

ACCESSORIES & EQUIPMENT

Rear Seat Entertainment System (Diagnostics & Symptom Tests) - Sienna

REAR SEAT ENTERTAINMENT SYSTEM

PRECAUTION

PRECAUTION

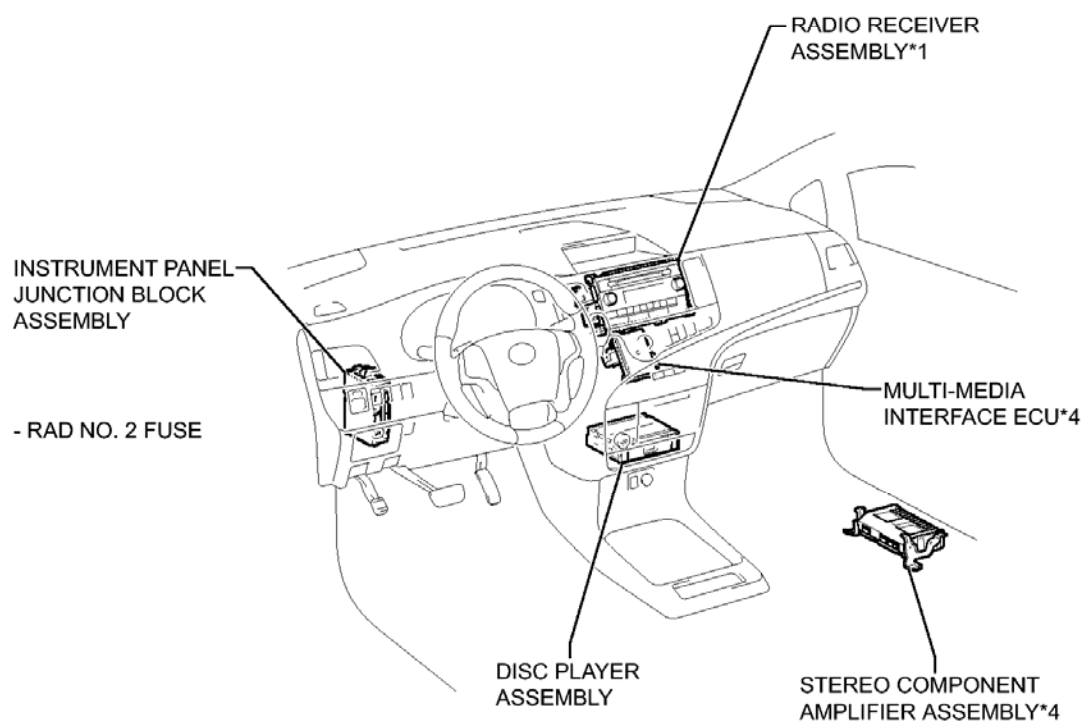
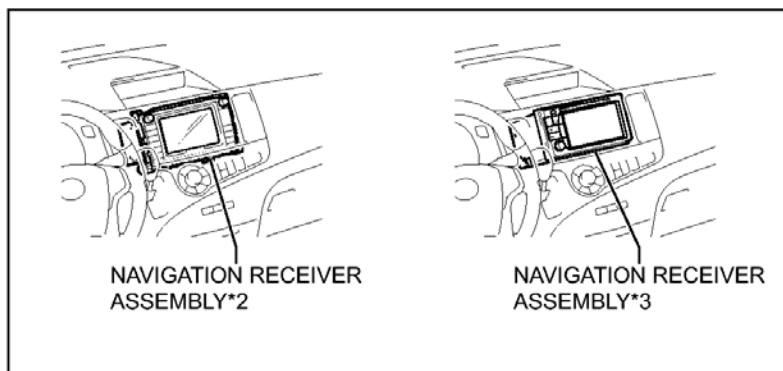
1. IGNITION SWITCH EXPRESSIONS

- a. The type of ignition switch used on this model differs according to the specifications of the vehicle. The expressions listed in the table below are used in this information.

