.

b. Turn the engine switch on (ACC).

c. Connect an oscilloscope to terminals 27 (MI1+) and 26 (MIC-) of the R7 telephone microphone assembly connector.

d. Check the waveform of the telephone microphone assembly using the oscilloscope.



Result

Result	Proceed to
Waveform synchronized with the voice input to the map light assembly is output	A
Waveform synchronized with the voice input to the map light assembly is not output	B

Text in Illustration

*1	Component with harness connected (Map Light Assembly)

B → Go to step 5

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

5.REPLACE TELEPHONE MICROPHONE ASSEMBLY

a. Replace the telephone microphone assembly (Click here).

b. Check if the same malfunction recurs.

Result

Result	Proceed to
Malfunction does not recur (returns to normal)	A
Malfunction recurs	B

B → REPLACE MAP LIGHT ASSEMBLY (Click here)

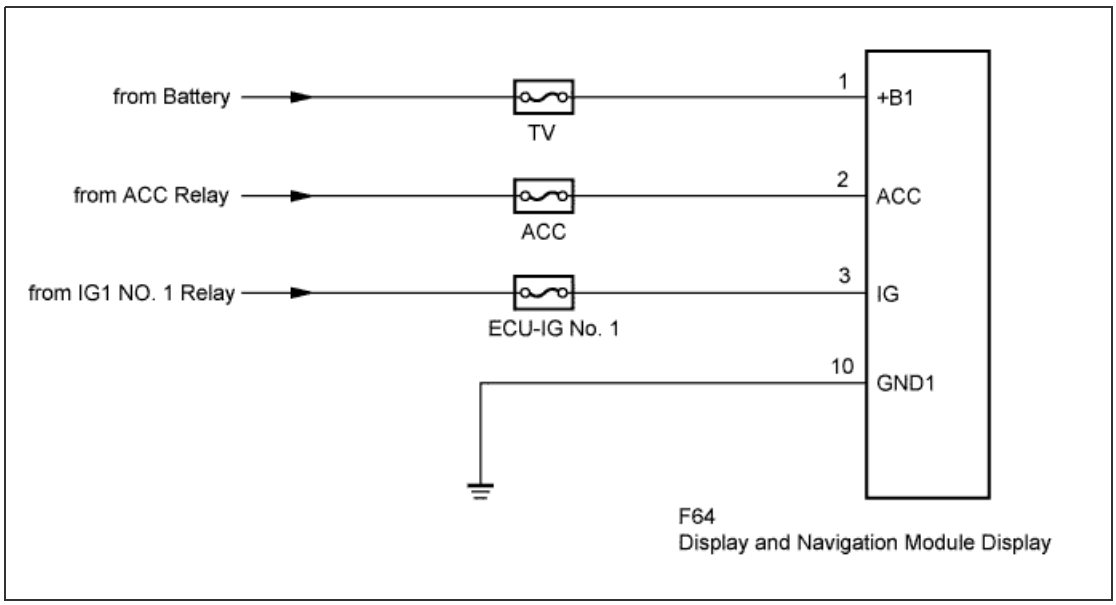
A → END

for Preparation Click here

DESCRIPTION

This is the power source circuit to operate the display and navigation module display.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

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

1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY POWER SOURCE)

a. Disconnect the F64 display and navigation module display connector.

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

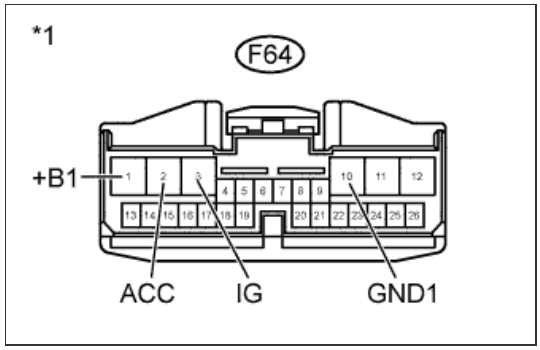
Standard Resistance:

Tester Connection	Condition	Specified Condition
F64-10 (GND1) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

Tester Connection	Condition	Specified Condition
F64-1 (+B1) - F64-10 (GND1)	Always	11 to 14 V
F64-2 (ACC) - F64-10 (GND1)	Engine switch on (ACC)	11 to 14 V
F64-3 (IG) - F64-10 (GND1)	Engine switch on (IG)	11 to 14 V



Text in Illustration

*1	Front view of wire harness connector (to Display and Navigation Module Display)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

for Preparation Click here

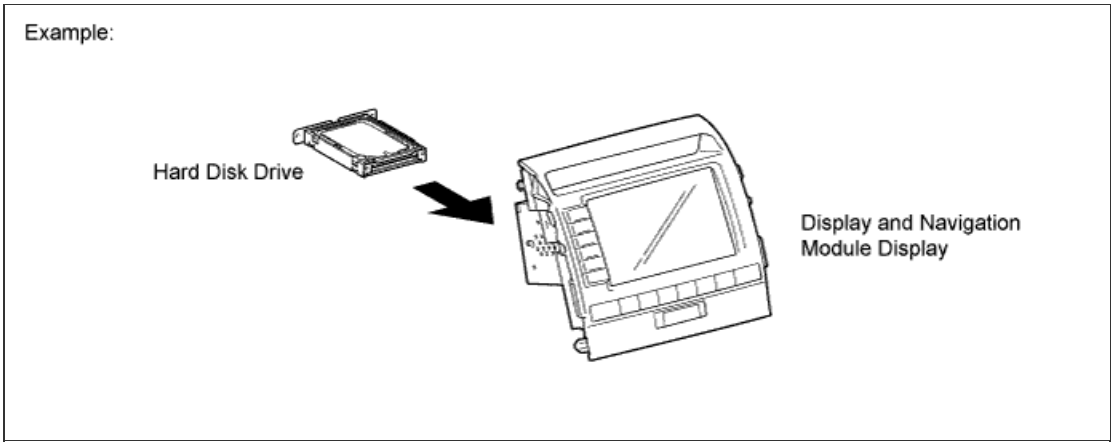
1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

After the engine switch is turned off, the display and navigation module display (HDD navigation system) records various types of memory and settings. As a result, after turning the engine switch off, make sure to wait at least 60 seconds before disconnecting the cable from the negative (-) battery terminal.

2.PRECAUTION FOR DISPLAY AND NAVIGATION MODULE DISPLAY

a. An HDD is built into the display and navigation module display to store map data etc. which will be used for the navigation system. Therefore, care must be taken for the following points when handling:



i. When it is necessary to replace the display and navigation module display, be sure to replace it with a new one.

NOTICE:

If a used display and navigation module display is installed as a replacement part, the customer s HDD will not be recognized.

ii. Do not apply any vibration or shock to the display and navigation module display.

NOTICE:

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

iii. Do not remove the display and navigation module display if there is a risk that condensation may occur.

NOTICE:

If the temperature of the display and navigation module display changes rapidly, condensation may occur inside the unit. This may cause a malfunction of the HDD.

Therefore, when the display and navigation module display is removed from the instrument panel, it needs to be kept inside the vehicle or in an environment with an equivalent temperature and humidity.

iv. Take measures to prevent static electricity.

NOTICE:

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

v. Keep the display and navigation module display away from magnets or magnetized items.

NOTICE:

Keep the display and navigation module display away from speakers, motors, magnetized tools and other magnetic items.

3.PRECAUTIONS FOR HARD DISK DRIVE (HDD)

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

NOTICE:

Data recorded by the customer may be stored on the HDD (w/ Sound Library Function). This data will be lost when the HDD is replaced. Make sure to warn the customer that their data will be lost obtain their consent prior to replacing the HDD.

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

NOTICE:

The display and navigation module display can recognize only a new HDD.

ii. Do not touch the HDD cover.

NOTICE:

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

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

NOTICE:

- **Do not drop or allow anything to strike the HDD.**
- **Never use an HDD that has been dropped or struck.**
- **Do not store a HDD by itself if it has been removed from the display and navigation module display. (Only remove the HDD from the display and navigation module display when the replacement display and navigation module display or HDD is ready.)**

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

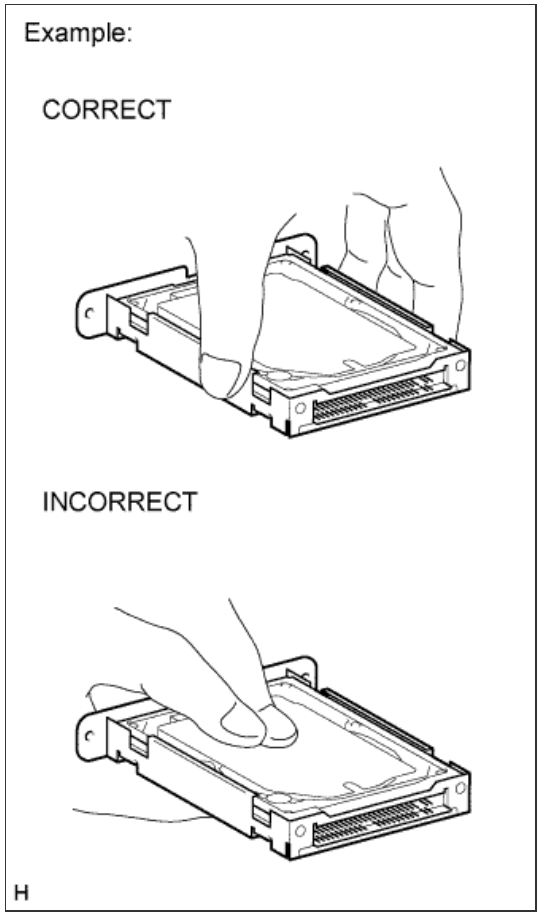
NOTICE:

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

v. Take measures to prevent static electricity.

NOTICE:

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



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

NOTICE:

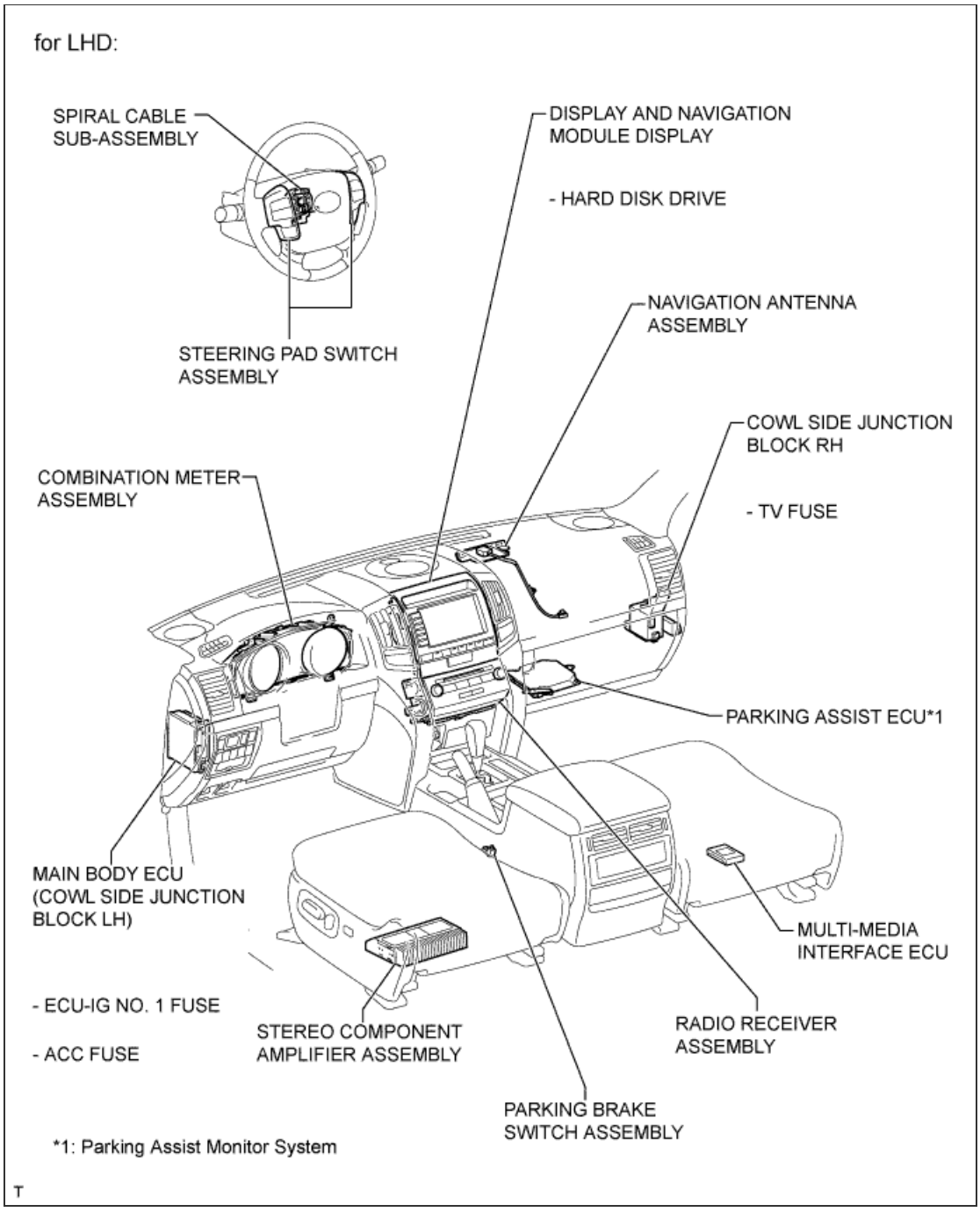
Keep the HDD away from speakers, motors, magnetized tools and other magnetic items.

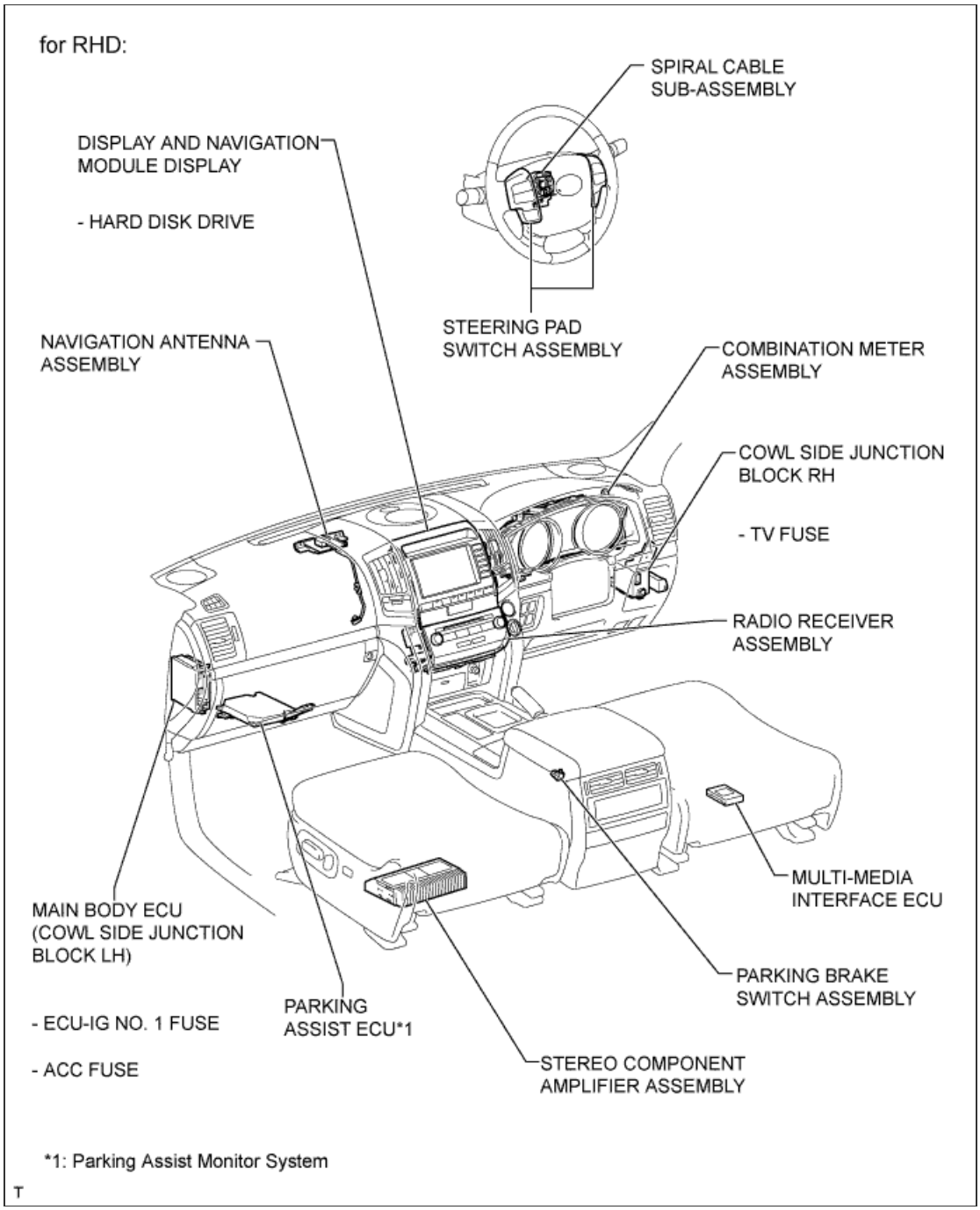
vii. Inspection after HDD replacement.

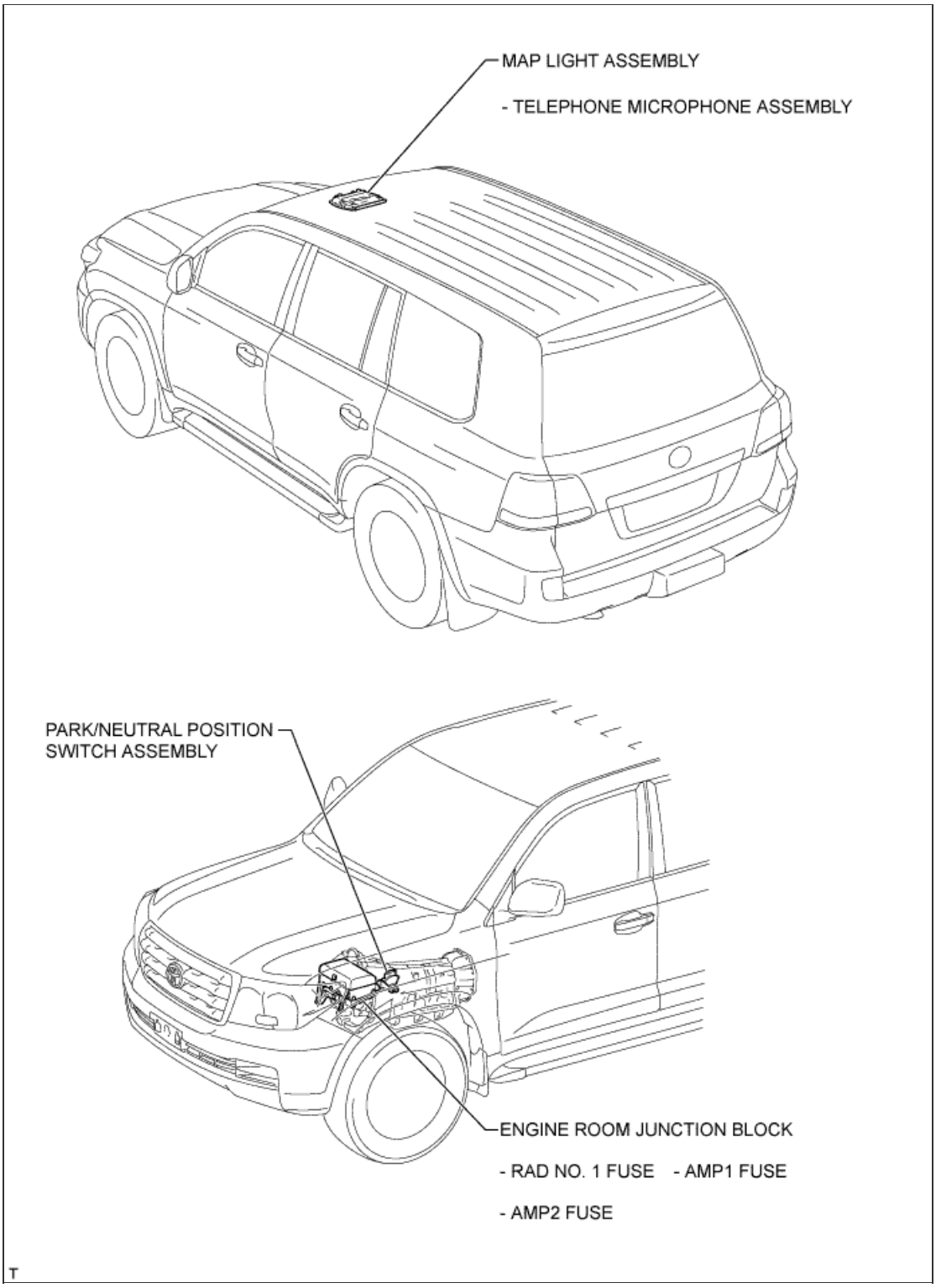
NOTICE:

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

for Preparation Click here



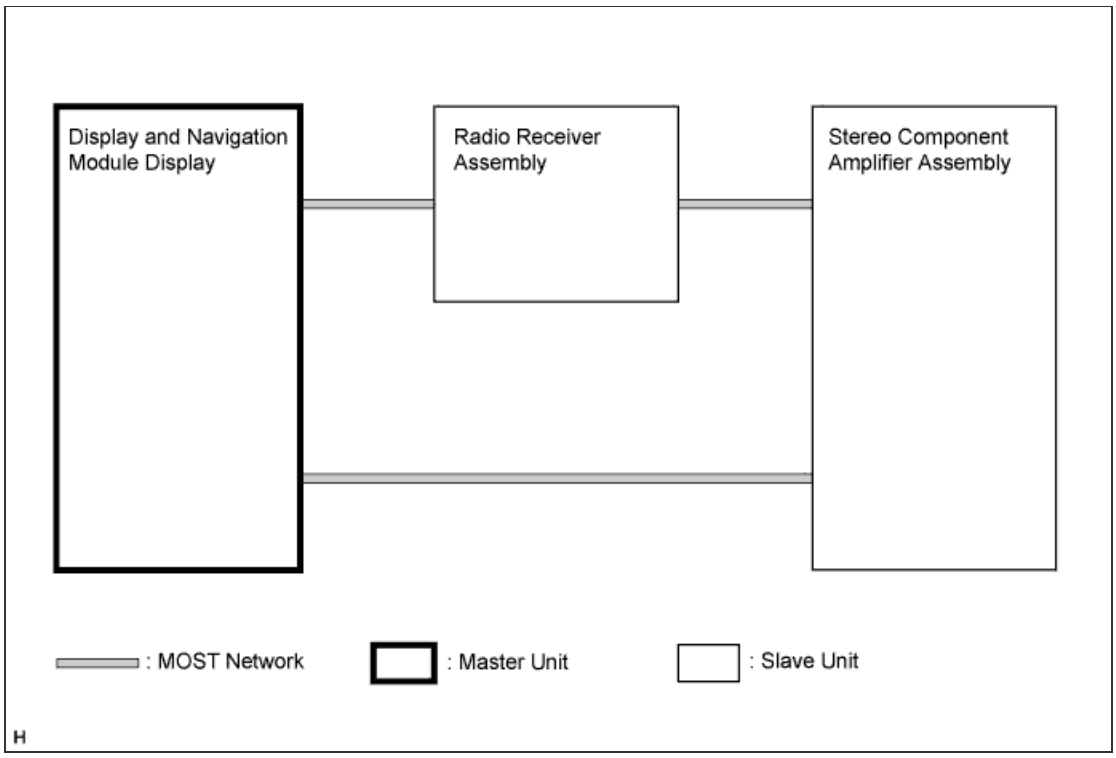

for RHD:
SPIRAL CABLE SUB-ASSEMBLY
DISPLAY AND NAVIGATION MODULE DISPLAY
- HARD DISK DRIVE
STEERING PAD SWITCH ASSEMBLY
NAVIGATION ANTENNA ASSEMBLY
COMBINATION METER ASSEMBLY
COWL SIDE JUNCTION BLOCK RH
- TV FUSE
RADIO RECEIVER ASSEMBLY
MULTI-MEDIA INTERFACE ECU
MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)
- ECU-IG NO. 1 FUSE
- ACC FUSE
PARKING ASSIST ECU*1
PARKING BRAKE SWITCH ASSEMBLY
STEREO COMPONENT AMPLIFIER ASSEMBLY
*1: Parking Assist Monitor System
T


MAP LIGHT ASSEMBLY
- TELEPHONE MICROPHONE ASSEMBLY
PARK/NEUTRAL POSITION SWITCH ASSEMBLY
ENGINE ROOM JUNCTION BLOCK
- RAD NO. 1 FUSE
- AMP1 FUSE
- AMP2 FUSE

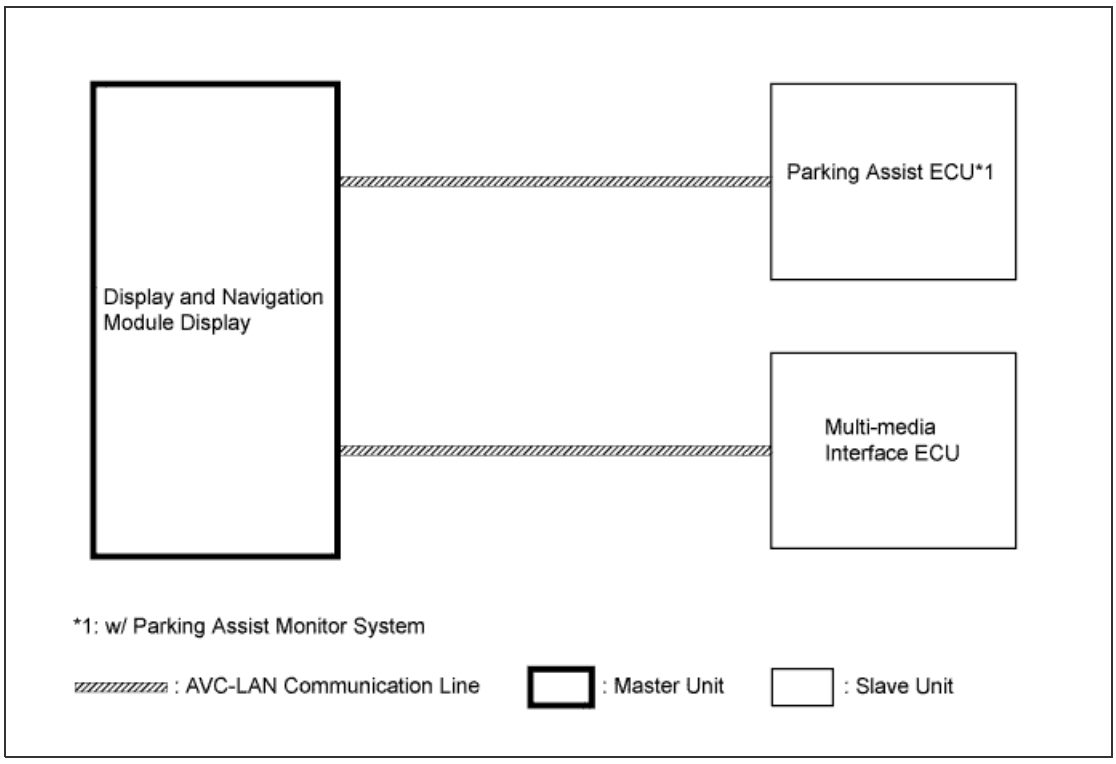
T

for Preparation Click here

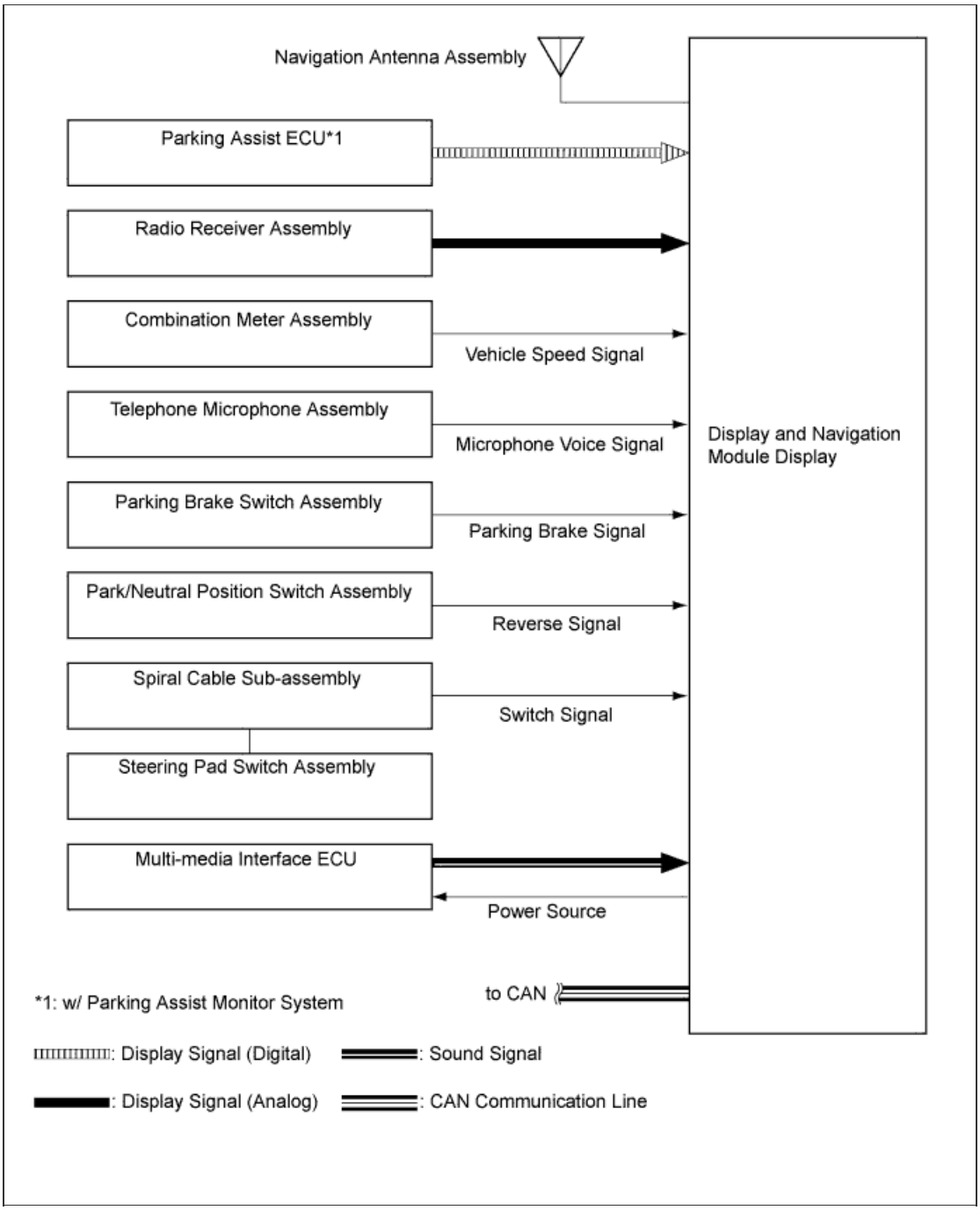
MOST Communication Line



AVC-LAN Communication Line



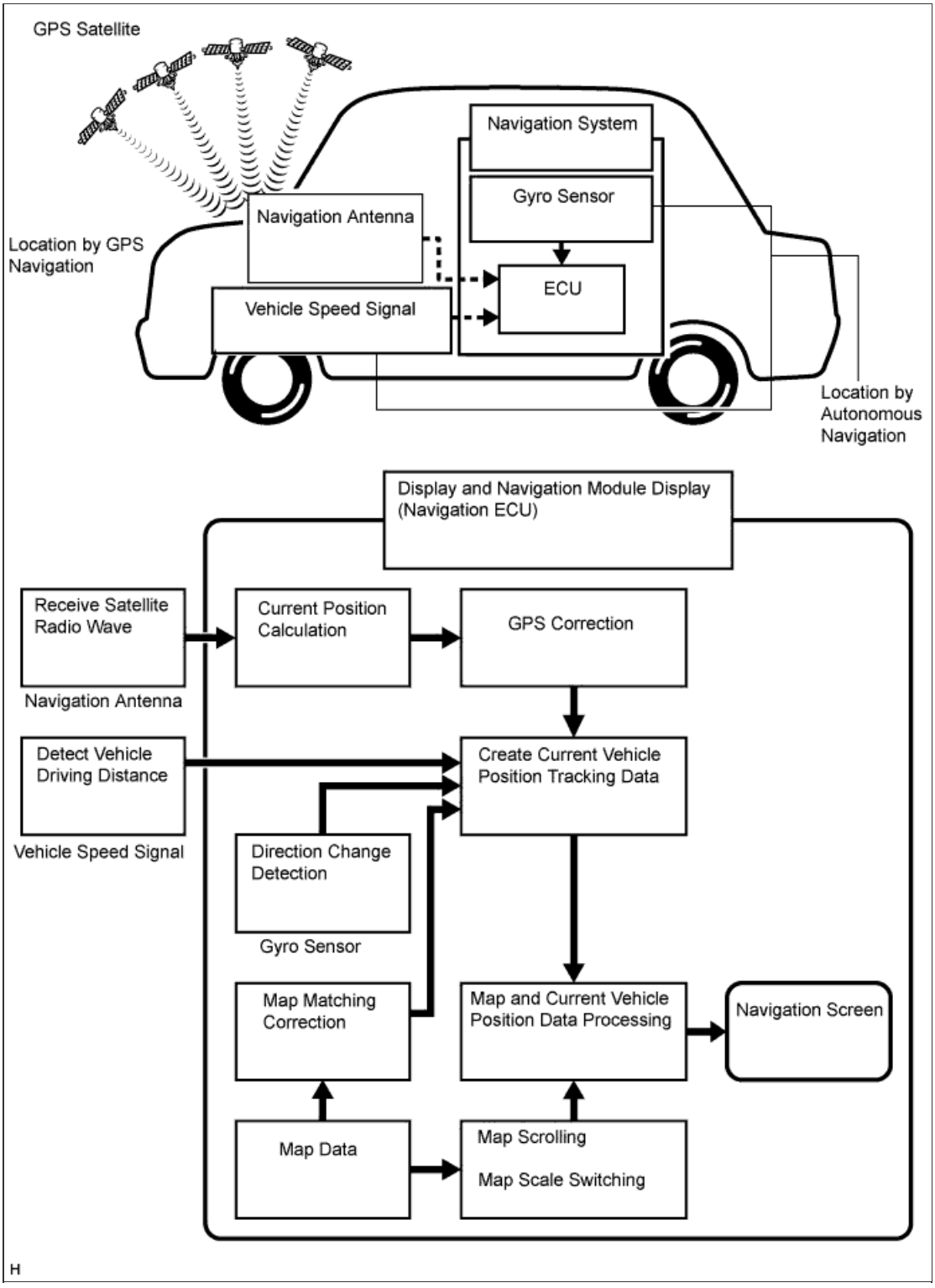
Others


Navigation Antenna Assembly
Parking Assist ECU*1
Radio Receiver Assembly
Combination Meter Assembly
Vehicle Speed Signal
Telephone Microphone Assembly
Microphone Voice Signal
Parking Brake Switch Assembly
Parking Brake Signal
Park/Neutral Position Switch Assembly
Reverse Signal
Spiral Cable Sub-assembly
Switch Signal
Steering Pad Switch Assembly
Multi-media Interface ECU
Power Source
Display and Navigation Module Display
to CAN
*1: w/ Parking Assist Monitor System
: Display Signal (Digital)
: Sound Signal
: Display Signal (Analog)
: CAN Communication Line

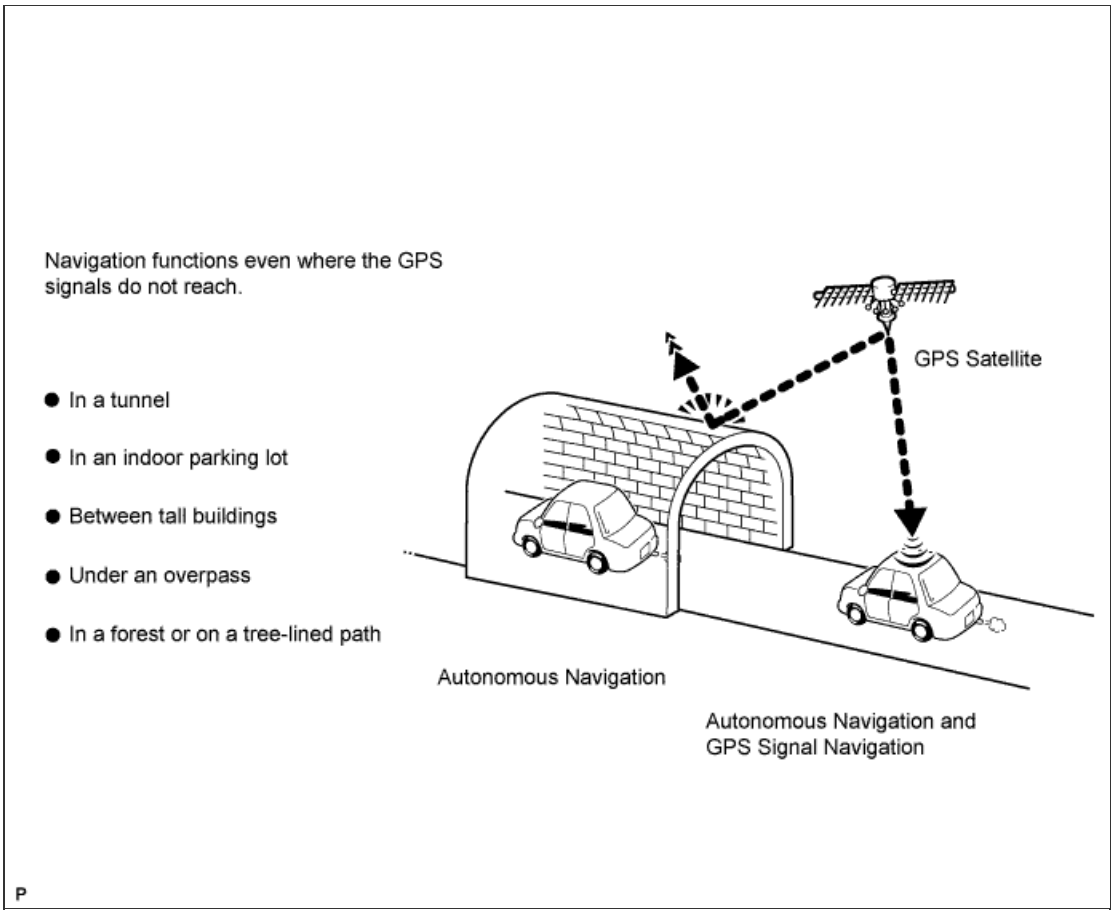
for Preparation Click here

NAVIGATION SYSTEM OUTLINE

a. Vehicle position tracking methods
It is essential that the navigation system correctly tracks the current vehicle position and displays it on the map. There are 2 methods to track the current vehicle position; autonomous (dead reckoning) and GPS* (satellite) navigation. Both navigation methods are used in conjunction with each other.
*GPS (Global Positioning System)



Operation	Description
Vehicle Position Calculation	The display and navigation module display calculates the current vehicle position (direction and current position) using the direction deviation signal from the gyro sensor and the running distance signal from the vehicle speed sensor and creates the driving route.
Map Display Processing	The display and navigation module display displays the vehicle track on the map by processing the vehicle position data, vehicle running track and map data from the map disc.
Map Matching	The map data from the map disc is compared to the vehicle position and running track data. Then, the vehicle position is matched with the nearest road.
GPS Correction	The vehicle position is matched to the position measured by GPS. Then, the GPS measurement position data is compared with the vehicle position and running track data. If the position is widely different, the GPS measurement position is used.
Distance Correction	The vehicle speed signal includes the error caused by tire wear and slippage between the tires and road surface. Distance correction is performed to account for this. The display and navigation module display automatically offsets the signal to make up for the difference between it and the distance data of the map. The offset is automatically updated.



HINT:

The combination of autonomous and GPS navigation makes it possible to display the vehicle position even when the vehicle is in places where the GPS cannot receive a signal. When only autonomous navigation is used, however, the mapping accuracy may slightly decrease.

b. Autonomous navigation

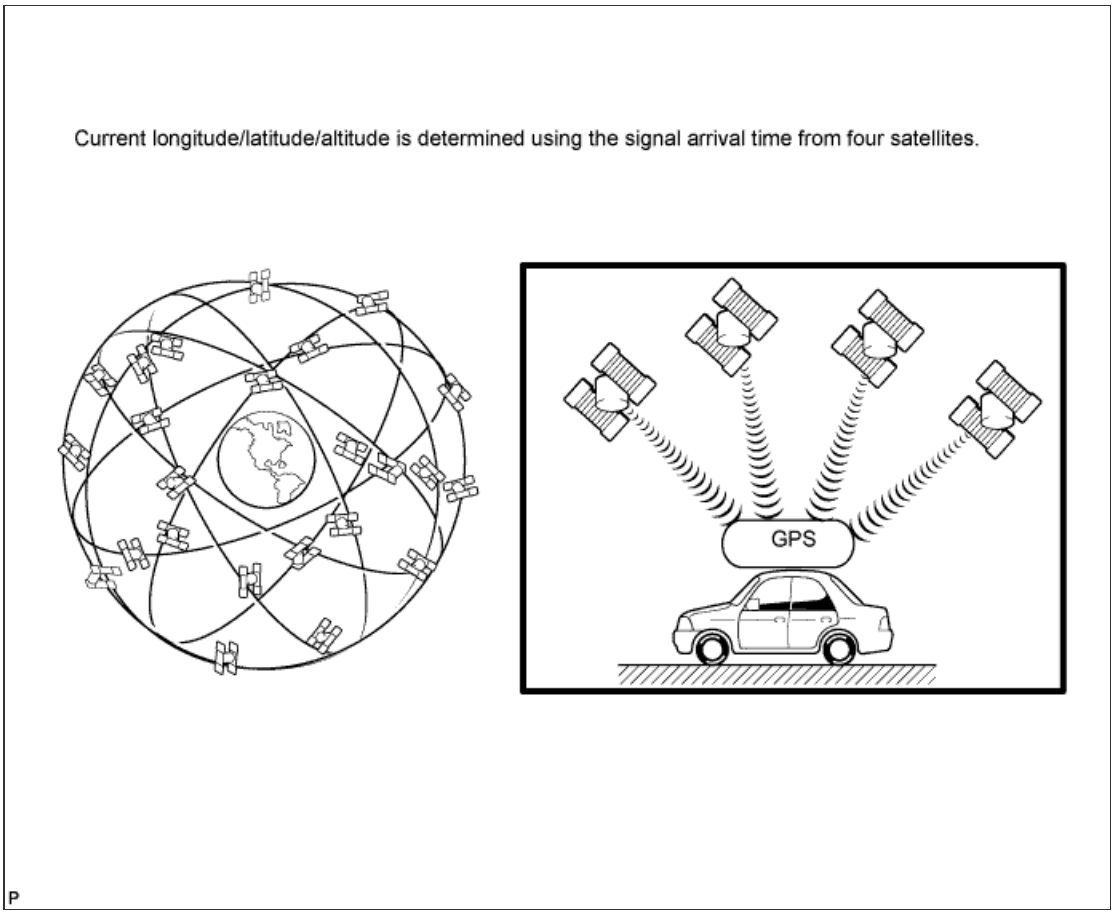
This method determines the relative vehicle position based on the running track determined by the gyro located in the display and navigation module display and the vehicle speed sensors signal.

i. Gyro sensor
Used to calculate the direction by detecting angular velocity. It is located in the display and navigation module display.

ii. Vehicle speed sensor signal
Used to calculate the vehicle running distance.

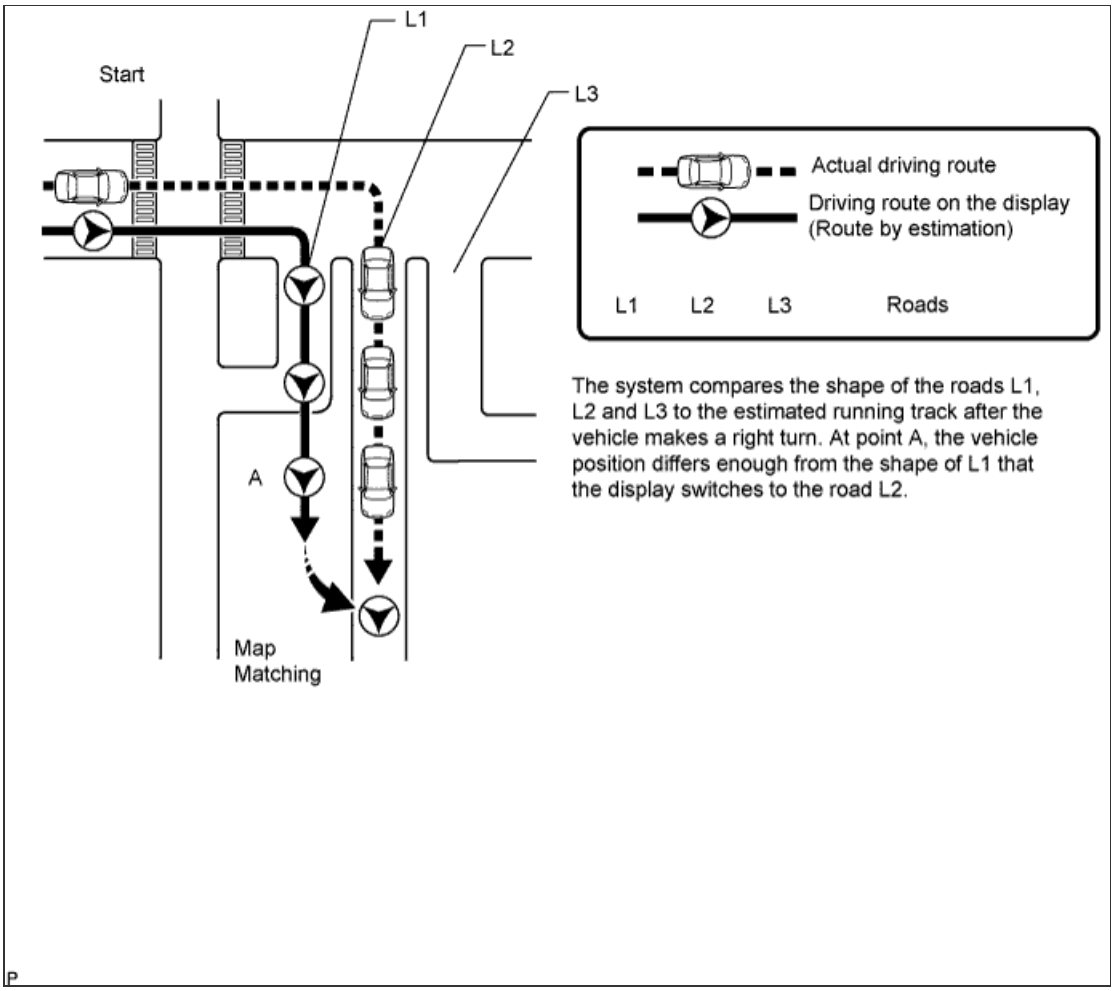
c. GPS* navigation (Satellite navigation)

This method detects the absolute vehicle position using radio waves from GPS satellites.
*GPS satellites were launched by the U.S. Department of Defense for military purposes.



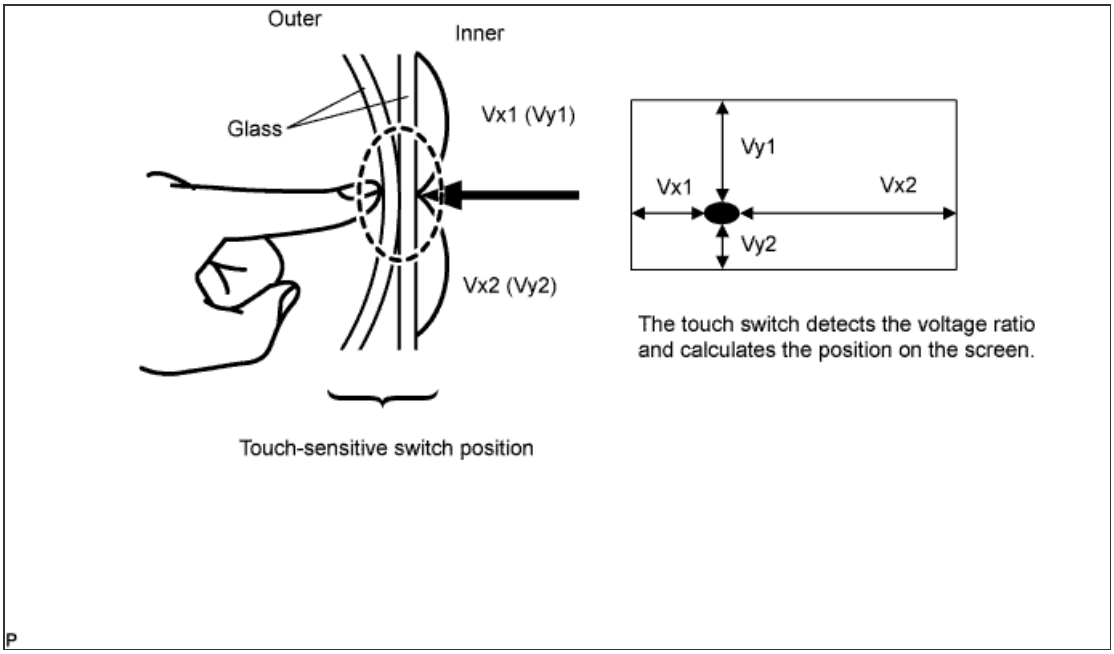
Number of Satellites	Measurement	Description
2 or less	Measurement impossible	Vehicle position cannot be obtained because the number of satellites is not enough.
3	2-dimensional measurement is possible	Vehicle position is obtained based on the current longitude and latitude. (This is less precise than 3-dimensional measurement.)
4	3-dimensional measurement is possible	Vehicle position is obtained based on the current longitude, latitude and altitude.

d. Map matching
The current driving route is calculated by autonomous navigation (according to the gyro sensor and vehicle speed sensor) and GPS navigation. This information is then compared with possible road shapes from the map data in the map disc and the vehicle position is set onto the most appropriate road.



e. Touch switch

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



DVD (Digital Versatile Disc) PLAYER OUTLINE (DVD Changer)

a. The DVD player can only play DVD videos, DVD audio and video CDs that have any of the following marks:



i. Precaution for use of discs

NOTICE:

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

b. Cleaning

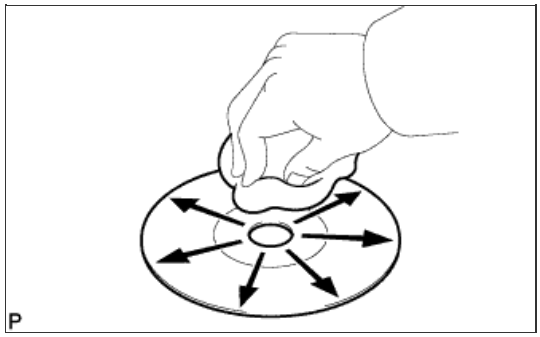
NOTICE:

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

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

NOTICE:

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



"Bluetooth" OUTLINE

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

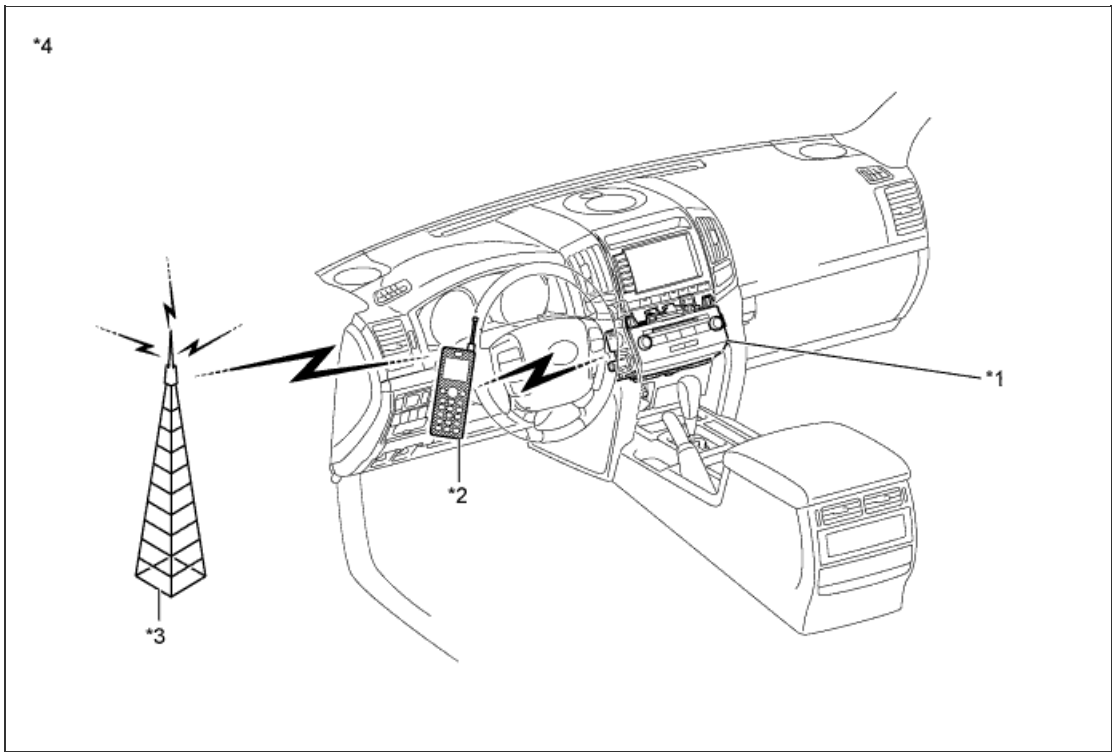
b. "Bluetooth" is a new wireless connection technology that uses the 2.4 GHz frequency band.

HINT:

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

c. Hands-free function

i. The "Bluetooth" built-in radio receiver and a "Bluetooth" compatible cellular phone*1 can be connected using a "Bluetooth" wireless connection. This enables use of the hands-free function on the cellular phone even the phone may be in a pocket or bag. For this reason, it is not necessary to use a connector or cable to connect the cellular phone.
*1: Some versions of "Bluetooth" compatible cellular phones may not function.



Text in Illustration

*1	Radio Receiver Assembly (Built-in "Bluetooth" Receiver Antenna)	*2	Cellular Phone ("Bluetooth" Type)
*3	Cellular Tower	*4	Example:

VEHICLE CUSTOMIZATION OUTLINE

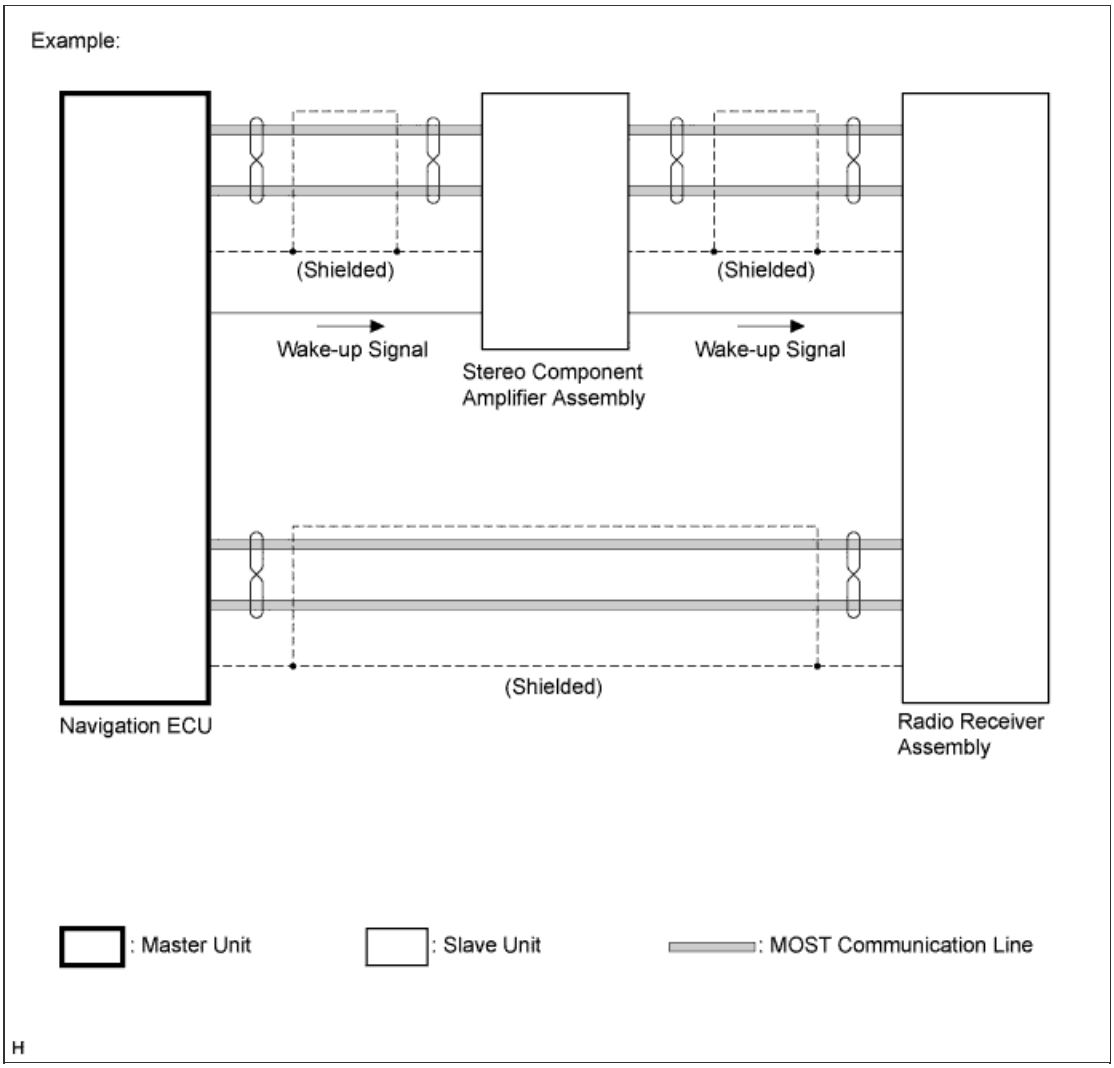
a. Customization of functions can be performed on the multi display screen. Refer to the owner's manual for further information on customizable items for the navigation system.

HINT:

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

COMMUNICATION SYSTEM

a. MOST Network Outline



i. Navigation system components communicate with each other via the MOST network.

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

iii. The master unit of the MOST network is the display and navigation module display (navigation ECU).

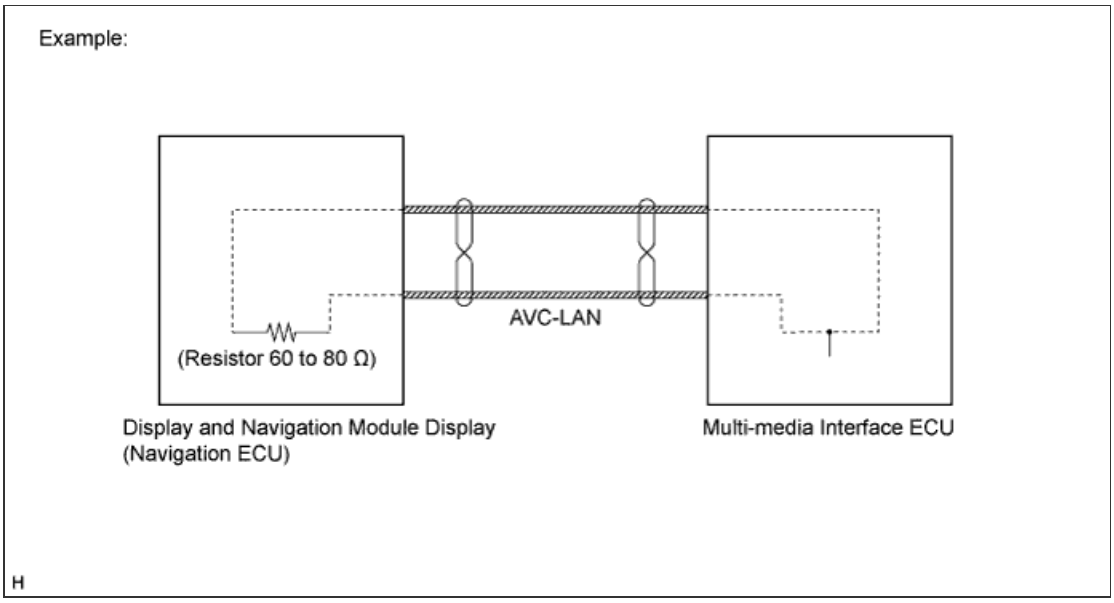
iv. MOST communication lines connect each slave unit centering around the master unit to form a MOST network ring.

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

HINT:

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

b. AVC-LAN Outline



i. Components of the navigation system communicate with each other via the AVC-LAN.

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

iii. The master unit of the AVC-LAN is the display and navigation module display (navigation ECU).

HINT:

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

DIAGNOSTIC FUNCTION OUTLINE

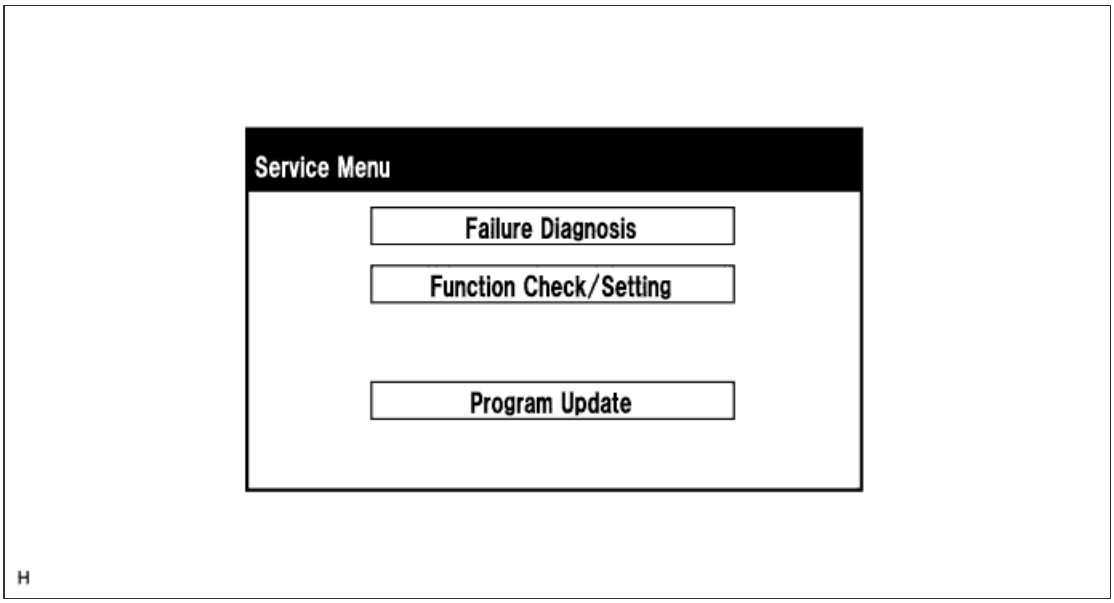
a. The navigation system has a diagnostic function (the result will be displayed on the master unit or the intelligent tester).

DIAGNOSIS DISPLAY DETAILED DESCRIPTION

HINT:

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

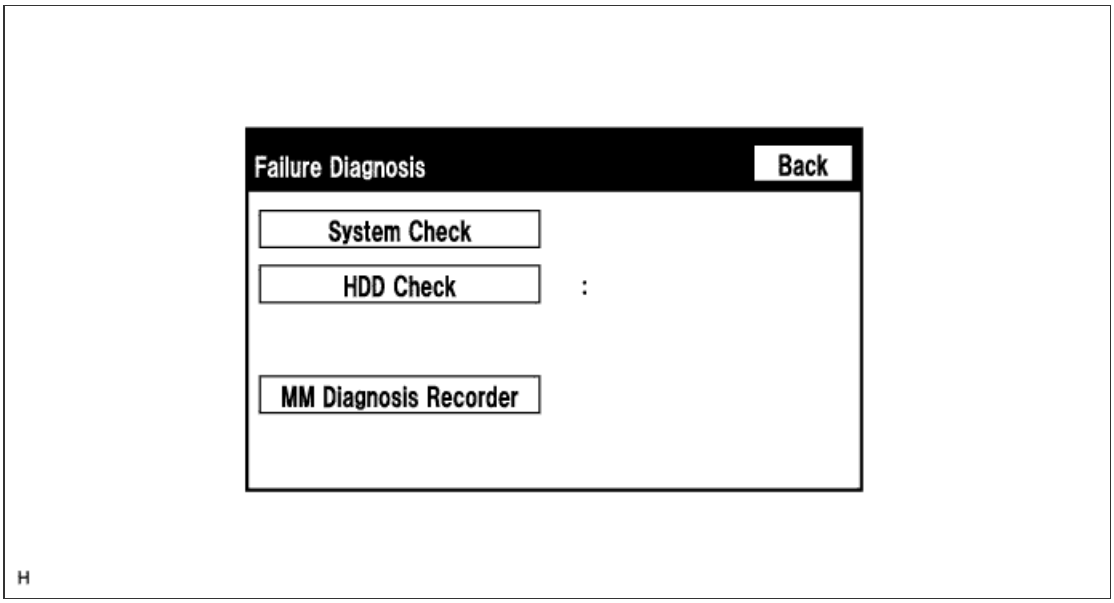
a. Service Menu Screen



HINT:

Each item is grayed out or not displayed based on the device settings.

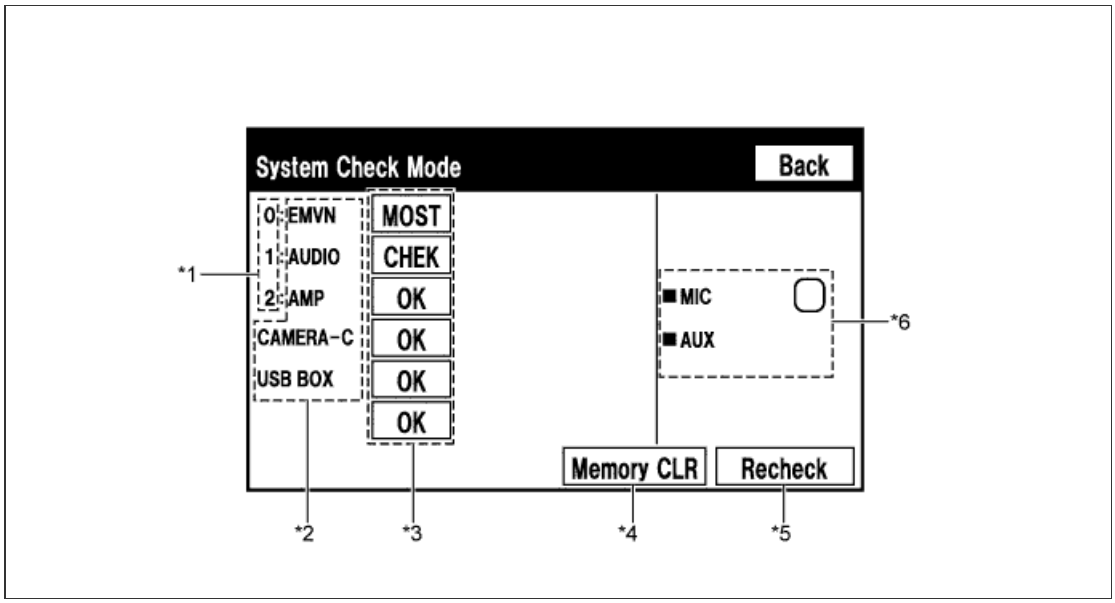
b. Failure Diagnosis Screen



HINT:

Each item is grayed out or not displayed based on the device settings.

i. System Check Mode Screen



*1: Node position number for devices connected to the MOST network.

HINT:

MOST node position numbers are provided for devices connected to the MOST network.

*2: Device Name List No. 1

HINT:

- **Device Name List No. 1 displays some of the devices that make up the navigation system.**
- **The names of the components from Device Name List No. 1 are shown in the following table.**

Name	Component	Connection Method
EMVN	Display and navigation module display	-
AUDIO	Radio receiver assembly	Communication line for MOST network
AMP	Stereo component amplifier assembly	Communication line for MOST network
CAMERA-C	Parking assist ECU	Communication line for AVC-LAN
USB BOX	Multi-media interface ECU	Communication line for AVC-LAN

*3: Check Result

HINT:

- **Result codes for all devices are displayed.**
- **When "MOST" is displayed for the result, press "MODE" on the steering pad switch assembly to display the "MOST Line Check" screen.**

Result	Meaning	Action
OK	The device does not respond with a DTC.	-
MOST	MOST communication error	Perform "MOST Line Check" to check the connection of each device on the MOST network.
EXCH	The device responds with a "replace"-type DTC.	Look up the DTC in "Unit Check Mode" and replace the device.
CHEK	The device responds with a "check"-type DTC.	Look up the DTC in "Unit Check Mode".
NCON	The device was previously present, but does not respond in diagnostic mode.	- Check power supply wire harness of the device. - Check the AVC-LAN or MOST network for the device.
		- Check power supply wire

NRES	The device responds in diagnostic mode, but gives no DTC information.	harness of the device. - Check the AVC-LAN or MOST network for the device.

*4: Memory Clear

HINT:

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

*5: Recheck

HINT:

- **A system check will be performed again after the memory is cleared.**
- **The "Recheck" switch will dim during a system check.**

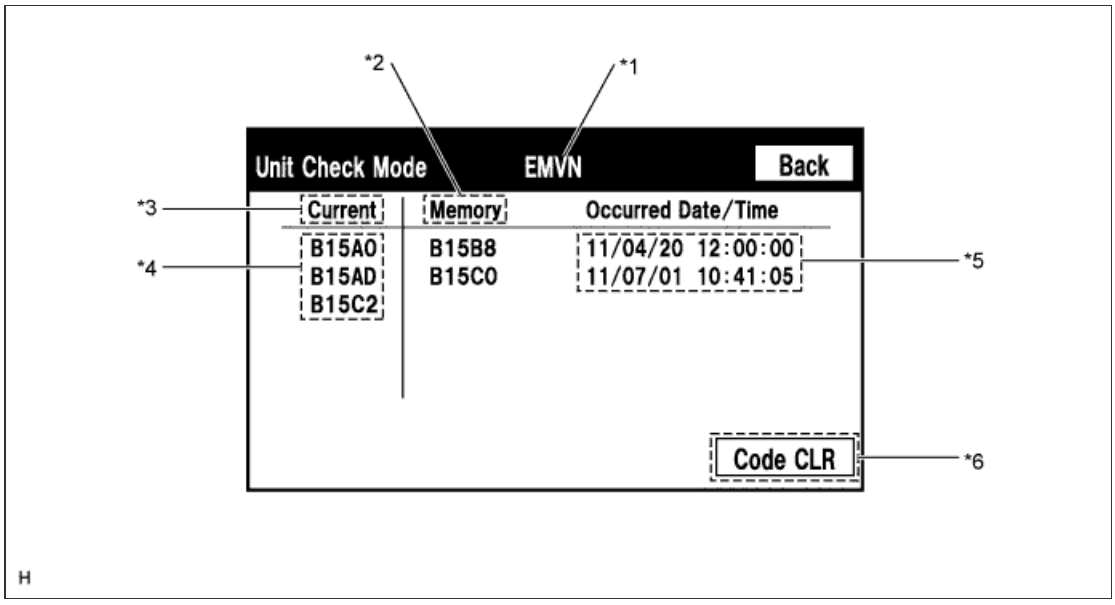
*6: Device Name List No. 2

HINT:

- **Device Name List No. 2 displays some of the devices that make up the navigation system.**
- **The names of the components from Device Name List No. 2 are shown in the following table.**

Name	Component	Connection Method
MIC	Telephone microphone assembly	Vehicle wire harness
AUX	Stereo jack adapter assembly	Vehicle wire harness

ii. Unit Check Mode Screen



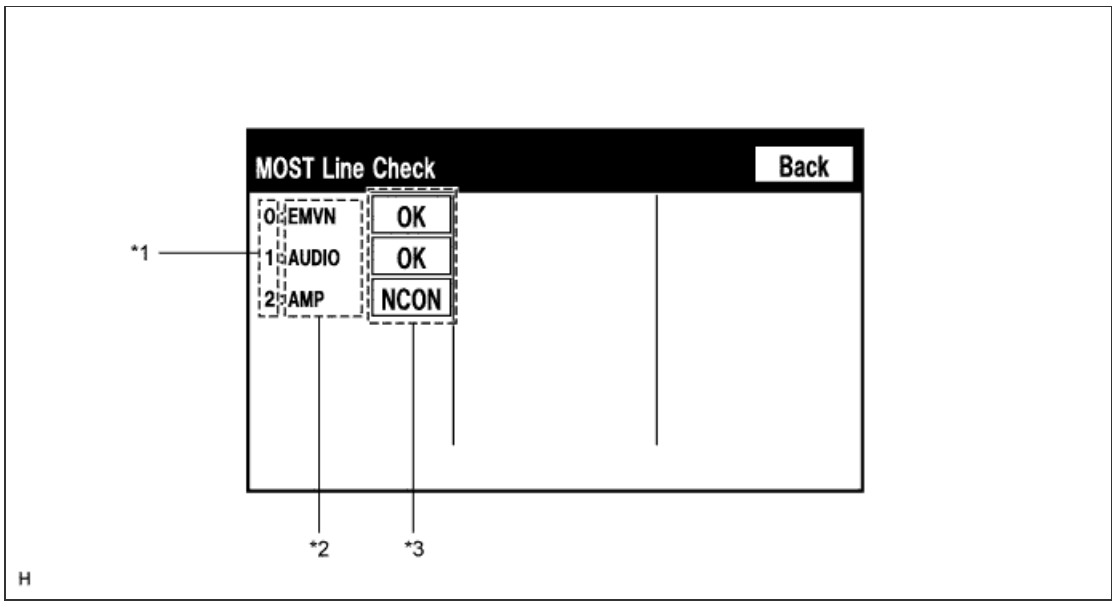
Screen Description

Display	Content
*1: Device name	Target device
*2: History DTC	Diagnostic memory results and stored DTCs are displayed.
*3: Present DTC	DTCs output in the service check are displayed.
*4: DTC	DTC (Diagnostic Trouble Code)
*5: Timestamp	The time and date of history DTCs are displayed. (The year is displayed in 2-digit format.)
*6: Diagnosis clear switch	Pushing this switch for 3 seconds clears the diagnostic memory data of the target device. (Both response to diagnostic system check result and the displayed data are cleared.)

iii. MOST Line Check Screen

HINT:

- **The inspection will be performed at the time the screen changes from "System Check Mode" to "MOST Line Check".**
- **The master unit checks the connection of each device on the MOST network.**



*1: Node position number for devices connected to the MOST network.
*2: Device Name List

HINT:

- **Device Name List displays some of the devices that make up the navigation system.**
- **The names of the components from Device Name List are shown in the following table.**

Name	Component
EMVN	Display and navigation module display
AUDIO	Radio receiver assembly
AMP	Stereo component amplifier assembly

*3: Check Result

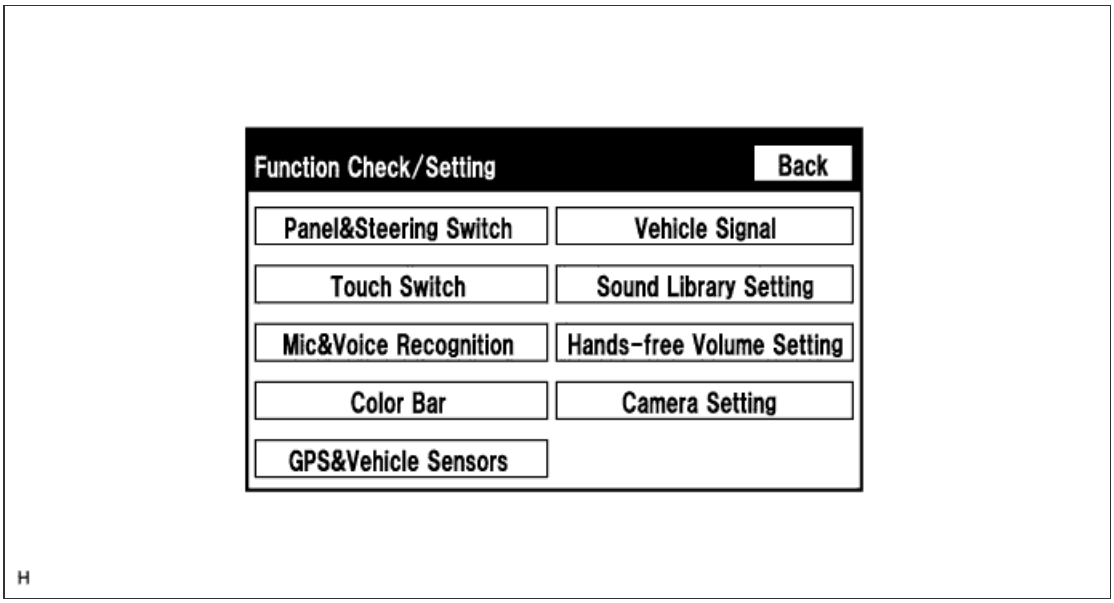
HINT:

- **The master unit displays the check result on the screen based on the response information from each slave unit.**
- **Result codes for all devices are displayed.**

Result	Meaning
OK	There was a response for the connection check during the MOST line check.
NCON	There was no response for the connection check during the MOST line check.

- **The device name and result will not be displayed if there is no system registration record and no response for the connection check during the MOST line check even if the device is connected to the MOST network.**

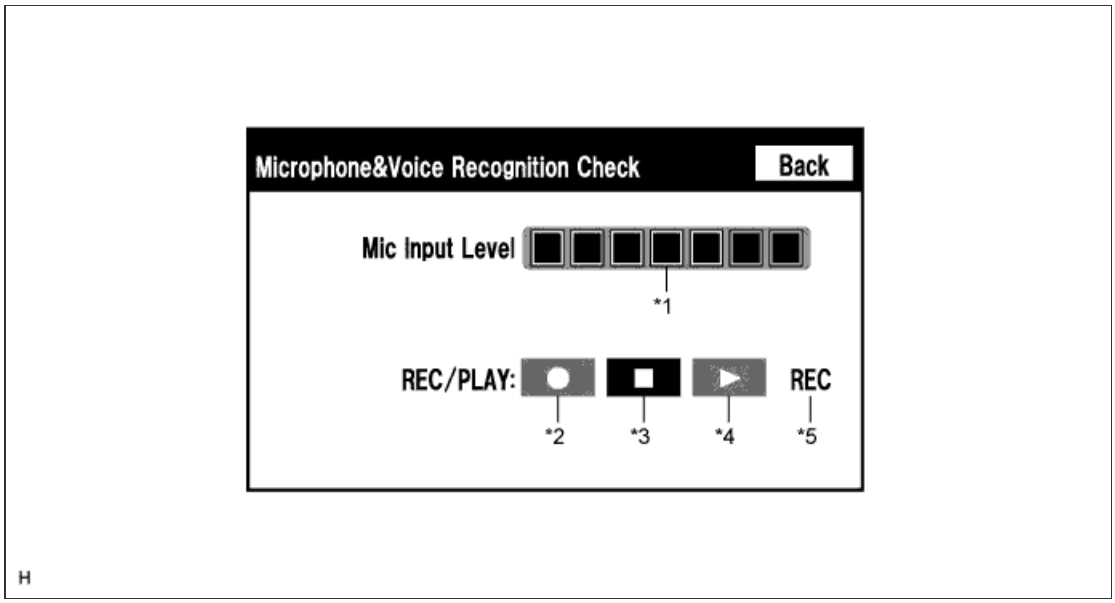
c. Function Check/Setting Screen



HINT:

Each item is grayed out or not displayed based on the device settings.

i. Microphone & Voice Recognition Check Screen



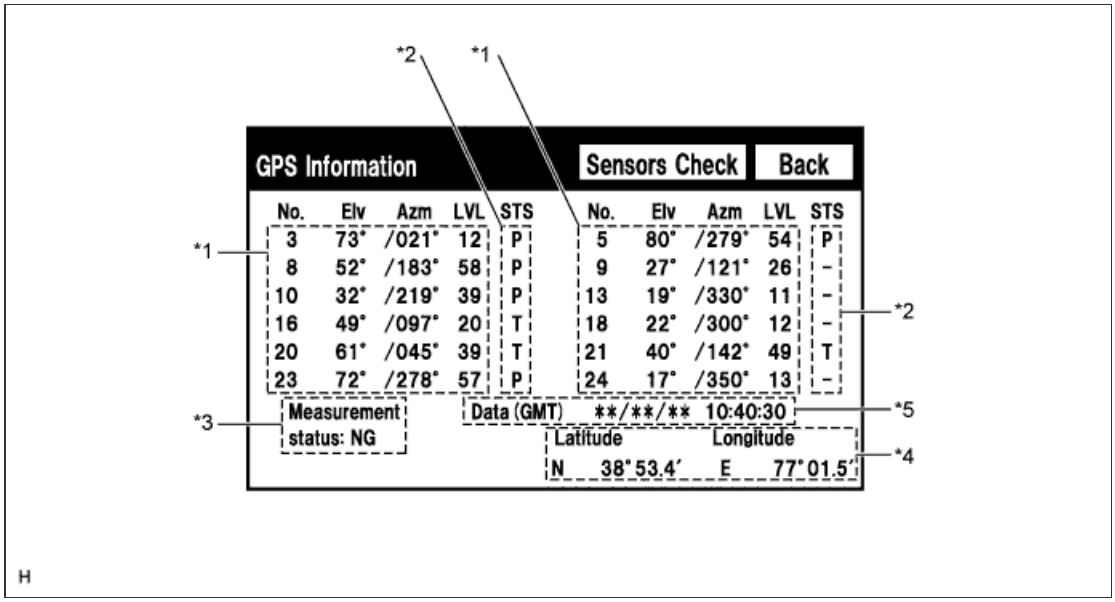
Screen Description

Display	Content
*1: Microphone input level meter	Monitors the microphone input level every 0.1 sec. and displays the results in 8 different levels.
*2: Recording switch	Starts recording.
*3: Stop switch	Stops recording and playing.
*4: Play switch	Plays the recorded voice.
*5: Recording indicator	Comes on while recording.

HINT:

- **The microphone is active at all times when this screen is displayed.**
- **While recording or playing, the switches other than the stop switch cannot be pushed.**
- **When no recording is present, the play switch cannot be pushed.**
- **Recording will stop after 5 seconds or when the stop switch is pushed.**

ii. GPS Information Screen



*1: Satellite information

HINT:

Information from a maximum of 12 satellites is displayed on the screen. This information includes the target GPS satellite number, elevation angle, direction and signal level.

*2: Receiving condition

Screen Description

Display	Content
T	The system is receiving a GPS signal, but is not using it for location.
P	The system is using the GPS signal for location.
-	The system cannot receive a GPS signal.

*3: Measurement information

Screen Description

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

*4: Position information

Screen Description

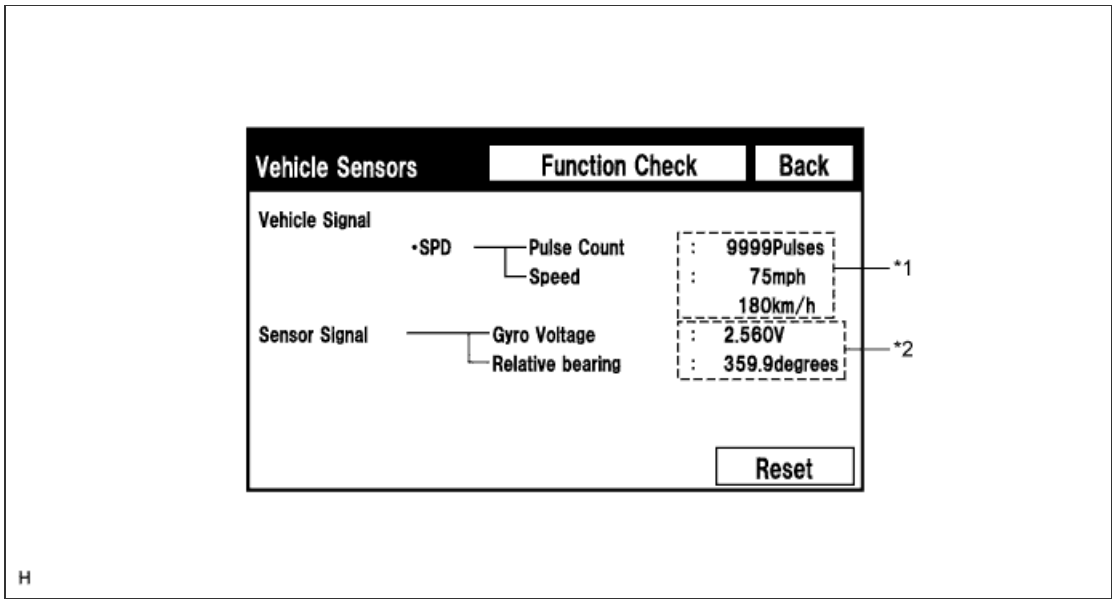
Display	Content
Position	Latitude and longitude information on the current position is displayed.

*5: Date information

Screen Description

Display	Content
Date	The date/time information obtained from GPS signal is displayed in Greenwich Mean Time (GMT). The last 4 digits are displayed.

iii. Vehicle Sensors Screen



Vehicle Signal

Display	Content
*1: SPD	SPD signal condition is displayed.

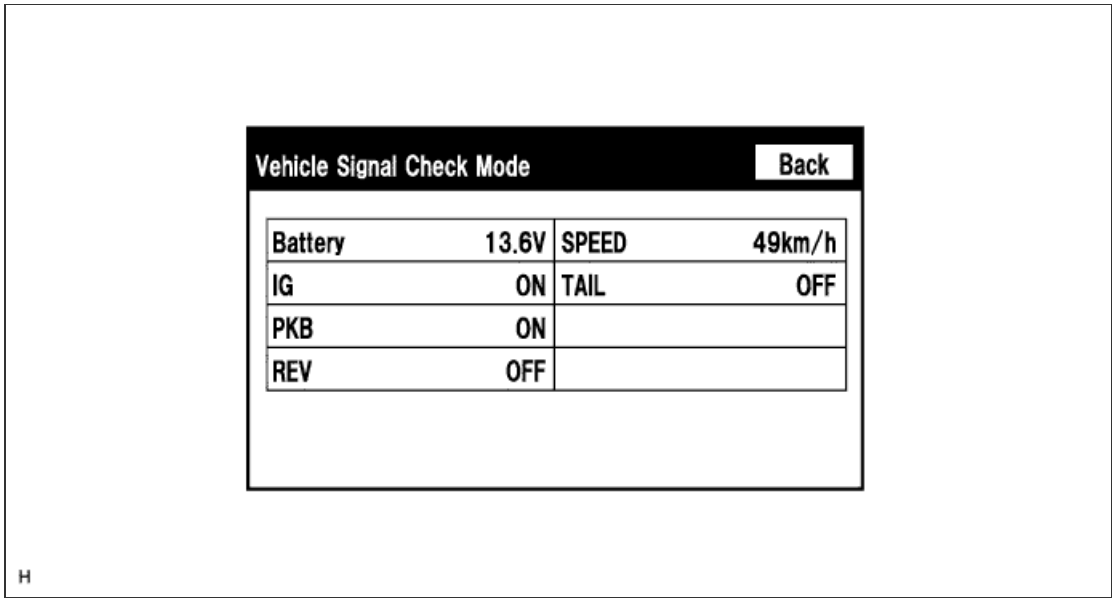
Sensor Signal

Display	Content
*2: Gyro sensor	Gyro sensor output condition is displayed. 2.1 to 2.9 V

HINT:

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

iv. Vehicle Signal Check Mode Screen



Screen Description

Display	Content
Battery	Battery voltage is displayed.
IG	Engine switch ON/OFF state is displayed.
PKB	Parking brake ON/OFF state is displayed.
REV	Reverse signal ON/OFF state is displayed.
SPEED	Vehicle speed is displayed in km/h.

TAIL	TAIL signal (Light control switch) ON/OFF state is displayed.

HINT:

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

for Preparation Click here

HINT:

- **Use the following procedure to troubleshoot the navigation system (for HDD).**
- ***: Use the intelligent tester.**

1.VEHICLE BROUGHT TO WORKSHOP

NEXT

2.INSPECT BATTERY VOLTAGE

a. Inspect the battery voltage.

Standard Voltage:
11 to 14 V

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

NEXT

3.DIAGNOSTIC QUESTIONING AND SYMPTOM CONFIRMATION

a. Ask the customer about symptoms and confirm malfunctions.

Result

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

B. → Go to step 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.

HINT:

- **for LHD (Click here)**
- **for RHD (Click here)**

Result

Result	Proceed to
DTC is not output.	A
DTC is output. (for LHD)	B
DTC is output. (for RHD)	C

B. GO TO CAN COMMUNICATION SYSTEM (Click here)

C. GO TO CAN COMMUNICATION SYSTEM (Click here)

A

6.CHECK FOR DTC*

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

Result

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

HINT:

If more information is needed, perform a recheck using the "System Check Mode" screen after rechecking for DTCs using the intelligent tester (Click here).

B. Go to step 10

A

.DTC CLEAR*

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

HINT:

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

NEXT

8.RECHECK FOR DTC*

Result

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

HINT:

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

B. Go to step 10

A

9.DIAGNOSTIC TROUBLE CODE CHART

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

NOTICE:

- **The navigation system outputs DTCs for the following system.**
- **When DTCs other than those in Diagnostic Trouble Code Chart for the navigation system are output refer to Diagnostic Trouble Code Chart for the system.**
- **Audio and visual system (w/ navigation system) (Click here)**
- **Parking assist monitor system (w/ parking assist monitor system) (Click here).**

Result

Result	Proceed to
DTCs for the navigation system are output.	A
DTCs for the audio and visual system (w/ navigation system) are output.	B
DTCs for the parking assist monitor system (w/ parking assist monitor system) are output.	D

A. → Go to step 13

B. → GO TO AUDIO AND VISUAL SYSTEM (w/ Navigation System) (Click here)

D. → GO TO PARKING ASSIST MONITOR SYSTEM (Click here)

10.CHECK HARD DISK DRIVE

a. Hard Disk Drive in Operation Check (Click here).

OK:
"OK" is displayed.

NG. → REPLACE HARD DISK DRIVE (Click here)

OK

11.PROBLEM SYMPTOMS TABLE

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

Result

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

HINT:

If the symptom does not recur and no DTC is output, perform the symptom reproduction method (Click here).

B. → Go to step 13

A

12.CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

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

NEXT

13.CHECK CIRCUIT

a. Adjust, repair or replace as necessary.

NEXT

14.RECHECK FOR DIAGNOSTIC TROUBLE CODE

HINT:

After clearing the DTCs, recheck for DTCs.

NEXT

15.PERFORM CONFIRMATION TEST

NEXT

END

for Preparation Click here

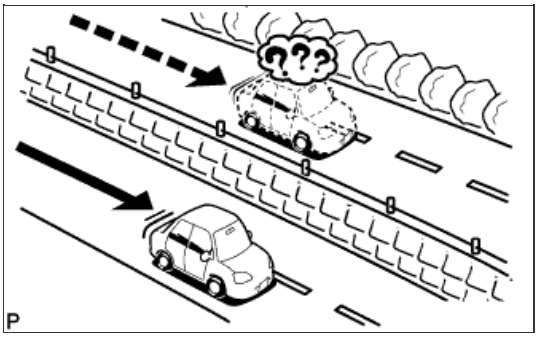
CHECK SYSTEM NORMAL CONDITION

a. If the symptom is applicable to any of the following, it is intended behavior, and not a malfunction.

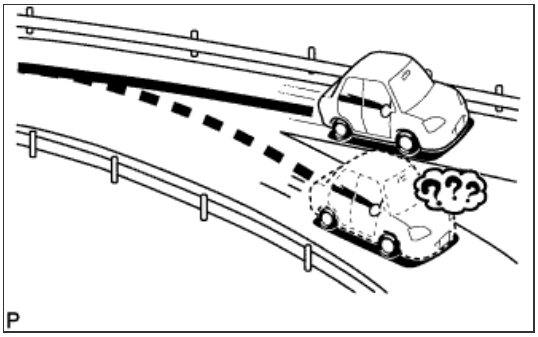
Symptom	Answer
A longer route than expected is chosen.	Depending on the road conditions, the display and navigation module display may determine that a longer route is quicker.
Even when distance priority is high, the shortest route is not shown.	Some routes may not be advised due to safety concerns.
When the vehicle is put into motion immediately after the engine starts, the navigation system deviates from the actual position.	If the vehicle starts before the navigation system activates, the system may not react.
When running on certain types of roads, especially new roads, the vehicle position deviates from the actual position.	When the vehicle is driving on new roads not available on the map disc, the system attempts to match it to another nearby road, causing the position mark to deviate.

b. The following symptoms are not malfunctions, but are caused by errors inherent in the GPS, gyro sensor, speed sensor or display and navigation module display.

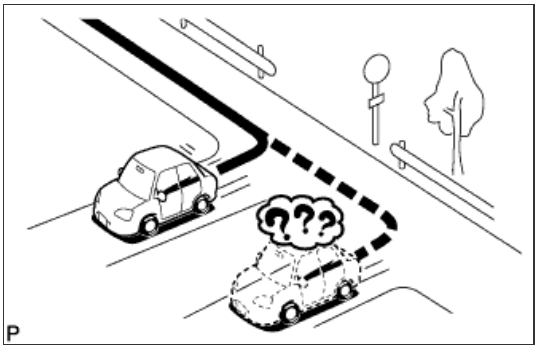
i. The current position mark may be displayed on a nearby parallel road.



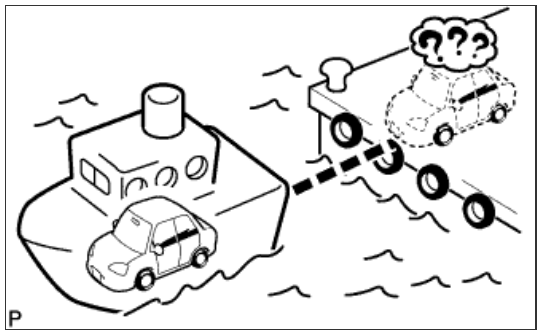
ii. Immediately after a fork in the road, the current vehicle position mark may be displayed on the wrong road.



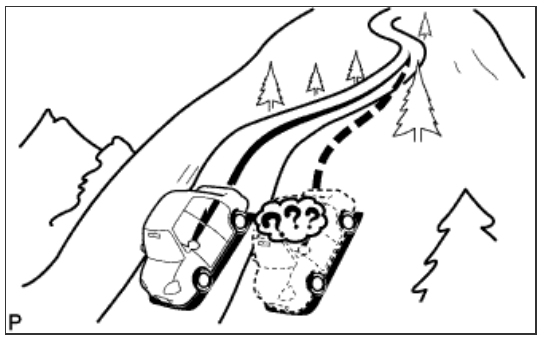
iii. When the vehicle turns right or left at an intersection, the current vehicle position mark may be displayed on a nearby parallel road.



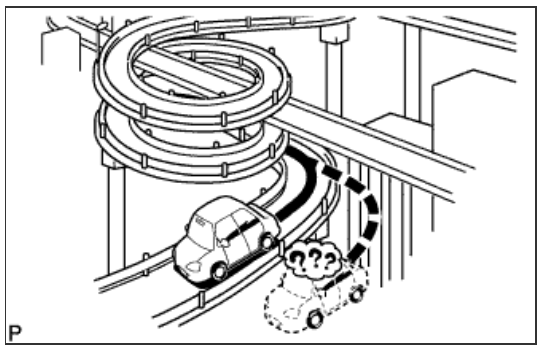
iv. When the vehicle is carried, such as on a ferry, and the vehicle itself is not running, the current vehicle position mark may be displayed in the position where the vehicle was until a measurement can be performed by GPS.



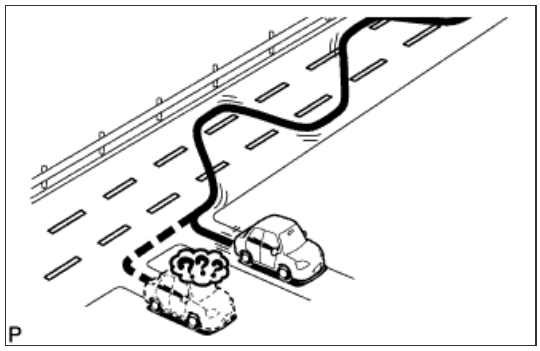
v. When the vehicle travels on a steep hill, the current vehicle position mark may deviate from the correct position.



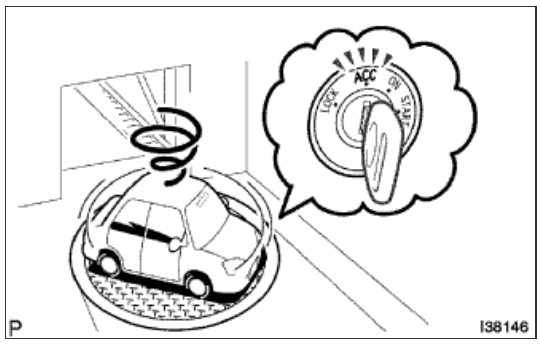
vi. When the vehicle makes a continuous turn (e.g. 360, 720, 1080 degrees) the current vehicle position mark may deviate from the correct position.



vii. When the vehicle moves erratically, such as constant lane changes, the current vehicle position mark may deviate from the correct position.



viii. When the engine switch is turned on (ACC or IG) on a turntable before parking, the current vehicle position mark may not indicate the correct direction. The same will occur when the vehicle comes out of the parking garage.



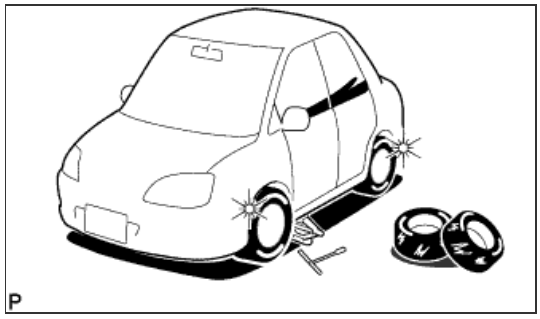
ix. When the vehicle travels on a snowy road or a mountain path with the chains installed or using a spare tire, the current vehicle position mark may deviate from the correct position.



x. When the tires are changed, the current vehicle position mark may deviate from the correct position.

HINT:

- **A change in tire diameter may cause a speed sensor error.**
- **Performing "tire change" in calibration mode will allow the system to correct the current vehicle position faster.**



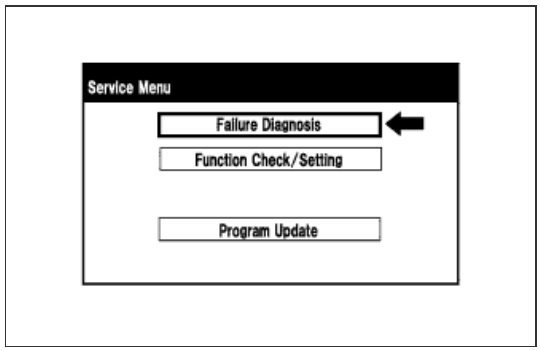
CHECK HARD DISK DRIVE

HINT:

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

a. Enter diagnostic mode

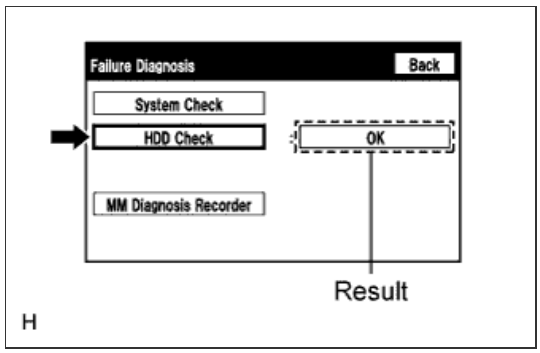
b. Select "Failure Diagnosis" from the "Service Menu" screen.



c. Hard disk drive check

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

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



Screen Description

Result	Description
Checking	While the check is in progress
OK	Hard disk drive is normal
NG	Hard disk drive is malfunctioning

HINT:

- **After selecting "HDD Check", it may take a while until the result is displayed.**
- **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.**

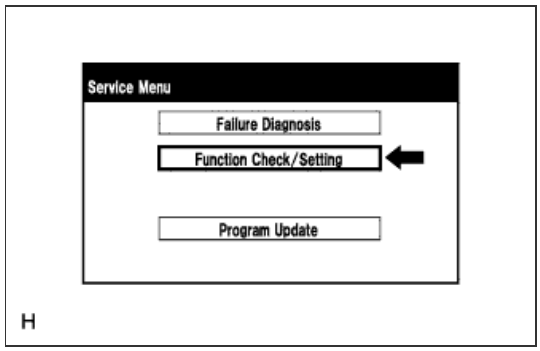
CHECK PANEL & STEERING SWITCH

HINT:

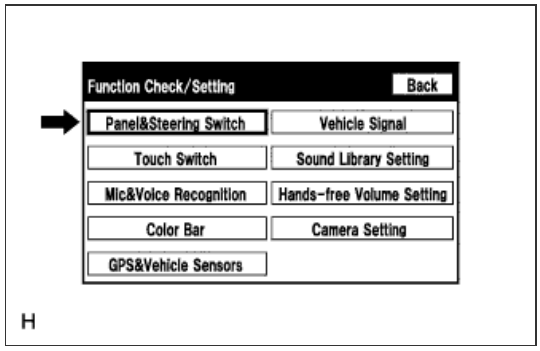
- **The display and navigation module display panel switches, radio receiver assembly panel switches and steering switches are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas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

a. Enter diagnostic mode (Click here).

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

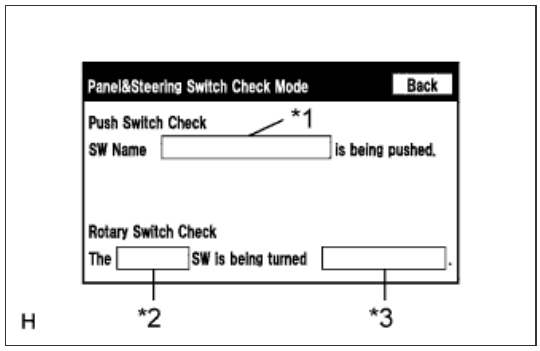


c. Select "Panel & Steering Switch" from the "Function Check/Setting" screen.



d. Panel & Steering Switch Check Mode

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



Screen Description

Display	Content
*1: Push switch name	• Name of the pressed switch is displayed. • If more than one switch is pressed, "MULTIPLE" will be displayed.
*2: Rotary switch name	Name of the rotary switch is displayed.
*3: Rotary switch direction	Direction of the rotary switch is displayed.

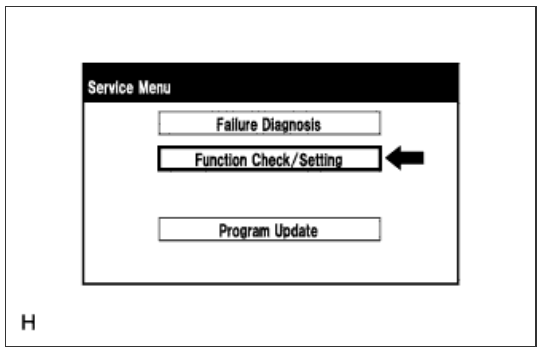
CHECK TOUCH SWITCH

HINT:

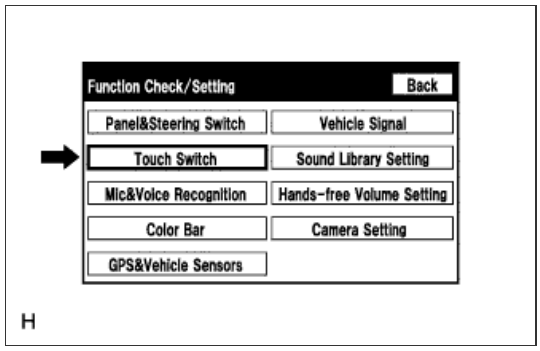
- **The touch switches on the screen are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

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



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

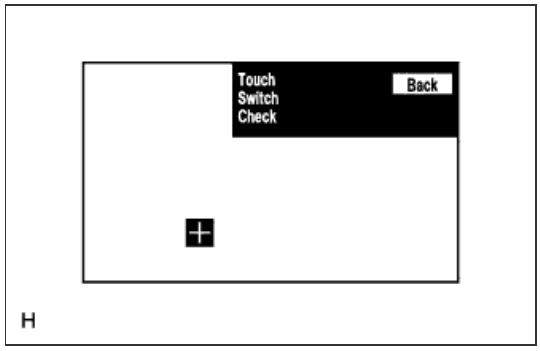


d. Touch Switch Check

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

HINT:

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



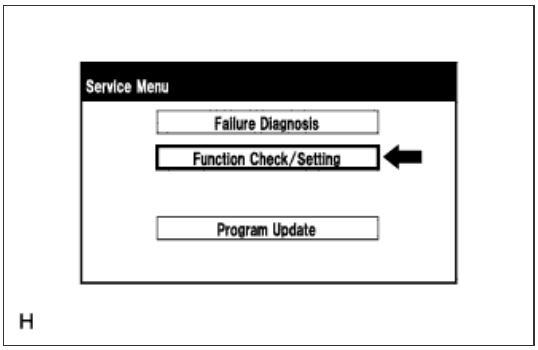
CHECK MIC & VOICE RECOGNITION

HINT:

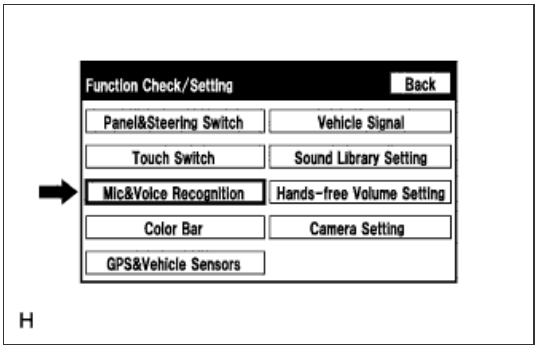
- **The microphone and microphone input level are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

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



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



d. Microphone & Voice Recognition Check

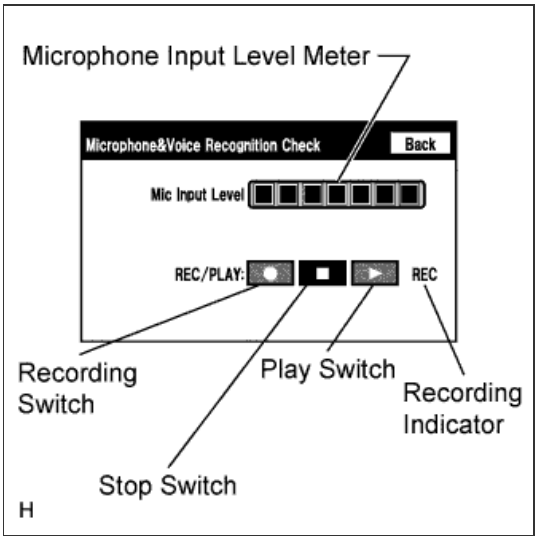
i. When speaking into the microphone, check that the microphone input level meter changes according to the input level.

ii. Push the recording switch and perform voice recording.

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

HINT:

- **For details of this function, refer to Diagnosis Display Detailed Description (Click here).**
- **This function is controlled by the display and navigation module display (built-in navigation ECU).**



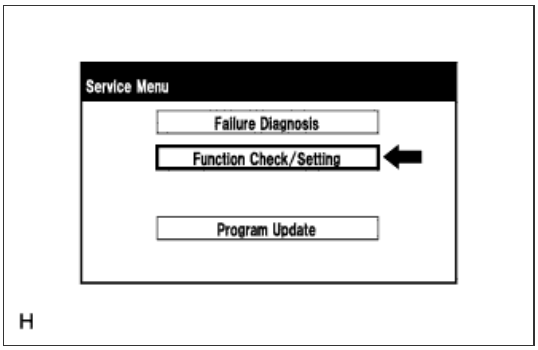
CHECK COLOR BAR

HINT:

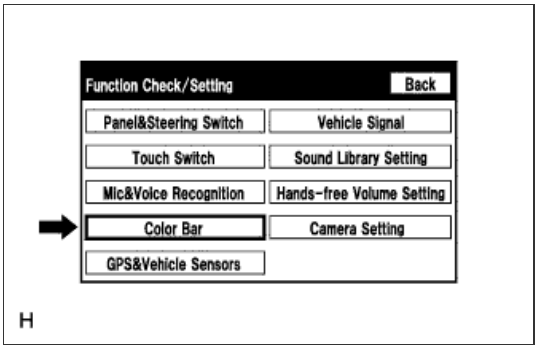
- **The display color on the screen is checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

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



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



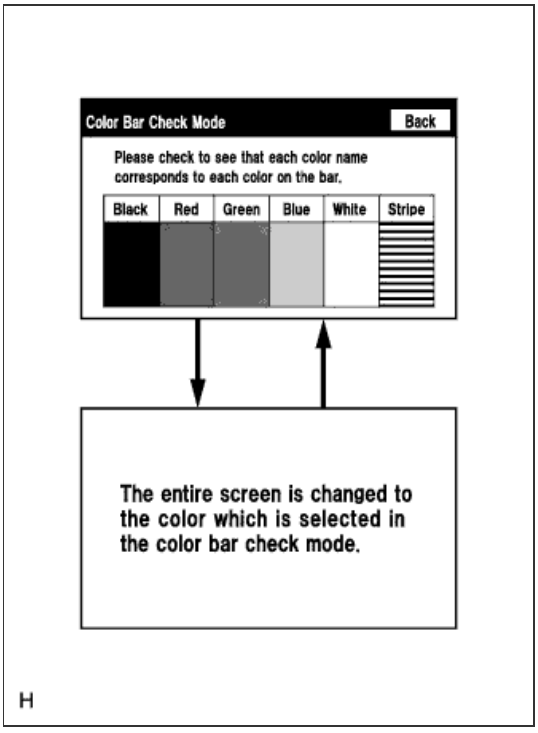
d. Color Bar Check Mode

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

ii. Check the display color.

HINT:

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



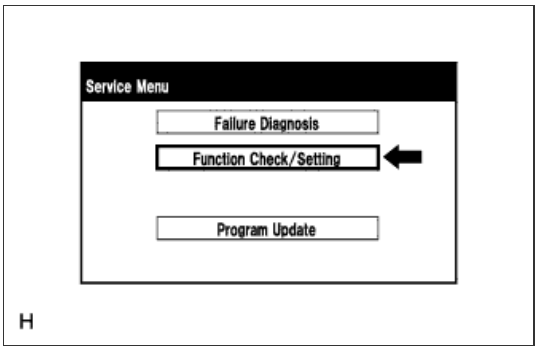
CHECK GPS & VEHICLE SENSORS

HINT:

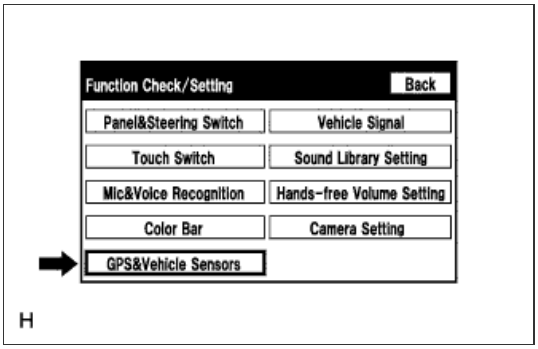
- **GPS information, vehicle signals and sensor signals are checked in the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

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



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



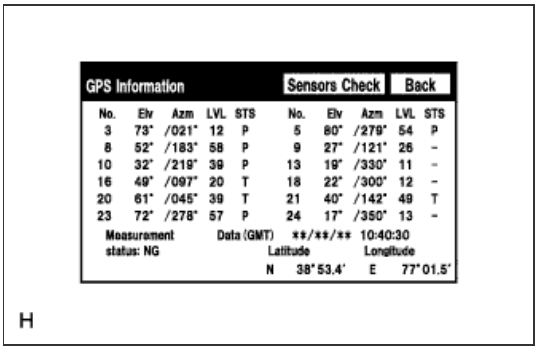
d. GPS information

i. When GPS information is displayed, check the GPS conditions.

HINT:

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

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

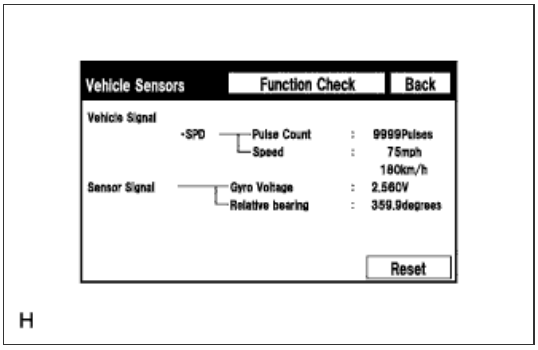


f. Vehicle Sensors

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

HINT:

- **This screen is updated once per second when input signals to the vehicle are changed.**
- **This screen displays vehicle signals input to the display and navigation module display (built-in navigation ECU).**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**



CHECK VEHICLE SIGNAL

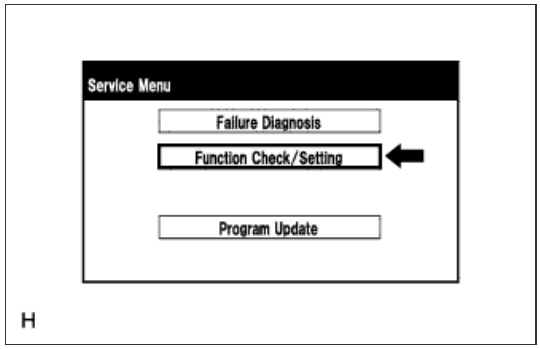
HINT:

- **Vehicle signals received by the display and navigation module display are checked in the following procedure.**

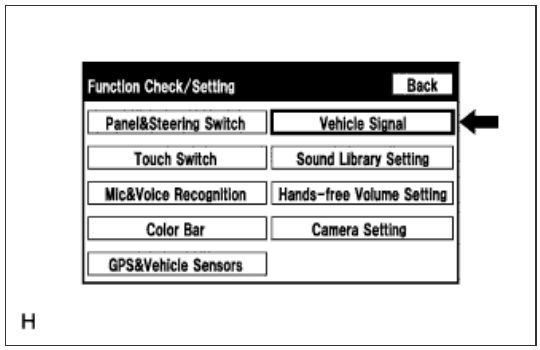
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

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



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

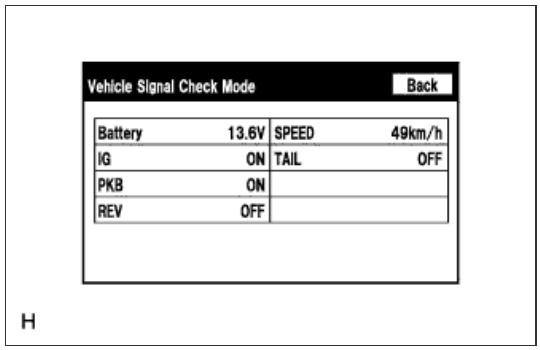


d. Vehicle Signal Check Mode

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

HINT:

- **Only conditions having inputs are displayed.**
- **This screen displays vehicle signals input to the display and navigation module display.**
- **For details of this function, refer to Diagnosis Display Detailed Description in System Description (Click here).**



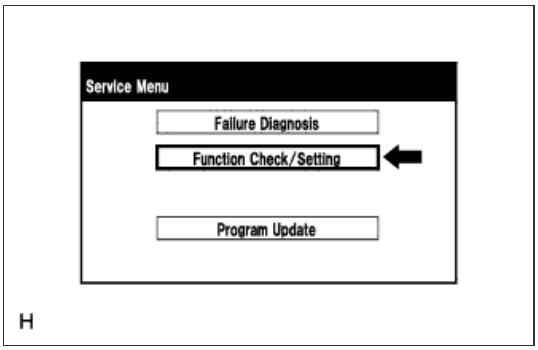
CHECK SOUND LIBRARY SETTING (w/ SOUND LIBRARY FUNCTION)

HINT:

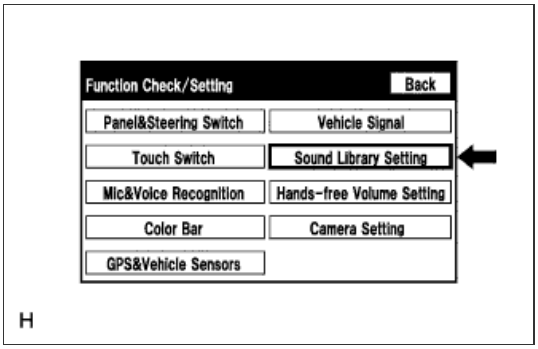
- **It is possible to turn the sound library function on and off and check the operation of the sound library function.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle screen.**

a. Enter diagnostic mode (Click here).

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



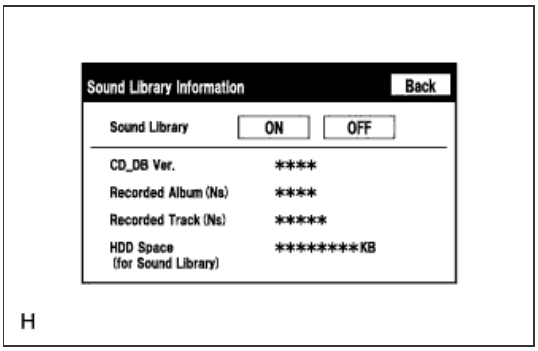
c. Select "Sound Library Setting" from the "Function Check/Setting" screen.



d. Sound Library Information

HINT:

Refer to the audio and visual system (w/ navigation system) for further information (Click here).



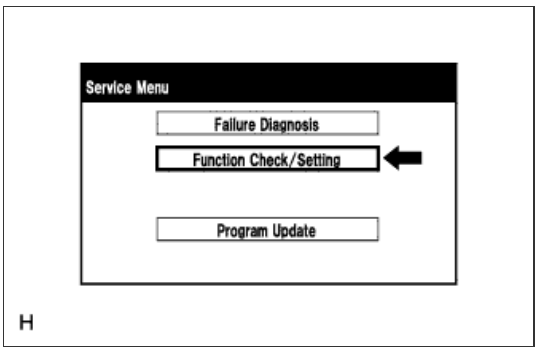
CHECK HANDS-FREE VOLUME SETTING

HINT:

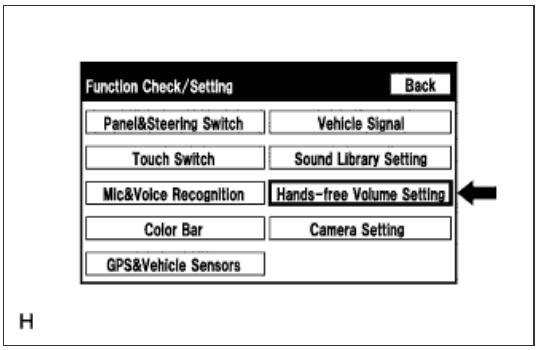
- **The hands-free volume of a "Bluetooth" compatible phone can be adjusted using the following procedure.**
- **Illustrations may differ from the actual vehicle screen depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle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

a. Enter diagnostic mode (Click here).

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

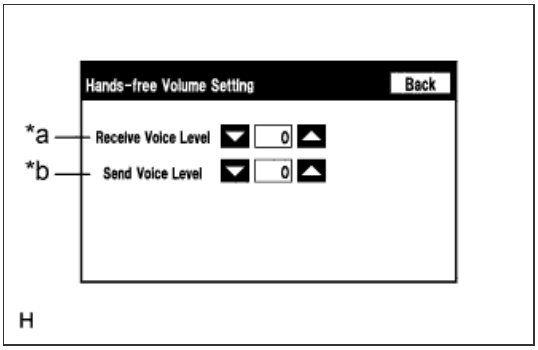


c. Select "Hands-free Volume Setting" from the "Function Check/Setting" screen.



d. Hands-free Volume Setting

i. Check the hands-free volume level.



Screen Description

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

NOTICE:

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

HINT:

Sound quality of sent voice may deteriorate when the send voice level is adjusted.

CHECK CAMERA SETTING (w/ Parking Assist Monitor System)

a. Refer to the parking assist monitor system for further information (Click here).

for Preparation Click here

HINT:

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

Display Function

Symptom	Suspected Area	See page
Black screen (No image appears on navigation/audio screen).	Proceed to "Black Screen"	Click here
	Proceed to "Navigation ECU Power Source Circuit"	Click here
	Display and navigation module display	Click here
	Hard Disk Drive	Click here
Illumination for panel switch does not come on with tail switch on.	Proceed to "Illumination for Panel Switch does not Come on with Tail Switch ON"	Click here
	Proceed to "Illumination Circuit"	Click here
	Display and navigation module display	Click here
Display does not dim with tail switch on.	Proceed to "Display does not Dim when Light Control Switch is Turned ON"	Click here
	Display and navigation module display	Click here
Panel switches do not function.	Proceed to "Panel Switches do not Function"	Click here
	Proceed to "Steering Pad Switch Circuit"	Click here
	Display and navigation module display	Click here
Touch panel switch does not function.	Proceed to "Touch Panel Switch does not Function"	Click here
	Display and navigation module display	Click here
Screen is distorted.	Proceed to "Navigation ECU Power Source Circuit"	Click here
	Display and navigation module display	Click here
Screen flicker or color distortion.	Proceed to "Screen Flicker or Color Distortion"	Click here
	Display and navigation module display	Click here
DVD image cannot be displayed on front screen (Parking brake is on).	Proceed to "DVD Image Signal Circuit between Radio receiver and Navigation ECU"	Click here
	Proceed to "Parking Brake Switch Circuit"	Click here
	Radio receiver assembly	Click here
	Display and navigation module display	Click here
Navigation function switches can be operated while vehicle is running.	Display and navigation module display	Click here

Navigation Function

		See

Symptom	Suspected Area	page
Vehicle position mark deviates.	Proceed to "Vehicle Position Mark Deviates Greatly"	Click here
	Navigation antenna assembly	Click here
	Display and navigation module display	Click here
Cursor or map rotates when vehicle is stopped.	Proceed to "Cursor or Map Rotates When Vehicle is Stopped"	Click here
	Display and navigation module display	Click here
Vehicle position mark is not updated.	Proceed to "Vehicle Position Mark is not Updated"	Click here
	Display and navigation module display	Click here
GPS mark is not displayed.	Proceed to "GPS Mark is not Displayed"	Click here
	Navigation antenna assembly	Click here
	Display and navigation module display	Click here
Voice guidance does not function.	Proceed to "Voice Guidance does not Function"	Click here
	Proceed to "Speaker Circuit"	Click here
	Display and navigation module display	Click here
	Stereo component amplifier assembly	Click here
	Radio receiver assembly	Click here
Map display is incomplete.	Hard Disk Drive	Click here
	Display and navigation module display	Click here
Route cannot be calculated.	Proceed to "Route cannot be Calculated"	Click here
	Display and navigation module display	Click here
Navigation ECU cannot record memory point registration or each item setting.	Hard Disk Drive	Click here
	Display and navigation module display	Click here
A message indicating to wait for a while because of low temperature is displayed.	Start engine and increase cabin temperature (near navigation ECU)	-
	Hard Disk Drive	Click here
	Display and navigation module display	Click here
Map screen turns white or blue. (GPS receiving status is displayed normally, and switches and own vehicle position mark are also displayed normally.)	Change map scale to smallest (a scale that shows a large area)	-
	Hard Disk Drive	Click here
	Display and navigation module display	Click here
Voice menu screen is not displayed.	Proceed to "Steering Pad Switch Circuit"	Click here
	Display and navigation module display	Click here
Voice recognition is difficult.	Proceed to "Voice Recognition Difficulty"	Click here
	Proceed to "Microphone Circuit between Microphone and Navigation ECU"	Click here
	Display and navigation module display	Click here

Voice is not recognized.	Proceed to "Voice is not Recognized"	Click here
	Proceed to "Microphone Circuit between Microphone and Navigation ECU"	Click here
	Proceed to "Steering Pad Switch Circuit"	Click here
	Display and navigation module display	Click here
Customizable parameters cannot be changed. (Customizable parameters can be changed by using the intelligent tester)	Display and navigation module display	Click here
Reverse signal does not change in the vehicle signal check mode screen.	Proceed to "Reverse Signal Circuit"	Click here
	Display and navigation module display.	Click here
"MIC" is not displayed on system check mode screen.	Proceed to "Microphone Circuit between Microphone and Navigation ECU"	Click here
	Display and navigation module display	Click here
"AUX" is not displayed on system check mode screen.	Proceed to "Sound Signal Circuit between Radio Receiver Assembly and Stereo Jack Adapter"	Click here
	Radio receiver assembly	Click here
	Display and navigation module display	Click here

Steering Pad Switch Function

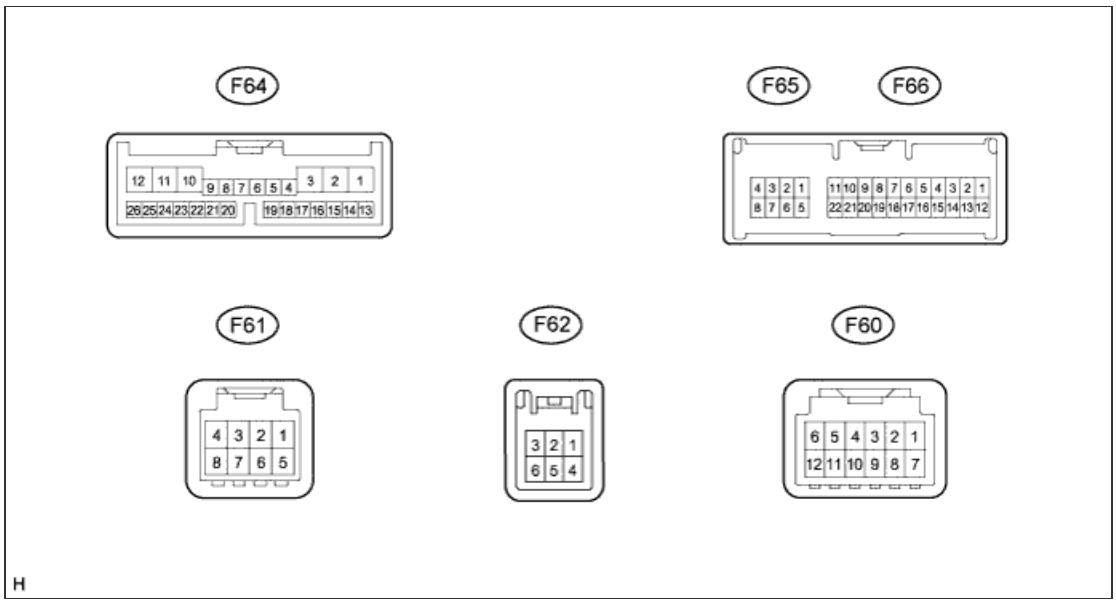
Symptom	Suspected Area	See page
System cannot be operated by steering pad switch.	Proceed to "Steering Pad Switch Circuit"	Click here
	Display and navigation module display	Click here
Illumination for steering pad switch does not come on with tail switch on.	Proceed to "Illumination Circuit"	Click here
	Display and navigation module display	Click here

"Bluetooth" Hands-free Function

Symptom	Suspected Area	See page
Cellular phone registration failure, phone directory transfer failure.	Proceed to "Cellular Phone Registration Failure, Phone Directory Transfer Failure"	Click here
Cellular phone cannot send/receive.	Proceed to "Cellular Phone cannot Send / Receive"	Click here
	Proceed to "Steering Pad Switch Circuit"	Click here
	Radio receiver assembly	Click here
Cellular phone cannot make calls in a certain place.	Proceed to "Cannot Call in a Certain Place"	Click here
Other caller's voice cannot be heard, is too quiet, or distorted.	Proceed to "The Other Caller's Voice cannot be Heard, is too Quiet, or Distorted"	Click here
	Radio receiver assembly	Click here
	Stereo component amplifier assembly	Click here
	Display and navigation module display	Click here
Other caller cannot hear your voice, or your voice is too quiet or distorted.	Proceed to "The Other Caller cannot Hear Your Voice, or Your Voice is too Quiet or Distorted"	Click here
	Proceed to "Microphone Circuit between Microphone and Navigation ECU"	Click here
	Radio receiver assembly	Click here
	Display and navigation module display	Click here

for Preparation Click here

DISPLAY AND NAVIGATION MODULE DISPLAY



Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
F64-1 (+B1) - F64-10 (GND1)	R - W-B	Power source (Back-up)	Always	11 to 14 V
F64-2 (ACC) - F64-10 (GND1)	GR - W-B	Power source (ACC)	Engine switch off	Below 1 V
			Engine switch on (ACC)	11 to 14 V
F64-3 (IG) - F64-10 (GND1)	G - W-B	Power source (IG)	Engine switch off	Below 1 V
			Engine switch on (IG)	11 to 14 V
F64-4 (MACC) - F64-10 (GND1)	W - W-B	Microphone AMP power supply	Engine switch off	Below 1 V
			Engine switch on (IG)	4.5 to 5.5 V
F64-5 (MIN+) - F64-10 (GND1)	B - W-B	Microphone voice signal	See "Microphone & Voice Recognition Check" in Operation Check (Click here)	-
F64-6 (MIN-) - Body ground	R - Body ground	Microphone voice signal	See "Microphone & Voice Recognition Check" in Operation Check (Click here)	-
F64-7 (SGND) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
F62-1 (HILL) - F64-10 (GND1)	W - W-B	Illumination signal	Light control switch off	Below 1 V
			Light control switch tail or head (Light intensity is not max. or min.)	Pulse generation
F64-12 (ILL+) - F64-10 (GND1)	G - W-B	Illumination signal	Light control switch off	Below 1 V
			Light control switch tail or on	11 to 14 V
F64-16 (REV) - F64-10 (GND1)	L - W-B	Reverse signal	See "Vehicle Signal Check Mode" in Operation Check (Click here)	-
F64-17 (PKB) - F64-10 (GND1)	Y - W-B	Parking brake signal	See "Vehicle Signal Check Mode" in Operation Check (Click here)	-
F64-18 (SPD) - F64-10 (GND1)	V - W-B	Vehicle speed signal	See "Vehicle Signal Check Mode" in Operation Check (Click here)	-
F64-20 (SNS2) - F64-10		Voice recognition and		

(GND1)	GR - W-B	microphone connection detection signal	Always	Below 1 V
F64-21 (CANH)	P	CAN communication signal	-	-
F64-22 (CANL)	B	CAN communication signal	-	-
F64-23 (SWG) - Body ground	W - Body ground	Steering pad switch signal	Always	Below 1 V
F64-24 (SW2) - F64-23 (SWG)	P - W	Steering pad switch signal	No switch pushed → MODE switch pushed → On Hook switch pushed → Off Hook switch pushed → Voice switch pushed	4.44 to 5.43 V → 0.45 to 0.65 V → 1.19 to 1.49 V → 2.09 to 2.54 V → 3.2 to 3.88 V
F64-25 (SW1) - F64-23 (SWG)	L - W	Steering pad switch signal	No switch pushed → Seek+ switch pushed → Seek- switch pushed → Volume+ switch pushed → Volume- switch pushed	4.44 to 5.43 V → 0.45 to 0.65 V → 1.19 to 1.49 V → 2.09 to 2.54 V → 3.2 to 3.88 V
F60-7 (GND) - F64-10 (GND1)	B - W-B	Ground	Always	Below 1 V
F60-9 (TX2+)	W	AVC-LAN communication signal	-	-
F60-10 (TX2-)	L	AVC-LAN communication signal	-	-
F60-11 (ACC) - F64-10 (GND1)	GR - W-B	Accessory (ON)	Engine switch on (ACC)	11 to 14 V
			Engine switch off	Below 1 V
F60-12 (+B) - F64-10 (GND1)	R - W-B	Battery	Always	11 to 14 V
F61-1 (AGND) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
F61-3 (VAR+) - F61-7 (VA-)	W - R	Sound signal (Right)	USB audio device playing (When stereo jack adapter used)	A waveform synchronized with sounds is output.
F61-4 (VAL+) - F61-7 (VA-)	B - R	Sound signal (Left)	USB audio device playing (When stereo jack adapter used)	A waveform synchronized with sounds is output.
F61-7 (VA-) - F64-10 (GND1)	R - W-B	Sound signal ground	Always	Below 1 V
F62-6 (SEUC) - F64-10 (GND1)	V - W-B	Security indicator signal	Security indicator operation	11 to 14 V
F65-1 (MI+)	W	MOST communication signal	-	-
F65-2 (SLDI) - F64-10 (GND1)	BR - W-B	Shield ground	Always	Below 1 V
F65-3 (MO+)	B	MOST communication signal	-	-
F65-5 (MI-)	B	MOST communication signal	-	-
F65-6 (SLDO) - F64-10 (GND1)	BR - W-B	Shield ground	Always	Below 1 V
F65-7 (MO-)	W	MOST communication signal	-	-
F65-8 (WUO) - F64-10 (GND1)	R - W-B	MOST communication wake-up signal	Engine switch on (ACC)	4 .5 V or higher
			Engine switch off	Below 1 V
F66-1 (TX1+)*1	W	AVC-LAN communication signal	-	-
F66-2 (TX1+)*1	L	AVC-LAN communication signal	-	-
F66-5 (V+) - F64-10 (GND1)*2	R - W-B	Television camera image signal	Engine switch on (IG) Shift lever in R Under normal conditions	Pulse generation (Refer to waveform 1)
			Engine switch on (IG) Shift lever in R Camera lens covered, blacking out screen	Pulse generation (Refer to waveform 2)
F66-6 (CA+) - F64-10 (GND1)*2	B - W-B	Television camera power supply	Engine switch on (IG) Shift lever in R	5.5 to 7 V
				A waveform synchronized

F66-9 (VV+) - F64-10 (GND1)	W - W-B	Display signal	DVD is playing	with display signals is output. (Refer to waveform 3)
F66-16 (V-) - F64-10 (GND1)*2	W - W-B	Ground	Always	Below 1 V
F66-17 (CGND) - Body ground*2	Shield - Body ground	Shield ground	Always	Below 1 V
F66-20 (VV-) - F64-10 (GND1)	B - W-B	Ground	Always	Below 1 V

*1: w/ Parking Assist Monitor System
*2: w/ Rear View Monitor System

a. Reference (Oscilloscope waveform):

i. Waveform 1 (under normal conditions)

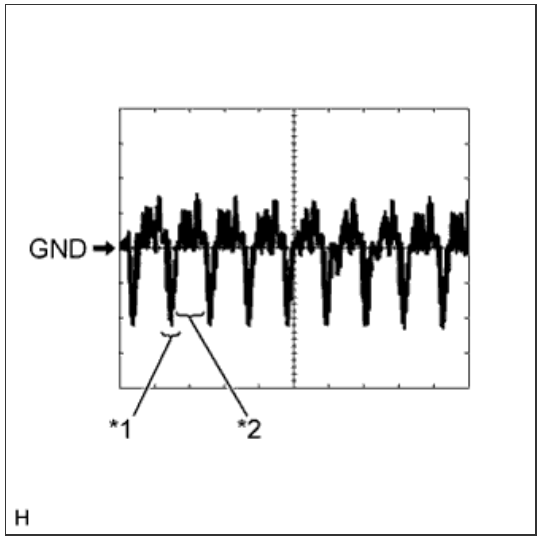
Item	Content
Measurement terminal	F66-5 (V+) - F64-10 (GND1)
Measurement setting	200 mV/DIV., 50 µsec./DIV.
Condition	Engine switch on (IG), shift lever in R

HINT:

The video waveform changes according to the image from the television camera assembly.

Text in Illustration

*1	Synchronization Signal
*2	Video Waveform



b. Reference (Oscilloscope waveform):

i. Waveform 2 (camera lens is covered, blacking out the screen)

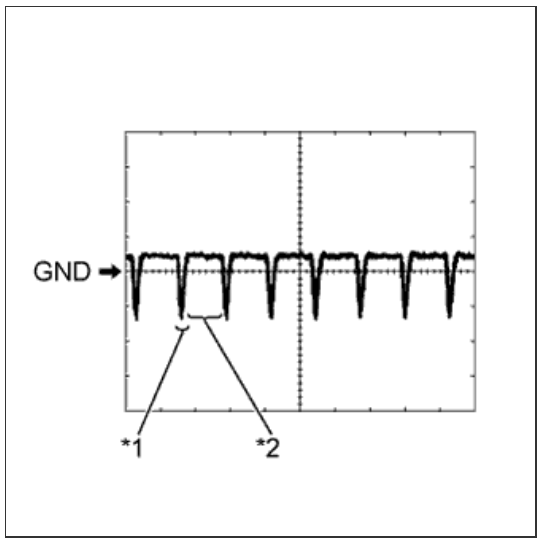
Item	Content
Measurement terminal	F66-5 (V+) - F64-10 (GND1)
Measurement setting	200 mV/DIV., 50 µsec./DIV.
Condition	Engine switch on (IG), shift lever in R

HINT:

The video waveform changes according to the image that the television camera assembly projects.

Text in Illustration

*1	Synchronization Signal
*2	Video Waveform



c. Reference (Oscilloscope waveform):

i. Waveform 3

Item	Content
Measurement Terminal	F66-9 (VV+) - F64-10 (GND1)

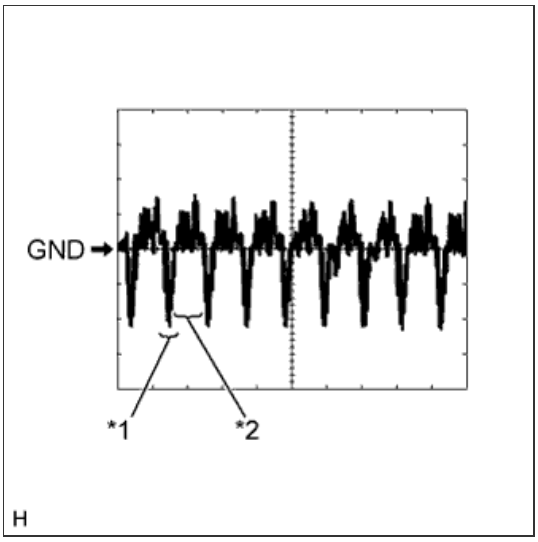
Measurement Setting Condition	200 mV/DIV., 10 µs/DIV. DVD is playing

HINT:

The video waveform changes according to the image input from the radio receiver assembly to the display and navigation module display, but the synchroni ation signal does not change.

Text in Illustration

*1	Synchroni ation Signal
*2	Video Waveform



RADIO RECEIVER ASSEMBLY (Click here)

STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

MULTI-MEDIA INTERFACE ECU (Click here)

PARKING ASSIST ECU (w/ Parking Assist Monitor System) (Click here)

for Preparation Click here

CHECK DTC (CHECK USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

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

e. Check for DTC(s) and freeze frame data, and then write them down.

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

NOTICE:

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

System	Proceed to
Audio and visual system (w/ Navigation System)	Click here
Parking assist monitor system (w/ Parking Assist Monitor System)	Click here

CLEAR DTC (CLEAR USING INTELLIGENT TESTER)

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

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

e. Clear DTCs.

START DIAGNOSTIC MODE

HINT:

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

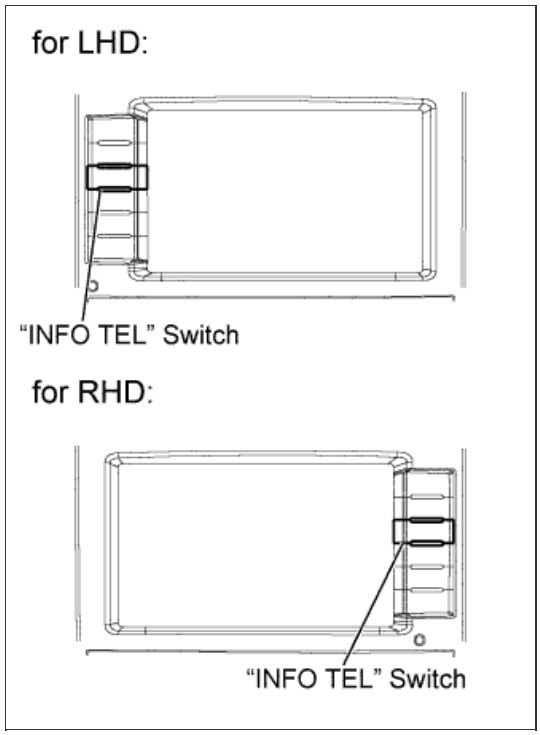
a. There are 2 methods to start diagnostic mode. Start the mode by using one of them.

b. Method 1

i. Start the engine.

ii. While pressing and holding the "INFO TEL" switch, operate the light control switch: off → Turn on → Turn off → Turn on → Turn off → Turn on → Turn off.

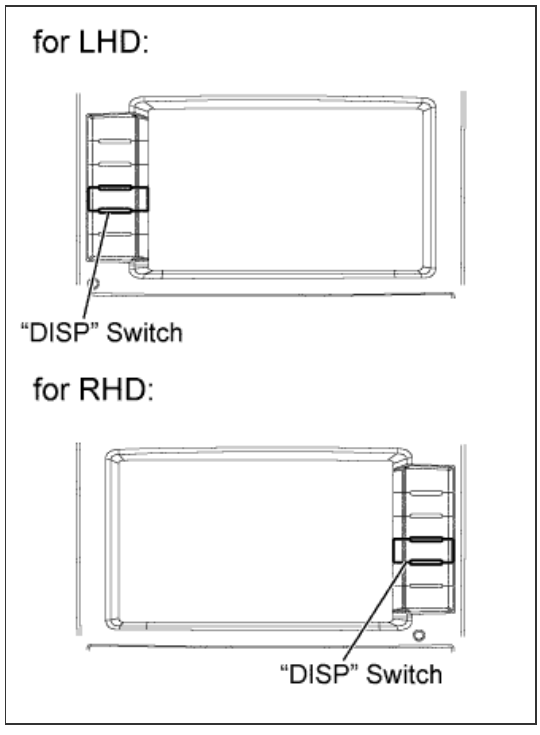
iii. The diagnostic mode starts and the "System Check Mode" screen will be displayed.



c. Method

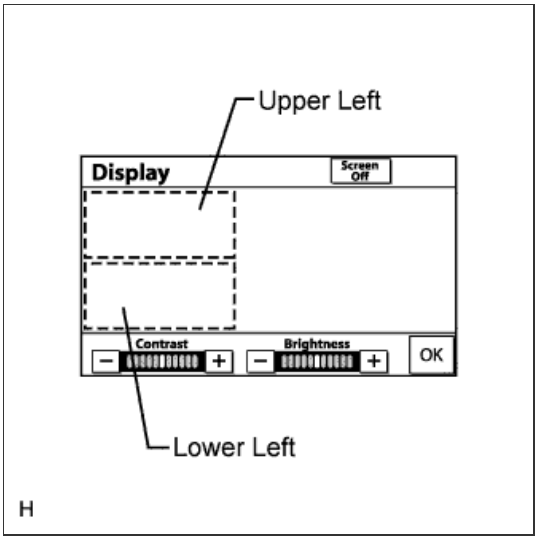
i. Start the engine.

ii. Press the "DISP" switch.



iii. From the display quality adjustment screen, touch the upper and lower left corners of the screen in the following: Upper left → Lower left → Upper left → Lower left → Upper left → Lower left.

iv. Diagnostic mode starts and the "System Check Mode" screen will be displayed. Service inspection starts automatically and the result will be displayed.



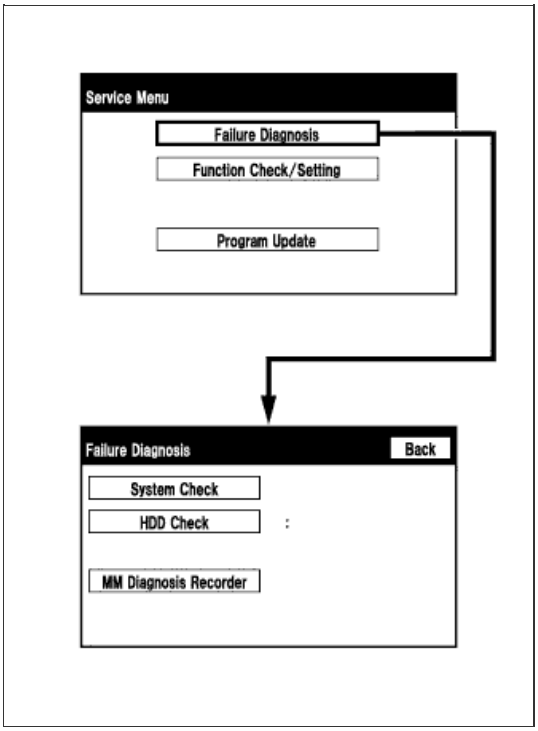
H

FINISH DIAGNOSTIC MODE

a. Turn the engine switch off.

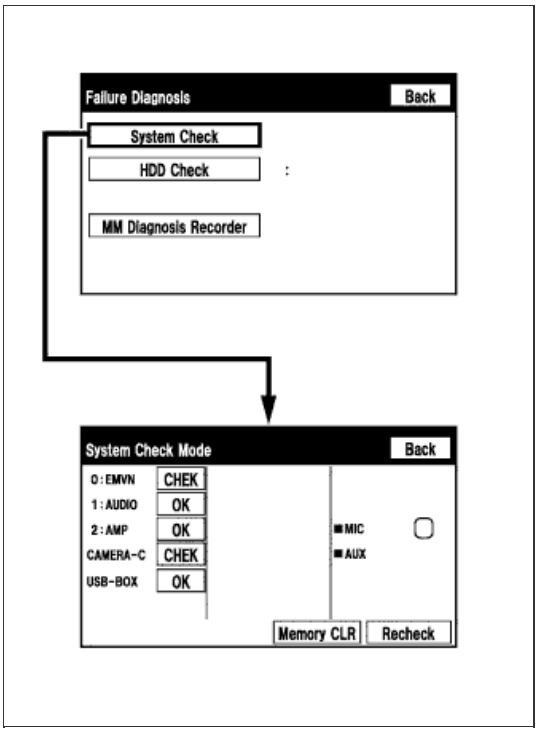
FAILURE DIAGNOSIS

a. The ailure Diagnosis" screen is displayed when the "Failure Diagnosis" switch on the "Service Menu" screen is selected.



SYSTEM CHECK

a. The "System Check Mode" screen is displayed when the "System Check" switch on the "Failure Diagnosis" screen is selected.



CHECK DTC (CHECK USING SYSTEM CHECK MODE SCREEN)

HINT:

efer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen (Click here).

a. Read the system check result.

i. When the result is "EXCH" or "CHEK", select the icon which displays the result, and check and record each DTC displayed on the "Unit Check Mode" screen.

NOTICE:

A maximum of 6 DTCs can be displayed by the display and navigation module display. When more than 6 DTCs are expected, check DTCs using the intelligent tester.

HINT:

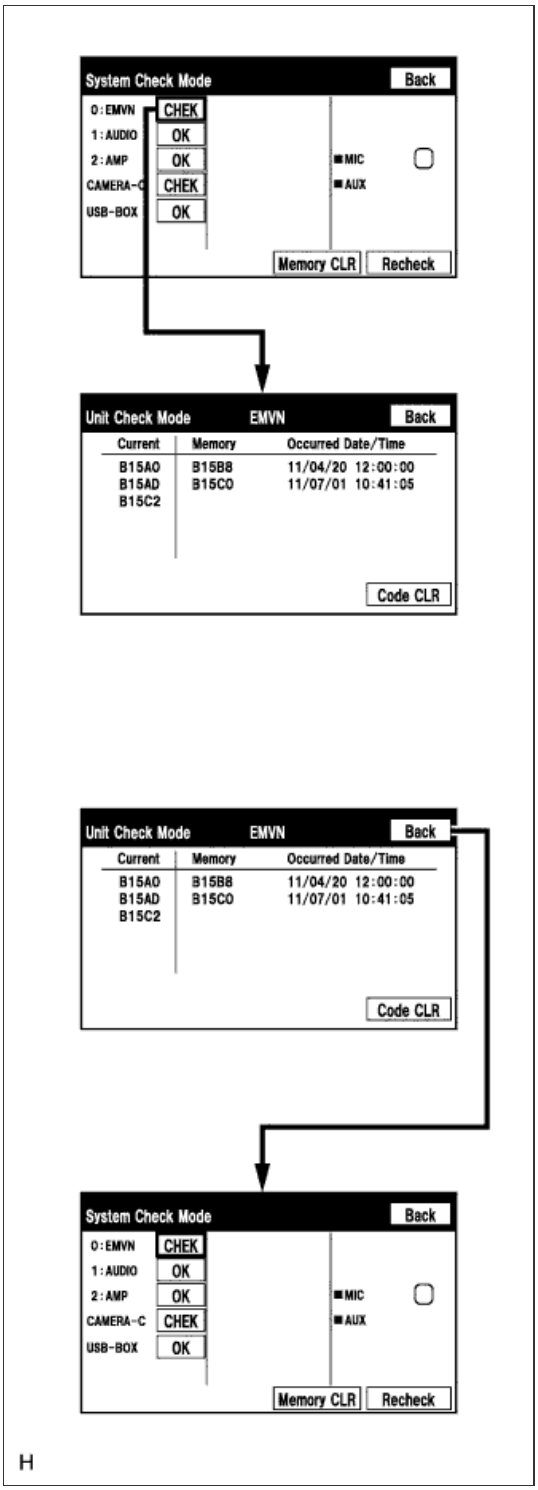
- **Refer to Diagnosis Display Detailed Description for further details on the "System Check Mode" screen (Click here).**
- **When all results are "OK", this means that no DTCs are present.**
- **When "MOST" is displayed for the result, selecting "MOST" displays the "MOST Line Check" screen and performs the MOST line check.**
- **Changing to the "MOST Line Check" screen is possible only when the MOST network is malfunctioning and "MOST" is displayed for the result.**
- **If the MOST network had a malfunction in the past, the DTCs will be displayed in the Memory column.**
- **Refer to Diagnosis Display Detailed Description for further details on the "MOST Line Check" screen (Click here).**
- **When "NCON" is displayed for all devices connected using the AVC LAN, or when all device names are not displayed, check if there is a short circuit in the AVC LAN or devices connected to the AVC LAN. Repair or replace parts as necessary (Click here).**
- **When proceeding to view the results of another device, press the "Back" switch to return to the "System Check Mode" screen. Repeat the step above to view the results of other devices.**

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

NOTICE:

The navigation system outputs DTCs for the following system. When DTCs other than the codes in Diagnostic Trouble Code Chart for the navigation system are output, refer to Diagnostic Trouble Code Chart for the system.

System	Proceed to
Audio and visual system (w/ Navigation System)	Click here
Parking assist monitor system (w/ Parking Assist Monitor System)	Click here



H

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

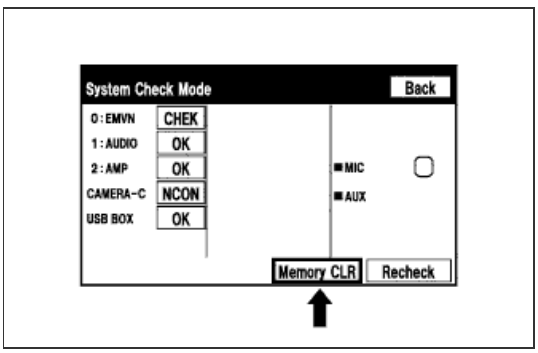
a. Clear DTC

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

ii. The check results are cleared.

HINT:

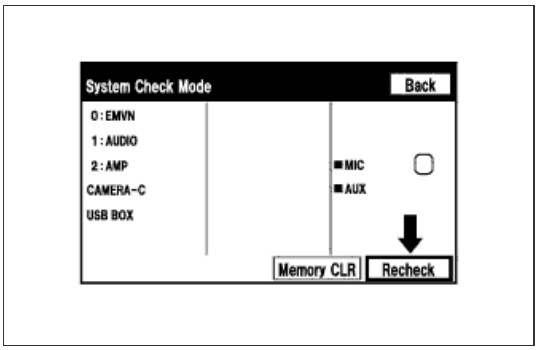
- **To clear the DTC for a specific device, clear the DTC using the "Unit Check Mode" screen.**
- **When clearing a DTC using the "Unit Check Mode" screen, press the "Code CLR" switch for 3 seconds.**



b. Recheck

b. echeck

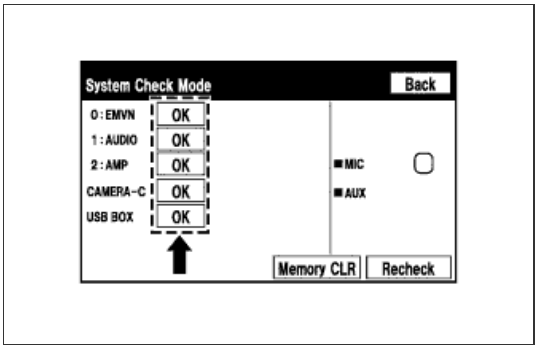
i. Press the echeck switch.



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

HINT:

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



for Preparation Click here

Navigation System

DTC Code	Detection Item	Trouble Area	See page
B156B	Multi-media Interface ECU Disconnected	- Multi-media interface ECU power source circuit - AVC-LAN circuit between display and na igation module display and multi-media interface ECU - Multi-media interface ECU - Display and na igation module display	Click here
B156E	No Response from Multi-media Interface ECU	- Multi-media interface ECU power source circuit - AVC-LAN circuit between display and na igation module display and multi-media interface ECU - Multi-media interface ECU - Display and na igation module display	Click here
B15 1	No Response from Audio HU	- Radio recei er assembly power source circuit - MOST circuit between display and na igation module display and radio recei er assembly - Radio recei er assembly - Display and na igation module display	Click here
B15	No Response from Stereo Component Amplifier	- Stereo component amplifier assembly power source circuit - MOST circuit between radio recei er assembly and stereo component amplifier assembly - MOST circuit between stereo component amplifier assembly and display and na igation module display - Stereo component amplifier assembly - Display and na igation module display	Click here
B15A0	LAN Master Malfunction	Display and na igation module display	Click here
B15AD	Na igation Processor Malfunction	Display and na igation module display	Click here
B15B0	Display Screen Malfunction	Display and na igation module display	Click here
B15B8	Harddisk Malfunction	Hard disk dri e	Click here
B15C0	Short in GPS Antenna	- Wire harness - Na igation antenna assembly - Display and na igation module display	Click here
B15C1	Open in GPS Antenna	- Wire harness - Na igation antenna assembly - Display and na igation module display	Click here
B15C	Speed Signal Malfunction	- Combination meter assembly - Display and na igation module display - Wire harness or connector	Click here
B15D0	MOST Communication Malfunction	- MOST line check - MOST communication line connector - Wire harness and connector - MOST communication line - Radio recei er assembly - Stereo component amplifier assembly - Display and na igation module display	Click here
B15D1	Audio HU Disconnected	- Radio recei er assembly power source circuit - MOST circuit between display and na igation module display and radio recei er assembly - Radio recei er assembly - Display and na igation module display	Click here
B15D3	Stereo Component Amplifier Disconnected	- Stereo component amplifier assembly power source circuit - MOST circuit between radio recei er assembly and stereo component amplifier assembly - MOST circuit between stereo component amplifier assembly and display and na igation module display - Stereo component amplifier assembly - Display and na igation module display	Click here
		- Parking assist ECU power source circuit - AVC-LAN circuit between display and na igation module display and	

B15D8	Monitor Disconnected	parking assist ECU - Parking assist ECU - Display and na igation module display	Click here
B15E	arddisk Reading/Writing Malfunction Low Temperature)	Hard disk dri e	Click here
B15E8	Harddisk Reading/Writing Malfunction igh Temperature)	Hard disk dri e	Click here
B15F5	A/C ECU Vehicle Information Reading/Writing Processor Malfunction	- CAN communication system - Air conditioning system - A/C ECU air conditioning amplifier assembly) - Display and na igation module display	Click here
B15F6	Main Body ECU Vehicle Information Reading/Writing Process Malfunction	- CAN communication system - Power door lock control system - Wireless door lock control system - Lighting system - Main body ECU - Display and na igation module display	Click here
B15F	Certification ECU Vehicle Information Reading/Writing Process Malfunction	- CAN communication system - Smart key system for entry function) - Smart key system for start function) - Certification ECU smart key ECU assembly) - Display and na igation module display	Click here
U00	Control Module Communication Bus Off	CAN communication system	Click here
U0155	Lost Communication with Combination Meter	- CAN communication system - Combination meter assembly	Click here
U0164	Lost Communication with A/C ECU	- CAN communication system - Air conditioning amplifier assembly	Click here
U1110	Lost Communication with Clearance Warning ECU	- CAN communication system - Clearance warning ECU assembly	Click here

DTC B156B Multi-media Interface ECU Disconnected

DTC B156E No Response from Multi-media Interface ECU

for Preparation Click here

DESCRIPTION

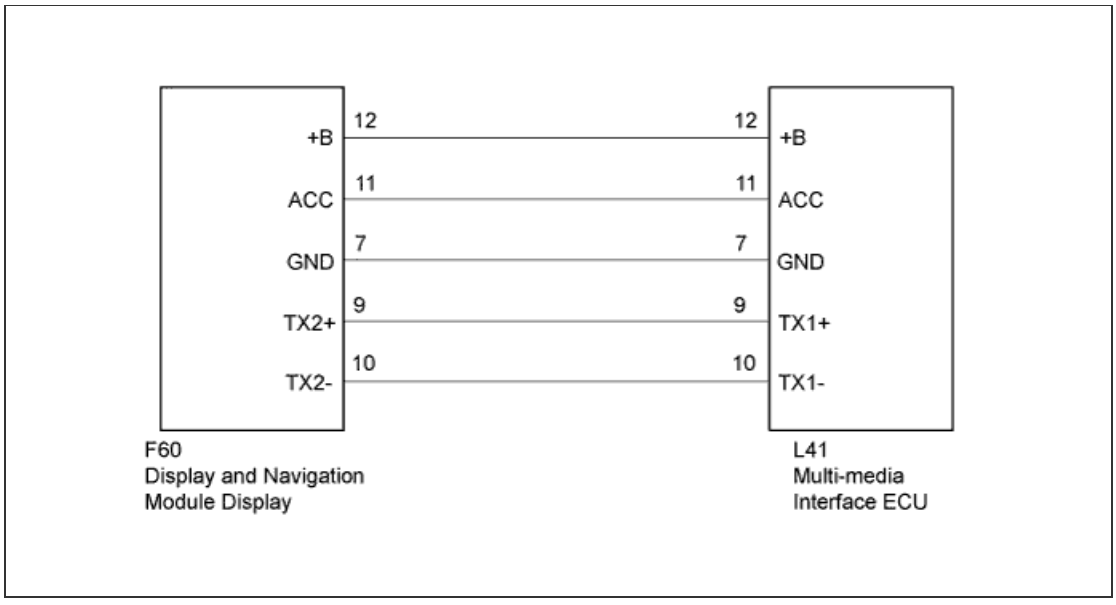
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and the multi-media interface ECU, these DTCs will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B156B*1	When either condition below is met: • Multi-media interface ECU is/was not connected while the engine switch is on (ON or ACC). • Communication between the master unit and multi-media interface ECU is not possible when the engine is started.	• Multi-media interface ECU power source circuit • AVC-LAN circuit between display and navigation module display and multi-media interface ECU • Multi-media interface ECU • Display and navigation module display
B156E	Within the time-out period, there was no response from the display and navigation module display to the following requests from the master unit: • System inspection request • System inspection result request • Diagnostic memory request	

HINT:

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

Result	Proceed to

Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

B → **Go to step 3**

A

2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → **Go to step 4**

OK

END

4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L41 multi-media interface ECU connector.

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

Standard Resistance:

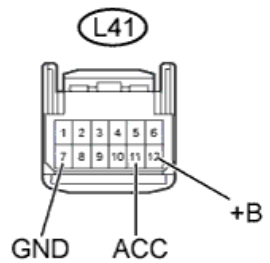
Tester Connection	Condition	Specified Condition
L41-7 (GND) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L41-12 (+B) - L41-7 (GND)	Always	11 to 14 V
L41-11 (ACC) - L41-7 (GND)	Engine switch on (ACC)	11 to 14 V

*1



Text in Illustration

	Front view of wire harness connector

*1	(to Multi-media Interface ECU)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - DISPLAY AND NAVIGATION MODULE)

a. Disconnect the L41 multi-media interface ECU connector.

b. Disconnect the F60 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L41-9 (TX1+) - F60-9 (TX2+)	Always	Below 1 Ω
L41-10 (TX1-) - F60-10 (TX2-)	Always	Below 1 Ω
L41-9 (TX1+) - Body ground	Always	10 kΩ or higher
L41-10 (TX1-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

6.REPLACE MULTI-MEDIA INTERFACE ECU

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK ↓

END

DTC B15C2 Speed Signal Malfunction

for Preparation Click here

DESCRIPTION

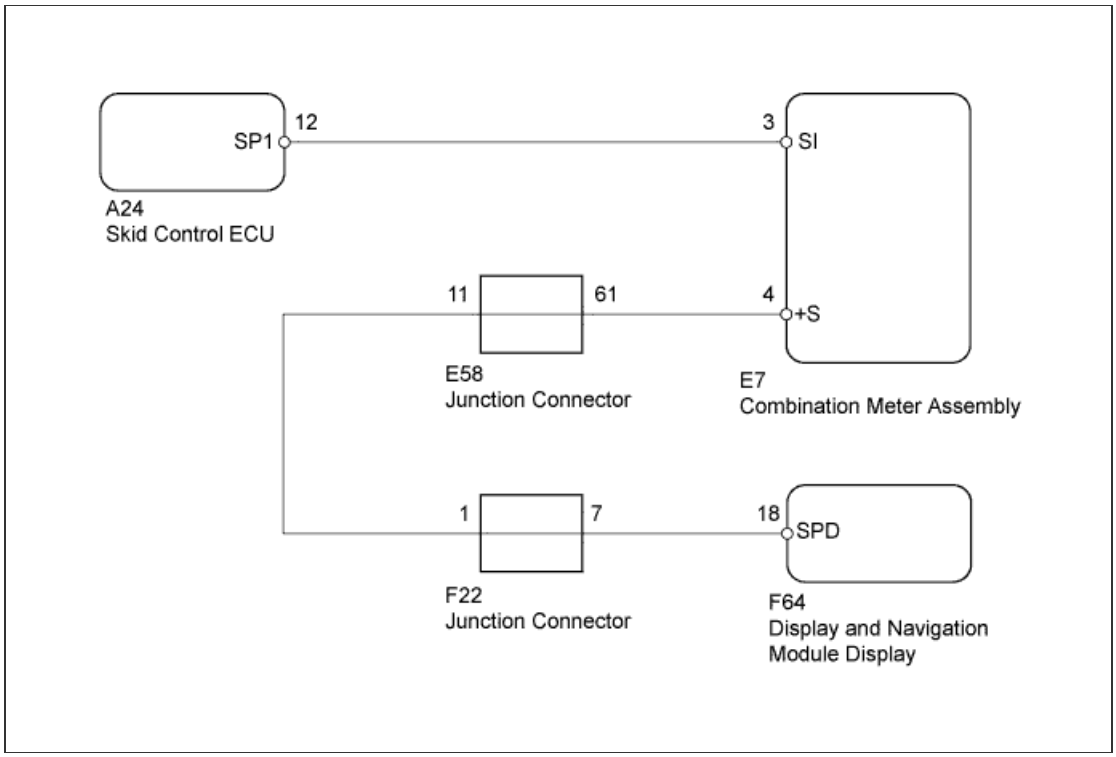
The display and navigation module display receives a vehicle speed signal from the combination meter assembly and information about the GPS antenna, and then adjusts vehicle position.
The display and navigation module display stores this DTC when the difference between the speed information that the GPS antenna receives and the SPD pulse received from the combination meter assembly becomes large.

HINT:

- **A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter assembly. The signal is changed to a pulse signal at the transistor in the combination meter assembly. Each ECU controls the respective systems based on the pulse signal.**
- **If a short occurs in any of the ECUs or in the wire harness connected to an ECU, all systems in the diagram below will not operate normally.**

DTC No.	DTC Detection Condition	Trouble Area
B15C2	A difference between the GPS speed and SPD pulse is detected.	• Combination meter assembly • Wire harness or connector • Display and navigation module display

WIRING DIAGRAM



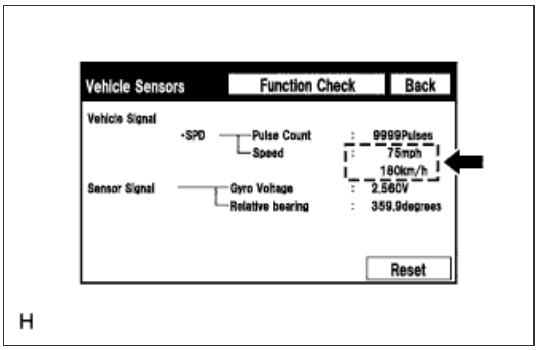
INSPECTION PROCEDURE

1.CHECK VEHICLE SENSOR (OPERATION CHECK)

a. Enter the "Vehicle Sensors" screen. Refer to check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "SPD" indicator to the reading on the speedometer. Check if these readings are almost equal.

OK:
The readings are almost equal.



NG → Go to step 2

OK

REP ACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

2.INSPECT COMBINATION METER ASSEMBLY (OUTPUT WAVEFORM)

a. Check the input waveform.

i. Remove the combination meter assembly with the connector(s) still connected.

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

iii. Turn the engine switch on (IG).

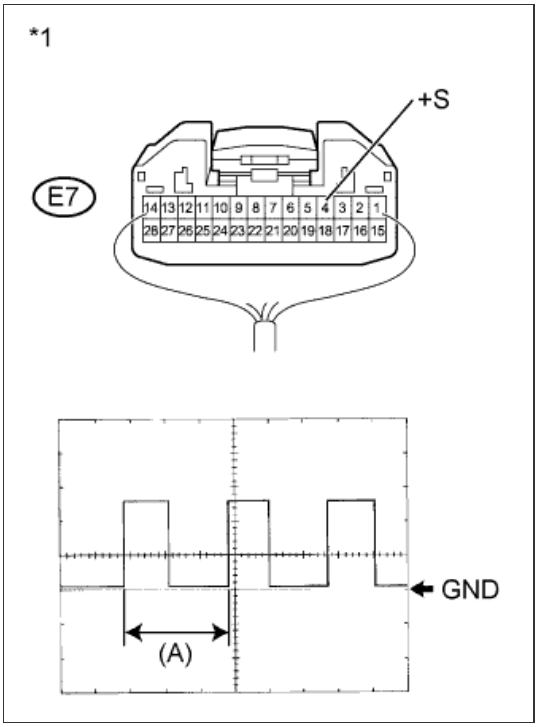
iv. Turn the wheel slowly.

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)

Text in Illustration

*1	Component with harness connected (Combination Meter Assembly)



OK:

The waveform is displayed as shown in the illustration.

HINT:

When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.

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

OK

3.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - COMBINATION METER)

a. Disconnect the F64 display and navigation module display 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
F64-18 (SPD) - E7-4 (+S)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

DTC B156B Multi-media Interface ECU Disconnected

DTC B156E No Response from Multi-media Interface ECU

for Preparation Click here

DESCRIPTION

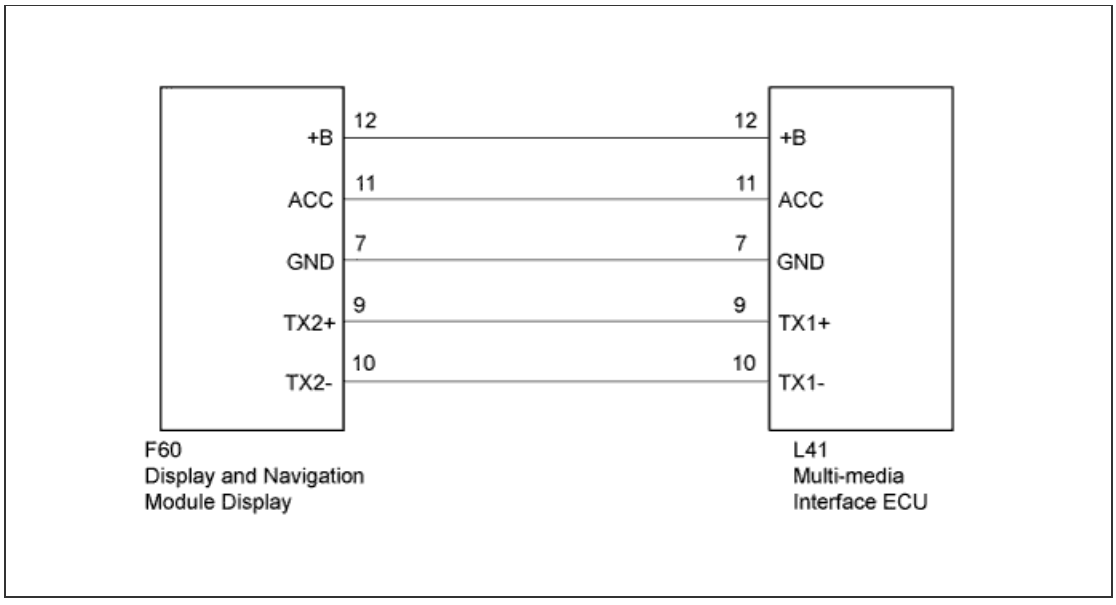
The display and navigation module display and multi-media interface ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and the multi-media interface ECU, these DTCs will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B156B*1	When either condition below is met: • Multi-media interface ECU is/was not connected while the engine switch is on (ON or ACC). • Communication between the master unit and multi-media interface ECU is not possible when the engine is started.	• Multi-media interface ECU power source circuit • AVC-LAN circuit between display and navigation module display and multi-media interface ECU • Multi-media interface ECU • Display and navigation module display
B156E	Within the time-out period, there was no response from the display and navigation module display to the following requests from the master unit: • System inspection request • System inspection result request • Diagnostic memory request	

HINT:

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

Result	Proceed to

Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

B → **Go to step 3**

A

2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → **Go to step 4**

OK

END

4.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU POWER SOURCE)

a. Disconnect the L41 multi-media interface ECU connector.

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

Standard Resistance:

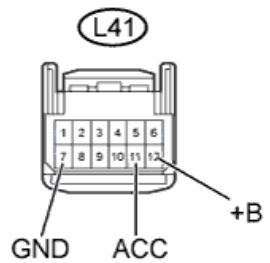
Tester Connection	Condition	Specified Condition
L41-7 (GND) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L41-12 (+B) - L41-7 (GND)	Always	11 to 14 V
L41-11 (ACC) - L41-7 (GND)	Engine switch on (ACC)	11 to 14 V

*1



Text in Illustration

	Front view of wire harness connector

*1	(to Multi-media Interface ECU)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

5.CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - DISPLAY AND NAVIGATION MODULE)

a. Disconnect the L41 multi-media interface ECU connector.

b. Disconnect the F60 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
L41-9 (TX1+) - F60-9 (TX2+)	Always	Below 1 Ω
L41-10 (TX1-) - F60-10 (TX2-)	Always	Below 1 Ω
L41-9 (TX1+) - Body ground	Always	10 kΩ or higher
L41-10 (TX1-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

6.REPLACE MULTI-MEDIA INTERFACE ECU

a. Replace the multi-media interface ECU (Click here).

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK ↓

END

DTC B15D0 MOST Communication Malfunction

for Preparation Click here

DESCRIPTION

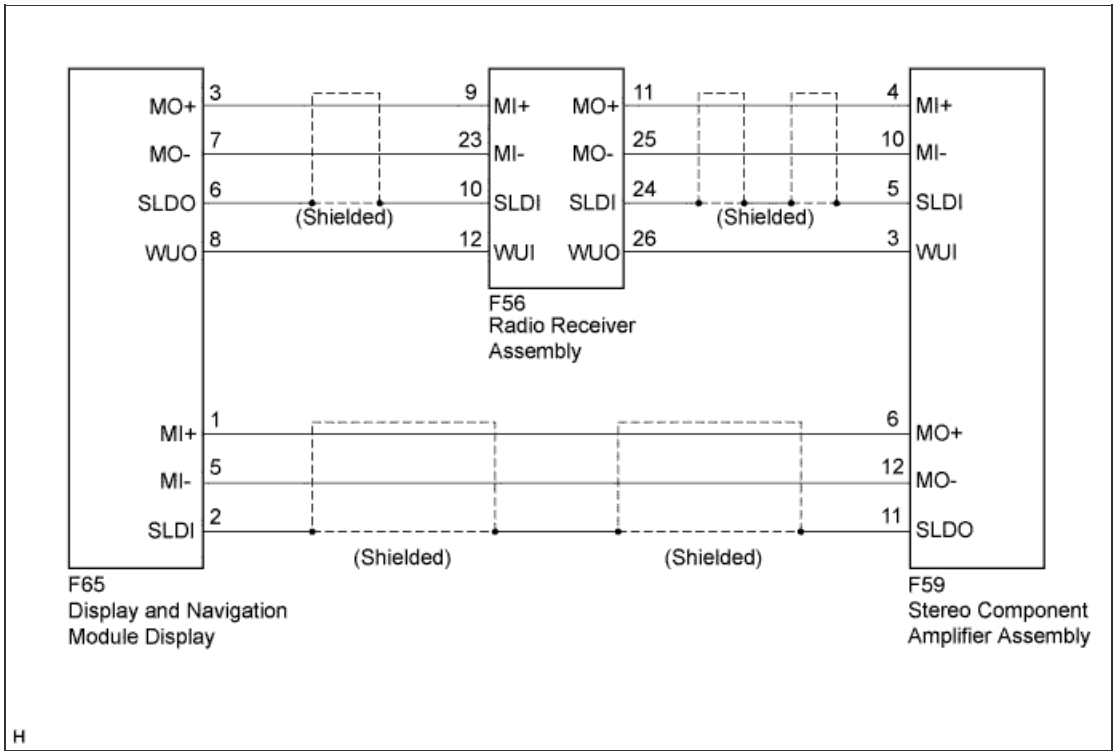
This DTC is stored when the MOST network cannot be established after the master unit is activated.

DTC No.	DTC Detection Condition	Trouble Area
B15D0	MOST network cannot be established.	• MOST line check • MOST communication line connector • Wire harness and connector • MOST communication line • Radio receiver assembly • Stereo component amplifier assembly • Display and navigation module display

HINT:

- **For the MOST network, the display and navigation module display is the master unit.**
- **Errors may occur in MOST communication between devices due to problems such as electrical noise.**

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM MOST LINE CHECK

a. Display the "MOST Line Check" screen (Click here).

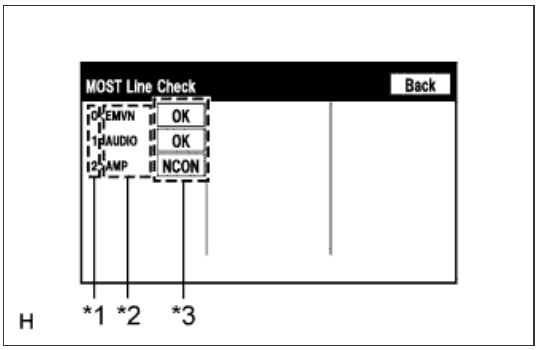
b. Check the result on the "MOST Line Check" screen.

Result

Result	Proceed to
"NCON" is displayed for "AUDIO".	A
"NCON" is displayed for "AMP".	B
"O " is displayed for all items.	C

HINT:

- **When "NCON" is displayed for more than 1 item, proceed to the step for the device that has the smallest node position number.**
- **The "MOST Line Check" screen can be displayed only when DTC B15D0 is stored.**



Text in Illustration

*1	Node position number for devices that use MOST communication
*2	Device name
*3	Result

B	Go to step 5
C	Go to step 8

A

2.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the display and navigation module display and radio receiver assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result (Click here).

Result

Result	Proceed to
"NCON" is displayed for "AUDIO".	A
The screen cannot be changed to the "MOST Line Check" screen.	B

HINT:

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B	END

A

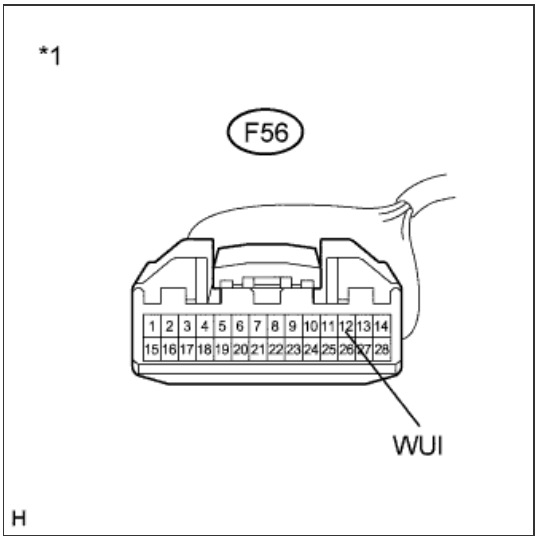
3.CHECK HARNESS AND CONNECTOR (WAKE UP SIGNAL)

a. Disconnect the F56 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
F56-12 (WUI) - Body ground	gine switch on (ACC)	.5 V or higher



Text in Illustration

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

NG	Go to step 4

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

4.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - RADIO RECEIVER ASSEMBLY)

a. Disconnect the F56 radio receiver assembly connector.

b. Disconnect the F65 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F56-12 (WUI) - F65- (WUO)	Always	Below 1 Ω
F56-12 (WUI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

5.CHECK MOST COMMUNICATION CONNECTOR

a. Check MOST communication line connector.

i. Check if a MOST communication line connector between the radio receiver assembly and stereo component amplifier assembly has any connection problems (Click here).

b. Display the "MOST Line Check" screen and check the result (Click here).

Result

Result	Proceed to
"NCON" is displayed for "AMP".	A
The screen cannot be changed to the "MOST Line Check" screen.	B

HINT:

When the malfunction in the MOST network is repaired, the screen cannot be changed to the "MOST Line Check" screen.

B → END

A

6.CHECK HARNESS AND CONNECTOR (WAKE-UP SIGNAL)

a. Disconnect the F5 stereo component amplifier assembly connector.

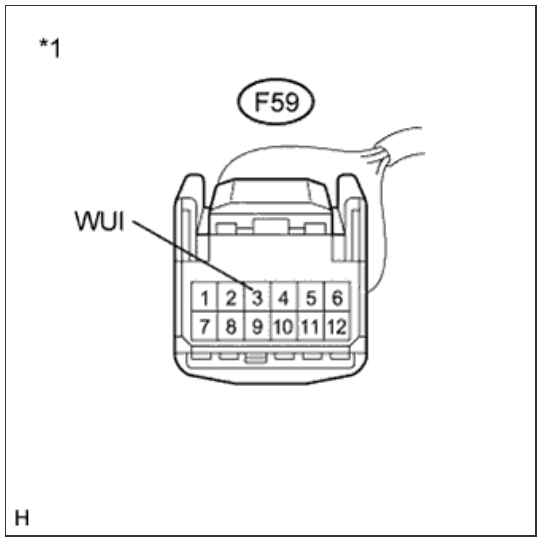
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
F5 (WUI) - Body ground	gine switch on (ACC)	.5 V or higher

Text in Illustration

*1	Front view of wire harness connector (to Stereo Component Amplifier Assembly)



NG → Go to step 7

OK

REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY (Click here)

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

a. Disconnect the F5 stereo component amplifier assembly connector.

b. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F5 (WUI) - F56-26 (WUO)	Always	Below 1 Ω
F5 (WUI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

8.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - RADIO RECEIVER ASSEMBLY)

a. Disconnect the F65 display and navigation module display connector.

b. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F65-3 (MO) - F56- (MI)	Always	Below 1 Ω
F65-7 (MO-) - F56-23 (MI-)	Always	Below 1 Ω
F65-6 (SLDO) - F56-10 (SLDI)	Always	Below 1 Ω
F65-3 (MO) - Body ground	Always	10 kΩ or higher
F65-7 (MO-) - Body ground	Always	10 kΩ or higher
F65-6 (SLDO) -	Always	10 kΩ or higher

Body ground		

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the F56 radio receiver assembly connector.

b. Disconnect the F5 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
F56-11 (MO) - F5 (MI)	Always	Below 1 Ω
F56-25 (MO-) - F5 10 (MI-)	Always	Below 1 Ω
F56-2 (SLDI) - F5 5 (SLDI)	Always	Below 1 Ω
F56-11 (MO) - Body ground	Always	10 kΩ or higher
F56-25 (MO-) - Body ground	Always	10 kΩ or higher
F56-2 (SLDI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

10.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F5 stereo component amplifier assembly connector.

b. Disconnect the F65 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F5 (MO) - F65-1 (MI)	Always	Below 1 Ω
F5 12 (MO-) - F65-5 (MI-)	Always	Below 1 Ω
F5 11 (SLDO) - F65-2 (SLDI)	Always	Below 1 Ω
F5 (MO) - Body ground	Always	10 kΩ or higher
F5 12 (MO-) - Body ground	Always	10 kΩ or higher
F5 11 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

11.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

OK:
No DTCs are output.

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

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

DTC B1591 No Response from Audio HU

DTC B15D1 Audio HU Disconnected

for Preparation Click here

DESCRIPTION

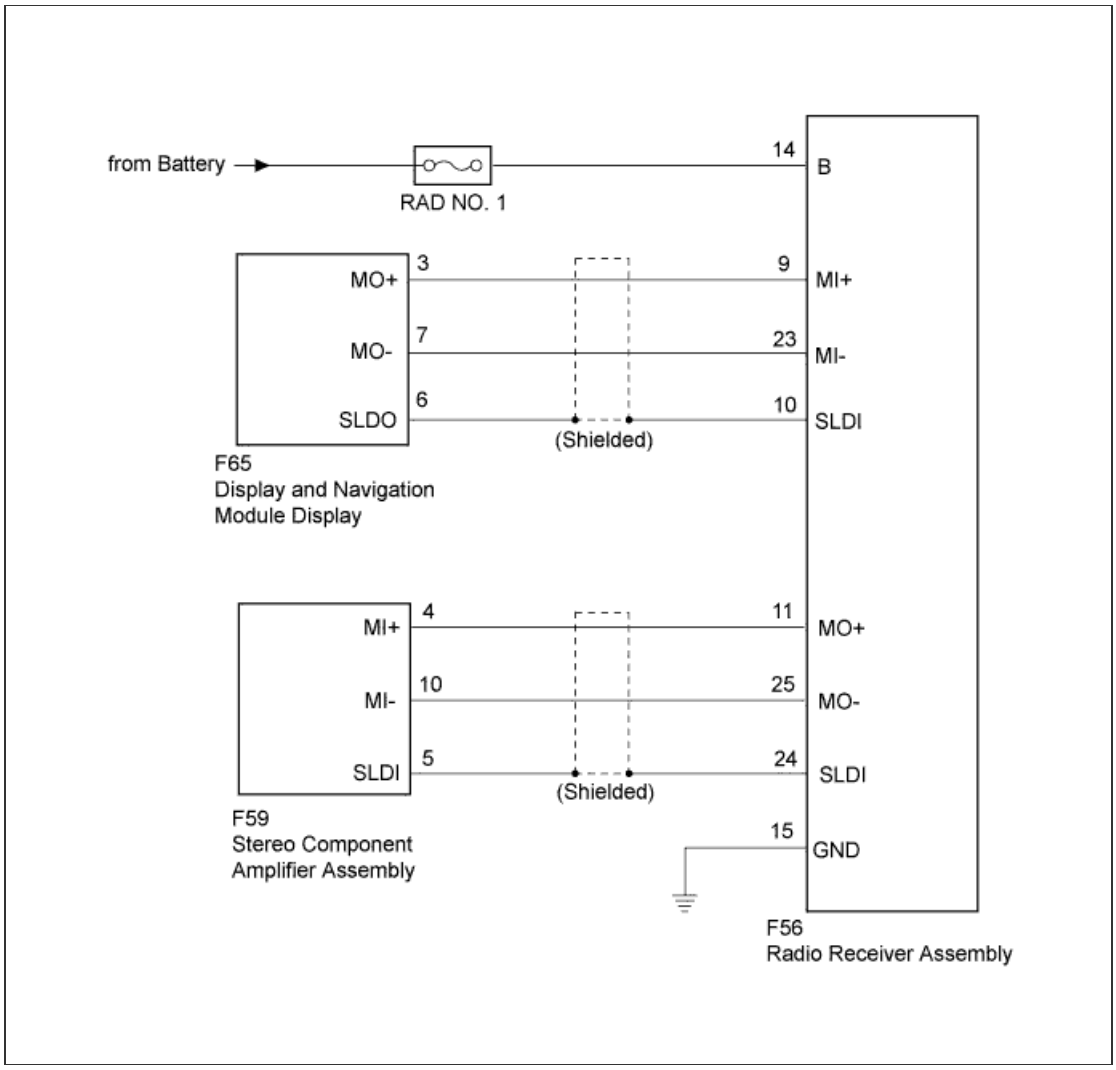
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and the radio receiver assembly, these DTCs will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B1591	Within the time-out period, there was no response from the radio receiver assembly to the following requests from the master unit: • System inspection request • System inspection result request • Diagnostic memory request	• Radio receiver assembly power source circuit • MOST circuit between display and navigation module display and radio receiver assembly • MOST circuit between radio receiver assembly and stereo component amplifier assembly • Radio receiver assembly • Display and navigation module display
B15D1*1	When either of the conditions below is met: • Radio receiver assembly is/was not connected while the engine switch is on (IG or ACC). • Communication between the master unit and the radio receiver assembly is not possible when the engine is started.	

HINT:

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

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

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

Result	Proceed to
Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → Go to step 4

OK

END

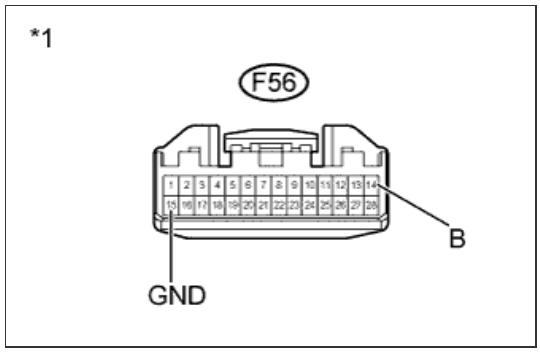
4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F56-15 (GND) - Body ground	Always	Below 1 Ω



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

Standard Voltage:

Tester Connection	Condition	Specified Condition
F56-14 (B) - F56-15 (GND)	Always	11 to 14 V

Text in Illustration

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

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the F65 display and navigation module display connector.

b. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F65-3 (MO+) - F56-9 (MI+)	Always	Below 1 Ω
F65-7 (MO-) - F56-23 (MI-)	Always	Below 1 Ω

F65-6 (SLDO) - F56-10 (SLDI)	Always	Below 1 Ω
F65-3 (MO+) - Body ground	Always	10 kΩ or higher
F65-7 (MO-) - Body ground	Always	10 kΩ or higher
F65-6 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the F56 radio receiver assembly connector.

b. Disconnect the F59 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
F56-11 (MO+) - F59-4 (MI+)	Always	Below 1 Ω
F56-25 (MO-) - F59-10 (MI-)	Always	Below 1 Ω
F56-24 (SLDI) - F59-5 (SLDI)	Always	Below 1 Ω
F56-11 (MO+) - Body ground	Always	10 kΩ or higher
F56-25 (MO-) - Body ground	Always	10 kΩ or higher
F56-24 (SLDI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.REPLACE RADIO RECEIVER ASSEMBLY

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

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

END

DTC B15D8 Monitor Disconnected

for Preparation Click here

DESCRIPTION

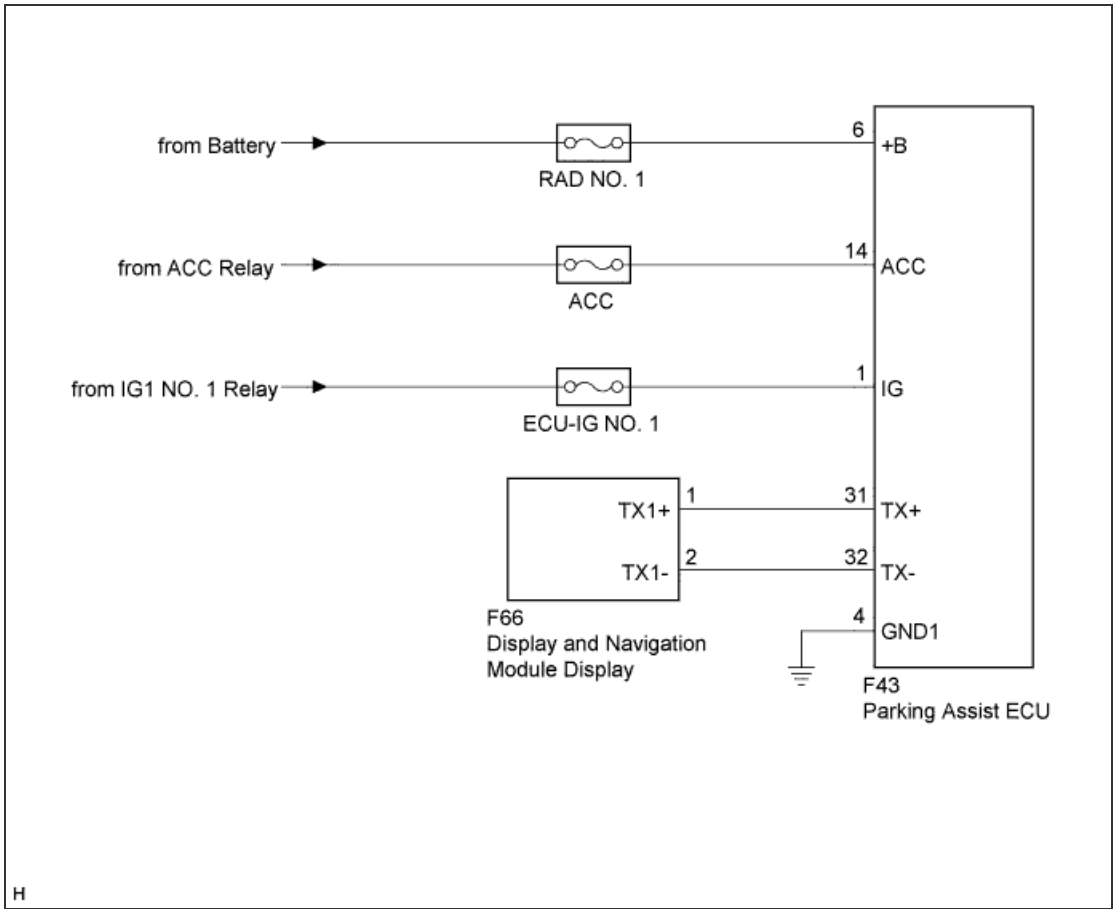
The display and navigation module display and parking assist ECU are connected by the AVC-LAN communication line.
When an AVC-LAN communication error occurs between the display and navigation module display and parking assist ECU, this DTC will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B15D8	A device that is listed in the AVC-LAN connected device record of the master unit is missing.	• Parking assist ECU power source circuit • AVC-LAN circuit between display and navigation module display and parking assist ECU • Parking assist ECU • Display and navigation module display

HINT:

The display and navigation module display is the master unit.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

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

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

	Proceed

Result	to
Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect AVC-LAN communication.**
- **This DTC may be stored when an AVC-LAN communication error occurs due to electrical noise.**

B → Go to step 3

A

2.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → Go to step 4

OK

END

4.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU POWER SOURCE)

a. Disconnect the F43 parking assist ECU connector.

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

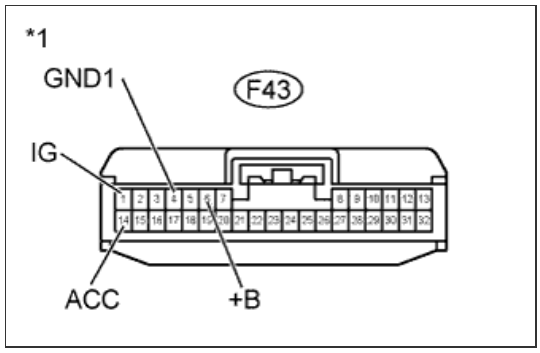
Standard Resistance:

Tester Connection	Condition	Specified Condition
F43-4 (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
F43-6 (+B) - F43-4 (GND1)	Always	11 to 14 V
F43-1 (IG) - F43-4 (GND1)	Engine switch on (IG)	11 to 14 V
F43-14 (ACC) - F43-4 (GND1)	Engine switch on (ACC)	11 to 14 V



Text in Illustration

*1	Front view of wire harness connector (to Parking Assist ECU)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F43 parking assist ECU connector.

b. Disconnect the F66 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F43-31 (TX+) - F66-1 (TX1+)	Always	Below 1 Ω
F43-32 (TX-) - F66-2 (TX1-)	Always	Below 1 Ω
F43-31 (TX+) - Body ground	Always	10 kΩ or higher
F43-32 (TX-) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.REPLACE PARKING ASSIST ECU

a. Replace the parking assist ECU (Click here).

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

END

DTC B1591 No Response from Audio HU

DTC B15D1 Audio HU Disconnected

for Preparation Click here

DESCRIPTION

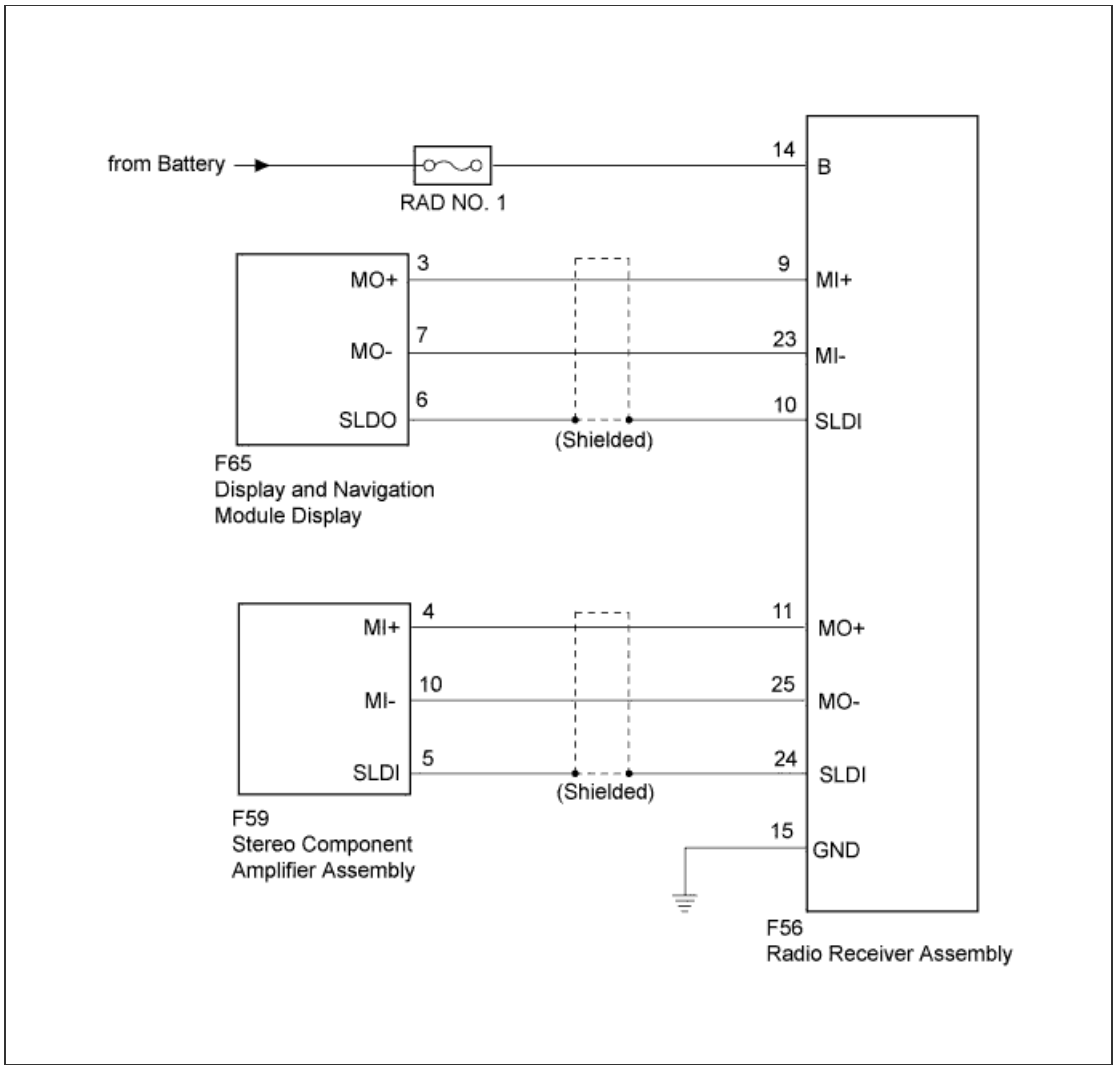
The display and navigation module display and radio receiver assembly are connected by the MOST communication line.
When an MOST communication error occurs between the display and navigation module display and the radio receiver assembly, these DTCs will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B1591	Within the time-out period, there was no response from the radio receiver assembly to the following requests from the master unit: • System inspection request • System inspection result request • Diagnostic memory request	• Radio receiver assembly power source circuit • MOST circuit between display and navigation module display and radio receiver assembly • MOST circuit between radio receiver assembly and stereo component amplifier assembly • Radio receiver assembly • Display and navigation module display
B15D1*1	When either of the conditions below is met: • Radio receiver assembly is/was not connected while the engine switch is on (IG or ACC). • Communication between the master unit and the radio receiver assembly is not possible when the engine is started.	

HINT:

- ***1: Even if no fault is present, this DTC may be stored depending on the battery condition or engine start voltage.**
- **The display and navigation module display is the master unit.**

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

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

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

Result	Proceed to
Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when an MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → Go to step 4

OK

END

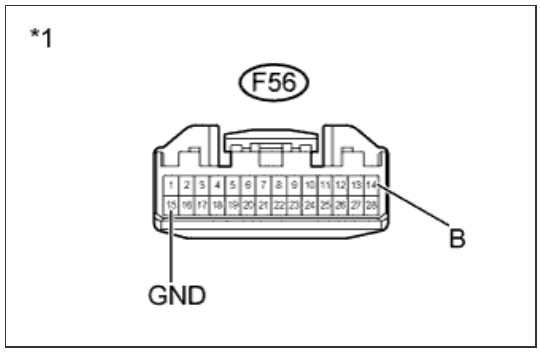
4.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER ASSEMBLY POWER SOURCE)

a. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F56-15 (GND) - Body ground	Always	Below 1 Ω



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

Standard Voltage:

Tester Connection	Condition	Specified Condition
F56-14 (B) - F56-15 (GND)	Always	11 to 14 V

Text in Illustration

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

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the F65 display and navigation module display connector.

b. Disconnect the F56 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
F65-3 (MO+) - F56-9 (MI+)	Always	Below 1 Ω
F65-7 (MO-) - F56-23 (MI-)	Always	Below 1 Ω

F65-6 (SLDO) - F56-10 (SLDI)	Always	Below 1 Ω
F65-3 (MO+) - Body ground	Always	10 kΩ or higher
F65-7 (MO-) - Body ground	Always	10 kΩ or higher
F65-6 (SLDO) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the F56 radio receiver assembly connector.

b. Disconnect the F59 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
F56-11 (MO+) - F59-4 (MI+)	Always	Below 1 Ω
F56-25 (MO-) - F59-10 (MI-)	Always	Below 1 Ω
F56-24 (SLDI) - F59-5 (SLDI)	Always	Below 1 Ω
F56-11 (MO+) - Body ground	Always	10 kΩ or higher
F56-25 (MO-) - Body ground	Always	10 kΩ or higher
F56-24 (SLDI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.REPLACE RADIO RECEIVER ASSEMBLY

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

b. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

END

DTC B15E7 Harddisk Reading/Writing Malfunction(Low Temperature)

DTC B15E8 Harddisk Reading/Writing Malfunction(High Temperature)

for Preparation Click here

DESCRIPTION

These DTCs are stored when the temperature is higher or lower than the operation range of the hard disk drive built into the display and navigation module display, and hard disk drive read/write errors occur more than a specified number of times.

HINT:

The hard drive disk may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

DTC No.	DTC Detection Condition	Trouble Area
B15E7	Hard disk drive read/write error at low temperature.	Hard disk drive
B15E8	Hard disk drive read/write error at high temperature.	

INSPECTION PROCEDURE

1.CHECK CABIN

Move the vehicle to an area that is at room temperature and allow the cabin temperature to ad ust to between -20°C (-4°F) and 65°C (149°F).

HINT:

- **The hard disk drive may not operate normally at very high or low temperatures.**
- **Perform the DTC check at room temperature.**

NEXT

2.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

OK:
No DTCs are output.

NG → **REPLACE HARD DISK DRIVE (Click here)**

OK

USE SIMULATION METHOD TO CHECK (Click here)

DTC B1593 No Response from Stereo Component Amplifier

DTC B15D3 Stereo Component Amplifier Disconnected

for Preparation Click here

DESCRIPTION

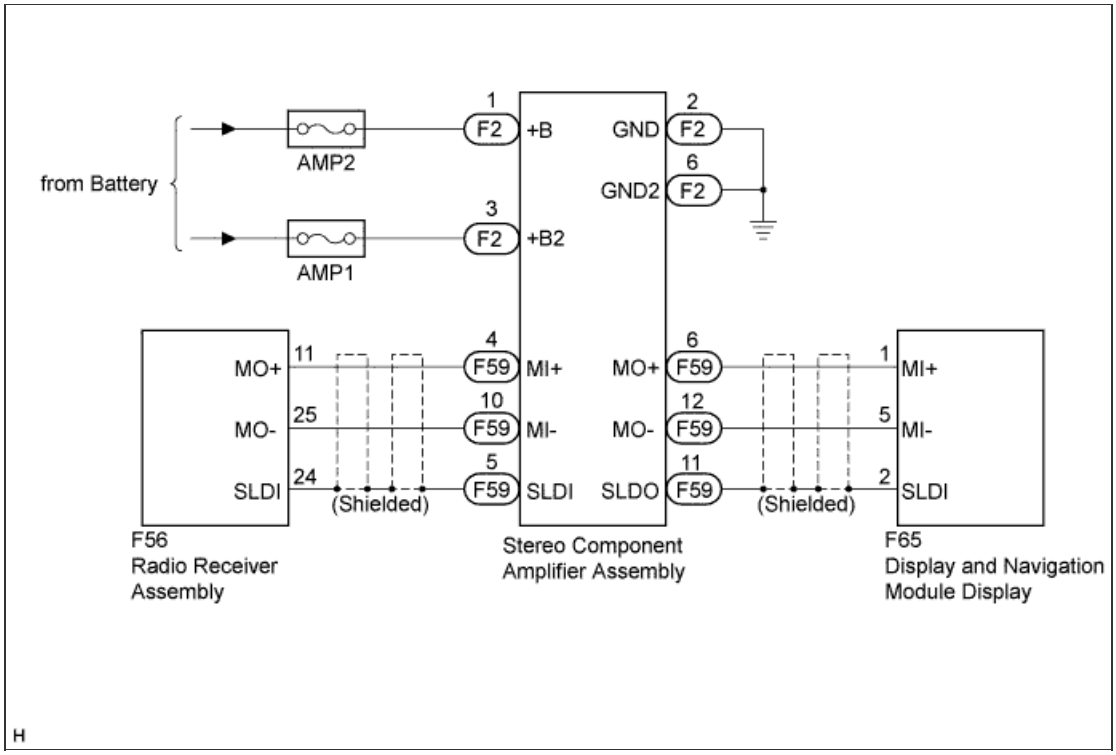
The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When a MOST communication error occurs between the display and navigation module display and stereo component amplifier assembly, these DTCs will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B1593	No response to the diagnostic memory request from the master unit.	• Stereo component amplifier assembly power source circuit • MOST circuit between radio receiver assembly and stereo component amplifier assembly • MOST circuit between stereo component amplifier assembly and display and navigation module display • Stereo component amplifier assembly • Display and navigation module display
B15D3	A device that is listed in the MOST network connected device record of the master unit is missing.	