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

PARTS LOCATION

ILLUSTRATION



*1: w/o Navigation System

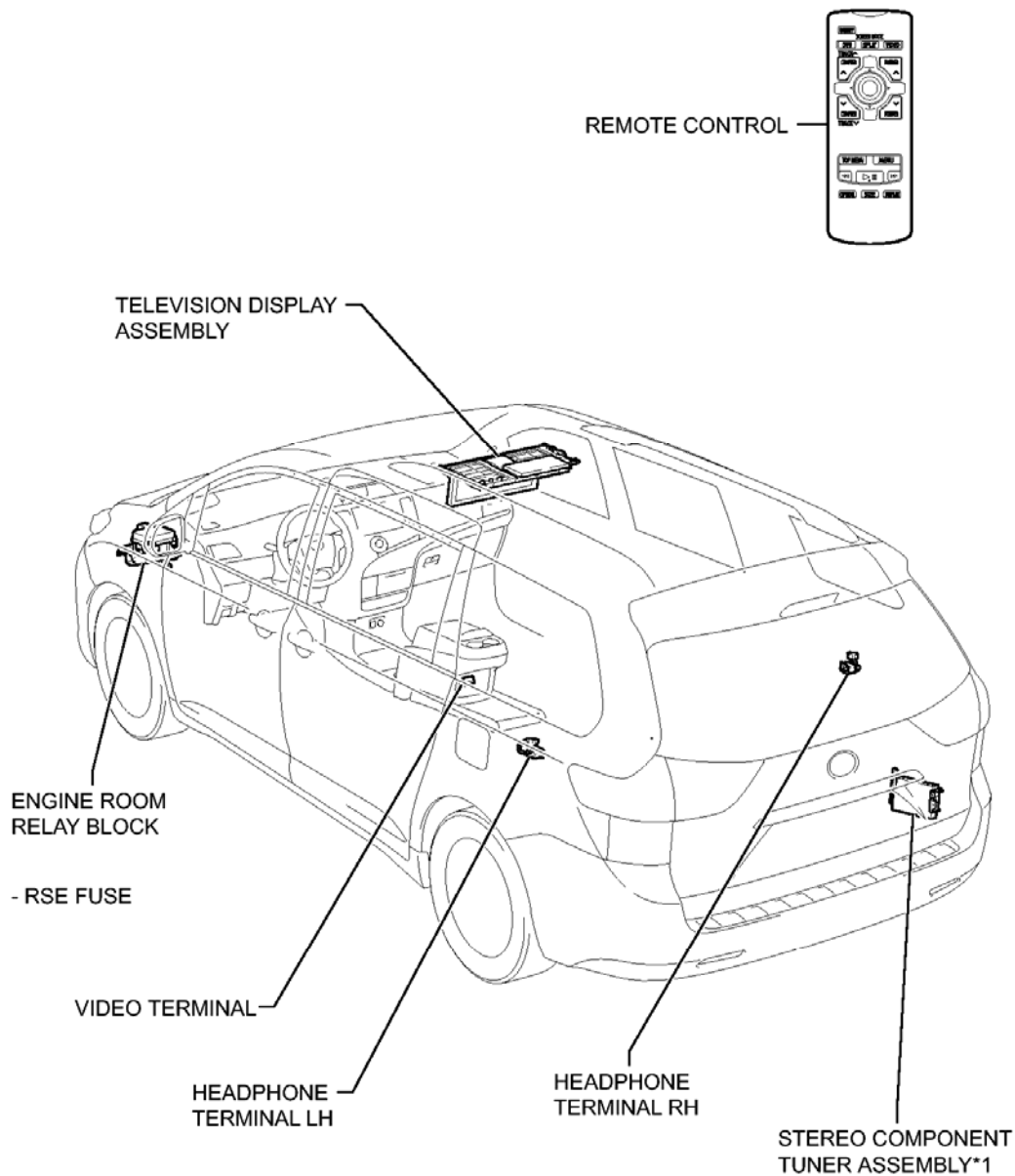
*3: w/ Navigation System for SD

*2: w/ Navigation System for DVD

*4: except Navigation System for SD

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Fig. 1: Rear Seat Entertainment System Component Locations (1 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