HINT:

or the MOST network, the display and navigation module display is the master unit.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

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

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

Result	Proceed to
Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when a MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

OK:
No DTCs are output.

NG → Go to step 4

OK

END

4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the stereo component amplifier assembly connector.

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

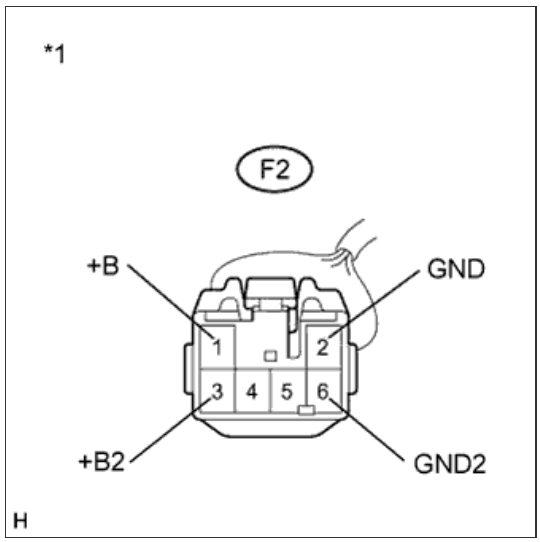
Standard Resistance:

Tester Connection	Condition	Specified Condition
(GND) - Body ground	Always	Below 1 Ω
(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
1 (+B) - D	ngine switch off	11 to 14 V



3 (+B2) - DN	ngine switch off	11 to 14 V

Text in Illustration

*1	ront view of wire harness connector (to Stereo Component Amplifier Assembly)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the 59 stereo component amplifier assembly connector.

b. Disconnect the 5 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
59-4 (MI+) - 5 11 (MO+)	Always	Below 1 Ω
59-1 (MI-) - 5 5 (MO-)	Always	Below 1 Ω
59-5 (SLDI) - 5 (SLDI)	Always	Below 1 Ω
59-4 (MI+) - Body ground	Always	1 kΩ or higher
59-1 (MI-) - Body ground	Always	1 kΩ or higher
59-5 (SLDI) - Body ground	Always	1 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the 59 stereo component amplifier assembly connector.

b. Disconnect the 5 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
59- (MO+) - 5-1 (MI+)	Always	Below 1 Ω
59-12 (MO-) - 5-5 (MI-)	Always	Below 1 Ω
59-11 (SLDO) - 5-2 (SLDI)	Always	Below 1 Ω
59- (MO+) - Body ground	Always	1 kΩ or higher
59-12 (MO-) - Body ground	Always	1 kΩ or higher
59-11 (SLDO) - Body ground	Always	1 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same DTC is output again.

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

END

DTC B15E7 Harddisk Reading/Writing Malfunction(Low Temperature)

DTC B15E8 Harddisk Reading/Writing Malfunction(High Temperature)

for Preparation Click here

DESCRIPTION

These DTCs are stored when the temperature is higher or lower than the operation range of the hard disk drive built into the display and navigation module display, and hard disk drive read/write errors occur more than a specified number of times.

HINT:

The hard drive disk may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.

DTC No.	DTC Detection Condition	Trouble Area
B15E7	Hard disk drive read/write error at low temperature.	Hard disk drive
B15E8	Hard disk drive read/write error at high temperature.	

INSPECTION PROCEDURE

1.CHECK CABIN

Move the vehicle to an area that is at room temperature and allow the cabin temperature to ad ust to between -20°C (-4°F) and 65°C (149°F).

HINT:

- **The hard disk drive may not operate normally at very high or low temperatures.**
- **Perform the DTC check at room temperature.**

NEXT

2.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

OK:
No DTCs are output.

NG → **REPLACE HARD DISK DRIVE (Click here)**

OK

USE SIMULATION METHOD TO CHECK (Click here)

DTC B1593 No Response from Stereo Component Amplifier

DTC B15D3 Stereo Component Amplifier Disconnected

for Preparation Click here

DESCRIPTION

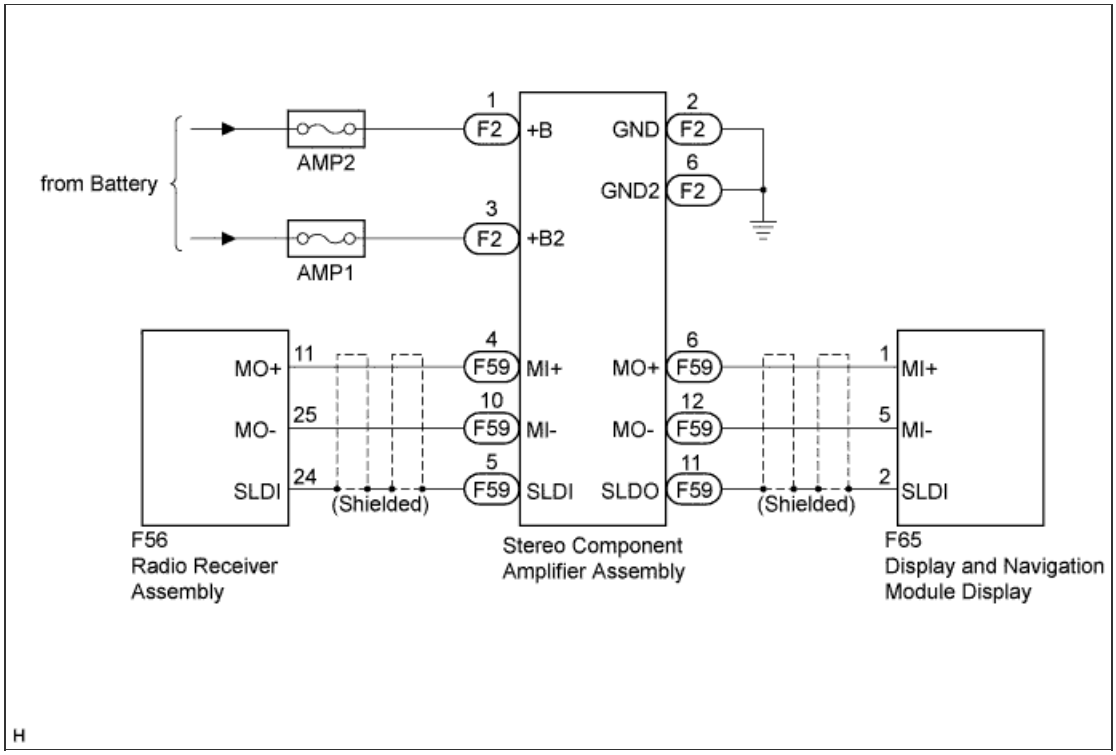
The display and navigation module display and stereo component amplifier assembly are connected by the MOST communication line.
When a MOST communication error occurs between the display and navigation module display and stereo component amplifier assembly, these DTCs will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B1593	No response to the diagnostic memory request from the master unit.	• Stereo component amplifier assembly power source circuit • MOST circuit between radio receiver assembly and stereo component amplifier assembly • MOST circuit between stereo component amplifier assembly and display and navigation module display • Stereo component amplifier assembly • Display and navigation module display
B15D3	A device that is listed in the MOST network connected device record of the master unit is missing.	

HINT:

or the MOST network, the display and navigation module display is the master unit.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

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

1.CHECK OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Check for optional components.

i. Check that optional components (including associated wiring) which generate radio waves are not installed.

Result

Result	Proceed to
Optional components (including associated wiring) are installed.	A
Optional components (including associated wiring) are not installed.	B

HINT:

- **Electrical noise from radio waves generated by optional components or the wiring for those components may affect MOST communication.**
- **This DTC may be stored when a MOST communication error occurs due to electrical noise.**

B → Go to step 3

A

2.REMOVE OPTIONAL COMPONENTS (INCLUDING ASSOCIATED WIRING)

a. Remove optional components (including associated wiring).

NOTICE:

Do not remove optional components or associated wiring without the permission of the customer.

NEXT

3.CHECK DTC

a. Clear the DTCs (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

OK:
No DTCs are output.

NG → Go to step 4

OK

END

4.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY POWER SOURCE)

a. Disconnect the stereo component amplifier assembly connector.

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

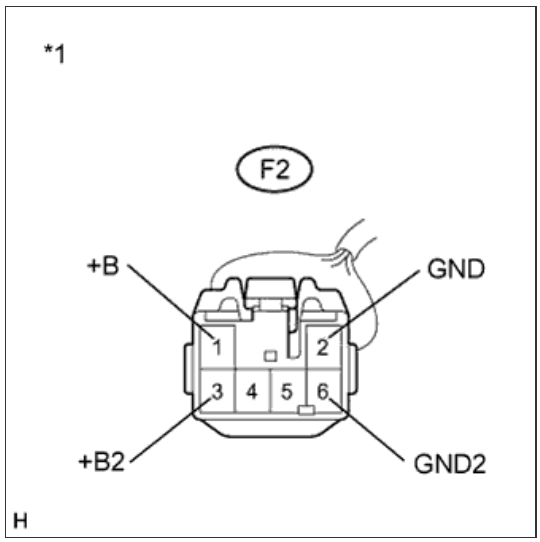
Standard Resistance:

Tester Connection	Condition	Specified Condition
(GND) - Body ground	Always	Below 1 Ω
(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
1 (+B) - D	ngine switch off	11 to 14 V



3 (+B2) - DN	ngine switch off	11 to 14 V

Text in Illustration

*1	ront view of wire harness connector (to Stereo Component Amplifier Assembly)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

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

a. Disconnect the 59 stereo component amplifier assembly connector.

b. Disconnect the 5 radio receiver assembly connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
59-4 (MI+) - 5 11 (MO+)	Always	Below 1 Ω
59-1 (MI-) - 5 5 (MO-)	Always	Below 1 Ω
59-5 (SLDI) - 5 (SLDI)	Always	Below 1 Ω
59-4 (MI+) - Body ground	Always	1 kΩ or higher
59-1 (MI-) - Body ground	Always	1 kΩ or higher
59-5 (SLDI) - Body ground	Always	1 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.CHECK HARNESS AND CONNECTOR (STEREO COMPONENT AMPLIFIER ASSEMBLY - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the 59 stereo component amplifier assembly connector.

b. Disconnect the 5 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
59- (MO+) - 5-1 (MI+)	Always	Below 1 Ω
59-12 (MO-) - 5-5 (MI-)	Always	Below 1 Ω
59-11 (SLDO) - 5-2 (SLDI)	Always	Below 1 Ω
59- (MO+) - Body ground	Always	1 kΩ or higher
59-12 (MO-) - Body ground	Always	1 kΩ or higher
59-11 (SLDO) - Body ground	Always	1 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY

a. Replace the stereo component amplifier assembly (Click here).

b. Clear the DTCs (Click here).

c. Recheck for DTCs and check if the same DTC is output again.

OK:
No DTCs are output.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

OK

END

DTC B15F5 A/C ECU Vehicle Information Reading/Writing Processor Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when items controlled by the A/C ECU (air conditioning amplifier assembly) cannot be customized via the navigation system vehicle customization screen.

HINT:

The A/C ECU (air conditioning amplifier assembly) controls the air conditioning system related items that are customizable via the navigation system screen.

DTC No.	DTC Detection Condition	Trouble Area
B15F5	A/C ECU (air conditioning amplifier assembly) vehicle setting processing error.	• CAN communication system • Air conditioning system • A/C ECU (air conditioning amplifier assembly) • Display and navigation module display

INSPECTION PROCEDURE

1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

HINT:

- **for LHD (Click here)**
- **for RHD (Click here)**

OK:

CAN communication DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

2.CHECK AIR CONDITIONING SYSTEM

a. Check if the air conditioning system is malfunctioning (Click here).

HINT:

Customization may not be possible depending on the malfunction in the air conditioning system.

OK:

No malfunctions are present in the air conditioning system.

NG → GO TO AIR CONDITIONING SYSTEM (Click here)

OK

3.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

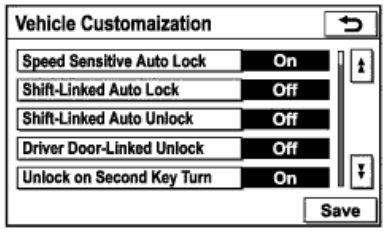
b. Make a note of the customizable items for the air conditioning system.

HINT:

These air conditioning system items shown as customizable via the navigation system vehicle customization screen can also be changed using the intelligent tester. In the following steps, the intelligent tester will be used.

i. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the air conditioning system related items that can be customized via the navigation system screen (Click here).

*1



c. Using the intelligent tester, confirm that it is possible to change the settings of the air conditioning system related customize parameters that are shown as customizable via the navigation system screen.

OK:

The items available for customization via the navigation system screen can be customized successfully using the intelligent tester.

Te t in Illustration

1	E ample

NG → REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

DTC B15A0 LAN Master Malfunction

DTC B15AD Navigation Processor Malfunction

for Preparation Click here

DESCRIPTION

These DTCs are stored when a malfunction occurs in the display and navigation module display.

DTC No.	DTC Detection Condition	Trouble Area
B15A0	When either of the conditions below is met: • Bus malfunction • Sub-microprocessor malfunction	Display and navigation module display
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.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

USE SIMULATION METHOD TO CHECK (Click here)

DTC B15F6 Main Body ECU Vehicle Information Reading/Writing Process Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when items controlled by the main body ECU cannot be customized via the navigation system vehicle customization screen.

HINT:

The main body ECU controls the items for the following systems that are customizable via the navigation system screen:

- **Power door lock control system**
- **Wireless door lock control system**
- **Lighting system**

DTC No.	DTC Detection Condition	Trouble Area
B15F6	Main body ECU vehicle setting processing error.	• CAN communication system • Power door lock control system • Wireless door lock control system • Lighting system • Main body ECU • Display and navigation module display

INSPECTION PROCEDURE

1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

HINT:

- **for LHD (Click here)**
- **for RHD (Click here)**

OK:
CAN communication DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

2.CHECK POWER DOOR LOCK CONTROL SYSTEM

a. Check if the power door lock control system is malfunctioning (Click here).

HINT:

Customization may not be possible depending on the malfunction in the power door lock control system.

OK:
No malfunctions are present in the power door lock control system.

NG → GO TO POWER DOOR LOCK CONTROL SYSTEM (Click here)

OK

3.CHECK WIRELESS DOOR LOCK CONTROL SYSTEM

a. Check if the wireless door lock control system is malfunctioning (Click here).

HINT:

Customization may not be possible depending on the malfunction in the wireless door lock control system.

OK:

No malfunctions are present in the wireless door lock control system.

NG → GO TO WIRELESS DOOR LOCK CONTROL SYSTEM (**Click here**)

OK

4.CHECK LIGHTING SYSTEM

a. Check if the lighting system is malfunctioning (Click here).

HINT:

Customization may not be possible depending on the malfunction in the lighting system.

OK:

No malfunctions are present in the lighting system.

NG → GO TO LIGHTING SYSTEM (**Click here**)

OK

5.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

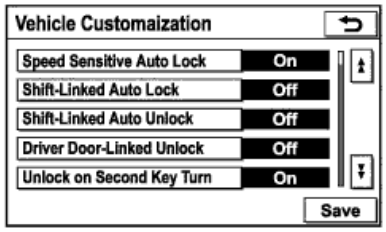
b. Make a note of the customizable items for each main body ECU related system.

HINT:

These items shown as customizable via the navigation system vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the power door lock control system related items that can be customized via the navigation system screen (Click here).

*1



ii. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the wireless door lock control system related items that can be customized via the navigation system screen (Click here).

iii. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the lighting system related items that can be customized via the navigation system screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the customize parameters that are available for customization via the navigation system screen.

OK:

The items available for customization via the navigation system screen can be customized successfully using the intelligent tester.

Text in Illustration

1	E ample:

NG → REPLACE MAIN BODY ECU

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

DTC B15A0 LAN Master Malfunction

DTC B15AD Navigation Processor Malfunction

for Preparation Click here

DESCRIPTION

These DTCs are stored when a malfunction occurs in the display and navigation module display.

DTC No.	DTC Detection Condition	Trouble Area
B15A0	When either of the conditions below is met: • Bus malfunction • Sub-microprocessor malfunction	Display and navigation module display
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.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:
No DTCs are output.

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK

USE SIMULATION METHOD TO CHECK (Click here)

DTC 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 (entry and start system) cannot be customized via the navigation system vehicle customization screen.

HINT:

The certification ECU (entry and start system) controls the items for the following systems that are customi able via the navigation system screen:

- **Entry and start system (for Entry Function)**
- **Entry and start system (for Start Function)**

DTC No.	DTC Detection Condition	Trouble Area
B15F7	Certification ECU (entry and start system) vehicle setting processing error.	• CAN communication system • Entry and start system (for entry function) • Entry and start system (for start function) • Certification ECU (entry and start system) • Display and navigation module display

INSPECTION PROCEDURE

1.CHECK CAN COMMUNICATION SYSTEM

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

HINT:

- **for LHD (Click here)**
- **for RHD (Click here)**

OK:

CAN communication DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

2.CHECK ENTRY AND START SYSTEM (for Entry Function)

a. Check if the entry and start system (for entry function) is malfunctioning (Click here).

HINT:

Customization may not be possible depending on the malfunction in the entry and start system (for entry function).

OK:

No malfunctions are present in the entry and start system (for entry function).

NG → GO TO ENTRY AND START SYSTEM (for Entry Function) (Click here)

OK

3.CHECK ENTRY AND START SYSTEM (for Start Function)

a. Check if the entry and start system (for start function) is malfunctioning (Click here).

HINT:

Customization may not be possible depending on the malfunction in the entry and start system (for start function).

OK:

No malfunctions are present in the entry and start system (for start function).

NG → GO TO ENTRY AND START SYSTEM (for Start Function) (**Click here**)

OK

4.CHECK CUSTOMIZE ITEMS

a. Display the "Vehicle Customization" screen.

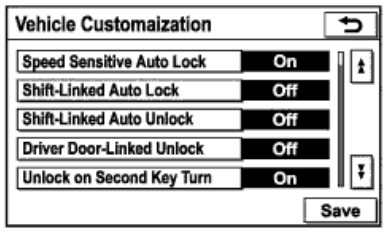
b. Make a note of the customizable items for each certification ECU related system.

HINT:

These items shown as customizable via the navigation system vehicle customization screen can also be changed using the intelligent tester. In a following step, the intelligent tester will be used.

i. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the entry and start system (for entry function) related items that can be customized via the navigation system screen (Click here).

*1



ii. To match-up the items in the navigation display with the items on the intelligent tester, check the customize parameters list for the entry and start system (for start function) related items that can be customized via the navigation system screen (Click here).

c. Using the intelligent tester, confirm that it is possible to change the settings of the customize parameters that are available for customization via the navigation system screen.

OK:

The items available for customi ation via the navigation system screen can be customi ed successfully using the intelligent tester.

Te t in Illustration

*1	E ample

NG → REPLACE SMART KEY ECU ASSEMBLY

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (**Click here**)

DTC B15B0 Display Screen Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when a malfunction occurs in the display and navigation module display.

DTC No.	DTC Detection Condition	Trouble Area
B15B0	Picture circuit (TFT unit) malfunction	Display and navigation module display

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTC and check if the same trouble occurs again.

OK:
No DTC is output.

NG → **REPLACE DISPLAY AND NA IGATION MODULE DISPLAY (Click here)**

OK

USE SIMULATION METHOD TO CHECK (Click here)

DTC U0073 Control Module Communication Bus Off

DTC U0155 Lost Communication with Combination Meter

DTC U0164 Lost Communication with A/C ECU

DTC U1110 Lost Communication with Clearance Warning ECU

for Preparation Click here

DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by display and navigation module display self check.

DTC No.	DTC Detection Condition	Trouble Area
U0073	CAN connection malfunction	CAN communication line
U0155	No communication with combination meter assembly	• Combination meter assembly • CAN communication line
U0164	No communication with A/C amplifier	• Air conditioning amplifier assembly • CAN communication line
U1110	No communication with clearance warning ECU	• Clearance warning ECU assembly • CAN communication line

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:

No DTCs are output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC B15B8 Harddisk Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when the hard disk drive which is built into the display and navigation module display has an initialization malfunction or read/write errors occur more than a specified number of times.

DTC No.	DTC Detection Condition	Trouble Area
B15B8	Hard Disk Drive (HDD) malfunction	Hard disk drive

INSPECTION PROCEDURE

1.CHECK HARD DISK DRIVE (OPERATION CHECK)

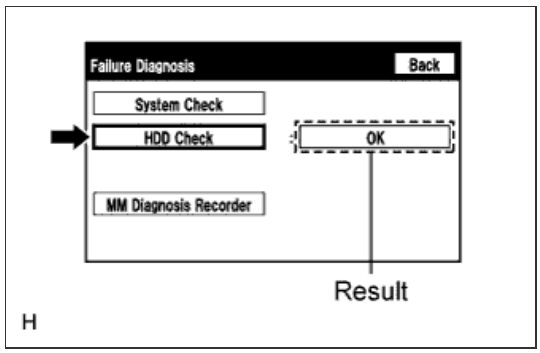
a. Enter the " ailure Diagnosis" screen. Refer to Check Hard Disk Drive in Operation Check (Click here).

b. Select "HDD Check" and check the result.

OK:
"OK" is displayed.

HINT:

After "HDD Check" is selected it may take a while until the result is displayed.



Text in Illustration

*1	Result

NG → REPLACE HARD DISK DRIVE (Click here)

OK

2.CHECK DTC

a. Clear the DTC (Click here).

b. Recheck for DTCs and check if the same DTC is output again.

OK:
No DTCs are output.

HINT:

The hard disk drive may be malfunctioning even if DTC B15B8 is not output.

NG → REPLACE HARD DISK DRIVE (Click here)

OK

USE SIMULATION METHOD TO CHECK (Click here)

DTC U0073 Control Module Communication Bus Off

DTC U0155 Lost Communication with Combination Meter

DTC U0164 Lost Communication with A/C ECU

DTC U1110 Lost Communication with Clearance Warning ECU

for Preparation Click here

DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by display and navigation module display self check.

DTC No.	DTC Detection Condition	Trouble Area
U0073	CAN connection malfunction	CAN communication line
U0155	No communication with combination meter assembly	• Combination meter assembly • CAN communication line
U0164	No communication with A/C amplifier	• Air conditioning amplifier assembly • CAN communication line
U1110	No communication with clearance warning ECU	• Clearance warning ECU assembly • CAN communication line

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:

No DTCs are output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC B15C0 Short in GPS Antenna

DTC B15C1 Open in GPS Antenna

for Preparation Click here

DESCRIPTION

These DTCs are stored when a malfunction occurs in the navigation antenna assembly.

DTC No.	DTC Detection Condition	Trouble Area
B15C0	Navigation antenna assembly error	• Wire harness • Navigation antenna assembly • Display and navigation module display
B15C1	Error of the power source to the navigation antenna assembly	

INSPECTION PROCEDURE

1.CHECK CONNECTION OF ANTENNA CABLE

a. Check if the navigation antenna cable is securely connected to the display and navigation module display.

OK:
Navigation antenna cable is securely connected.

NG → **SECURELY CONNECT NAVIGATION ANTENNA CABLE**

OK ↓

2.REPLACE NAVIGATION ANTENNA ASSEMBLY

a. Replace the navigation antenna assembly with a known good one and recheck for DTCs (Click here).

i. Clear the DTCs (Click here).

ii. Recheck for DTCs.

OK:
No DTCs are output.

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK ↓

END

DTC U0073 Control Module Communication Bus Off

DTC U0155 Lost Communication with Combination Meter

DTC U0164 Lost Communication with A/C ECU

DTC U1110 Lost Communication with Clearance Warning ECU

for Preparation Click here

DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by display and navigation module display self check.

DTC No.	DTC Detection Condition	Trouble Area
U0073	CAN connection malfunction	CAN communication line
U0155	No communication with combination meter assembly	• Combination meter assembly • CAN communication line
U0164	No communication with A/C amplifier	• Air conditioning amplifier assembly • CAN communication line
U1110	No communication with clearance warning ECU	• Clearance warning ECU assembly • CAN communication line

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:

No DTCs are output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC B15C0 Short in GPS Antenna

DTC B15C1 Open in GPS Antenna

for Preparation Click here

DESCRIPTION

These DTCs are stored when a malfunction occurs in the navigation antenna assembly.

DTC No.	DTC Detection Condition	Trouble Area
B15C0	Navigation antenna assembly error	• Wire harness • Navigation antenna assembly • Display and navigation module display
B15C1	Error of the power source to the navigation antenna assembly	

INSPECTION PROCEDURE

1.CHECK CONNECTION OF ANTENNA CABLE

a. Check if the navigation antenna cable is securely connected to the display and navigation module display.

OK:
Navigation antenna cable is securely connected.

NG → **SECURELY CONNECT NAVIGATION ANTENNA CABLE**

OK ↓

2.REPLACE NAVIGATION ANTENNA ASSEMBLY

a. Replace the navigation antenna assembly with a known good one and recheck for DTCs (Click here).

i. Clear the DTCs (Click here).

ii. Recheck for DTCs.

OK:
No DTCs are output.

NG → **REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)**

OK ↓

END

DTC U0073 Control Module Communication Bus Off

DTC U0155 Lost Communication with Combination Meter

DTC U0164 Lost Communication with A/C ECU

DTC U1110 Lost Communication with Clearance Warning ECU

for Preparation Click here

DESCRIPTION

This DTC is stored when a CAN communication circuit malfunction is detected by display and navigation module display self check.

DTC No.	DTC Detection Condition	Trouble Area
U0073	CAN connection malfunction	CAN communication line
U0155	No communication with combination meter assembly	• Combination meter assembly • CAN communication line
U0164	No communication with A/C amplifier	• Air conditioning amplifier assembly • CAN communication line
U1110	No communication with clearance warning ECU	• Clearance warning ECU assembly • CAN communication line

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear the DTCs (Click here).

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

OK:

No DTCs are output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

for Preparation Click here

INSPECTION PROCEDURE

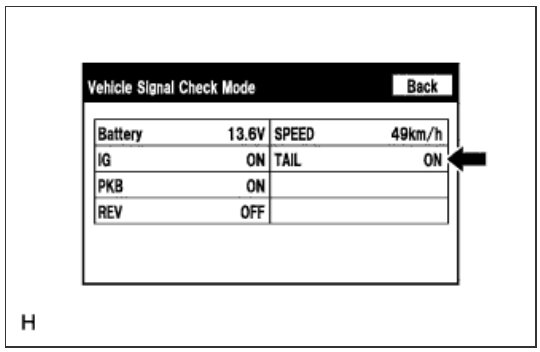
1.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Cover the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to activate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.



OK:

Light Control Switch Condition	Display Condition
TAIL or HEAD	ON
OFF	OFF

HINT:

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

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

OK → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK IMAGE QUALITY SETTING

a. Enter the display adjustment screen by pressing the "DISP" switch.

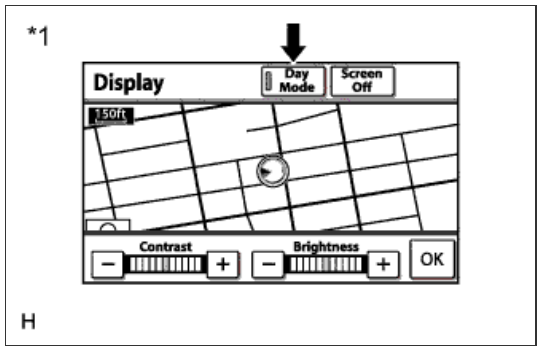
b. Turn the light control switch to the tail position.

c. Check if "Day Mode" on the display adjustment is on.

OK:
"Day Mode" is on.

Text in Illustration

*1	Example:



NG → Go to step 2

OK →

TURN "Day Mode" SETTING OFF

2.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the " ehicle Signal Check Mode" screen. Refer to Check ehicle Signal in Operation Check (Click here).

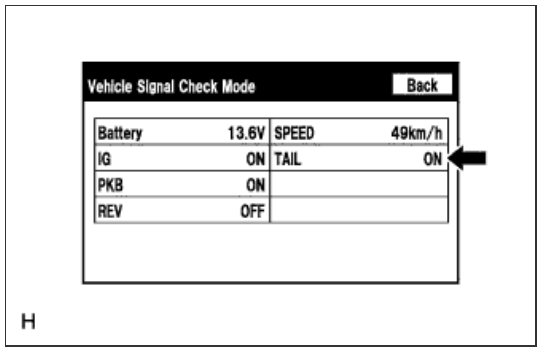
b. Co er the automatic light control sensor on the instrument panel with a cloth.

c. Set the instrument panel light control to less than the maximum (to acti ate the dimmer function that works when the light control switch is in the TAIL position).

d. Check that the display changes between ON and OFF according to the light control switch operation.

OK:

Light Control Switch Condition	Display Condition
TAIL or HEAD	ON
OFF	OFF



HINT:

This display is updated once per second. As a result it is normal for the display to lag behind the actual switch operation.

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

OK →

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK PANEL SWITCH

a. Check for foreign matter around the switches that might prevent operation.

OK:
No foreign matter is found.

NG → REMOVE ANY FOREIGN MATTER FOUND

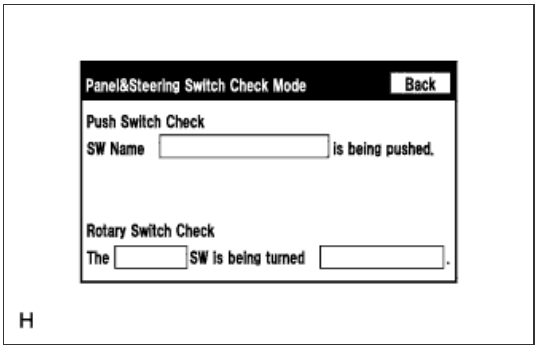
OK ↓

2.CHECK PANEL SWITCH (OPERATION CHECK)

a. Enter the "Panel & Steering Switch Check Mode" screen. Refer to Check Panel & Steering Switch in Operation Check (Click here).

b. Operate the abnormal switch and check if the switch name and status are correctly displayed.

OK:
The switch name and status are correctly displayed as operated.



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

OK ↓

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK TOUCH PANEL

a. Check for foreign matter on the display.

OK:
The display is clean.

NG → CLEAN DISPLAY AND RECHECK TOUCH PANEL

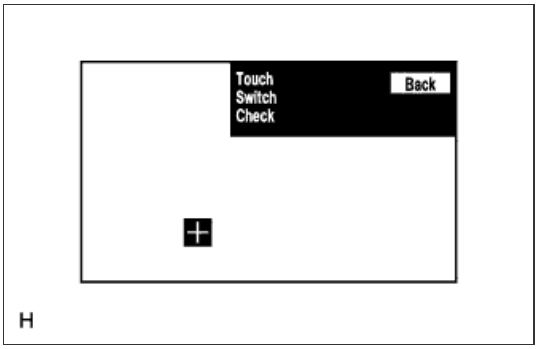
OK

2.CHECK TOUCH SWITCH (OPERATION CHECK)

a. Enter the "Touch Switch Check" screen. Refer to Check Touch Switch in Operation Check (Click here).

b. Touch the display in the area where the switch malfunction occurs.

OK:
A "+" ark appears at the touched position.



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

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK DISPLAY SETTING

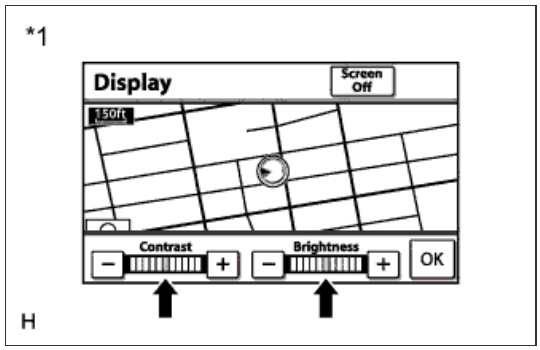
a. Enter the display adjustment screen by pressing the "DISP" switch.

b. Reset display settings (contrast, brightness) and check that the screen appears normal.

OK:
The display returns to normal.

Text in Illustration

*1	Example:



NG → Go to step 2

OK →

END

2.CHECK CABIN

a. Check that the temperature in the cabin is neither -2 (-4) or lower nor 65 (149) or higher.

HINT:

he na igation system may not operate normally when the temperature is -2 (-4) or lower, or 65 (149) or higher.

OK:
Temperature in the cabin is between -20°C (-4°F) and 65°C (149°F).

NG → SET CABIN TO APPROPRIATE TEMPERATURE

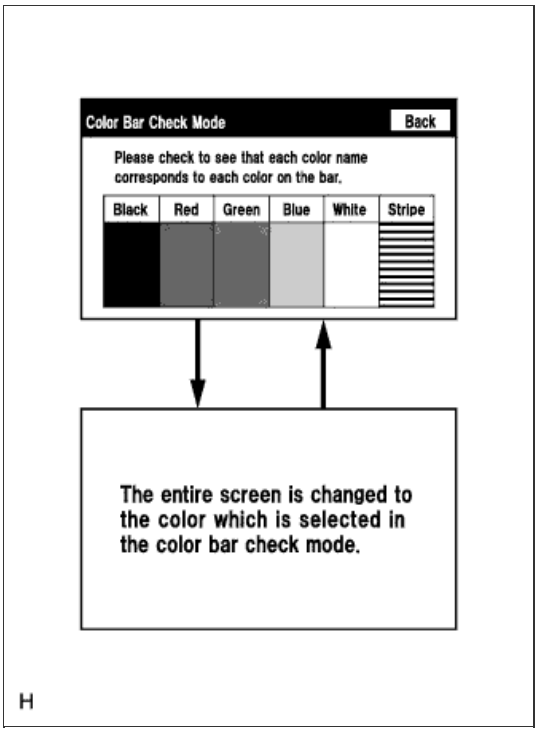
OK →

3.CHECK COLOR BAR (OPERATION CHECK)

a. Enter the "Color Bar Check Mode" screen. Re er to Check Color Bar in peration Check (Click here).

b. Check that the color bars match the displayed names.

OK:
Color bars match the displayed names.



NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

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

for Preparation Click here

INSPECTION PROCEDURE

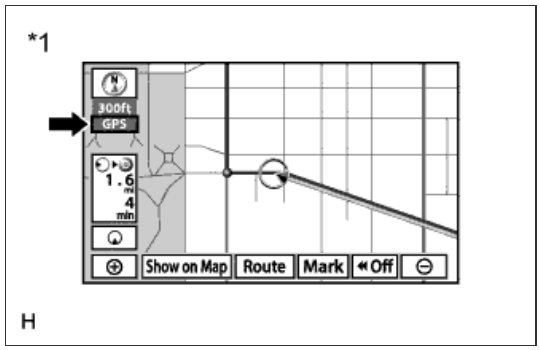
1.CHECK GPS MARK

a. Check that the GPS mark is displayed.

OK:
GPS mark is displayed.

Text in Illustration

*1	Example:



NG → GO TO "GPS MARK IS NOT DISPLAYED" IN PROBLEM SYMPTOMS TABLE (Click here)

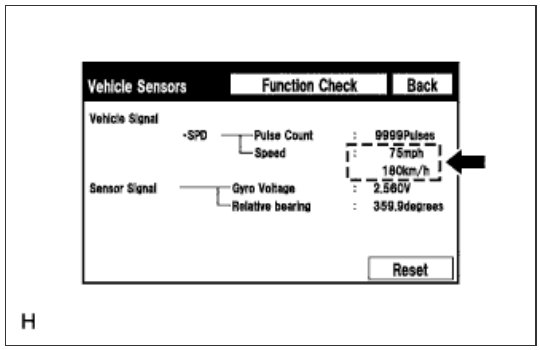
OK

2.CHECK VEHICLE SENSOR (OPERATION CHECK)

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check that these readings are almost equal.

OK:
The readings are almost equal.



NG → CHECK DTC OUTPUT (Click here)

OK

3.CHECK VEHICLE SIGNAL (OPERATION CHECK)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Check that the display changes between ON and OFF according to the shift lever operation.

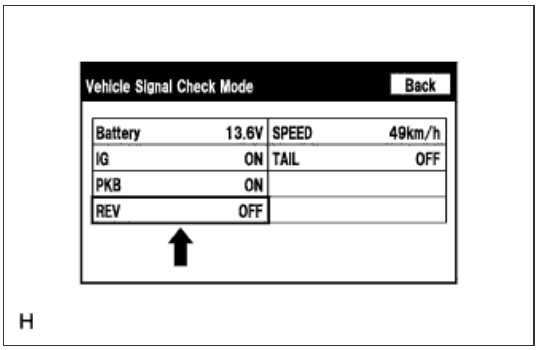
OK:

Shift Lever Position	Display
except R	OFF
R	ON

HINT:

The display is updated once per second. It is normal for the display to lag

behind the actual switch operation.



NG → CHECK DTC OUTPUT (Click here)

OK

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

for Preparation Click here

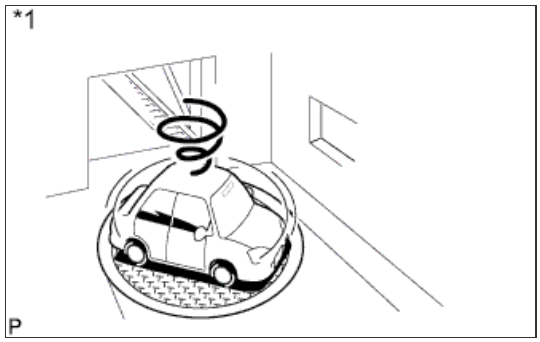
INSPECTION PROCEDURE

1.CHECK CONDITION

a. Check with the customer if the vehicle has been turned by a turntable.

OK:

Vehicle has not been turned by turntable.



Text in Illustration

*1	Example:

HINT:

If the vehicle is turned on a turntable with the engine switch on (IG), the system may store the angular velocity. As a result, the vehicle position cursor may deviate.

NG → TURN ENGINE SWITCH ON (IG) WHEN VEHICLE IS COMPLETELY STOPPED

OK

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

for Preparation Click here

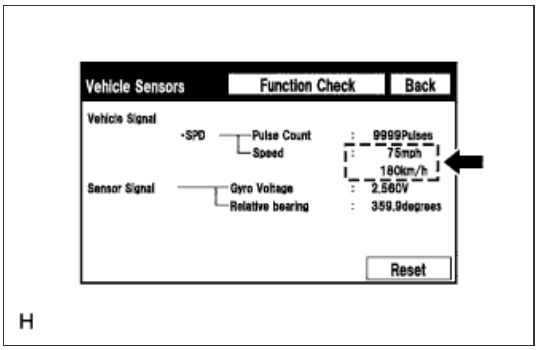
INSPECTION PROCEDURE

1.CHECK VEHICLE SENSOR (OPERATION CHECK)

a. Enter the "Vehicle Sensors" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check if these readings are almost equal.

OK:
The readings are almost equal.



NG → CHECK DTC OUTPUT (Click here)

OK

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

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK CABIN

a. Check the cabin for any object that might interrupt radio reception on the instrument panel. If such an object exists, remove it and check if the GPS mark reappears.

HINT:

The GPS uses extremely faint radio waves originating from satellites. If the signal is interrupted by obstructions or other radio waves, the GPS may not be able to properly receive the signal.

OK:
The GPS mark appears.

NG → Go to step 2

OK

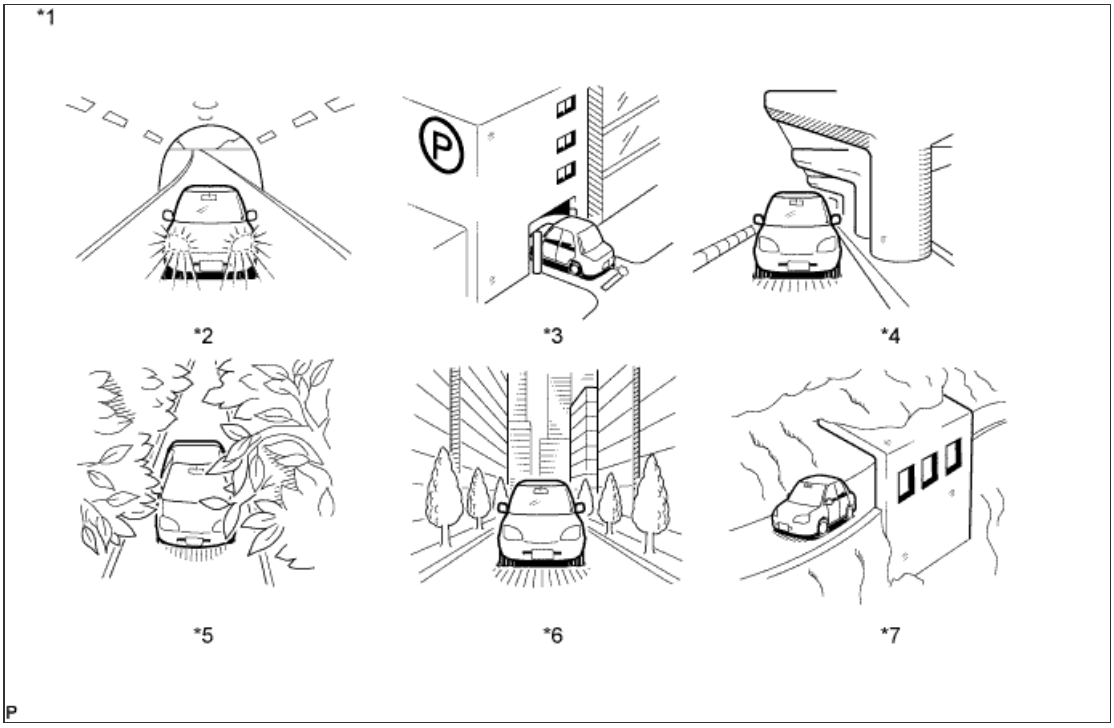
NORMAL OPERATION

2.CHECK SURROUNDINGS

a. Check if the vehicle is in a location where GPS signal reception is poor. If the vehicle is in such a place, relocate the vehicle and check if the GPS mark reappears.

HINT:

The GPS uses 24 satellites in 6 orbits. At any point in time, 4 satellites should be able to pinpoint your vehicle. However, GPS signals may not reach the vehicle due to influence from the surroundings, vehicle direction and time. For examples, see the following illustration.



Text in Illustration

*1	Example	*2	In a tunnel
*3	In a building	*4	Under an overpass
*5	On a forest or tree-lined path	*6	Between tall buildings

*7	Under a cliff or overhang			

OK:
The GPS mark is displayed.

NG → Go to step 3

OK

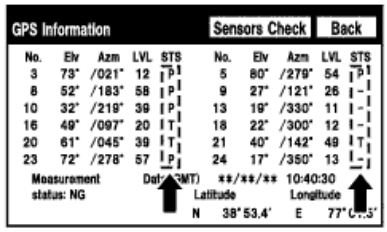
SYSTEM RETURNS TO NORMAL

3.CHECK GPS INFORMATION (OPERATION CHECK)

a. Enter the "GPS Information" screen. Refer to Check GPS & Vehicle Sensors in Operation Check (Click here).

b. Check how many of the following codes appear in the "STS" column.

OK:
At least 3 codes appear.



H

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

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK NAVIGATION SETTING

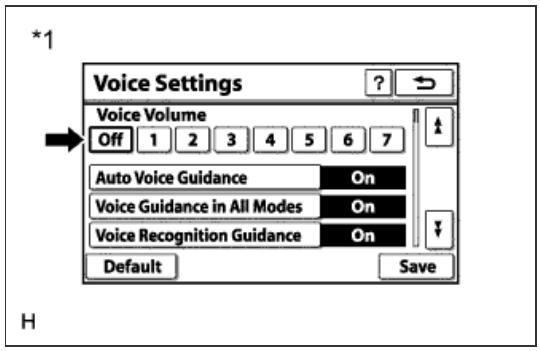
a. Display the "Voice Settings" screen.

b. Check that "Voice Volume" is not "Off".

OK:
Voice volume is not "Off".

Text in Illustration

*1	Example:



NG → SELECT VOICE VOLUME SETTING OTHER THAN "Off"

OK

2.CHECK NAVIGATION SETTING

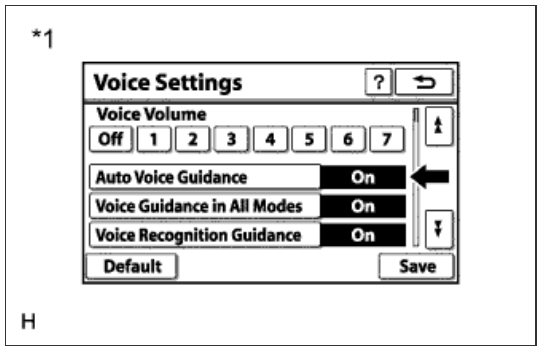
a. Display the "Voice Settings" screen.

b. Check that "Auto Voice Guidance" is not "Off".

OK:
Auto voice guidance is not "Off".

Text in Illustration

*1	Example:



NG → TURN AUTO VOICE GUIDANCE "On"

OK

3.CHECK NAVIGATION SETTING

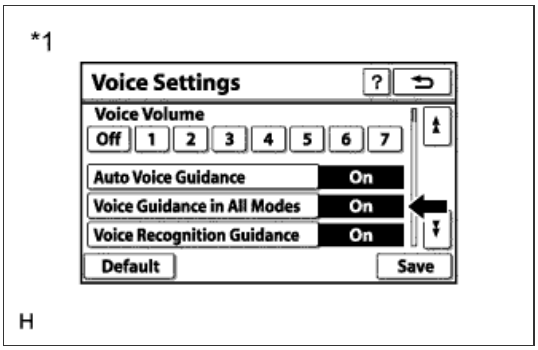
a. Display the "Voice Settings" screen.

b. Check that "Voice Guidance in All Modes" is not "Off".

OK:
Voice guidance in all modes is not "Off".

Text in Illustration

*1	Example:



NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

4.CHECK AUDIO FUNCTION

a. Check that audio sound can be heard from the driver side speaker.

OK:
Sound can be heard from the audio s stem.

NG → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PRO LEM SYMPTOMS TA LE (Click here)

OK

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK CON IRM SYMPTOMS

a. Confirm the information about the situation when the route calculation did not complete.

Re ult

Result	Proceed to
Route cannot be calculated for any destination.	A
A road in the route is closed or has not been officially opened yet.	B
A ferry crossing is included in the route.	B
The destination is too close.	B
The route cannot be calculated only when driving on a bumpy road.	B

HINT:

A route cannot be calculated if the route is unavailable, a ferry crossing is included in the route, the destination is too close or when driving on bumpy roads.

B → NORMAL OPERATION

A

2.REPLACE HARD DISK DRIVE

a. Replace the hard disk drive (Click here).

b. Set another destination and check if the system can calculate the route correctly.

OK:
Route can be correctly calculated.

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

OK

END

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK CONDITION

a. Check if the system voice recognition level is low when recognizing a particular voice.

Result

Result	Proceed to
System voice recognition level is low with any voice.	A
System voice recognition level is low only for a particular voice.	B

HINT:

System voice recognition level varies depending on voice and pronunciation. This is not a malfunction.

B → END

A

2.CHECK MICROPHONE AND VOICE RECOGNITION (OPERATION CHECK)

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

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

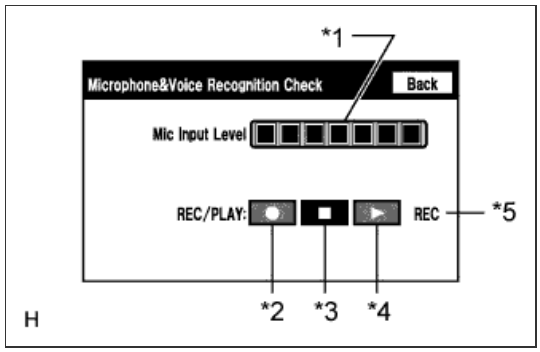
c. Push the recording switch and perform voice recording.

HINT:

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

OK:
All check results are normal.



Text in Illustration

*1	Microphone Input Level Meter
*2	Recording Switch
*3	Stop Switch
*4	Play Switch
*5	Recording Indicator

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

OK

3.REPLACE HARD DISK DRIVE

a. Replace the hard disk drive (Click here).

b. Check that voice recognition is normal.

OK:
Voice can be recognized normally.

NG

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

END

for Preparation Click here

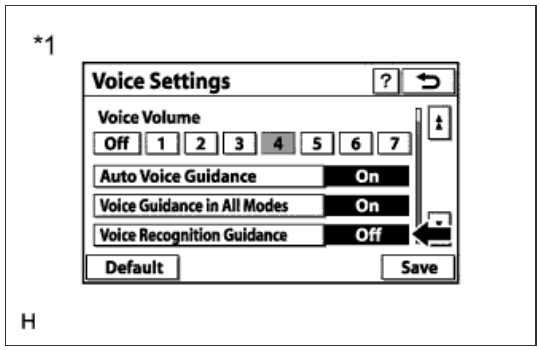
INSPECTION PROCEDURE

1.CHECK NAVIGATION SETTING

a. Display the "Voice Settings" screen.

b. Check that "Voice Recognition Guidance" is not "Off".

OK:
"Voice Recognition Guidance" is not "Off".



Text in Illustration

*1	Example:

NG → TURN VOICE RECOGNITION GUIDANCE "On"

OK

2.CHECK MICROPHONE AND VOICE RECOGNITION (OPERATION CHECK)

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

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

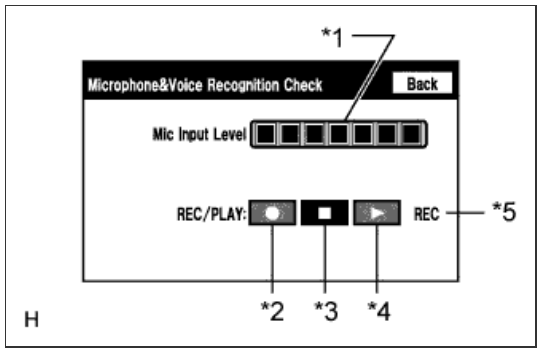
c. Push the recording switch and perform voice recording.

HINT:

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

OK:
All check results are normal.



Text in Illustration

*1	Microphone Input Level Meter
*2	Recording Switch
*3	Stop Switch
*4	Play Switch
*5	Recording Indicator

NG → PROCEED TO NEXT SUSPECTED AREA SHO NN PROBLEM SYMPTOMS TABLE (Click here)

OK

3.REPLACE HARD DISK DRIVE

a. Replace the hard disk drive (Click here).

b. Check that voice recognition is normal.

OK:

Voice can be recognized normall .

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

END

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK CURRENT CONDITIONS

a. Proceed to the next step according to the table below.

Result

Result	Proceed to
Another "Bluetooth" compatible cellular phone is present.	A
Another "Bluetooth" compatible vehicle is present.	B
None of the above	C

B → Go to step 3

C → Go to step 4

A

2.CHECK USING ANOTHER CELLULAR PHONE

a. Check if the system functions using another "Bluetooth" compatible cellular phone.

HINT:

- **Confirm that either the same or a different version of another "Bluetooth" compatible cellular phone complies with the system.**
- **Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.**

OK:
The system functions.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

USE A "Bluetooth" COMPATIBLE CELLULAR PHONE

3.CHECK USING ANOTHER "Bluetooth" COMPATIBLE VEHICLE

a. Register the cellular phone with another vehicle and check if the system functions normally.

HINT:

Depending on the version, some "Bluetooth" compatible cellular phones cannot be used.

OK:
The system functions.

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

4.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

HINT:

Some versions of "Bluetooth" compatible cellular phones may not function.

OK:

The phone is Bluetooth" compatible.

NG → USE A "Bluetooth" COMPATIBLE CELLULAR PHONE

OK ↓

5.CHECK CELLULAR PHONE

a. Check if a call can be made from the cellular phone.

HINT:

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

OK:

A call can be made from the cellular phone.

NG → REPAIR OR REPLACE CELLULAR PHONE

OK ↓

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK "Bluetooth" SETTINGS

a. Check if the "Bluetooth" settings are correct.

OK:
"Bluetooth" settings are correct.

NG → SET SETTINGS CORRECTLY

OK

2.CHECK CELLULAR PHONE

a. Check if the cellular phone is "Bluetooth" compatible.

HINT:

Some versions of "Bluetooth" compatible cellular phones may not function.

OK:
The phone is "Bluetooth" compatible.

NG → END (ONLY A "Bluetooth" COMPATIBLE CELLULAR PHONE CAN BE USED)

OK

3.CHECK SETTINGS

a. Check if the cellular phone functions.

HINT:

The cellular phone is unable to call under any of the following conditions:

- **The cellular phone is locked.**
- **The directory is being transferred.**
- **The line is crossed.**
- **Outside service range**
- **The power is off.**
- **The cellular phone is not connected to "Bluetooth" ("BT" is displayed while connected).**

OK:
None of the above conditions exist.

NG → SET SETTINGS CORRECTLY

OK

4.CHECK CELLULAR PHONE

a. Check if the cellular phone can make a call.

HINT:

When the battery is low, calls cannot be made or received.

OK:
Cellular phone can make a call.

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

5.CHECK RECEPTION

a. Set the cellular phone so that it can receive calls.

b. Place the cellular phone close to the radio receiver assembly.

c. Check if the cellular phone has reception according to the radio receiver assembly.

OK:
The cellular phone has reception.

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

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

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK SURROUNDING CONDITIONS

a. Check if the cellular phone can make calls in a certain place.

OK:
It can ake calls.

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

OK

2.CHECK RECEPTION

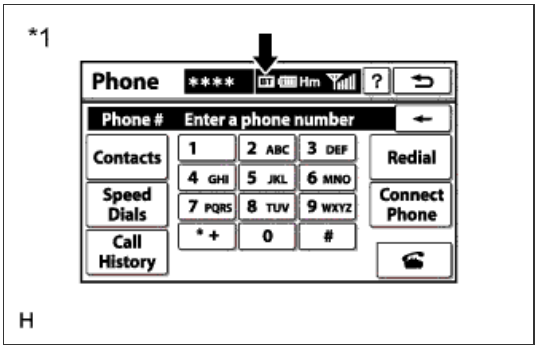
a. Display the "Phone" screen and check the "Bluetooth" connection indicator ("BT" indicator).

Text in Illustration

*1	Example:

Result

Result	Proceed to
"BT" indicator color is yellow.	A
"BT" indicator color is blue.	B
No connection mark is displayed.	C



B → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

C → SELECT A REGISTERED CELLULAR PHONE OR REGISTER "Bluetooth" COMPATIBLE PHONE

A

MOVE CELLULAR PHONE TO LOCATION WHERE "BT" MARK TURNS BLUE

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK CELLULAR PHONE

a. Check if the voice on the other side can be heard using a cellular phone.

OK:
Voice can be heard.

NG → REPAIR OR REPLACE CELLULAR PHONE

OK

2.CHECK NAVIGATION SYSTEM

a. Check that navigation sound can be heard from the driver side speaker.

OK:
Sound can be heard from the audio system.

NG → GO TO "VOICE GUIDANCE DOES NOT FUNCTION" IN PROBLEM SYMPTOMS TABLE (Click here)

OK

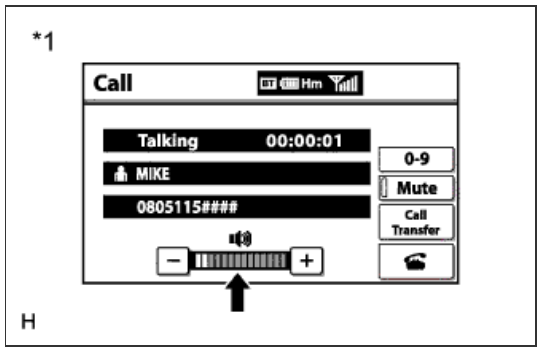
3.CHECK SETTINGS

a. Check if the volume level is set to low on the "Call" screen.

OK:
The level is not set low.

Text in Illustration

*1	Example:



NG → SET VOLUME TO HIGH

OK

4.CHECK SETTINGS (OPERATION CHECK)

a. Enter the "Hands-free Volume Setting" screen. Refer to Check Hands-free Volume Setting in Operation Check (Click here).

b. Check if the receive voice level is set to "0".

HINT:

The receive voice level can be set to 11 different levels, -5 to +5, with a 3 dB difference.

c. Check if the receive voice level is set to the minimum or maximum level.

HINT:

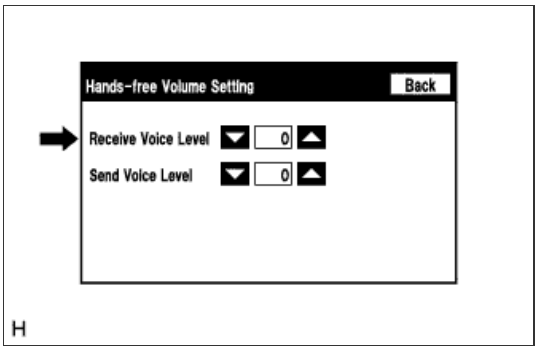
When the receive voice level is set to the minimum or maximum level, the sound may be distorted.

NOTICE:

"Voice Quality Type" should not be changed.

OK:

The receive voice level is set to "0".



NG → SET RECEIVE VOICE LEVEL TO "0"

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

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK CELLULAR PHONE

a. Check if the other caller can hear your voice correctly.

OK:
Your voice can be heard correctly.

NG → REPLACE CELLULAR PHONE

OK ↓

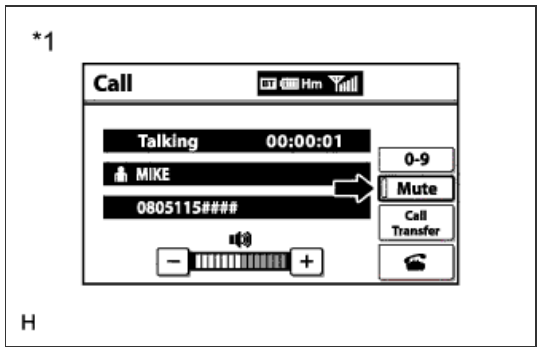
2.CHECK SETTINGS

a. Check if the mute switch is set to on.

OK:
Mute switch is not set to on.

Text in Illustration

*1	Example:



NG → TURN MUTE SWITCH OFF

OK ↓

3.CHECK SETTINGS (OPERATION CHECK)

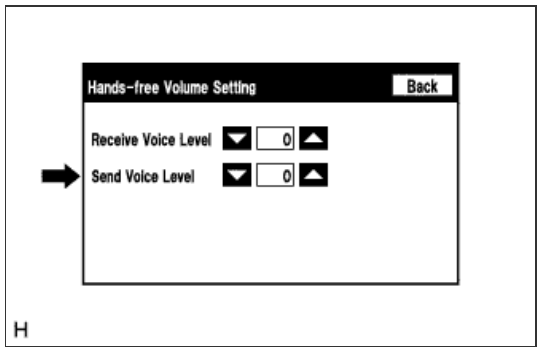
a. Enter the "Hand-free Volume Setting" screen. Refer to "Check Hands-free Volume Setting" in Operation Check (Click here).

b. Adjust "Send Voice Level" and check that the other caller an hear your voice.

HINT:

- **Ad ustin Snd Voice Level ay deteriorate the sound uality.**
- **The Snd Voice Level can be set to 1 different levels, to .**

OK:
Malfunction disappears.



NG → Go to step 4

OK ↓

END

4.CHECK MICROPHONE (OPERATION CHECK)

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

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

c. Push the recording switch and perform voice recording.

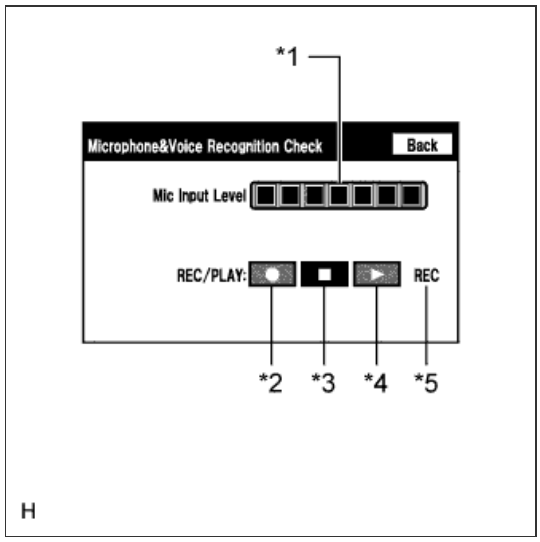
HINT:

Voice can be recorded up to 5 seconds.

d. Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

OK:

All check results are nor al.



H

Text in Illustration

*1	Microphone Input Level Meter
*2	Recording Switch
*3	Stop Switch
*4	Play Switch
*5	Recording Indicator

NG → PROCEED TO NE T SSPECTED AREA SHOWN IN PRO LEM SYMPTOMS TA LE (Click here)

OK ↓

.REPLACE RADIO RECEIVER ASSEM LY

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

b. Check symptoms again.

OK:

The other caller can hear your voice loud enou h without noise or distortion.

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK ↓

END

for Preparation Click here

INSPECTION PROCEDURE

1.CHECK DISPLAY SETTING

a. Check that the display is not in "Screen Off" mode.

OK:
The display setting is not in "Screen Off" mode.

NG → CHANGE SCREEN TO "Screen On" MODE

OK

2.CHECK IMAGE QUALITY SETTING

a. Check that the screen color quality can be set.

OK:
Setting is possible.

NG → Go to step 3

OK

PRESS PANEL SWITCH "DISPLAY" AND SET SCREEN COLOR QUALITY TO NORMAL

3.CHECK CABIN

a. Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely lo in the cabin.

HINT:

- **A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may cause a short circuit.**
- **The navigation system may not operate normally when the temperature is -20°C (-4°F) or lower, or 65°C (149°F) or higher.**

OK:
Condensation is not likely being produced and the temperature is not high or extremely low.

NG → SET CABIN TO APPROPRIATE TEMPERATURE

OK

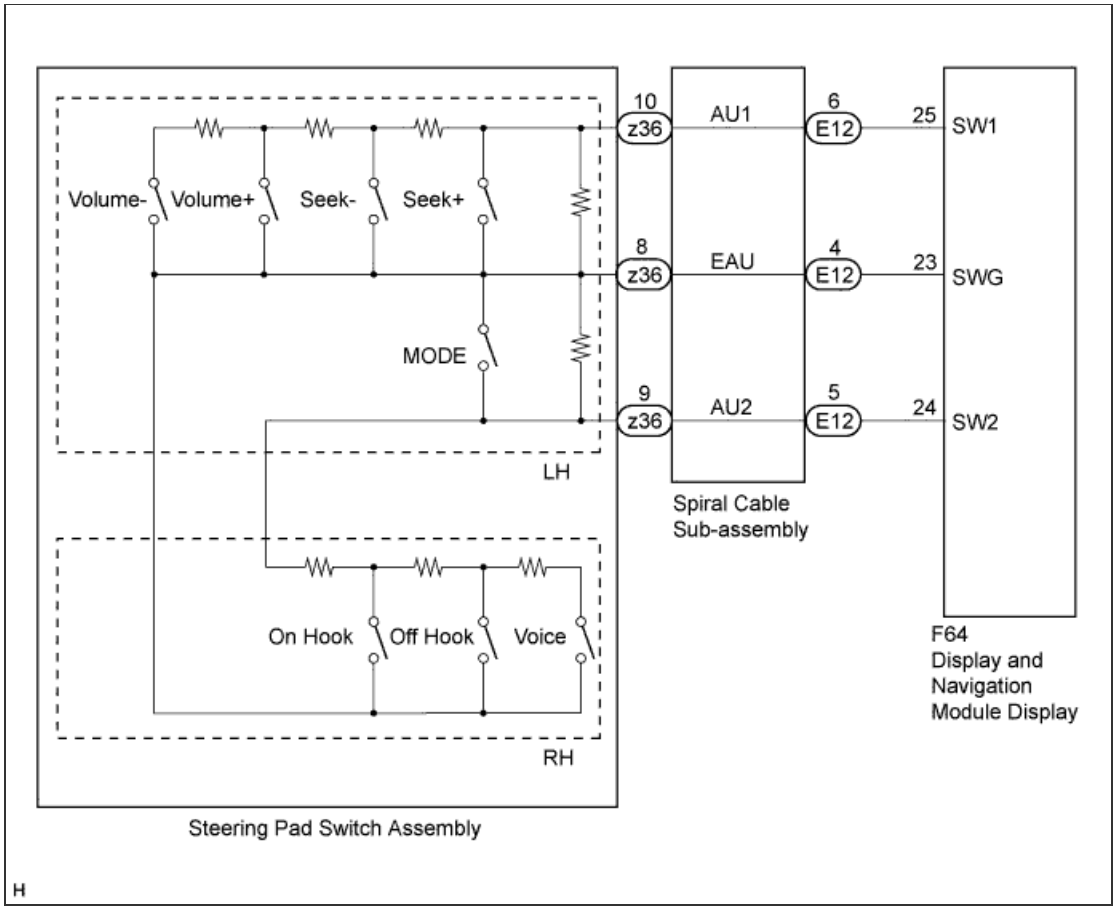
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This circuit sends an operation signal from the steering pad switch assembly to the display and navigation module display.
If there is an open in the circuit, the navigation system cannot be operated using the steering pad switch assembly.
If there is a short in the circuit, the resulting condition is the same as to if the switch were continuously pressed. Therefore, the display and navigation module display cannot be operated using the steering pad switch assembly, and the display and navigation module display itself cannot function.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

The vehicle is equipped with an Supplemental Restraint System (SRS). Before servicing (including removal or installation of parts), be sure to read the precaution for Supplemental Restraint System (Click here).

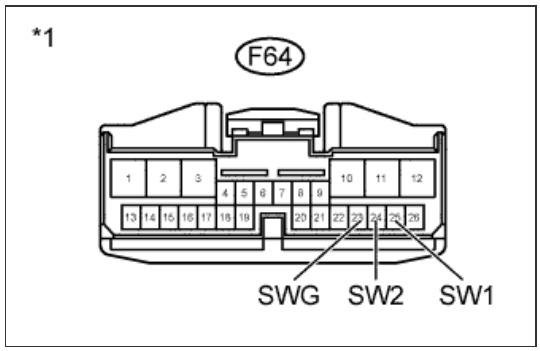
1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Disconnect the F64 display and navigation module display connector.

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
F64-25 (SW1) - F64-23 (SWG)	No switch pushed	to 105 kΩ
F64-25 (SW1) - F64-23 (SWG)	Seek switch pushed	Below 2.5 Ω
F64-25 (SW1) -	Seek- switch	312 to 345 Ω



F64-23 (SWG)	pushed	
F64-25 (SW1) - F64-23 (SWG)	olume switch pushed	to 1050 Ω
F64-25 (SW1) - F64-23 (SWG)	olume- switch pushed	2 to 3265 Ω
F64-24 (SW2) - F64-23 (SWG)	No switch pushed	to 105 kΩ
F64-24 (SW2) - F64-23 (SWG)	M D switch pushed	Below 2.5 Ω
F64-24 (SW2) - F64-23 (SWG)	oice switch pushed	2 to 3265 Ω
F64-24 (SW2) - F64-23 (SWG)	n Hook switch pushed	312 to 345 Ω
F64-24 (SW2) - F64-23 (SWG)	ff Hook switch pushed	to 1050 Ω

Text in Illustration

*1	Front view of wire harness connector (to Display and Navigation Module Display)

NG → Go to step 2

OK

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

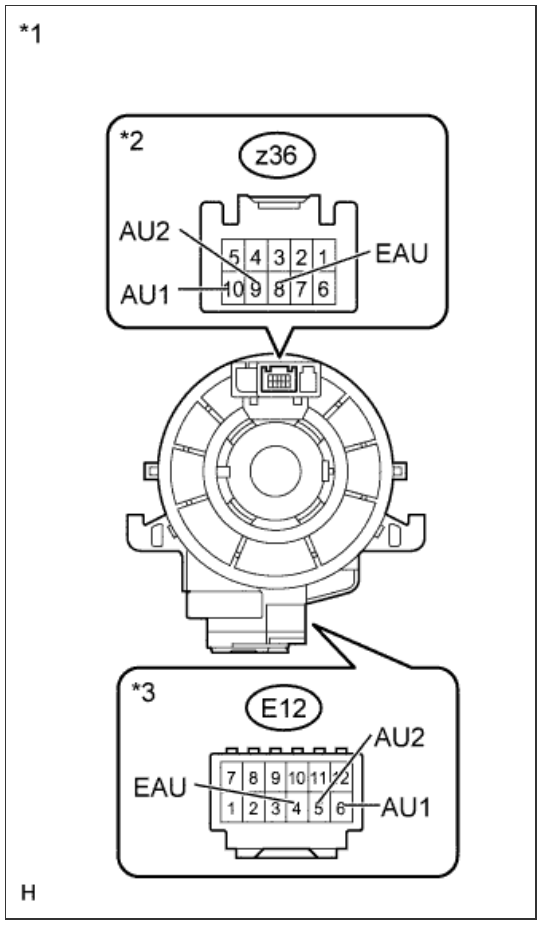
2.INSPECT SPIRAL CABLE SUB-ASSEMBLY

a. Disconnect the 36 and 12 steering pad switch and spiral cable sub-assembly connectors.

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

Standard Resistance:

Tester Connection	Condition	Specified Condition
36- ( ) - 12-4 ( )	Center	Below 1 Ω
	2.5 rotations to the left	
	2.5 rotations to the right	
36-10 (1) - 12-6 (1)	Center	Below 1 Ω
	2.5 rotations to the left	
	2.5 rotations to the right	
36- (2) - 12-5 (2)	Center	Below 1 Ω
	2.5 rotations to the left	
	2.5 rotations to the right	



NOTICE:

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Refer to the pages shown in the brackets.

HINT:

- **Removal (Click here)**
- **Installation (Click here)**

Text in Illustration

*1	Component without harness connected

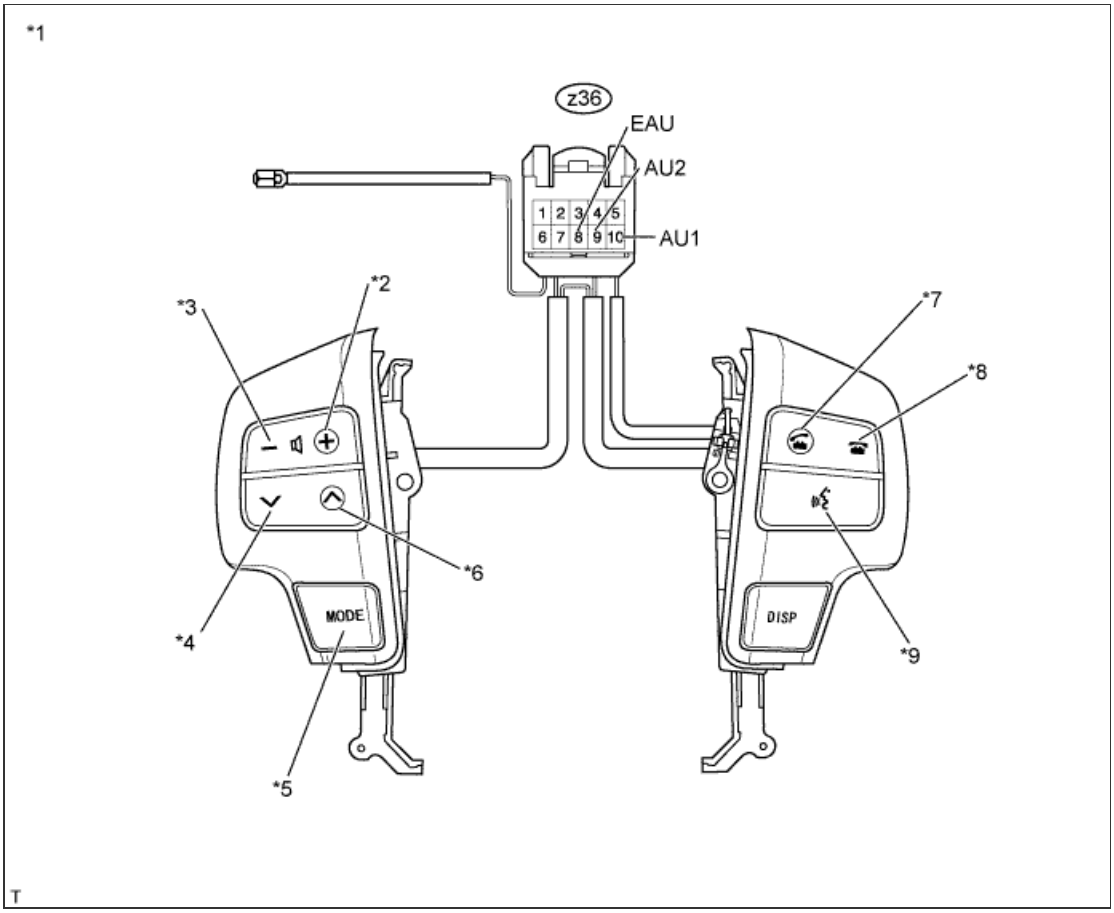
	(Spiral Cable Sub-assembly)
*2	Steering Pad Switch Side
*3	ehicle Side

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

OK

3.INSPECT STEERING PAD SWITCH ASSEMBLY

a. Disconnect the 36 steering pad switch assembly connector.



Text in Illustration

*1	Component without harness connected (Steering Pad Switch ssembly)	*2	olume
3	olume-	*4	Seek-
*5	M D	6	Seek
	ff Hook	*	n Hook
*		-	-

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

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
36-10 (1) - 36- ( )	No switch pushed	to 105 kΩ
36-10 (1) - 36- ( )	Seek switch pushed	Below 2.5 Ω
36-10 (1) - 36- ( )	Seek- switch pushed	312 to 345 Ω

36-10 (1) - 36- ( )	olume switch pushed	to 1050 Ω
36-10 (1) - 36- ( )	olume- switch pushed	2 to 3265 Ω
36- (2) - 36- ( )	No switch pushed	to 105 kΩ
36- (2) - 36- ( )	M D switch pushed	Below 2.5 Ω
36- (2) - 36- ( )	oice switch pushed	2 to 3265 Ω
36- (2) - 36- ( )	n Hook switch pushed	312 to 345 Ω
36- (2) - 36- ( )	ff Hook switch pushed	to 1050 Ω

NG → REPLACE STEERING PAD SWITCH ASSEMBLY (Click here)

OK

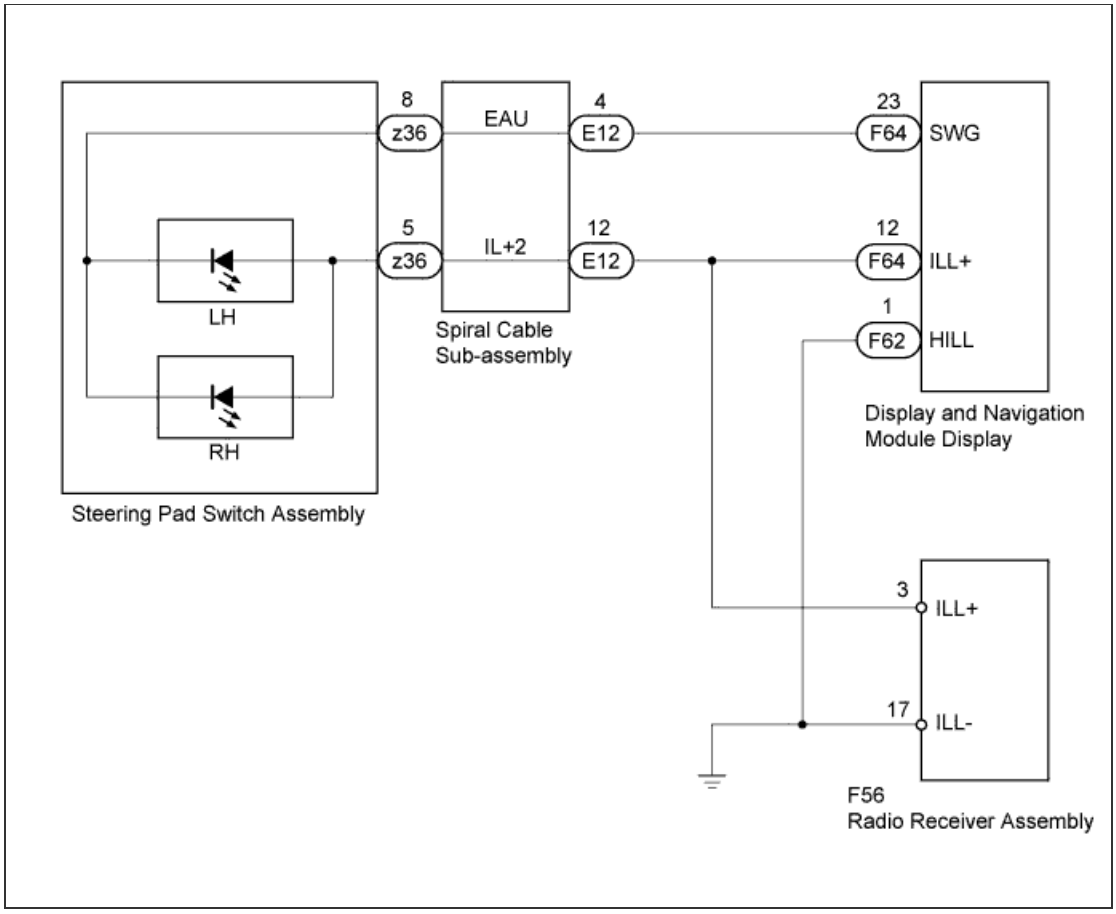
REPAIR OR REPLACE HARNESS OR CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - SPIRAL CABLE)

for Preparation Click here

DESCRIPTION

Power is supplied to the display and navigation module display, radio receiver assembly and steering pad switch assembly illumination when the light control switch is in the TAIL or HEAD position.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the Precaution in the Supplemental Restraint System (Click here).

1.CHECK ILLUMINATION

a. Check if the illumination for the display and navigation module display, steering pad switch, glove box light, cigarette lighter, or other parts (seat heater switch, front seat memory switch, etc.) comes on when the light control switch is turned to the HEAD or TAIL position.

Result

Result	Proceed to
Illumination comes on for all components except steering pad switch assembly.	A
Illumination comes on for all components except radio receiver assembly.	B
Illumination comes on for all components except display and navigation module display.	C
No illumination comes on for all components.	D

B	Go to step 6
C	Go to step 7

D

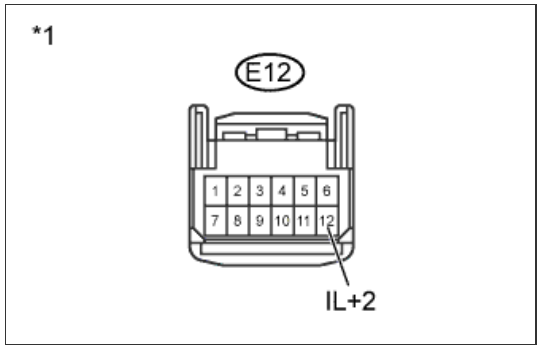
GO TO LIGHTING SYSTEM (Click here)

A

2.CHECK HARNESS AND CONNECTOR (BATTERY - SPIRAL CABLE SUB-ASSEMBLY)

a. Disconnect the E12 spiral cable sub-assembly connector.

b. Measure the voltage according to the value(s) in the table below.



Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
E12-12 (IL+2) - Body ground	Light control switch in tail or head	11 to 14

Text in Illustration

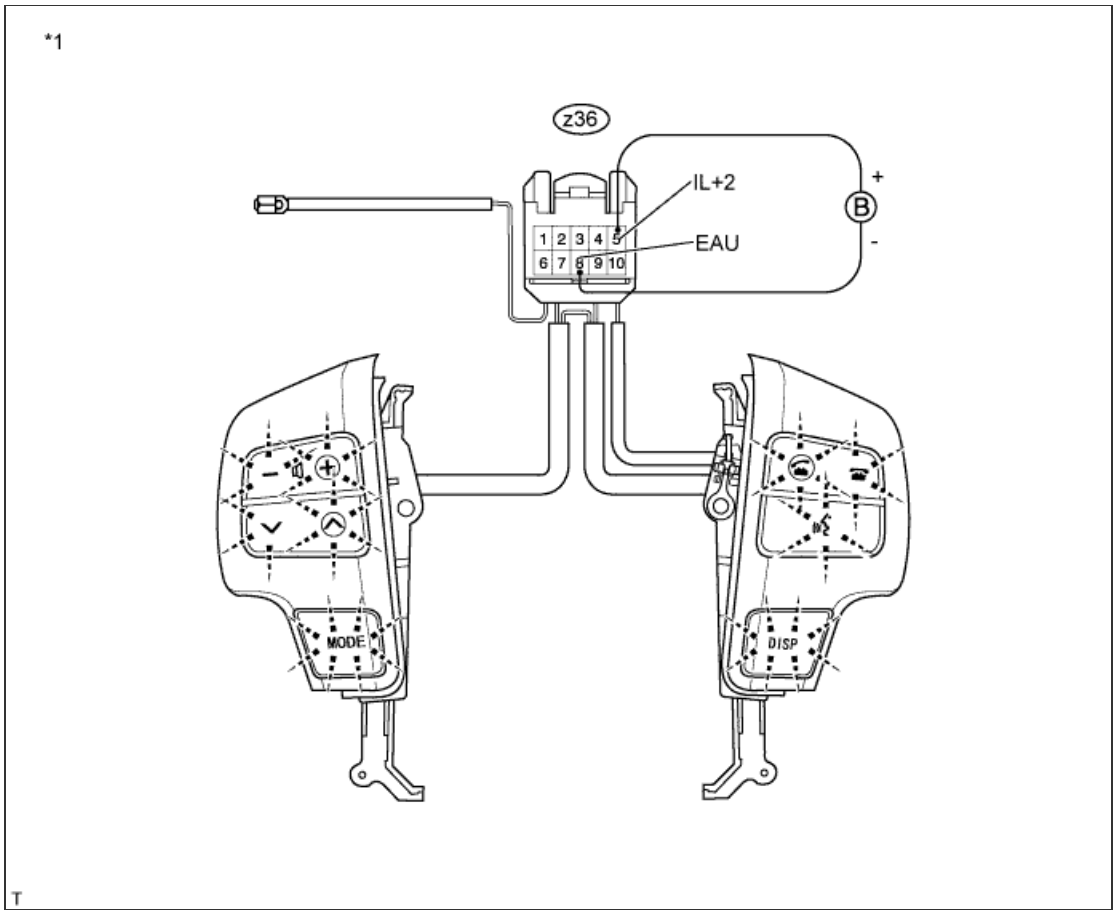
1	ront view of wire harness connector (to Spiral Cable Sub-assembly)

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT STEERING PAD SWITCH ASSEMBLY



Text in Illustration

*1	Component without harness connected (Steering Pad Switch Assembly)	-	-

a. Disconnect the steering pad switch assembly connector.

b. Connect a positive (+) lead from the battery to terminal (IL+2) and a negative (-) lead from the battery to terminal (EA) of the steering pad switch assembly connector.

c. Check if the illumination for the steering pad switch assembly comes on.

OK:

Illumination for the steering pad switch assembly comes on.

NG → REPLACE STEERING PAD SWITCH ASSEMBLY (Click here)

OK

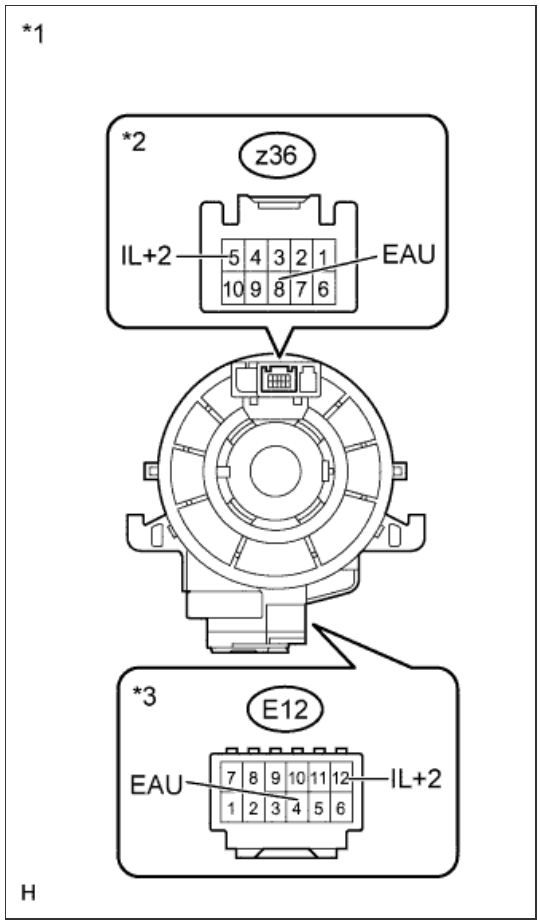
4.INSPECT SPIRAL CABLE SUB-ASSEMBLY

a. Disconnect the and E12 steering pad switch assembly connectors.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
- (IL+2) - E12-12 (IL+2)	Center	Below 1 Ω
	2. rotations to the left	
	2. rotations to the right	
- (EA) - E12-4 (EA)	Center	Below 1 Ω
	2. rotations to the left	
	2. rotations to the right	



Text in Illustration

*1	Component without harness connected (Spiral Cable Sub-assembly)
*2	Steering Pad Switch Side
*	ehicle Side

NOTICE:

The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the Precaution for the supplemental restraint system (Click here).

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY (Click here)

OK

5.CHECK HARNESS AND CONNECTOR (SPIRAL CABLE - DISPLAY AND NAVIGATION MODULE DISPLAY AND RADIO RECEIVER)

a. Disconnect the E12 spiral cable sub-assembly connector.

b. Disconnect the 4 display and navigation module display connector.

c. Disconnect the radio receiver assembly connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
E12-12 (IL+2) -		

4-12 (ILL+)	Always	Below 1 Ω
E12-12 (IL+2) - - (ILL+)	Always	Below 1 Ω
E12-4 (EA) - 4-2 (S)	Always	Below 1 Ω
E12-12 (IL+2) - Body ground	Always	1 kΩ or higher
E12-4 (EA) - Body ground	Always	1 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 - BATTERY AND BODY GROUND)

a. Disconnect the radio receiver assembly connector.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
- (ILL+) - Body ground	Light control switch in TAIL or HEAD	11 to 14 V

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F56-17 (ILL-) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE RADIO RECEIVER ASSEMBLY (Click here)

7.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - BATTERY AND BODY GROUND)

a. Disconnect the F64 and F62 display and navigation module display connector.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F64-12 (ILL+) - Body ground	Light control switch in TAIL or HEAD	11 to 14 V

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F62-1 (HILL) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

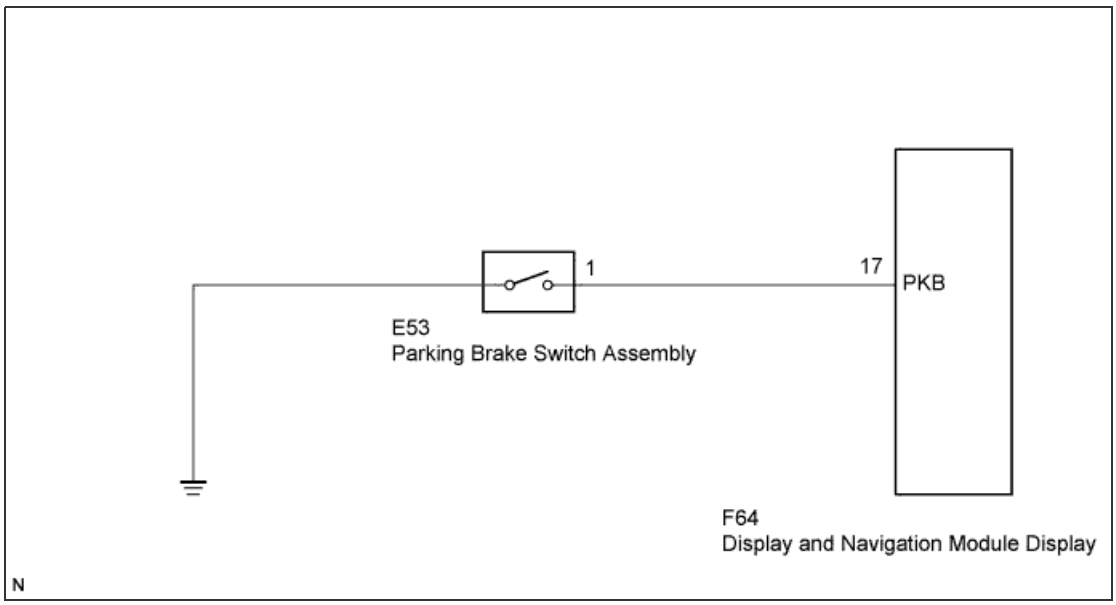
REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

for Preparation Click here

DESCRIPTION

This circuit is from the parking brake switch assembly to the display and navigation module display.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK BRAKE WARNING LIGHT

a. Check that the brake warning light comes on when the parking brake is applied and goes off when it is released.

OK:
The brake warning light operates as specified above.

NG → Go to step 3

OK ↓

2.CHECK HARNESS AND CONNECTOR (PARKING BRAKE SWITCH - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F64 display and navigation module display connector.

b. Disconnect the E53 parking brake switch assembly connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F64-17 (PKB) - E53-1	Always	Below 1 Ω
F64-17 (PKB) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

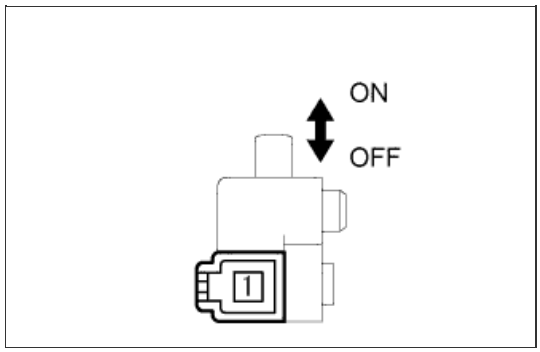
3.INSPECT PARKING BRAKE SWITCH ASSEMBLY

a. Disconnect the parking brake switch assembly connector.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
1 - Switch body	ON (When shaft is not pressed)	Below 1 Ω
1 - Switch body	OFF (When shaft is pressed)	10 kΩ or higher



NG → REPLACE PARKING BRAKE SWITCH ASSEMBLY

OK → REPAIR OR REPLACE HARNESS OR CONNECTOR (PARKING BRAKE SWITCH - BODY GROUND)

for Preparation Click here

DESCRIPTION

Each unit of the navigation system connected to the AVC-LAN (communication bus) transfers switch signals by the audio visual communication local area network.
If a short to +B or short to ground occurs in this AVC-LAN, the navigation system will not function normally as communication is stopped.

INSPECTION PROCEDURE

HINT:

The display and navigation module display is the master unit.

1.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

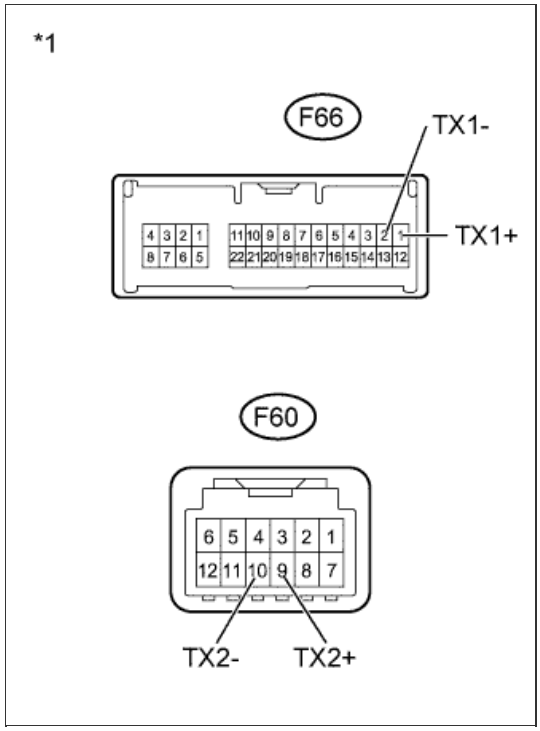
a. Disconnect the F66 display and navigation module display connector.

b. Disconnect the F60 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F66-1 (TX1+) - F66-2 (TX1-)	Always	60 to 80 Ω
F60-9 (TX2+) - F60-10 (TX2-)	Always	60 to 80 Ω



Text in Illustration

*1	Component without harness connected (Display and Navigation Module Display)

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

2.CHECK HARNESS AND CONNECTOR (AVC-LAN CIRCUIT)

HINT:

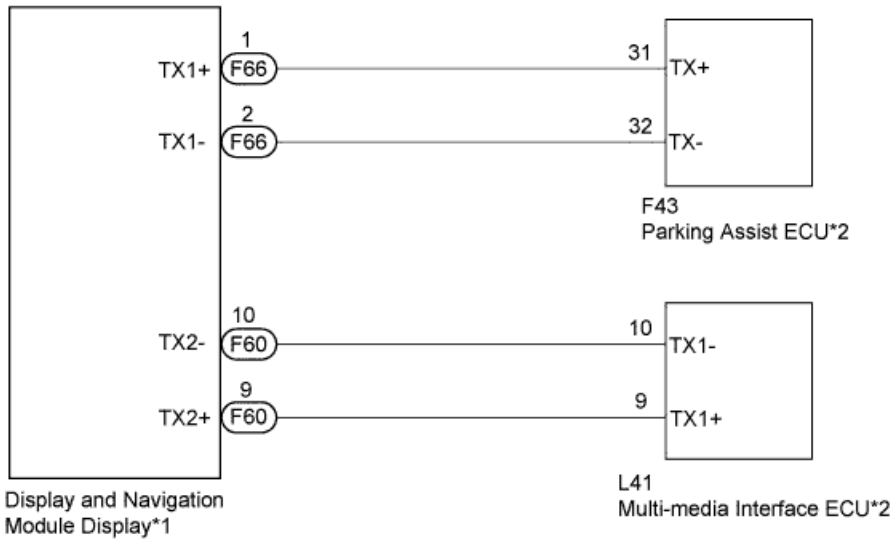
For details of the connectors, refer to Terminals of ECU (Click here).

a. Referring to the AVC-LAN wiring diagram below, check all AVC-LAN circuits.

i. Disconnect all connectors in all AVC-LAN circuits.

ii. Check for an open or short in all AVC-LAN circuits.

AVC-LAN WIRING DIAGRAM:



*1: Master Unit

*2: Slave Unit

OK:

There is no open or short circuit.

NG	REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT MALFUNCTIONING PARTS

a. Disconnect and reconnect each slave unit one by one until the master unit returns to normal operation.

HINT:

- **Check all slave units.**
- **If disconnecting a slave unit causes the aster unit to return to nor al operation the slave unit is defective and should be replaced.**

OK:

Master unit returns to nor al operation.

NG	REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

OK

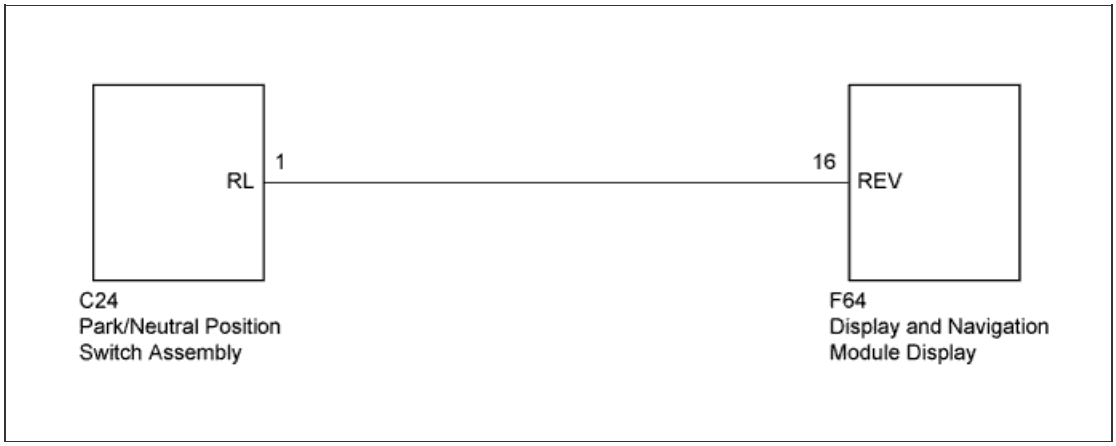
REPLACE MALFUNCTIONING PARTS

for Preparation Click here

DESCRIPTION

The display and navigation module display receives a reverse signal from the park/neutral position switch and information about the navigation antenna assembly, and then adjusts the vehicle position on the navigation display.

WIRING DIAGRAM

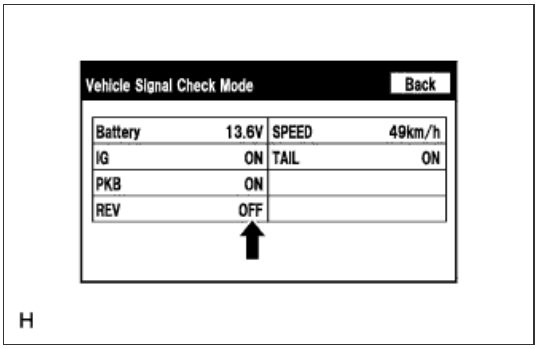


INSPECTION PROCEDURE

1.CHECK REVERSE SIGNAL (DISPLAY CHECK MODE)

a. Enter the "Vehicle Signal Check Mode" screen. Refer to Check Vehicle Signal in Operation Check (Click here).

b. Check that the display changes between ON and OFF according to the shift lever operation.



OK:

Condition	Display
Shift lever in R	ON
Shift lever in any position except R	OFF

HINT:

This display is updated once per second. As a result, it is normal for the display to lag behind the actual switch operation.

NG → Go to step 2

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Disconnect the F64 display and navigation module display connector.

b. Measure the voltage according to the value(s) in the table below.

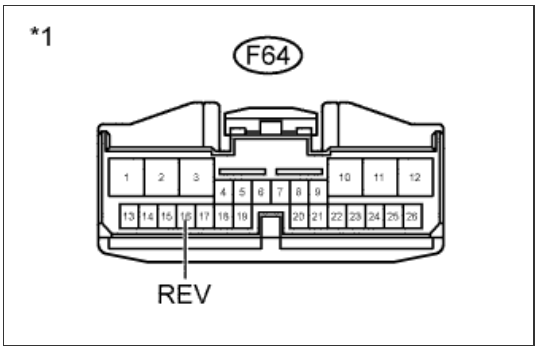
Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F64-16 (REV) - Body ground	Engine switch on (IG)	11 to 14 V

	Shift lever in R	
F64-16 (REV) - Body ground	Engine switch on (IG) Shift lever in any position except R	Below 1 V

Text in Illustration

*1	Front view of wire harness connector (to Display and Navigation Module Display)



NG → Go to step 3

OK →

REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

3.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - PNP SWITCH)

a. Disconnect the F64 display and navigation module display 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
F64-16 (REV) - C24-1 (RL)	Always	Below 1 Ω
F64-16 (REV) - Body ground	Always	10 kΩ or higher

Result

Result	Proceed to
NG	A
OK (for AB60F Automatic Transaxle)	B
OK (for AB750F Automatic Transaxle)	C

B → REPLACE PARK/NEUTRAL POSITION SWITCH ASSEMBLY (Click here)

C → REPLACE PARK/NEUTRAL POSITION SWITCH ASSEMBLY (Click here)

A →

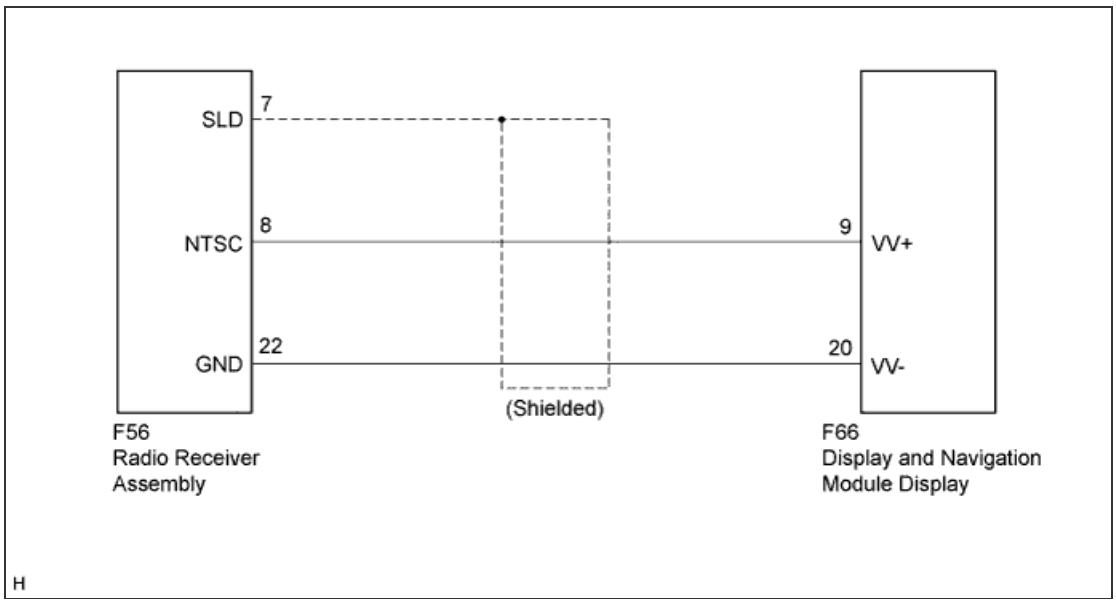
REPAIR OR REPLACE HARNESS OR CONNECTOR

for Preparation Click here

DESCRIPTION

This circuit sends a DVD image signal from the radio receiver assembly to the display and navigation module display.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - DISPLAY AND NAVIGATION MODULE DISPLAY)

a. Disconnect the F56 radio receiver assembly connector.

b. Disconnect the F66 display and navigation module display connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

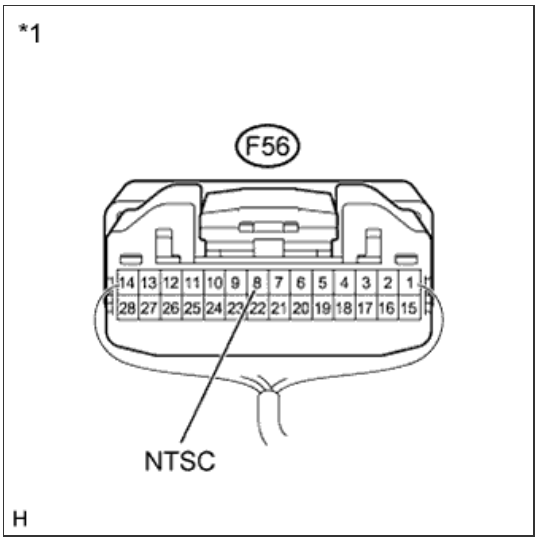
Tester Connection	Condition	Specified Condition
F56-8 (NTSC) - F66-9 (VV+)	Always	Below 1 Ω
F56-22 (GND) - F66-20 (VV-)	Always	Below 1 Ω
F56-8 (NTSC) - Body ground	Always	10 kΩ or higher
F56-22 (GND) - Body ground	Always	10 kΩ or higher
F56-7 (SLD) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.INSPECT RADIO RECEIVER ASSEMBLY (DVD IMAGE SIGNAL)

a. Reconnect the F56 radio receiver assembly connector.



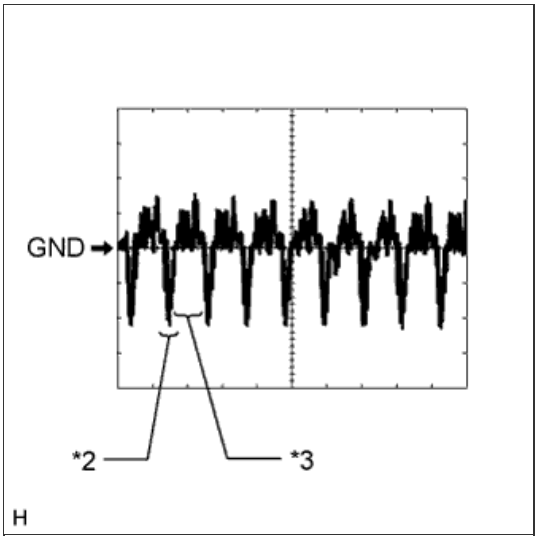
b. Check the waveform according to the table below.

Oscilloscope Waveform

Item	Content
Measurement terminal	F56-8 (NTSC) - Body ground
Measurement setting	200 mV/DIV,. 10 µs/DIV.
Condition	DVD display is on

HINT:

The video waveform changes according to the image output from the radio receiver assembly to the display and navigation module display, but the synchronization signal does not change.



Text in Illustration

*1	Component with harness connected (Radio Receiver Assembly)
*2	Synchronization Signal
*3	Video Waveform

NG → REPLACE RADIO RECEIVER ASSEMBLY (Click here)

OK

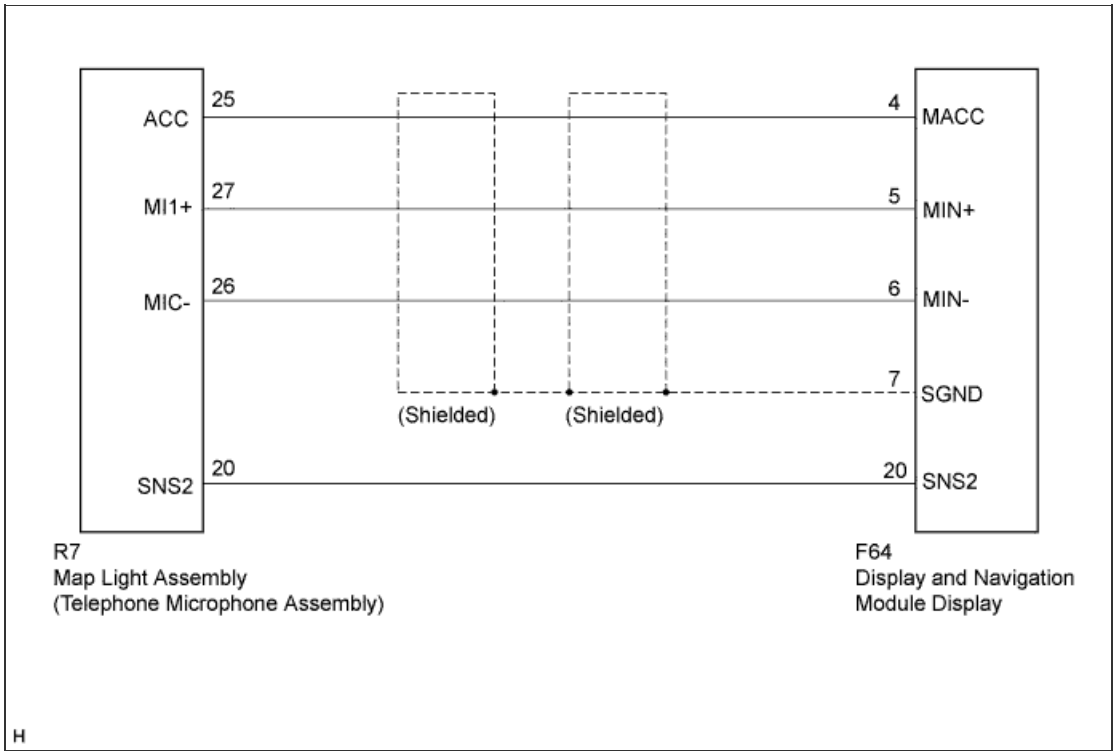
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

This circuit sends a microphone signal from the map light assembly (telephone microphone assembly) to the display and navigation module display. It also supplies power from the display and navigation module display to the map light assembly (telephone microphone assembly).

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY - MAP LIGHT ASSEMBLY)

a. Disconnect the F64 display and navigation module display connector.

b. Disconnect the R7 map light assembly connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F64-20 (SNS2) - R7-20 (SNS2)	Always	Below 1 Ω
F64-4 (MACC) - R7-25 (ACC)	Always	Below 1 Ω
F64-5 (MIN+) - R7-27 (MI1+)	Always	Below 1 Ω
F64-6 (MIN-) - R7-26 (MIC-)	Always	Below 1 Ω
F64-20 (SNS2) - Body ground	Always	10 kΩ or higher
F64-4 (MACC) - Body ground	Always	10 kΩ or higher
F64-5 (MIN+) - Body ground	Always	10 kΩ or higher
F64-6 (MIN-) - Body ground	Always	10 kΩ or higher
F64-7 (SGND) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Reconnect the F64 display and navigation module display connector.

b. Measure the voltage according to the value(s) in the table below.

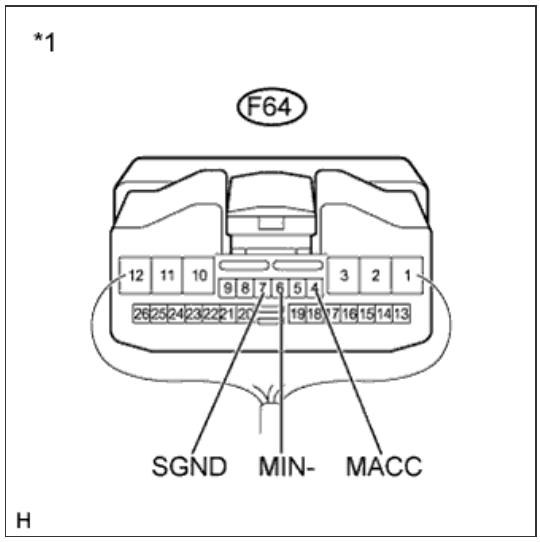
Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F64-4 (MACC) - Body ground	Engine switch on (ACC)	4 to 6

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F64-7 (SGND) - Body ground	Always	Below 1 Ω
F64-6 (MIN-) - Body ground	Always	Below 1 Ω



Text in Illustration

*1	Component with harness connected (Display and Navigation Module Display)

NG → REPLACE DISPLAY AND NAVIGATION MODULE DISPLAY (Click here)

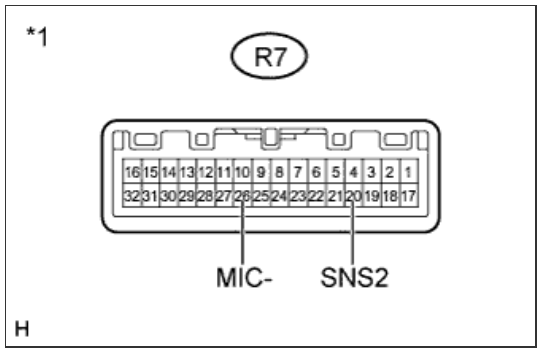
OK

3.INSPECT MAP LIGHT ASSEMBLY

a. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
R7-20 (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

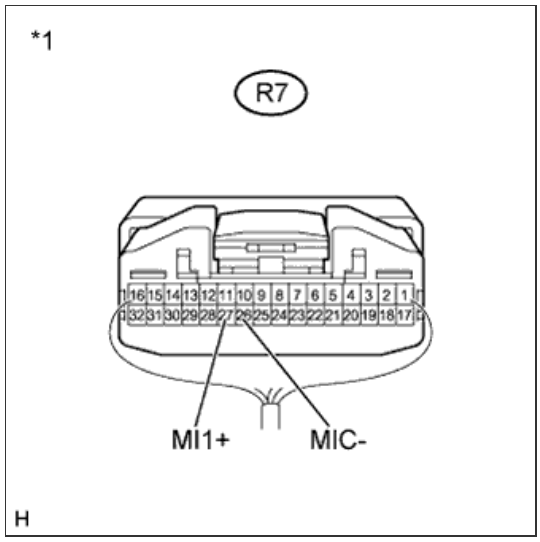
a. Reconnect the F64 display and navigation module display connector.

b. Reconnect the R7 map light assembly connector.

c. Turn the engine switch on (ACC).

d. Connect an oscilloscope to terminals 27 (MI1+) and 26 (MIC-) of the R7 telephone microphone assembly connector.

e. Check the waveform of the telephone microphone assembly using the oscilloscope.



Result

Result	roceed to
Waveform synchronized with the voice input to the map light assembly is output	A
Waveform synchronized with the voice input to the map light assembly is not output	B

Text in Illustration

*1	Component with harness connected (Map Light Assembly)

B → Go to step 5

A → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

5.REPLACE TELEPHONE MICROPHONE ASSEMBLY

a. Replace the telephone microphone assembly (Click here).

b. Check if the same malfunction recurs.

Result

Result	roceed to
Malfunction does not recur (returns to normal)	A
Malfunction recurs	B

B → REPLACE MAP LIGHT ASSEMBLY (Click here)

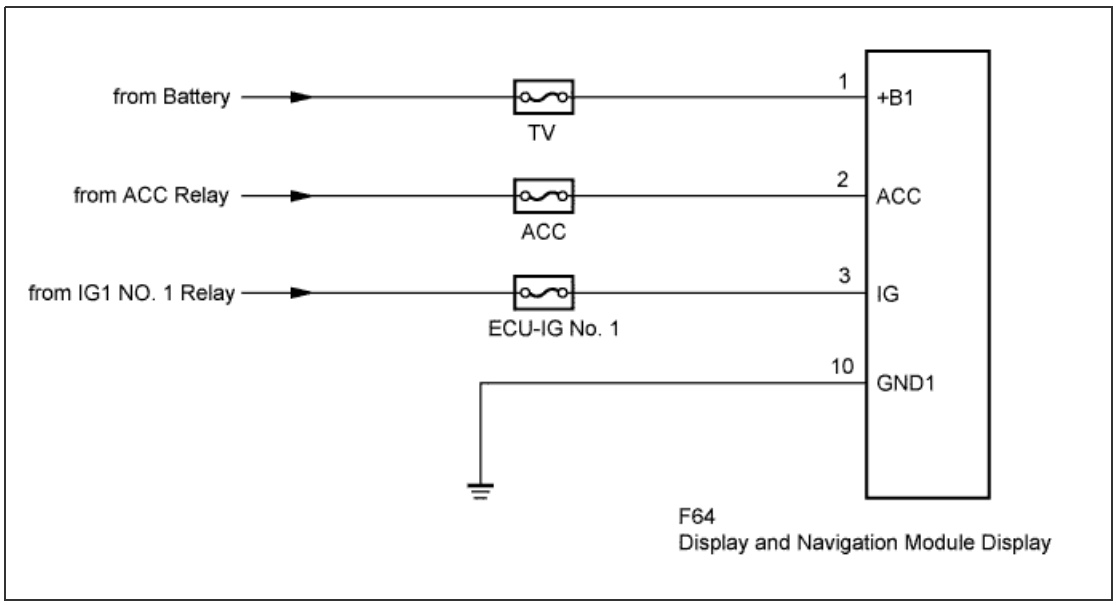
A → END

for Preparation Click here

DESCRIPTION

This is the power source circuit to operate the display and navigation module display.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

1.CHECK HARNESS AND CONNECTOR (DISPLAY AND NAVIGATION MODULE DISPLAY POWER SOURCE)

a. Disconnect the F64 display and navigation module display connector.

b. Measure the resistance according to the value(s) in the table below.

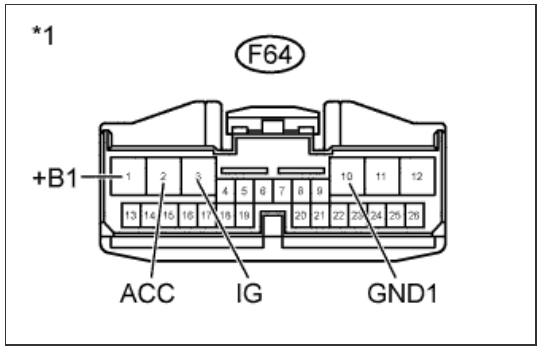
Standard Resistance:

Tester Connection	Condition	Specified Condition
F64-10 (GND1) - Body ground	Always	Below 1 Ω

c. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F64-1 (+B1) - F64-10 (GND1)	Always	11 to 14 V
F64-2 (ACC) - F64-10 (GND1)	Engine switch on (ACC)	11 to 14 V
F64-3 (IG) - F64-10 (GND1)	Engine switch on (IG)	11 to 14 V



Text in Illustration

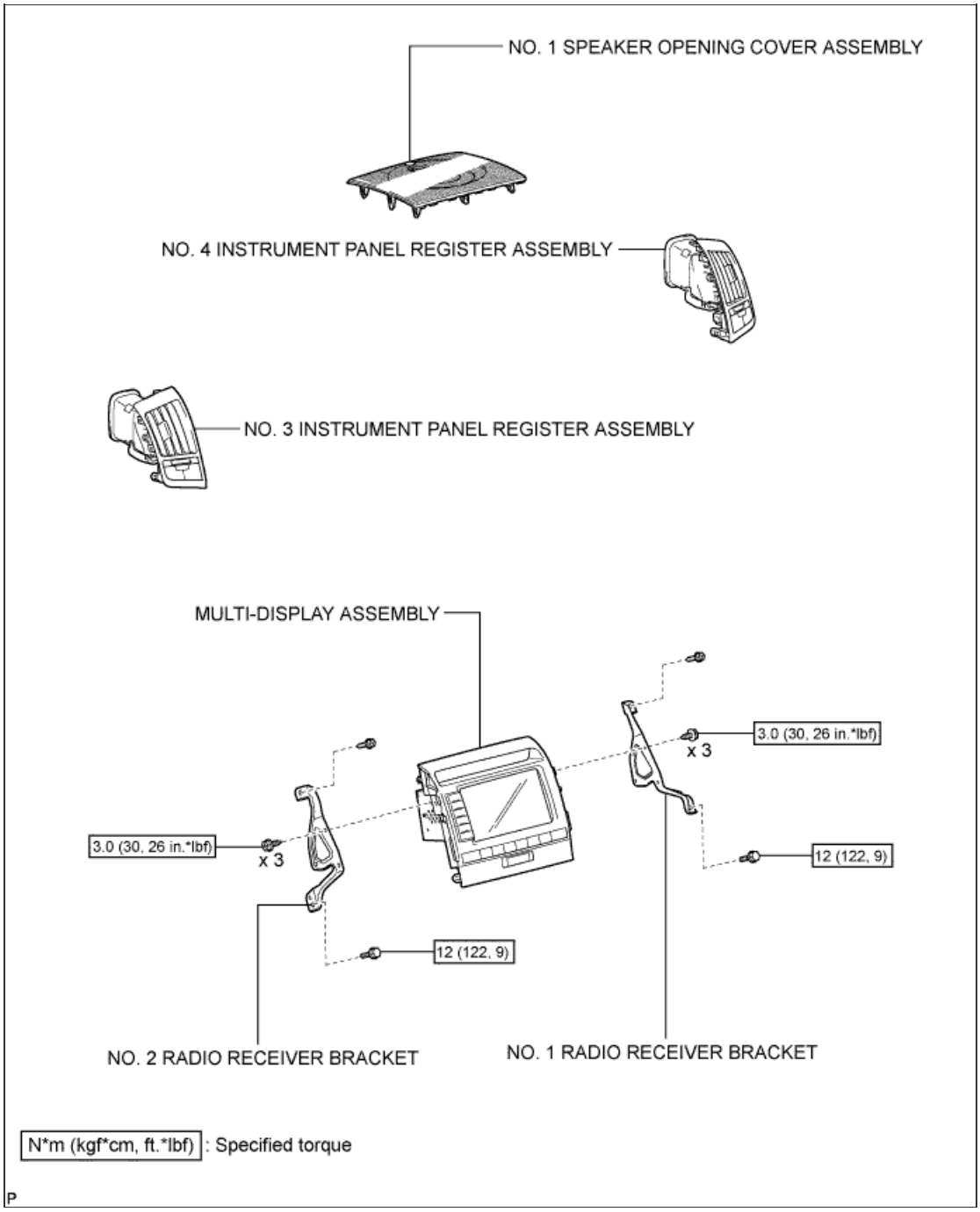
*1	Front view of wire harness connector (to Display and Navigation Module Display)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here



for Preparation Click here

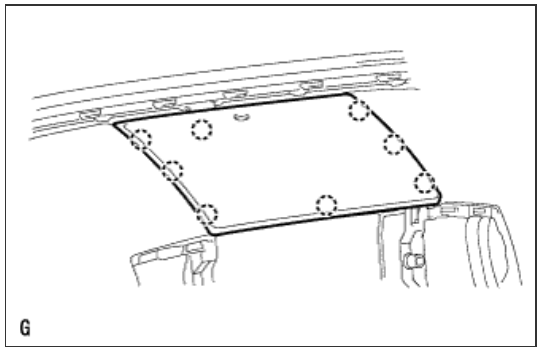
1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

2. REMOVE NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Detach the 8 claws and remove the opening cover.



3. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

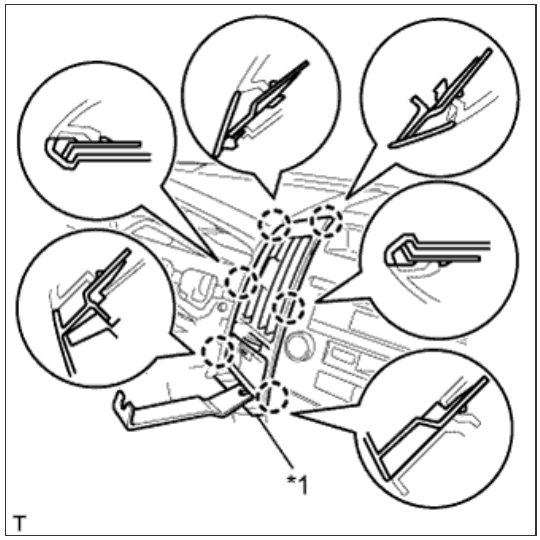
a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

b. Using a moulding remover, detach the 6 claws.

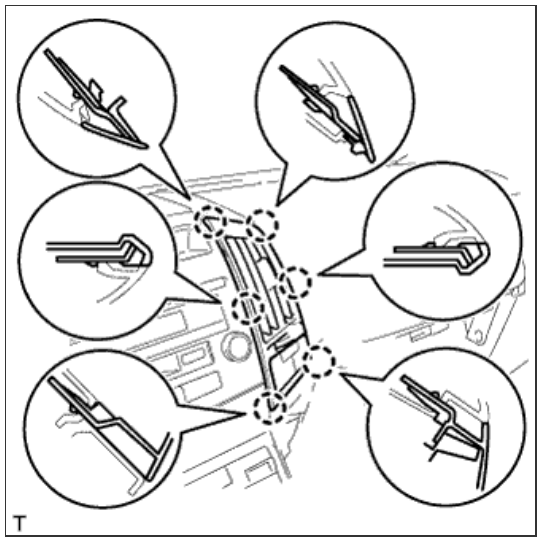
c. Disconnect the connector and remove the No. 3 instrument panel register.



4. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

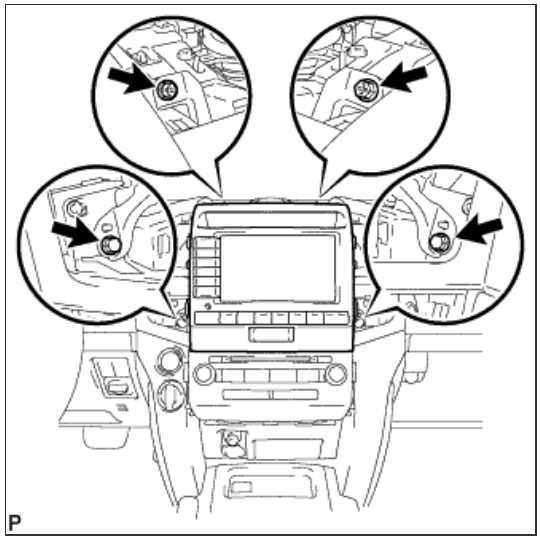
a. Connect the connector.

b. Attach the 6 claws to install the No. 4 instrument panel register.



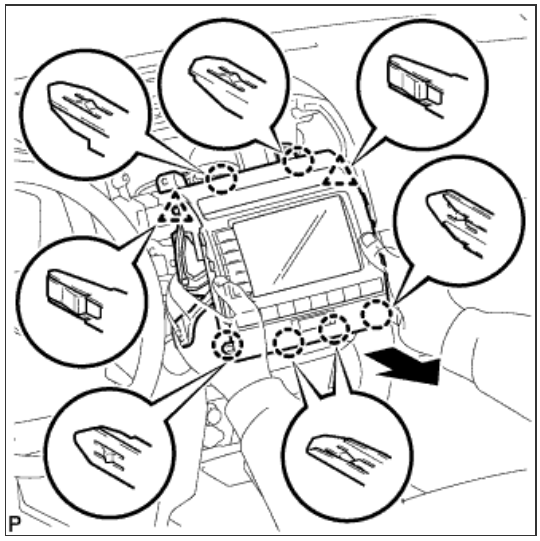
5. REMOVE MULTI-DISPLAY ASSEMBLY

a. Remove the 2 screws and 2 bolts.



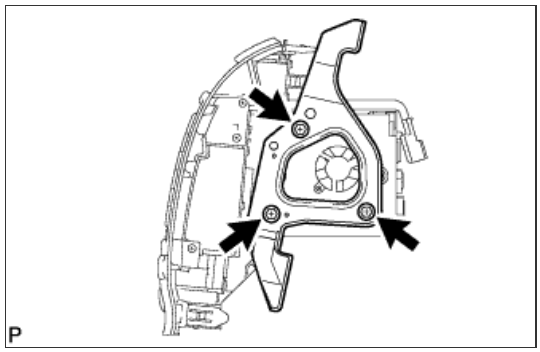
b. Pull the radio receiver to detach the 2 clips and 6 claws on the backside of the display.

c. Disconnect the connectors and remove the display.



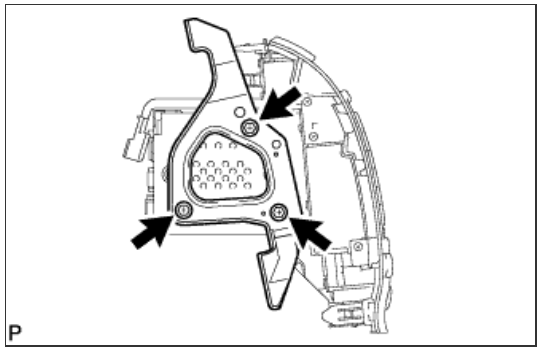
6. REMOVE NO. 1 RADIO RECEIVER BRACKET

a. Remove the 3 bolts and bracket.



7. REMOVE NO. 2 RADIO RECEIVER BRACKET

a. Remove the 3 bolts and bracket.

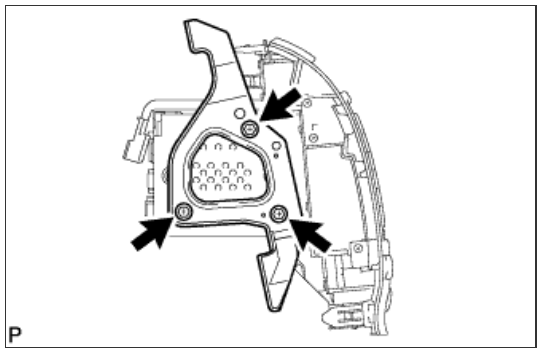


for Preparation Click here

1. INSTALL NO. 2 RADIO RECEIVER BRACKET

a. Install the bracket with the 3 bolts.

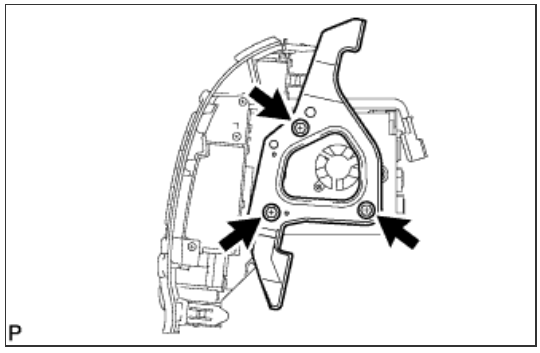
Torque:
3.0 N*m{ 30 kgf*cm , 26 in.*lbf }



2. INSTALL NO. 1 RADIO RECEIVER BRACKET

a. Install the bracket with the 3 bolts.

Torque:
3.0 N*m{ 30 kgf*cm , 26 in.*lbf }



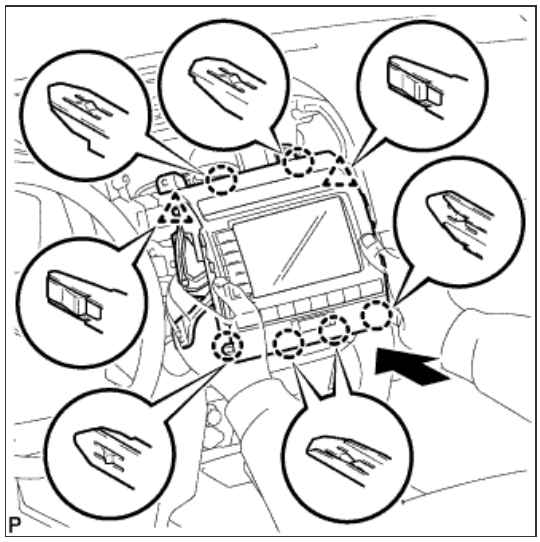
3. INSTALL MULTI-DISPLAY ASSEMBLY

a. Connect the connectors.

b. Insert the display and attach the 2 clips and 6 claws on its backside.

NOTICE:

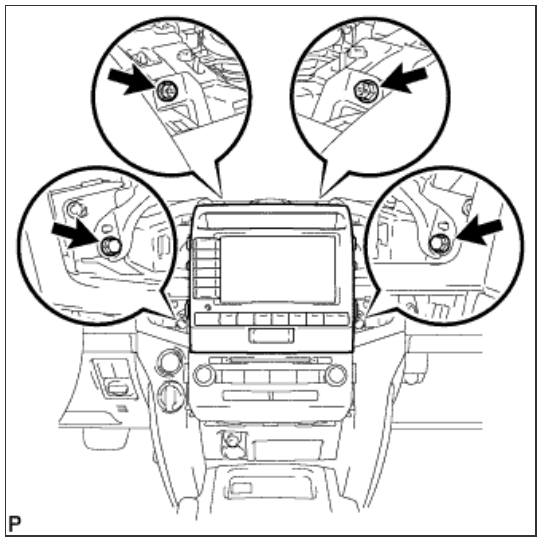
When inserting the display, do not press the knobs on it.



c. Install the display with the 2 screws and 2 bolts.

c. Install the display with the 2 screws and 2 bolts.

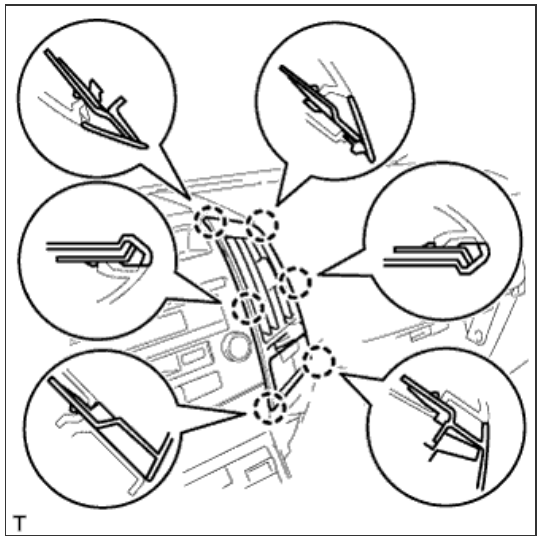
Torque:
Bolt:
12 N*m{ 122 kgf*cm , 9 ft.*lbf }



4. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Connect the connector.

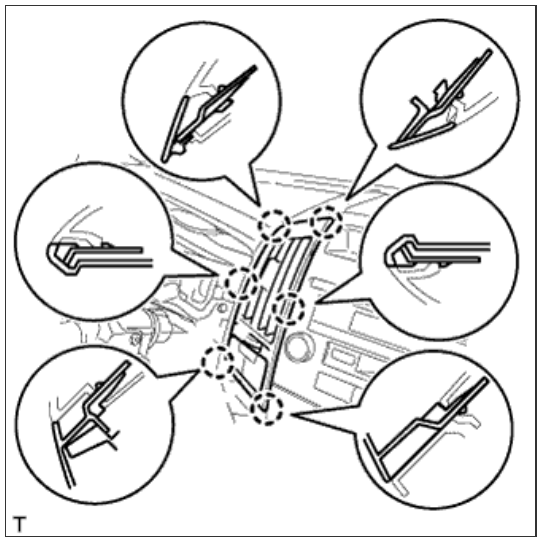
b. Attach the 6 claws to install the No. 4 instrument panel register.



5. INSTALL NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

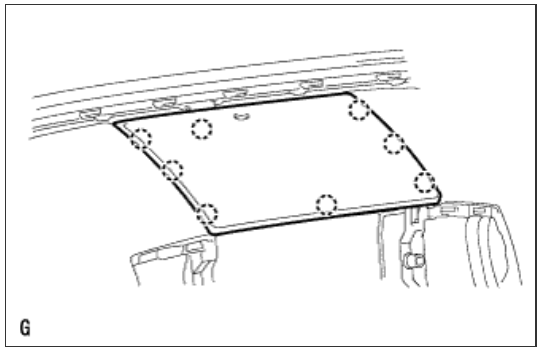
a. Connect the connector.

b. Attach the 6 claws to install the No. 3 instrument panel register.



6. INSTALL NO. 1 SPEAKER OPENING COVER ASSEMBLY

a. Attach the 8 claws to install the opening cover.

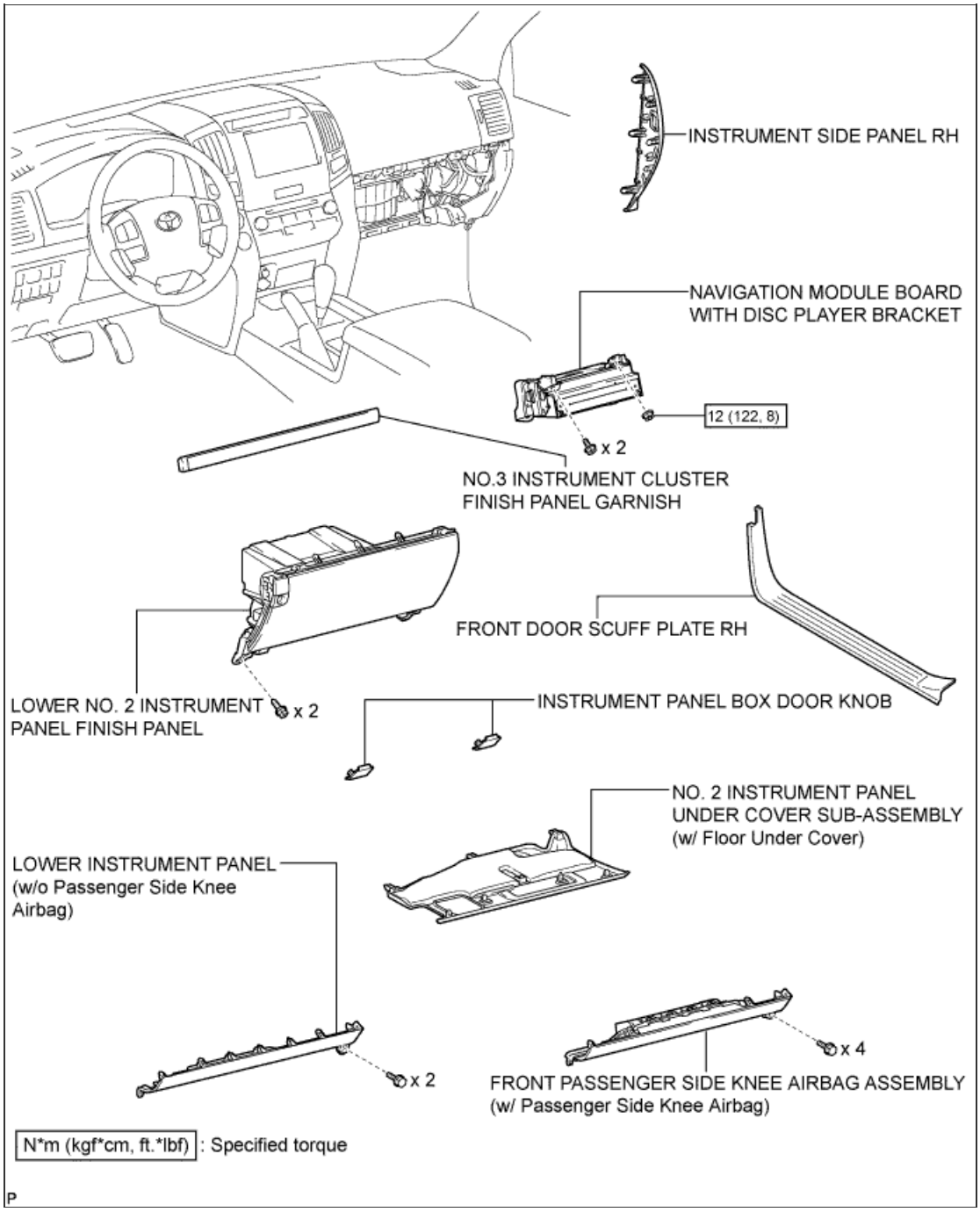


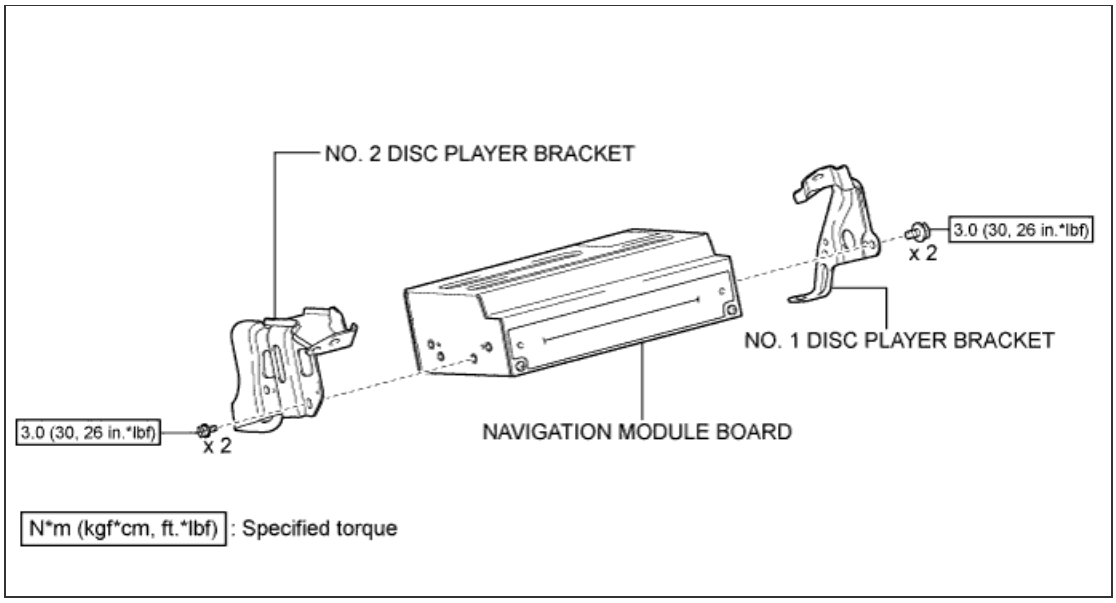
7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

for Preparation [Click here]




NO. 2 DISC PLAYER BRACKET
3.0 (30, 26 in.*lbf)
x 2
NO. 1 DISC PLAYER BRACKET
3.0 (30, 26 in.*lbf)
x 2
NAVIGATION MODULE BOARD
N*m (kgf*cm, ft.*lbf) : Specified torque

for Preparation Click here

HINT:

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

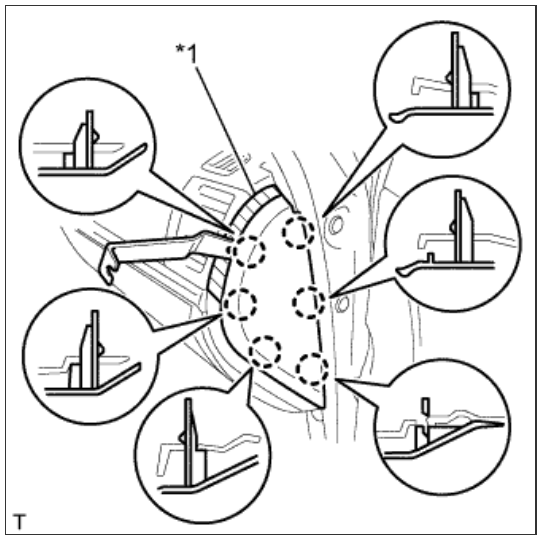
2. REMOVE INSTRUMENT SIDE PANEL RH (w/o Airbag Cut Off Switch)

a. Place protective tape as shown in the illustration.

Text in Illustration

	rotective Tape

b. Using a moulding remover, detach the 6 claws and remove the instrument side panel.



3. REMOVE INSTRUMENT SIDE PANEL RH (w/ Airbag Cut Off Switch)

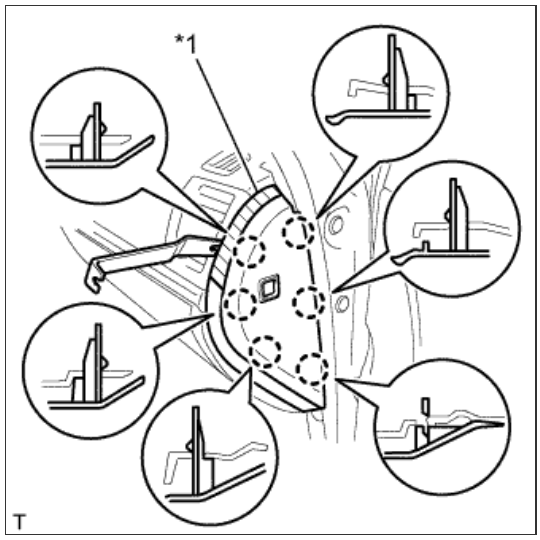
a. Place protective tape as shown in the illustration.

Text in Illustration

	rotective Tape

b. Using a moulding remover, detach the 6 claws.

c. Disconnect the connector and remove the instrument side panel.



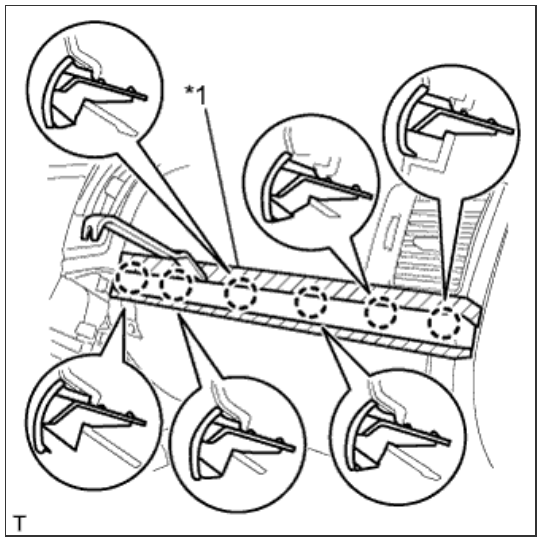
4. REMOVE NO. 3 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Place protective tape as shown in the illustration.

Text in Illustration

	rotective Tape

b. Using a moulding remover, detach the 6 claws and remove the No. 3 instrument cluster finish panel garnish.



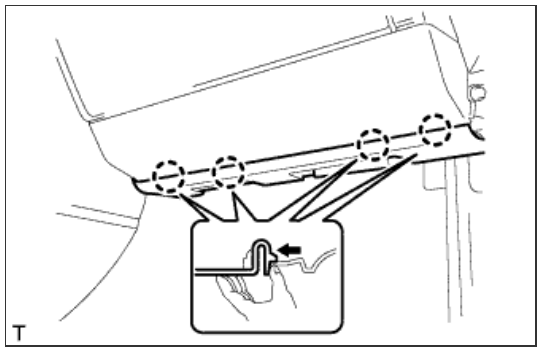
5. REMOVE FRONT DOOR SCUFF PLATE RH

HINT:

Use the same procedures described for the LH side.

6. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

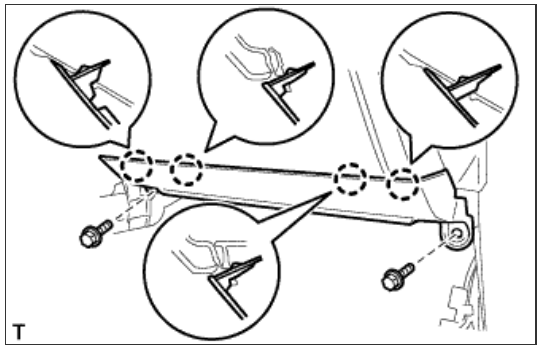
a. Detach the 4 claws and remove the No. 2 instrument panel under cover.



7. REMOVE LOWER INSTRUMENT PANEL (w/o Passenger Side Knee Airbag)

a. Remove the 2 bolts.

b. Detach the 4 claws and remove the lower instrument panel.



8. REMOVE FRONT PASSENGER SIDE KNEE AIRBAG ASSEMBLY (w/ Passenger Side Knee Airbag)

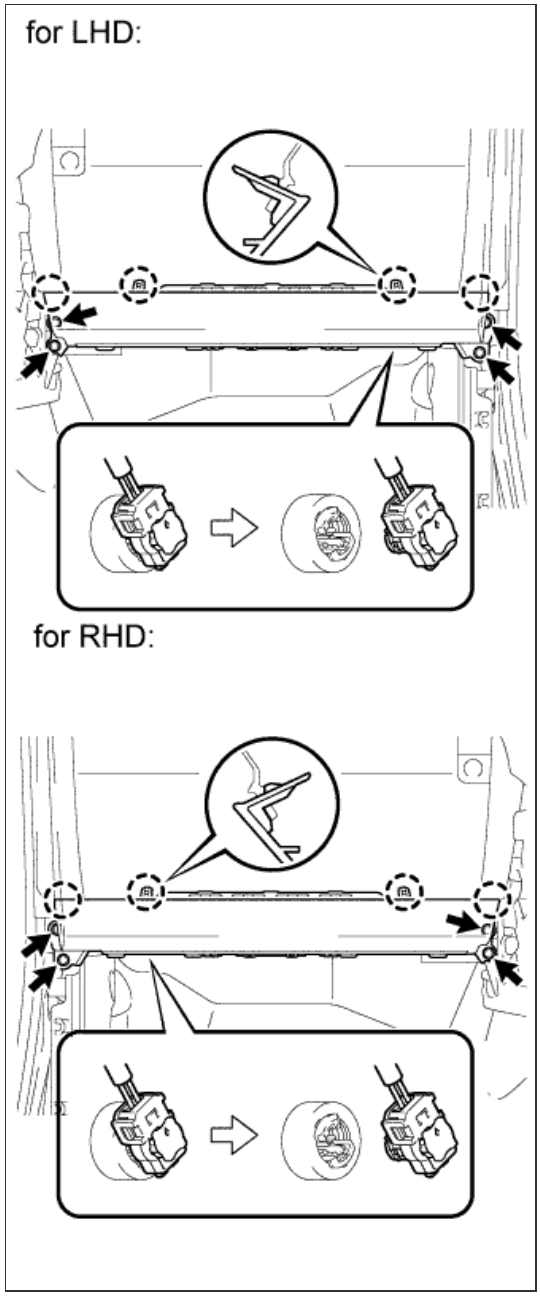
a. Remove the 4 bolts.

b. Detach the 4 claws and remove the front passenger side knee airbag.

c. Disconnect the connector.

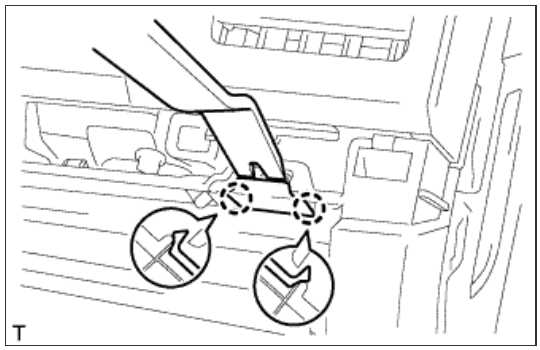
NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.



9. REMOVE INSTRUMENT PANEL BOX DOOR KNOB

a. Using a moulding remover, detach the 2 claws and remove the instrument panel box door knob.

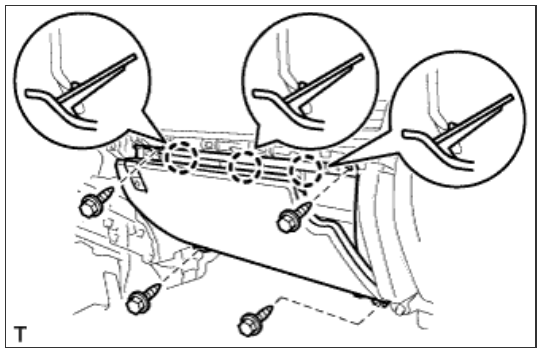


10. REMOVE LOWER NO. 2 INSTRUMENT PANEL FINISH PANEL

a. Remove the 4 bolts.

b. Detach the 3 claws.

c. Disconnect the connector and remove the lower No. 2 instrument panel finish panel.

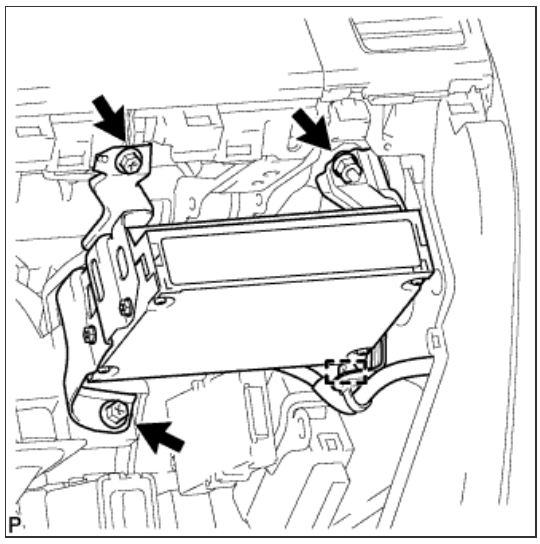


11. REMOVE NAVIGATION MODULE BOARD WITH DISC PLAYER BRACKET

a. Detach the clamp.

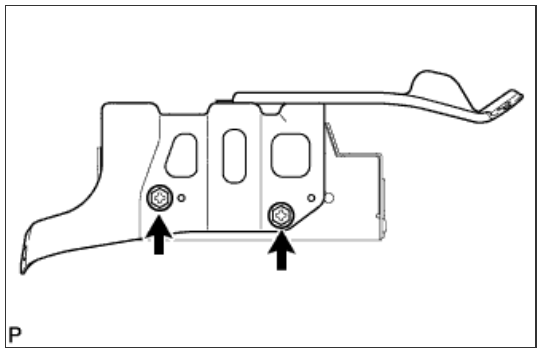
b. Remove the 2 screws and nut.

c. Disconnect the navigation module board connectors and remove the navigation module board with disc player bracket.



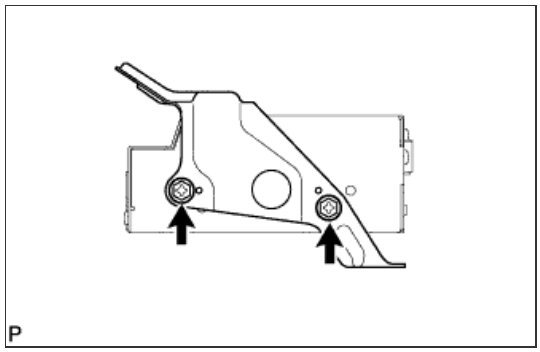
12. REMOVE NO. 2 DISC PLAYER BRACKET

a. Remove the 2 screws and bracket.



13. REMOVE NO. 1 DISC PLAYER BRACKET

a. Remove the 2 screws and bracket.



for Preparation Click here

HINT:

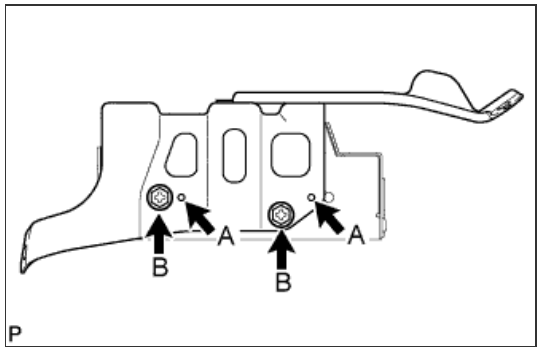
- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**
- **A bolt without a torque specification is shown in the standard bolt chart (Click here).**

1. INSTALL NO. 2 DISC PLAYER BRACKET

a. Align the protrusions of the bracket, labeled A, with the indentations of the navigation module board.

b. Install the bracket with the 2 screws labeled B.

Torque:
3.0 N*m{ 30 kgf*cm , 26 in.*lbf }

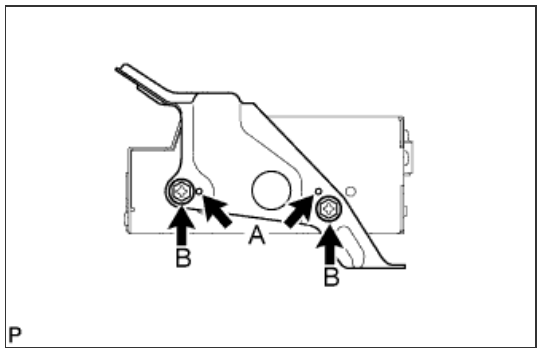


2. INSTALL NO. 1 DISC PLAYER BRACKET

a. Align the protrusions of the bracket, labeled A, with the indentations of the navigation module board.

b. Install the bracket with the 2 screws labeled B.

Torque:
3.0 N*m{ 30 kgf*cm , 26 in.*lbf }



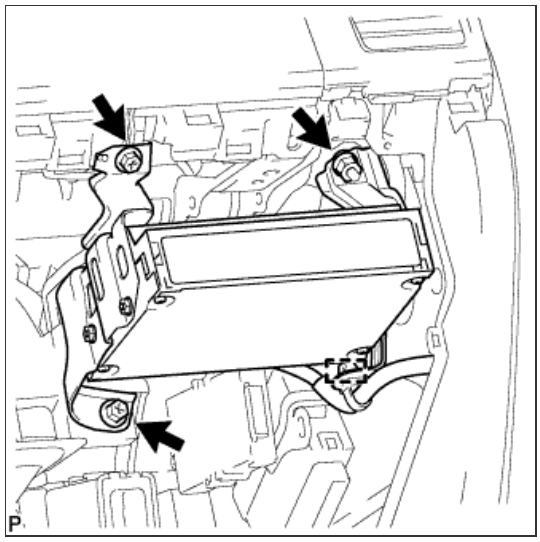
3. INSTALL NAVIGATION MODULE BOARD WITH DISC PLAYER BRACKET

a. Connect the navigation module board connectors.

b. Install the navigation module board with disc player bracket with the nut and 2 screws.

Torque:
Nut:
12 N*m{ 122 kgf*cm , 8 ft.*lbf }

c. Attach the clamp.

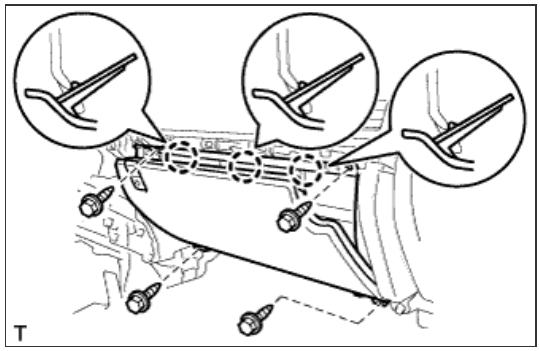


4. INSTALL LOWER NO. 2 INSTRUMENT PANEL FINISH PANEL

a. Connect the connector.

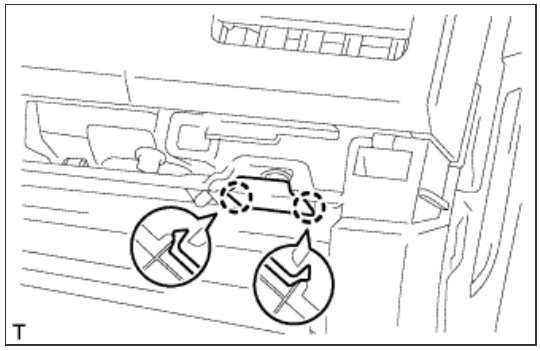
b. Attach the 3 claws to install the lower No. 2 instrument panel finish panel.

c. Install the 4 bolts.



5. INSTALL INSTRUMENT PANEL BOX DOOR KNOB

a. Attach the 2 claws to install the instrument panel box door knob.



6. INSTALL FRONT PASSENGER SIDE KNEE AIRBAG ASSEMBLY (w/ Passenger Side Knee Airbag)

a. Connect the connector.

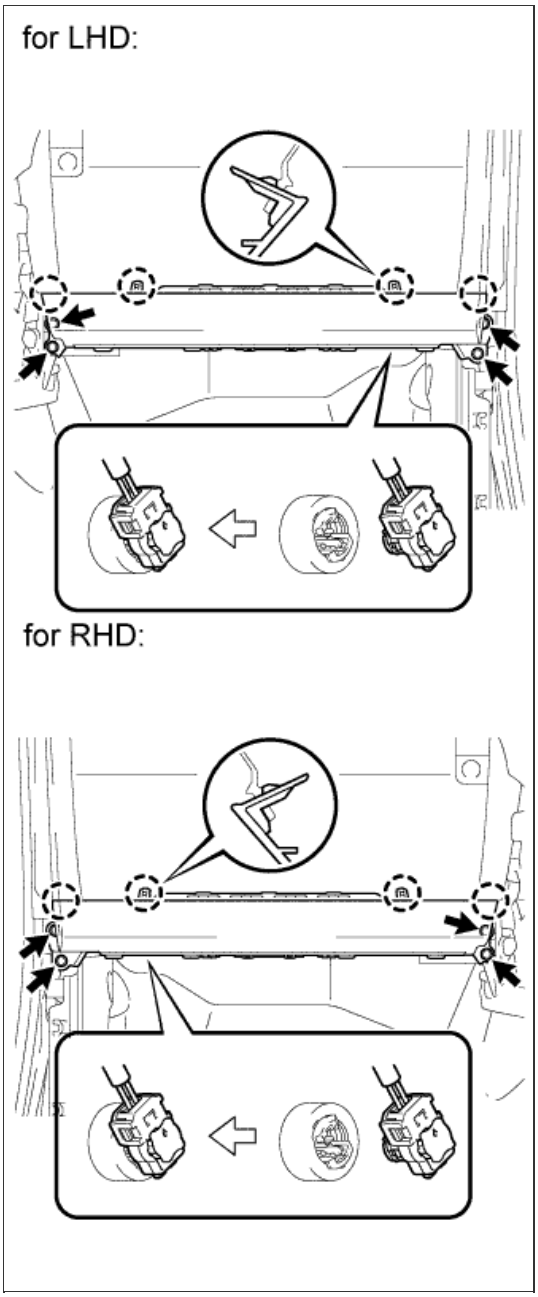
NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.

b. Attach the 4 claws to install the front passenger side knee airbag.

c. Install the 4 bolts.

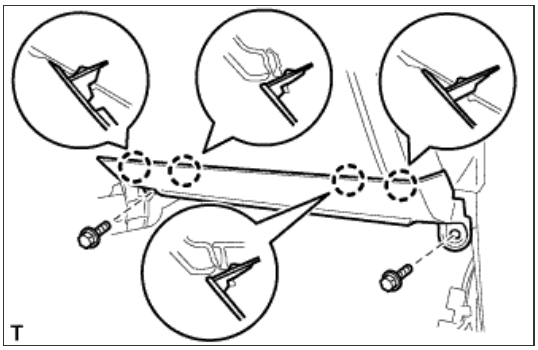
Torque:
10 N*m{ 102 kgf*cm , 7 ft.*lbf }



7. INSTALL LOWER INSTRUMENT PANEL (w/o Passenger Side Knee Airbag)

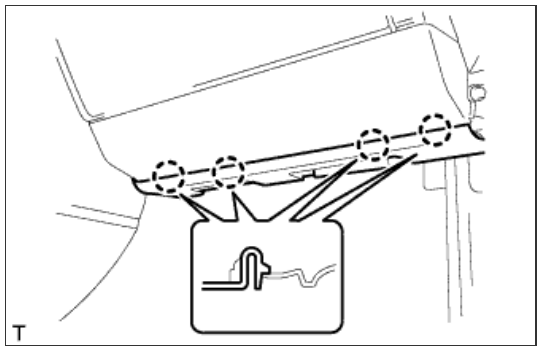
a. Attach the 4 claws to install the lower instrument panel.

b. Install the 2 bolts.



8. 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.



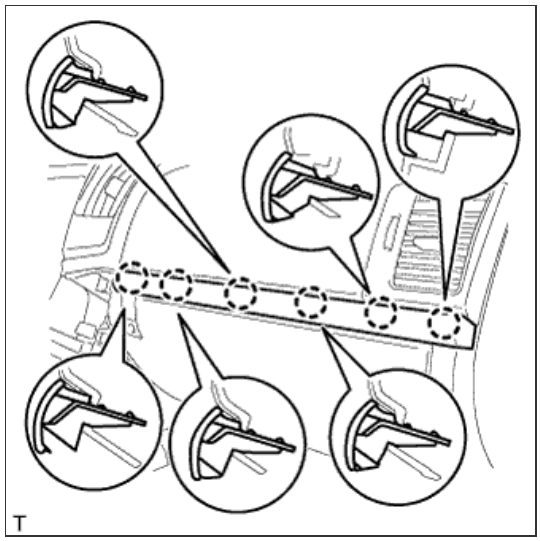
9. INSTALL FRONT DOOR SCUFF PLATE RH

HINT:

Use the same procedures described for the LH side.

10. INSTALL NO. 3 INSTRUMENT CLUSTER FINISH PANEL GARNISH

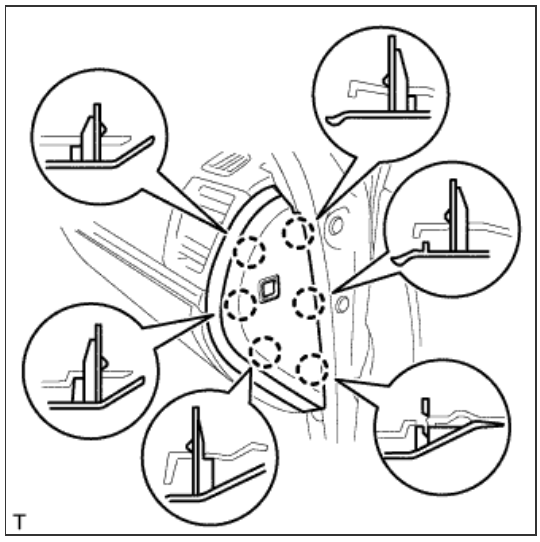
a. Attach the 6 claws to install the No. 3 instrument cluster finish panel garnish.



11. INSTALL INSTRUMENT SIDE PANEL RH (w/ Airbag Cut Off Switch)

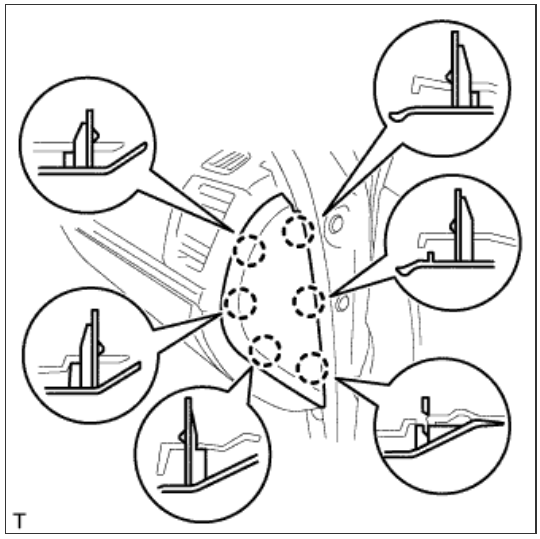
a. Connect the connector.

b. Attach the 6 claws to install the instrument side panel.



12. INSTALL INSTRUMENT SIDE PANEL RH (w/o Airbag Cut Off Switch)

a. Attach the 6 claws to install the instrument side panel.



13. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

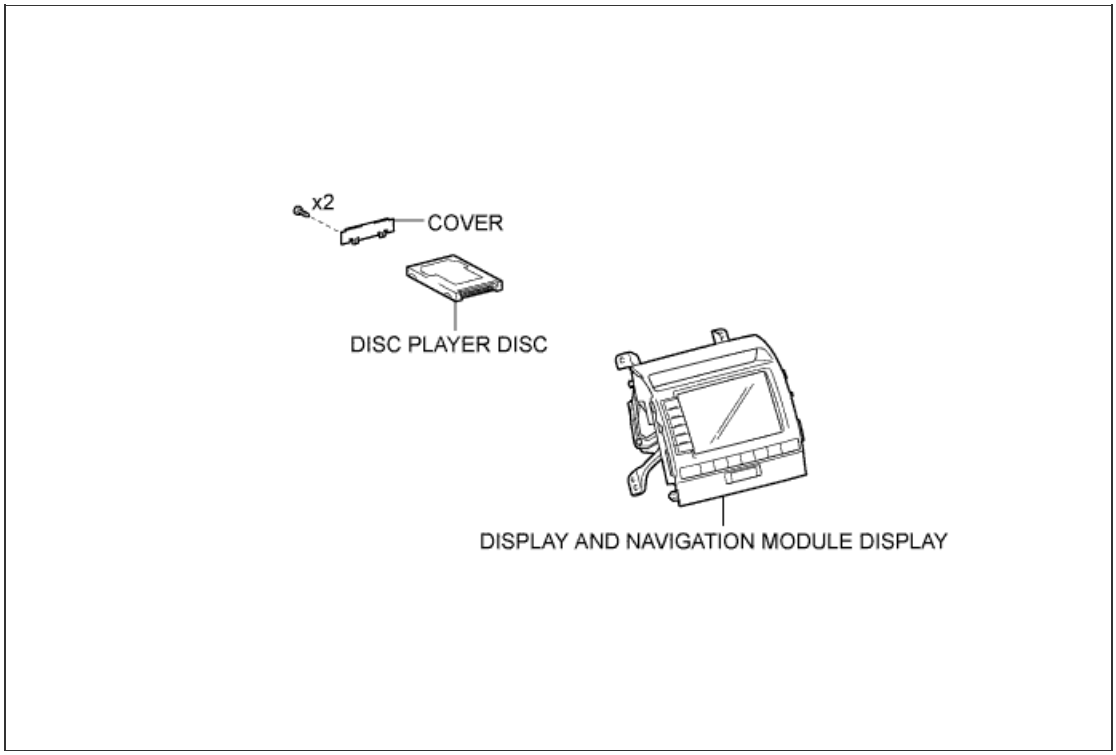
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

14. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

for Preparation [Click here]



for Preparation Click here

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

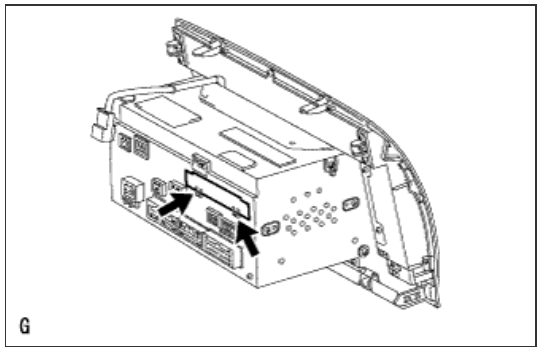
- **After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal.**
- **When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).**

2. REMOVE DISPLAY AND NAVIGATION MODULE DISPLAY

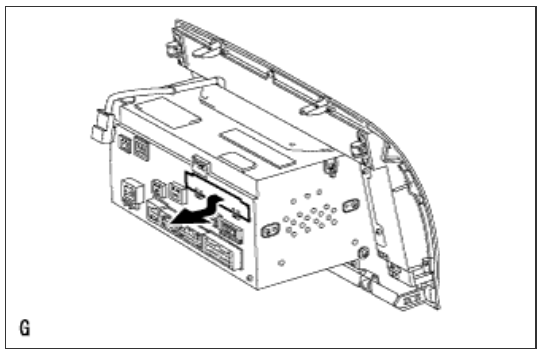
a. Remove the display and navigation module display (Click here).

3. REMOVE DISC PLAYER DISC

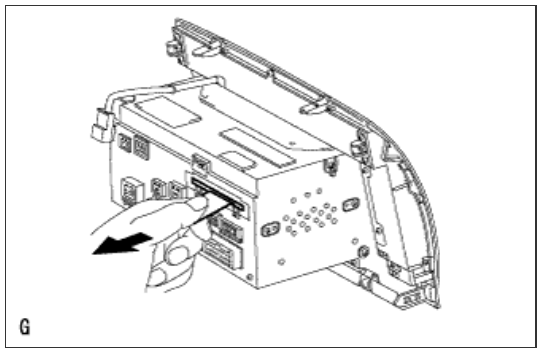
a. Remove the 2 screws.



b. Move the cover in the direction of the arrow shown in the illustration to remove it.



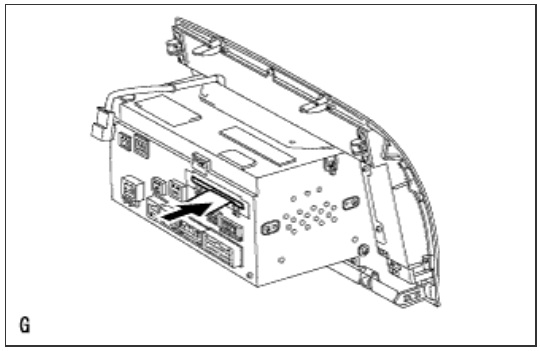
c. Remove the disc player disc in the direction of the arrow shown in the illustration.



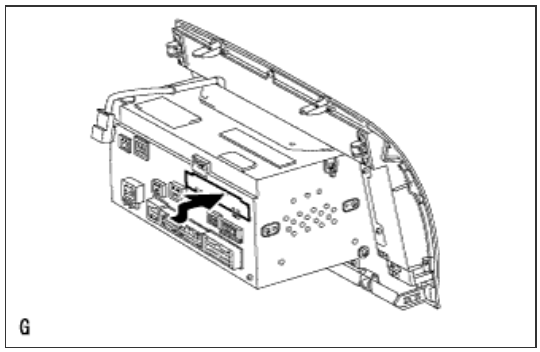
for Preparation Click here

1. INSTALL DISC PLAYER DISC

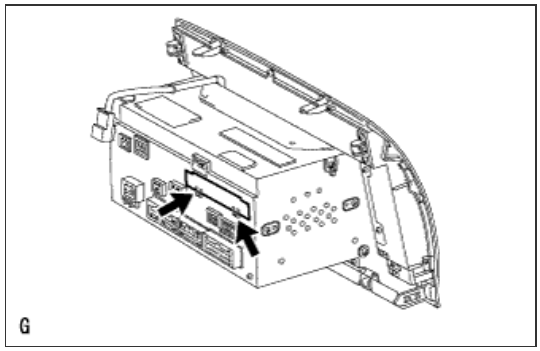
a. Push the disc player disc in the direction of the arrow shown in the illustration to install it.



b. Install the cover in the direction of the arrow shown in the illustration.



c. Install the 2 screws.



2. INSTALL DISPLAY AND NAVIGATION MODULE DISPLAY

a. Install the display and navigation module display (Click here).

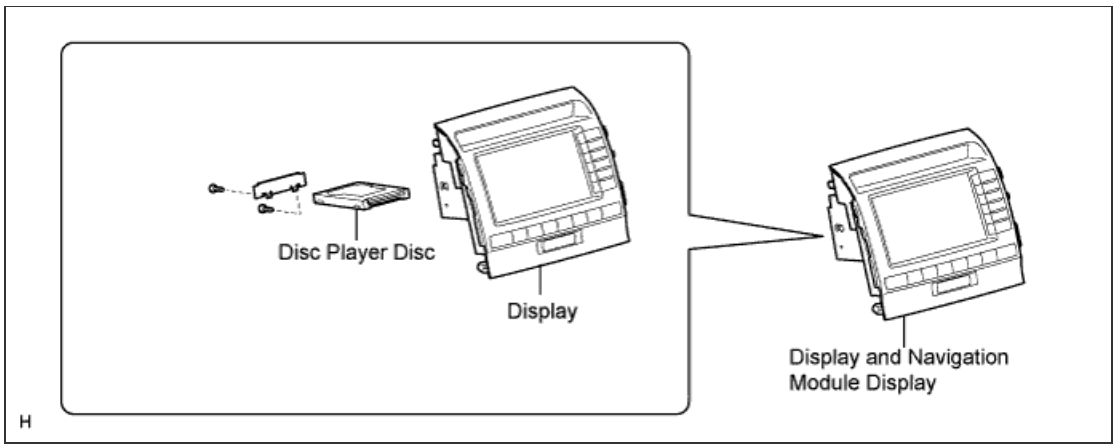
3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

for Preparation Click here

1.PRECAUTION FOR DISPLAY AND NAVIGATION ASSEMBLY

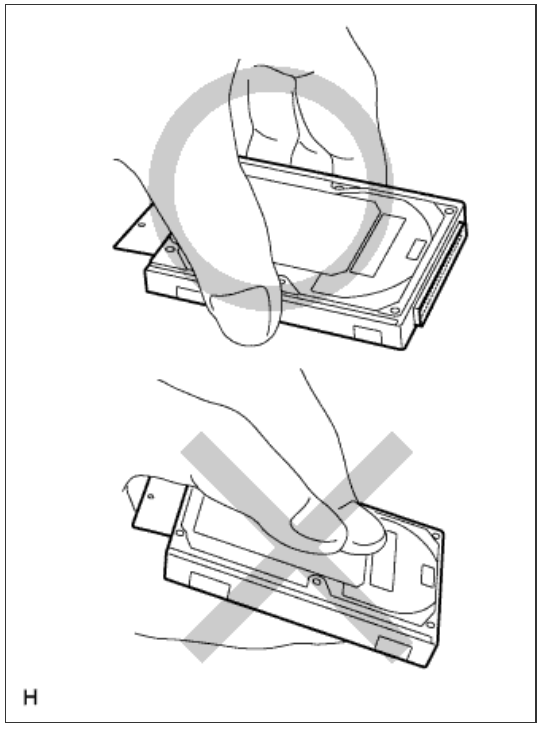


a. The disc player disc has a built-in hard disk drive (HDD) for storing maps and other data used by the navigation system. When handling the disc player disc, follow the precautions below.

i. Do not touch cover of the HDD

NOTICE:

When removing or installing the disc player disc, hold it as shown in the illustration.



ii. Avoid vibrations and impacts

NOTICE:

- **Do not drop or strike the disc player disc. Do not use a disc player disc that has been dropped or struck.**
- **Prepare a new disc player disc before removing the disc player disc.**

iii. Avoid condensation

NOTICE:

- **Introducing the disc player disc to sudden temperature changes may cause condensation to form inside it, and may lead to malfunctions in the HDD.**
- **The removed display and navigation module display must be stored in an environment where the temperature, humidity, etc. is the same as the vehicle interior, and the disc player disc must not be removed.**
- **If transporting the disc player disc from its storage area to a location where the temperature, humidity, etc. is different, allow it some time to adapt to the surrounding environment.**

iv. Avoid static electricity

NOTICE:

- **Touching the connector terminals may transmit static electricity to the inner circuits and may lead to malfunctions in the HDD.**
- **When installing or removing the disc player disc, observe all precautions to prevent damage to the system by electrostatic discharge (ESD).**

v. Keep away from magnetic items

NOTICE:

Keep speakers, motors, magnetized tools, etc. away from the disc player disc.

b. When replacing the disc player disc, follow the precaution below.

i. After removing and installing the disc player disc, use the HDD information screen to perform the SMART inspection and confirm that there are no malfunctions in the HDD (Click here).

2.PRECAUTIONS DURING REPLACEMENT

NOTICE:

When replacing electronic parts, if there is a possibility that your body may contact a circuit board, etc., use the recommended tools and observe all precautions to prevent damage to the system by electrostatic discharge (ESD).

a. Procedures where static electricity countermeasures are necessary

i. Disc player disc replacement.

ii. Internal wiring connection/disconnection, inspection, and replacement.

b. Precautions during procedures

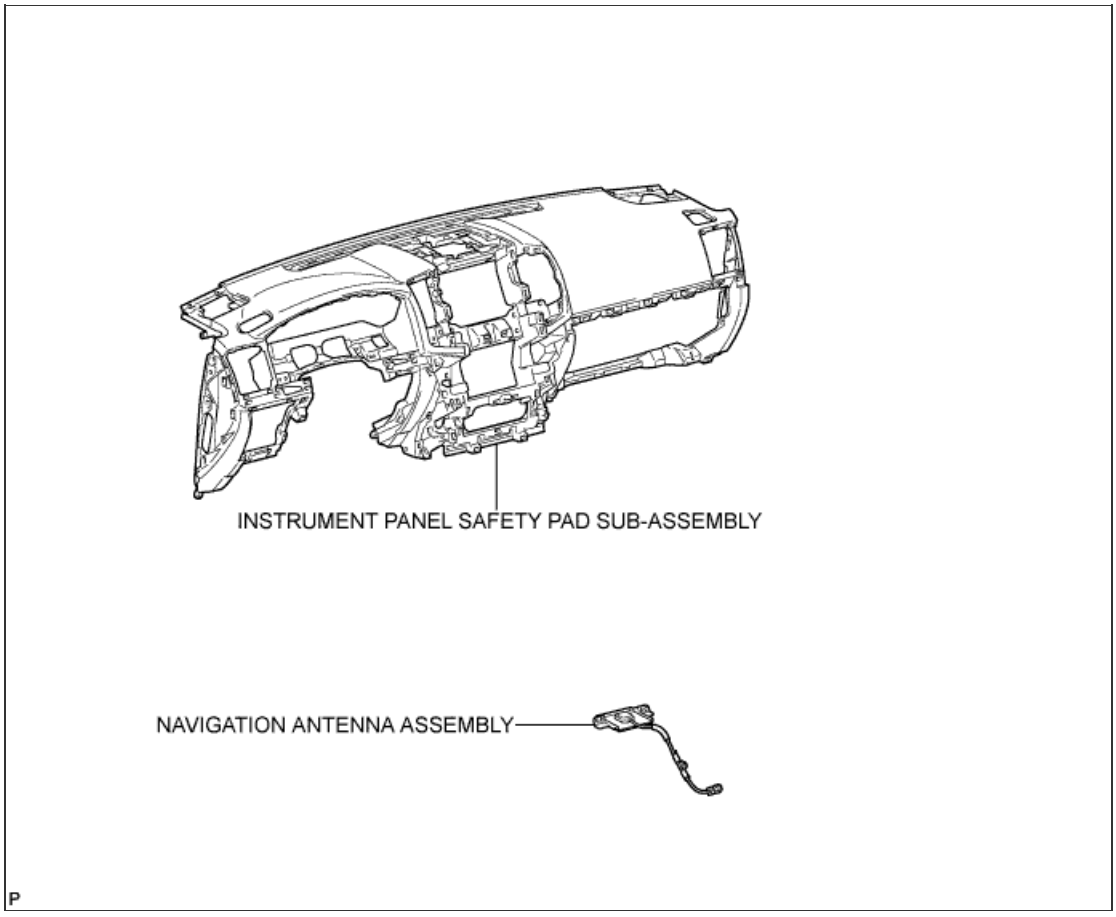
i. Before performing any procedures, touch an unpainted metal part or ground bolt of the vehicle to eliminate any static electricity.

ii. To prevent damage to electrical equipment, disconnect the battery's power supply before installing and removing electrical equipment.

iii. Never touch the electronic parts of a circuit board, or the pins of an integrated circuit.

iv. When performing procedures, do not allow clothing to come near or contact parts.

for Preparation Click here



for Preparation Click here

HINT:

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

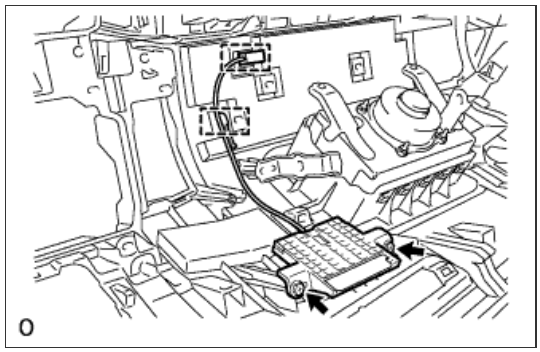
2. REMOVE INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY

a. Remove the instrument panel safety pad (Click here).

3. REMOVE NAVIGATION ANTENNA ASSEMBLY

a. Detach the 2 clamps.

b. Remove the 2 screws and antenna.



for Preparation Click here

1. INSPECT NAVIGATION ANTENNA ASSEMBLY

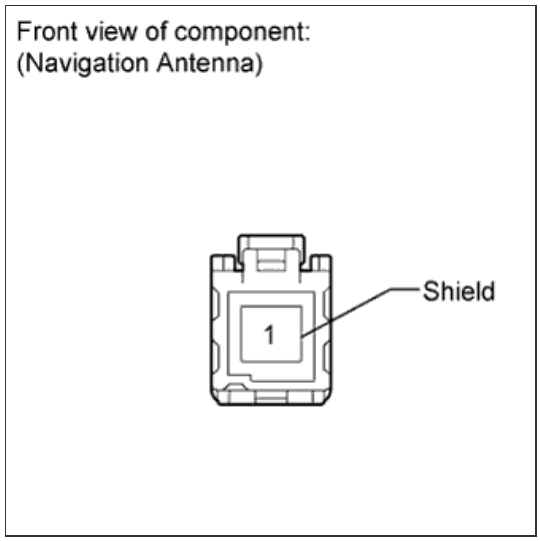
a. Disconnect the navigation antenna connector.

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

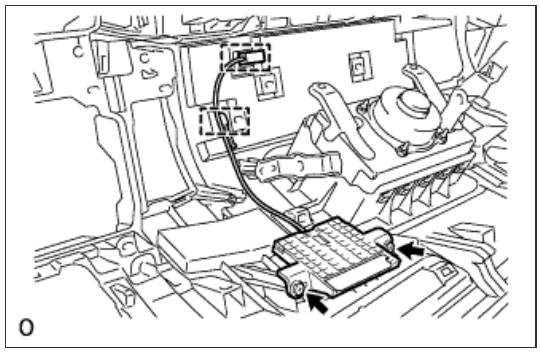
HINT:

- **Use the same procedures for LHD and RHD vehicles.**
- **The procedures listed below are for LHD vehicles.**

1. INSTALL NAVIGATION ANTENNA ASSEMBLY

a. Install the antenna with the 2 screws.

b. Attach the 2 clamps.



2. INSTALL INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY

a. Install the instrument panel safety pad (Click here).

3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disc nnecting the cable, s me systems need t e initiali ed after the cable is rec nnected (Click here).

. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

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.

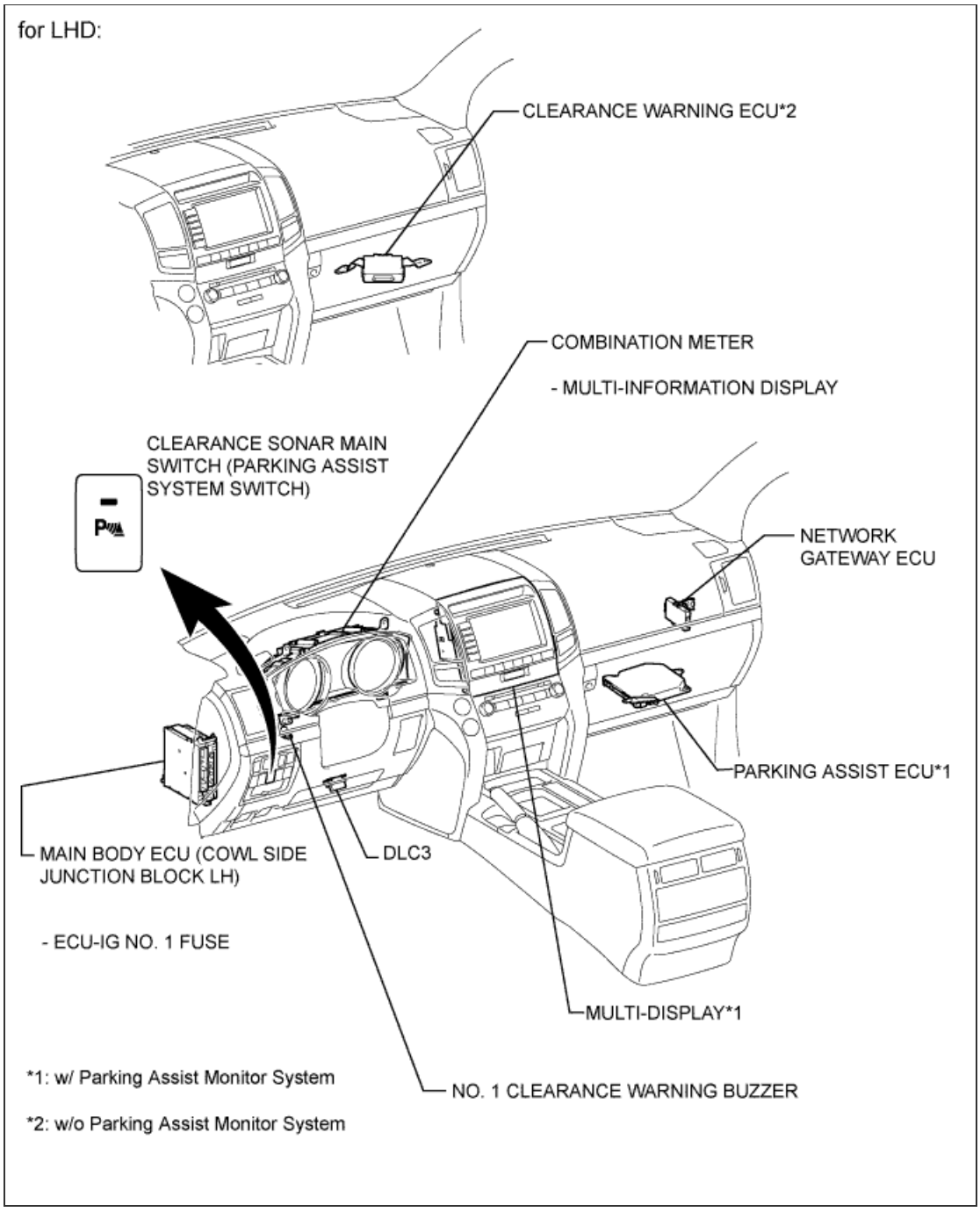
e. Other notices:

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).

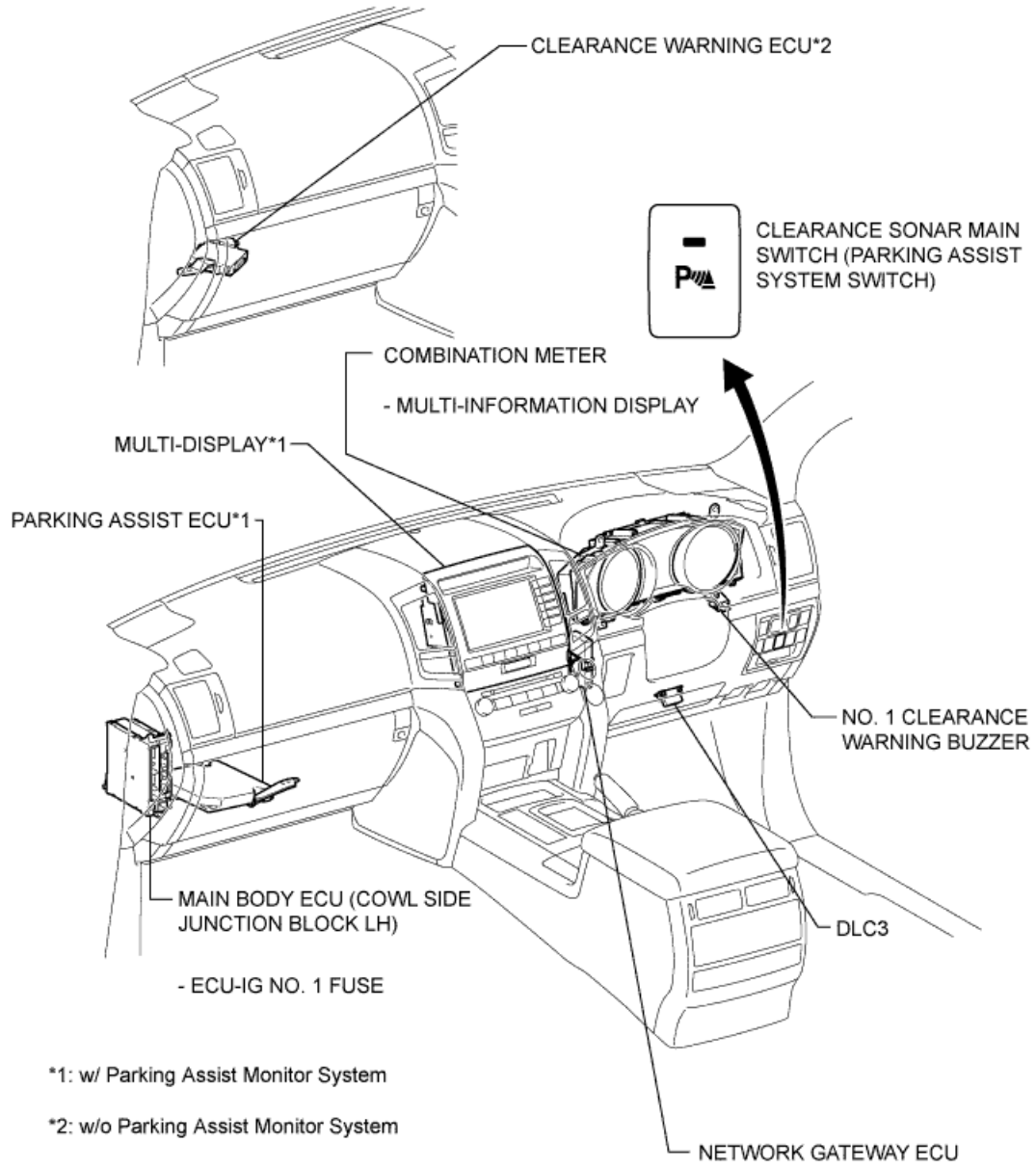
ii. The sensor may be unable to detect obstacles that are too close to the sensor.

iii. The sensor may be unable to detect obstacles if it is dropped or subjected to a strong impact.

for Preparation Click here

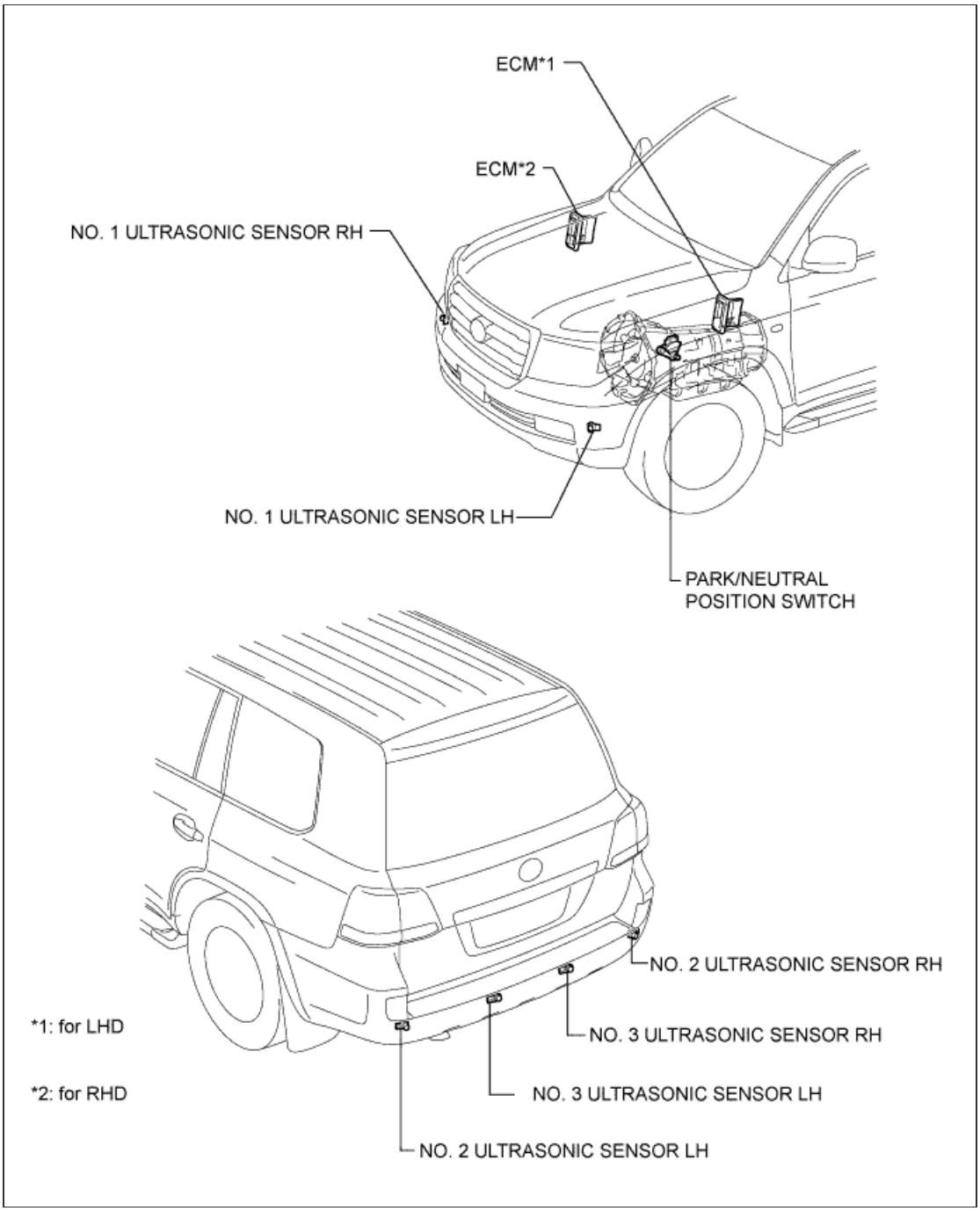


for RHD:

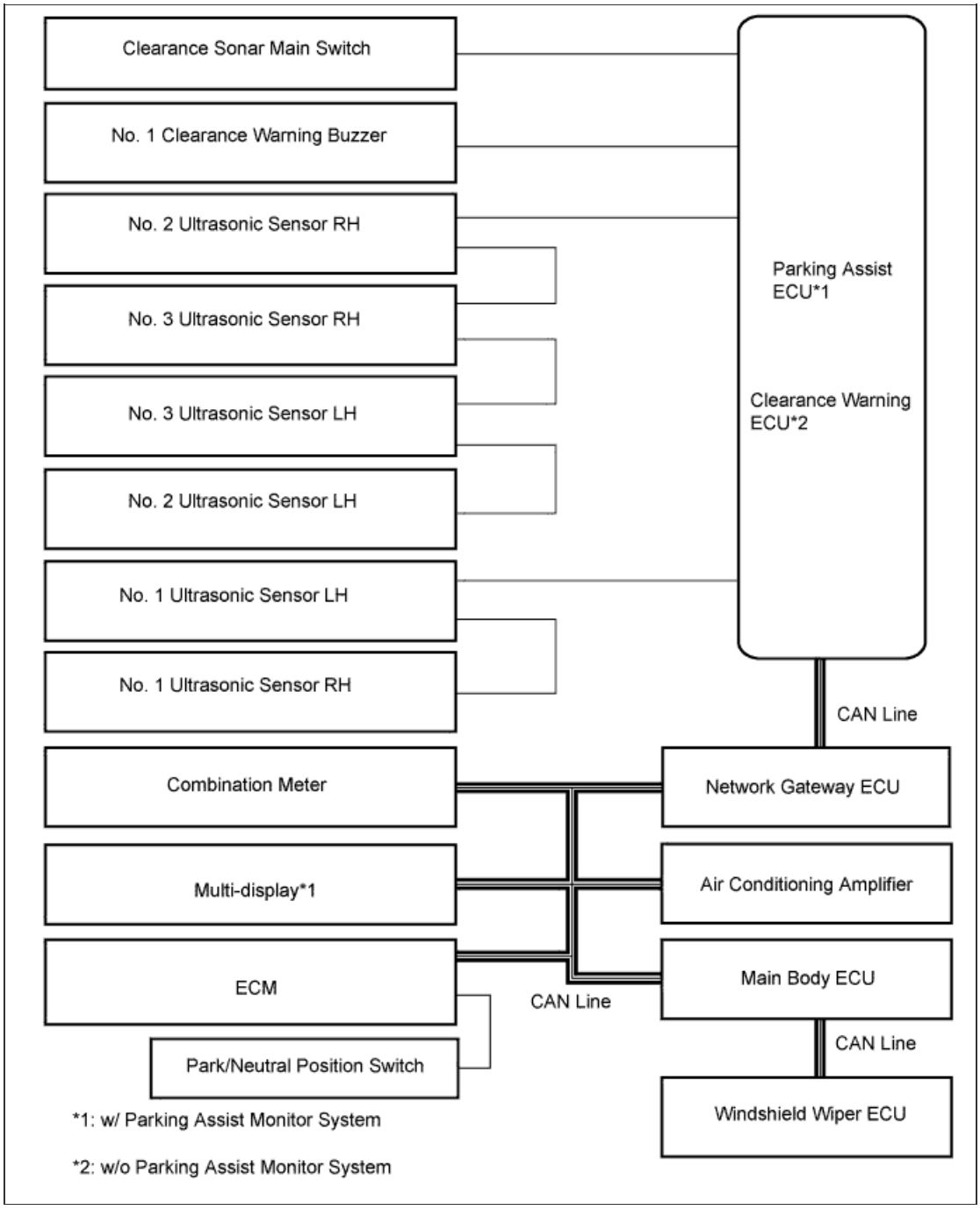


*1: w/ Parking Assist Monitor System

*2: w/o Parking Assist Monitor System


ECM*1
ECM*2
NO. 1 ULTRASONIC SENSOR RH
NO. 1 ULTRASONIC SENSOR LH
PARK/NEUTRAL
POSITION SWITCH
NO. 2 ULTRASONIC SENSOR RH
NO. 3 ULTRASONIC SENSOR RH
NO. 3 ULTRASONIC SENSOR LH
NO. 2 ULTRASONIC SENSOR LH
*1: for LHD
*2: for RHD

for Preparation Click here



Communication Table

Sender ECU	Receiver ECU	Signal	Line
Combination Meter	• Parking assist ECU*1 • Clearance warning ECU*2	Vehicle speed signal	CAN
ECM	• Parking assist ECU*1 • Clearance warning ECU*2	Shift position signal	CAN
Air Conditioning Amplifier	• Parking assist ECU*1 • Clearance warning ECU*2	Outside temperature	CAN
Main Body ECU	• Parking assist ECU*1 • Clearance warning ECU*2	• Dimmer signal • Destination information • Steering information	CAN
	• Parking assist ECU*1		

Windshield Wiper ECU	• Clearance warning ECU*2	Wiper status signal	CAN
• Parking assist ECU*1 • Clearance warning ECU*2	Combination Meter	Ultrasonic sensor detection signal	CAN

HINT:

*1: w/ Parking Assist Monitor System

*2: w/o Parking Assist Monitor System

for Preparation Click here

GENERA

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.

NCTION O COMPONENTS

Components	Function
Ultrasonic sensor	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*2
Combination meter	• 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
Clearance sonar main switch	Built into the drive monitor switch. Outputs system ON/OFF signals to parking assist ECU*1 or clearance warning ECU*2.
• Parking assist ECU*1 • Clearance warning ECU*2	• Receives signals from the ultrasonic sensors and sends the display signal to the combination meter. • Receives signals from the ultrasonic sensors and sends the display signal to the multi-display. • Receives signals from the ultrasonic sensors and sends buzzer signal to No. 1 clearance warning buzzer
Park/neutral position switch	Sends a signal that activates the TOYOTA parking assist-sensor system when the shift lever is moved to R.
Multi-display	Receives the information from the parking assist ECU*1 or clearance warning ECU*2 through the CAN, 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	Transmits destination symbol, dimmer signal and steering wheel symbol to parking assist ECU*1 or clearance warning ECU*2.
Air conditioning amplifier	Transmits ambient temperature to parking assist ECU*1 or clearance warning ECU*2.
Windshield wiper ECU	Transmits wiper status signal to parking assist ECU*1 or clearance warning ECU*2.

HINT:

*1: w/ Parking Assist Monitor System

*2: w/o Parking Assist Monitor System

OPERATION E P ANATION

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 and the clearance warning buzzer. The approximate distance between the vehicle and the obstacle is then indicated, and the buzzer sounds.

HINT:

Refer to "Operation Check" for the detailed operation (Click here).

for Preparation Click here

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.

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. → Go to step 7

A

6.OVERALL ANALYSIS AND TROUBLESHOOTING*

a. Operation Check (Click here).

b. Terminals of ECU (Click here).

c. Data List / Active Test (Click here).

NEXT

7.ADJUST, REPAIR OR REPLACE

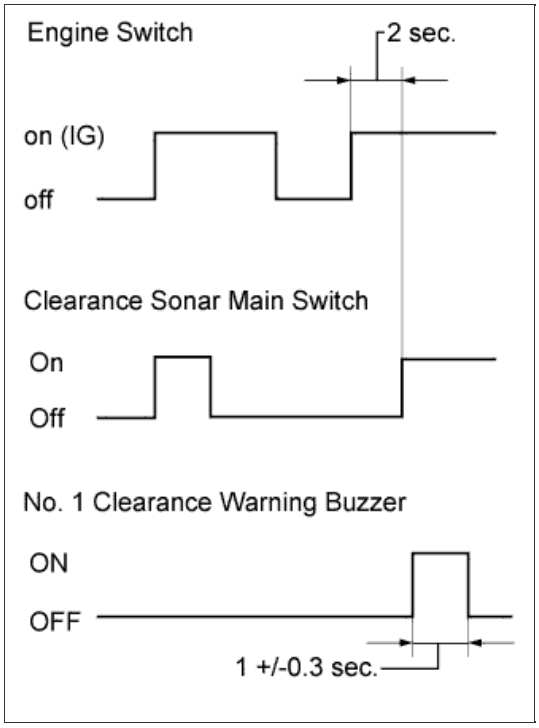
NEXT

8.CONFIRMATION TEST

NEXT

END

for Preparation Click here



INITIAL CHECK FUNCTION

a. Turn the engine switch on (IG).

b. After 2 seconds or more have passed, turn the clearance sonar main switch ON. Then check the buzzer sounding condition.