*1: w/ Navigation System for DVD

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Fig. 2: Rear Seat Entertainment System Component Locations (2 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DIAGRAM

SYSTEM DIAGRAM

w/o Navigation System:

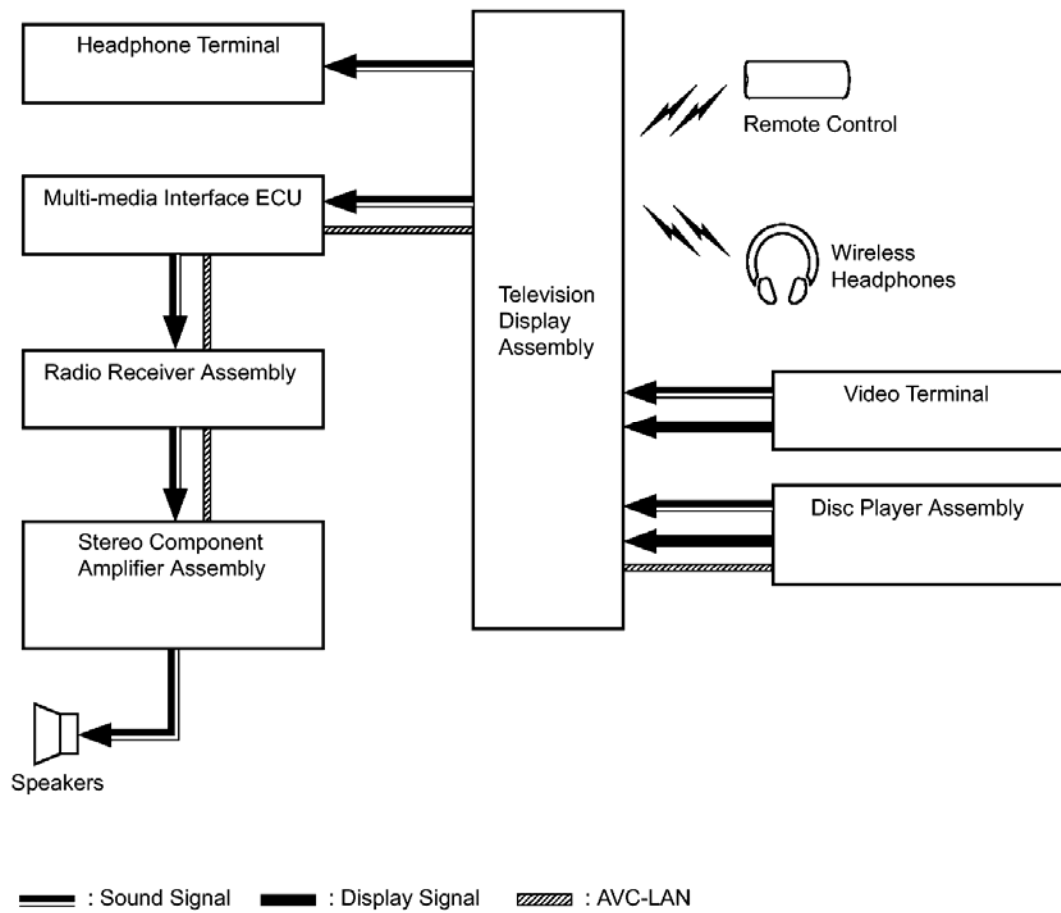


Fig. 3: Rear Seat Entertainment System Diagram (1 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

w/ Navigation System for DVD:

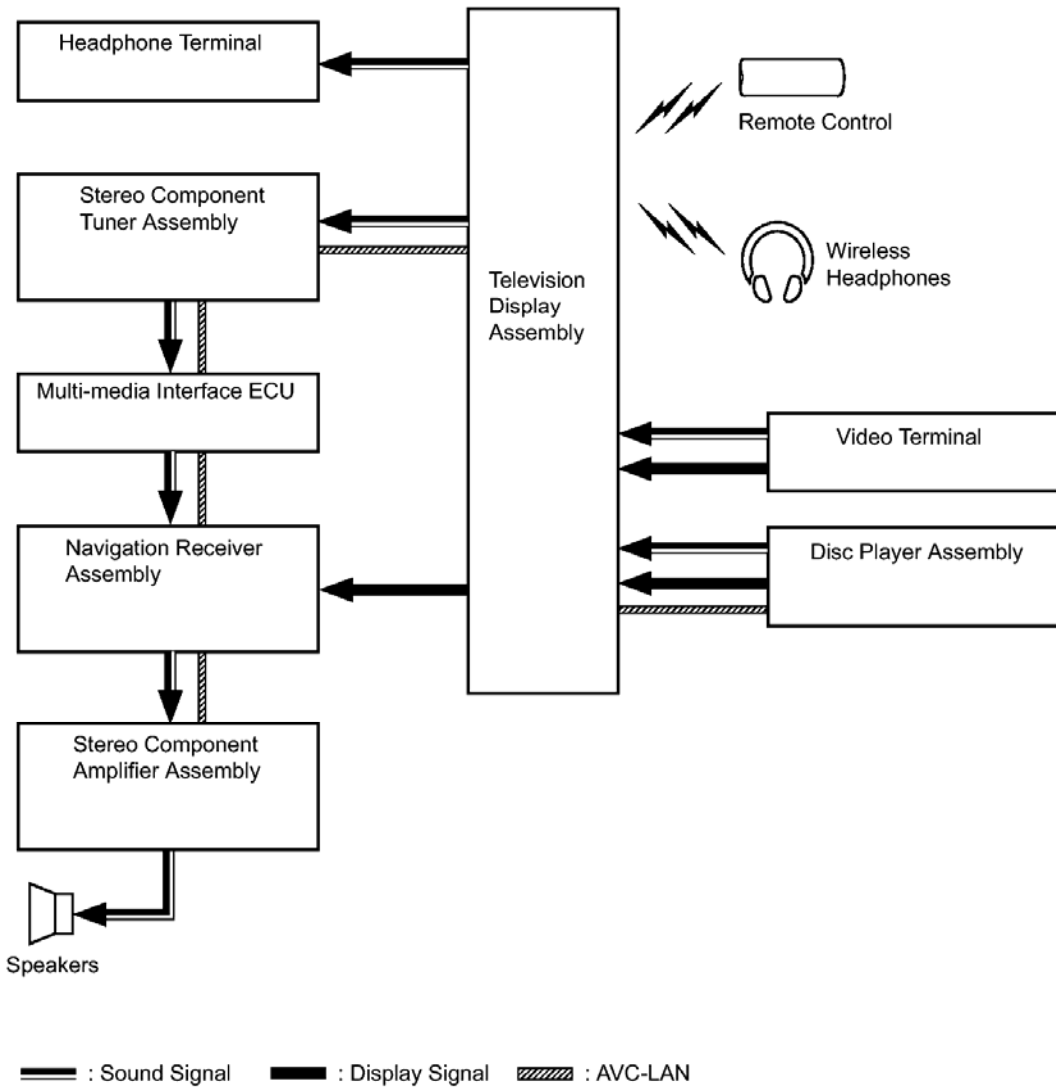


Fig. 4: Rear Seat Entertainment System Diagram (2 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

w/ Navigation System for SD:

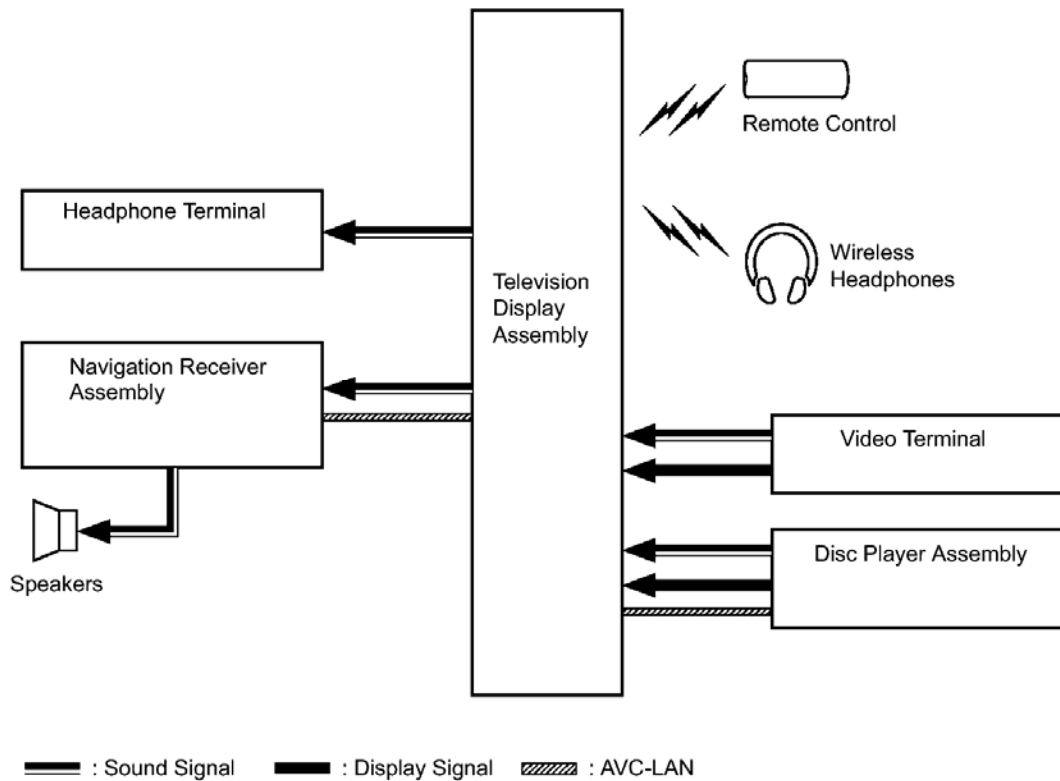


Fig. 5: Rear Seat Entertainment System Diagram (3 Of 3)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DESCRIPTION

SYSTEM DESCRIPTION

1. 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 disc player assembly and video player.
- The rear seat occupants can enjoy watching video by connecting an external device.
- Occupants in the front seats and rear seats can enjoy different content at the same time.

2. FUNCTION OF MAIN COMPONENTS

Component	Function
	• Displays

Television display assembly	DVD and video images in accordance with video signals from the disc player assembly and video player. • Receives signals from the remote control and outputs them to the disc player assembly. • Outputs audio signals to the wireless headphones in the form of infrared signals. • Displays the audio-visual control screen. • Displays the adjustment screen. • Displays the diagnosis screen. The diagnosis screen appears when diagnosis mode is started on the navigation receiver
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	assembly. • Even if the ignition 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 disc player assembly, and outputs them to the television display.
Disc player assembly	• Outputs CD or DVD sound signals to the television display assembly. • Outputs DVD image signals to

	the television display assembly.
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 headphones can be done by using the volume adjuster on the wireless headphones.
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.
Radio receiver assembly*1	Receives audio signals from the television display and outputs them to the stereo component amplifier assembly.
Navigation receiver assembly*2	• Receives DVD image signals from the television display assembly. • Receives audio signals from the television display and outputs them to the stereo component amplifier assembly.
Navigation receiver assembly*3	• Receives DVD image signals from the television display assembly. • Receives audio signals from the television

	display and outputs them to the speakers.
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*1: w/o Navigation System

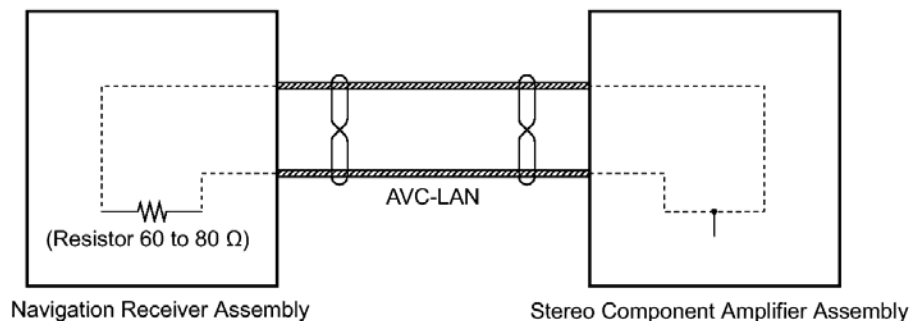
*2: w/ Navigation System for DVD

*3: w/ Navigation System for SD

3. COMMUNICATION SYSTEM

a. AVC-LAN OUTLINE

Example:



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Fig. 6: AVC-LAN Outline (Example)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Components of the audio system or the navigation system communicate with each other via the AVC-LAN.
2. The AVC-LAN uses a twisted pair of wires for its communication lines.
3. The master unit of the AVC-LAN is the navigation receiver assembly or radio receiver assembly.

HINT:

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

4. DIAGNOSIS FUNCTION

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

5. Digital Versatile Disc (DVD) PLAYER OUTLINE

- a. The DVD player can only play DVD videos, video CDs, audio CDs, CD-Rs (CD-Recordable) and CDRWs (CD-ReWritable) that have any of the following marks:



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Fig. 7: Identifying DVD Player Outline

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Precaution for use of discs

NOTE:

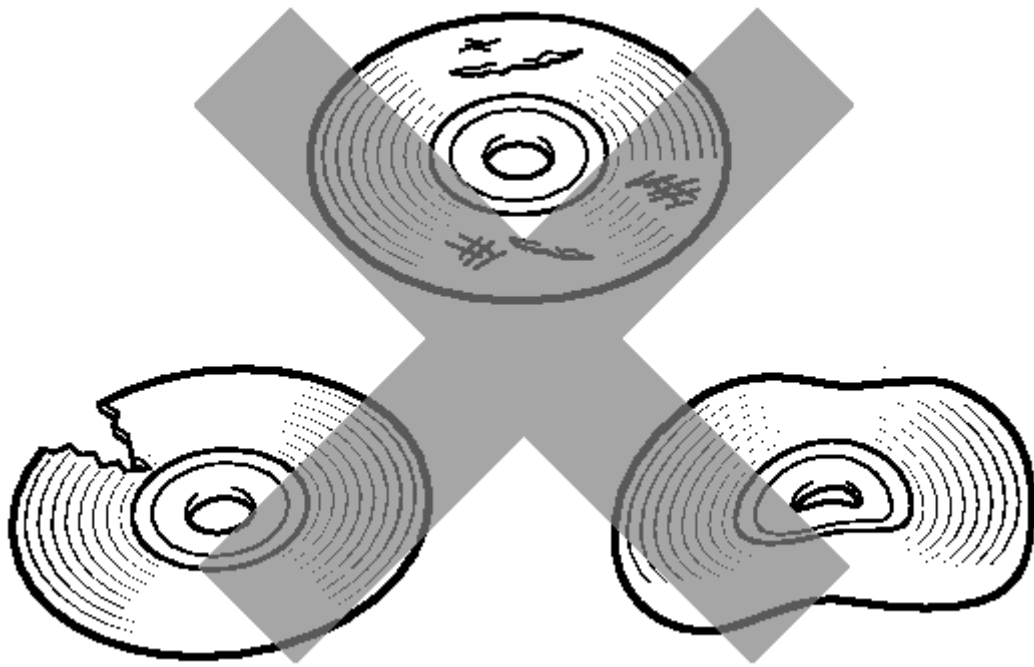
- NTSC and PAL discs can be played.
- Keep the discs away from dirt. Be careful not to damage the discs or leave your fingerprints on them.
- Hold discs by the outer edge and center hole with the label side up.
- Leaving the disc exposed halfway out of the slot for a long time after pressing the disc eject button may cause deformation of the disc, making the disc unusable.
- 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.