Buzzer sounding:
1 +/-0.3 seconds

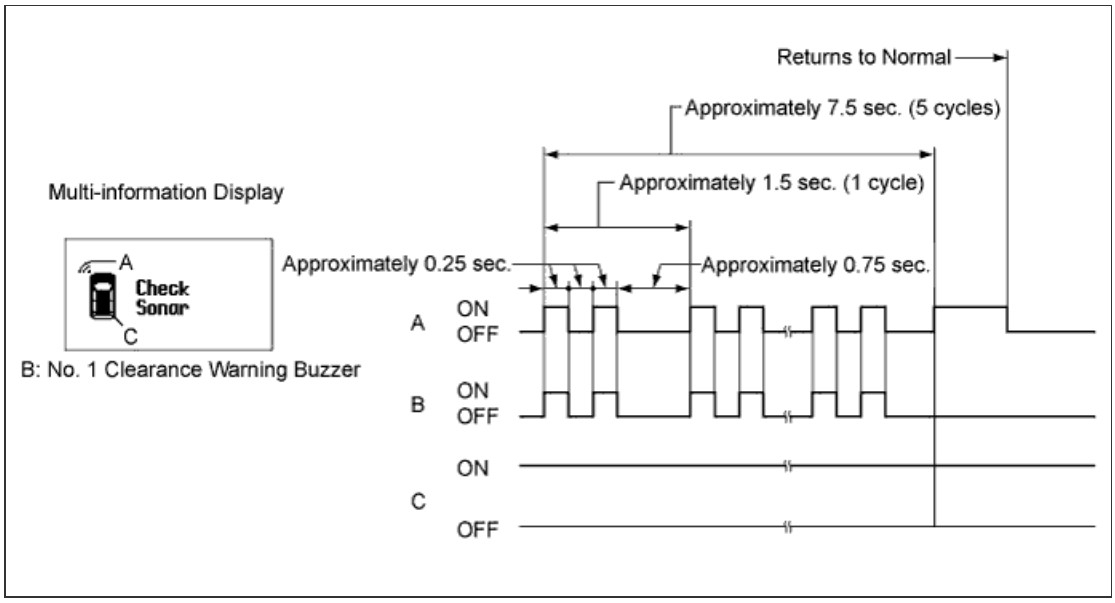
HINT:

- **If a malfunction is detected in the ultrasonic sensor circuits, the location of the malfunctioning sensor blinks on the 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 clearance sonar main switch is ON, the buzzer will not sound.**

MALFUNCTION OF MULTI-INFORMATION DISPLAY

a. Ultrasonic sensor open circuit

i. If there is an open circuit between the ultrasonic sensor and the ECU or a sensor is malfunctioning, the malfunction is displayed as shown in the illustration.

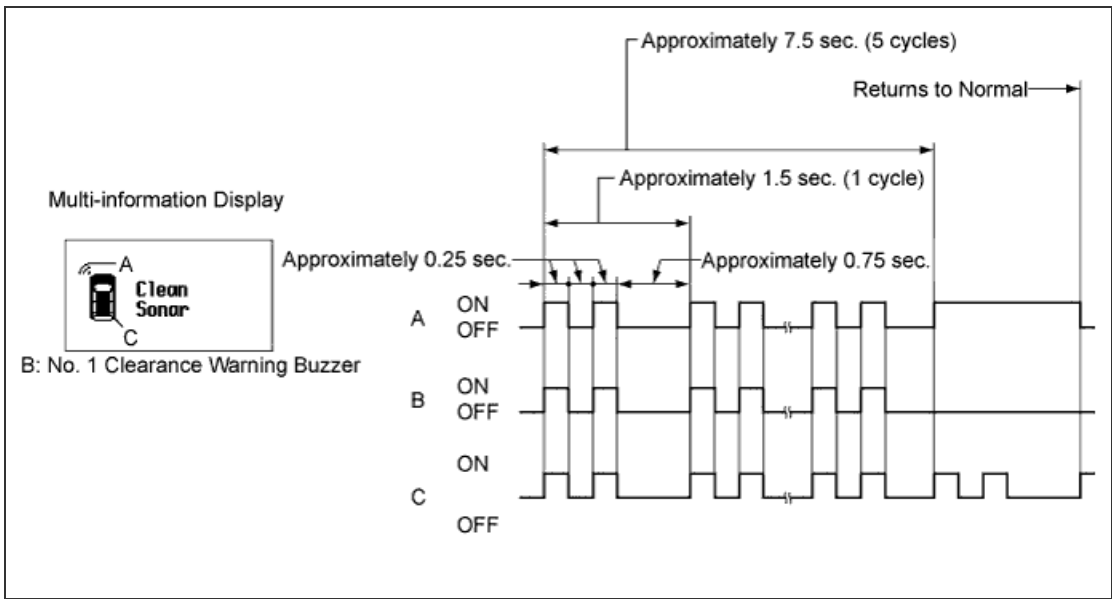


HINT:

- **The example shows an open circuit in the No. 1 ultrasonic sensor (front left sensor).**
- **If a sensor has an open circuit, "Check Sonar" is displayed. Refer to "open circuit in front sensor is displayed as a result or self-check" in the problem symptoms table to inspect it.**

b. Ultrasonic sensor frozen

i. If a sensor is covered with foreign matter, such as mud or snow, the affected sensor is displayed as shown in the illustration.



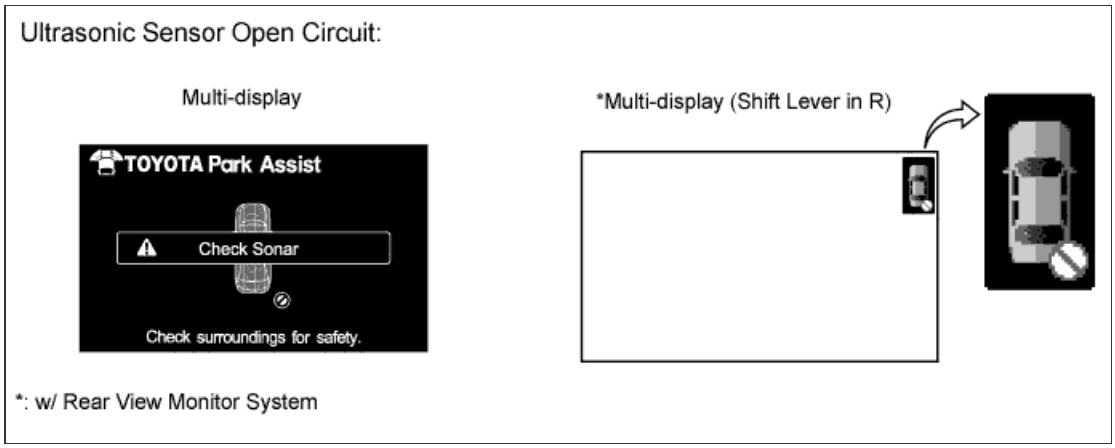
HINT:

- **The example shows that the No. 1 ultrasonic sensor (front left sensor) is covered with foreign matter.**
- **If "Clean Sonar" is displayed, cleaning the foreign matter from the sensor will return the sensor to normal.**

MALFUNCTION OF MULTI-DISPLAY

a. Ultrasonic sensor open circuit

i. If there is an open circuit between the ultrasonic sensor and the ECU or a sensor is malfunctioning, the malfunction is displayed as shown in the illustration.

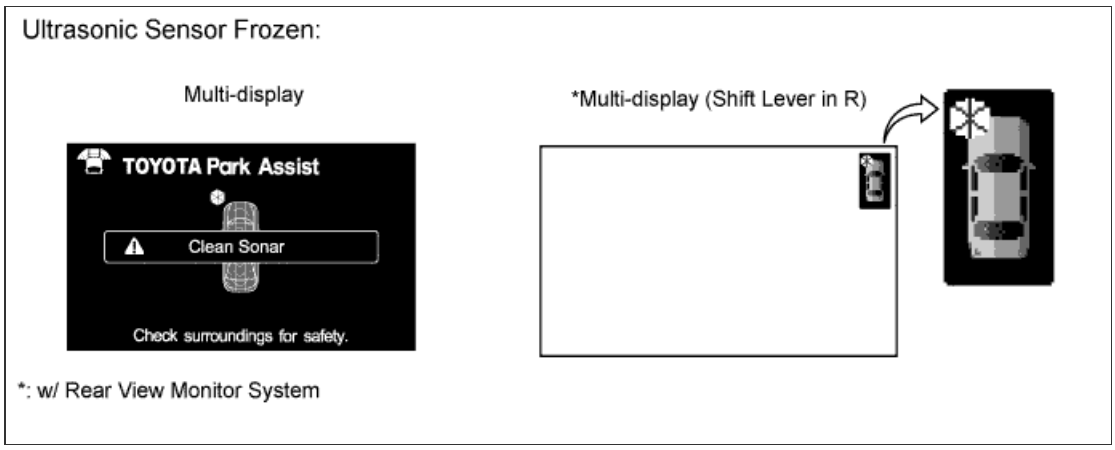


HINT:

- **This example shows an open circuit in the No. 2 ultrasonic sensor (rear right sensor).**
- **If a sensor has an open circuit, refer to "open circuit in rear sensor is displayed as a result of self-check" in the problem symptoms table to inspect it.**

b. Ultrasonic sensor frozen

i. If a sensor is covered with foreign matter, such as mud or snow, the affected sensor is displayed as shown in the illustration.



HINT:

- **The example shows that the No. 1 ultrasonic sensor (front left sensor) is covered with foreign matter.**
- **If "Clean sonar" is displayed, cleaning the foreign matter from the sensor will return the sensor to normal.**

DETECTION RANGE MEASUREMENT AND DISPLAY CHECK

NOTICE:

Apply the parking brake securely so that the vehicle does not move.

a. Turn the engine switch on (IG).

b. Move the shift lever to R to check the No. 1 ultrasonic sensors, No. 2 ultrasonic sensors and No. 3 ultrasonic sensors.

c. Move the shift lever to D and N to check the No. 1 ultrasonic sensors.

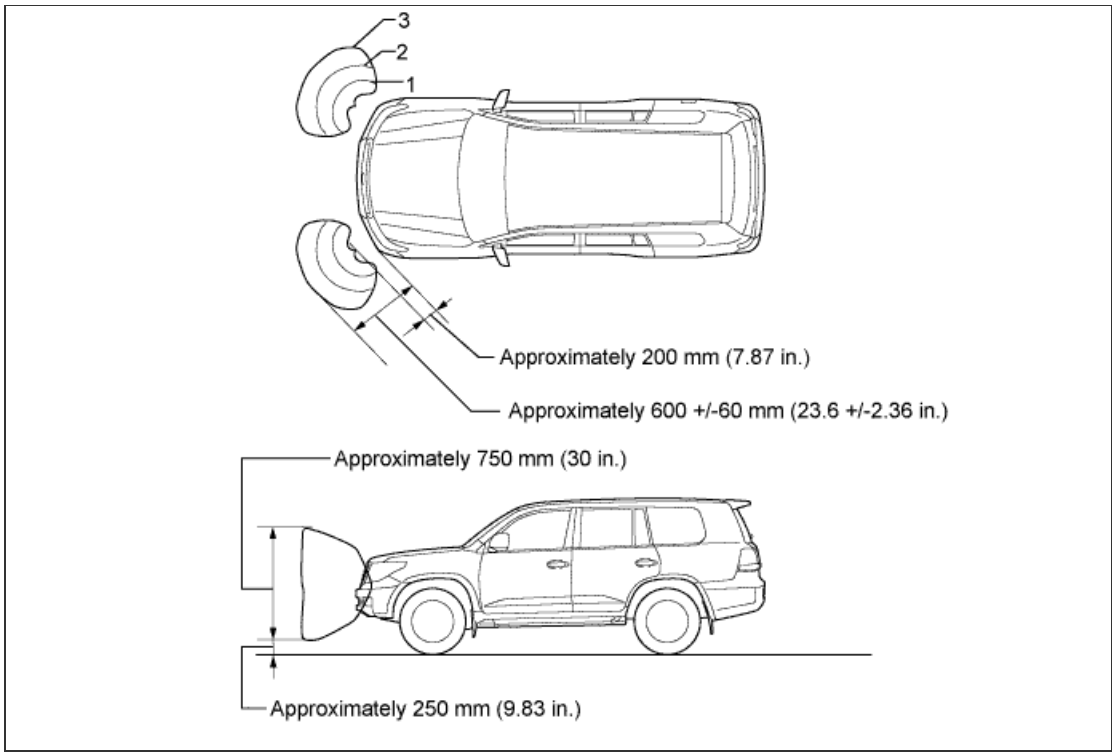
d. Turn the clearance sonar main switch on.

e. Move the φ60 mm (2.36 in.) pole around the sensor to measure the detection range of the sensor.

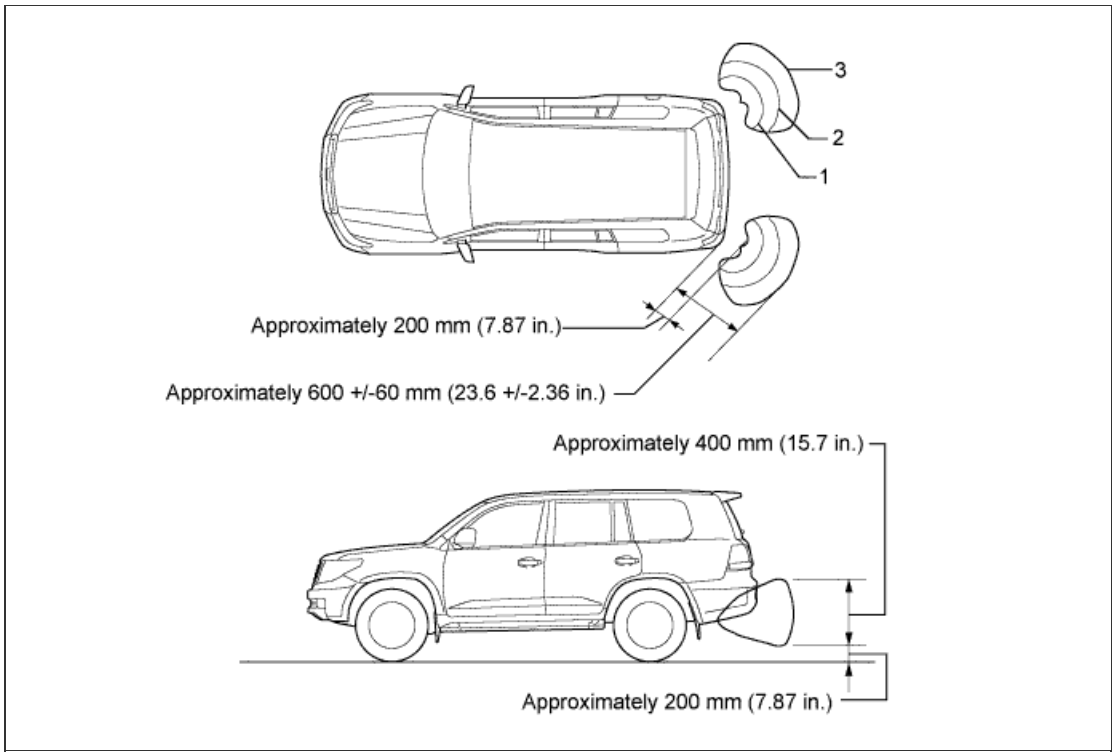
NOTICE:

- **These detection ranges are applicable when positioning the φ60 mm (2.36 in.) pole parallel or perpendicular to the ground.**
- **The ranges vary depending on the measuring method and type of obstacle (such as walls).**
- **For close-range and medium-range detection, the values shown are for when using a pole with a diameter of 60 mm (2.36 in.). For long-range detection, the values shown are for when using walls.**
- **The detection range of the resin bumper and steel bumper are not the same, as their installation positions are slightly different.**

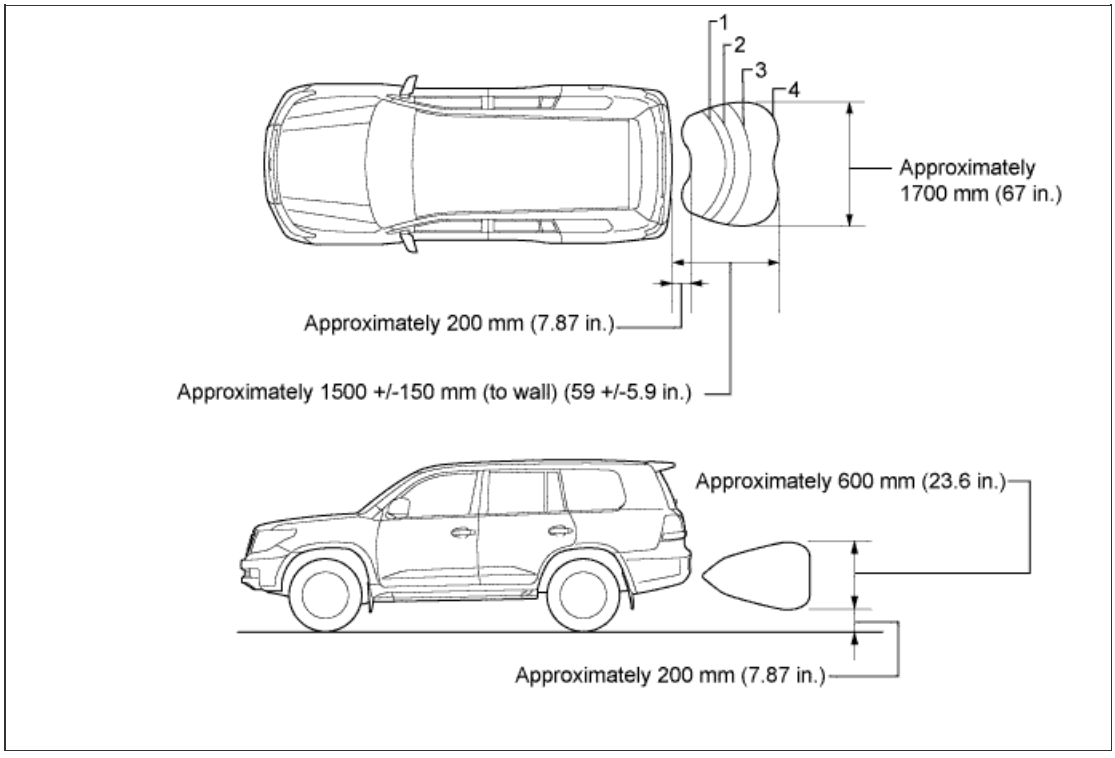
i. No. 1 ultrasonic sensors detection range



ii. No. 2 ultrasonic sensor detection range



iii. No. 3 ultrasonic sensor detection range



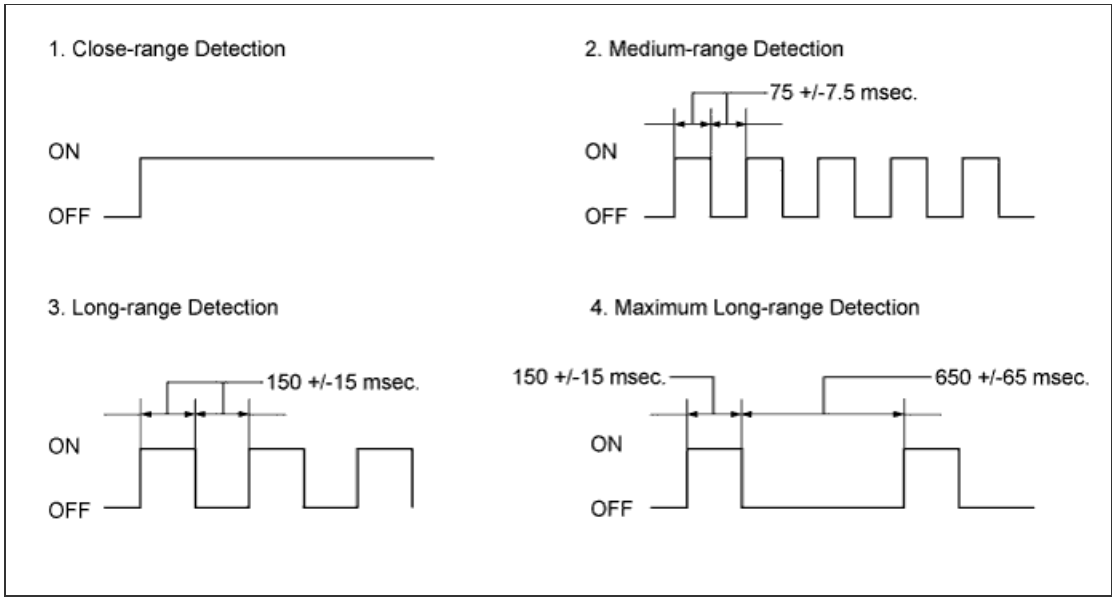
f. When the ultrasonic sensors have detected an obstacle, check the multi-display, multi-information display and that the No. 1 clearance warning buzzer sounds with the clearance sonar main switch on.

Operation Condition

Shift Lever Position	Vehicle Speed	Multi-display Detection, Multi-information Display Detection, Buzzer Detection		
		No. 1 Ultrasonic Sensor	No. 2 Ultrasonic Sensor	No. 3 Ultrasonic Sensor
P	-	Only perform check operation		
D, S, (N)	9 km/h (5.6 mph) or less	○	X	X

R	No limit			

i. Check that the buzzer sounds with the clearance sonar main switch on as shown in the illustration.



No. 1 Ultrasonic Sensor Detection Range

Detection	Distance
1. Close-range detection	Within 350 +/-40 mm (13.8 +/-1.57 in.)
2. Medium-range detection	350 +/-40 to 475 +/-50 mm (13.8 +/-1.57 to 18.7 +/-1.96 in.)
3. Long-range detection	475 +/-50 to 600 +/-60 mm (18.7 +/-1.96 to 23.6 +/- 2.36 in.)

No. 2 Ultrasonic Sensor Detection Range

Detection	Distance
1. Close-range detection	Within 300 +/-30 mm (11.8 +/-1.18 in.)
2. Medium-range detection	300 +/-30 to 375 +/-40 mm (11.8 +/-1.18 to 14.8 +/-1.57 in.)
3. Long-range detection	375 +/-40 to 600 +/-60 mm (14.8 +/-1.57 to 23.6 +/-2.36 in.)

No. 3 Ultrasonic Sensor Detection Range

Detection	Distance
1. Close-range detection	Within 350 +/-40 mm (13.8 +/-1.57 in.)
2. Medium-range detection	350 +/-40 to 450 +/-50 mm (13.8 +/-1.57 to 17.7 +/-1.96 in.)
3. Long-range detection	450 +/-50 to 600 +/-60 mm (17.7 +/-1.96 to 23.6 +/-2.36 in.)
4. Maximum long-range detection	600 +/-60 to 1500 +/-150 mm (23.6 +/-2.36 to 59.1 +/-5.91 in.)

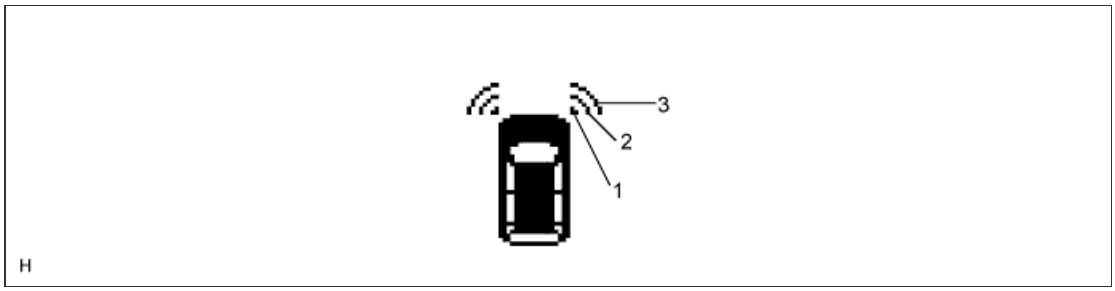
HINT:

Ultrasonic waves are used to measure the detection range. However, the detection range may vary depending on the ambient temperature.

ii. Check the multi-information display and buzzer when the No. 1 ultrasonic sensors have detected an obstacle.

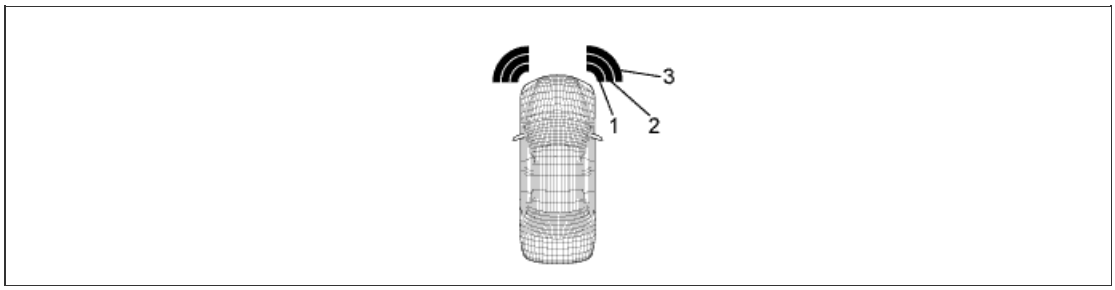
Operation Condition

Engine Switch	Clearance Sonar Main Switch	Shift Lever Position	Vehicle Speed
on (IG)	On	D, N	9 km/h (5.6 mph) or less



Multi-information Display

Detection Range	uzzer	Number of ars Displayed
1. Close-range detection	Sounds continuously	1 (blinking)
2. Medium-range detection	Sounds intermittently (ON: 75 msec. / OFF: 75 msec.)	2 (illuminated)
3. Long-range detection	Sounds intermittently (ON: 150 msec. / OFF: 150 msec.)	3 (illuminated)



Multi-display

Detection Range	Buzzer	Number of Bars Displayed
1. Close-range detection	Sounds continuously	1 (red illumination)
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)

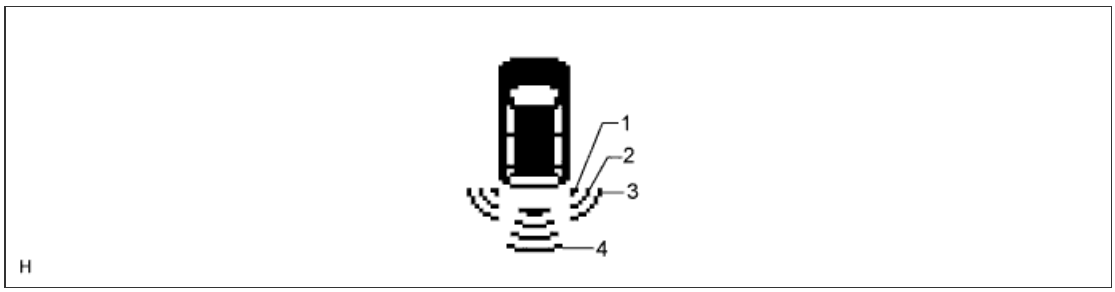
HINT:

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. 2 ultrasonic sensors and No. 3 ultrasonic sensors have detected an obstacle.

Operation Condition

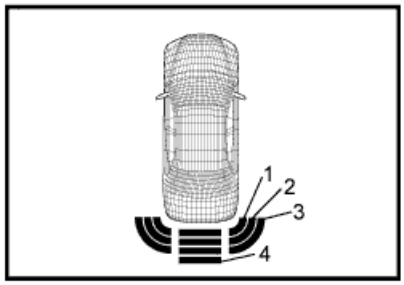
Engine Switch	Clearance Sonar Main Switch	Shift Lever Position
on (IG)	On	R

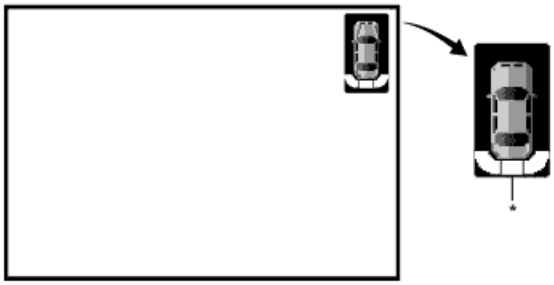


Multi-information Display

Detection Range	Buzzer	Number of Bars Displayed
1. Close-range detection	Sounds continuously	1 (blinking)

2. Medium-range detection	Sounds intermittently (ON: 75 msec. / OFF: 75 msec.)	2 (illuminated)
3. Long-range detection	Sounds intermittently (ON: 150 msec. / OFF: 150 msec.)	3 (illuminated)
4. Maximum long-range detection (for rear center sensors)	Sounds intermittently (ON: 150 msec. / OFF: 650 msec.)	4 (illuminated)





*: w/ Rear View Monitor System

Multi-display

Detection Range	Buzzer	Number of Bars Displayed
1. Close-range detection	Sounds continuously	1 (red illumination) *: Illumination (red)
2. Medium-range detection	Sounds intermittently (ON: 75 msec. / OFF: 75 msec.)	2 (yellow illumination) *: Blinking (yellow)
3. Long-range detection	Sounds intermittently (ON: 150 msec. / OFF: 150 msec.)	3 (yellow illumination) *: Blinking (yellow)
4. Maximum long-range detection (for rear center sensors)	Sounds intermittently (ON: 150 msec. / OFF: 650 msec.)	4 (yellow illumination) *: Blinking (yellow)

HINT:

Ultrasonic waves are used to measure the detection range. However, the detection range may vary depending on the ambient temperature.

for Preparation Click here

CUSTOMIZE PARAMETERS

NOTICE:

- **When the customer requests a change in a function, first make sure that the function can be customized.**
- **Be sure to make a note of the current settings before customizing.**
- **When troubleshooting a function, first make sure that the function is set to the default setting.**

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Customize Setting /

e. Select the setting by referring to the table below.

Warning

Display	Default	Contents	Setting
Fr Sensor Onset Range	Wide	Sets the buzzer activation range for the front sensors.	Narrow or Wide
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 Freq	Middle	Changes the buzzer sounding frequency.	Low, Middle or High
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

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*1	Click here
	Clearance Warning ECU Power Source Circuit*2	Click here
	Clearance Sonar Main Switch Circuit	Click here
	Parking Assist ECU*1	Click here
	Clearance Warning ECU*2	Click here
ECU does not operate when clearance sonar main switch is turned on or off	Read value using the intelligent tester (EEPROM status)	Click here
	Parking Assist ECU*1	Click here
	Clearance Warning ECU*2	Click here

Sonar Function

Symptom	Suspected Area	See page
Freeze condition is displayed as a result of self-check	Remove ice, mud or snow from the ultrasonic sensor	-
Open circuit in front sensors is displayed as a result of self-check	Front Left Sensor Malfunction	Click here
	Front Right Sensor Malfunction	Click here
	Parking Assist ECU*1	Click here
	Clearance Warning ECU*2	Click here
Open circuit in rear sensors is displayed as a result of self-check	Rear Left Sensor Malfunction	Click here
	Rear Right Sensor Malfunction	Click here
	Rear Left Center Sensor Malfunction	Click here
	Rear Right Center Sensor Malfunction	Click here
	Parking Assist ECU*1	Click here
	Clearance Warning ECU*2	Click here
etection operation operates even when vehicle speed is more than 13 km/h (mph)	CA Communication System*	Click here
	CA Communication System*	Click here
	Parking Assist ECU*1	Click here
	Clearance Warning ECU*2	Click here

Display Function

Symptom	Suspected Area	See page
etection operation is normal but sonar displays do not appear on multi-information display	CA Communication System*	Click here
	CA Communication System*	Click here
	Parking Assist ECU*1	Click here
	Clearance Warning ECU*2	Click here
	Combination Meter	Click here
etection operation is normal but sonar displays do not appear on multi-display	CA Communication System*	Click here
	CA Communication System*	Click here
	Parking Assist ECU*1	Click here
	Clearance Warning ECU*2	Click here
	Multi-display	Click here
etection operation is normal but clearance sonar main switch indicator does not illuminate	Clearance Sonar Main Switch Circuit	Click here
	Parking Assist ECU*1	Click here
	Clearance Warning ECU*2	Click here

Bu er

Symptom	Suspected Area	See page
etection operation is normal but buzzer operation is intermittent	Clearance Warning uzzer Circuit	Click here
	Parking Assist ECU*1	Click here
	Clearance Warning ECU*2	Click here

HINT:

*1 w/ Parking Assist Monitor System

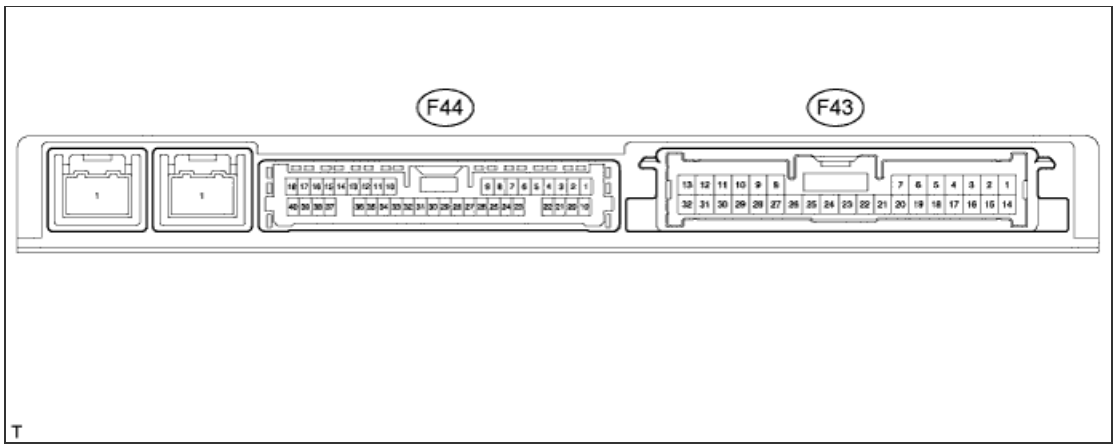
*2: w/o Parking Assist Monitor System

* for LH

* for RH

for Preparation Click here

CHECK PARK ASSIST ECU (w/ Parking Assist Monitor System)



a. Disconnect the F43 and F44 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
F43-6 (+B) - F43-4 (GND1)	L - W-B	Power source signal	Always	11 to 14 V
F43-1 (IG) - F43-4 (GND1)	G - W-B	IG power source signal	Engine switch on (IG)	11 to 14 V
F43-1 (IG) - F43-4 (GND1)	G - W-B	IG power source signal	Engine switch off	Below 1 V
F43-14 (ACC) - F43-4 (GND1)	GR - W-B	ACC power source signal	Engine switch on (ACC)	11 to 14 V
F43-14 (ACC) - F43-4 (GND1)	GR - W-B	ACC power source signal	Engine switch off	Below 1 V
F44-6 (CSSW) - F43-4 (GND1)	Y - W-B	Clearance sonar main switch power source signal	Engine switch on (IG), clearance sonar main switch on	11 to 14 V
F44-6 (CSSW) - F43-4 (GND1)	Y - W-B	Clearance sonar main switch power source signal	Engine switch on (IG), clearance sonar main switch off	Below 1 V
F43-4 (GND1) - Body ground	W-B - Body ground	ECU ground	Always	Below 1 Ω

c. Reconnect the F43 and F44 ECU connectors.

d. Measure the voltage and waveform according to value(s) in the table below.

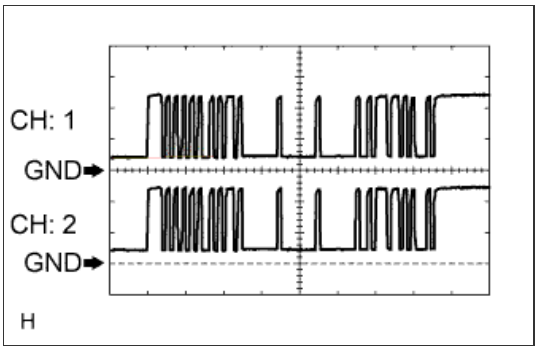
Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
F44-28 (BOR) - F44-29 (E2)	R - GR	Rear sensor circuit power source	Engine switch on (IG), clearance sonar main switch on	7.2 to 8.8 V
F44-28 (BOR) - F44-29 (E2)	R - GR	Rear sensor circuit power source	Engine switch off	Below 1 V
F44-33 (SOF) - F44-32 (E1)	LG - R	Front sensor circuit power source	Engine switch on (IG), clearance sonar main switch on	Waveform 1
F44-25 (BBZ) - F43-4 (GND1)	G - W-B	No. 1 clearance warning buzzer signal	Engine switch on (IG)	7.2 to 8.8 V
F44-25 (BBZ) - F43-4 (GND1)	G - W-B	No. 1 clearance warning buzzer signal	Engine switch off	Below 1 V
F44-9 (EF) - F43-4 (GND1)	L - W-B	No. 1 clearance warning buzzer signal	Buzzer sounding	Waveform 2

F44-31 (BOF) - F44-32 (E1)	GR - R	Front sensor circuit power source	Engine switch off	Below 1 V
F44-31 (BOF) - F44-32 (E1)	GR - R	Front sensor circuit power source	Engine switch on (IG), clearance sonar main switch on	7.2 to 8.8 V
F44-30 (SOR) - F44-29 (E2)	LG - GR	Rear sensor circuit power source	Engine switch on (IG), clearance sonar main switch on	Waveform 1

e. Using an oscilloscope, check waveform 1.

aveform (Reference)

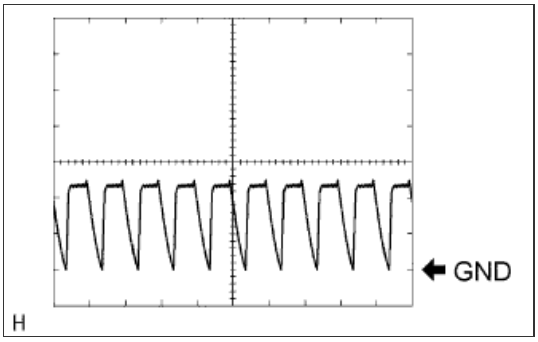
Item	Content
Terminal No. (Symbol)	• F44-33 (SOF) - F44-32 (E1) • F44-30 (SOR) - F44-29 (E2)
Tool Setting	2 V/DIV., 1 msec./DIV.
Condition	Engine switch on (IG), clearance sonar main switch on



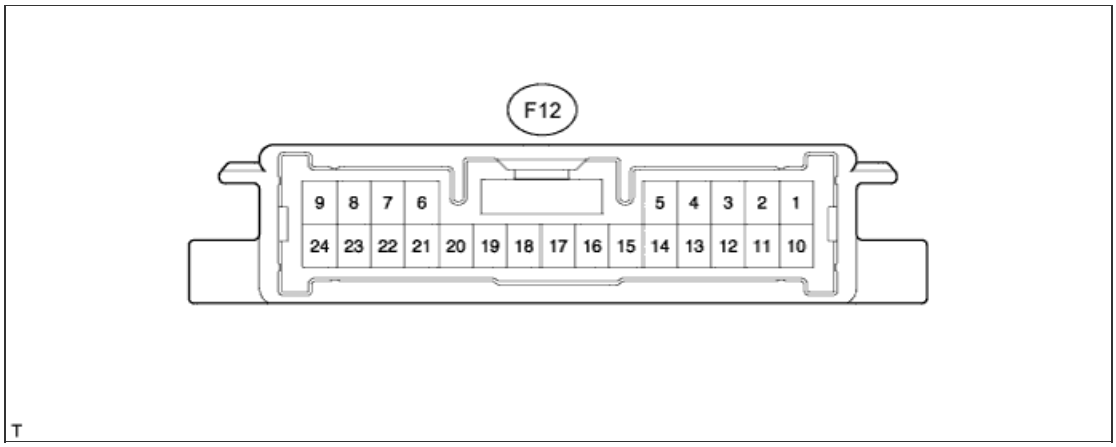
f. Using an oscilloscope, check waveform 2.

Waveform 2 (Reference)

Item	Content
Terminal No. (Symbol)	F44-9 (EF) - F43-4 (GND1)
Tool Setting	5 V/DIV., 1 msec./DIV.
Condition	Engine switch on (IG), shift lever moved to R



CHECK CLEARANCE WARNING ECU (w/o Parking Assist Monitor System)



a. Disconnect the F12 ECU connector.

b. Measure the voltage and resistance according to value(s) in the table below.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
F12-15 (IG) - F12-17 (GND1)	G - W-B	IG power source signal	Engine switch on (IG)	11 to 14 V
F12-15 (IG) - F12-17 (GND1)	G - W-B	IG power source signal	Engine switch off	Below 1 V
F12-12 (CSSW) - F12-17 (GND1)	Y - W-B	Clearance sonar main switch power source signal	Engine switch on (IG), clearance sonar main switch on	11 to 14 V
F12-12 (CSSW) - F12-17	Y - W-B	Clearance sonar main switch power source	Engine switch on (IG), clearance sonar main	Below 1 V

(GND1)		signal	switch off	
F12-17 (GND1) - Body ground	W-B - Body ground	ECU ground	Always	Below 1 Ω

c. Reconnect the F12 ECU connector.

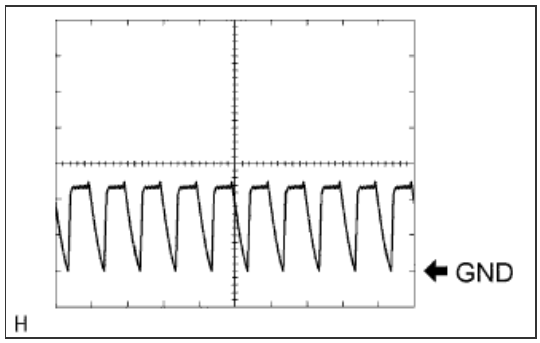
d. Measure the voltage and waveform according to value(s) in the table below.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
F12-10 (BBZ) - F12-11 (EF)	G - L	No. 1 clearance warning buzzer signal	Buzzer not sounding	Below 1 V
F12-10 (BBZ) - F12-11 (EF)	G - L	No. 1 clearance warning buzzer signal	Buzzer sounding	Waveform 1
F12-21 (BOF) - F12-19 (E1)	GR - R	No. 1 ultrasonic sensor circuit power source	Engine switch on (IG), clearance sonar main switch on	7.2 to 8.8 V
F12-21 (BOF) - F12-19 (E1)	GR - R	No. 1 ultrasonic sensor circuit power source	Engine switch off	Below 1 V
F12-9 (SOF) - F12-19 (E1)	LG - R	No. 1 ultrasonic sensor circuit power source	Engine switch on (IG), clearance sonar main switch on	Waveform 2
F12-7 (BOR) - F12-18 (E2)	R - GR	Rear ultrasonic sensor circuit power source	Engine switch on (IG), clearance sonar main switch on	7.2 to 8.8 V
F12-7 (BOR) - F12-18 (E2)	R - GR	Rear ultrasonic sensor circuit power source	Engine switch off	Below 1 V
F12-24 (SOR) - F12-18 (E2)	LG - GR	Rear ultrasonic sensor circuit power source	Engine switch on (IG), clearance sonar main switch on	Waveform 2

e. Using an oscilloscope, check waveform 1.

Waveform (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



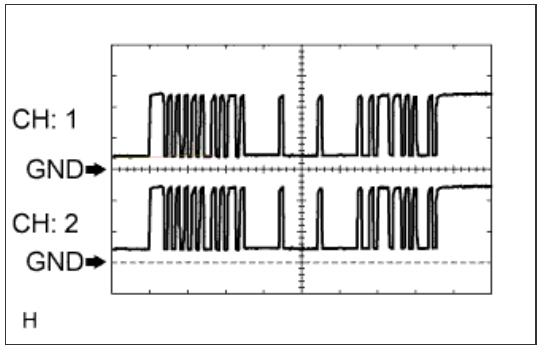
NOTICE

The waveform amplitude varies depending on the volume setting.

f. Using an oscilloscope, check waveform 2.

Waveform 2 (Reference)

Item	Content
Terminal No. (Symbol)	• F12-9 (SOF) - F12-19 (E1) • F12-24 (SOR) - F12-18 (E2)
Tool Setting	2 V/DIV., 1 msec./DIV.
Condition	Engine switch on (IG), clearance sonar main switch on



for Preparation Click here

CHECK DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus:
Body / Clearance Sonar / DTC.

e. Read the DTCs.

CLEAR DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus:
Body / Clearance Sonar / DTC.

e. Clear the DTCs.

for Preparation Click here

DATA LIST

HINT:

Using the intelligent tester to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Body / Clearance Sonar / Data List.

e. According to the display on the tester, read the Data List.

Clearance Sonar

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Main Switch	Clearance sonar main switch/OFF or ON	OFF: Clearance sonar main switch off ON: Clearance sonar main switch on	-
Clearance Sonar ECU Type	Type of clearance warning ECU/Normal or Steer	Normal: Normal clearance sonar type Steer: Steering sensing type	-
Fr Sensor Onset Range	Buzzer activation range (for front sensors)/Narrow or Wide	Narrow: Buzzer activation range narrow Wide: Buzzer activation range wide	-
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 Freq	Buzzer frequency/Low, Middle or High	Low: Buzzer frequency low Middle: Buzzer frequency middle High: Buzzer frequency high	-
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.
Front Side Dist Sensor	Buzzer activation range (for front sensors)/Short or Long	Short: Buzzer activation range short Long: Buzzer activation range long	-
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.
Reverse Range Front Sensor	Operation setting for vehicle front sensors (front center, front corner, front side)/F, Fs,Fc, Fsde or F Stop	F: All front sensors operate Fs,Fc: Front side and 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 Side Sensor	Front side 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 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 Left Center Sensor	Front 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	-
Fr Right Center Sensor	Front 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	-
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	
Fr Right Side Sensor	Front side 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)	-
		STOP: Sonar	

Sonar Detection	Sonar detection condition/STOP or WORK	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	-
Fr Right Side Freezed History	Front side sensor RH frozen history/Not Rec or Recorded	Not Rec: No record history Recorded: Record history	-
Fr Left Side Freezed History	Front side 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	Trouble Area	See page
C1AE1	Front Left Sensor Malfunction	- No. 1 ultrasonic sensor LH - Parking assist ECU*1 - Clearance Warning ECU*2	Click here
C1AE4	Front Right Sensor Malfunction	- No. 1 ultrasonic sensor RH - Parking assist ECU*1 - Clearance Warning ECU*2	Click here
C1AE6	Rear Left Sensor Malfunction	- No. 2 ultrasonic sensor LH - Parking assist ECU*1 - Clearance Warning ECU*2	Click here
C1AE7	Rear Left Center Sensor Malfunction	- No. 3 ultrasonic sensor LH - Parking assist ECU*1 - Clearance Warning ECU*2	Click here
C1AE8	Rear Right Center Sensor Malfunction	- No. 3 ultrasonic sensor RH - Parking assist ECU*1 - Clearance Warning ECU*2	Click here
C1AE9	Rear Right Sensor Malfunction	- No. 2 ultrasonic sensor RH - Parking assist ECU*1 - Clearance Warning ECU*2	Click here
C1AEC	Front Sensor Communication Malfunction	- Front ultrasonic sensor circuit - Parking assist ECU*1 - Clearance Warning ECU*2	Click here
C1AED	Rear Sensor Communication Malfunction	- Rear ultrasonic sensor circuit - Parking assist ECU*1 - Clearance Warning ECU*2	Click here
C1AEF	Shift Position Information	CAN communication system	Click here
U0155	Lost Communication with Instrument Panel Cluster Control Module (Combination Meter)	CAN communication system	Click here

DTC C1AE1 Front Left Sensor Malfunction

for Preparation Click here

DESCRIPTION

The No. 1 ultrasonic sensor LH is installed on the front bumper. The ECU detects obstacles based on signals received from the No. 1 ultrasonic sensor LH. If the No. 1 ultrasonic sensor LH has an open or other malfunction, it will not function normally.

DTC Code	DTC Detection Condition	Trouble Area
C1AE1	A malfunction of the No. 1 ultrasonic sensor LH.	• No. 1 ultrasonic sensor LH • Parking assist ECU*1 • Clearance warning ECU*2

HINT:

*1: w/ Parking Assist Monitor System

*2: w/o Parking Assist Monitor System

INSPECTION PROCEDURE

NOTICE:

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AE1 is output	A
No DTC is output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

.REPLACE NO. 1 ULTRASONIC SENSOR LH

a. Replace the No. 1 ultrasonic sensor LH with a normally functioning sensor (Click here).

NEXT

3.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AE1 is output (w/ Parking Assist Monitor System)	A
DTC C1AE1 is output (w/o Parking Assist Monitor System)	B
No DTC is output	C

B → REPLACE CLEARANCE WARNING ECU (Click here)

C

END (NO. 1 ULTRASONIC SENSOR LH IS DEFECTIVE)

A

REPLACE PARKING ASSIST ECU (Click here)

DTC C1AE9 Rear Right Sensor Malfunction

for Preparation Click here

DESCRIPTION

The No. 2 ultrasonic sensor RH is installed on the rear bumper. The ECU detects obstacles based on signals received from the No. 2 ultrasonic sensor RH. If the No. 2 ultrasonic sensor RH has an open or other malfunction, it will not function normally.

DTC Code	DTC Detection Condition	Trouble Area
C1AE9	A malfunction of the No. 2 ultrasonic sensor RH.	• No. 2 ultrasonic sensor RH • Parking assist ECU*1 • Clearance warning ECU*2

HINT:

*1: w/ Parking Assist Monitor System

*2: w/o Parking Assist Monitor System

INSPECTION PROCEDURE

NOTICE:

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AE9 is output	A
No DTC is output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

2.REPLACE NO. 2 ULTRASONIC SENSOR RH

a. Replace the No. 2 ultrasonic sensor RH with a normally functioning sensor (Click here).

NEXT

3.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AE9 is output (w/ Parking Assist Monitor System)	A
DTC C1AE9 is output (w/o Parking Assist Monitor System)	B
No DTC is output	C

B → REPLACE CLEARANCE WARNING ECU (Click here)

C

END (NO. 2 ULTRASONIC SENSOR RH IS DEFECTIVE

A

REPLACE PARKING ASSIST ECU (Click here

DTC C1AE4 Front Right Sensor Malfunction

for Preparation Click here

DESCRIPTION

The No. 1 ultrasonic sensor RH is installed on the front bumper. The ECU detects obstacles based on signals received from the No. 1 ultrasonic sensor RH. If the No. 1 ultrasonic sensor RH has an open circuit or other malfunction, it will not function normally.

DTC Code	DTC Detection Condition	Trouble Area
C1AE4	A malfunction of the No. 1 ultrasonic sensor RH.	• No. 1 ultrasonic sensor RH • Parking assist ECU 1 • Clearance warning ECU

HINT:

1: w/ Parking Assist Monitor System

w/o Parking Assist Monitor System

INSPECTION PROCEDURE

NOTICE:

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AE4 is output	A
No DTC is output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

2.REPLACE NO. 1 ULTRASONIC SENSOR RH

a. Replace the No. 1 ultrasonic sensor RH with a normally functioning sensor (Click here).

NEXT

3.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AE4 is output (w/ Parking Assist Monitor System)	A
DTC C1AE4 is output (w/o Parking Assist Monitor System)	B
No DTC is output	C

B → REPLACE CLEARANCE WARNING ECU (Click here)

C

END (NO. 1 ULTRASONIC SENSOR RH IS DEFECTIVE)

A

REPLACE PARKING ASSIST ECU (Click here)

DTC C1AEC Front Sensor Communication Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when there is an open or short circuit in the communication line between the front sensors and the ECU, or when there is a malfunction in a front sensor.

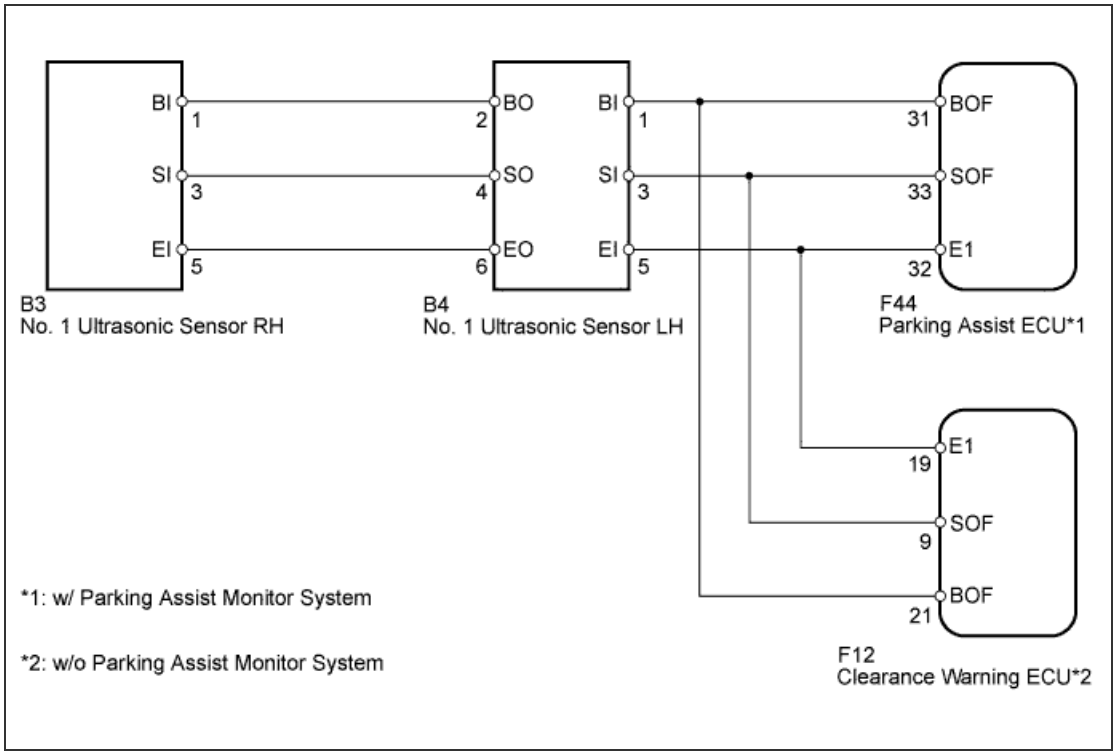
DTC Code	DTC Detection Condition	Trouble Area
C1AEC	An open or short circuit in the communication line between the front sensors and ECU or a malfunction in a front sensor during initialization mode after the engine switch is turned on (IG).	• Front ultrasonic sensor circuit • Parking assist ECU*1 • Clearance warning ECU*2

HINT:

*1: w/ Parking Assist Monitor System

*2: w/o Parking Assist Monitor System

WIRING DIAGRAM



INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AEC is output (w/ Parking Assist Monitor System)	A
DTC C1AEC is output (w/o Parking Assist Monitor System)	B
No DTC is output	C

B	Go to step 10

C → USE SIMULATION METHOD TO CHECK (Click here)

A

2.CHECK PARKING ASSIST ECU

a. Measure the oltage according to the alue(s) in the table below.

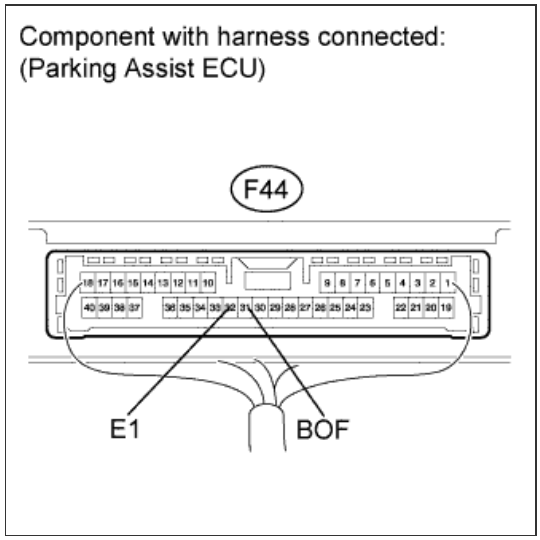
Standard Voltage:

Tester Connection	Condition	Specified Condition
F44-31 (BOF) - Body ground	Engine switch on (IG)	7.2 to 8.8 V

b. Measure the resistance according to the alue(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F44-32 (E1) - Body ground	Always	Below 1 Ω



NG → REPLACE PARKING ASSIST ECU (Click here)

OK

3.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR LH - PARKING ASSIST ECU)

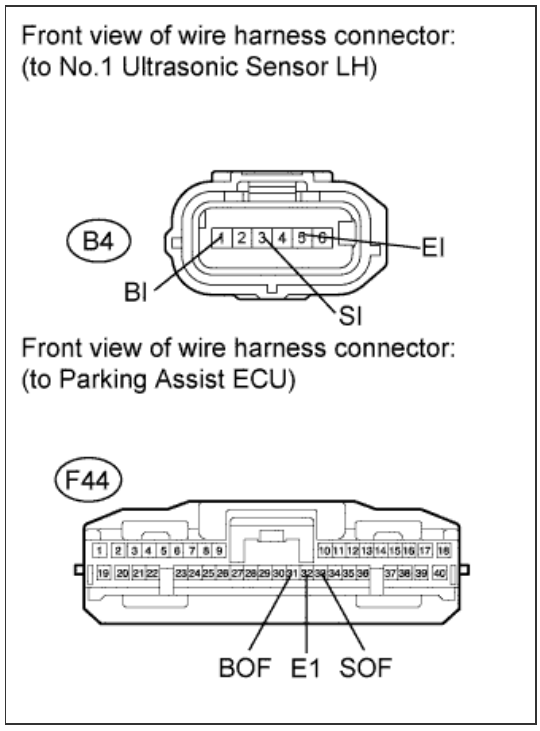
a. Disconnect the B4 sensor connector.

b. Disconnect the F44 ECU connector.

c. Measure the resistance according to the alue(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
B4-1 (BI) - F44-31 (BOF)	Always	Below 1 Ω
B4-3 (SI) - F44-33 (SOF)	Always	Below 1 Ω
B4- (EI) - F44-32 (E1)	Always	Below 1 Ω
B4-1 (BI) - Body ground	Always	10 kΩ or higher
B4-3 (SI) - Body ground	Always	10 kΩ or higher
B4- (EI) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR LH - NO. 1 ULTRASONIC SENSOR RH)

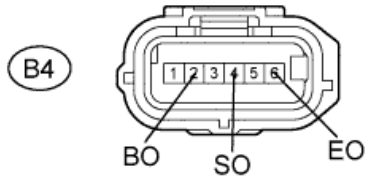
a. Disconnect the B4 and B3 sensor connectors.

b. Measure the resistance according to the alue(s) in the table below.

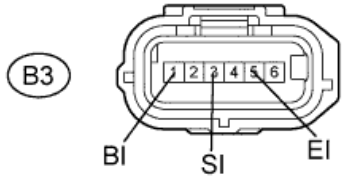
Standard Resistance:

Tester Connection	Condition	Specified Condition
B4-2 (BO) - B3-1 (BI)	Always	Below 1 Ω
B4-4 (SO) - B3-3 (SI)	Always	Below 1 Ω
B4- (EO) - B3- (EI)	Always	Below 1 Ω
B4-2 (BO) - Body ground	Always	10 kΩ or higher
B4-4 (SO) - Body ground	Always	10 kΩ or higher
B4- (EO) - Body ground	Always	10 kΩ or higher

Front view of wire harness connector:
(to No. 1 Ultrasonic Sensor LH)



Front view of wire harness connector:
(to No. 1 Ultrasonic Sensor RH)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AEC is output	A
No DTC is output	B

B → USE SIMULATION METHOD TO CHECK (**Click here**)

A

6.REPLACE NO. 1 ULTRASONIC SENSOR LH

a. Replace the No. 1 ultrasonic sensor with a normally functioning sensor (Click here).

NEXT

7.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AEC is output	A
No DTC is output	B

NG → END (NO. 1 ULTRASONIC SENSOR LH IS DEFECTIVE)

OK

8.REPLACE NO. 1 ULTRASONIC SENSOR RH

a. Replace the No. 1 ultrasonic sensor RH with a normally functioning sensor (Click here)

NEXT

9.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AEC is output	A
No DTC is output	B

B → END (NO. 1 ULTRASONIC SENSOR RH IS DEFECTIVE)

A

REPLACE PARKING ASSIST ECU (**Click here**)

10.CHECK CLEARANCE WARNING ECU

a. Measure the oltage according to the alue(s) in the table below.

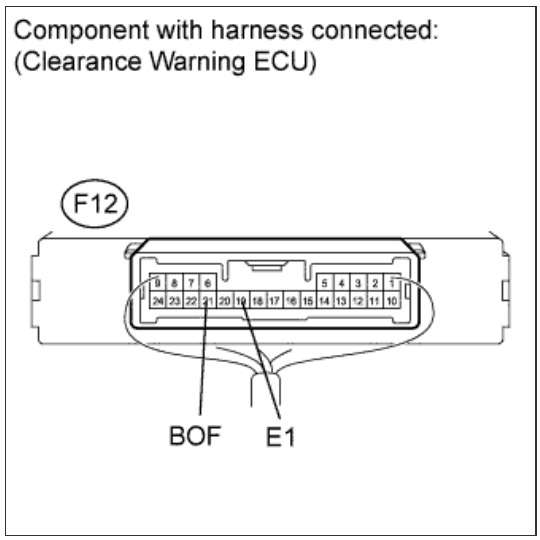
Standard Voltage:

Tester Connection	Condition	Specified Condition
F12-21 (BOF) - Body ground	Engine switch on (IG)	7.2 to 8.8 V

b. Measure the resistance according to the alue(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F12-19 (E1) - Body ground	Always	Below 1 Ω



NG → REPLACE CLEARANCE WARNING ECU (**Click here**)

OK

11.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR LH - CLEARANCE WARNING ECU)

a. Disconnect the B4 sensor connector.

b. Disconnect the F12 ECU connector.

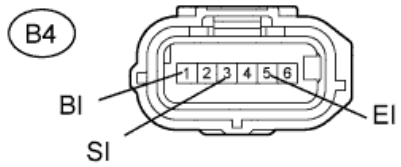
c. Measure the resistance according to the alue(s) in the table below.

Standard Resistance:

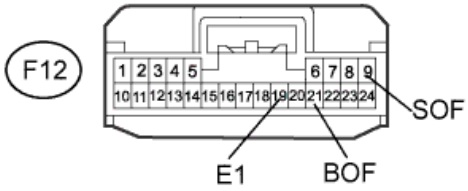
Tester Connection	Condition	Specified Condition
B4-1 (BI) - F12-21 (BOF)	Always	Below 1 Ω
B4-3 (SI) - F12-9 (SOF)	Always	Below 1 Ω
B4- (EI) - F12-19 (EI)	Always	Below 1 Ω

B4-1 (BI) - Body ground	Always	10 kΩ or higher
B4-3 (SI) - Body ground	Always	10 kΩ or higher
B4- (EI) - Body ground	Always	10 kΩ or higher

Front view of wire harness connector:
(to No. 1 Ultrasonic Sensor LH)



Front view of wire harness connector:
(to Clearance Warning ECU)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

12.CHECK HARNESS AND CONNECTOR (NO. 1 ULTRASONIC SENSOR LH - NO. 1 ULTRASONIC SENSOR RH)

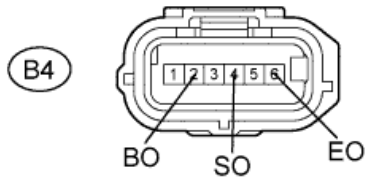
a. Disconnect the B4 and B3 sensor connectors.

b. Measure the resistance according to the alue(s) in the table below.

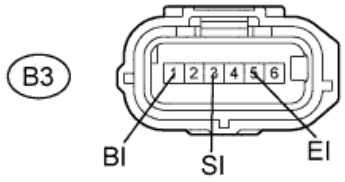
Standard Resistance:

Tester Connection	Condition	Specified Condition
B4-2 (BO) - B3-1 (BI)	Always	Below 1 Ω
B4-4 (SO) - B3-3 (SI)	Always	Below 1 Ω
B4- (EO) - B3- (EI)	Always	Below 1 Ω
B4-2 (BO) - Body ground	Always	10 kΩ or higher
B4-4 (SO) - Body ground	Always	10 kΩ or higher
B4- (EO) - Body ground	Always	10 kΩ or higher

Front view of wire harness connector:
(to No. 1 Ultrasonic Sensor LH)



Front view of wire harness connector:
(to No. 1 Ultrasonic Sensor RH)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

13.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AEC is output	A

No DTC is output	B

B → USE SIMULATION METHOD TO CHECK (**Click here**)

A

14.REPLACE NO. 1 ULTRASONIC SENSOR LH

a. Replace the No. 1 ultrasonic sensor with a normally functioning sensor (Click here).

NEXT

15.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AEC is output	A
No DTC is output	B

B → END (NO. 1 ULTRASONIC SENSOR LH IS DEFECTIVE)

A

16.REPLACE NO. 1 ULTRASONIC SENSOR RH

a. Replace the No. 1 ultrasonic sensor RH with a normally functioning sensor (Click here).

NEXT

17.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AEC is output	A
No DTC is output	B

B → END (NO. 1 ULTRASONIC SENSOR RH IS DEFECTIVE)

A

REPLACE CLEARANCE WARNING ECU (**Click here**)

DTC C1AE6 Rear Left Sensor Malfunction

for Preparation Click here

DESCRIPTION

The No. 2 ultrasonic sensor LH is installed on the rear bumper. The ECU detects obstacles based on signals received from the No. 2 ultrasonic sensor LH. If the No. 2 ultrasonic sensor LH has an open circuit or other malfunction, it will not function normally.

DTC Code	DTC Detection Condition	Trouble Area
C1AE6	A malfunction of the No. 2 ultrasonic sensor LH.	• No. 2 ultrasonic sensor LH • Parking assist ECU*1 • Clearance warning ECU*2

HINT:

*1: w/ Parking Assist Monitor System

*2: w/o Parking Assist Monitor System

INSPECTION PROCEDURE

NOTICE:

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AE6 is output	A
No DTC is output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

2.REPLACE NO. 2 ULTRASONIC SENSOR LH

a. Replace the No. 2 ultrasonic sensor LH with a normally functioning sensor (Click here).

NEXT

3.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AE6 is output (w/ Parking Assist Monitor System)	A
DTC C1AE6 is output (w/o Parking Assist Monitor System)	B
No DTC is output	C

B → REPLACE CLEARANCE WARNING ECU (Click here)

C

END (NO. 2 ULTRASONIC SENSOR LH IS DEFECTIVE)

A

REPLACE PARKING ASSIST ECU (Click here)

DTC C1AED Rear Sensor Communication Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored when there is an open or short circuit in the communication line between the rear sensors and the ECU, or when there is a malfunction in a rear sensor.

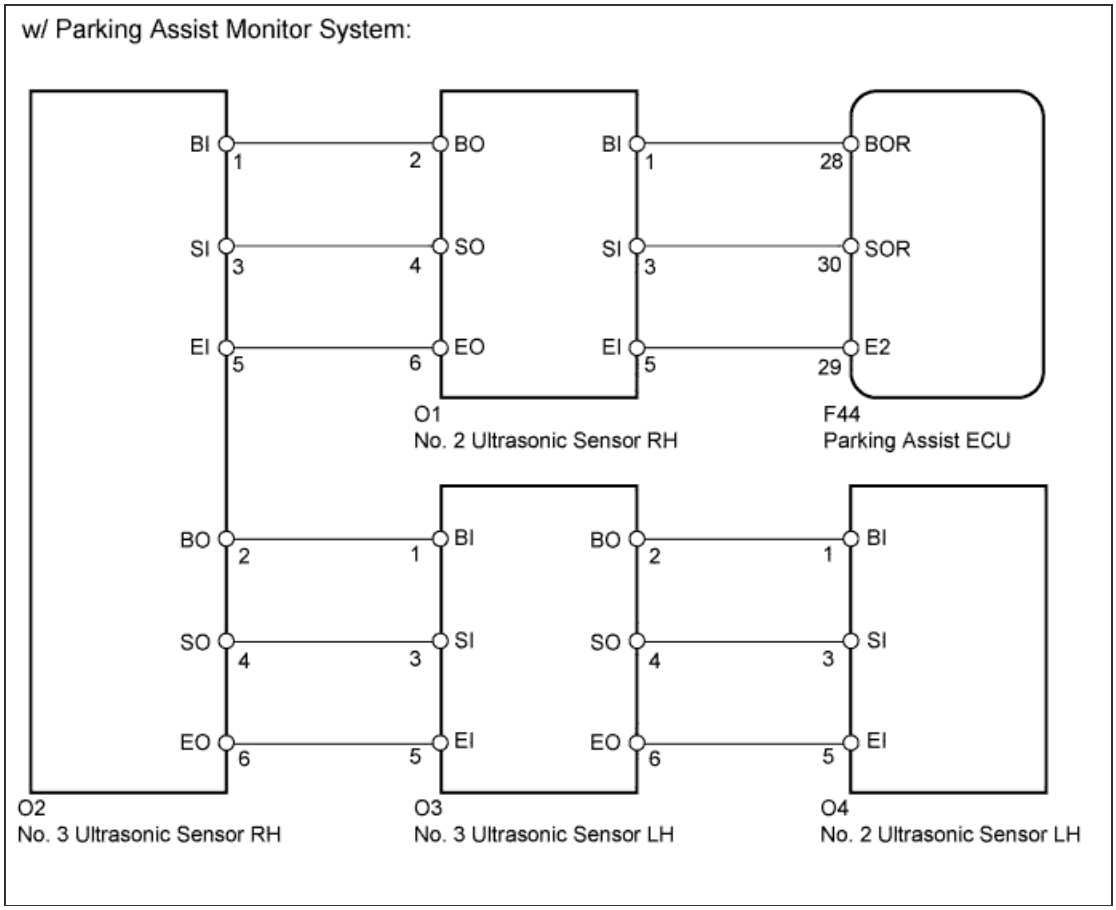
DTC Code	DTC Detection Condition	Trouble Area
C1AED	An open or short circuit in the communication line between the rear sensors and ECU or a malfunction in a rear sensor during initialization mode after the engine switch is turned on (IG).	• Rear ultrasonic sensor circuit • Parking assist ECU*1 • Clearance warning ECU*2

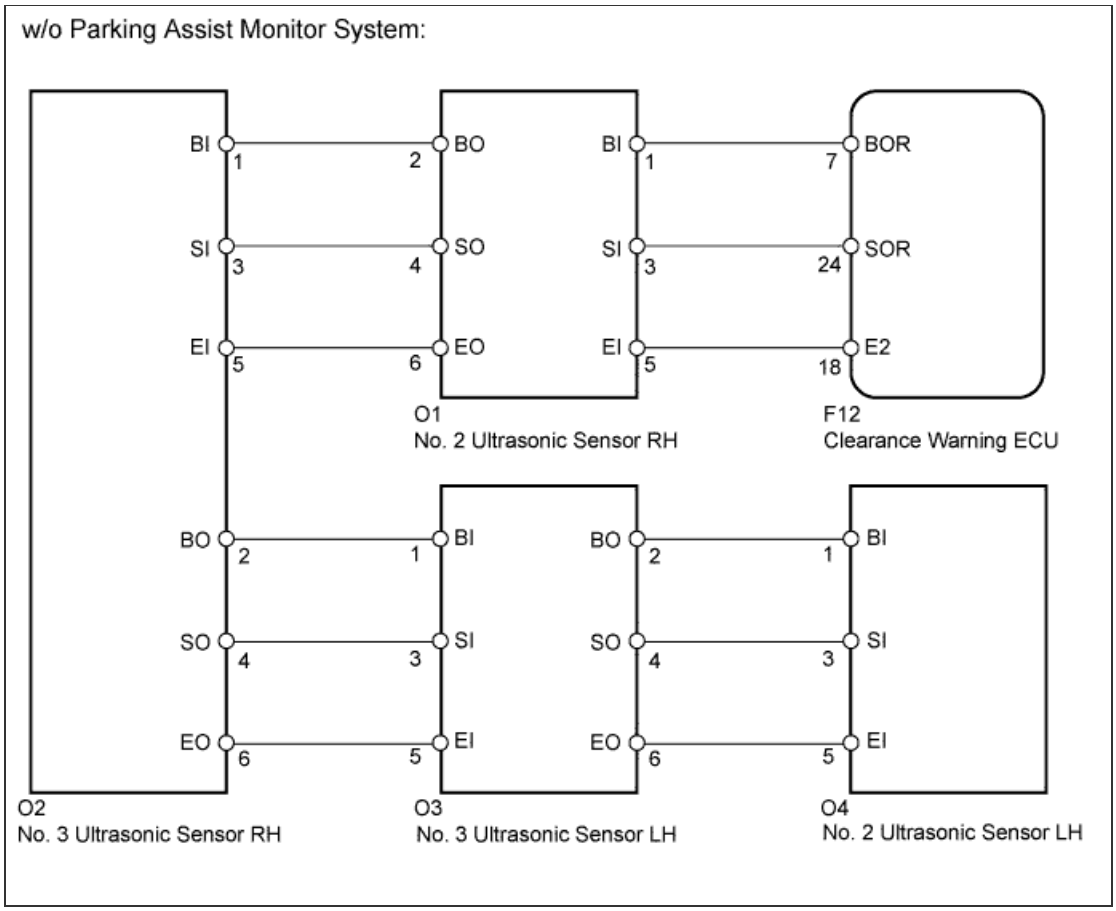
HINT:

*1: w/ Parking Assist Monitor System

*2: w/o Parking Assist Monitor System

WIRING DIAGRAM





INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AED is output (w/ Parking Assist Monitor System)	A
DTC C1AED is output (w/o Parking Assist Monitor System)	B
No DTC is output	C

B → Go to step 16

C → USE SIMULATION METHOD TO CHECK (Click here)

A

2.CHECK PARKING ASSIST ECU

a. Measure the oltage according to the alue(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
F44-2 (BOR) - Body ground	Engine switch on (IG)	7.2 to . V

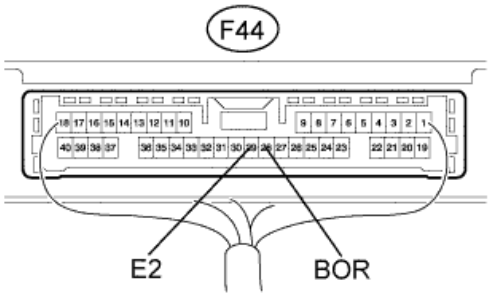
b. Measure the resistance according to the alue(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition

F44-29 (E2) - Body ground	Always	Below 1 Ω

Component with harness connected:
(Parking Assist ECU)



NG → REPLACE PARKING ASSIST ECU (Click here)

OK

3.CHECK HARNESS AND CONNECTOR (NO. 2 ULTRASONIC SENSOR RH - PARKING ASSIST ECU)

a. Disconnect the O1 sensor connector.

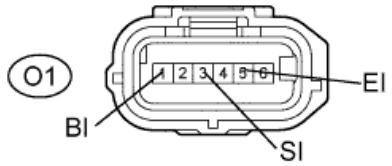
b. Disconnect the F44 ECU connector.

c. Measure the resistance according to the alue(s) in the table below.

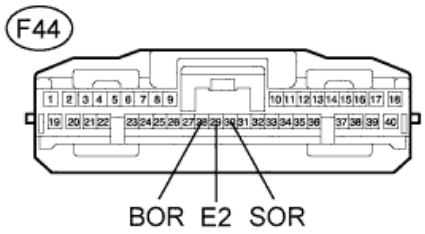
Standard Resistance:

Tester Connection	Condition	Specified Condition
O1-1 (BI) - F44-2 (BOR)	Always	Below 1 Ω
O1-3 (SI) - F44-30 (SOR)	Always	Below 1 Ω
O1-5 (EI) - F44-29 (E2)	Always	Below 1 Ω
O1-1 (BI) - Body ground	Always	10 kΩ or higher
O1-3 (SI) - Body ground	Always	10 kΩ or higher
O1-5 (EI) - Body ground	Always	10 kΩ or higher

Front view of wire harness connector:
(to No.2 Ultrasonic Sensor RH)



Front view of wire harness connector:
(to Parking Assist ECU)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (NO. 3 ULTRASONIC SENSOR RH - NO. 2 ULTRASONIC SENSOR RH)

a. Disconnect the O1 and O2 sensor connectors.

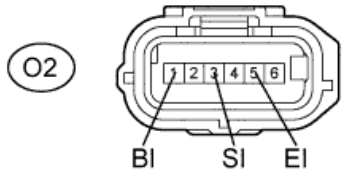
b. Measure the resistance according to the alue(s) in the table below.

Standard Resistance:

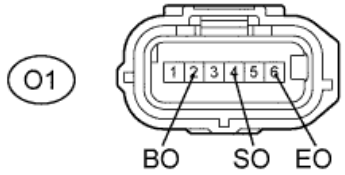
Tester Connection	Condition	Specified Condition
O2-1 (BI) - O1-2 (BO)	Always	Below 1 Ω
O2-3 (SI) - O1-4 (SO)	Always	Below 1 Ω
O2-5 (EI) - O1-6 (EO)	Always	Below 1 Ω

O2-1 (BI) - Body ground	Always	10 kΩ or higher
O2-3 (SI) - Body ground	Always	10 kΩ or higher
O2-5 (EI) - Body ground	Always	10 kΩ or higher

Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor RH)



Front view of wire harness connector:
(to No. 2 Ultrasonic Sensor RH)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5.CHECK HARNESS AND CONNECTOR (NO. 3 ULTRASONIC SENSOR LH - NO. 3 ULTRASONIC SENSOR RH)

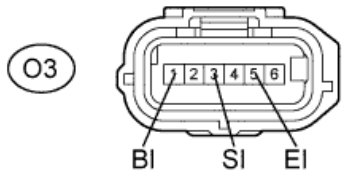
a. Disconnect the O2 and O3 sensor connectors.

b. Measure the resistance according to the alue(s) in the table below.

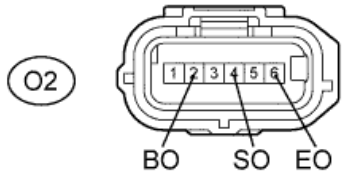
Standard Resistance:

Tester Connection	Condition	Specified Condition
O3-1 (BI) - O2-2 (BO)	Always	Below 1 Ω
O3-3 (SI) - O2-4 (SO)	Always	Below 1 Ω
O3-5 (EI) - O2-6 (EO)	Always	Below 1 Ω
O3-1 (BI) - Body ground	Always	10 kΩ or higher
O3-3 (SI) - Body ground	Always	10 kΩ or higher
O3-5 (EI) - Body ground	Always	10 kΩ or higher

Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor LH)



Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor RH)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.CHECK HARNESS AND CONNECTOR (NO. 2 ULTRASONIC SENSOR LH - NO. 3 ULTRASONIC SENSOR LH)

a. Disconnect the O3 and O4 sensor connectors.

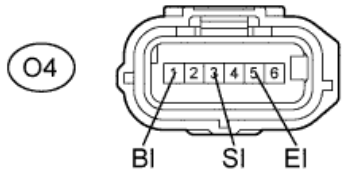
b. Measure the resistance according to the alue(s) in the table below.

Standard Resistance:

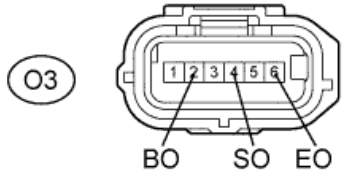
Tester Connection	Condition	Specified Condition

O4-1 (BI) - O3-2 (BO)	Always	Below 1 Ω
O4-3 (SI) - O3-4 (SO)	Always	Below 1 Ω
O4-5 (EI) - O3-6 (EO)	Always	Below 1 Ω
O4-1 (BI) - Body ground	Always	10 kΩ or higher
O4-3 (SI) - Body ground	Always	10 kΩ or higher
O4-5 (EI) - Body ground	Always	10 kΩ or higher

Front view of wire harness connector:
(to No. 2 Ultrasonic Sensor LH)



Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor LH)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AED is output and multi-information display indicates open circuit (Rear Left, Rear Center and Rear Right)	A
DTC C1AED is output and multi-information display indicates open circuit (Rear Left and Rear Center)	B
No DTC is output	C

B → **Go to step 12**

C → USE SIMULATION METHOD TO CHECK (**Click here**)

A

8.REPLACE NO. 2 ULTRASONIC SENSOR RH

a. Replace the No. 2 ultrasonic sensor R with a normally functioning sensor (Click here).

NEXT

9.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AED is output and multi-information display indicates open circuit (Rear Left, Rear Center and Rear Right)	A

DTC C1AED is output and multi-information display indicates open circuit (Rear Left and Rear Center)	B
No DTC is output	C

B → Go to step 12

C → END (NO. 2 ULTRASONIC SENSOR RH IS DEFECTIVE)

A

10.REPLACE NO. 2 ULTRASONIC SENSOR LH

a. Replace the No. 2 ultrasonic sensor L with a normally functioning sensor (Click here).

NEXT

11.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AED is output and multi-information display indicates open circuit (Rear Left and Rear Center)	A
DTC C1AED is output and multi-information display indicates open circuit (Rear Left, Rear Center and Rear Right)	B
No DTC is output	C

B → REPLACE PARKING ASSIST ECU (Click here)

C → END (NO. 2 ULTRASONIC SENSOR LH IS DEFECTIVE)

A

12.REPLACE NO. 3 ULTRASONIC SENSOR RH

a. Replace the No. 3 ultrasonic sensor R with a normally functioning sensor (Click here).

NEXT

13.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AED is output	A
No DTC is output	B

B → END (NO. 3 ULTRASONIC SENSOR RH IS DEFECTIVE)

A

14.REPLACE NO. 3 ULTRASONIC SENSOR LH

a. Replace the No. 3 ultrasonic sensor L with a normally functioning sensor (Click here).

NEXT

15.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AED is output	A
No DTC is output	B

B → END (NO. 3 ULTRASONIC SENSOR LH IS DEFECTIVE)

A

REPLACE PARKING ASSIST ECU (Click here)

16.CHECK CLEARANCE WARNING ECU

a. Measure the oltage according to the alue(s) in the table below.

Standard Voltage:

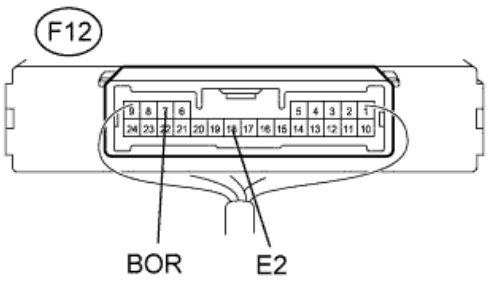
Tester Connection	Condition	Specified Condition
F12-7 (BOR) - Body ground	Engine switch on (IG)	7.2 to . V

b. Measure the resistance according to the alue(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F12-1 (E2) - Body ground	Always	Below 1 Ω

Component with harness connected:
(Clearance Warning ECU)



NG → REPLACE CLEARANCE WARNING ECU (Click here)

OK

17.CHECK HARNESS AND CONNECTOR (NO. 2 ULTRASONIC SENSOR RH - CLEARANCE WARNING ECU)

a. Disconnect the O1 sensor connector.

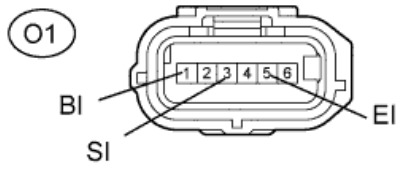
b. Disconnect the F12 ECU connector.

c. Measure the resistance according to the alue(s) in the table below.

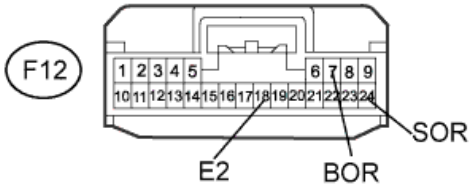
Standard Resistance:

Tester Connection	Condition	Specified Condition
O1-1 (BI) - F12-7 (BOR)	Always	Below 1 Ω
O1-3 (SI) - F12-24 (SOR)	Always	Below 1 Ω
O1-5 (EI) - F12-1 (E2)	Always	Below 1 Ω
O1-1 (BI) - Body ground	Always	10 kΩ or higher
O1-3 (SI) - Body ground	Always	10 kΩ or higher
O1-5 (EI) - Body ground	Always	10 kΩ or higher

Front view of wire harness connector:
(to No. 2 Ultrasonic Sensor LH)



Front view of wire harness connector:
(to Clearance Warning ECU)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

18.CHECK HARNESS AND CONNECTOR (NO. 3 ULTRASONIC SENSOR RH - NO. 2 ULTRASONIC SENSOR RH)

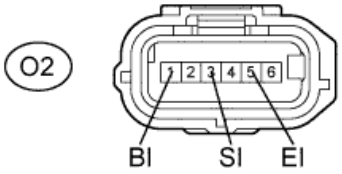
a. Disconnect the O1 and O2 sensor connectors.

b. Measure the resistance according to the alue(s) in the table below.

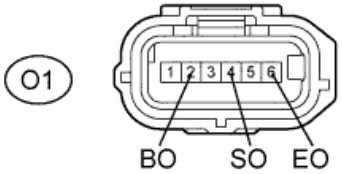
Standard Resistance:

Tester Connection	Condition	Specified Condition
O2-1 (BI) - O1-2 (BO)	Always	Below 1 Ω
O2-3 (SI) - O1-4 (SO)	Always	Below 1 Ω
O2-5 (EI) - O1-6 (EO)	Always	Below 1 Ω
O2-1 (BI) - Body ground	Always	10 kΩ or higher
O2-3 (SI) - Body ground	Always	10 kΩ or higher
O2-5 (EI) - Body ground	Always	10 kΩ or higher

Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor RH)



Front view of wire harness connector:
(to No. 2 Ultrasonic Sensor RH)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

19.CHECK HARNESS AND CONNECTOR (NO. 3 ULTRASONIC SENSOR LH - NO. 3 ULTRASONIC SENSOR RH)

a. Disconnect the O2 and O3 sensor connectors.

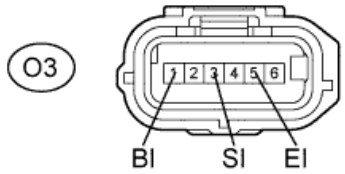
b. Measure the resistance according to the alue(s) in the table below.

Standard Resistance:

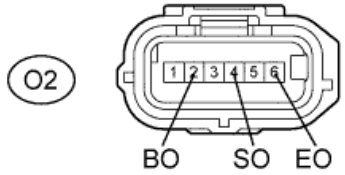
Tester Connection	Condition	Specified Condition

O3-1 (BI) - O2-2 (BO)	Always	Below 1 Ω
O3-3 (SI) - O2-4 (SO)	Always	Below 1 Ω
O3-5 (EI) - O2-6 (EO)	Always	Below 1 Ω
O3-1 (BI) - Body ground	Always	10 kΩ or higher
O3-3 (SI) - Body ground	Always	10 kΩ or higher
O3-5 (EI) - Body ground	Always	10 kΩ or higher

Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor LH)



Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor RH)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

20.CHECK HARNESS AND CONNECTOR (NO. 2 ULTRASONIC SENSOR LH - NO. 3 ULTRASONIC SENSOR LH)

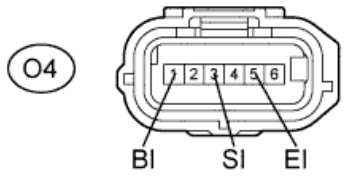
a. Disconnect the O3 and O4 sensor connectors.

b. Measure the resistance according to the alue(s) in the table below.

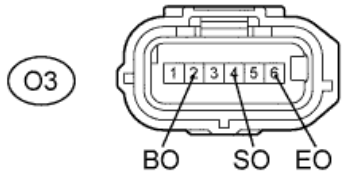
Standard Resistance:

Tester Connection	Condition	Specified Condition
O4-1 (BI) - O3-2 (BO)	Always	Below 1 Ω
O4-3 (SI) - O3-4 (SO)	Always	Below 1 Ω
O4-5 (EI) - O3-6 (EO)	Always	Below 1 Ω
O4-1 (BI) - Body ground	Always	10 kΩ or higher
O4-3 (SI) - Body ground	Always	10 kΩ or higher
O4-5 (EI) - Body ground	Always	10 kΩ or higher

Front view of wire harness connector:
(to No. 2 Ultrasonic Sensor LH)



Front view of wire harness connector:
(to No. 3 Ultrasonic Sensor LH)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

21.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to

DTC C1AED is output and multi-information display indicates open circuit (Rear Left, Rear Center and Rear Right)	A
DTC C1AED is output and multi-information display indicates open circuit (Rear Left and Rear Center)	B
No DTC is output	C

B → Go to step 26

C → USE SIMULATION METHOD TO CHECK (Click here)

A

22.REPLACE NO. 2 ULTRASONIC SENSOR RH

a. Replace the No. 2 ultrasonic sensor R with a normally functioning sensor (Click here).

NEXT

23.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AED is output and multi-information display indicates open circuit (Rear Left, Rear Center and Rear Right)	A
DTC C1AED is output and multi-information display indicates open circuit (Rear Left and Rear Center)	B
No DTC is output	C

B → Go to step 26

C → END (NO. 2 ULTRASONIC SENSOR RH IS DEFECTIVE)

A

24.REPLACE NO. 2 ULTRASONIC SENSOR LH

a. Replace the No. 2 ultrasonic sensor L with a normally functioning sensor (Click here).

NEXT

25.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AED is output and multi-information display indicates open circuit (Rear Left and Rear Center)	A
DTC C1AED is output and multi-information display indicates open circuit (Rear Left, Rear Center and Rear Right)	B
No DTC is output	C

B → REPLACE CLEARANCE WARNING ECU (Click here)

C → END (NO. 2 ULTRASONIC SENSOR LH IS DEFECTIVE)

A

26.REPLACE NO. 3 ULTRASONIC SENSOR RH

a. Replace the No. 3 ultrasonic sensor R with a normally functioning sensor (Click here).

NEXT

27.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AED is output	A
No DTC is output	B

B → END (NO. 3 ULTRASONIC SENSOR RH IS DEFECTIVE)

A

28.REPLACE NO. 3 ULTRASONIC SENSOR LH

a. Replace the No. 3 ultrasonic sensor L with a normally functioning sensor (Click here).

NEXT

29.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AED is output	A
No DTC is output	B

B → END (NO. 3 ULTRASONIC SENSOR LH IS DEFECTIVE)

A

REPLACE CLEARANCE WARNING ECU (Click here)

DTC C1AE7 Rear Left Center Sensor Malfunction

for Preparation Click here

DESCRIPTION

The No. 3 ultrasonic sensor LH is installed on the rear bumper. The ECU detects obstacles based on signals received from the No. 3 ultrasonic sensor LH. If the No. 3 ultrasonic sensor LH has an open circuit or other malfunction, it will not function normally.

DTC Code	DTC Detection Condition	Trouble Area
C1AE7	A malfunction of the No. 3 ultrasonic sensor LH.	• No. 3 ultrasonic sensor LH • Parking assist ECU*1 • Clearance warning ECU*2

HINT:

*1: w/ Parking Assist Monitor System

*2: w/o Parking Assist Monitor System

INSPECTION PROCEDURE

NOTICE:

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AE7 is output	A
No DTC is output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

2.REPLACE NO. ULTRASONIC SENSOR LH

a. Replace the No. 3 ultrasonic sensor LH with a normally functioning sensor (Click here).

NEXT

.CHECKDTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AE7 is output (w/ Parking Assist Monitor System)	A
DTC C1AE7 is output (w/o Parking Assist Monitor System)	B
No DTC is output	C

B → REPLACE CLEARANCE WARNING ECU (Click here)

C

END (NO. ULTRASONIC SENSOR LH IS DEFECTIVE)

A

REPLACE PARKING ASSIST ECU (Click here)

DTC C1AEF Shift Position Information

for Preparation Click here

DESCRIPTION

This DTC is stored when a problem with the shift position information sent through the CAN communication system is detected.

DTC Code	DTC Detection Condition	Trouble Area
C1AEF	A problem with the shift position information.	CAN communication system

INSPECTION PROCEDURE

1.CHECK DTC

a. Clear DTCs (Click here).

b. Check DTCs (Click here).

Result

Result	Proceed to
DTC C1AEF is output (for LHD)	A
DTC C1AEF is output (for RHD)	B
No DTC is output	C

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → USE SIMULATION METHOD TO CHECK (Click here)

A

GO TO CAN COMMUNICATION SYSTEM (Click here)

DTC C1AE8 Rear Right Center Sensor Malfunction

for Preparation Click here

DESCRIPTION

The No. 3 ultrasonic sensor RH is installed on the rear bumper. The ECU detects obstacles based on signals received from the No. 3 ultrasonic sensor RH. If the No. 3 ultrasonic sensor RH has an open circuit or other malfunction, it will not function normally.

DTC Code	DTC Detection Condition	Trouble Area
C1AE8	A malfunction of the No. 3 ultrasonic sensor RH.	• No. 3 ultrasonic sensor RH • Parking assist ECU*1 • Clearance warning ECU*2

HINT:

*1: w/ Parking Assist Monitor System

*2: w/o Parking Assist Monitor System

INSPECTION PROCEDURE

NOTICE:

If the DTC is output after repairs, turn the engine switch on (IG) and move the shift lever to R. Then clear the DTC.

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AE8 is output	A
No DTC is output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

2.REPLACE NO. 3 ULTRASONIC SENSOR RH

a. Replace the No. 3 ultrasonic sensor RH with a normally functioning sensor (Click here).

NEXT

3.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1AE8 is output (w/ Parking Assist Monitor System)	A
DTC C1AE8 is output (w/o Parking Assist Monitor System)	B
No DTC is output	C

B → REPLACE CLEARANCE WARNING ECU (Click here)

C

END (NO. 3 ULTRASONIC SENSOR RH IS DEFECTIVE)

A

REPLACE PARKING ASSIST ECU (Click here)

DTC U0155 Lost Communication with Instrument Panel Cluster Control Module (Combination Meter)

for Preparation Click here

DESCRIPTION

When the clearance warning ECU self-diagnosis determines that the CAN communication system is malfunctioning, this DTC is stored.

DTC Code	DTC Detection Condition	Trouble Area
U0155	Lost communication with the Instrument Panel Cluster (IPC) control module.	CAN communication system

HINT:

When 2 or more DTCs starting with "U" are output simultaneously, inspect the connectors and wire harness of each ECU.

INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC U0155 is output (for LHD)	A
DTC U0155 is output (for RHD)	B
No DTC is output	C

B → GO TO CAN COMMUNICATION SYSTEM (Click here)

C → USE SIMULATION METHOD TO CHECK (Click here)

A

GO TO CAN COMMUNICATION SYSTEM (Click here)

for Preparation Click here

DESCRIPTION

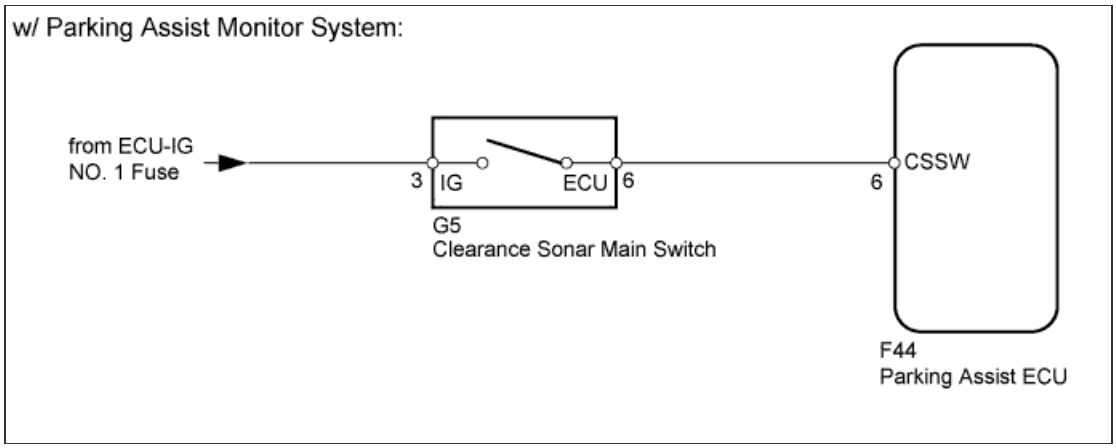
When the clearance sonar main switch turns on, the ON signal is input into the parking assist ECU*1 or clearance warning ECU*2.

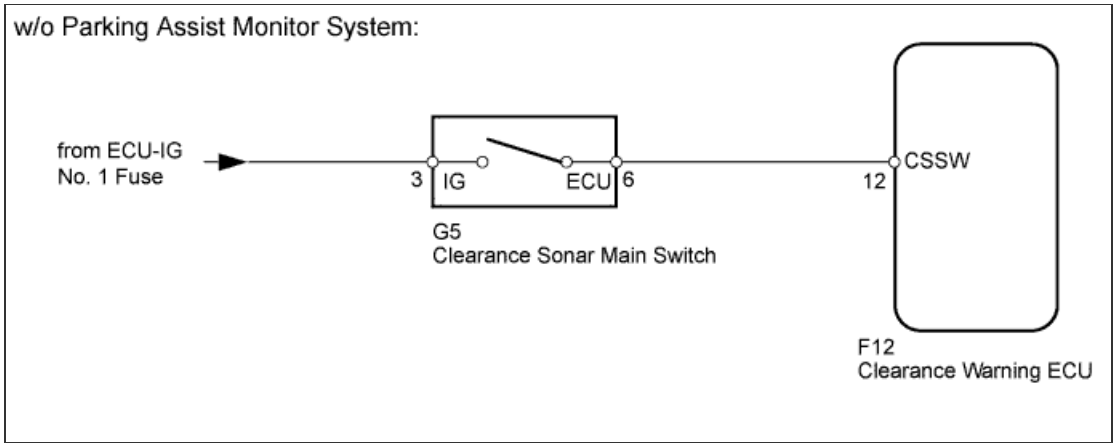
HINT:

*1: w/ Parking Assist Monitor System

*2: w/o Parking Assist Monitor System

WIRING DIAGRAM





INSPECTION PROCEDURE

1.READ VALUE USING INTELLIGENT TESTER CLEARANCE SONAR MAIN SWITCH

a. Check the Data List for proper functioning of the clearance sonar main switch.

Clearance Sonar

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Main Switch	Clearance sonar main switch/ON or OFF	OFF: Clearance sonar main switch off ON: Clearance sonar main switch on	-

OK:

The intelligent tester display changes according to operation of clearance sonar main switch.

NG → Go to step 2

OK

PROCEED TO NE T CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE Click here

2.INSPECT CLEARANCE SONAR MAIN SWITCH

a. Remove the clearance sonar main switch (Click here).

b. Measure the resistance according to the value(s) in the table below.

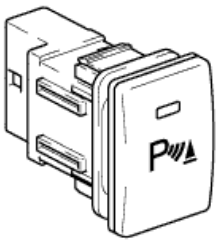
Standard Resistance:

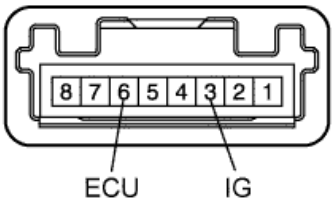
Tester Connection	Switch Condition	Specified Condition
3 (IG) - 6 (ECU)	Clearance sonar main switch on	Below 1 Ω
3 (IG) - 6 (ECU)	Clearance sonar main switch off	10 kΩ or higher

Result

Result	Proceed to
OK (w/ Park Assist Monitor System)	A
OK (w/o Park Assist Monitor System)	B
NG	C

Component without harness connected:
(Clearance Sonar Main Switch)





B → Go to step

C → REPLACE CLEARANCE SONAR MAIN SWITCH Click here

A

.CHECK HARNESS AND CONNECTOR MAIN SWITCH - ECU AND BATTERY

a. Disconnect the G5 switch connector.

b. Disconnect the F44 ECU connector.

c. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

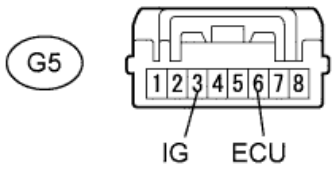
Tester Connection	Condition	Specified Condition
G5-3 (IG) - Body ground	Engine switch on (IG)	11 to 14 V
G5-3 (IG) - Body ground	Engine switch off	Below 1 V

d. Measure the resistance according to the value(s) in the table below.

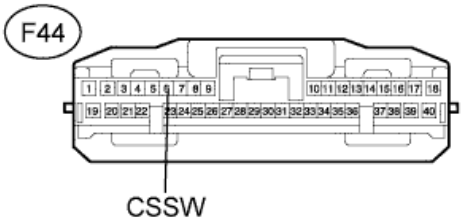
Standard Resistance:

Tester Connection	Condition	Specified Condition
G5-6 (ECU) - F44-6 (CSSW)	Always	Below 1 Ω
G5-6 (ECU) - Body ground	Always	10 kΩ or higher

Front view of wire harness connector:
(to Clearance Sonar Main Switch)



Front view of wire harness connector:
(to Parking Assist ECU)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE PARKING ASSIST ECU Click here

.CHECK HARNESS AND CONNECTOR MAIN SWITCH - ECU AND BATTERY

a. Disconnect the G switch connector.

b. Disconnect the F12 ECU connector.

c. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

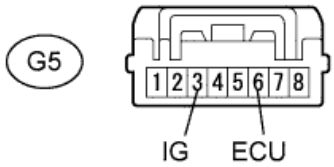
Tester Connection	Condition	Specified Condition
G -3 (IG) - Body ground	Engine switch on (IG)	11 to 14 V
G5-3 (IG) - Body ground	Engine switch off	Below 1 V

d. Measure the resistance according to the value(s) in the table below.

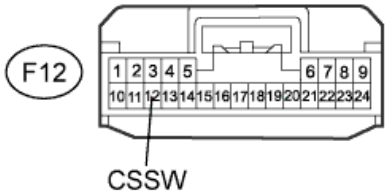
Standard Resistance:

Tester Connection	Condition	Specified Condition
G5-6 (ECU) - F12-12 (CSSW)	Always	Below 1 Ω
G5-6 (ECU) - Body ground	Always	10 kΩ or higher

Front view of wire harness connector:
(to Clearance Sonar Main Switch)



Front view of wire harness connector:
(to Clearance Warning ECU)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE CLEARANCE WARNING ECU Click here

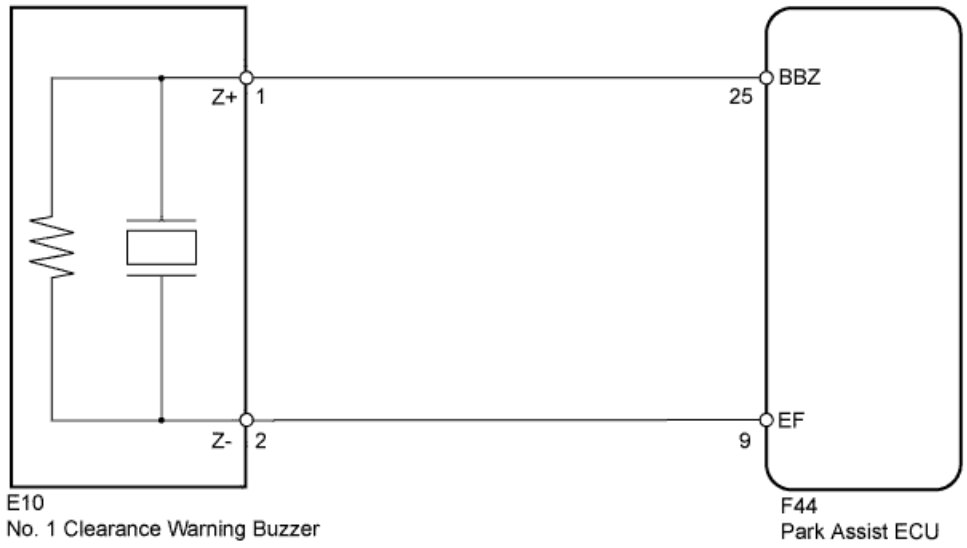
for Preparation Click here

DESCRIPTION

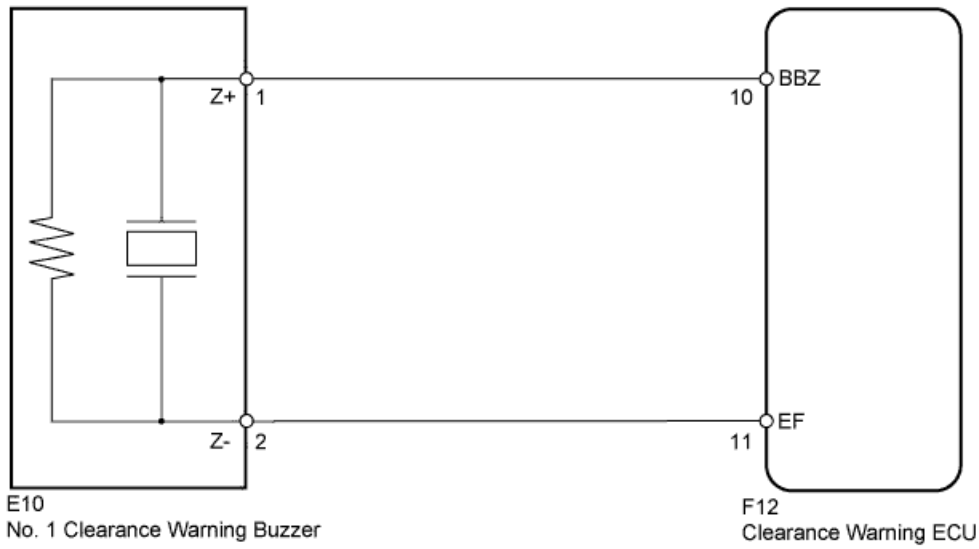
The No. 1 clearance warning buzzer sounds to alert the driver and the buzzed frequency changes depending on the distance to an obstacle.

WIRING DIAGRAM

w/ Parking Assist Monitor System:



w/o Parking Assist Monitor System:



INSPECTION PROCEDURE

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 CLEARANCE WARNING BUZZER)

a. Select the Active Test, use the intelligent tester to generate a control command, and then check that the buzzer operates.

Clearance Sonar

Tester Display	Test Part	Control Range	Diagnostic Note
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/ Parking Assist Monitor System)	B
NG (w/o Parking Assist Monitor System)	C

B	Go to step 2
C	Go to step 3

A

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

2.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - NO. 1 CLEARANCE WARNING BUZZER)

a. Disconnect the F44 ECU connector.

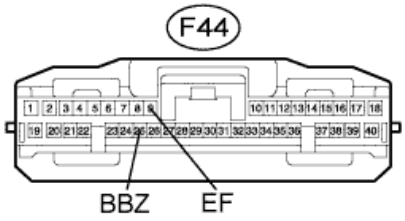
b. Disconnect the E10 buzzer connector.

c. Measure the resistance according to the value(s) in the table below.

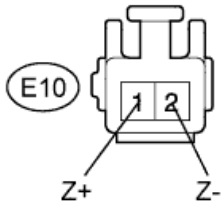
Standard Resistance:

Tester Connection	Condition	Specified Condition
F44- (BB) - E10-1 ( )	Always	Below 1 Ω
F44-9 (EF) - E10- (-)	Always	Below 1 Ω
F44- (BB) - Body ground	Always	10 kΩ or higher
F44-9 (EF) - Body ground	Always	10 kΩ or higher

Front view of wire harness connector:
(to Parking Assist ECU)



Front view of wire harness connector:
(to No. 1 Clearance Warning Buzzer)



NG	REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE NO. 1 CLEARANCE WARNING BUZZER (Click here)

3.CHECK HARNESS AND CONNECTOR (CLEARANCE WARNING ECU - NO. 1 CLEARANCE WARNING BUZZER)

a. Disconnect the F1 Cconnector.

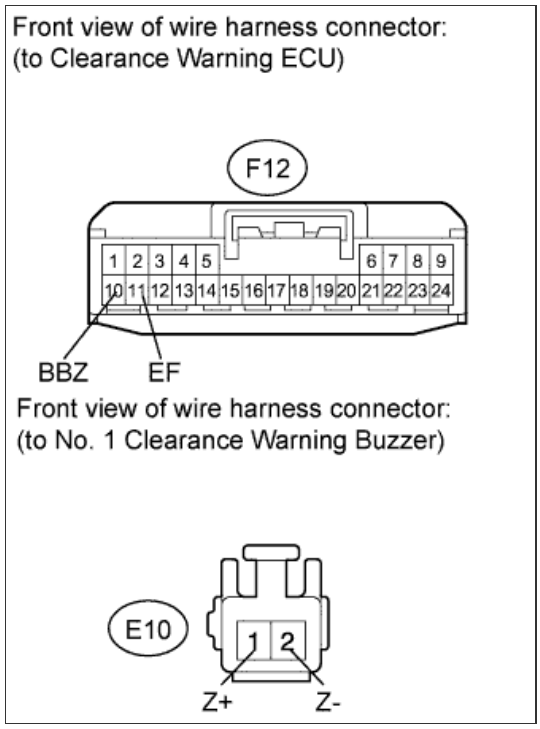
b. Disconnect the E10 buzzer connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F1 -10 (BB) - E10-1 ( )	Always	Below 1 Ω

F1 -11 (EF) - E10- (-)	Always	Below 1 Ω
F1 -10 (BB) - Body ground	Always	10 kΩ or higher
F1 -11 (EF) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

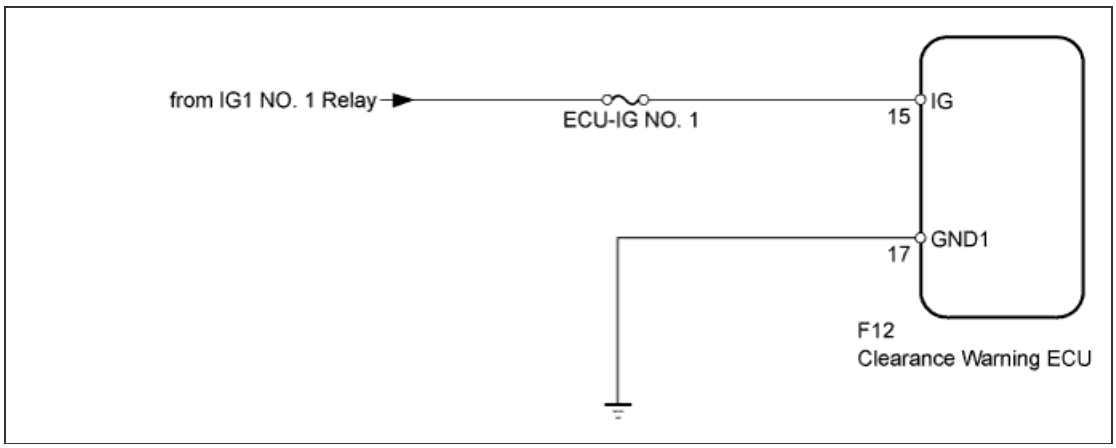
REPLACE NO. 1 CLEARANCE WARNING BUZZER (Click here)

for Preparation Click here

DESCRIPTION

This circuit is the power source circuit to operate the clearance warning ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.INSPECT FUSE (ECU-IG NO. 1

a. Remove the ECU-IG NO. 1 fuse from the main body ECU.

b. Measure the resistance according to the value(s) in the table below.

Standard Re i tance:

Tester Connection	Condition	Specified Condition
ECU-IG NO. 1 fuse	Always	Below 1Ω

NG → REPLACE FUSE

OK

2.CHECK HARNESS AND CONNECTOR (CLEARANCE WARNING ECU - ATTERY AND BODY GROUND

a. Disconnect the F12 ECU connector.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

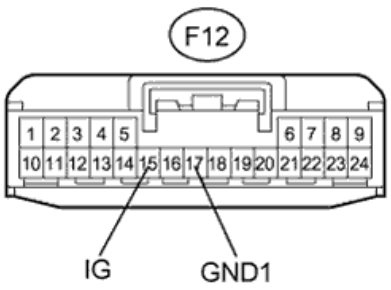
Tester Connection	Condition	Specified Condition
F12-15 (IG) - Body ground	Engine switch on (IG)	11 to 14 V
F12-15 (IG) - Body ground	Engine switch off	Below 1 V

c. Measure the resistance according to the value(s) in the table below.

Standard Re i tance:

Tester Connection	Condition	Specified Condition
F12-17 (GND1) - Body ground	Always	Below 1Ω

Front view of wire harness connector:
(to Clearance Warning ECU)



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (Click here

for Preparation Click here

1.PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable from the negative (-) battery terminal, initialize the following system after the terminal is reconnected.

System Name	See Procedure
Parking Assist Monitor System	Click here

2.POINTS TO NOTE WHEN SERVICING

a. Pay attention to the following points when servicing.

i. When disconnecting the cable from the negative (-) battery terminal, "System initializing" may appear on the display and navigation module display. In this case, restore the steering angle neutral point (Click here).

ii. Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).

HINT:

Each adjusted value for the calibration of the parking assist monitor system will be stored in the parking assist ECU.

iii. When the lens of the rear television camera assembly is dirty, wash the lens with water and wipe it off with a soft cloth to obtain clear images. For heavy dirt, use neutral detergent to clean the lens.

.NOTES FOR REAR TELEVISION CAMERA

a. Notes for the rear television camera assembly

i. The parking assist monitor system may not function properly if subjected to a severe blow by any hard object.

ii. Do not scrub the 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 with water.

iii. Exposing the camera to a sudden temperature change may affect proper functioning of the camera.

i . 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 are difficult to discern even in normal conditions if:

i. Noise may occur in the image during power back door operation. (w/ power back door system)

ii. Noise may occur in the image depending on electrical devices used in the cabin.

iii. Noise may occur in the image if accessories that generate radio waves have been installed.

i . 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.

i. A strong beam of light, such as a sunbeam or headlight, hits the camera.

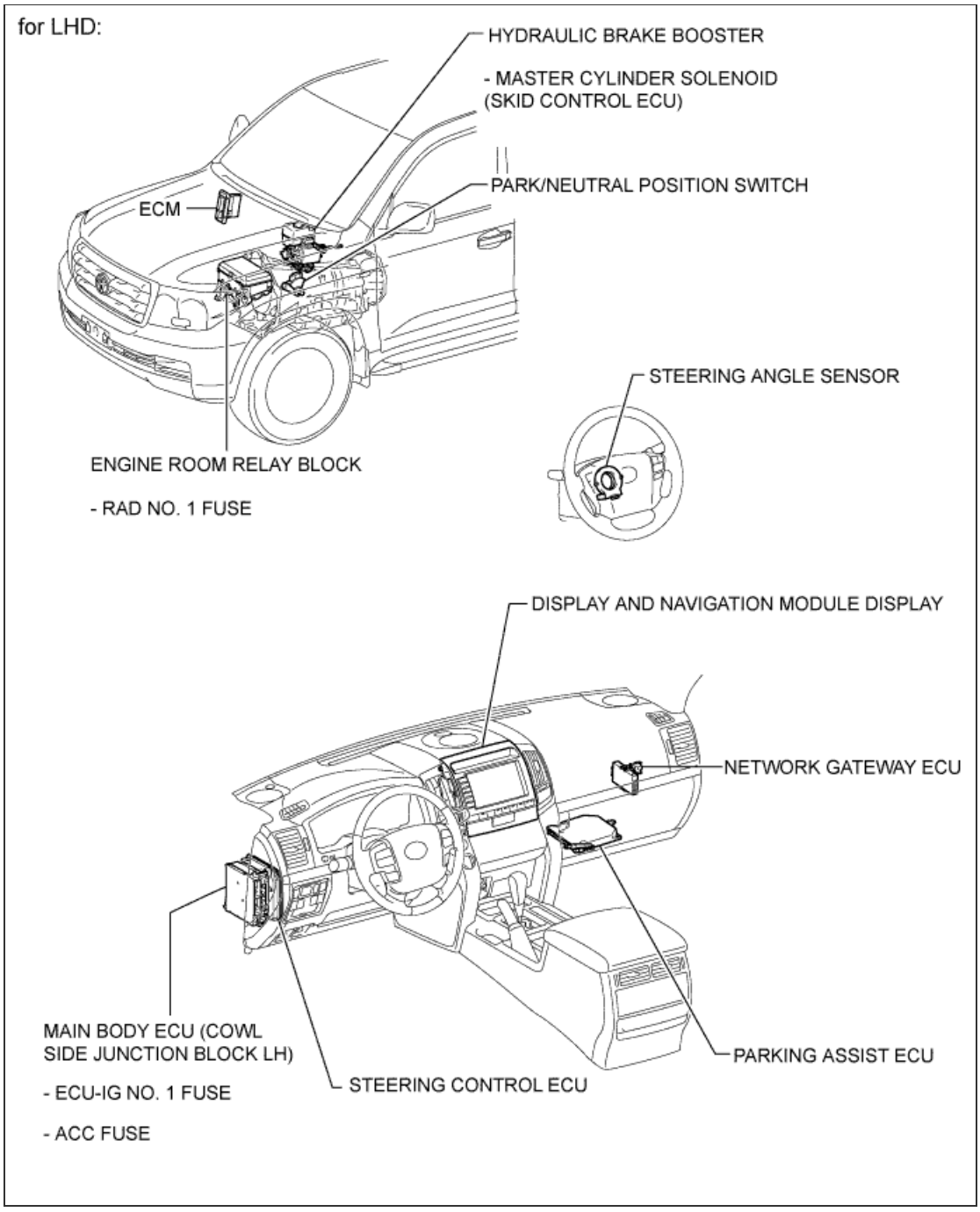
ii. It is too dark around the camera (at night etc.).

iii. The ambient temperature around the camera is either too high or too low.

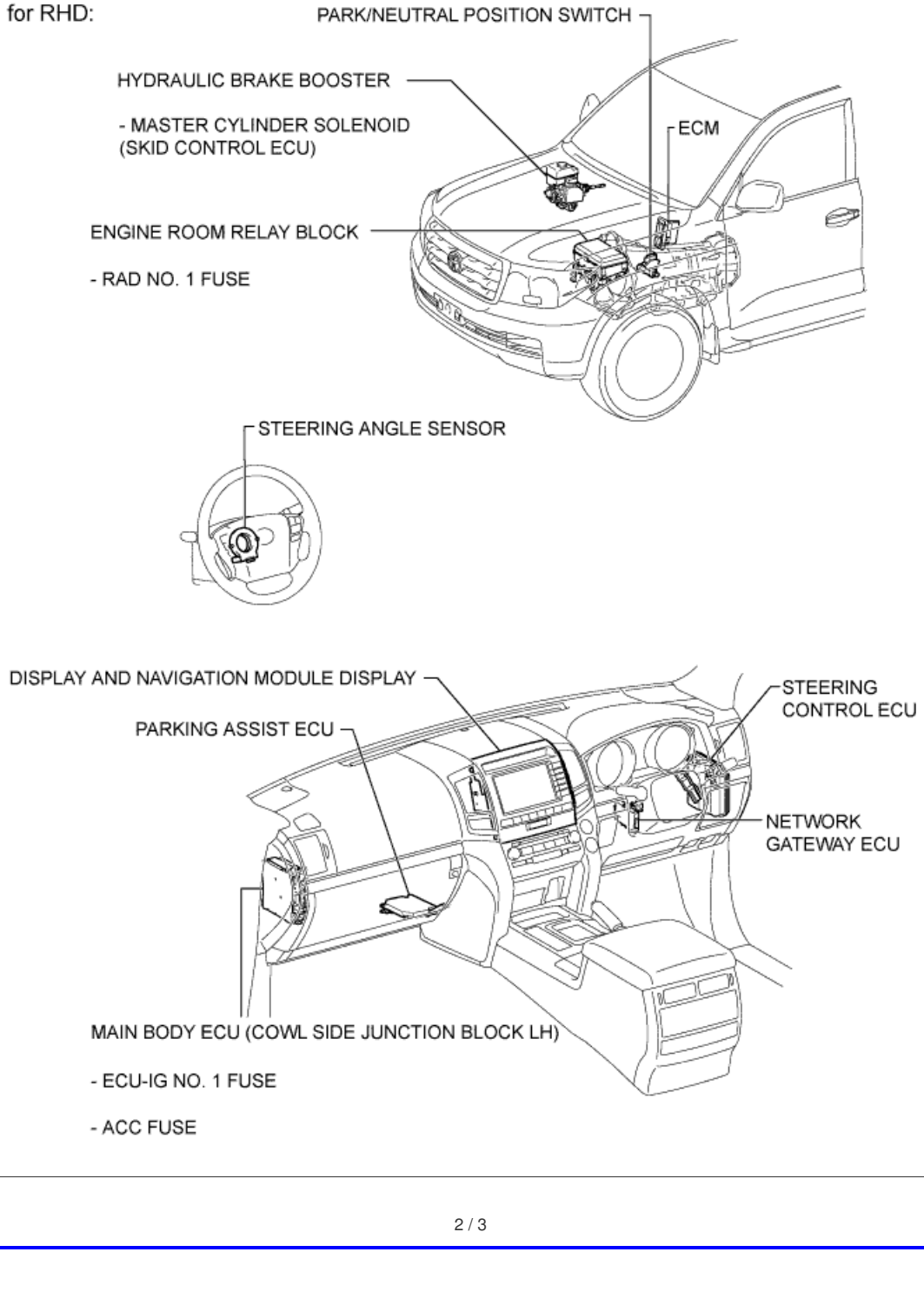
ix. The vehicle is tilted at a steep angle.

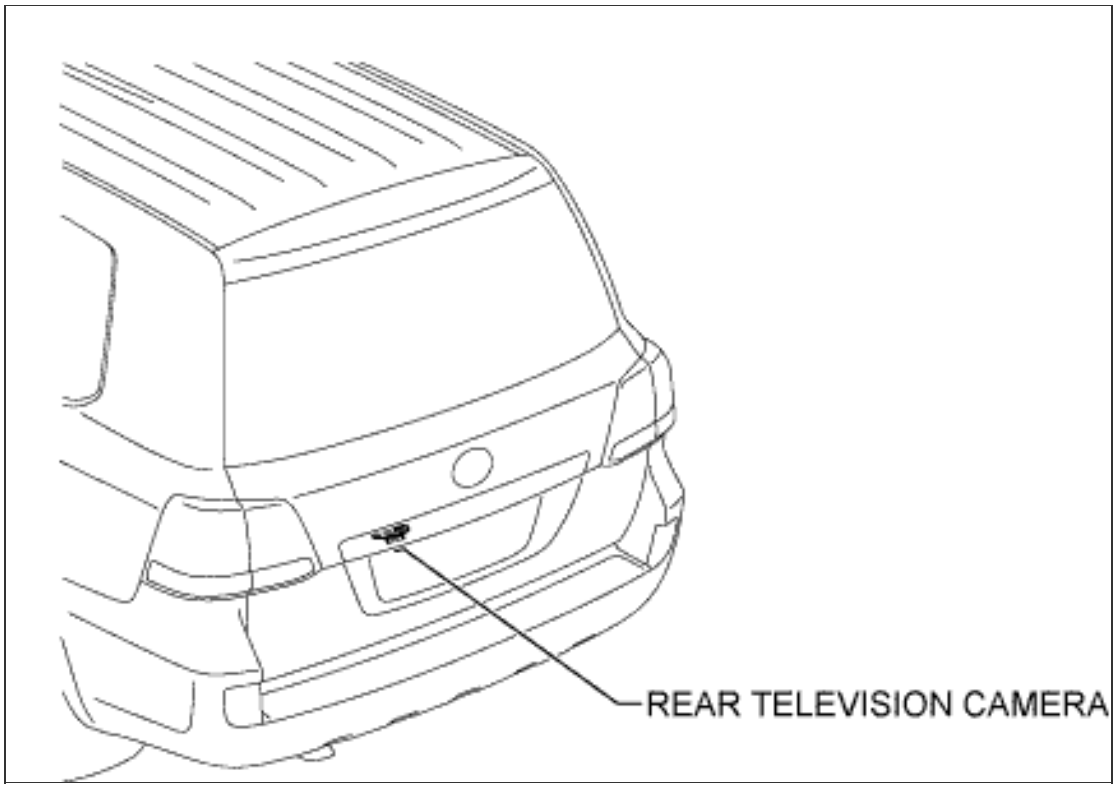
x. The ambience of the camera is too bright. (When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, peculiar to the CCD camera.)

for Preparation Click here

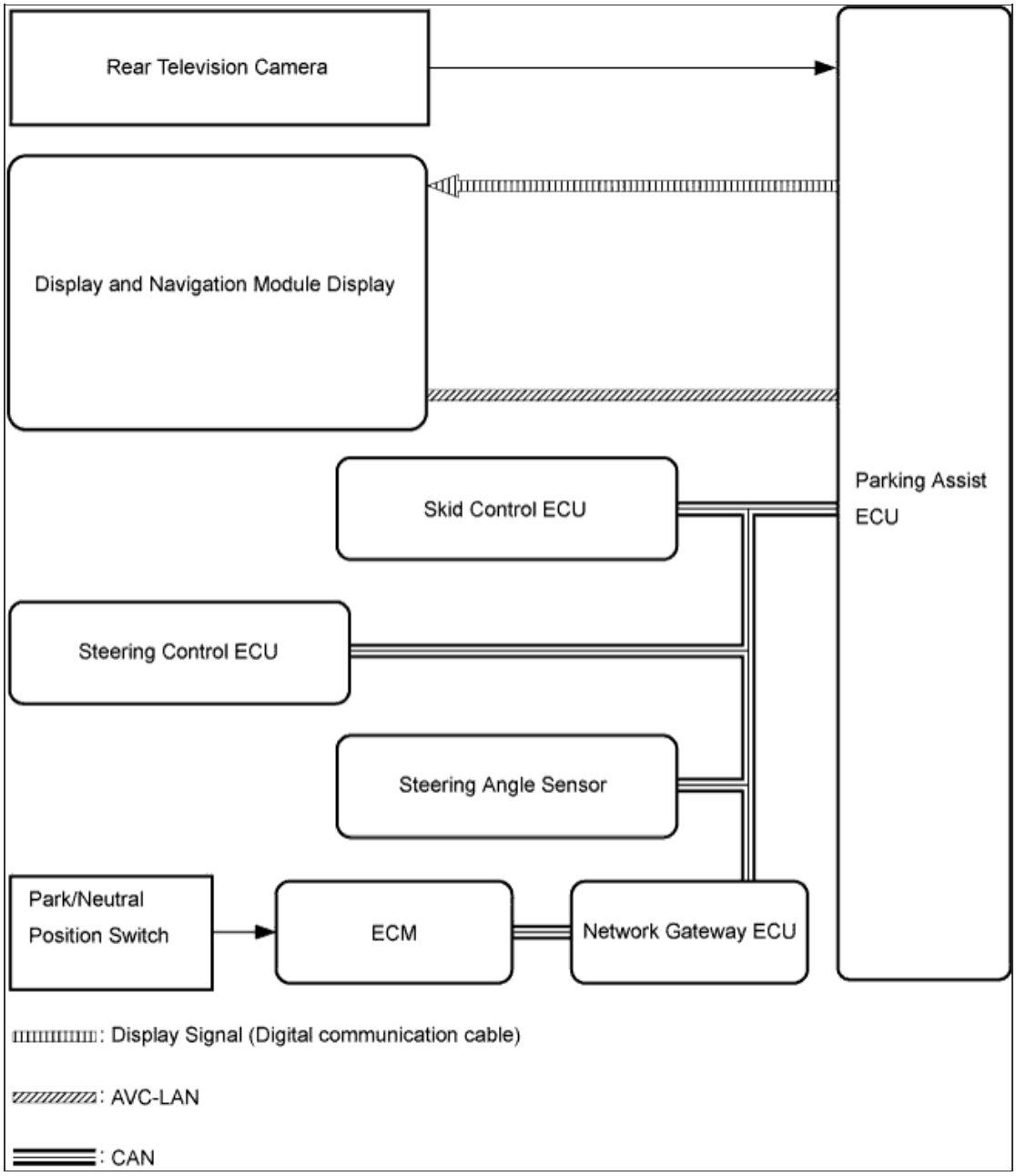


for RHD:


PARK/NEUTRAL POSITION SWITCH
HYDRAULIC BRAKE BOOSTER
- MASTER CYLINDER SOLENOID
(SKID CONTROL ECU)
ECM
ENGINE ROOM RELAY BLOCK
- RAD NO. 1 FUSE
STEERING ANGLE SENSOR
DISPLAY AND NAVIGATION MODULE DISPLAY
PARKING ASSIST ECU
STEERING
CONTROL ECU
NETWORK
GATEWAY ECU
MAIN BODY ECU (COWL SIDE JUNCTION BLOCK LH)
- ECU-IG NO. 1 FUSE
- ACC FUSE


REAR TELEVISION CAMERA

for Preparation Click here



Communication Table

Sender	Receiver	Signal	Line
Parking Assist ECU	Display and navigation module display	Display	Digital communication cable
Steering Angle Sensor	Parking Assist ECU	Steering angle signal	CAN
Steering Control ECU	Parking Assist ECU	Variable gear ratio steering signal	CAN
ECM	Parking Assist ECU	Shift position signal	CAN
Skid Control ECU	Parking Assist ECU	Vehicle speed signal	CAN

for Preparation Click here

GENERAL

a. This system has a rear television camera assembly mounted on the back door to display the rear view of the vehicle on the display and navigation module display. The display panel also shows a composite view consisting of the area behind the vehicle and parking guidelines to assist the driver in parking the vehicle by monitoring the area behind the vehicle.

b. This system consists of the following components:

i. Parking assist ECU

ii. Rear television camera assembly

iii. Display and navigation module display

iv. Steering control ECU

v. Steering angle sensor

vi. Skid Control ECU

c. This system is equipped with a self-diagnosis system, which is operated on a designated window that appears on the display panel, just as in the navigation system.

FUNCTION OF COMPONENTS

a. The parking assist ECU controls the system by using information from the following components.

Item	Function
Rear Television Camera	• Mounted on the back door to transmit the rear view of the vehicle to the parking assist ECU. • Has a color video camera that uses a CCD (Charge Coupled Device) and a wide-angle lens.
Parking Assist ECU	• Transmits video signals, which contain a composite consisting of the rear view of the vehicle taken with the television camera and parking assist guidelines, to the display and navigation module display. • Performs overall control of the system by receiving signals from the sensors and display and navigation module display.
Display and navigation module display	Receives the video signals containing a composite of the rear view of the vehicle and parking assist guideline signals from the parking assist ECU, and displays them on the display panel.
Steering angle sensor	Detects the angle of the steering wheel and sends the resulting signals to the parking assist ECU through CAN communication.
Park/neutral position switch	Sends the shift position signal to the ECM.
Steering control ECU	Receives the variable gear ratio steering signal from the steering angle sensor.
Skid control ECU	Transmits a vehicle speed signal to the parking assist ECU.

OPERATION EXPLANATION

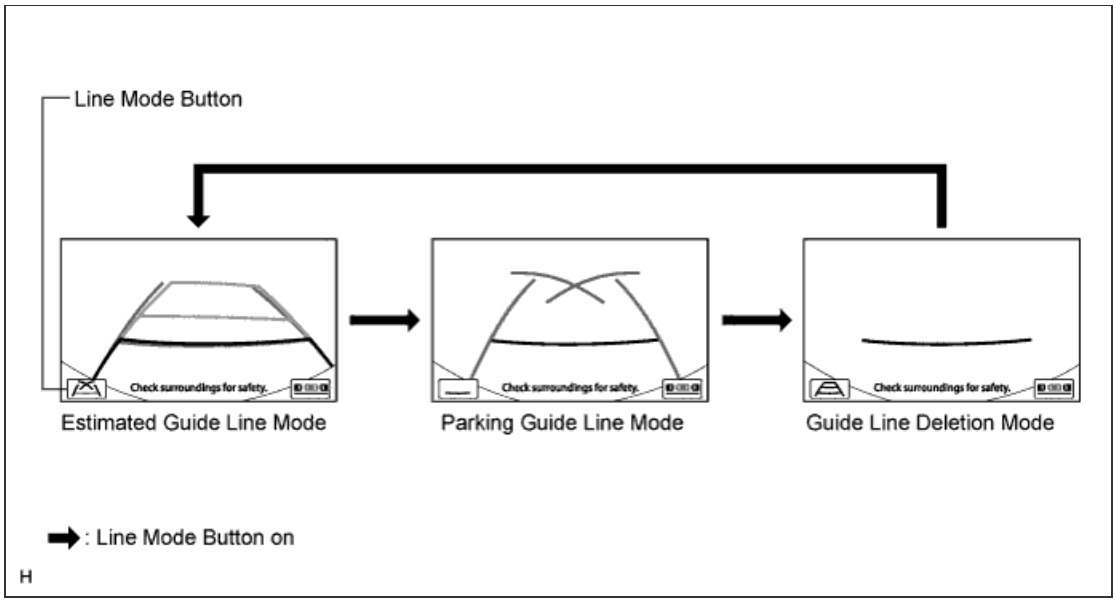
a. The reverse position signal is sent from the shift lever position switch to the parking assist ECU when the shift lever is moved to R.

b. In parallel parking assist mode, an appropriate steering angle and timing information can be provided for the driver. This is based on the information from the steering angle sensor signal and the vehicle angle data signal that are sent to the parking assist ECU.

HINT:

The steering angle sensor signal is used to control parking assist for only estimated guide line mode.

DISPLAY MODE SETTING



a. While the parking assist monitor is displayed, pressing the line mode button switches the parking assist monitor display mode.

Parking Assist Monitor Display Mode

Parking Assist Monitor Display Mode	Distance Guide Line (Red with Black)	Vehicle Width Extension Line (Green)	Predicted Path Line (Yellow)	Parking Guide Line (Green)
Estimated Guide Line Mode	Displayed	Displayed	Displayed	Not displayed
Parking Guide Line Mode	Displayed	Displayed	Not displayed	Displayed
Guide Line Deletion Mode	Displayed	Not displayed	Not displayed	Not displayed

COMMUNICATION SYSTEM OUTLINE

a. The components of the parking assist monitor system communicate with each other through the AVC-LAN. Also, parallel parking assist mode judges the vehicle angle data transmitted via the AVC-LAN from the display and navigation module display (the data is calculated by the display and navigation module display by integrating the yaw rate of the gyro sensor built into the display and navigation module display).

b. If a short circuit or open circuit occurs in the AVC-LAN, communication is interrupted and the parking assist monitor system will stop functioning.

DIAGNOSTIC FUNCTION OUTLINE

a. This parking assist monitor system has a diagnostic function displayed in the display and navigation module display. This function enables the calibration (adjustment and verify) of the parking assist monitor system (Click here).

b. The parking assist monitor system can check the following items by using the intelligent tester.

Item	Proceed to
DTC	Click here
Data List / Active Test	Click here

for Preparation Click here

HINT:

- **Use the following procedure to troubleshoot the parking assist monitor system.**
- ***: Use the intelligent tester.**

1.VEHICLE BROUGHT TO WORKSHOP

NEXT

2.INSPECT BATTERY VOLTAGE

a. Measure the battery voltage with the engine switch off.

Standard Voltage:
11 to 14 V

If the voltage is below 11 V, replace or recharge the battery before proceeding to the next step.

NEXT

3.CHECK NAVIGATION SYSTEM

a. Refer to the navigation system (for HDD) (Click here).

b. Refer to the navigation system (for DVD) (Click here).

Result

Result	Proceed to
Navigation system is normal	A
Navigation system (for HDD) is abnormal	B
Navigation system (for DVD) is abnormal	C

B. → GO TO NAVIGATION SYSTEM (for HDD) (**Click here**)

C. → GO TO NAVIGATION SYSTEM (for DVD) (**Click here**)

A

4.CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*

a. Use the intelligent tester to check if the CAN communication system is functioning normally.

Result

Result	Proceed to
CAN DTC is not output	A
CAN DTC is output (for LHD)	B
CAN DTC is output (for RHD)	C

B. → GO TO CAN COMMUNICATION SYSTEM (for LHD) (**Click here**)

C. → GO TO CAN COMMUNICATION SYSTEM (for RHD) (**Click here**)

A

5.CHECK FOR DTC*

a. Check for DTCs and note any codes that are output (Click here).

b. Clear the DTC (Click here).

c. Recheck for DTCs. Try to prompt the DTC by simulating the original activity that the DTC suggests.

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B. → **Go to step 8**

A

6.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

Result

Result	Proceed to
Fault is not listed in Problem Symptoms Table	A
Fault is listed in Problem Symptoms Table	B

B. → **Go to step 8**

A

7.OVERALL ANALYSIS AND TROUBLESHOOTING*

a. Data List / Active Test (Click here)

b. Terminals of ECU (Click here)

NEXT

8.ADJUST, REPAIR OR REPLACE

NEXT

9.CONFIRMATION TEST

NEXT

END

for Preparation Click here

INITIALIZE PARKING ASSIST MONITOR SYSTEM

a. If the following operations are performed, "SYSTEM INITIALIZING" is displayed on the display and navigation module display.

Part Name	Operation	Initialization Item
Battery cable	Disconnect	Store the steering angle neutral point in memory
Steering angle sensor connector	Disconnect	Store the steering angle neutral point in memory

b. When "SYSTEM INITIALIZING" is displayed, correct the steering angle neutral point using either of the following methods.

i. METHOD 1:
Fully turn the steering wheel to the right and left.

ii. METHOD 2:

1. Drive the vehicle at more than 20 km/h (12 mph) for more than 5 minutes on a straight road with as little traffic congestion as possible.

   HINT:

   While driving at a constant vehicle speed, the ECU recognizes the point where the steering angle changes the least and memorizes it as the steering angle neutral point.

2. Stop the vehicle and check whether the neutral point is stored or not. If it is not stored, drive the vehicle according to the previous step again (the neutral point is stored by driving the vehicle straight).

for Preparation Click here

ADJUST PARKING ASSIST MONITOR SYSTEM

a. This parking assist monitor system can be set from the diagnostic screen of the display and navigation module display.

b. If the following operations are performed, it is necessary to perform adjustments and checks on the diagnostic screen.

Part Name	Operation	Adjustment Item	Proceed to
Steering angle sensor	• Removal and installation of the Steering angle sensor • Removal and installation of the connector of the Steering angle sensor	Steering angle neutral point	Click here
		Steering angle setting	Click here
Steering angle sensor	Replacement	Steering angle neutral point	Click here
		Steering angle setting	Click here
Parking assist ECU	Replacement	Parking assist ECU initialization	Step 2
Suspension, tires, etc.	The vehicle height changes because of suspension or tire replacement	Rear television camera optical axis (Camera position setting)	Step 3
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 (Camera position setting)	Step 3

HINT:

The adjustment values stored while performing parking assist monitor system calibration are stored in the parking assist ECU.

PARKING ASSIST ECU INITIALIZATION

HINT:

Be sure to check for DTCs before performing this procedure (Click here).

a. Preparation for adjustment

i. Park the vehicle with the steering wheel centered.

ii. Set a target bar for optical axis adjustment of the rear television camera.

HINT:

Only when adjusting the optical axis of the camera, create a target bar for adjustment.

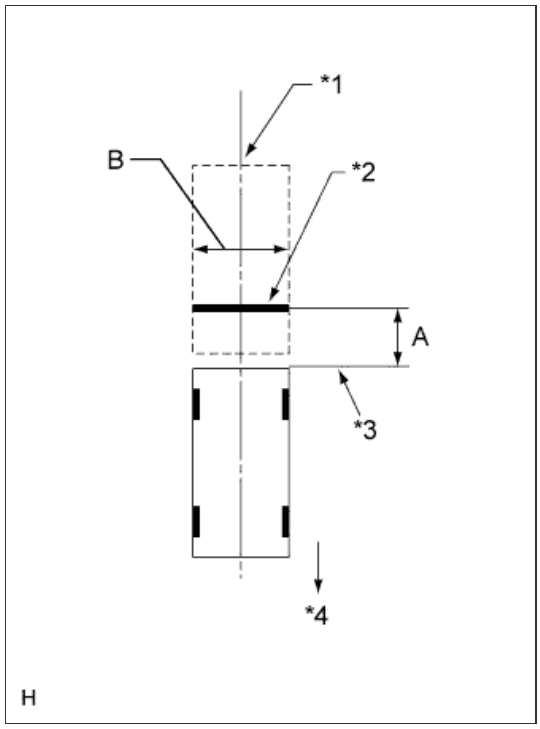
Dimension:

Area	Specification
A	825 to 835 mm (2.71 to 2.74 ft.)

B	1995 to 2005 mm (6.545 to 6.578 ft.)

Text in Illustration

*1	Vehicle Center
*2	Target Bar for Back Camera Adjustment
*3	Vehicle End
*4	Front Side



HINT:

- **Set a piece of tape on the ground as the target bar for adjustment. Its width and length are 20 to 30 mm (0.787 to 1.181 in.) and 1995 to 2005 mm (6.545 to 6.578 ft.), respectively. Check the color on the display and navigation module display and choose a tape color which can be easily seen.**
- **Before parking the vehicle, be sure to move the vehicle forward and in reverse to check that the tires are facing straight ahead with the steering wheel centered.**
- **Check that the back door is fully closed.**

b. Start diagnostic mode .

- for HDD (Click here).
- for DVD (Click here).

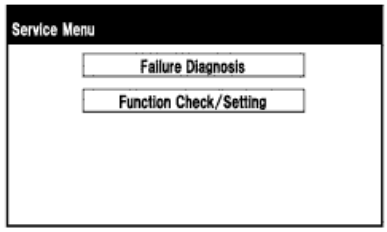
NOTICE:

Alignment must be performed with the engine running. For this reason, it is necessary to apply the parking brake, depress the brake pedal, and move the shift lever into the P position, and to exercise all other necessary caution to ensure that the vehicle does not begin moving unexpectedly.

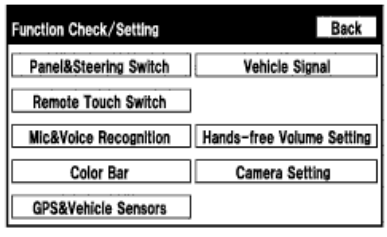
HINT:

The displayed items may differ depending on vehicle specifications.

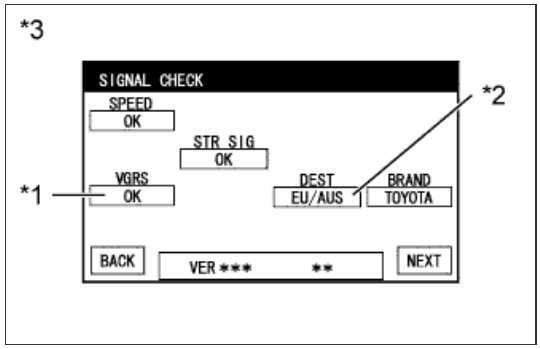
i. Select "Function Check/Setting" on the Service Menu screen.



ii. Select "Camera Setting" on the Function Check/Setting screen.



iii. Select "NEXT" on the SIGNAL CHECK screen.



Text in Illustration

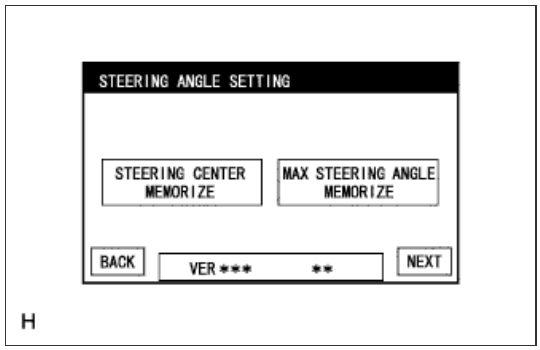
*1	w/ VGRS
*2	"EU/AUS" or "GCC/ZAF"
*3	Example

NOTICE:

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 BACK CAMERA POSITION SETTING screen.

HINT:

The "NEXT" button does not respond until the system stores the steering angle neutral point and maximum steering angle.

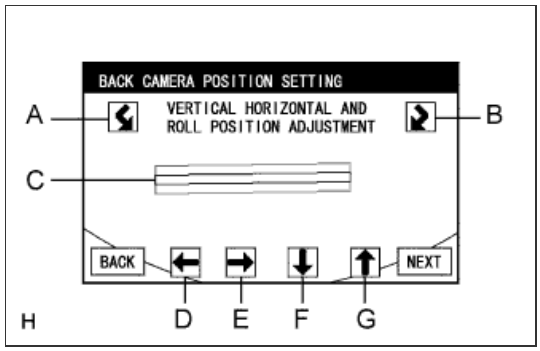
HINT:

- **It is also possible to start by initially turning the steering to the right side.**
- **When "MAX STEERING ANGLE MEMORIZE" is selected, a beep will sound to confirm that the steering adjustment values have been stored.**
- **The adjustment value will not be stored unless "MAX STEERING ANGLE MEMORIZE" is selected after turning the steering wheel side to side.**
- **When "BACK" is selected, the screen changes to SIDE VERIFY MODE without storing the set values.**
- **Even if no DTCs are detected, selecting "MAX STEERING ANGLE MEMORIZE" may not cause the adjustment value to be stored if the steering sensor is malfunctioning.**
- **If selecting "MAX STEERING ANGLE MEMORIZE" does not cause the adjustment value to be stored after adjusting the steering angle, replace the spiral with sensor cable sub-assembly.**

d. 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).**



i. Perform the roll angle adjustment.

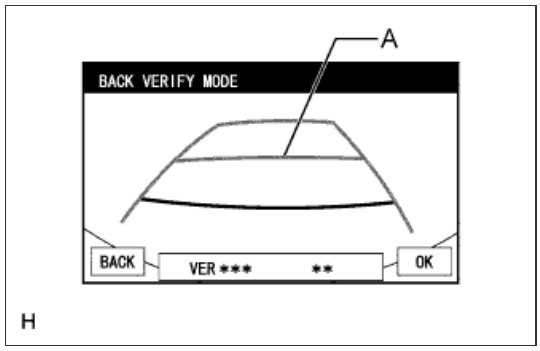
- Select switches A and B to rotate C so that it is parallel to the target adjustment bar.

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.

e. 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.**

f. Finish diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

BACK CAMERA POSITION SETTING

HINT:

Be sure to check for DTCs before performing this procedure (Click here).

a. Preparation for adjustment

i. Park the vehicle with the steering wheel centered.

ii. Set a target bar for optical axis adjustment of the rear television camera.

HINT:

Only when adjusting the optical axis of the camera, create a target bar for adjustment.

Dimension:

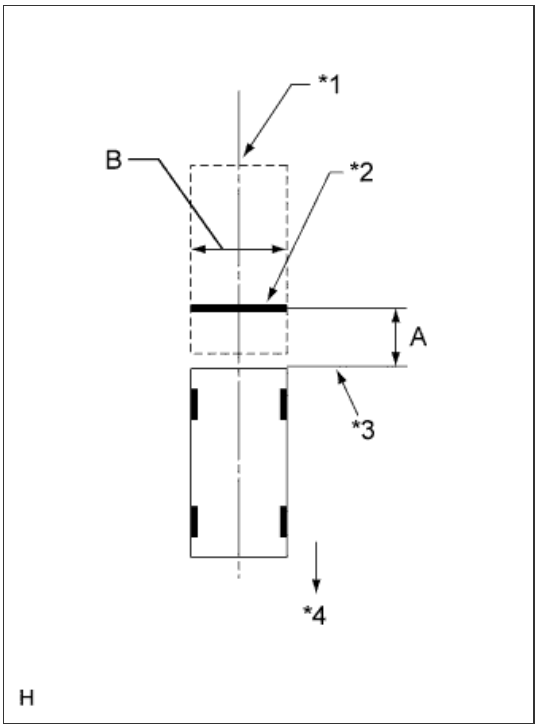
Area	Specification
A	825 to 835 mm (2.71 to 2.74 ft.)
B	1995 to 2005 mm (6.545 to 6.578 ft.)

Text in Illustration

*1	Vehicle Center
*2	Target Bar for Back Camera Adjustment
*3	Vehicle End
*4	Front Side

HINT:

- **Set a piece of tape on the ground as the target bar for adjustment. Its width and length should be 20 to 30 mm (0.787 to 1.181 in.) and 1995 to 2005 mm (6.545 to 6.578 ft.), respectively. Check the color on the multi-display and choose a tape color which can be easily seen.**
- **Before parking the vehicle, be sure to move the vehicle forward and in reverse to check that the tires are facing straight ahead with the steering wheel centered.**
- **Check that the back door is fully closed.**



b. Start diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

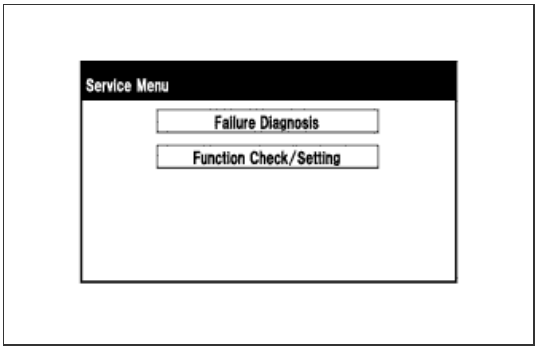
NOTICE:

Apply the parking brake, depress the brake pedal, move the shift lever to P, and ensure that the vehicle is not moving.

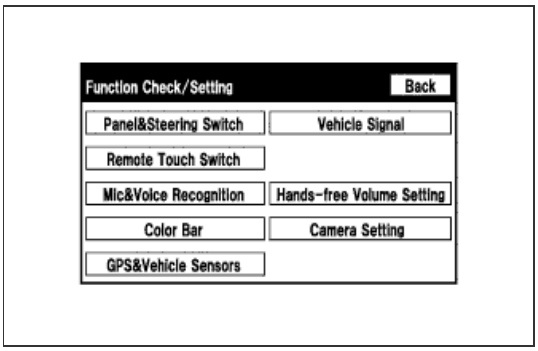
HINT:

The displayed items may differ depending on vehicle specifications.

i. Select "Function Check/Setting" on the "Service Menu" screen.



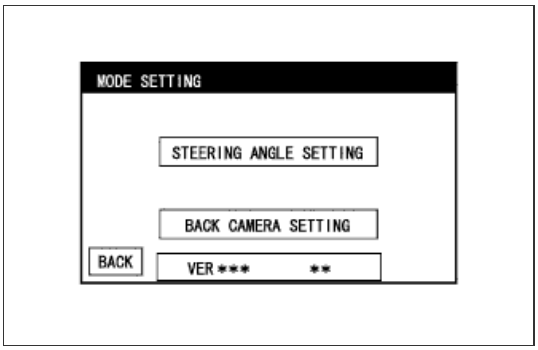
ii. Select "Camera Setting" on the Function Check/Setting screen.



iii. Select "BACK CAMERA SETTING" on the MODE SETTING screen.

HINT:

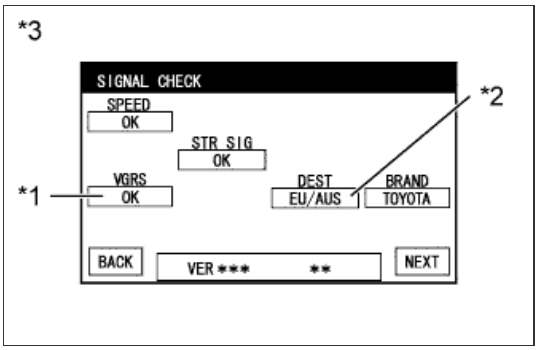
To select a grayed out item, select and hold the item for 2 seconds or more.



iv. Select "NEXT" on the SIGNAL CHECK screen.

Text in Illustration

*1	w/ VGRS
*2	"EU/AUS" or "GCC/ZAF"
*3	Example



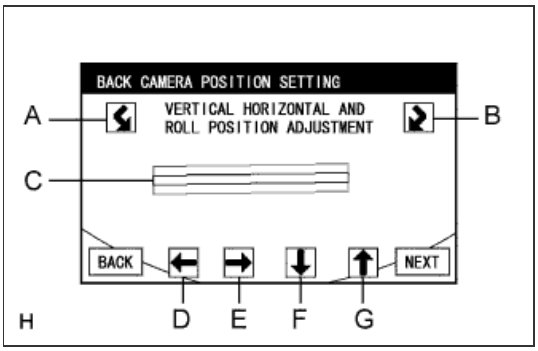
NOTICE:

- **When "CHK" (red) is displayed for any items on the SIGNAL CHECK screen, selecting "NEXT" will not change the screen to the 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).**



i. Perform the roll angle adjustment.

- Select switches A and B to rotate C so that it is parallel to the target adjustment bar.

ii. Perform the vertical and horizontal position adjustment.

- Select the directional switches D, E, F and G to move C so that the target adjustment bar is centered in C.

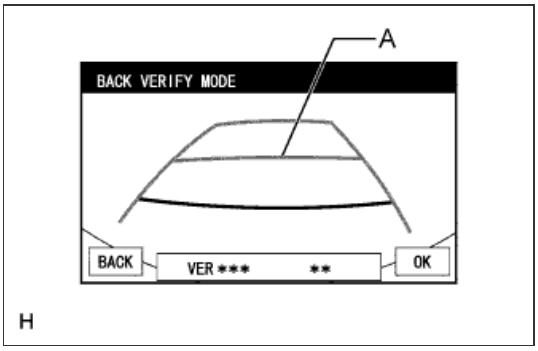
iii. Select the "NEXT" button on the "BACK CAMERA POSITION SETTING" screen.

d. BACK VERIFY MODE

i. Check that A and the target adjustment bar are overlapping.

- If the steering angle neutral point is not aligned, perform the STEERING CENTER MEMORIZE and MAX STEERING ANGLE MEMORIZE operations.
- If A and the target adjustment bar are not aligned even if the tires are aligned straight ahead, perform the camera position setting operation.

ii. Selecting "OK" will return the screen to the Service Menu, and complete the adjustment.



HINT:

- **The update is not completed until "OK" is selected.**
- **When "OK" is selected, a beep will sound to confirm that the rear camera aiming adjustment values have been stored.**

e. Finish diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

for Preparation Click here

HINT:

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms the listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

NOTICE:

The following inspection procedure of the parking assist monitor system is described on the assumption that the navigation system is normal. If navigation system has any malfunction, first proceed with troubleshooting of the navigation system.

General

Symptom	Suspected Area	See page
When the shift lever is in R, the parking assist monitor image is not displayed (screen is not black).	ECU power source circuit	Click here
	Images from all cameras are abnormal	Click here
	Parking assist ECU	Click here
When the shift lever is in R, the parking assist monitor image is not displayed (screen is black).	Image from camera for parking assist monitor is abnormal	Click here
	Display and navigation module display (for)	Click here
	Display and navigation module display (for DVD)	Click here
	Parking assist ECU	Click here
When the shift lever is not in R, the parking assist monitor image is displayed.	Display and navigation module display (for)	Click here
	Display and navigation module display (for DVD)	Click here
	Parking assist ECU	Click here

Display Malfunction

Symptom	Suspected Area	See page
Image from camera for the parking assist monitor is abnormal.	Image from camera for parking assist monitor is abnormal	Click here
	Images from all cameras are abnormal	Click here
	Parking assist ECU	Click here

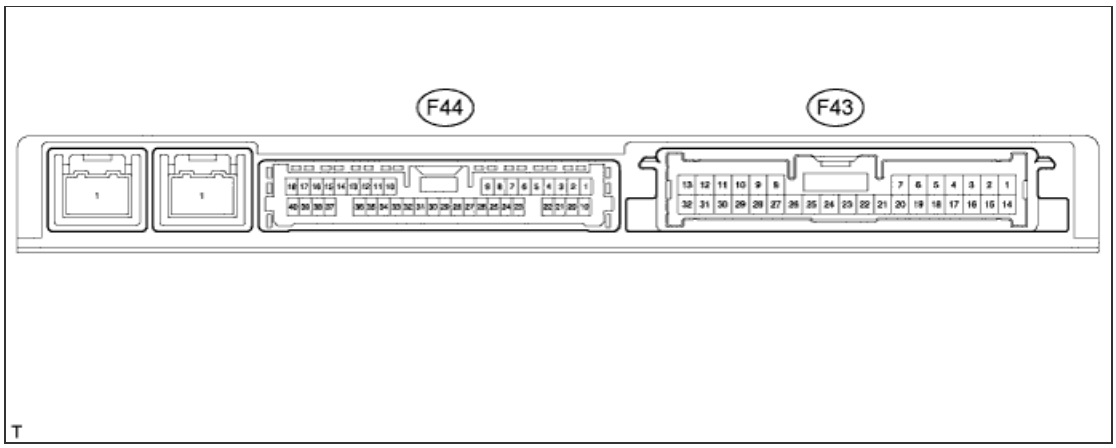
Parking Assist Monitor System Malfunction

Symptom	Suspected Area	See page
Projected course guidelines are not displayed.	Parking assist ECU	Click here
"System initializing" is displayed.	Correct the steering angle neutral point	Click here
"System initializing" is displayed even after correcting the steering angle neutral point.	Spiral with sensor cable sub-assembly	Click here
	Steering angle setting (Diagnosis System)	Click here
	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	-

for Preparation Click here

PARKING ASSIST ECU



a. Disconnect the F43 connector from the ECU.

b. Measure the voltage and resistance of each terminal of the wire harness side connector.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
F43-6 (+B) - F43-4 (GND1)	L - W-B	Power source signal	Always	11 to 14 V
F43-4 (GND1) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
F43-1 (IG) - F43-4 (GND1)	G - W-B	IG power source signal	Engine switch on (IG)	11 to 14 V
F43-14 (ACC) - F43-4 (GND1)	GR - W-B	ACC power source signal	Engine switch on (ACC)	11 to 14 V

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the F43 connector to the ECU.

d. Measure the voltage and check for pulses according to the value(s) in the table below.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
F43-10 (CANL) - F43-4 (GND1)	L - W-B	CAN communication signal	CAN communication circuit	Pulse generation
F43-9 (CANH) - F43-4 (GND1)	V - W-B	CAN communication signal	CAN communication circuit	Pulse generation
F43-32 (TX-) - F43-31 (TX+)	L - W	AVC-LAN communication signal	-	-
F44-34 (CV-) - F43-4 (GND1)	W - W-B	Rear television camera ground	Always	Below 1 V
F44-10 (CV+) - F43-4 (GND1)	R - W-B	Rear television camera display signal (NTSC) input	Engine switch on (IG) Shift lever in R Under normal conditions	Pulse generation (See waveform 1)
			Engine switch on (IG) Shift lever in R Camera lens is covered, blacking out screen	Pulse generation (See waveform 2)
F44-11 (CGND) - F43-4 (GND1)	Shield - W-B	Rear television camera ground (shield)	Always	Below 1 V
F44-35 (CB+) - F43-4 (GND1)	B - W-B	Power source to rear television camera	Engine switch on (IG) Shift lever in R	5.8 to 7.0 V

If the result is not as specified, the ECU may have a malfunction.

e. Reference (Oscilloscope waveform):

HINT:

A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

i. Waveform 1 (under normal conditions)

Item	Content
Terminal No. (Symbol)	F44-10 (CV+) - F43-4 (GND1)
Tool Setting	200 mV/DIV., 50 µsec./DIV.
Condition	Engine switch on (IG), shift lever in R

HINT:

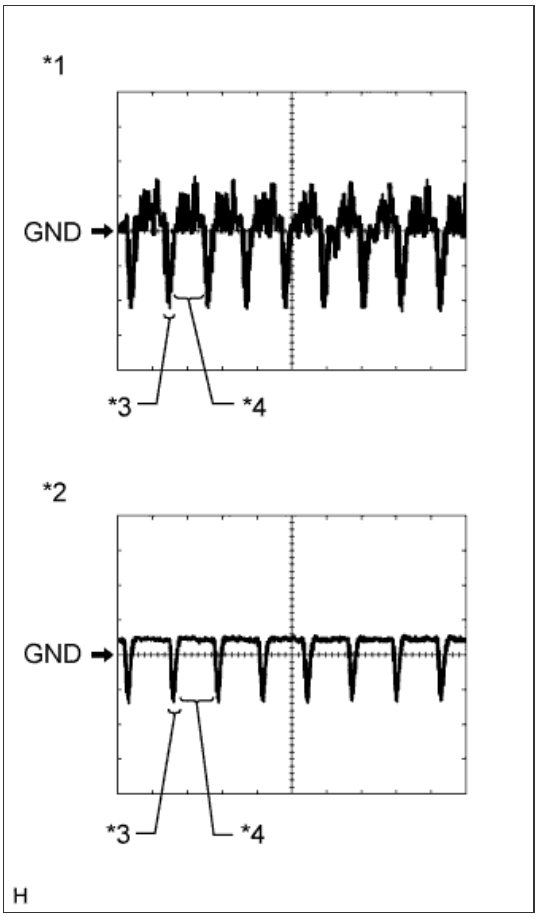
The video waveform changes according to the image sent by the rear television camera assembly.

ii. Waveform 2 (camera lens is covered, blacking out the screen)

Item	Content
Terminal No. (Symbol)	F44-10 (CV+) - F43-4 (GND1)
Tool Setting	200 mV/DIV., 50 µsec./DIV.
Condition	Engine switch on (IG), shift lever in R

HINT:

The video waveform changes according to the image sent by the rear television camera assembly.

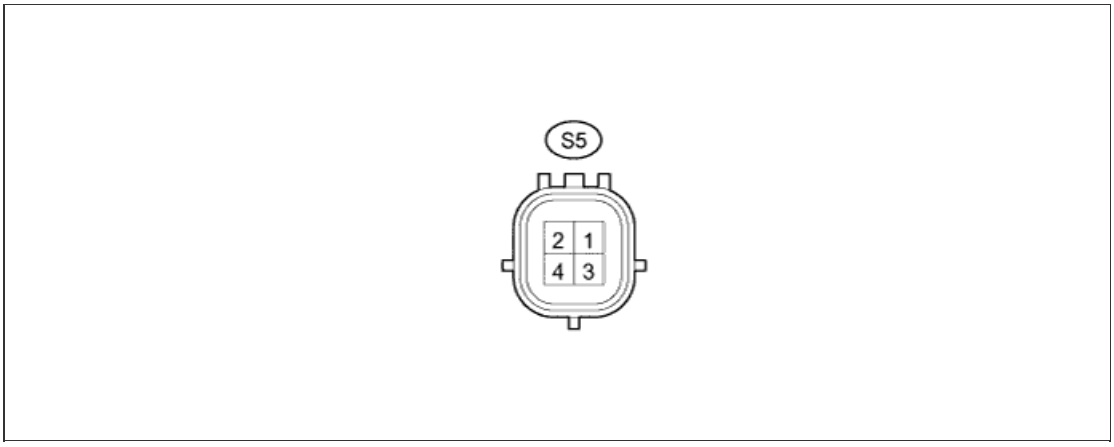


Text in Illustration

*1	Waveform 1 (under normal conditions)
*2	Waveform 2 (camera lens is covered, blacking out the screen)
*3	Synchronized Signal
*4	Video Waveform

REAR TELEVISION CAMERA ASSEMBLY

a. Disconnect the S5 connector from the rear television camera assembly.



b. Measure the voltage of each terminal of the wire harness side connector.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
S5-4 (CB+) - Body ground	B - Body ground	Power source	Engine switch on (IG) Shift lever in R	5.8 to 7.0 V

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the S5 connector to the rear television camera assembly.

d. Check for pulses between each terminal of the connector.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
S5-2 (CV+) - S5-1 (CV-)	R - W	Display signal	Engine switch on (IG) Shift lever in R Under normal conditions	Pulse generation (See waveform 1)
			Engine switch on (IG) Shift lever in R Camera lens covered, blacking out screen	Pulse generation (See waveform 2)

HINT:

A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

If the result is not as specified, the camera may have a malfunction.

e. Reference (Oscilloscope waveform):

HINT:

A waterproof connector is used for the rear television camera assembly. Therefore, inspect the waveform at the parking assist ECU with the connector connected.

i. Waveform 1 (under normal conditions)

Item	Content
Terminal No. (Symbol)	S5-2 (CV+) - S5-1 (CV-)
Tool Setting	200 mV/DIV., 50 µsec./DIV.
Condition	Engine switch on (IG), shift lever in R

HINT:

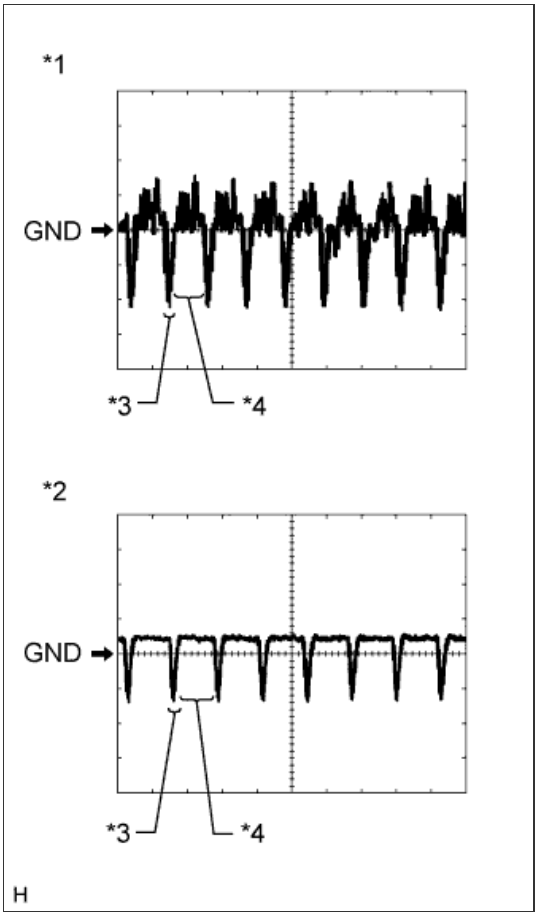
The video waveform changes according to the image sent by the rear television camera assembly.

ii. Waveform 2 (camera lens is covered, blacking out the screen)

Item	Content
Terminal No. (Symbol)	S5-2 (CV+) - S5-1 (CV-)
Tool Setting	200 mV/DIV., 50 µsec./DIV.
Condition	Engine switch on (IG), shift lever in R

HINT:

The video waveform changes according to the image sent by the rear television camera assembly.



Text in Illustration

*1	Waveform 1 (under normal conditions)
*2	Waveform 2 (camera lens is covered, blacking out the screen)
*3	Synchronized Signal
*4	Video Waveform

DISPLAY AND NAVIGATION MODULE DISPLAY

- for HDD (Click here).
- for DVD (Click here).

for Preparation Click here

PARKING ASSIST MONITOR DIAGNOSIS SYSTEM

a. For parking assist monitor system diagnosis, signals received by the parking assist ECU can be checked and the parking assist monitor system can be calibrated, adjusted and checked using the multi-display.

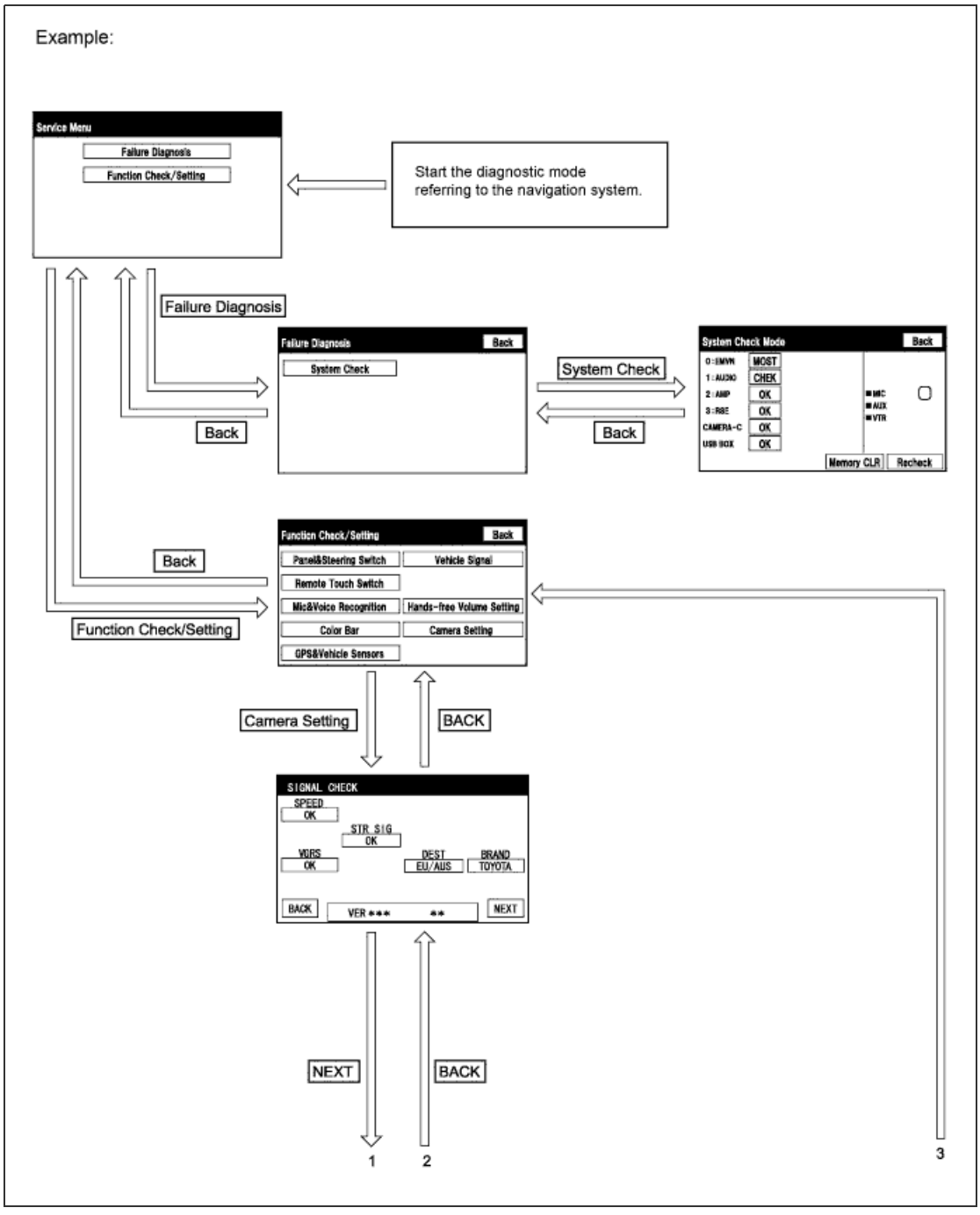
NOTICE:

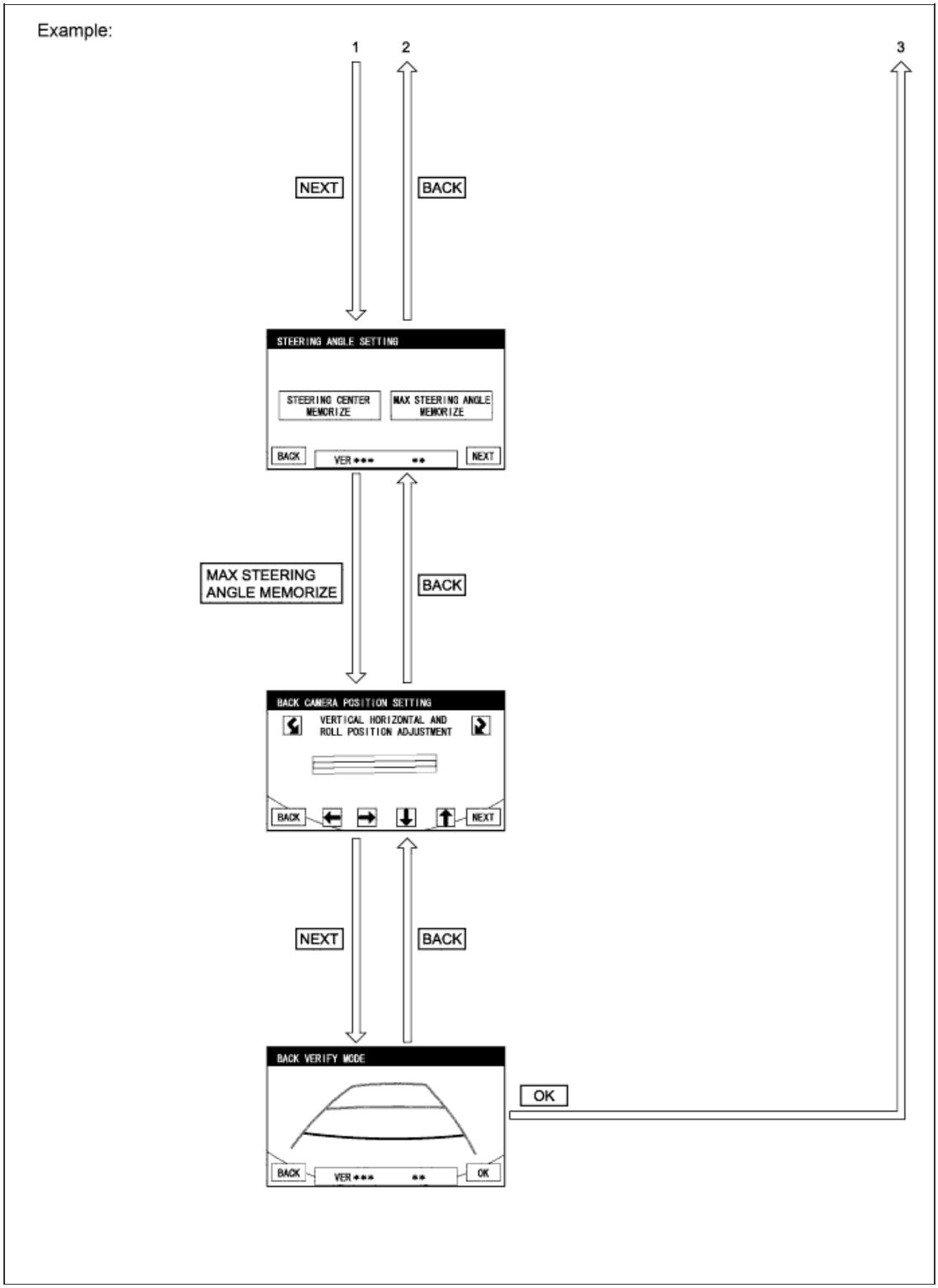
Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).

HINT:

The displayed screens and items may differ depending on vehicle specifications.

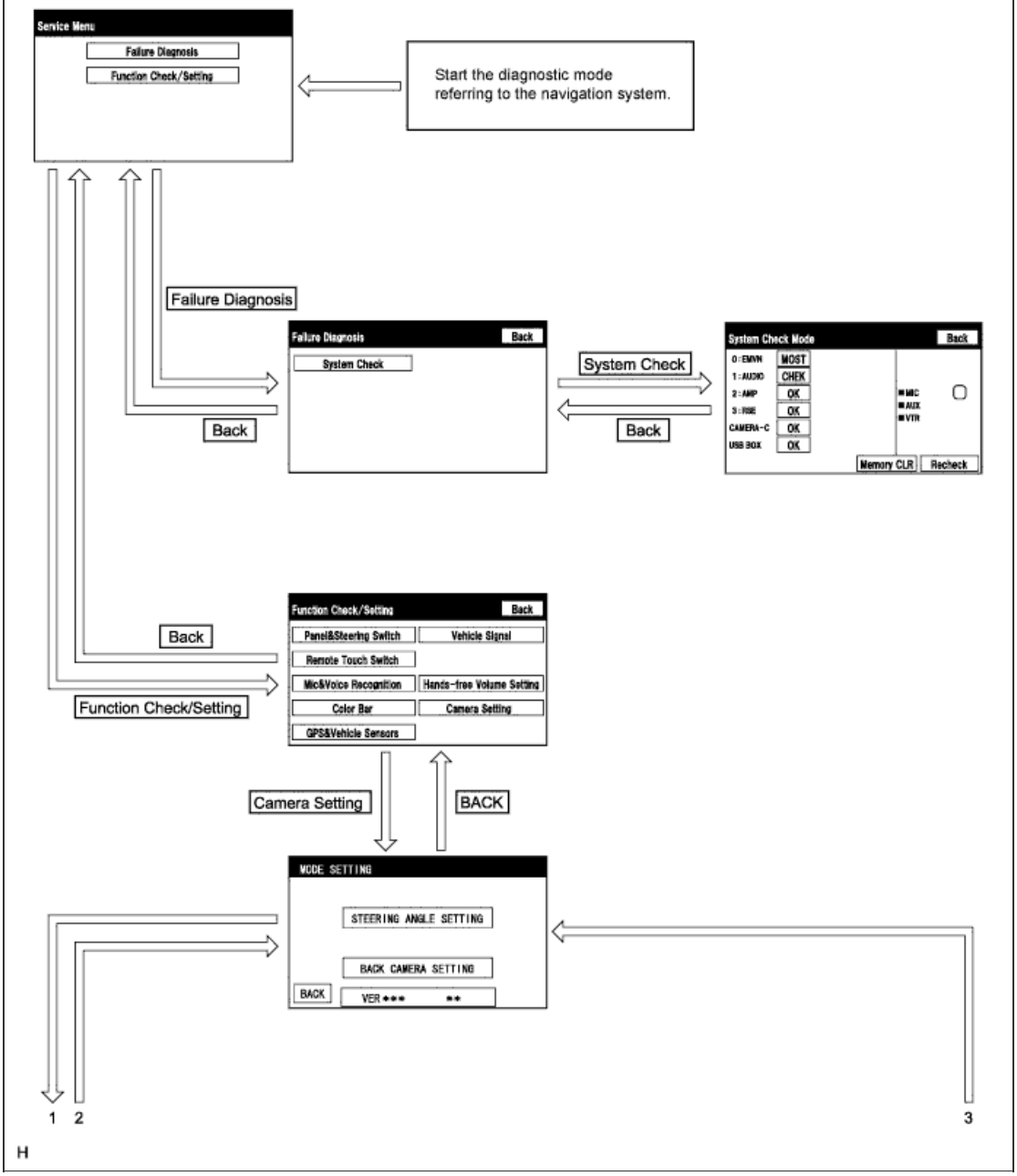
DIAGNOSIS SCREEN TRANSITION (during parking assist ECU initialization)





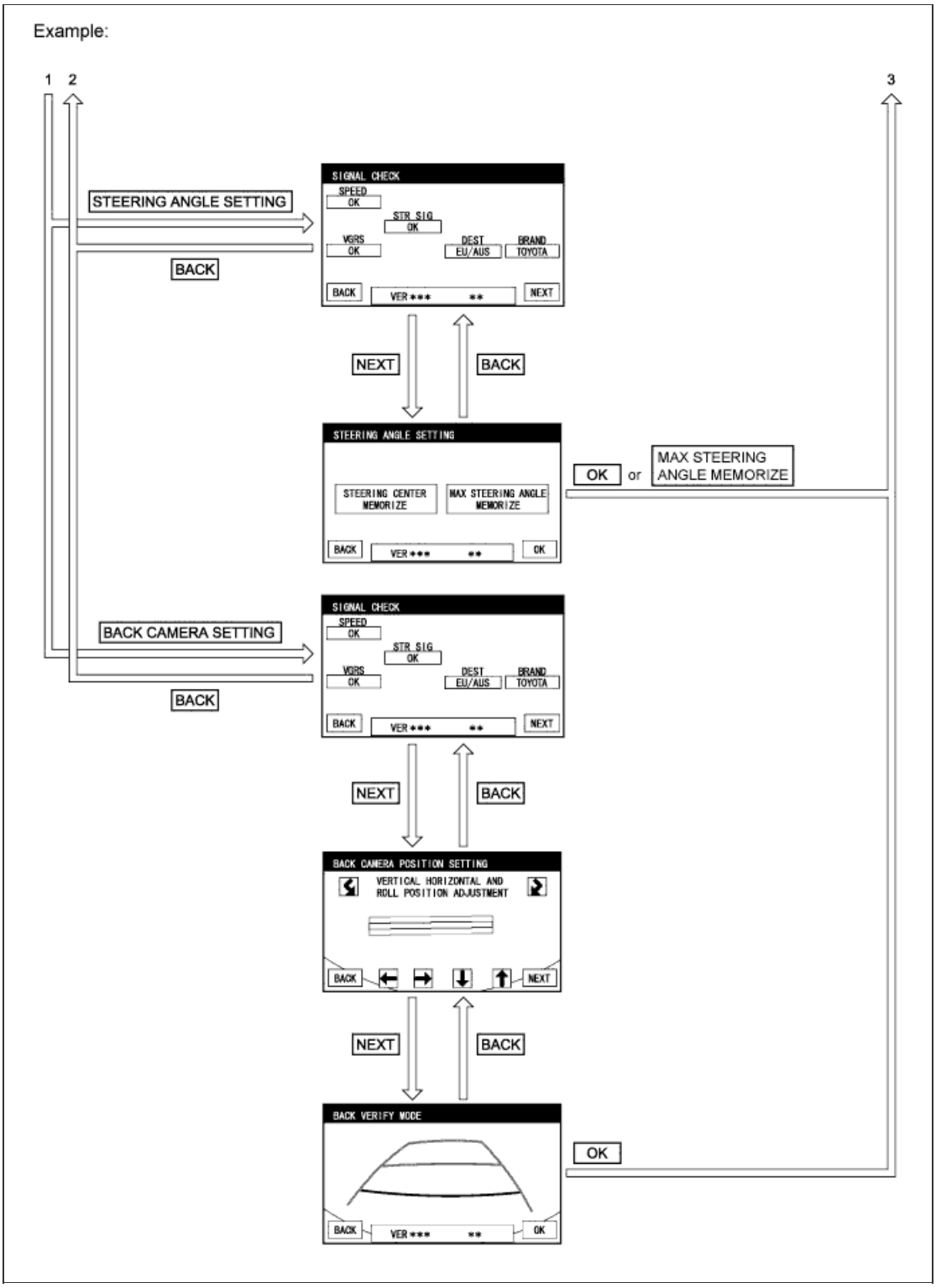
DIAGNOSIS SCREEN TRANSITION (after parking assist ECU initialization)

Example:


Service Menu
Failure Diagnosis
Function Check/Setting
Start the diagnostic mode referring to the navigation system.
Failure Diagnosis
Back
Failure Diagnosis
Back
System Check
System Check
Back
System Check Mode
Back
0 : EMVN
MOST
1 : AUDIO
CHEK
2 : AMP
OK
3 : RSE
OK
CAMERA-C
OK
USB BOX
OK
MIC
AUX
VTR
Memory CLR
Recheck
Back
Function Check/Setting
Function Check/Setting
Back
Panel&Steering Switch
Vehicle Signal
Remote Touch Switch
Mic&Voice Recognition
Hands-free Volume Setting
Color Bar
Camera Setting
GPS&Vehicle Sensors
Camera Setting
BACK
MODE SETTING
STEERING ANGLE SETTING
BACK CAMERA SETTING
BACK
VER***
**
1
2
3

H

Example:



DIAGNOSTIC MODE

a. Start diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

b. Failure diagnosis.

- for HDD (Click here).
- for DVD (Click here).

c. System check (check using system check mode screen).

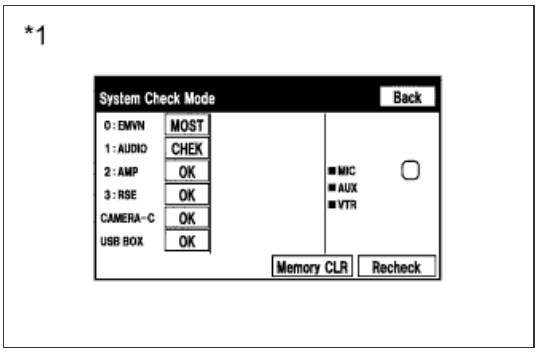
- for HDD (Click here).
- for DVD (Click here).

Text in Illustration

	Example

d. Finish diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

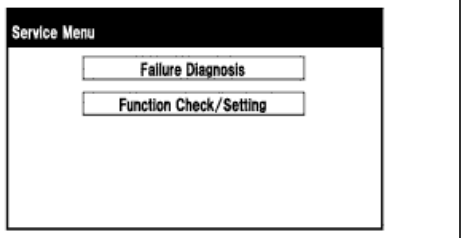


SIGNAL CHECK (parking assist ECU input signal)

a. Start diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

i. Select "Function Check/Setting" on the Service Menu screen to display the Function Check/Setting screen.

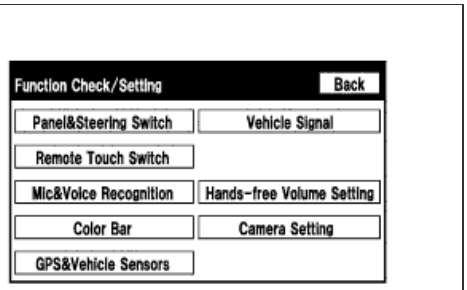


ii. Select "Camera Setting" on the Function Check/Setting screen.

HINT:

After "Camera Setting" is selected, the screen transitions differ depending on whether initialization of the parking assist ECU was performed after parking assist ECU replacement.

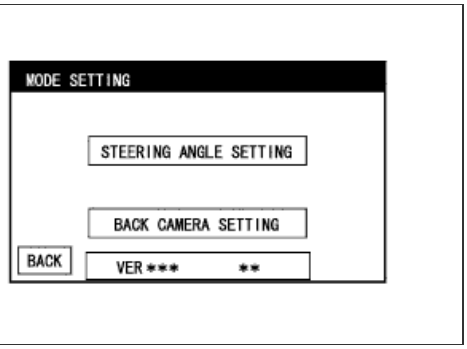
Parking Assist ECU Initialization	Screen Transition
Not performed	SIGNAL CHECK screen
Performed	MODE SETTING screen



iii. When the screen changes to the MODE SETTING screen, select "BACK CAMERA SETTING" to display the SIGNAL CHECK screen.

HINT:

To select a grayed out item, select and hold the item for 2 seconds or more.



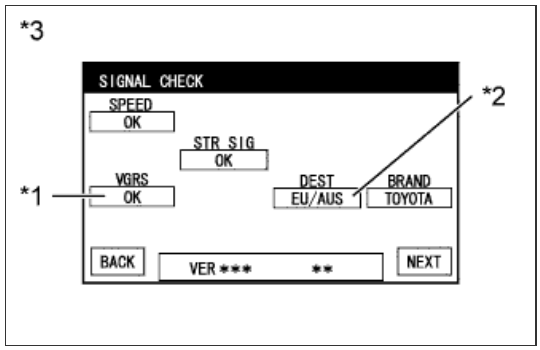
b. SIGNAL CHECK

Text in Illustration

*1	w/ VGRS

	EU/AUS" or "GCC/ZAF"
	Example

i. On the SIGNAL CHECK screen, it is possible to inspect the state of signals sent to the parking assist ECU and check the settings.



Item	Inspection Detail	Note
SPEED	Speed signal input	When "CHK" (red) is displayed, selecting "NEXT" will not change to the next screen.
STR SIG	Steering angle sensor signal input	
VGRS *1	VGRS signal input	
DEST	Destination information signal input	
BRAND	Brand information input	

*1: w/VGRS

HINT:

- **When "CHK" (red) is displayed, perform inspections based on the result of the following inspections.**
- **If performing the adjustment after proceeding to the next screen, confirm that all items display "OK" (blue) before selecting "NEXT".**

c. SPEED inspection

HINT:

If "CHK" (red) is displayed for "SPEED", check for DTCs and perform troubleshooting based on the output DTCs (Click here).

d. STR SIG inspection

HINT:

If "CHK" (red) is displayed for "STR SIG", check for DTCs and perform troubleshooting based on the output DTCs (Click here).

e. DEST inspection

HINT:

If "CHK" (red) is displayed for "DEST", check for DTCs and perform troubleshooting based on the output DTCs (Click here).

f. VGRS inspection

HINT:

If "CHK" (red) is displayed for "VGRS", check for DTCs and perform troubleshooting based on the output DTCs (Click here).

g. BRAND inspection

HINT:

If "CHK" (red) is displayed for "BRAND", check for DTCs and perform troubleshooting based on the output DTCs (Click here).

h. Finish diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

CALIBRATION WHEN SERVICING VEHICLE

NOTICE:

Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).

STEERING ANGLE SETTING (after parking assist ECU is initialized)

HINT:

If the vehicle width extension lines and predicted path lines are not aligned when the steering wheel is centered, or if the predicted path line does not move before the steering wheel is fully turned to either the left or right, adjust the steering angle settings.

a. Center the steering wheel and stop the vehicle.

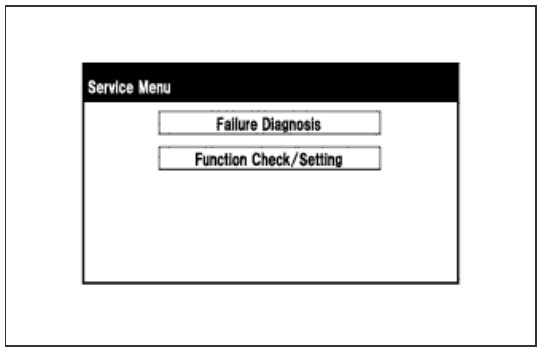
b. Start diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

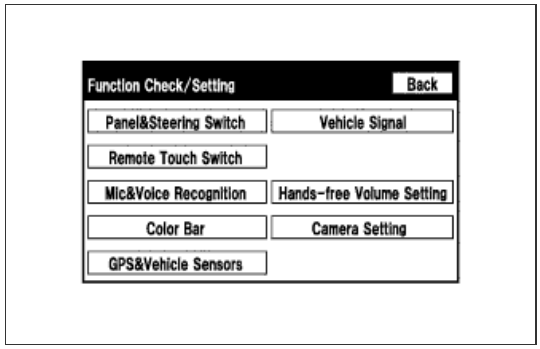
NOTICE:

Alignment must be performed with the engine running. For this reason, it is necessary to apply the parking brake, depress the brake pedal, and move the shift lever into the P position, and to exercise all other necessary caution to ensure that the vehicle does not begin moving unexpectedly.

i. Select "Function Check/Setting" on the Service Menu screen.



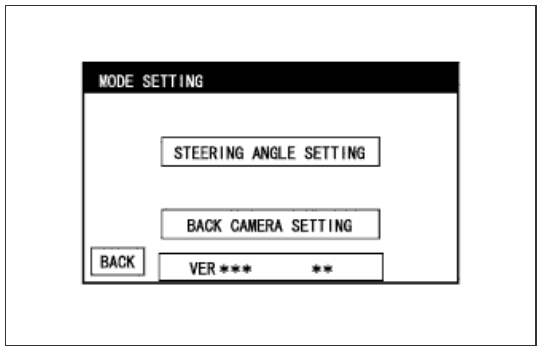
ii. Select "Camera Setting" on the Function Check/Setting screen.



iii. Select "STEERING ANGLE SETTING" on the MODE SETTING screen.

HINT:

To select a grayed out item, select and hold the item for 2 seconds or more.



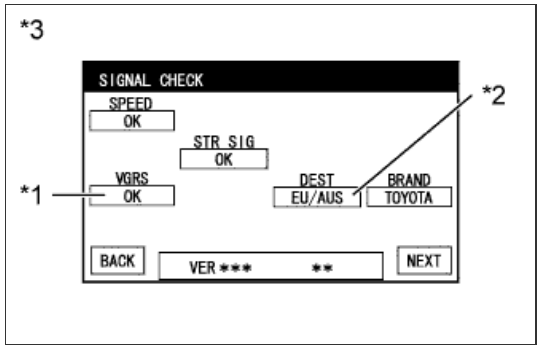
iv. Select "NEXT" on the SIGNAL CHECK screen to display the STEERING ANGLE SETTING screen.

Text in Illustration

*1	w/ VGRS
*2	"EU/AUS" or "GCC/ZAF"
*3	Example

NOTICE:

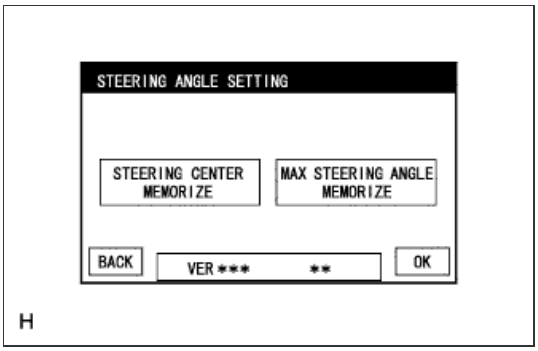
- **When "CHK" (red) is displayed for any items on the SIGNAL CHECK screen, selecting "NEXT" will not**



change the screen to the STEERING ANGLE SETTING screen.

- **When "CHK" is displayed for any items on the SIGNAL CHECK screen, perform inspections using the SIGNAL CHECK screen.**

c. Steering angle setting



H

i. Check that the steering wheel is centered (approximately +/- 5 degrees or less) and select "STEERING CENTER MEMORIZE".

ii. After the centered steering position is memorized, turn the steering wheel to the left and then to the right full lock positions and select "MAX STEERING ANGLE MEMORIZE" or "OK".

HINT:

It is also possible to start by initially turning the steering wheel to the right side.

iii. Select "MAX STEERING ANGLE MEMORIZE" or "OK" to store the steering angle adjustment value and change the screen to the MODE SETTING screen.

HINT:

- **When "MAX STEERING ANGLE MEMORIZE" or "OK" is selected, a beep will sound to confirm that the steering angle ad ustment values have been stored.**
- **The ad ustment values will not be stored unless "MAX STEERING ANGLE MEMORIZE" or "OK" is selected.**
- **When "BACK" is selected, the screen changes to SIGNAL CHECK without storing the set values.**
- **If the steering angle settings have not been ad usted, selecting "MAX STEERING ANGLE MEMORIZE" or "OK" will not cause the ad ustment values to be stored.**
- **Even if no DTCs are detected, selecting "MAX STEERING ANGLE MEMORIZE" or "OK" may not cause the adjustment value to be stored if the steering sensor is malfunctioning.**
- **If selecting "MAX STEERING ANGLE MEMORIZE" or "OK" does not cause the adjustment value to be stored after adjusting the steering angle, replace the spiral with sensor cable sub-assembly.**

d. Finish diagnostic mode.

- for HDD (Click here).
- for DVD (Click here).

e. Confirm steering angle adjustment.

HINT:

If the steering angle has been adjusted, confirm the steering angle adjustment on the parking assist monitor screen after finishing diagnosis mode.

i. Check on the parking assist screen that the predicted path line moves until the steering wheel is fully turned to either the left or right.

HINT:

If the predicted path line stops moving before the steering wheel is fully turned to either the left or right, the steering angle adjustment values have not been stored correctly. In this case, perform "STEERING CENTER MEMORIZE" and "MAX STEERING ANGLE MEMORIZE" again.

for Preparation Click here

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 rking Assist Monitor System DTC.

e. Check the details of the DTCs (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 rking 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. According to the display on the tester, read the Data List.

Parking Assist Monitor System

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
AVC-LAN Master Connect Status	AVC-LAN communication condition/ or NG	AVC-LAN communication condition is normal NG: AVC-LAN communication condition is abnormal	-
AVC-LAN Master Reset Status	AVC-LAN communication condition/ or NG	AVC-LAN communication condition is normal NG: AVC-LAN communication condition is abnormal	-
AVC-LAN Master Status	AVC-LAN communication condition/ or NG	AVC-LAN communication condition is normal NG: AVC-LAN communication condition is abnormal	-
AVC-LAN Connect Status	AVC-LAN communication condition/ or NG	AVC-LAN communication condition is normal NG: AVC-LAN communication condition is abnormal	-
AVC-LAN Sending Status	AVC-LAN communication condition/ or NG	AVC-LAN communication condition is normal NG: AVC-LAN communication condition is abnormal	-
AVC-LAN Regist Complete Status	AVC-LAN communication condition/ or NG	AVC-LAN communication condition is normal NG: AVC-LAN communication condition is abnormal	-
AVC-LAN Regist Request Status	AVC-LAN communication condition/ or NG	AVC-LAN communication condition is normal NG: AVC-LAN communication condition is abnormal	-
N/ arameter Status	AVC-LAN communication condition/ or NG	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" / or NG.	Data Verification Normal NG: Data Verification Abnormal	-
Destination Data Check	Verification of Destination Data/ or NG	Data Verification Normal NG: Data Verification Abnormall	-
EEPR Status		Parking assist ECU is normal	

(Initial read)	Parking assist ECU information/ or NG	NG: Parking assist ECU is abnormal	-
IG Voltage Low Status	IG voltage input to parking assist ECU/ or NG	IG voltage is normal NG: IG voltage is abnormal (too low)	-
IG Voltage High Status	IG voltage input to parking assist ECU/ or NG	IG voltage is normal NG: IG voltage is abnormal (too high)	-
ACC Voltage Low Status	ACC voltage input to parking assist ECU/ or NG	ACC voltage is normal NG: ACC voltage is abnormal (too low)	-
ACC Voltage High Status	ACC voltage input to parking assist ECU/ or NG	ACC voltage is normal NG: ACC voltage is abnormal (too high)	-
AISIC utput Status	utput condition of camera display signal/ or NG	utput condition of camera display signal is normal NG: utput condition of camera display signal is abnormal	-
VGRS Relative Angle Status	Displays "VGRS may be active or inactive" / or NG	VGRS normal NG: VGRS abnormal	-
Wheel Speed Sensor (wheel)	Effectivity of speed signal from speed signal sensor/ or NG	Speed signal is effective NG: Speed signal is not effective	-
Number of DTC	Number of stored trouble codes/min.: , max.: 2	Number of DTCs will be displayed	-

for Preparation Click here

PARKING ASSIST MONITOR SYSTEM

DTC Code	Detection Item	Trouble Area	See page
C1611	ECU Malfunction	- Parking assist ECU initialization (not initialized parking assist ECU) - Back camera position setting (initialized parking assist ECU) - Steering Angle setting (initialized parking assist ECU) - Parking assist ECU	Click here
C1612	IG Voltage is Low or High	- Harness or connector - Parking assist ECU	Click here
C1613	ACC Voltage is Low or High	- Harness or connector - Parking assist ECU	Click here
C1622	Open or Short Circuit in Back Camera Signal	- Harness or connector - Rear television camera assembly - Parking assist ECU	Click here
C1625	Open or Short in Steering Angle Sensor +B	- Harness or connector - Steering sensor (spiral with sensor cable sub-assembly)	Click here
C1626	Steering Angle Sensor Failure	- Steering sensor (spiral with sensor cable sub-assembly) - Parking assist ECU	Click here
C1649	Lost Communication with VGRS ECU	- VGRS system	Click here
C168B	AVC-LAN Communication Malfunction	- AVC-LAN communication	Click here
C168C	AVC-LAN Command Time Out	- AVC-LAN communication	Click here
U0073	Control Module Communication Bus Off	- CAN communication system	Click here
U0100	Lost Communication with ECM	- CAN communication system	Click here
U0126	Lost Communication with Steering Angle Sensor Module	- CAN communication system	Click here
U0129	Lost Communication with Brake System Control Module	- CAN communication system	Click here
U0130	Lost Communication with VGRS	- CAN communication system	Click here
U0140	Lost Communication with Main Body ECU	- CAN communication system	Click here
U1110	Lost Communication with Clearance Warning ECU	- CAN communication system	Click here

DTC C1611 ECU Malfunction

for Preparation Click here

DESCRIPTION

This DTC is stored if the parking assist ECU judges that there is an internal malfunction as a result of its self check.

HINT:

The parking assist ECU stores different types of information during initialization. If the parking assist ECU cannot read the stored information when it is activated, the parking assist ECU judges that there is an internal malfunction and stores this DTC.

DTC No.	DTC Detection Condition	Trouble Area
C1611	• EEPROM Status (Initial read) • AISIC Output Status	• Parking assist ECU initialization (not initialized parking assist ECU) • Back 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 display and navigation module display after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / Data List.

e. Check the Data List for proper functioning of the following items.

Parking Assist Monitor System

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
EEPROM Status (Initial read)	Parking assist ECU information/OK or NG	OK: Parking assist ECU is normal 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	-

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 (Diagnosis system) (Click here)

NEXT

3.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1611 is output	A
No DTC is output	B

HINT:

- **If DTC C1611 is output, perform the procedure to allow the parking assist ECU to store the vehicle information again.**
- **If DTC C1611 is still output after performing the procedure to make the parking assist ECU store the vehicle information 3 times, replace the parking assist ECU.**
- **If DTC C1611 is output frequently, replace the parking assist ECU even though the DTC is not output when rechecking for DTCs.**

B → END

A

REPLACE PARKING ASSIST ECU (**Click here**)

DTC C168B AVC-LAN Communication Malfunction

DTC C168C AVC-LAN Command Time Out

for Preparation Click here

DESCRIPTION

This DTC is stored if the parking assist ECU judges that there is a problem with the AVC-LAN communication system as a result of self check.

DTC No.	DTC Detection Condition	Trouble Area
C168B	• AVC-LAN communication malfunction: No master • AVC-LAN communication malfunction: Master reset • AVC-LAN communication malfunction: Master malfunction • AVC-LAN communication malfunction: Abnormal connection check • AVC-LAN communication malfunction: Transmission not completed • AVC-LAN communication malfunction: Abnormal transmission completion notification • AVC-LAN communication malfunction: Registration request transmission • AVC-LAN communication malfunction: Abnormal ON/OFF parameter	AVC-LAN Communication
C168C	• AVC-LAN command time out: Output ON request notification command time out • AVC-LAN command time out: Output OFF request notification command time out • AVC-LAN command time out: Voice production start request notification command time out • AVC-LAN command time out: Voice production end request notification command time out	

INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
No DTC is output	A
DTC C168B or C168C is output (w/ navigation system for DVD)	B
DTC C168B or C168C is output (w/ navigation system for HDD)	C

HINT:

If DTC C168B or C168C is output frequently, duplicate the problem symptoms and perform the inspection again, even though the DTC is not output when rechecking for DTCs (Click here).

B → GO TO NAVIGATION SYSTEM (for DVD) (Click here)

C → GO TO NAVIGATION SYSTEM (for HDD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1612 IG Voltage is Low or High

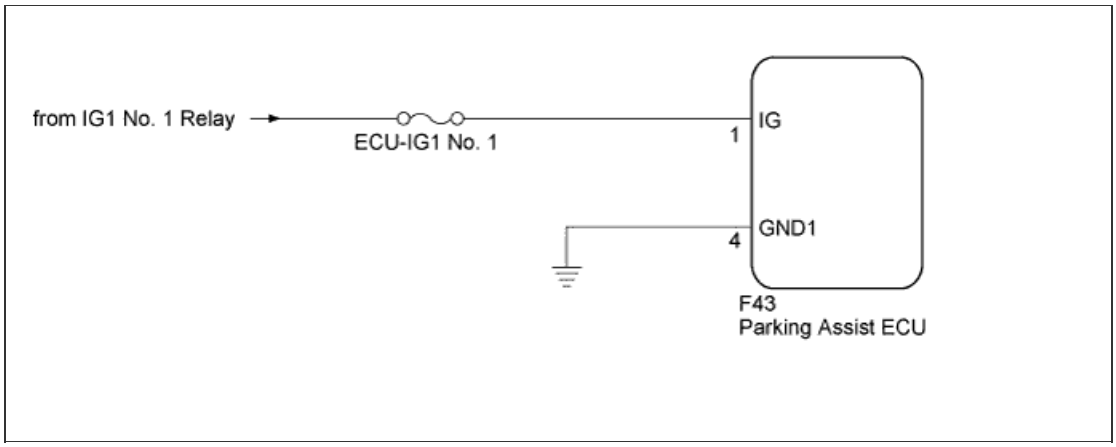
for Preparation Click here

DESCRIPTION

This DTC is stored if the parking assist ECU judges as a result of its self check that the voltage received by terminal IG is low or high.

DTC No.	DTC Detection Condition	Trouble Area
C1612	• IG voltage is low • IG voltage is high	• Harness or connector • Parking assist ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1612 is output	A
No DTC is output	B

HINT:

If the parking assist ECU cannot read the stored information when it is activated, allowing the ECU to store the information again may return the system to normal.

B → USE SIMULATION METHOD TO CHECK (Click here)

A

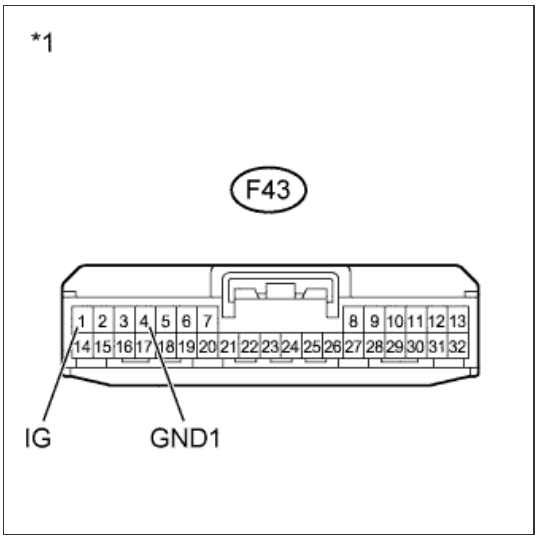
2.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU IG VOLTAGE)

a. Disconnect the F43 connector from the parking assist ECU.

b easure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F43-1 (IG) - F43-4 (GND1)	Engine switch on (IG)	11 to 14 V



Text in Illustration

*1	Front view of wire harness connector (to Parking Assist ECU)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE PARKING ASSIST ECU (Click here)

DTC U0073 Control Module Communication Bus Off

DTC U0100 Lost Communication with ECM

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0129 Lost Communication with Brake System Control Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

DTC U1110 Lost Communication with Clearance Warning ECU

for Preparation Click here

DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

HINT:

If CAN communication system DTCs are stored, they may also be stored in other systems.

DTC No.	DTC Detection Condition	Trouble Area
U0073	Control module communication bus off	CAN communication system
U0100	Lost communication with ECM	
U0126	Lost communication with steering angle sensor	
U0129	Lost communication with brake system	
U0130	Lost communication with VGRS	
U0140	Lost communication with main body ECU	
U1100	Lost communication with clearance warning ECU	

INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
No DTC is output	A
DTC is output (for LHD)	
DTC is output (for RHD)	C

HINT:

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

B → GO TO CAN COMMUNICATION SYSTEM (for LHD) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (for RHD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1613 ACC Voltage is Low or High

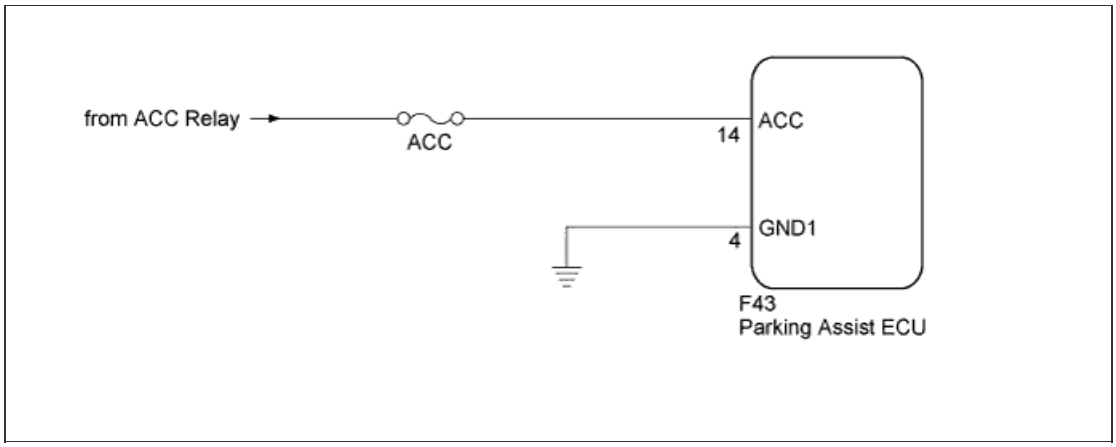
for Preparation Click here

DESCRIPTION

This DTC is stored if the parking assist ECU judges as a result of its self check that the voltage received by terminal ACC is not normal.

DTC No.	DTC Detection Condition	Trouble Area
C1613	• ACC voltage is low • ACC voltage is high	• Harness or connector • Parking assist ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1613 is output	A
No DTC is output	B

HINT:

If the parking assist ECU cannot read the stored information when it is activated, allowing the ECU to store the information again may return the system to normal.

B → USE SIMULATION METHOD TO CHECK (Click here)

A

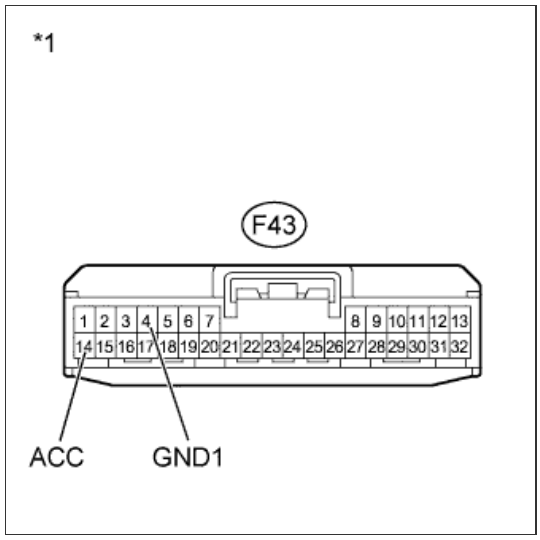
2.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU ACC VOLTAGE)

a. Disconnect the F43 connector from the parking assist ECU.

b Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
F43-14 (ACC) - F43-4 (GND1)	Engine switch on (ACC)	11 to 14 V



Text in Illustration

*1	Front view of wire harness connector (to Parking Assist ECU)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE PARKING ASSIST ECU (Click here)

DTC U0073 Control Module Communication Bus Off

DTC U0100 Lost Communication with ECM

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0129 Lost Communication with Brake System Control Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

DTC U1110 Lost Communication with Clearance Warning ECU

for Preparation Click here

DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

HINT:

If CAN communication system DTCs are stored, they may also be stored in other systems.

DTC No.	DTC Detection Condition	Trouble Area
U0073	Control module communication bus off	CAN communication system
U0100	Lost communication with ECM	
U0126	Lost communication with steering angle sensor	
U0129	Lost communication with brake system	
U0130	Lost communication with VGRS	
U0140	Lost communication with main body ECU	
U1100	Lost communication with clearance warning ECU	

INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
No DTC is output	A
DTC is output (for LHD)	
DTC is output (for RHD)	C

HINT:

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

B → GO TO CAN COMMUNICATION SYSTEM (for LHD) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (for RHD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1622 Open or Short Circuit in Back Camera Signal

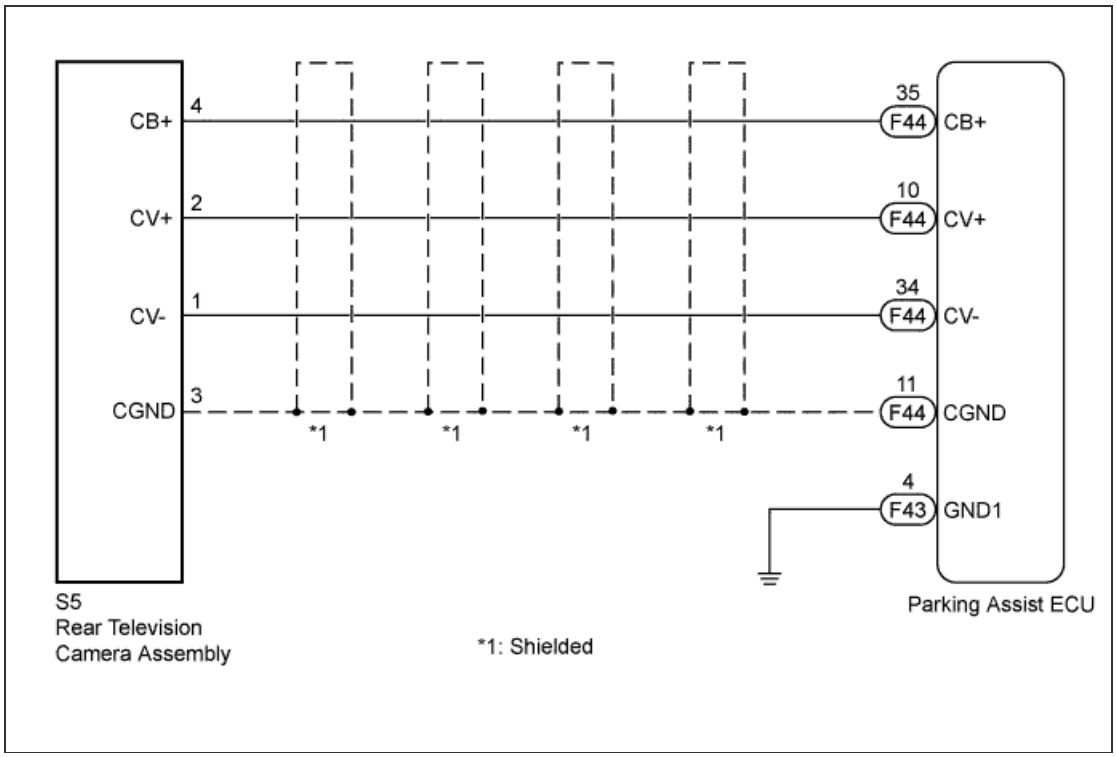
for Preparation Click here

DESCRIPTION

This DTC is stored if the parking assist ECU judges as a result of its self check that the signals or signal lines between the parking assist ECU and the rear television camera assembly are not normal.

DTC No.	DTC Detection Condition	Trouble Area
C1622	An open or short in the rear television camera signal circuit	• Harness or connector • Rear television camera assembly • Parking assist ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).**

1.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - REAR TELEVISION CAMERA)

a. Disconnect the F44 connector from the parking assist ECU.

b. Disconnect the S5 connector from the rear television camera assembly.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F44-34 (CV-) - S5-1 (CV-)	Always	Below 1 Ω
F44-10 (CV+) - S5-2 (CV+)	Always	Below 1 Ω
F44-35 (CB+) - S5-4 (CB+)	Always	Below 1 Ω

F44-34 (CV-) - Body ground	Always	10 kΩ or higher
F44-10 (CV+) - Body ground	Always	10 kΩ or higher
F44-11 (CGND) - Body ground	Always	10 kΩ or higher
F44-35 (CB+) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.INSPECT PARKING ASSIST ECU (CV-, CGND)

a. Reconnect the F44 connector to the parking assist ECU.

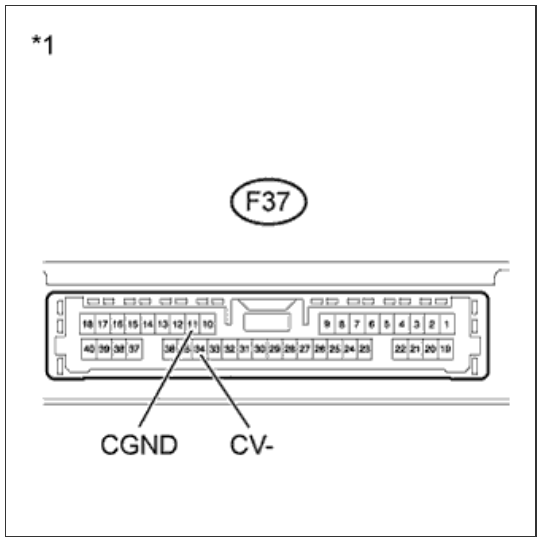
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F44-34 (CV-) - Body ground	Always	Below 1 Ω
F44-11 (CGND) - Body ground	Always	Below 1 Ω

Text in Illustration

*1	Component with harness connected (Parking Assist ECU)



NG → REPLACE PARKING ASSIST ECU (Click here)

OK

3.INSPECT REAR TELEVISION CAMERA ASSEMBLY (CB+, CGND)

a. Disconnect the S5 connector from the rear television camera assembly.

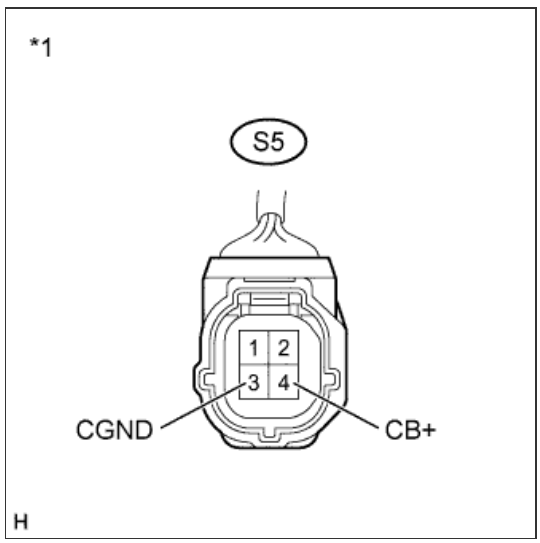
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
S5-3 (CGND) - S5-4 (CB+)	Engine switch on (IG) Shift lever in R	5.8 to 7.0 V

Text in Illustration

*1	Front view of wire harness connector (to Rear Television Camera Assembly)



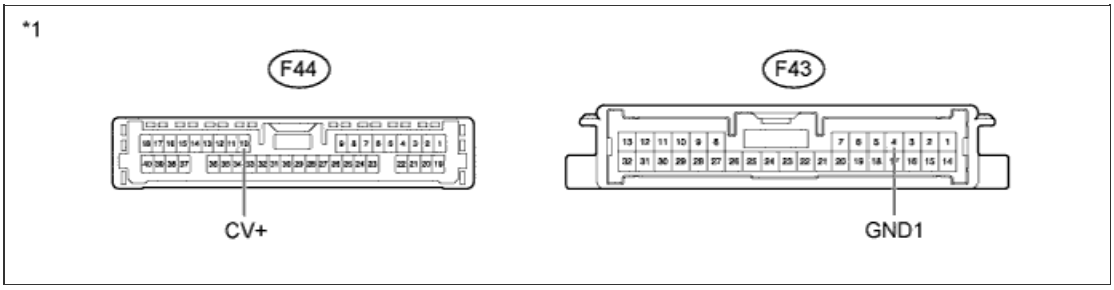
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

4.INSPECT PARKING ASSIST ECU (CV+, GND1)

a. Reconnect the S5 connector to the rear television camera assembly.

b. Reconnect the F43 and F44 connectors to the parking assist ECU.



c. Check the waveform of the rear television camera assembly using an oscilloscope.

HINT:

A waterproof connector is used for the rear television camera assembly. Therefore inspect the waveform at the parking assist ECU with the connector connected.

OK:

Waveform is as shown in the illustration.

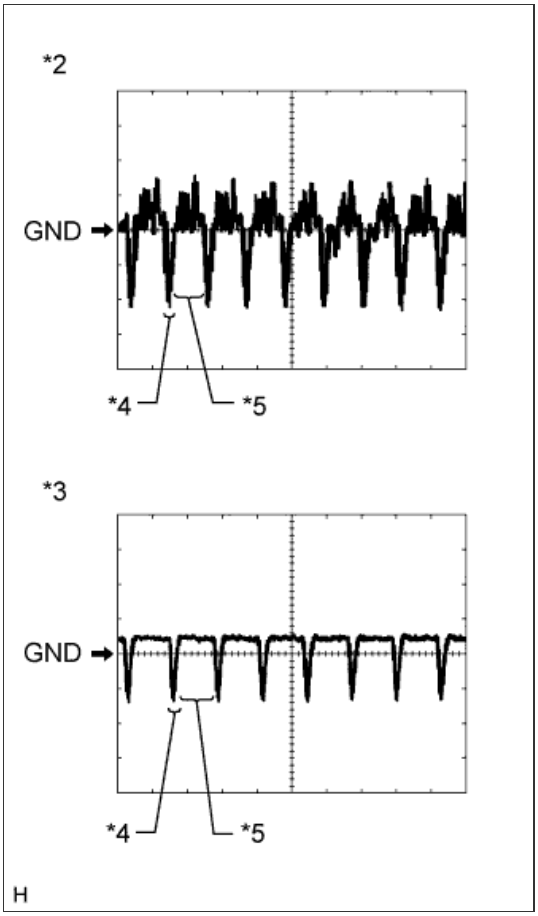
tem	Content
Terminal No. (Symbol)	F44-10 (CV+) - F43-4 (GND1)
Tool Setting	200 mV D . 50 sec. D .
Condition	Engine switch on ( ) shift lever in R

HINT:

The video waveform changes according to the image sent by the rear television camera assembly.

Text in Illustration

*1	Component with harness connected (Parking Assist ECU)
*2	aveform 1 (under normal conditions)
*3	aveform 2 (camera lens is covered blacking out the screen)
*4	Synchronized Signal
*5	Video aveform



NG → REPLACE REAR TELEVISION CAMERA ASSEMBLY (Click here)

OK

REPLACE PARKING ASSIST ECU (Click here)

DTC U0073 Control Module Communication Bus Off

DTC U0100 Lost Communication with ECM

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0129 Lost Communication with Brake System Control Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

DTC U1110 Lost Communication with Clearance Warning ECU

for Preparation Click here

DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

HINT:

If CAN communication system DTCs are stored, they may also be stored in other systems.

DTC No.	DTC Detection Condition	Trouble Area
U0073	Control module communication bus off	CAN communication system
U0100	Lost communication with ECM	
U0126	Lost communication with steering angle sensor	
U0129	Lost communication with brake system	
U0130	Lost communication with VGRS	
U0140	Lost communication with main body ECU	
U1100	Lost communication with clearance warning ECU	

INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
No DTC is output	A
DTC is output (for LHD)	
DTC is output (for RHD)	C

HINT:

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

B → GO TO CAN COMMUNICATION SYSTEM (for LHD) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (for RHD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1625 Open or Short in Steering Angle Sensor +B

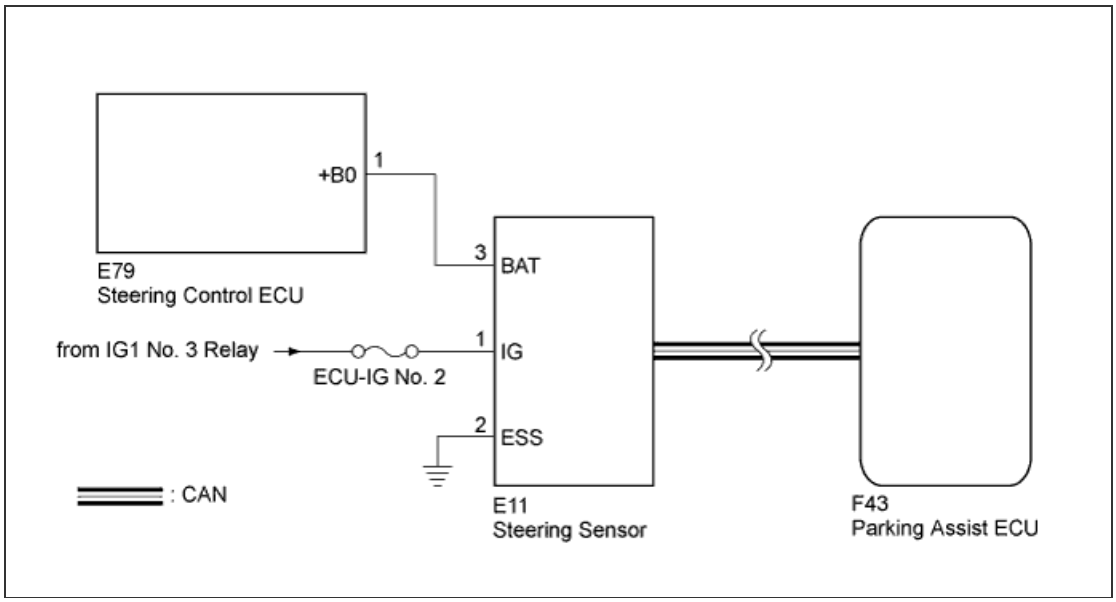
for Preparation Click here

DESCRIPTION

This DTC is stored if the parking assist ECU receives a signal via CAN communication from the spiral with sensor cable sub-assembly that indicates a power supply system problem.

DTC No.	DTC Detection Condition	Trouble Area
C1625	Open or short in steering angle sensor +B	• arness or connector • Steering sensor (spiral with sensor cable sub-assembly)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).**
- **Inspect the fuses for circuits related to this system before performing the following inspection procedure.**

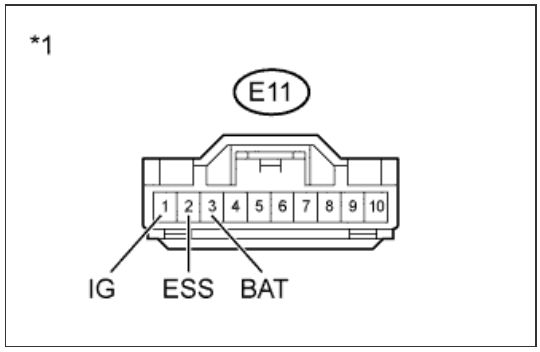
1.CHECK HARNESS AND CONNECTOR (SPIRAL WITH SENSOR CABLE SUB-ASSEMBLY POWER SUPPLY)

a. Disconnect the E43 connector from the steering sensor.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
E11-2 (ESS) - Body ground	Always	Below 1 Ω



c. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
E11-1 (IG) - E11-2	Engine switch on	

(ESS)	(IG)	11 to 14 V
E11-3 (BAT) - E11-2 (ESS)	Always	11 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Steering Sensor)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE STEERING SENSOR (Click here)

DTC U0073 Control Module Communication Bus Off

DTC U0100 Lost Communication with ECM

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0129 Lost Communication with Brake System Control Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

DTC U1110 Lost Communication with Clearance Warning ECU

for Preparation Click here

DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

HINT:

If CAN communication system DTCs are stored, they may also be stored in other systems.

DTC No.	DTC Detection Condition	Trouble Area
U0073	Control module communication bus off	CAN communication system
U0100	Lost communication with ECM	
U0126	Lost communication with steering angle sensor	
U0129	Lost communication with brake system	
U0130	Lost communication with VGRS	
U0140	Lost communication with main body ECU	
U1100	Lost communication with clearance warning ECU	

INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
No DTC is output	A
DTC is output (for LHD)	
DTC is output (for RHD)	C

HINT:

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

B → GO TO CAN COMMUNICATION SYSTEM (for LHD) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (for RHD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1626 Steering Angle Sensor Failure

for Preparation Click here

DESCRIPTION

This DTC is stored if the parking assist ECU receives a signal via CAN communication from the spiral with sensor cable sub-assembly that indicates an internal malfunction.

DTC No.	DTC Detection Condition	Trouble Area
C1626	A fail flag is transmitted from the steering angle sensor.	• Steering sensor (spiral with sensor cable sub-assembly) • Parking assist ECU

INSPECTION PROCEDURE

NOTICE:

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal disconnected, correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance, calibration of other systems as well as the parking assist monitor system may be needed (Click here).**

1.REPLACE SPIRAL WITH SENSOR CABLE SUB-ASSEMBLY

a. Replace the spiral with sensor cable sub-assembly (Click here).

NEXT

2.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
DTC C1626 is output	A
No DTC is output	B

B → END

A

REPLACE PARKING ASSIST ECU (Click here)

DTC U0073 Control Module Communication Bus Off

DTC U0100 Lost Communication with ECM

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0129 Lost Communication with Brake System Control Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

DTC U1110 Lost Communication with Clearance Warning ECU

for Preparation Click here

DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

HINT:

If CAN communication system DTCs are stored, they may also be stored in other systems.

DTC No.	DTC Detection Condition	Trouble Area
U0073	Control module communication bus off	CAN communication system
U0100	Lost communication with ECM	
U0126	Lost communication with steering angle sensor	
U0129	Lost communication with brake system	
U0130	Lost communication with VGRS	
U0140	Lost communication with main body ECU	
U1100	Lost communication with clearance warning ECU	

INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
No DTC is output	A
DTC is output (for LHD)	
DTC is output (for RHD)	C

HINT:

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

B → GO TO CAN COMMUNICATION SYSTEM (for LHD) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (for RHD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1649 Lost Communication with VGRS ECU

for Preparation Click here

DESCRIPTION

This DTC is set when the Parking Assist ECUs self-diagnosis determines that the connection with the Steering Control ECU of the VGRS System (via CAN communication) is inoperative.

DTC No.	DTC Detection Condition	Trouble Area
C1649	Steering Control ECU malfunction	VGRS System

INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check the DTCs (Click here).

Result

Result	Proceed to
No DTC is output	A
DTC C1649 is output	B

B → GO TO VGRS SYSTEM (Click here)

A

END

DTC U0073 Control Module Communication Bus Off

DTC U0100 Lost Communication with ECM

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0129 Lost Communication with Brake System Control Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

DTC U1110 Lost Communication with Clearance Warning ECU

for Preparation Click here

DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

HINT:

If CAN communication system DTCs are stored, they may also be stored in other systems.

DTC No.	DTC Detection Condition	Trouble Area
U0073	Control module communication bus off	CAN communication system
U0100	Lost communication with ECM	
U0126	Lost communication with steering angle sensor	
U0129	Lost communication with brake system	
U0130	Lost communication with VGRS	
U0140	Lost communication with main body ECU	
U1100	Lost communication with clearance warning ECU	

INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
No DTC is output	A
DTC is output (for LHD)	
DTC is output (for RHD)	C

HINT:

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

B → GO TO CAN COMMUNICATION SYSTEM (for LHD) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (for RHD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C168B AVC-LAN Communication Malfunction

DTC C168C AVC-LAN Command Time Out

for Preparation Click here

DESCRIPTION

This DTC is stored if the parking assist ECU judges that there is a problem with the AVC-LAN communication system as a result of self check.

DTC No.	DTC Detection Condition	Trouble Area
C168B	• AVC-LAN communication malfunction: No master • AVC-LAN communication malfunction: Master reset • AVC-LAN communication malfunction: Master malfunction • AVC-LAN communication malfunction: Abnormal connection check • AVC-LAN communication malfunction: Transmission not completed • AVC-LAN communication malfunction: Abnormal transmission completion notification • AVC-LAN communication malfunction: Registration request transmission • AVC-LAN communication malfunction: Abnormal ON/OFF parameter	AVC-LAN Communication
C168C	• AVC-LAN command time out: Output ON request notification command time out • AVC-LAN command time out: Output OFF request notification command time out • AVC-LAN command time out: Voice production start request notification command time out • AVC-LAN command time out: Voice production end request notification command time out	

INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
No DTC is output	A
DTC C168B or C168C is output (w/ navigation system for DVD)	B
DTC C168B or C168C is output (w/ navigation system for HDD)	C

HINT:

If DTC C168B or C168C is output frequently, duplicate the problem symptoms and perform the inspection again, even though the DTC is not output when rechecking for DTCs (Click here).

B → GO TO NAVIGATION SYSTEM (for DVD) (Click here)

C → GO TO NAVIGATION SYSTEM (for HDD) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC U0073 Control Module Communication Bus Off

DTC U0100 Lost Communication with ECM

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0129 Lost Communication with Brake System Control Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

DTC U1110 Lost Communication with Clearance Warning ECU

for Preparation Click here

DESCRIPTION

These DTCs are stored if there is a malfunction in the CAN communication system connected to the parking assist ECU.

HINT:

If CAN communication system DTCs are stored, they may also be stored in other systems.

DTC No.	DTC Detection Condition	Trouble Area
U0073	Control module communication bus off	CAN communication system
U0100	Lost communication with ECM	
U0126	Lost communication with steering angle sensor	
U0129	Lost communication with brake system	
U0130	Lost communication with VGRS	
U0140	Lost communication with main body ECU	
U1100	Lost communication with clearance warning ECU	

INSPECTION PROCEDURE

1.CHECK DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs (Click here).

Result

Result	Proceed to
No DTC is output	A
DTC is output (for LHD)	
DTC is output (for RHD)	C

HINT:

- **If CAN communication system DTCs are stored, they may also be stored in other systems.**
- **If the CAN communication system has been inspected and repaired in other systems, the DTCs will not be output when rechecking for DTCs.**
- **If these DTCs are output frequently, duplicate the conditions that cause the problem symptoms and perform the inspection again, even though the DTC was not output when rechecking for DTCs (Click here).**

B → GO TO CAN COMMUNICATION SYSTEM (for LHD) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (for RHD) (Click here)

A

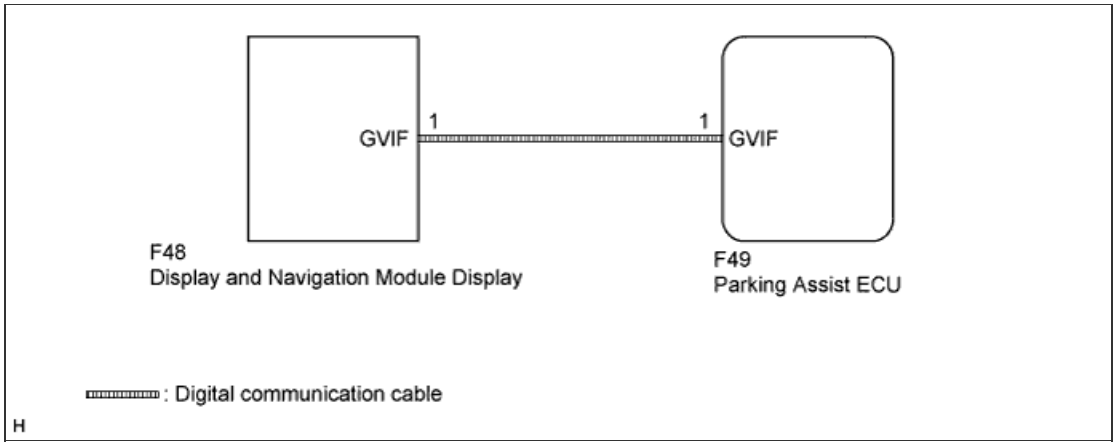
USE SIMULATION METHOD TO CHECK (Click here)

for Preparation Click here

DESCRIPTION

The parking assist ECU displays images for the parking assist monitor, front monitor*1 and side monitor*1 screens. Each image signal is sent from the parking assist ECU to the display and navigation module display through the digital communication cable.
*1: w/ Side Monitor System

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal disconnected correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance calibration of other systems as well as the parking assist monitor system may be needed (Click here).**

HINT:

Images 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 peuliar to the CCD camera.)**

.READ AUE USING INTELLIGENT TESTER

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG).

c. Turn the intelligent tester on.

d. Enter the following menus: Chassis / Parking Assist Monitor System / Data List.

e. Check the Data List for proper functioning of the following items.

Parking Assist Monitor System

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
AISIC Output Status	Output condition of camera display/OK or NG	OK: Output condition of camera display is normal NG: Output condition of camera display is abnormal	-

NG → REPLACE PARKING ASSIST ECU (Click here)

OK

2.CHECK DIGITA COMMUNICATION CABLE CONNECTOR

a. Check the digital communication cable connector.

i. Check the digital communication cable connectors between the parking assist ECU and display and navigation module display for any connection problems (Click here).

b. Check if the same malfunction recurs when the parking assist monitor, front monitor and side monitor screens are displayed.

Result

Result	Proceed to
Malfunction does not reoccur (returns to normal)	A
Malfunction reoccurs	B

B → Go to step 3

A

END

REP CE A WIRE HARNESS (DIGITA COMMUNICATION CABLE)

a. Replace the digital communication cable between the parking assist ECU and display and navigation module display with a new one.

b. Check if the same malfunction recurs when the parking assist monitor, front monitor and side monitor screens are displayed.

Result

Result	Proceed to
Malfunction does not reoccur (returns to normal)	A
Malfunction reoccurs	B

B → Go to step 4

A

END

REP CE A DISP AY AND NA IGATION MO LE DISP AY

a Replace the display and navigation module display with a new or normally functioning one (Click here).

b. Check if the same malfunction recurs when the parking assist monitor screen is displayed.

Result

Result	Proceed to
Malfunction does not reoccur (returns to normal)	A
Malfunction reoccurs	B

B → PROCEED TO NE T S SPECTED AREA S WN IN PROBLEM SYMPTOMS TABLE (Click here)

A

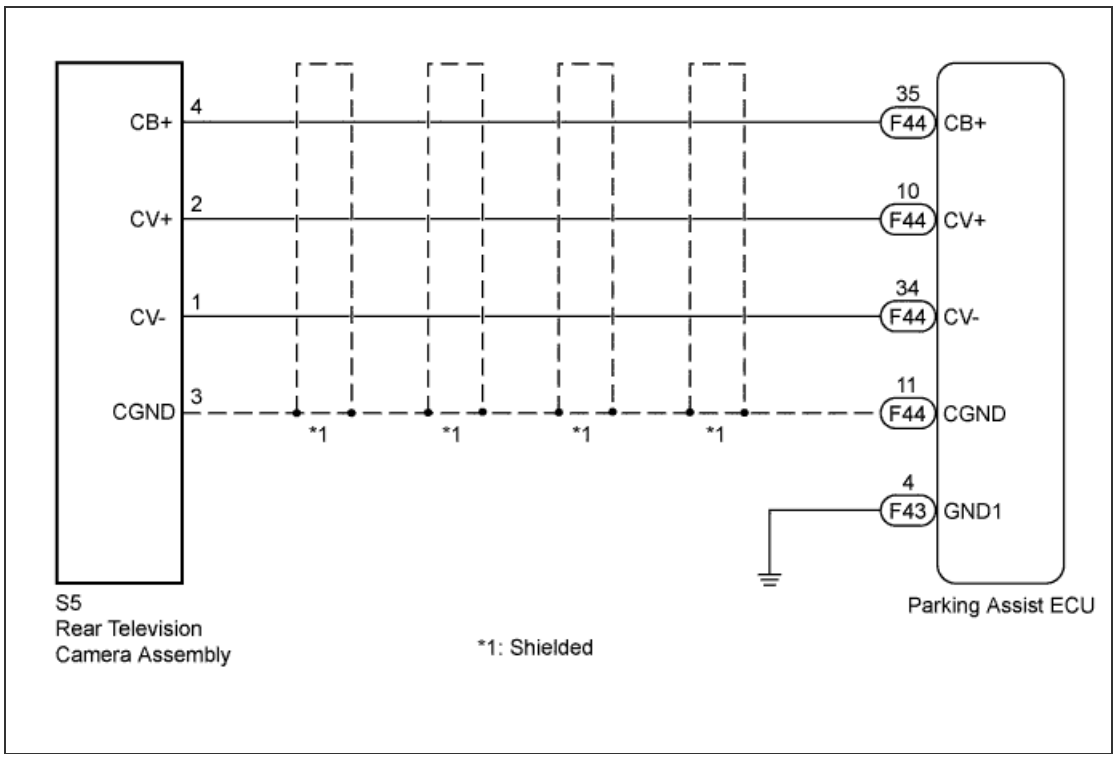
END

for Preparation Click here

DESCRIPTION

The display signal from the rear television camera assembly is transmitted to the display and navigation module display via the parking assist ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When "System initializing" is displayed on the display and navigation module display after the battery terminal disconnected correct the steering angle neutral point (Click here).**
- **Depending on the parts that are replaced or operations that are performed during vehicle inspection or maintenance calibration of other systems as well as the parking assist monitor system may be needed (Click here).**

HINT:

Images are difficult to discern even in normal conditions if:

- **Noise may occur in the image depending on electrical devices used in the cabin.**
- **Noise may occur in the image if accessories that generate radio waves have been installed.**
- **The camera screen is frosted over (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).**
- **The camera lens is dirty with snow mud etc.**
- **A strong beam of light such as a sunbeam or headlight hits the camera.**
- **It is too dark around the camera (at night etc.).**
- **The ambient temperature around the camera is either too high or too low.**
- **The vehicle is tilted at a steep angle.**
- **The ambience of the camera is too bright. (When a strong light such as a sunbeam reflected off the vehicle body hits the camera the image may be blurred. This is called the "SMEAR" phenomenon peculiar to the CCD camera.)**

.CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU - REAR TELEVISION CAMERA)

a. Disconnect the F44 connector from the parking assist ECU.

b. Disconnect the S5 connector from the rear television camera assembly.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

		Specified

Tester Connection	Condition	Condition
F44-34 (CV-) - S5-1 (CV-)	Always	Below 1 Ω
F44-10 (CV+) - S5-2 (CV+)	Always	Below 1 Ω
F44-35 (CB+) - S5-4 (CB+)	Always	Below 1 Ω
F44-34 (CV-) - Body ground	Always	10 kΩ or higher
F44-10 (CV+) - Body ground	Always	10 kΩ or higher
F44-11 (CG D) - Body ground	Always	10 kΩ or higher
F44-35 (CB+) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.INSPECT PARKING ASSIST ECU (CV- CGND

a Reconnect the F44 connector to the parking assist ECU.

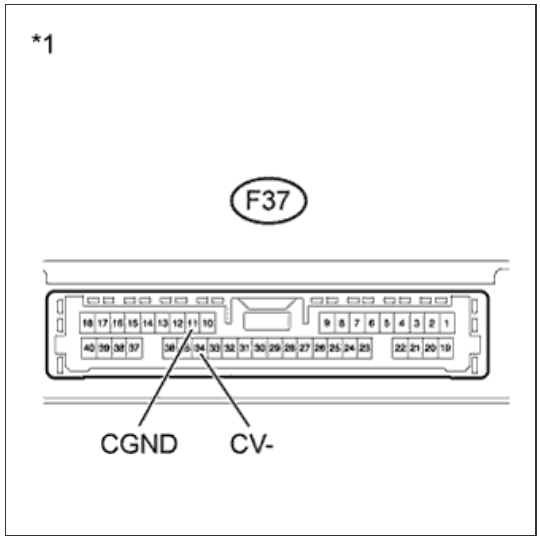
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F44-34 (CV-) - Body ground	Always	Below 1 Ω
F44-11 (CG D) - Body ground	Always	Below 1 Ω

Text in Illustration

*1	Component with harness connected (Parking Assist ECU)



NG → REPLACE PARKING ASSIST ECU (Click here)

OK

3.INSPECT REAR TELEVISION CAMERA ASSEMBLY (CB+ CGND

a Disconnect the S5 connector from the rear television camera assembly.

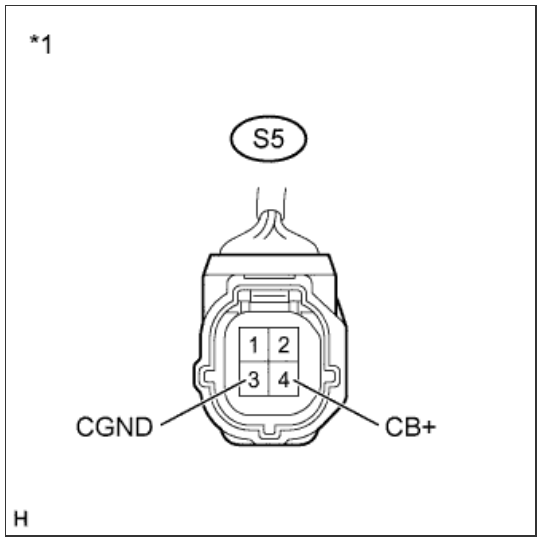
b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
S5-3 (CG D) - S5-4 (CB+)	Engine switch on (IG) Shift lever in R	5.8 to .0 V

Text in Illustration

*1	Front view of wire harness connector (to Rear Television Camera Assembly)



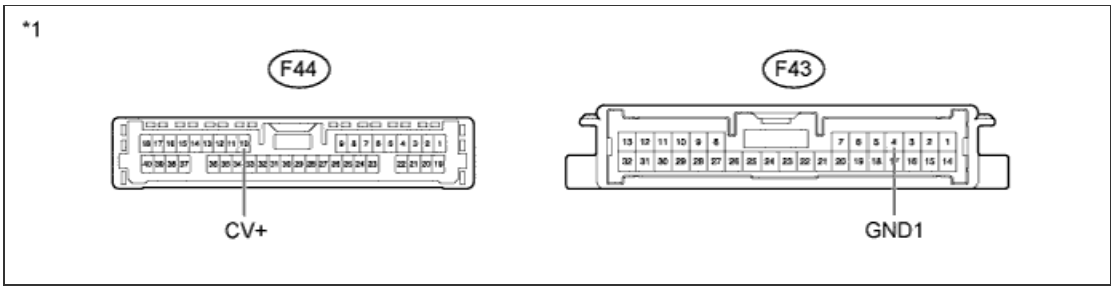
NG → REPLACE PARKING ASSIST ECU (Click here)

OK

4.INSPECT PARKING ASSIST ECU (CV+ GND

a. Reconnect the S5 connector to the rear television camera assembly.

b. Reconnect the F43 and F44 connectors to the parking assist ECU.



c. Check the waveform of the rear television camera assembly using an oscilloscope.

HINT:

A waterproof connector is used for the rear television camera assembly. Therefore inspect the waveform at the parking assist ECU with the connector connected.

OK:

Waveform is as shown in the illustration.

Item	Content
Terminal No. (Symbol)	F44-10 (CV+) - F43-4 (GND1)
Tool Setting	200 mV/DIV., 50 sec./DIV.
Condition	Engine switch on (IG), shift lever in R

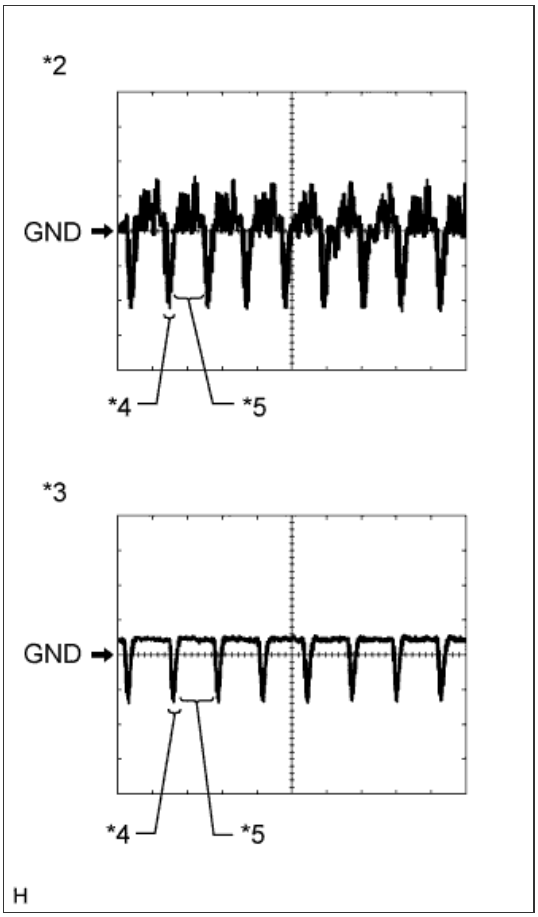
HINT:

The video waveform changes according to the image sent by the rear television camera assembly.

Text in Illustration

*1	Component with harness connected

	(Parking Assist ECU)
*2	Waveform 1 (under normal conditions)
*3	Waveform 2 (camera lens is covered, blacking out the screen)
*4	Synchronized Signal
*5	Video Waveform



NG → REPLACE REAR TELEVISION CAMERA ASSEMBLY (Click here)

OK → PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

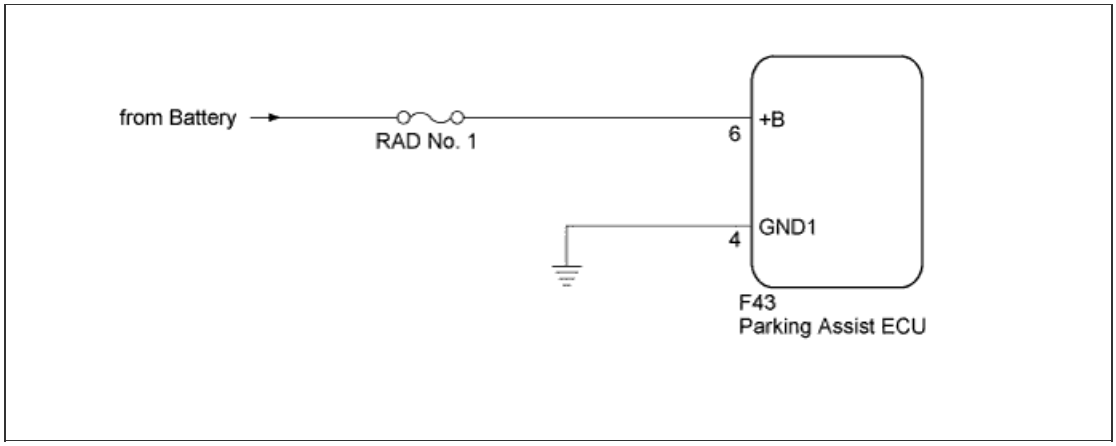
DESCRIPTION

This circuit is the power source circuit to operate the parking assist ECU. The parking assist ECU controls the parking assist monitor system, side monitor system and Lexus parking assist-sensor system. When a malfunction occurs in this circuit, each system will be abnormal.

HINT:

- **The parking assist ECU is connected to other ECUs via CAN communication or AVC NAcommunication.**
- **If the parking assist ECU does not operate due to a power source problem, a navigation system DTC may be stored due to an AVC NAcommunication interruption.**
- **If the parking assist ECU does not operate due to a power source problem, other system DTCs may be stored due to a CAN communication interruption.**

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

CHECK HARNESS AND CONNECTOR (PARKING ASSIST ECU TATERY AND BODY GROUND)

a. Disconnect the F4 connector from the parking assist ECU.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
F4 4 (GND1) - Body ground	Always	Below 1 Ω

c. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

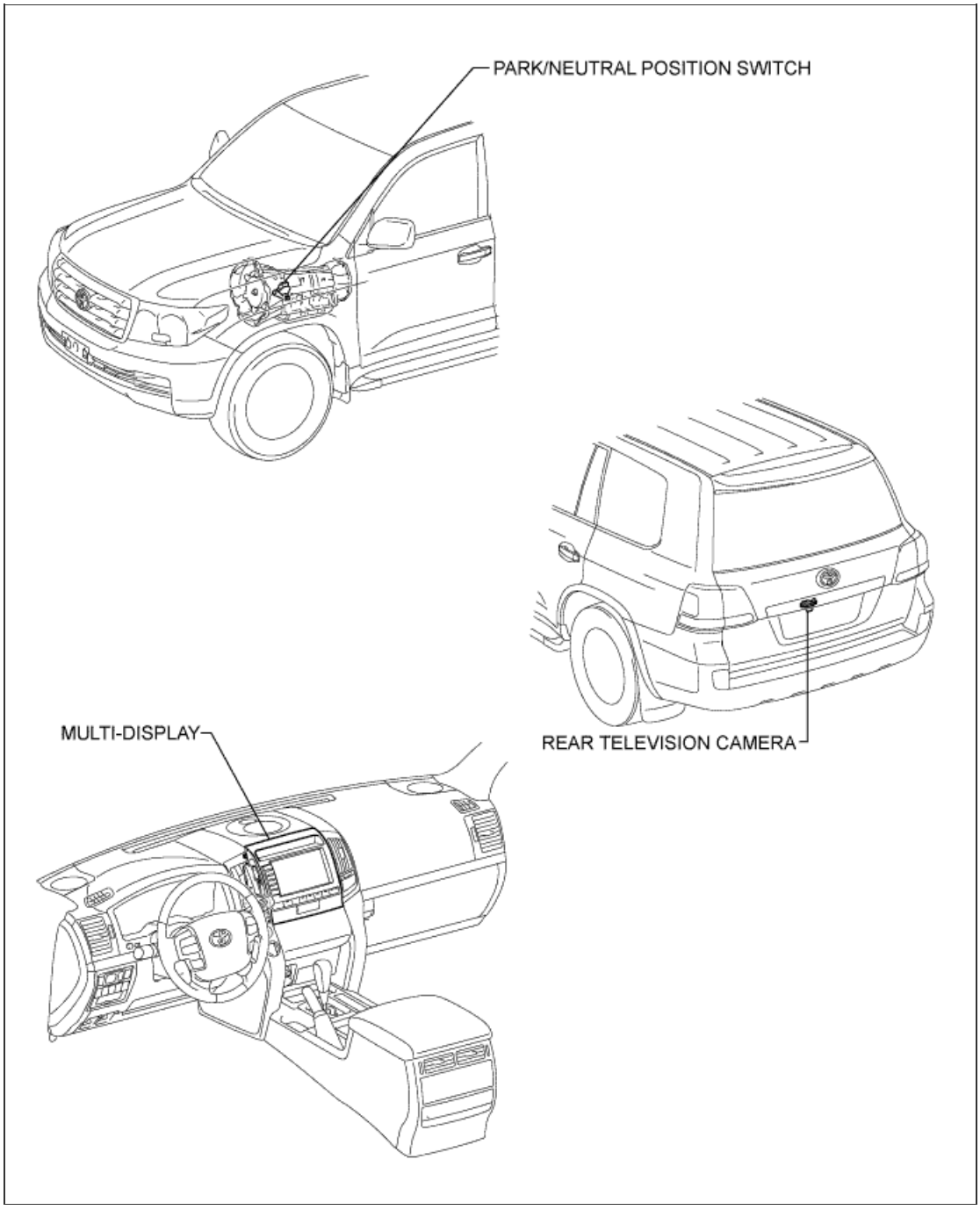
Tester Connection	Switch Condition	Specified Condition
F4 - (+B) - F4 4 (GND1)	Always	11 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

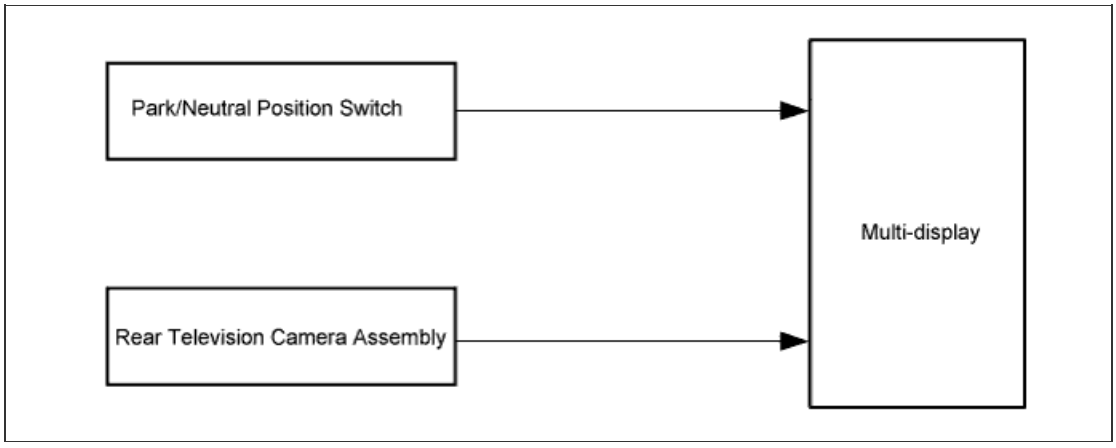
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here



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 television camera mounted on the back door. The system displays the image on the multi-display.

b. This system consists of the following components:

i. Multi-display

ii. Television camera assembly

iii. Park/neutral position switch

FUNCTION OF COMPONENTS

a. The multi-display controls the system by using information from the following components:

Components	Function
Television camera	• Mounted on the back door to transmit an image of the area behind the vehicle to the multi-display. • Has a color video camera that uses a CCD (Charge Coupled Device) and a wide-angle lens.
Multi-display	• Receives the video signals which contain an image of the area behind the vehicle taken with the television camera. • Performs control of the system by receiving a shift position signal from the park/neutral position switch. • Displays the rear view monitor image on the display panel.
Park/neutral position switch	Transmits a reverse shift position signal to the multi-display.

OPERATION EXPLANATION

a. The park/neutral position switch outputs the R position signal to the multi-display when the shift lever is moved to R. After receiving the R position signal, the multi-display switches from the navigation system 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. se a detergent to remove dirt if necessary.

b. Images are difficult to discern even in normal conditions if:

i. The camera lens is frosted over (the image immediately after turning the engine switch on (IG) may be blurred or darker than normal).

ii. A strong beam of light, such as a sunbeam or headlight, hits the camera.

HINT:

When a strong light, such as a sunbeam reflected off the vehicle body, hits the camera, the image may be blurred. This is called the "SMEAR" phenomenon, peculiar to the CCD camera.

iii. It is too dark around the camera (at night, etc.).

iv. The ambient temperature around the camera is either too high or too low.

for Preparation Click here

HINT:

Use the 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.

- for HDD navigation system (Click here)
- for DVD navigation system (Click here)

Result

Result	Proceed to
DTC is not output	A
DTC is output (for HDD navigation system)	B
DTC is output (for DVD navigation system)	C

B. Go to NAVIGATION SYSTEM (Click here)

C. Go to NAVIGATION SYSTEM (Click here)

A

5.PROBLEM SYMPTOM CONFIRMATION

Result

Result	Proceed to
Symptom does not occur	A
Symptom occurs	B

B. Go to step 7

A

6.SYMPTOM SIMULATION

NEXT

7.CHECK IF SAME SYMPTOM APPEARS IN NAVIGATION SYSTEM

a. Refer to the navigation system.

Result

Result	Proceed to
Symptom does not appear	A
Symptom appears (for HDD navigation system)	B
Symptom appears (for DVD navigation system)	C

B. Go to NAVIGATION SYSTEM (Click here)

C. Go to NAVIGATION SYSTEM (Click here)

A

8.PROBLEM SYMPTOMS TABLE

a. Refer to the Problem Symptoms Table (Click here).

Result

Result	Proceed to
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B. Go to step 10

A

9.BASED ON MALFUNCTION SYMPTOM, PERFORM TROUBLESHOOTING BELOW

a. Terminals of ECU (Click here).

NEXT

10.ADJUST, REPAIR OR REPLACE

NEXT

11.CONFIRMATION TEST

NEXT

END

for Preparation Click here

HINT:

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms the listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

NOTICE:

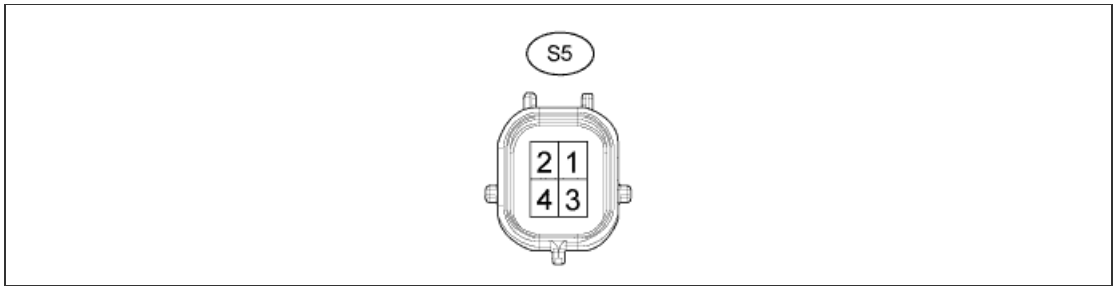
The following inspection procedures of the rear view monitor system are described on the assumption that the navigation system is normal. If any navigation system DTC is output, first proceed with troubleshooting of the navigation system.

Rear View Monitor System

Symptom	Suspected Area	See page
When shift lever is R, rear view monitor image is not displayed (screen is not black)	Reverse Signal Circuit (for D D)	Click here
	Reverse Signal Circuit (for HDD)	Click here
	Proceed to "Display Signal Circuit between Multi-display and Television Camera Assembly"	Click here
	Display and Navigation Module Display	Click here
When shift lever is R, rear view monitor image is not displayed (screen is black)	Display and Navigation Module Display Power Source Circuit (for D D)	Click here
	Display and Navigation Module Display Power Source Circuit (for HDD)	Click here
	Proceed to "Display Signal Circuit between Multi-display and Television Camera Assembly"	Click here
	Rear television camera assembly	Click here
	Display and Navigation Module Display	Click here
When shift lever is R, rear view monitor image is displayed	Proceed to "Display Signal Circuit between Multi-display and Television Camera Assembly"	Click here
	Display and Navigation Module Display	Click here
Problem with the rear view monitor image (color, disorder of picture)	Proceed to "Display Signal Circuit between Multi-display and Television Camera Assembly"	Click here
	Rear television camera assembly	Click here
	Display and Navigation Module Display	Click here

for Preparation Click here

CHECK REAR TELEVISION CAMERA ASSEMBLY



a. Disconnect the S5 camera connector.

b. Measure the voltage and resistance according to the value(s) in the table below.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
S5-3 (CGND) - Body ground	BR - Body ground	Ground	Always	Below 1 Ω
S5-4 (CB+) - S5-3 (CGND)	B - BR	Power source	Engine switch on (IG), shift lever moved to R	5.8 to 6.5 V

If the result is not as specified, there may be a malfunction on the wire harness side.

c. Reconnect the S5 camera connector.

d. Measure the waveform according to the value(s) in the table below.

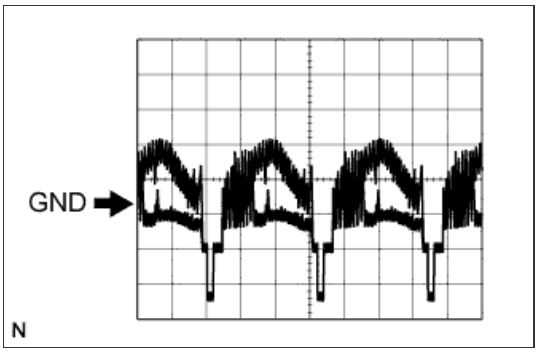
Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
S5-2 (CV+) - S5-1 (CV-)	R - W	Display signal	Engine switch on (IG), shift lever moved to R	Waveform 1

If the result is not as specified, the camera may have a malfunction.

e. Using an oscilloscope, check waveform 1.

Waveform 1 (Reference)

Item	Content
Terminal No. (Symbol)	S5-2 (CV+) - S5-1 (CV-)
Tool Setting	0.2 V/DIV., 0.2 µs/DIV.
Condition	Engine switch on (IG), shift lever moved to R



CHECK MULTI- ISPLAY

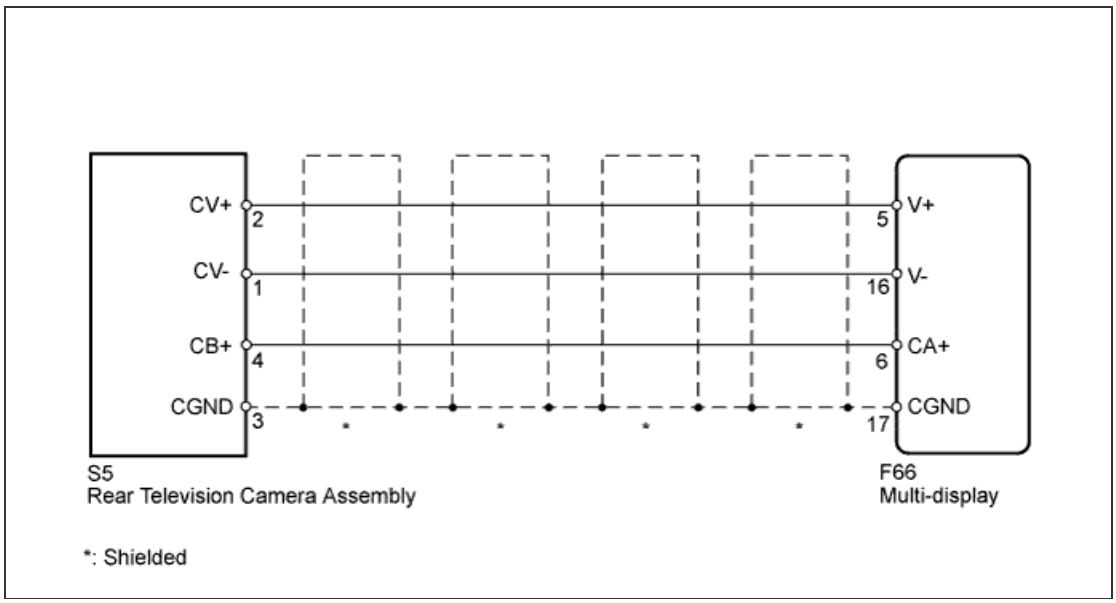
- for HDD navigation system (Click here)
- for DVD navigation system (Click here)

for Preparation Click here

DESCRIPTION

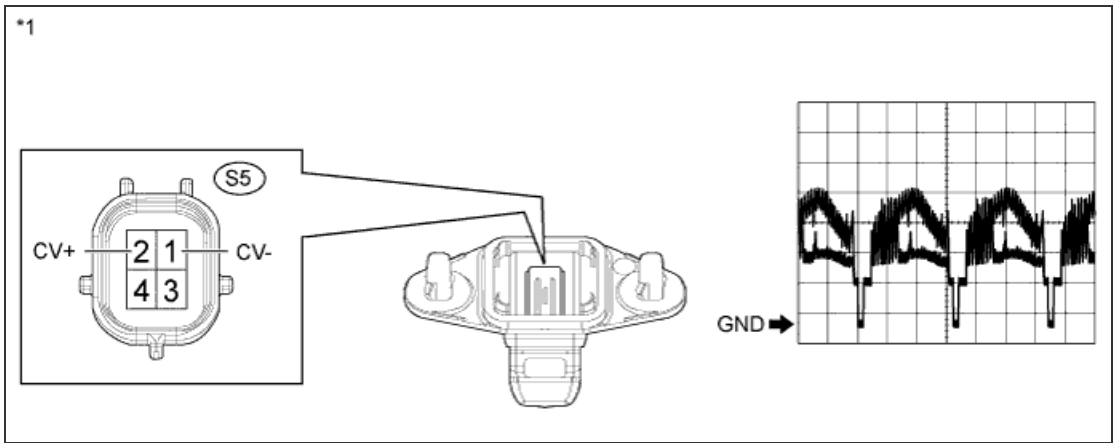
This is the display signal circuit of the rear television camera.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.INSPECT REAR TELEVISION CAMERA ASSEMBLY



Text in Illustration

*1	Component with harness connected (Rear Television Camera Assembly)	-	-

a. Using an oscilloscope, check the waveform.

Measurement Condition

Item	Content
Tester No. (Symbol)	S5-2 (CV+) - S5-1 (CV-)
Tool Setting	0.2 V/DIV., 0.2 S/DIV
Condition	ngine switch on (I), shift lever moved to R

OK:

Pulse generation

NG → REPLACE REAR TELEVISION CAMERA ASSEMBLY (Click here)

OK

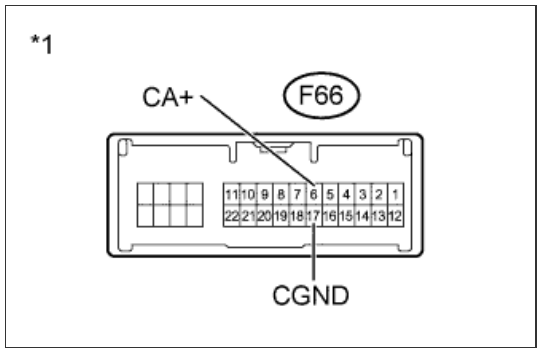
2.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY

a. Disconnect the display and navigation module display connector.

b. easure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
- (CA+) - - 1 (C ND)	ngine switch on (I), shift lever moved to R	5.8 to 5 V



Text in Illustration

*1	Component with harness connected (Display and Navigation odule Display)

NG → REPLACE MULTI-DISPLAY (Click here)

OK

3.INSPECT DISPLAY AND NAVIGATION MODULE DISPLAY - REAR TELEVISION CAMERA

a. Disconnect the display and navigation module display connector.

b. Disconnect the S5 camera connector.

c. easure the resistance according to the value(s) in the table below.

Standard Resistance:

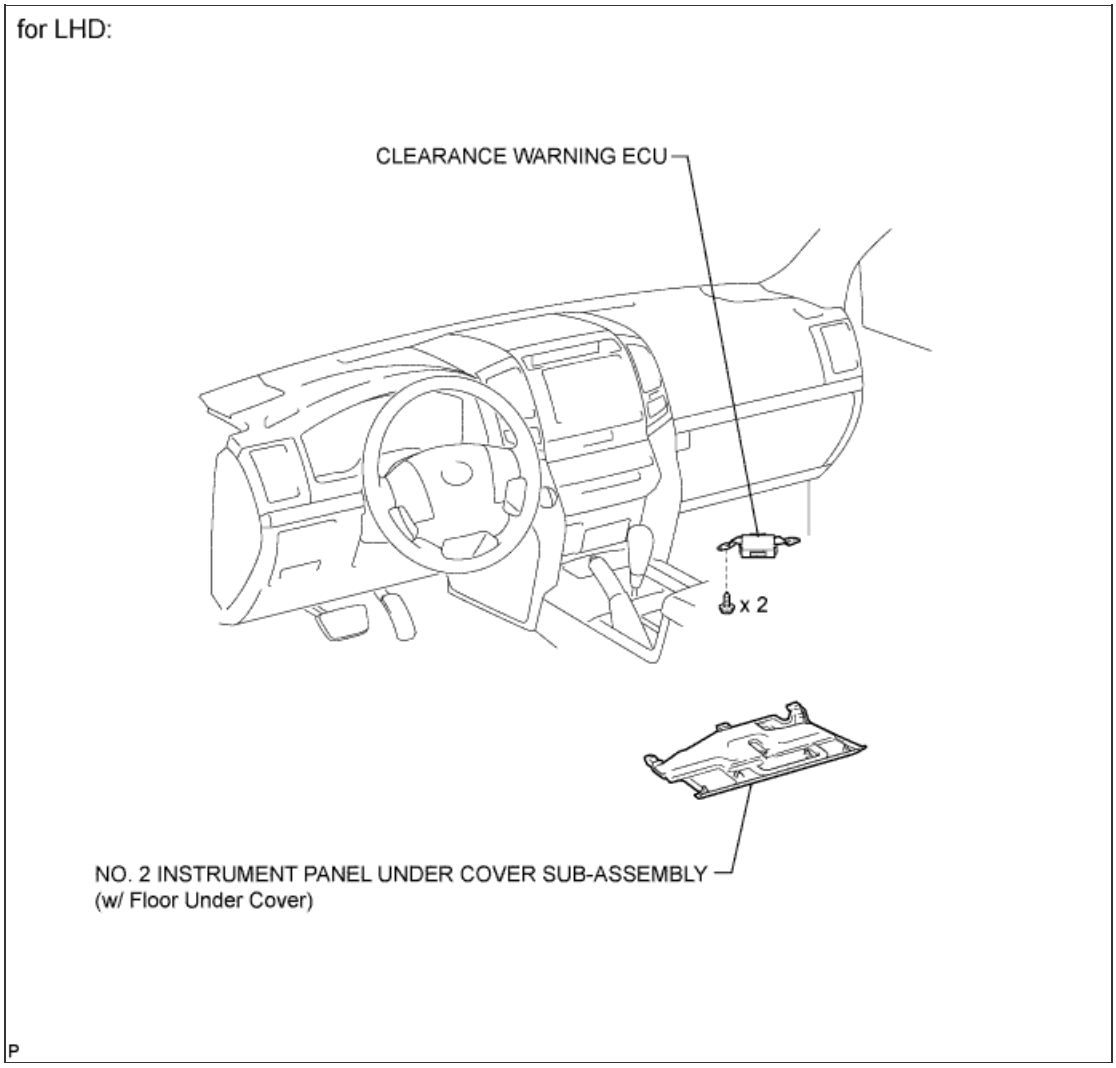
Tester Connection	Condition	Specified Condition
S5- (C +) - - (CA+)	Always	elow 1 Ω
S5-3 (C ND) - -1 (C ND)	Always	elow 1 Ω
S5-2 (CV+) - -5 (V+)	Always	elow 1 Ω
S5-1 (CV-) - - 1 (V-)	Always	elow 1 Ω
S5- (C +) - ody ground	Always	10kΩ or higher
S5-3 (C ND) - ody ground	Always	10kΩ or higher
S5-2 (CV+) - ody ground	Always	10kΩ or higher
S5-1 (CV-) - ody ground	Always	10kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

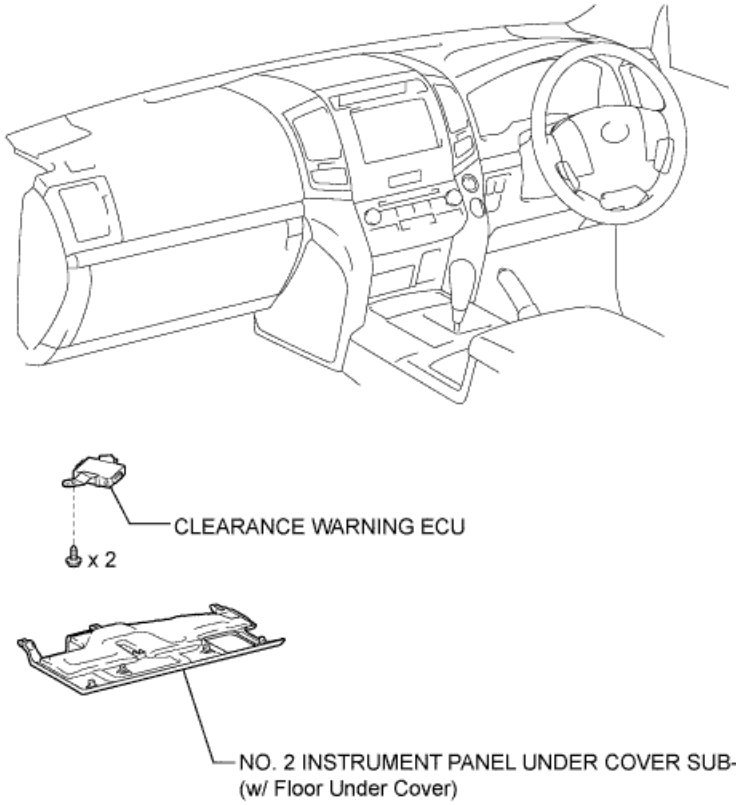
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here



for RHD:


CLEARANCE WARNING ECU
x 2
NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY
(w/ Floor Under Cover)

P

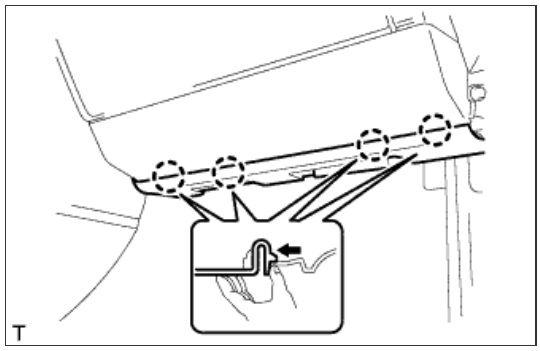
for Preparation Click here

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)

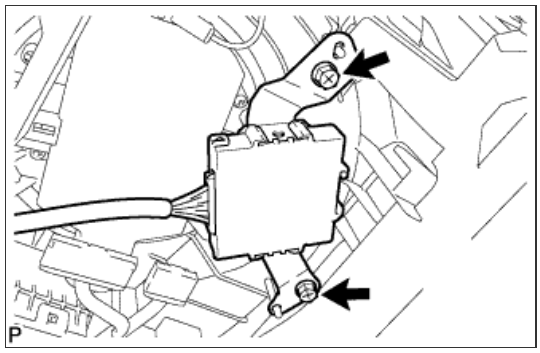
a. Detach the 4 claws and remove the No. 2 instrument panel under cover.



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.**

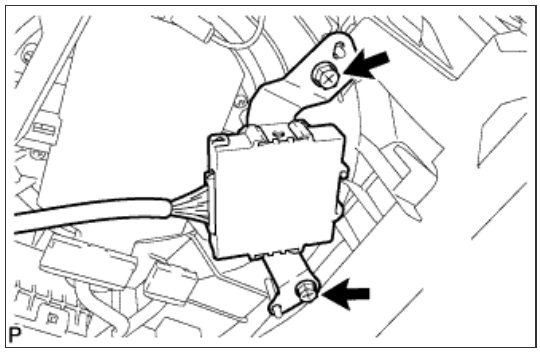
1. INSTALL CLEARANCE WARNING ECU

a. Install the clearance warning ECU to the blower unit with the 2 screws.

NOTICE:

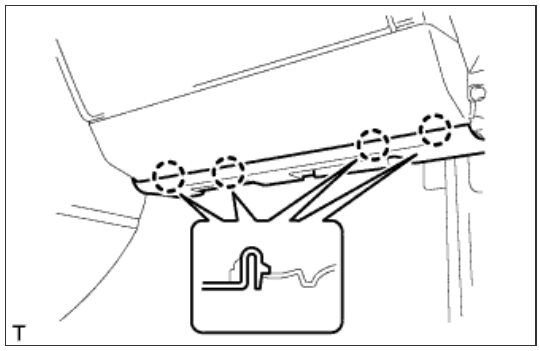
- **Avoid any impact to the clearance warning ECU.**
- **Do not drop the ECU. If it is dropped, replace it with a new one.**

b. Connect the connector.

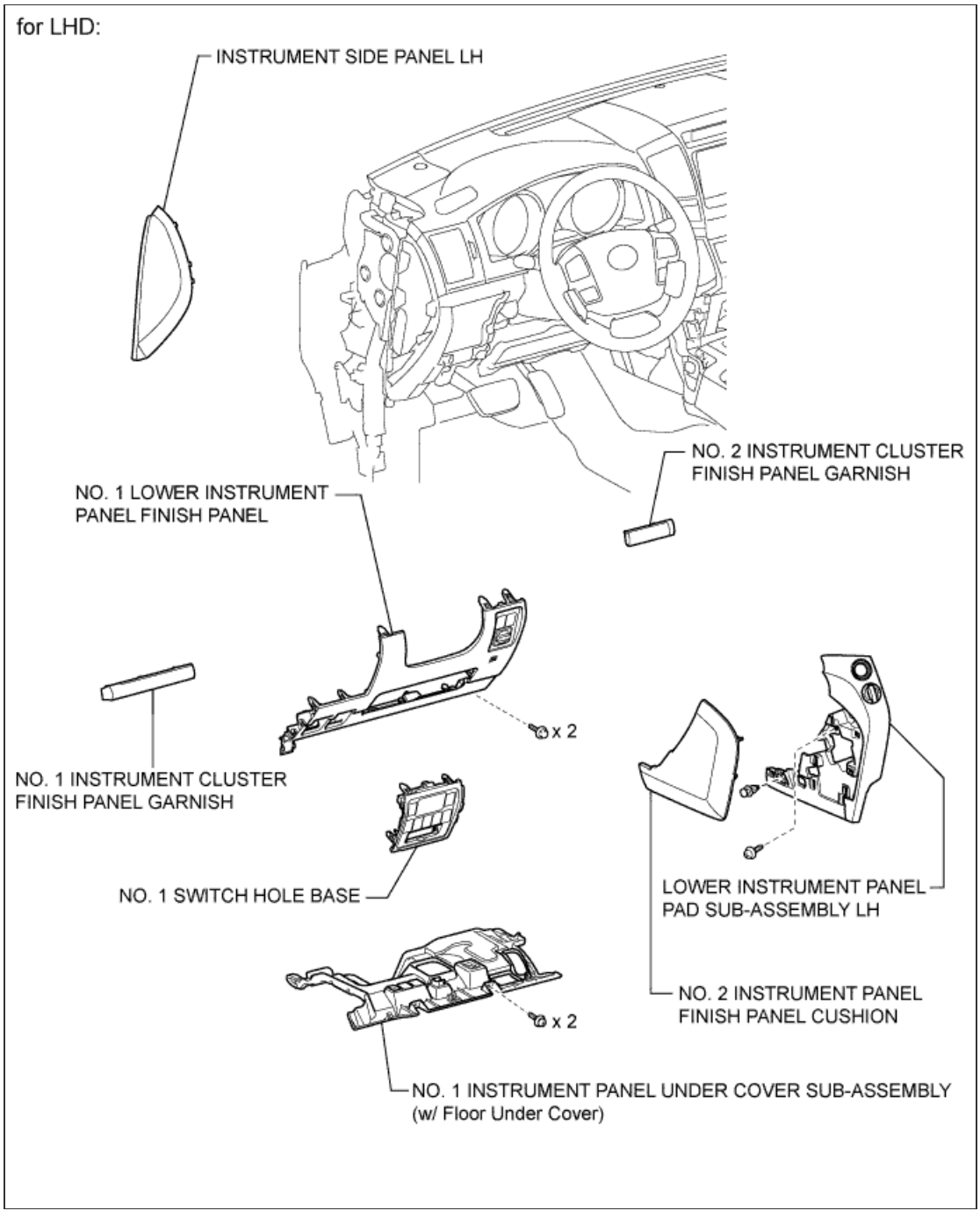


2. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

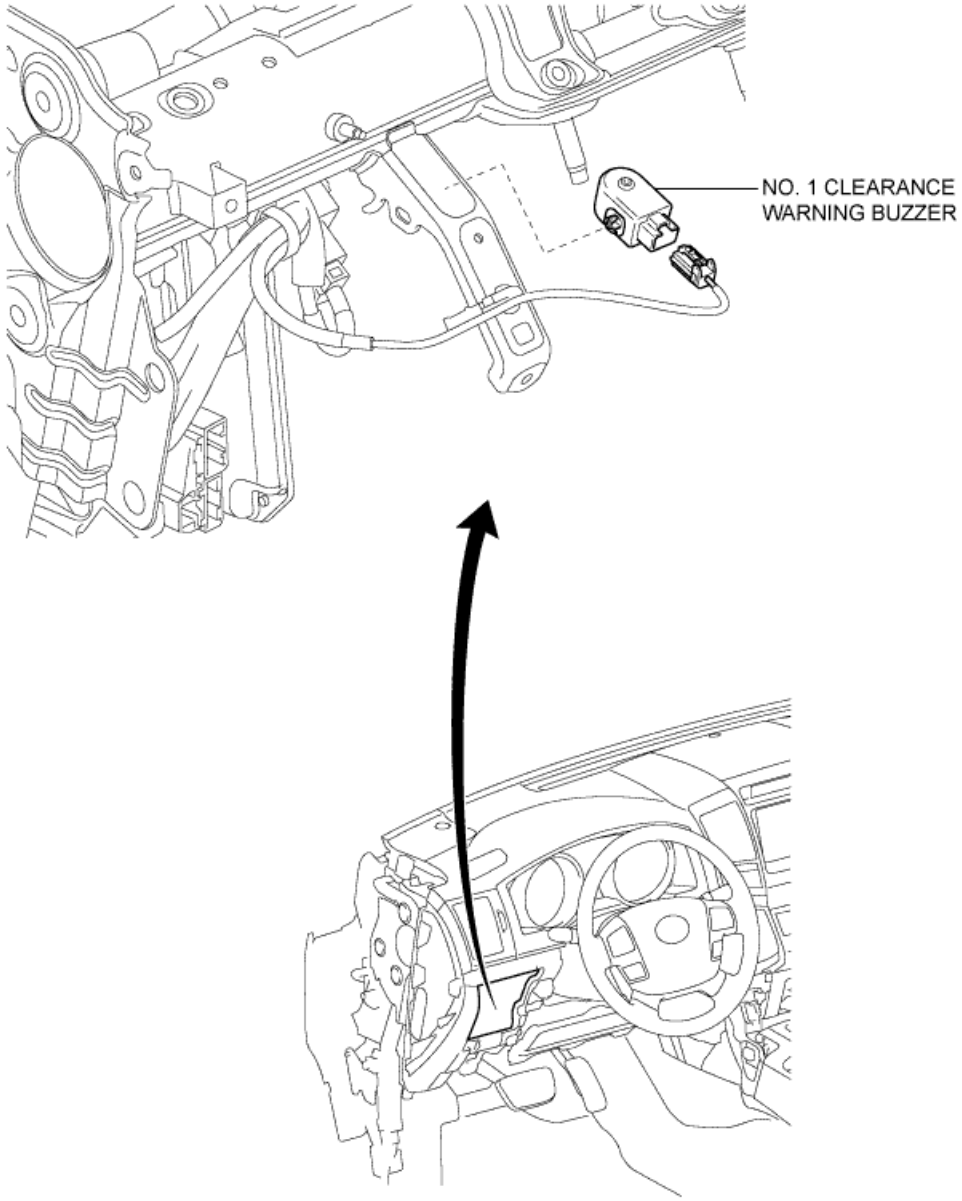
a. Attach the 4 claws to install the No. 2 instrument panel under cover.



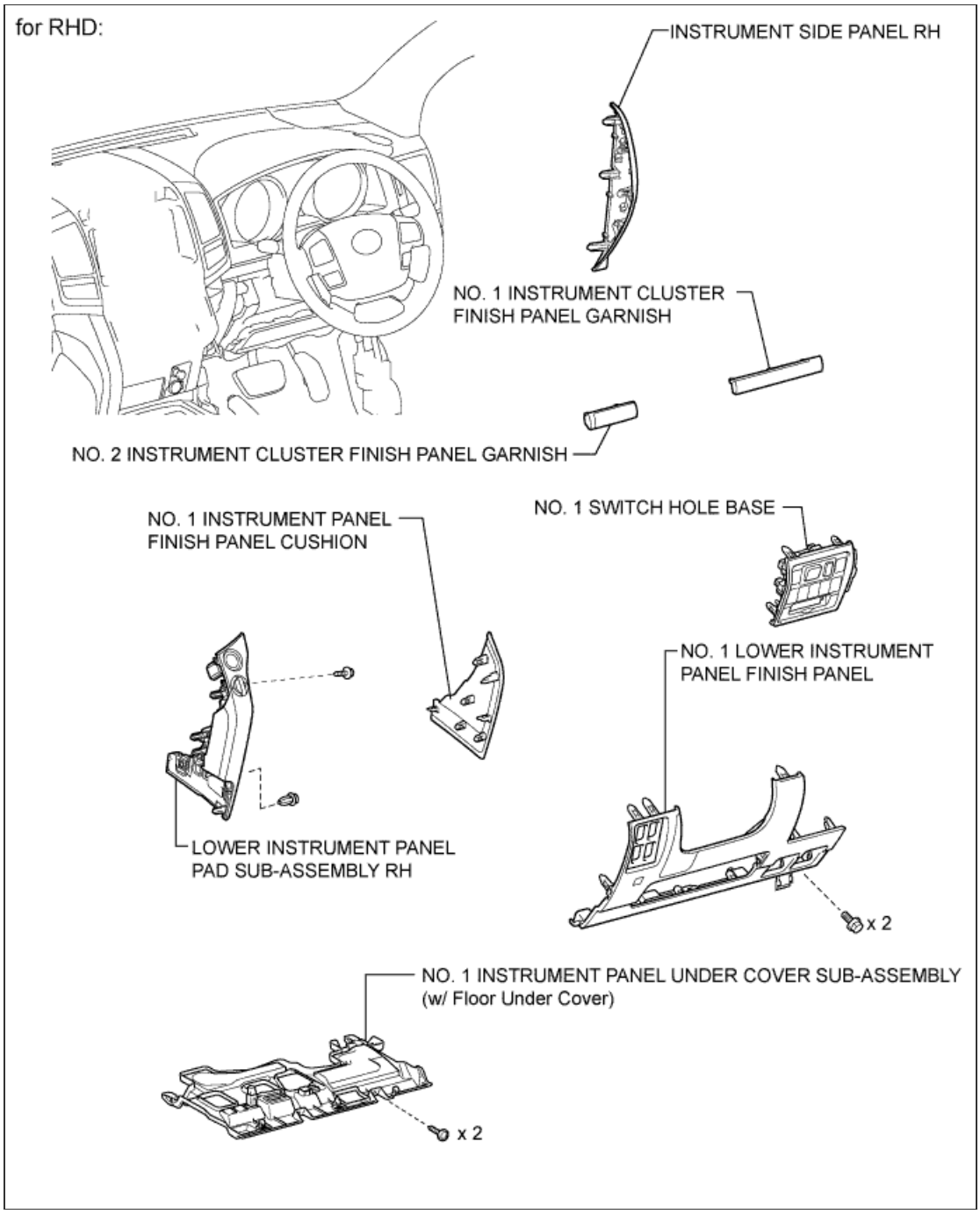
for Preparation Click here



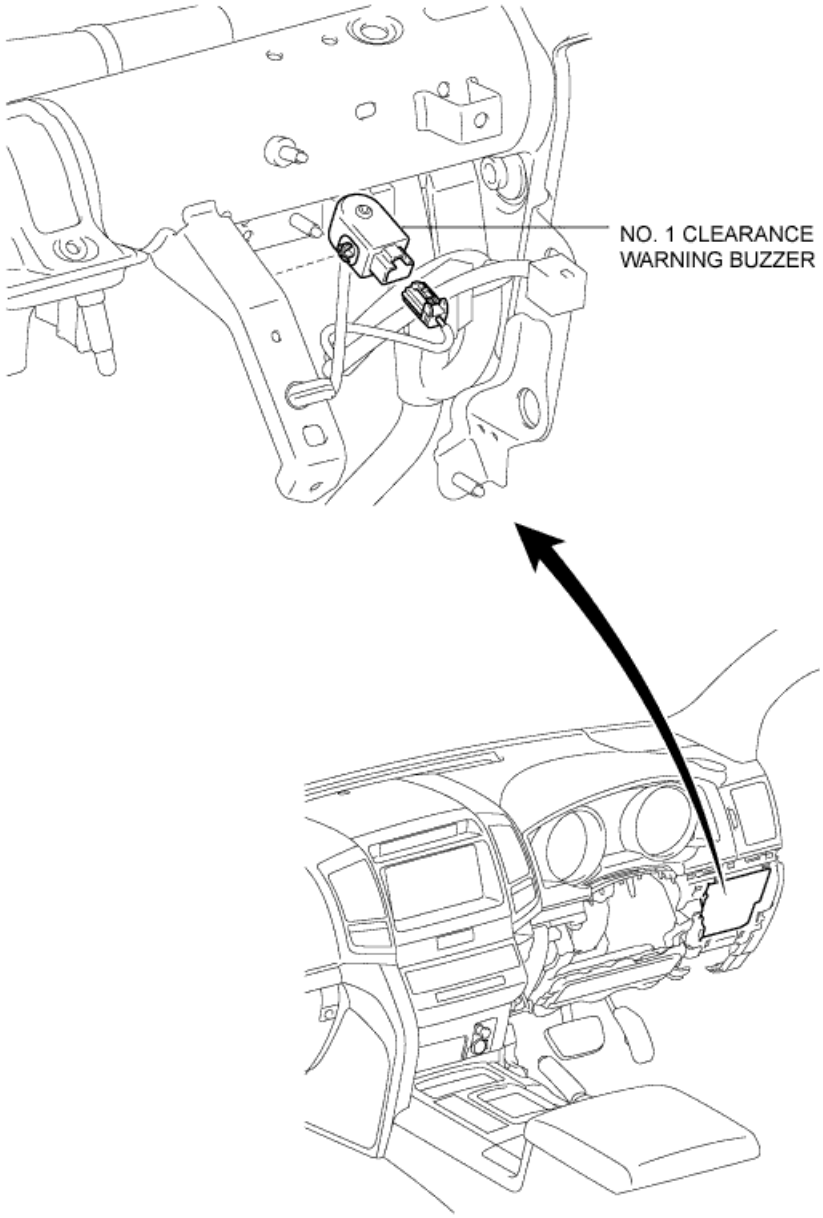
for LHD:



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.**

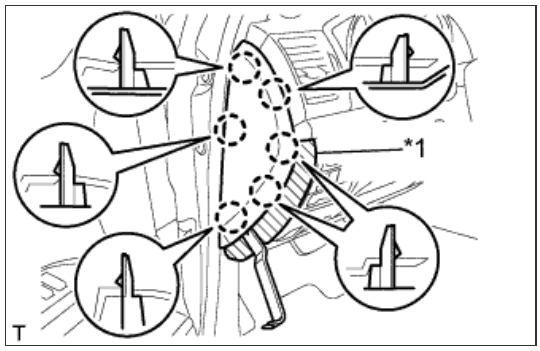
1. REMOVE INSTRUMENT SIDE PANEL LH

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.



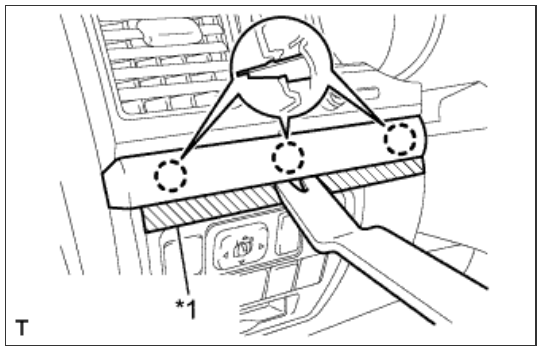
2. REMOVE NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

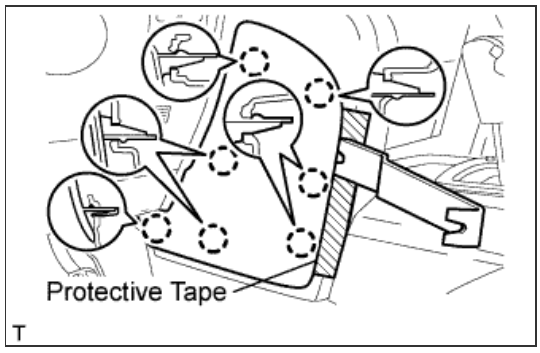
b. Using a moulding remover, detach the 3 claws and remove the No. 1 instrument cluster finish panel garnish.



3. REMOVE NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 7 claws and remove the panel cushion.



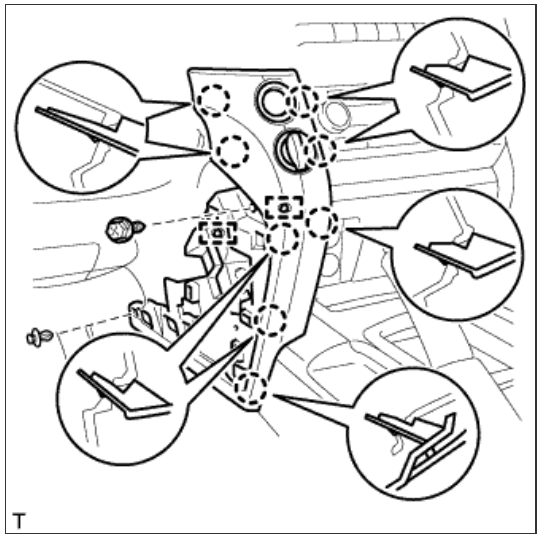
4. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Remove the clip.

b. Remove the screw.

c. Detach the 8 claws.

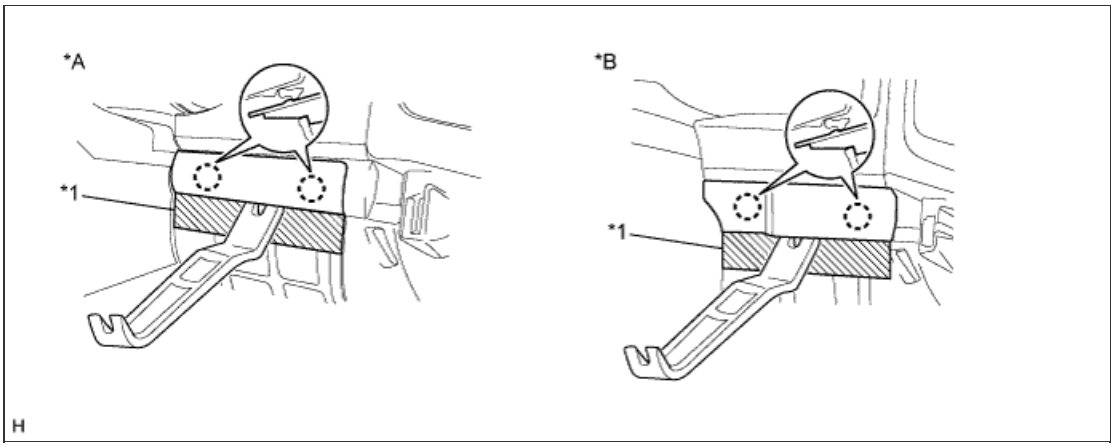
d. Remove the panel pad and disconnect the connectors and 2 clamps.



5. REMOVE NO. 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

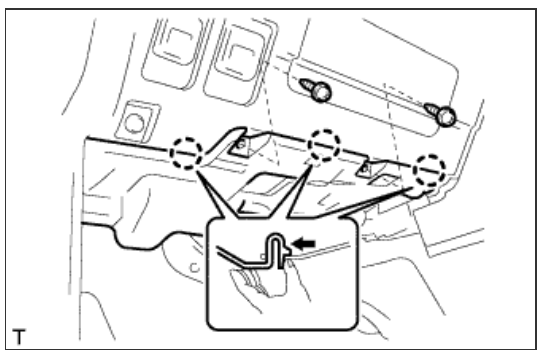
*A	w/ Entry and Start System	*B	w/o Entry and Start System
*1	Protective Tape	-	-

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

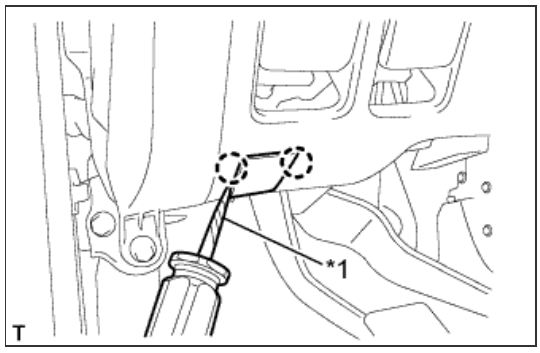
a. Using a screwdriver, detach the 2 claws and open the hole cover.

HINT:

Tape the screwdriver tip before use.

Text in Illustration

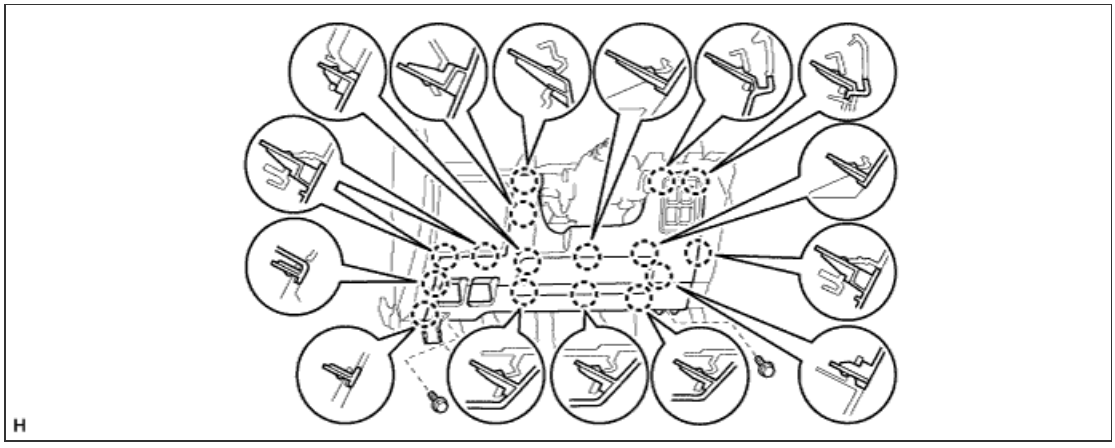
*1	Protective Tape



b. w/ Driver Side Knee Airbag:

i. Remove the 2 bolts.

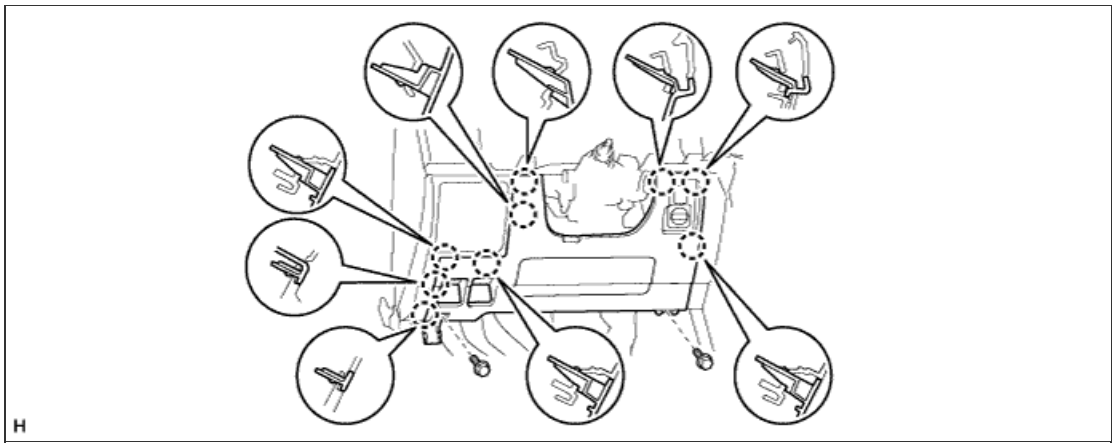
ii. Detach the 16 claws.



c. w/o Driver Side Knee Airbag:

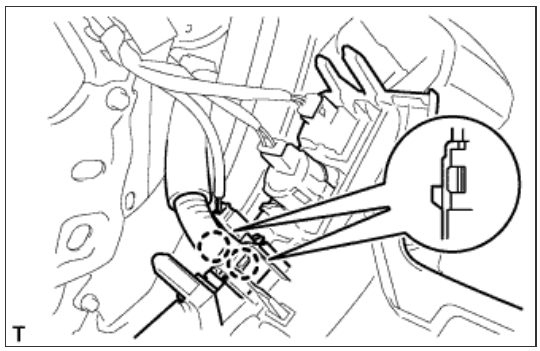
i. Remove the 2 bolts.

ii. Detach the 9 claws.



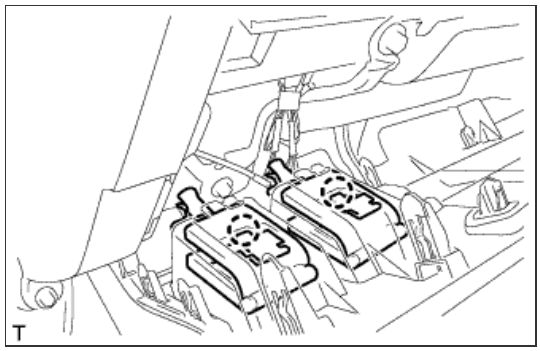
d. for Automatic Air oditioning System:

i. Detach the 2 claws and remove the room temperature sensor.



e. Detach the 2 claws and disconnect the 2 control cables.

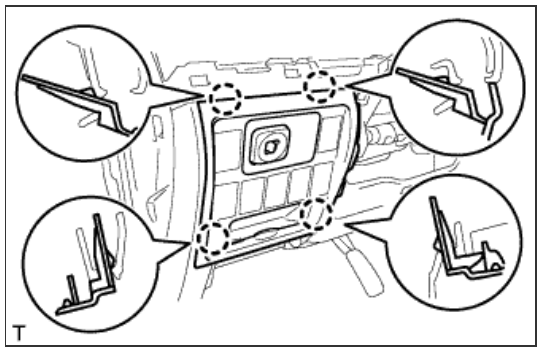
f. Disconnect the connectors and remove the lower No. 1 instrument panel finish panel.



8. REMOVE NO. 1 SWITCH HOLE BASE

a. Detach the 4 claws.

b. Disconnect the connectors and remove the No. 1 switch hole cover.

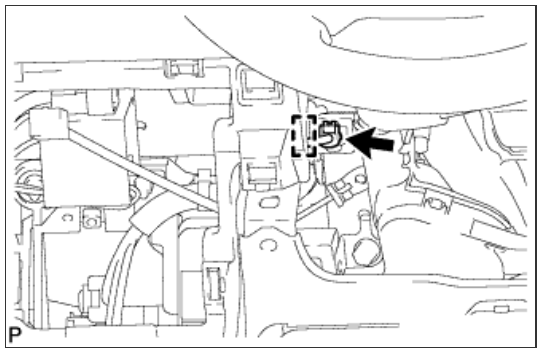


9. REMOVE NO. 1 CLEARANCE WARNING BUZZER

a. Disconnect the connector.

b. Using a clip remover, detach the clip and remove the No. 1 clearance warning

bu er.



for Preparation Click here

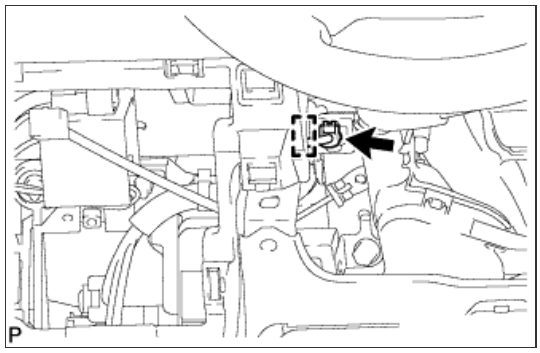
HINT:

- **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.

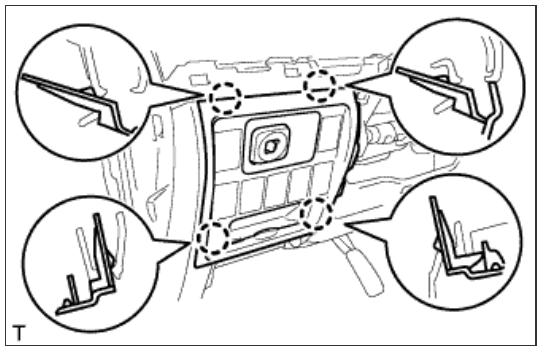
b. Connect the connector.



2. INSTALL NO. 1 SWITCH HOLE BASE

a. Connect the connectors.

b. Attach the 4 claws to install the No. 1 switch hole base.

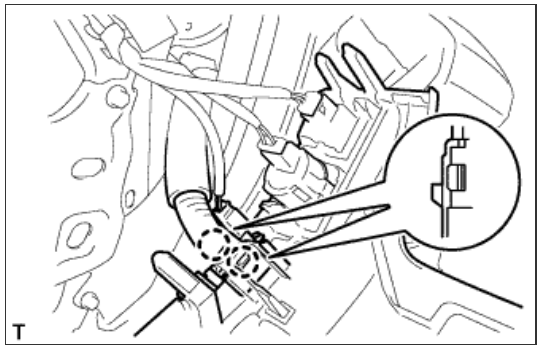


3. INSTALL NO. 1 LOWER INSTRUMENT PANEL FINISH PANEL

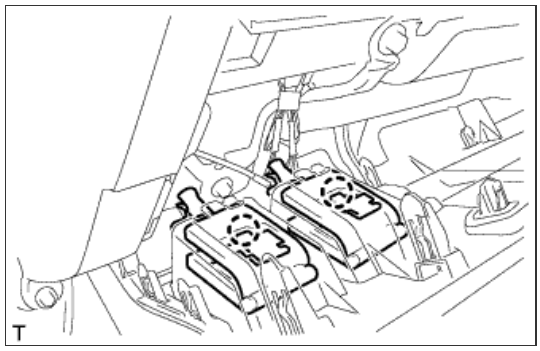
a. Connect the connectors.

b. for Automatic Air Conditioning System:

i. Attach the 2 claws to install the room temperature sensor.



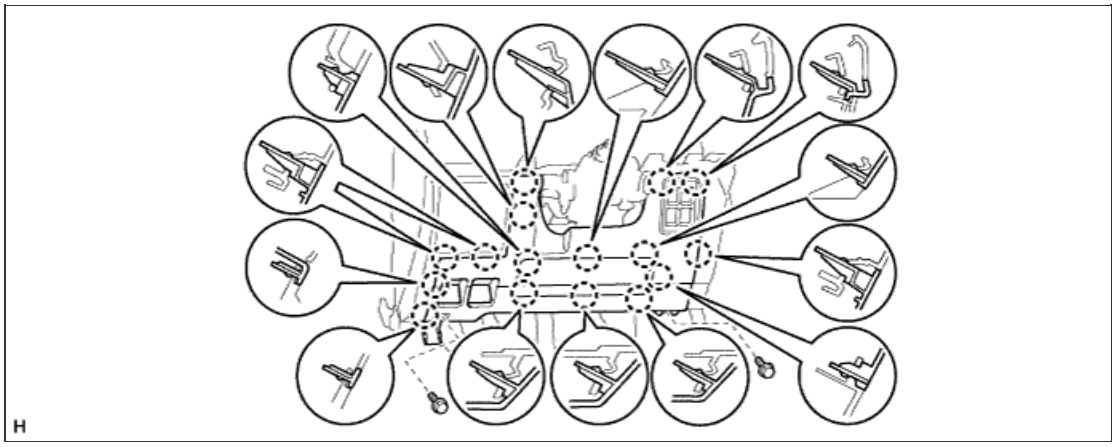
c. Attach the 2 claws to connect the 2 control cables.



d. w/ Driver Side Knee Airbag:

i. Attach the 16 claws to install the lower No. 1 instrument panel finish panel.

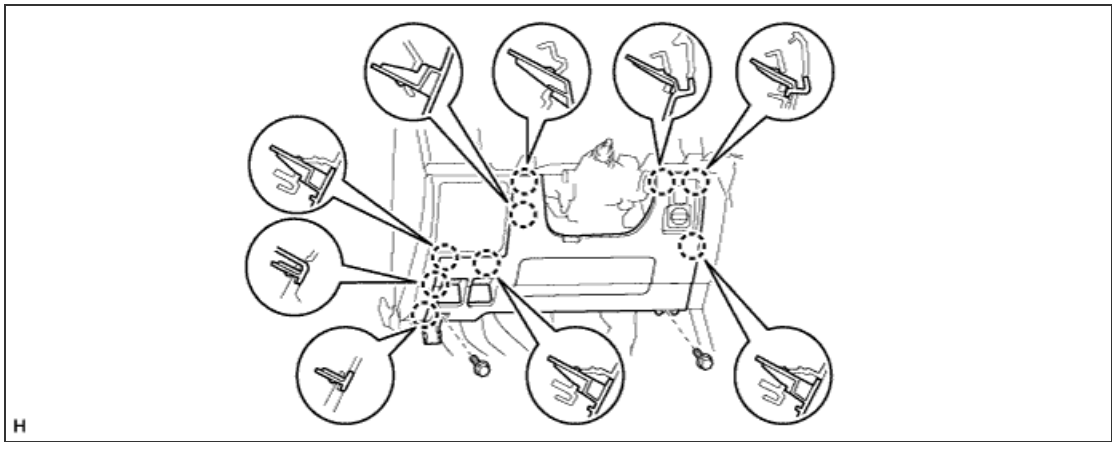
ii. Install the 2 bolts.



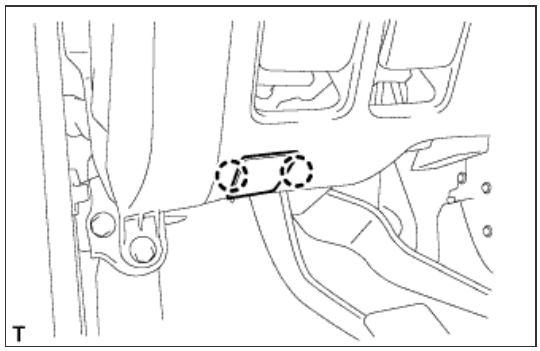
e. w/o Driver Side Knee Airbag:

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.

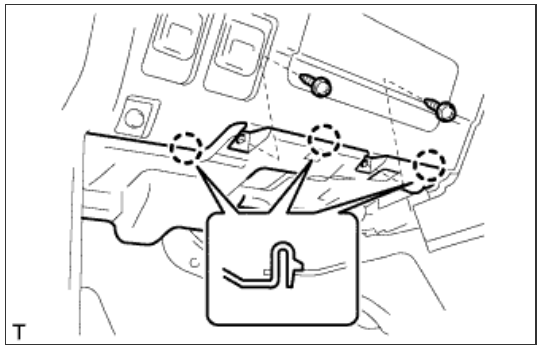


4. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

a. Connect the connectors.

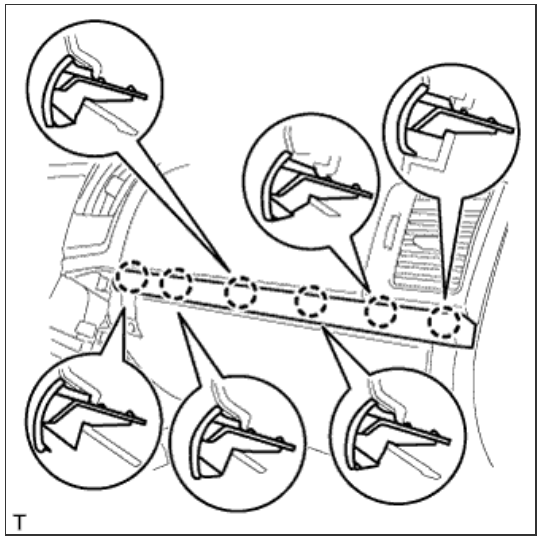
b. Attach the 3 claws to install the No. 1 instrument panel under cover.

c. Install the 2 screws.



5. INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Attach the 6 claws to install the No. 3 instrument cluster finish panel garnish.



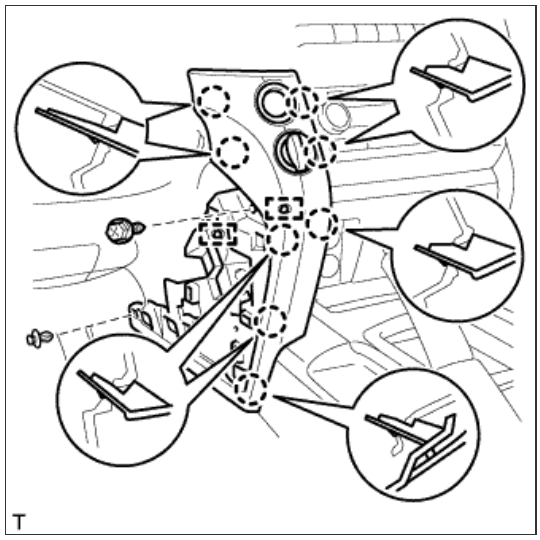
6. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connectors and 2 clamps.

b. Attach the 8 claws to install the panel pad.

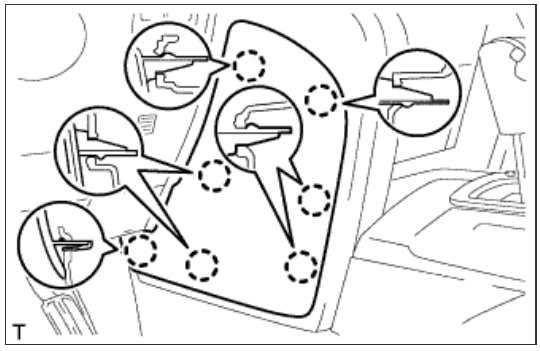
c. Install the screw.

d. Install the clip.



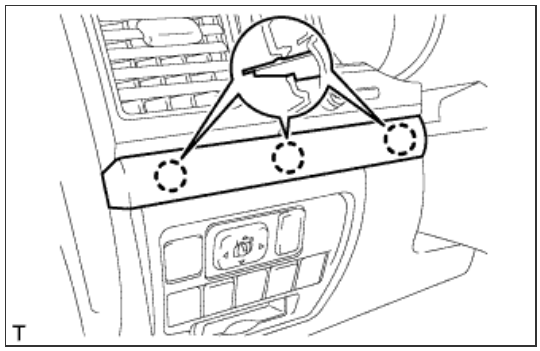
7. INSTALL NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Attach the 7 claws to install the panel cushion.



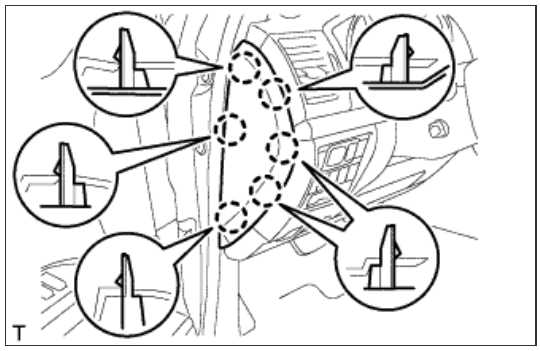
8. INSTALL NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Attach the 3 claws to install the No. 1 instrument cluster finish panel garnish.

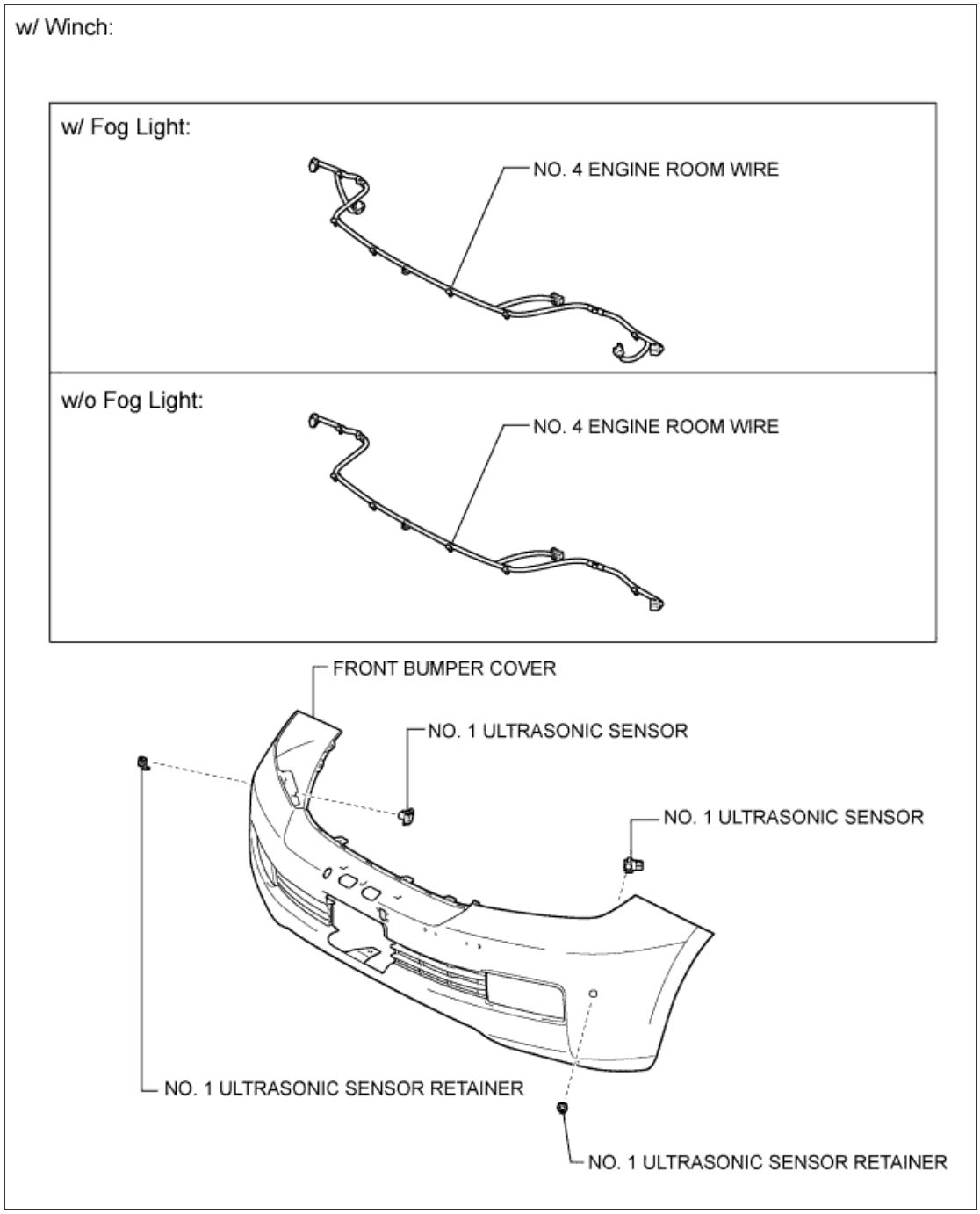


9. INSTALL INSTRUMENT SIDE PANEL LH

a. Attach the 6 claws to install the instrument side panel.

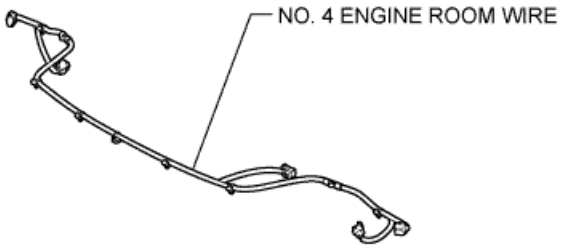


for Preparation Click here

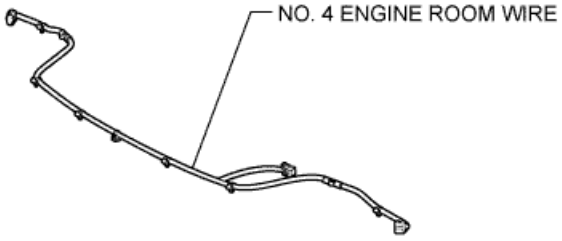


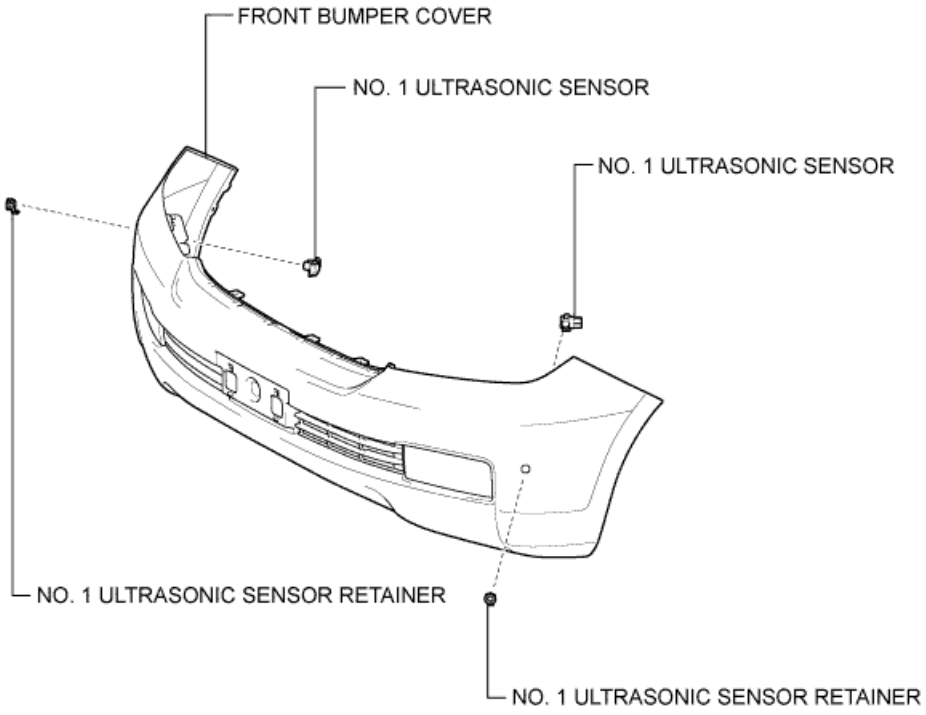
for Standard:

w/ Fog Light:



w/o Fog Light:





for Preparation Click here

1. REMOVE FRONT BUMPER COVER

a. for Standard:
Remove the front bumper cover (Click here).

b. w/ Winch:
Remove the front bumper cover (Click here).

2. REMOVE NO. 4 ENGINE ROOM WIRE

a. for Standard:
Remove the No. 4 engine room wire (Click here).

b. w/ Winch:
Remove the No. 4 engine room wire (Click here).

3. REMOVE NO. 1 ULTRASONIC SENSOR

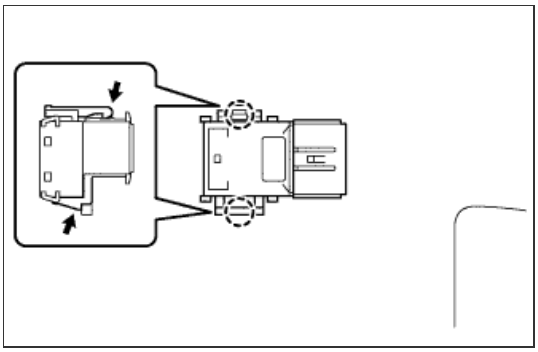
HINT:

Use the same procedure to remove the No. 1 ultrasonic sensor on the other side.

a. While pushing down on the lever with a finger to release the one claw, detach the claw on the other side to remove the ultrasonic sensor.

HINT:

The type of claw on the top and bottom of the sensor are different. Observe the claws carefully before removing the sensor.

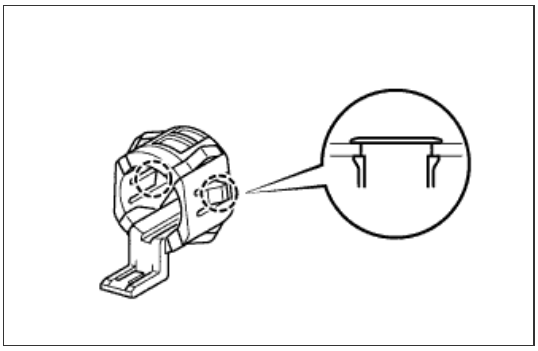


4. REMOVE NO. 1 ULTRASONIC SENSOR RETAINER

HINT:

Use the same procedure to remove the No. 1 ultrasonic sensor retainer on the other side.

a. Detach the 2 claws and remove the ultrasonic sensor retainer from the front bumper cover.



for Preparation Click ere

1. INSPECT NO. ULTRASONIC SENSOR

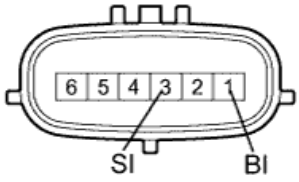
a. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 (BI) - 3 (SI)	Always	10 kΩ or higher

If the result is not as specified, replace the No. 1 ultrasonic sensor.

Component without harness connected:
(No. 1 Ultrasonic Sensor)



for Preparation Click here

1. INSTALL NO. 1 ULTRASONIC SENSOR RETAINER

HINT:

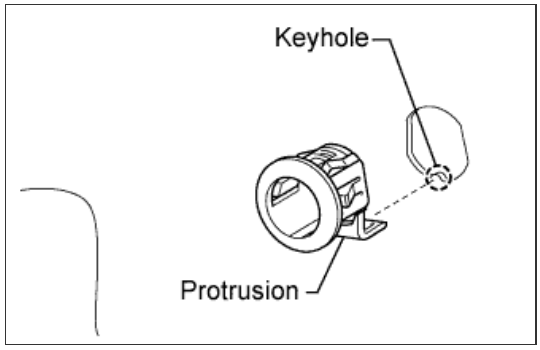
Use the same procedure to install the No. 1 ultrasonic sensor retainer on the other side.

a. Align the keyhole and protrusion as shown in the illustration.

b. Install the ultrasonic sensor retainer to the front bumper cover.

NOTICE:

Do not damage the bumper with the protrusion when installing the retainer.



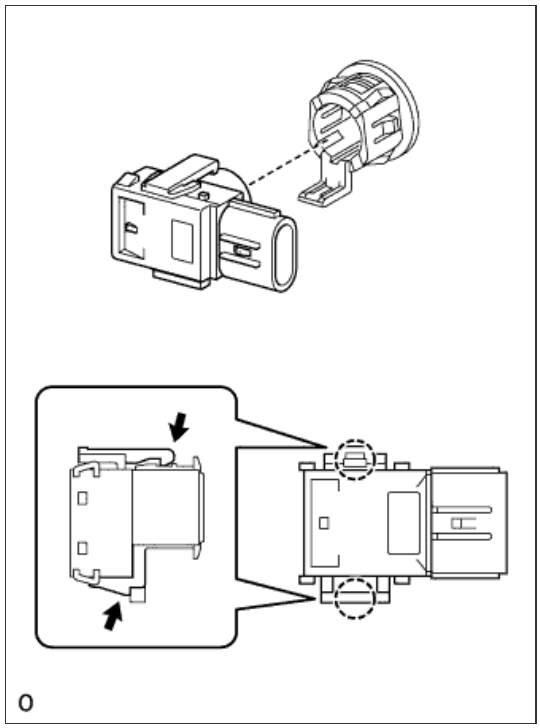
2. INSTALL NO. 1 ULTRASONIC SENSOR

HINT:

Use the same procedure to install the No. 1 ultrasonic sensor on the other side.

a. Attach the 2 claws to install the ultrasonic sensor.

b. Connect the connector.



3. INSTALL NO. 4 ENGINE ROO WIRE

a. for Standard:
Install the No. 4 engine room wire (Click here).

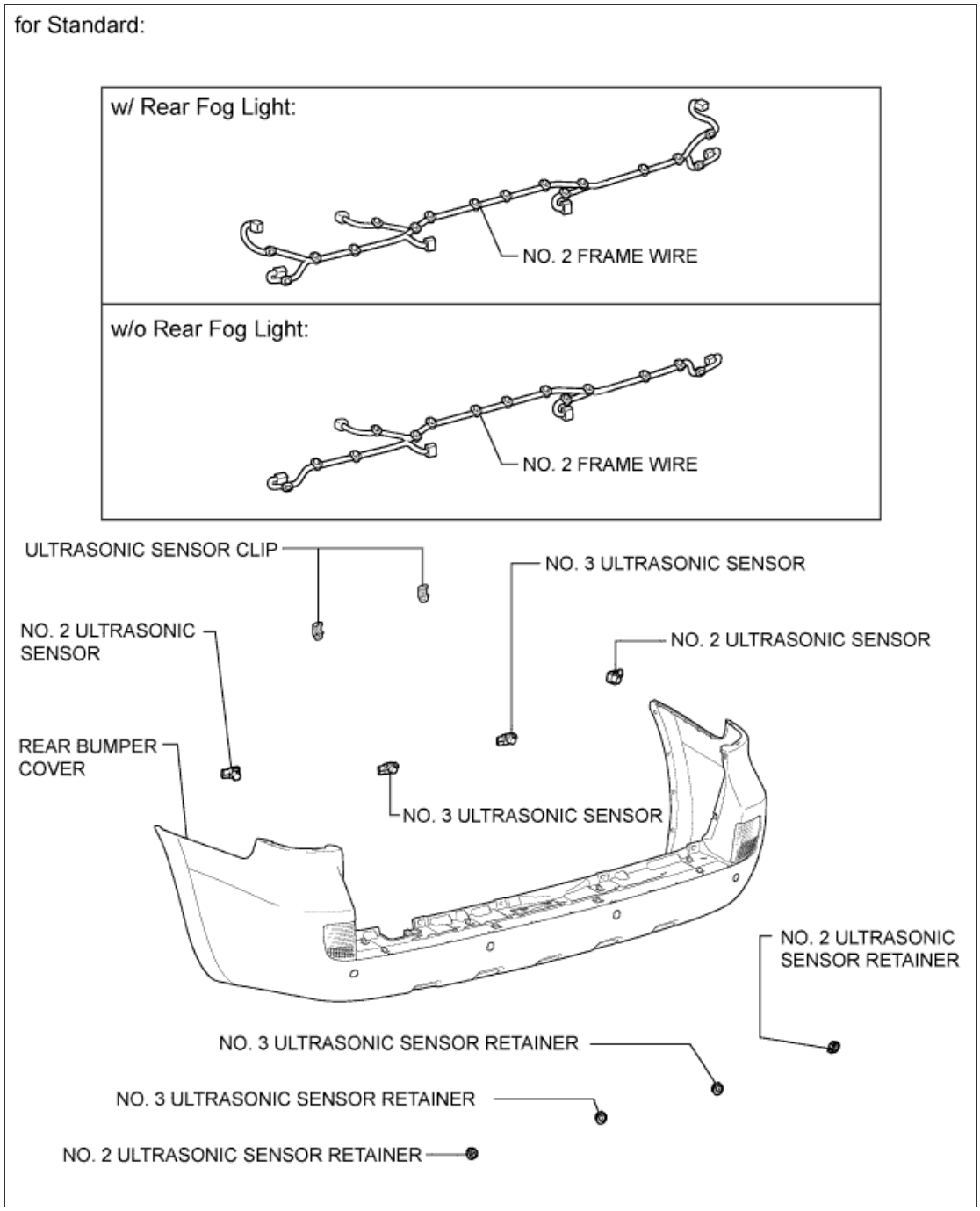
b. w/ Winch:
Install the No. 4 engine room wire (Click here).

4. INSTALL FRONT BU ER CO ER

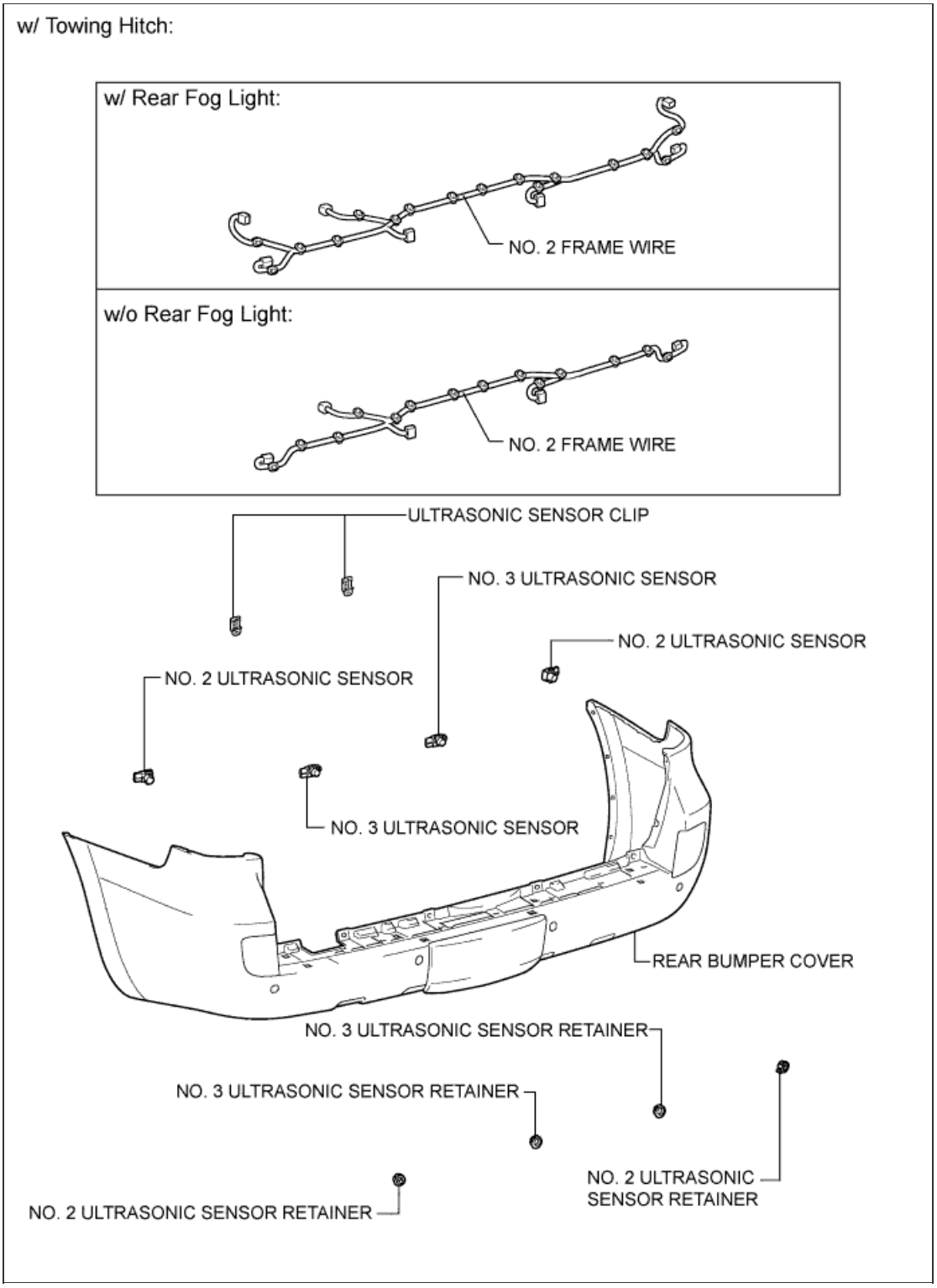
a. for Standard:
Install the front bumper cover (Click here).

b. w/ Winch:
Install the front bumper cover (Click here).

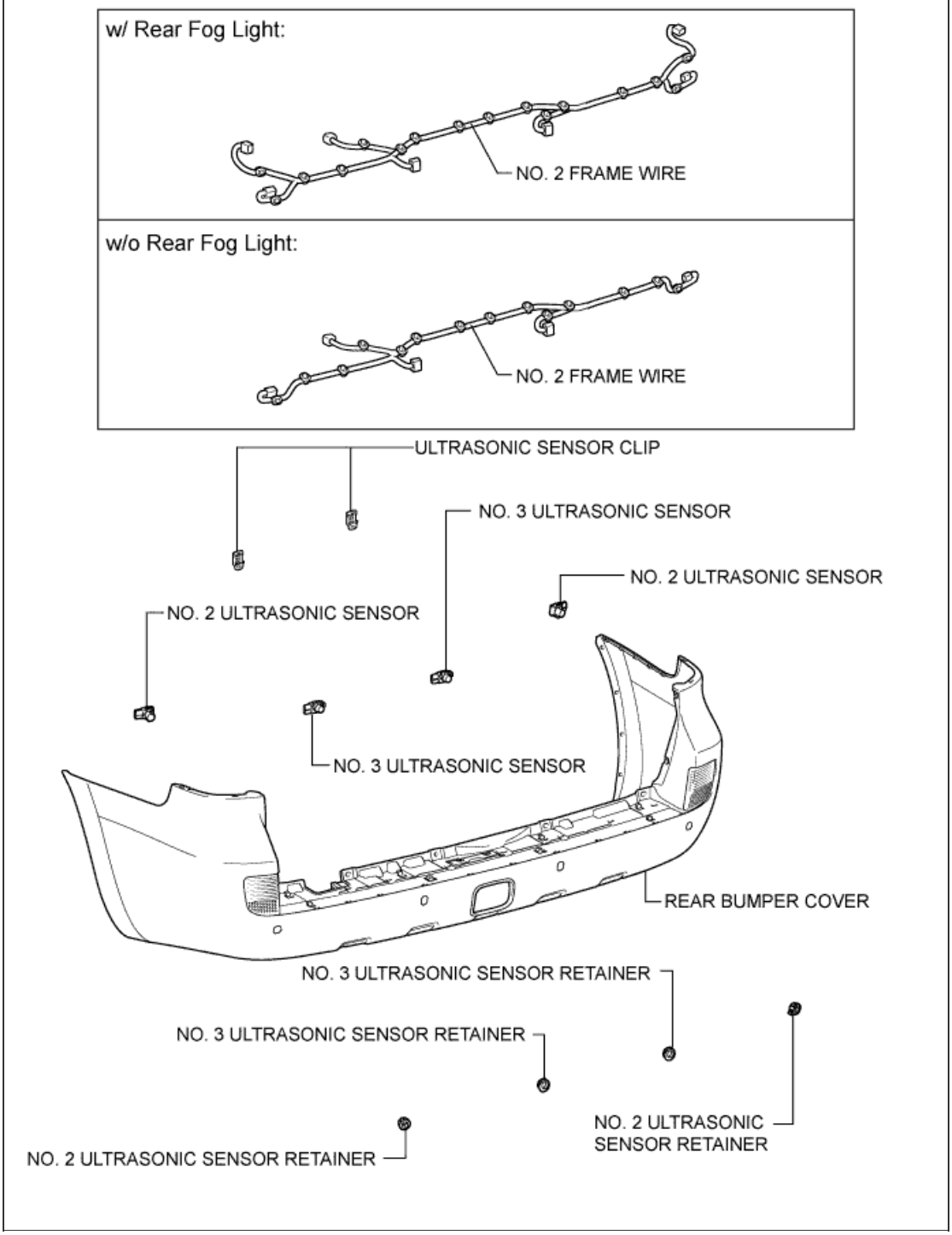
for Preparation Click ere



w/ Towing Hitch:



w/ Pintle Hook:



for Preparation Click here

1. REMOVE REAR BUMPER COVER

a. for Standard:
Remove the rear bumper cover (Click here).

b. w/ Towing itch:
Remove the rear bumper cover (Click here).

c. w/ Pintle ook:
Remove the rear bumper cover (Click here).

2. REMOVE NO. 2 FRAME WIRE

a. for Standard:
Remove the No. 2 frame wire (Click here).

b. w/ Towing itch:
Remove the No. 2 frame wire (Click here).

c. w/ Pintle ook:
Remove the No. 2 frame wire (Click here).

3. REMOVE NO. 2 ULTRASONIC SENSOR

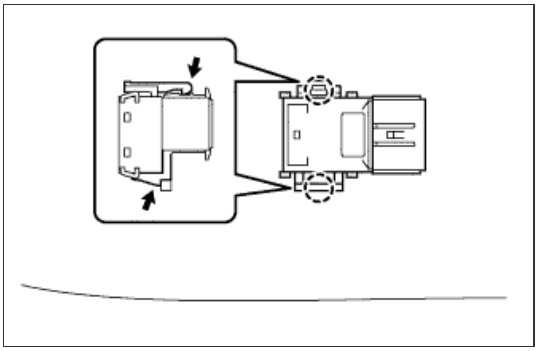
HINT:

U e the ame procedure to remove the No. 2 ultra onic en or on the other ide.

a. While pu hing down on the lever with a finger to relea e the one claw, detach the claw on the other ide to remove the ultra onic en or.

HINT:

The type of claw on the top and bottom of the en or are different. Ob erve the claw carefully before removing the en or.

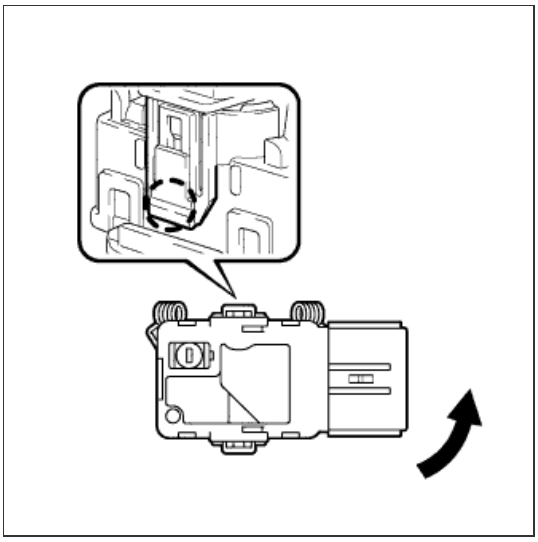


4. REMOVE NO. 3 ULTRASONIC SENSOR

HINT:

U e the ame procedure to remove the No. 3 ultra onic en or on the other ide.

a. Detach the claw and remove the ultra onic en or a hown in the illu tration.

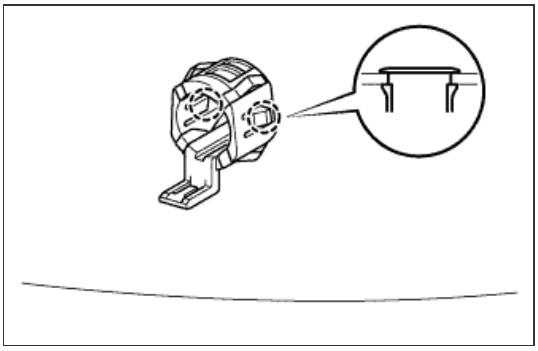


5. REMOVE NO. 2 ULTRASONIC SENSOR RETAINER

HINT:

U e the ame procedure to remove the No. 2 ultra onic en or retainer on the other ide.

a. Detach the 2 claw and remove the ultra onic en or retainer from the rear bumper cover.

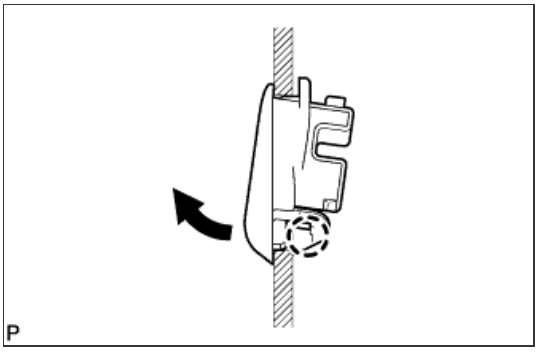


6. REMOVE NO. 3 ULTRASONIC SENSOR RETAINER

HINT:

U e the ame procedure to remove the No. 3 ultra onic en or retainer on the other ide.

a. Detach the claw and remove the ultra onic en or retainer from the rear bumper cover.



for Preparation Click here

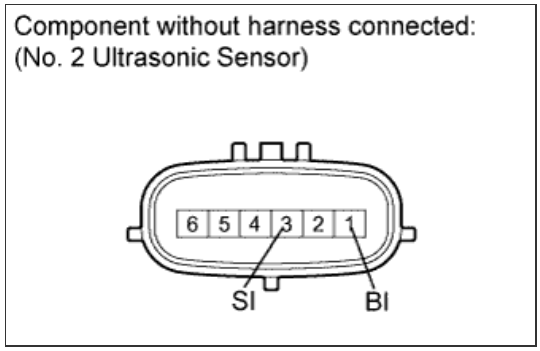
1. INSPECT NO. 2 ULTRASONIC SENSOR

a. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 (BI) - 3 (SI)	Always	10 kΩ or higher

If the result is not as specified, replace the No. 2 ultrasonic sensor.



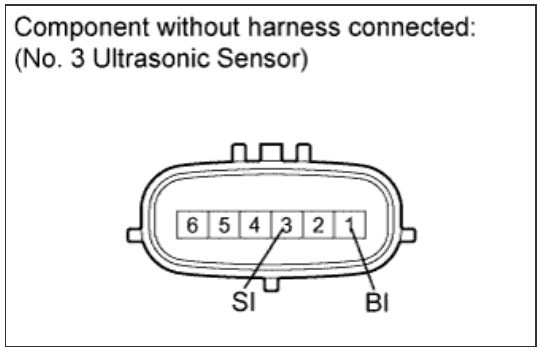
2. INSTALL NO. ULTRASONIC SENSOR

a. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
1 (BI) - 3 (SI)	Always	10 kΩ or higher

If the result is not as specified, replace the No. 3 ultrasonic sensor.



for Preparation Click here

1. INSTALL NO. 2 ULTRASONIC SENSOR RETAINER

HINT:

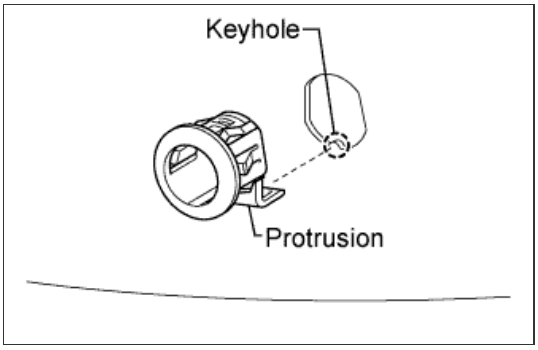
Use the same procedure to install the No. 2 ultrasonic sensor retainer on the other side.

a. Align the keyhole and protrusion as shown in the illustration.

b. Install the ultrasonic sensor retainer to the rear bumper.

NOTICE:

Do not damage the bumper with the protrusion when installing the retainer.

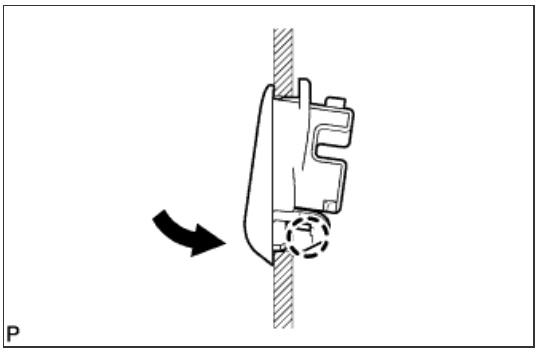


2. INSTALL NO. 3 ULTRASONIC SENSOR RETAINER

HINT:

Use the same procedure to install the No. 3 ultrasonic sensor retainer on the other side.

a. Attach the claw to install the ultrasonic sensor retainer as shown in the illustration.



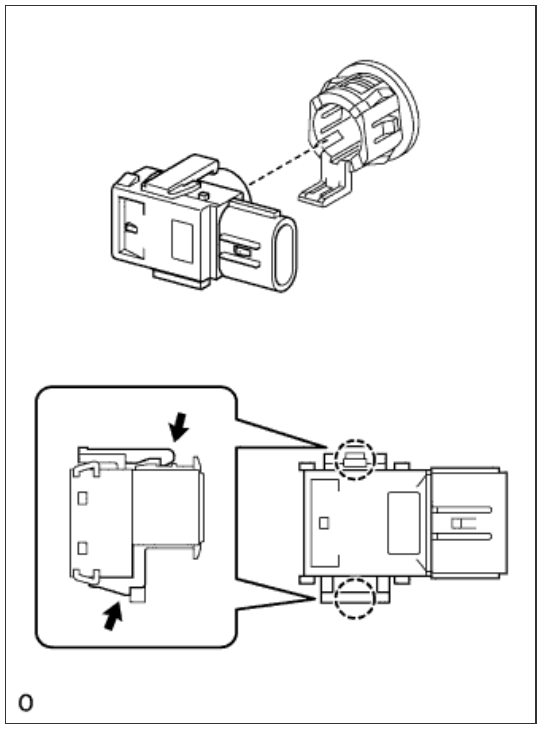
3. INSTALL NO. 2 ULTRASONIC SENSOR

HINT:

Use the same procedure to install the No. 2 ultrasonic sensor on the other side.

a. Attach the 2 claws to install the ultrasonic sensor.

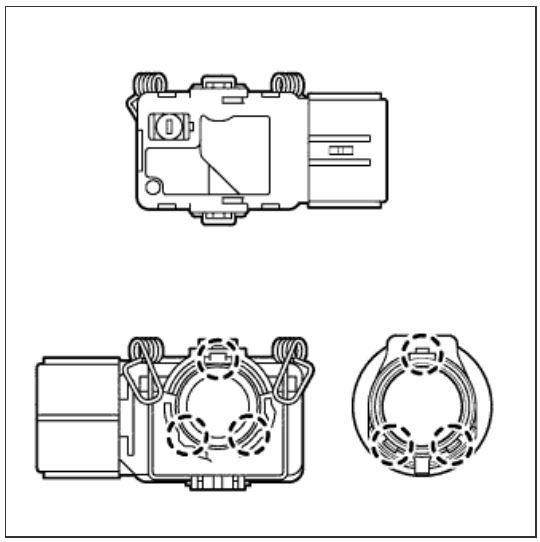
b. Connect the connector.



4. INSTALL NO. 3 ULTRASONIC SENSOR

HINT:

Use the same procedure to install the No. 3 ultrasonic sensor on the other side.



a. Attach the 3 claws to install the ultrasonic sensor.

b. Connect the connector.

5. INSTALL NO. 2 FRAME WIRE

a. for tandard:
Install the No. 2 frame wire (Click here).

b. w owing itch:
Install the No. 2 frame wire (Click here).

c. w Pintle ook:
Install the No. 2 frame wire (Click here).

6. INSTALL REAR BUMPER COVER

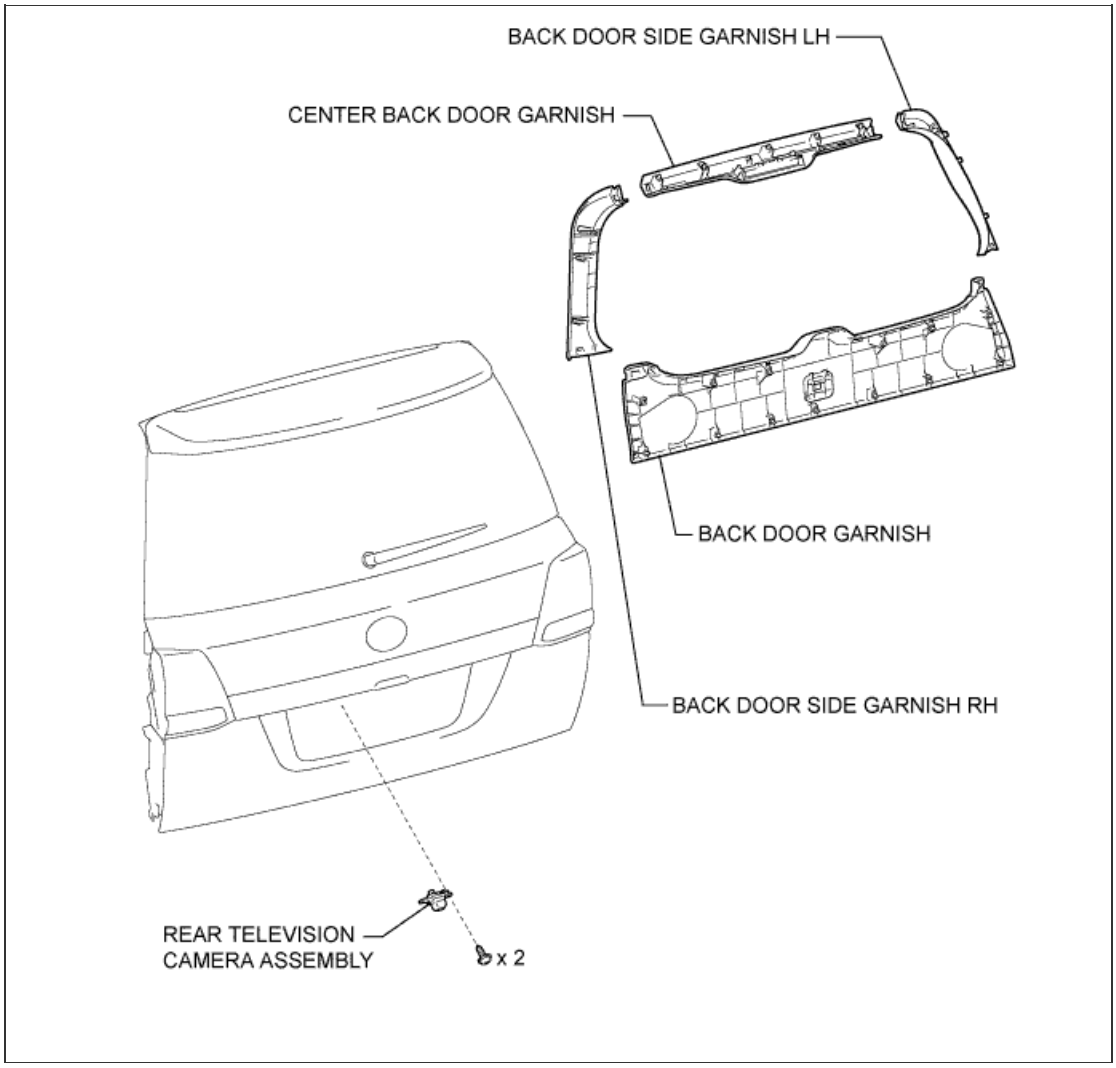
a. for tandard:
Install the rear bumper co er (Click here).

b. w owing itch:
Install the rear bumper co er (Click here).

c. w Pintle ook:

Install the rear bumper co er (Click here).

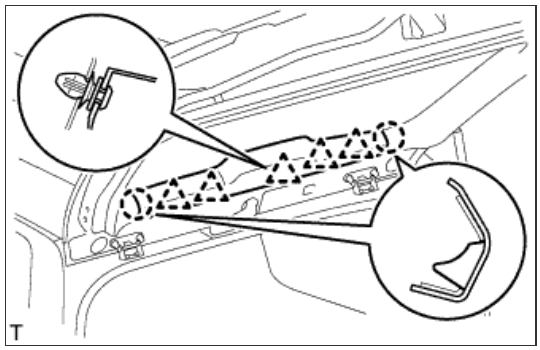
for Preparation Click here



for Preparation Click here

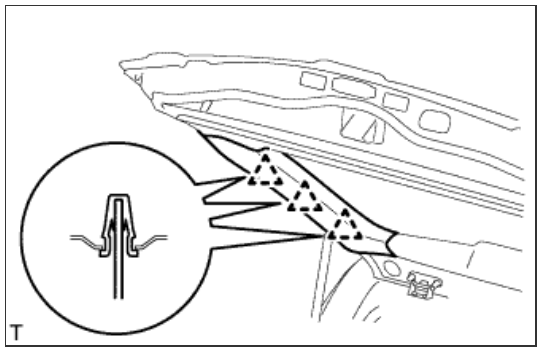
1. REMOVE CENTER BACK DOOR GARNISH

a. Detach the 5 clips and 2 claws, and remove the back door garnish.



2. REMOVE BACK DOOR SIDE GARNISH LH

a. Detach the 3 clips and remove the back door side garnish.



3. REMOVE BACK DOOR SIDE GARNISH RH

HINT:

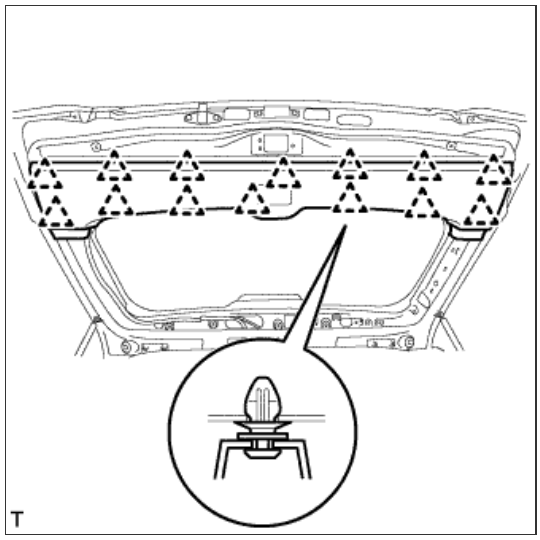
Use the same procedures described for the LH side.

4. REMOVE BACK DOOR GARNISH

a. Using a screwdriver, detach the 14 clips and remove the back door garnish.

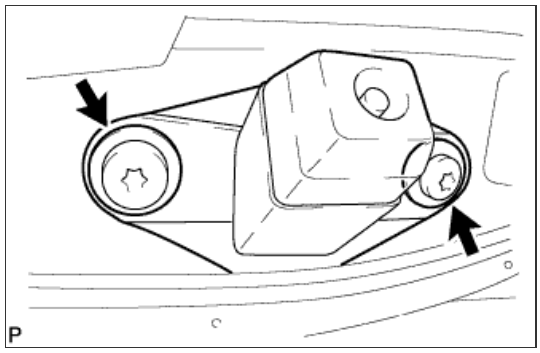
HINT:

Tape the screwdriver tip before use.



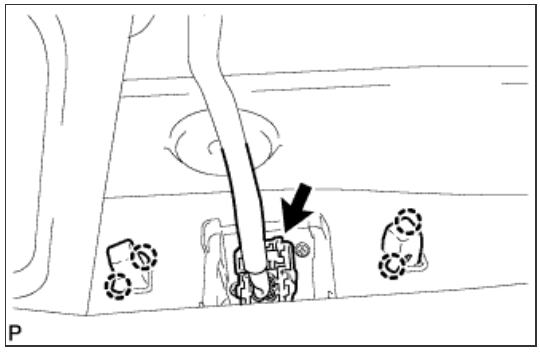
REMOVE REAR TELEVISION CAMERA ASSEMBLY

a. Using a T30 socket wrench, remove the 2 screws.



b. Detach the 4 claws and remove the rear television camera assembly.

c. Disconnect the connector.



for Preparation Click here

HINT:

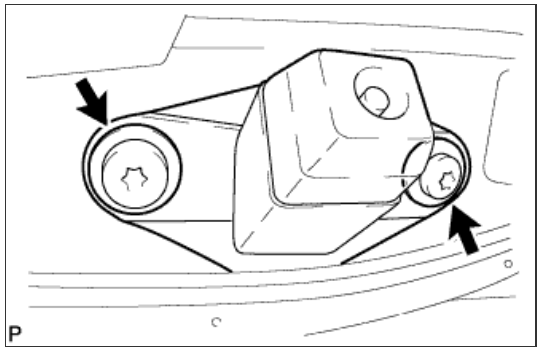
A bolt without a torque specification is shown in the standard bolt chart (Click here).

1. INSTALL REAR TELEVISION CAMERA ASSEMBLY

a. Connect the connector.

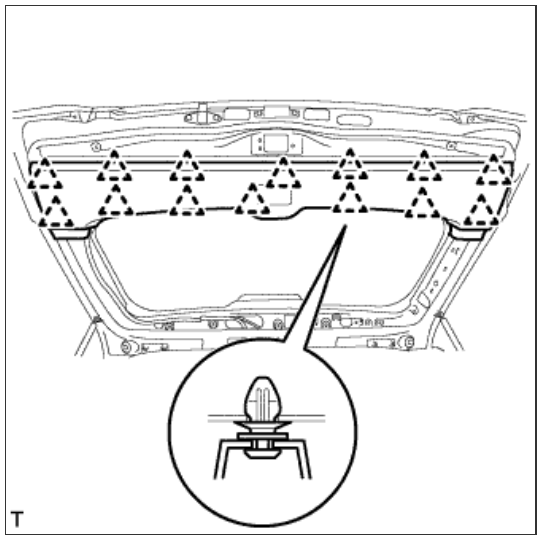
b. Attach the 4 claws to install the rear television camera assembly.

c. Using a T3 socket wrench, install the rear television camera with the 2 screws.



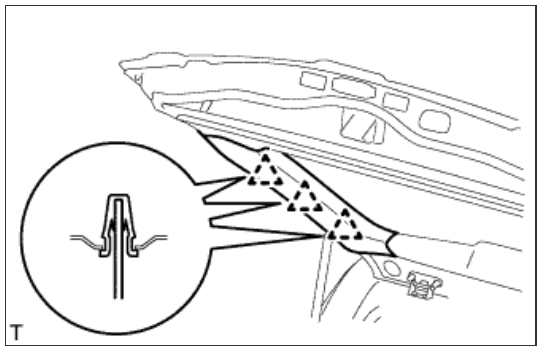
2. INSTALL BACK DOOR GARNISH

a. Attach the 14 clips to install the back door garnish.



3. INSTALL BACK DOOR SIDE GARNISH LH

a. Attach the 3 clips to install the back door side garnish.



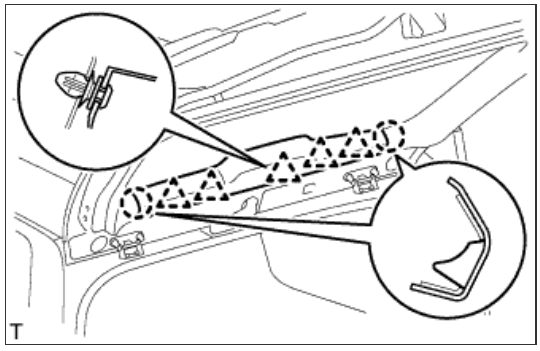
4. INSTALL BACK DOOR SIDE GARNISH RH

HINT:

Use the same procedures described for the LH side.

5. INSTALL CENTER BACK DOOR GARNISH

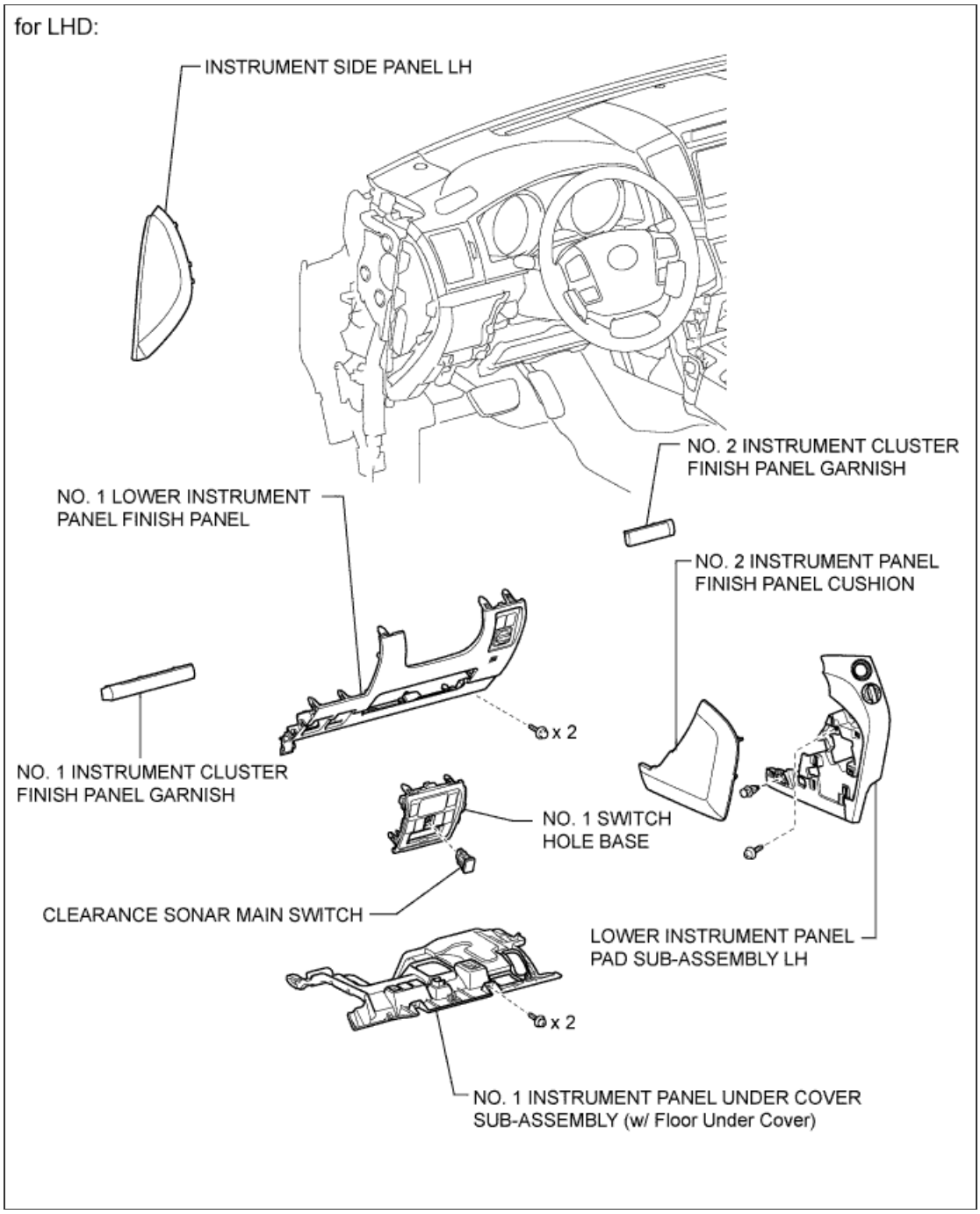
a. Attach the 5 clips and 2 claws to install the back door garnish.

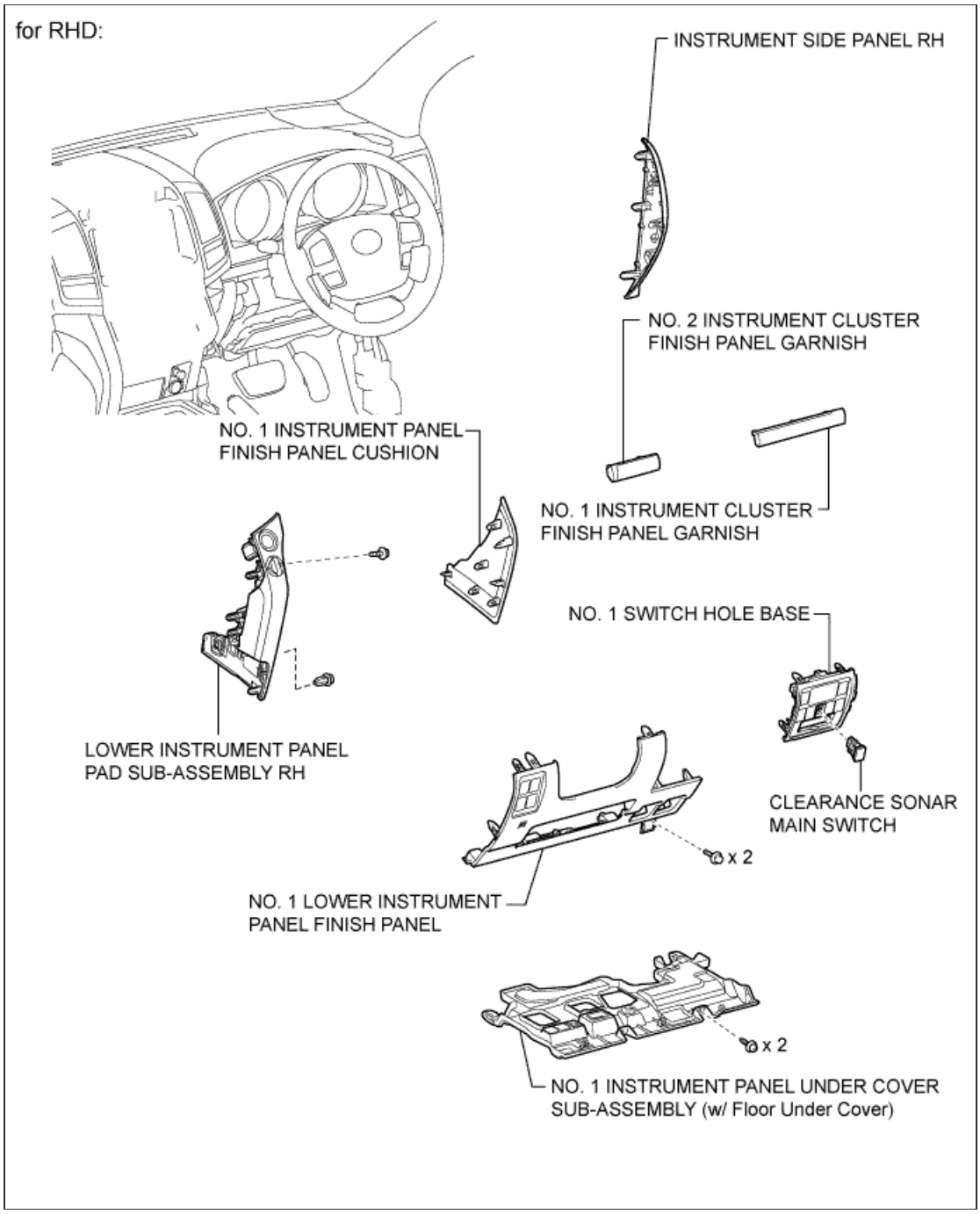


6. ADJUST REAR TELEVISION CAMERA ASSEMBLY (w/ Parking Assist Monitor System)

a. Ad ust the rear television camera assembly (Click here).

for Preparation Click here




for RHD:
INSTRUMENT SIDE PANEL RH
NO. 2 INSTRUMENT CLUSTER
FINISH PANEL GARNISH
NO. 1 INSTRUMENT PANEL
FINISH PANEL CUSHION
NO. 1 INSTRUMENT CLUSTER
FINISH PANEL GARNISH
NO. 1 SWITCH HOLE BASE
LOWER INSTRUMENT PANEL
PAD SUB-ASSEMBLY RH
CLEARANCE SONAR
MAIN SWITCH
x 2
NO. 1 LOWER INSTRUMENT
PANEL FINISH PANEL
x 2
NO. 1 INSTRUMENT PANEL UNDER COVER
SUB-ASSEMBLY (w/ Floor Under Cover)

for Preparation Click here

HINT:

- **Use the same procedure for RHD and LHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

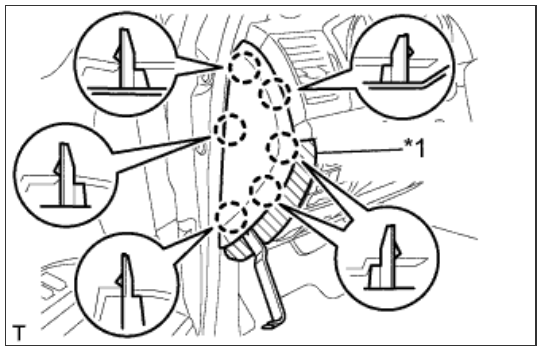
1. REMOVE INSTRUMENT SIDE PANEL LH

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.



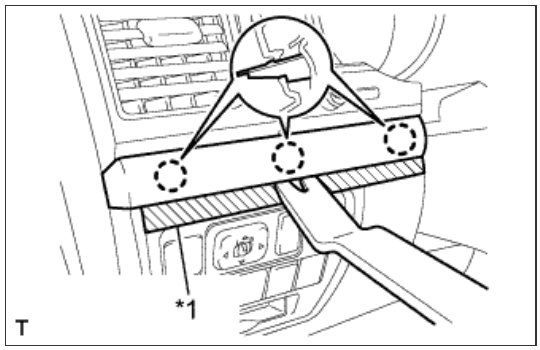
2. REMOVE NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Place protective tape as shown in the illustration.

Text in Illustration

*1	Protective Tape

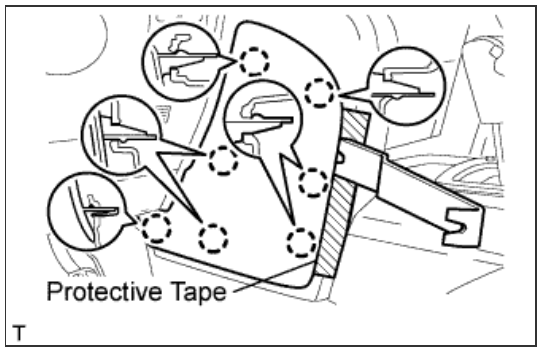
b. Using a moulding remover, detach the 3 claws and remove the No. 1 instrument cluster finish panel garnish.



3. REMOVE NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Place protective tape as shown in the illustration.

b. Using a moulding remover, detach the 7 claws and remove the panel cushion.



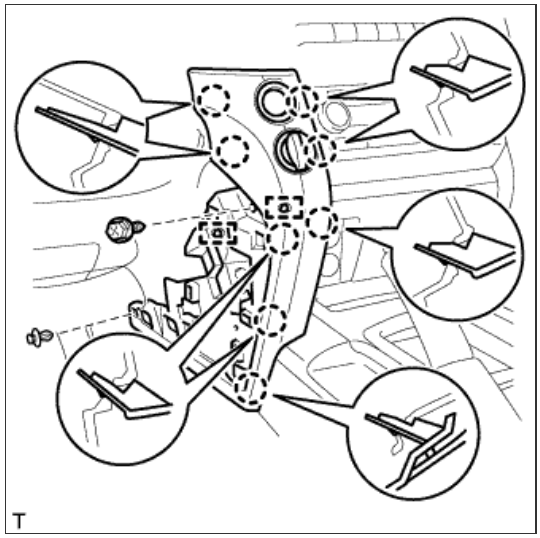
4. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Remove the clip.

b. Remove the screw.

c. Detach the 8 claws.

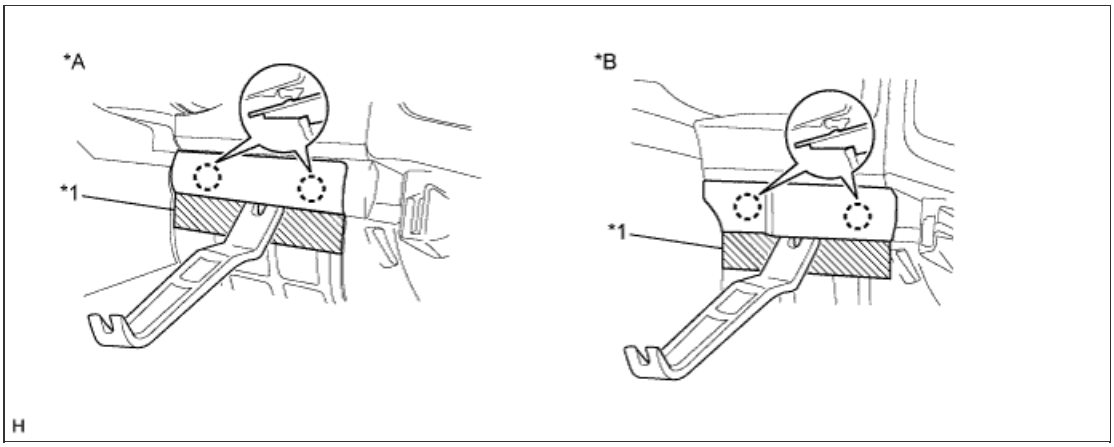
d. Remove the panel pad and disconnect the connectors and 2 clamps.



5. REMOVE NO. 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

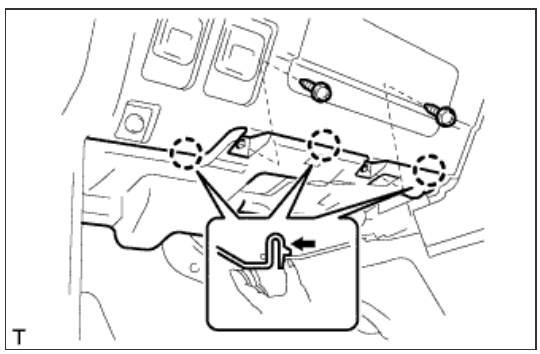
*A	w/ Entry and Start System	*B	w/o Entry and Start System
*1	Protective Tape	-	-

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

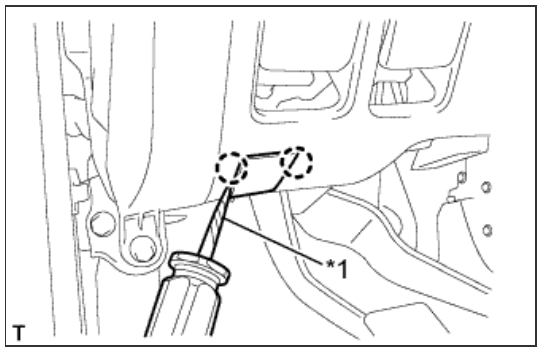
a. Using a screwdriver, detach the 2 claws and open the hole cover.

HINT:

Tape the screwdriver tip before use.

Text in Illustration

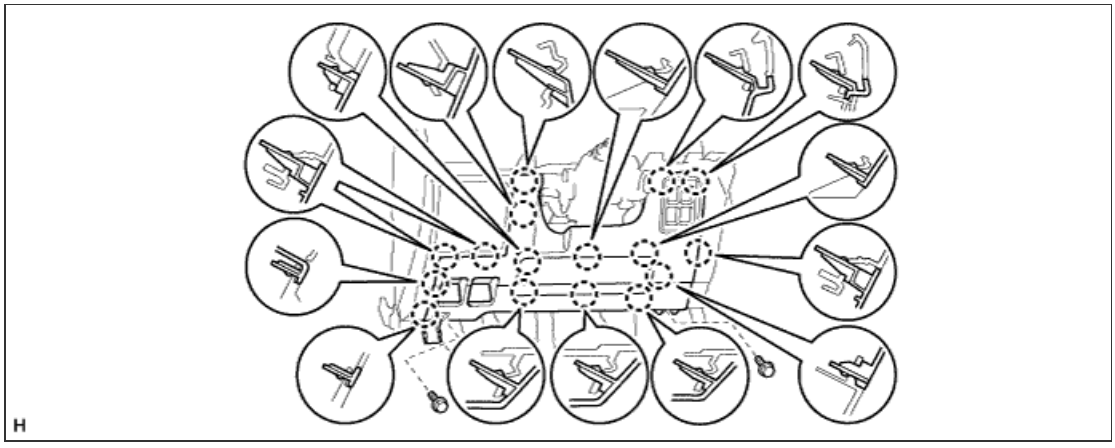
*1	Protective Tape



b. w/ Driver Side Knee Airbag:

i. Remove the 2 bolts.

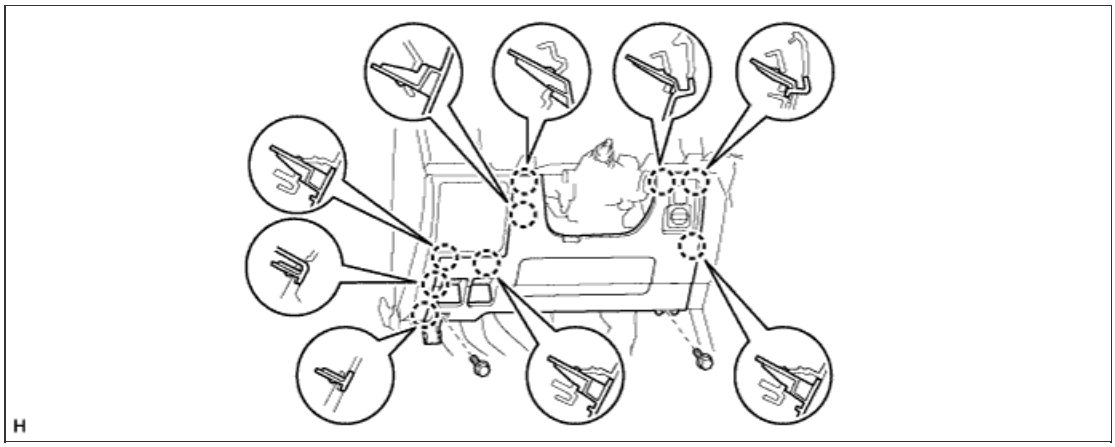
ii. Detach the 16 claws.



c. w/o Driver Side Knee Airbag:

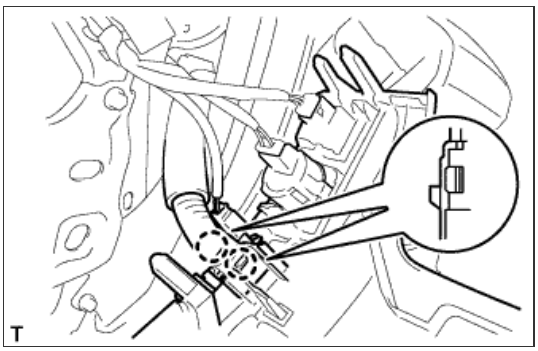
i. Remove the 2 bolts.

ii. Detach the 9 claws.



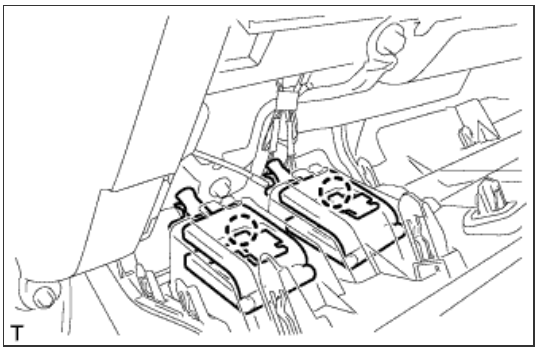
d. for Automatic Air Conditioning System:

i. Detach the 2 claws and remove the room temperature sensor.



e. Detach the 2 claws and disconnect the 2 control cables.

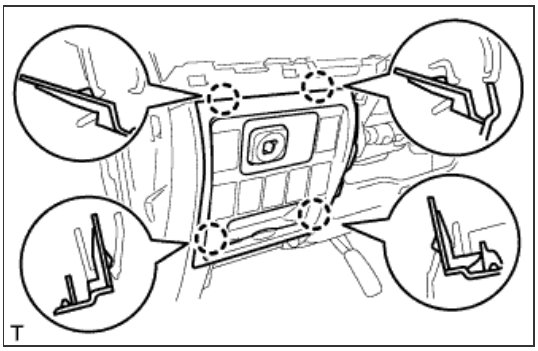
f. Disconnect the connectors and remove the lower No. 1 instrument panel finish panel.



8. REMOVE NO. 1 SWITCH HOLE BASE

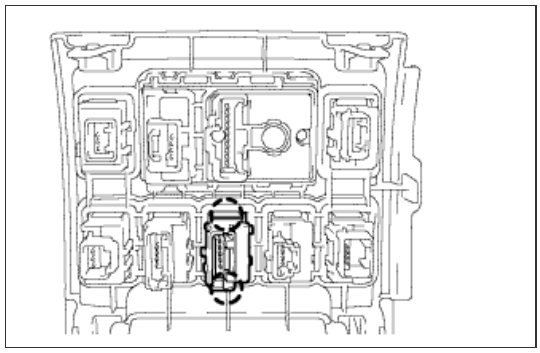
a. Detach the 4 claws.

b. Disconnect the connectors and remove the No. 1 switch hole cover.



9. REMOVE CLEARANCE SONAR MAIN SWITCH

a. Detach the 2 claws and remove the clearance sonar main switch.



for Preparation Click here

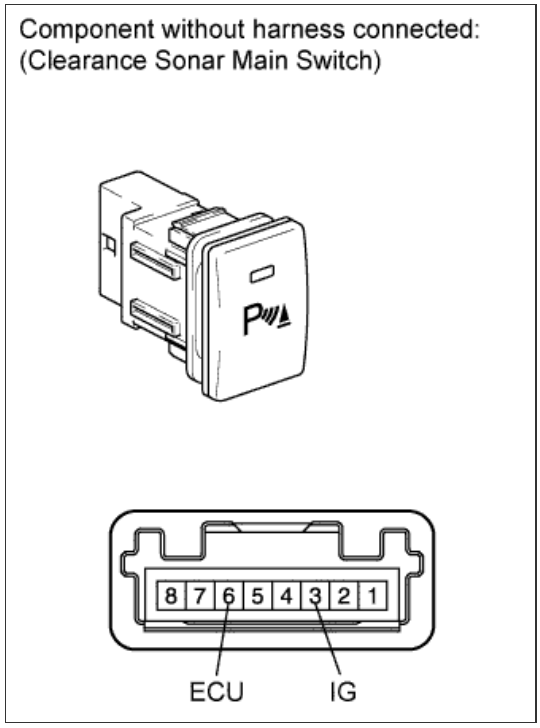
1. INSPECT CLEARANCE SONAR MAIN SWITCH

a. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
3 (IG) - 6 (ECU)	Clearance sonar main switch on	Below 1 Ω
3 (IG) - 6 (ECU)	Clearance sonar main switch off	10 kΩ or higher

If the result is not as specified, replace the clearance sonar main switch.



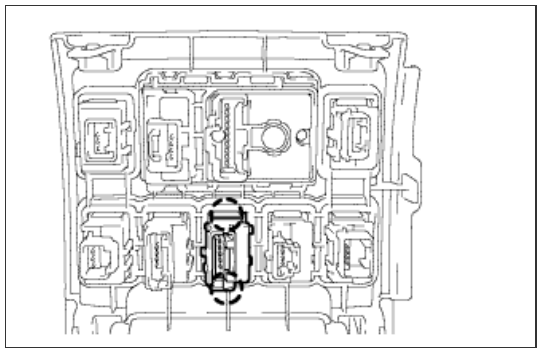
for Preparation Click here

HINT:

- **Use the same procedure for RHD and LHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

1. INSTALL CLEARANCE SONAR MAIN SWITCH

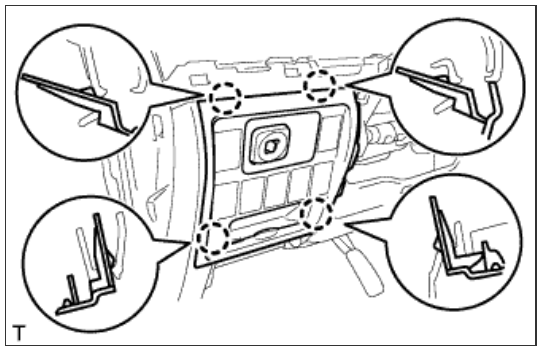
a. Attach the 2 claws to install the clearance sonar main switch.



2. INSTALL NO. 1 SWITCH HOLE BASE

a. Connect the connectors.

b. Attach the 4 claws to install the No. 1 switch hole base.

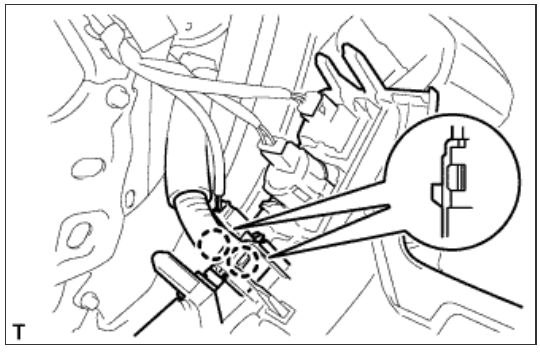


3. INSTALL NO. 1 LOWER INSTRUMENT PANEL FINISH PANEL

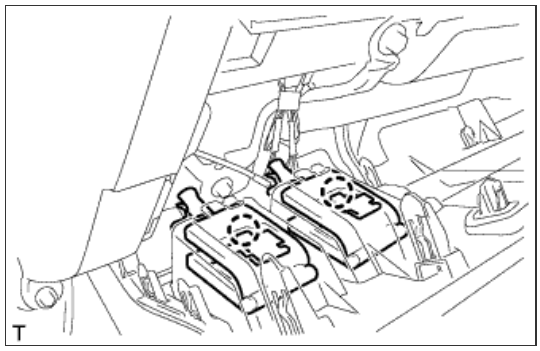
a. Connect the connectors.

b. for Automatic Air Conditioning System:

i. Attach the 2 claws to install the room temperature sensor.



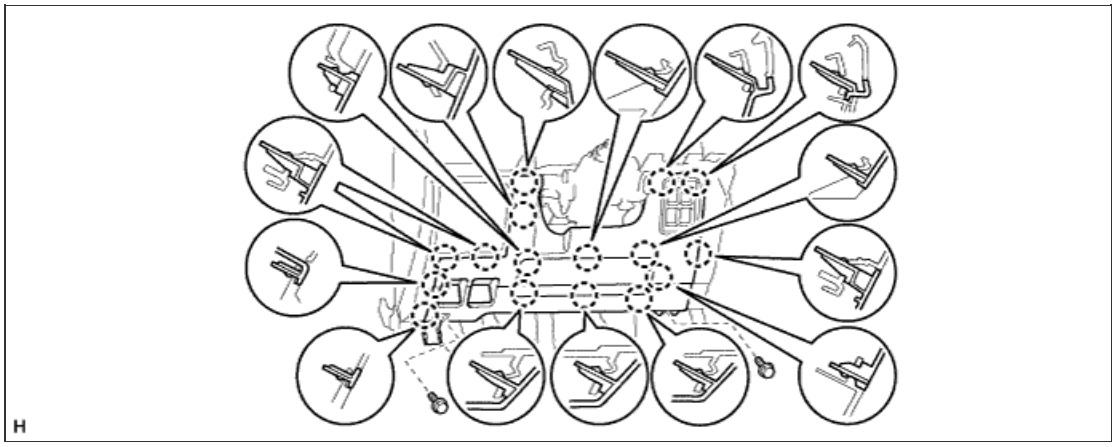
c. Attach the 2 claws to connect the 2 control cables.



d. w/ Driver Side Knee Airbag:

i. Attach the 16 claws to install the lower No. 1 instrument panel finish panel.

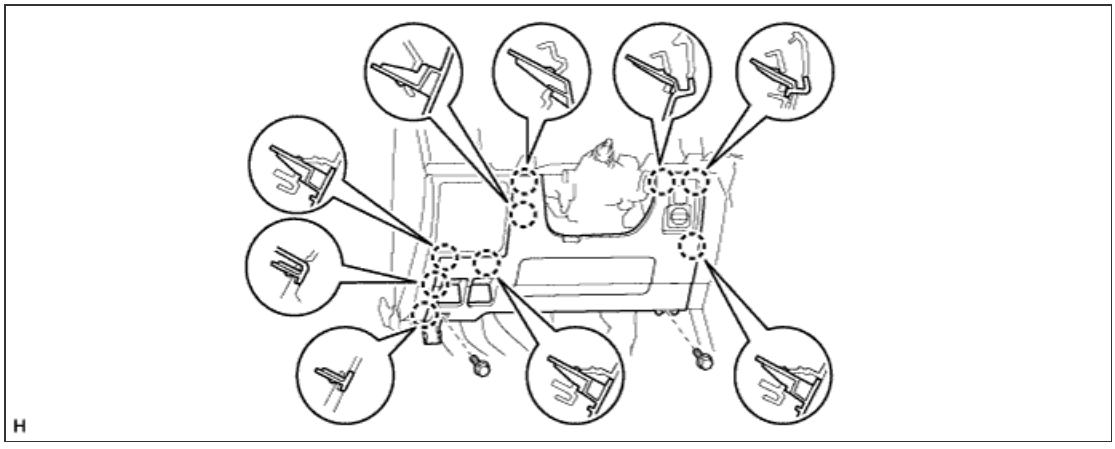
ii. Install the 2 bolts.



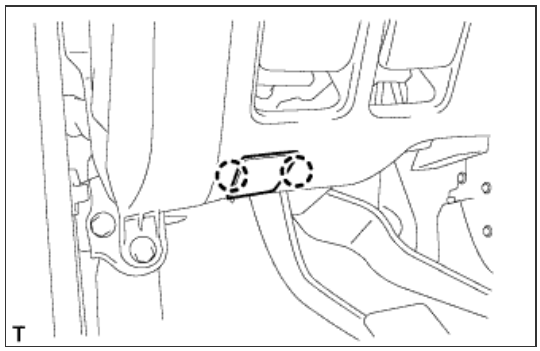
e. w/o Driver Side Knee Airbag:

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.

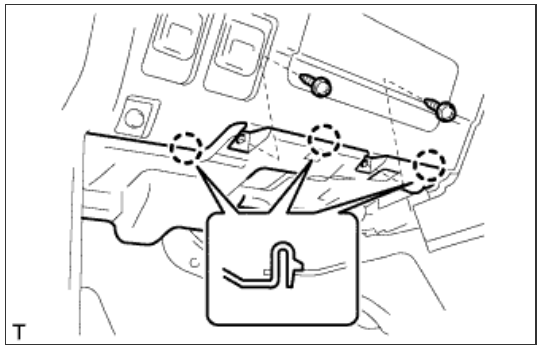


4. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

a. Connect the connectors.

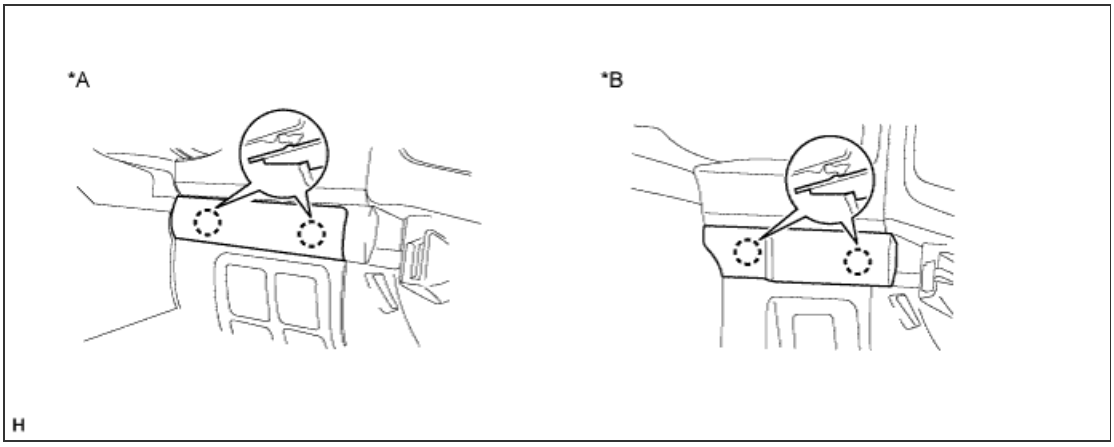
b. Attach the 3 claws to install the No. 1 instrument panel under cover.

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		w/o Entry and Start System

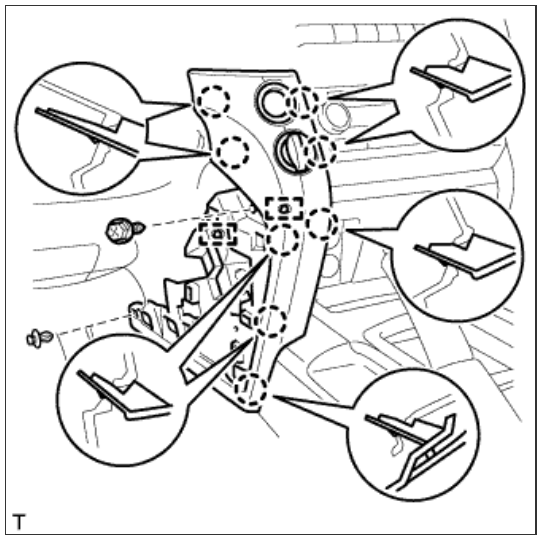
6. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connectors and 2 clamps.

b. Attach the 8 claws to install the panel pad.

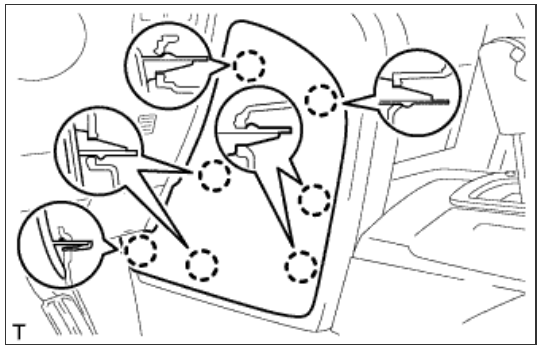
c. Install the screw.

d. Install the clip.



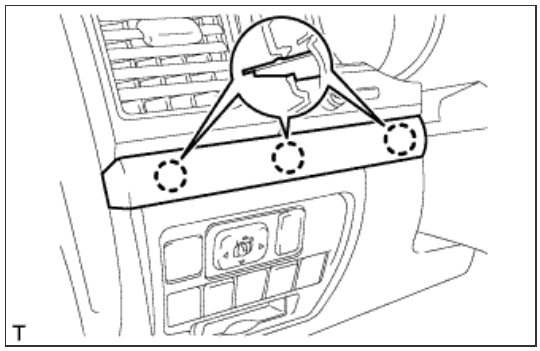
7. INSTALL NO. 2 INSTRUMENT PANEL FINISH PANEL CUSHION

a. Attach the claws to install the panel cushion.



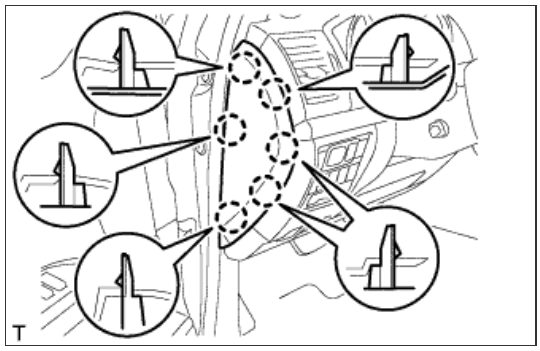
8. INSTALL NO. 1INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Attach the 3 claws to install the No. 1 instrument cluster finish panel garnish.

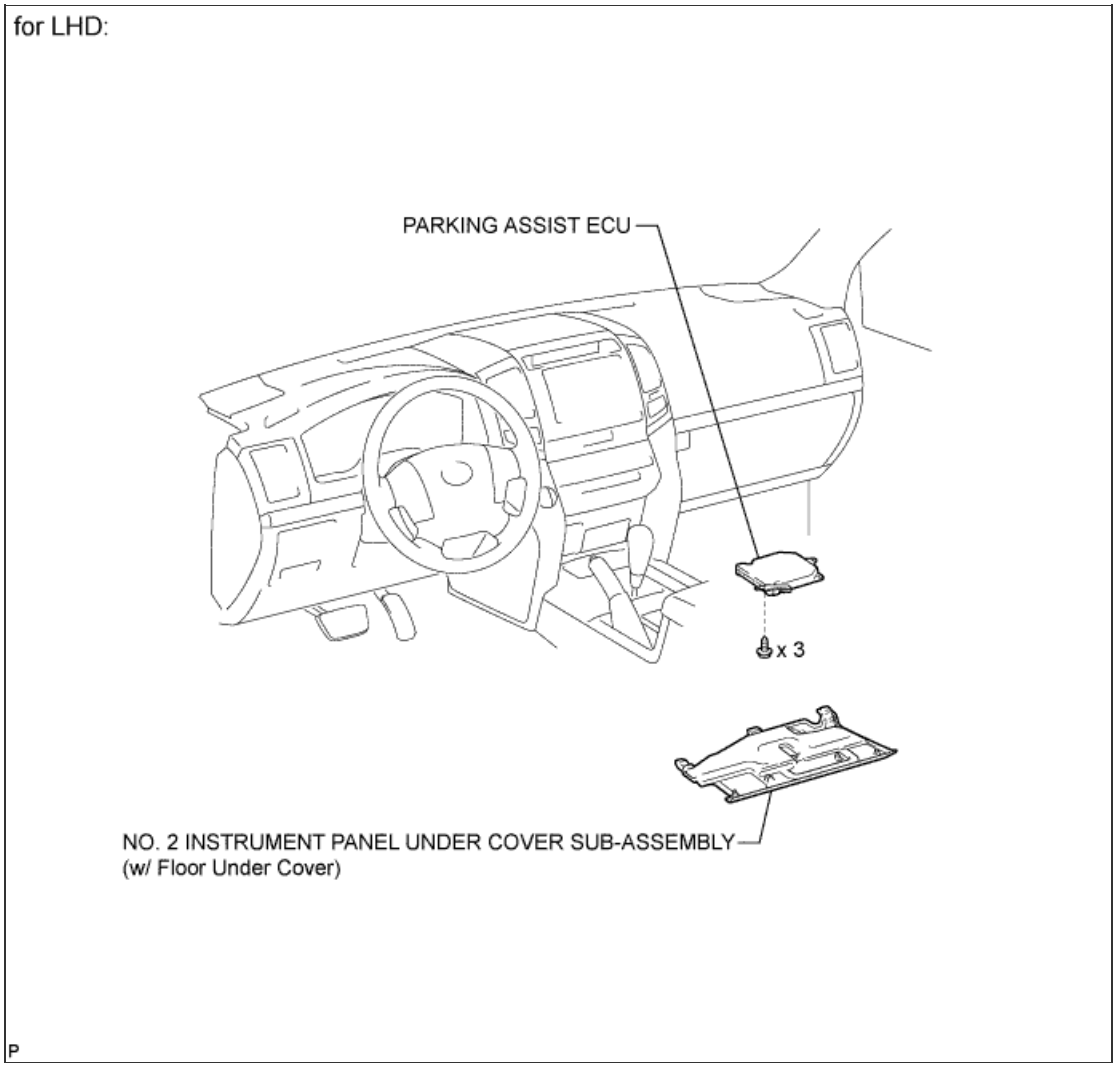


9. INSTALL INSTRUMENT SIDE PANEL LH

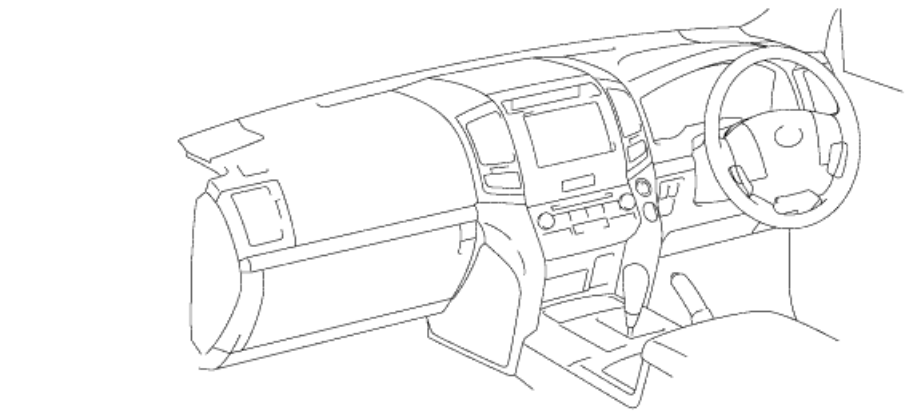
a. Attach the 6 claws to install the instrument side panel.



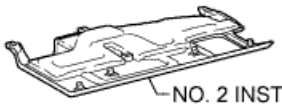
for Preparation Click here



for RHD:




PARKING ASSIST ECU
x 3


NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY
(w/ Floor Under Cover)

P

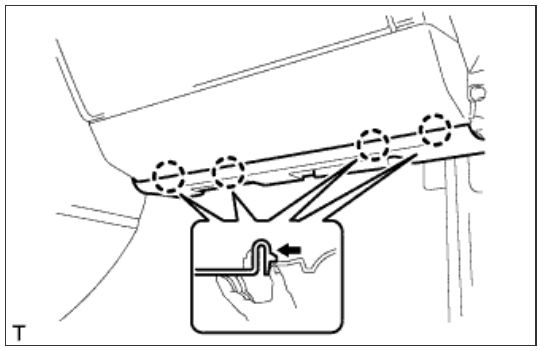
for Preparation Click here

HINT:

- **Use the same procedure for RHD and LHD vehicles.**
- **The procedure listed below is for LHD vehicles.**

. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

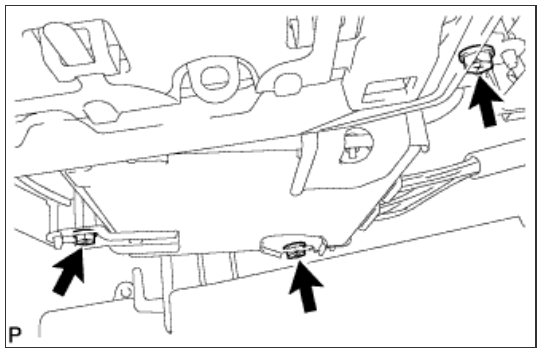
a. Detach the 4 claws and remove the No. 2 instrument panel under cover.



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 RH ad LH ehicles.**
- **The procedure listed below is for LH ehicles.**

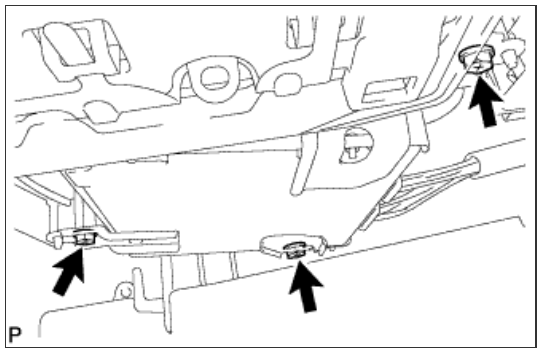
1. INSTALL PARKING ASSIST ECU

a. Install the parking assist ECU to the blower unit with the 3 screws.

NOTICE:

- **Avoid any impact to the parking assist ECU.**
- **o not drop the ECU. If it is dropped, replace it with a new one.**

b. Connect the connector.



2. INSTALL NO. 2 INSTRUMENT PANEL UN ER COVER SUB-ASSEMBLY (w/ Floor Under Cover)

a. Attach the 4 claws to install the No. 2 instrument panel under cover.