HINT:

- Just as condensation fogs the vehicle's window during wet or cold weather, condensation may also form inside the player. If condensation forms, disc skipping or playback stoppage may occur. Ventilate or dehumidify the vehicle for a while before using the player.
- If the player vibrates severely due to driving on a rough road, the disc may skip.

b. Check disc

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



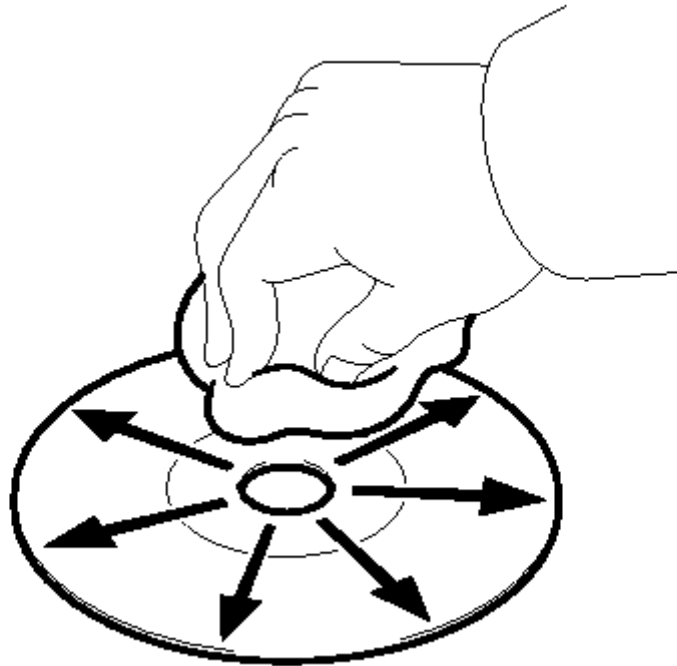
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Fig. 8: Identifying Deformed Or Cracked Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Disc cleaning

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

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



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Fig. 9: Cleaning Disc Surface With Soft Dry Cloth
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- 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.

HOW TO PROCEED WITH TROUBLESHOOTING

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

Use the following procedure to troubleshoot the rear seat entertainment system.

1. VEHICLE BROUGHT TO WORKSHOP

NEXT: Go to next step

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: Go to next step

3. CHECK FOR DTC

- Check for DTCs and note any codes that are output.
- Delete for DTC.
- Recheck for DTCs. Based on the DTC output in the first step, try to force output of the navigation system DTC by simulating the operation indicated by the DTC.

RESULT

Result	Proceed to
DTC does not reoccur.	A
DTC reoccurs.	B

HINT:

- Even if the malfunction symptom is not confirmed, check for DTCs. This is because the system stores past DTCs.
- Check the DTC and inspect the area the code indicates.
- If the system cannot enter the diagnosis mode, inspect each AVC-LAN communication signal and repair or replace problem parts.
- Refer to the detailed description on the diagnostic screen, as necessary. Refer to **SYSTEM DESCRIPTION** . (w/ Navigation System for DVD)
- Refer to the detailed description on the diagnostic screen, as necessary. Refer to **OPERATION CHECK** . (w/ Navigation System for SD)
- Check and clear past diagnostic trouble codes.
- Check the diagnostic trouble code and inspect the area the code indicates.

B --> Go to step 6

A: Go to next step

4. PROBLEM SYMPTOMS TABLE

- Refer to **PROBLEM SYMPTOMS TABLE**.

RESULT

	Proceed
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Result	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. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING** .

B --> Go to step 6

A: Go to next step

5. CHECK ECU TERMINAL ARRANGEMENT BASED ON MALFUNCTION SYMPTOM

- a. Refer to Terminals of ECU. Refer to **TERMINALS OF ECU**.

NEXT: Go to next step

6. CHECK CIRCUIT

- a. Adjust, repair or replace as necessary.

NEXT --> END

OPERATION CHECK

OPERATION CHECK

1. ENTER DIAGNOSTIC MODE

- a. Enter diagnostic mode.

HINT:

- w/ Navigation System for DVD. Refer to **DTC CHECK / CLEAR**
- w/ Navigation System for SD. Refer to **DTC CHECK / CLEAR** .

2. 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
1. Select "Color Bar Check" from the "RSE Check" screen.

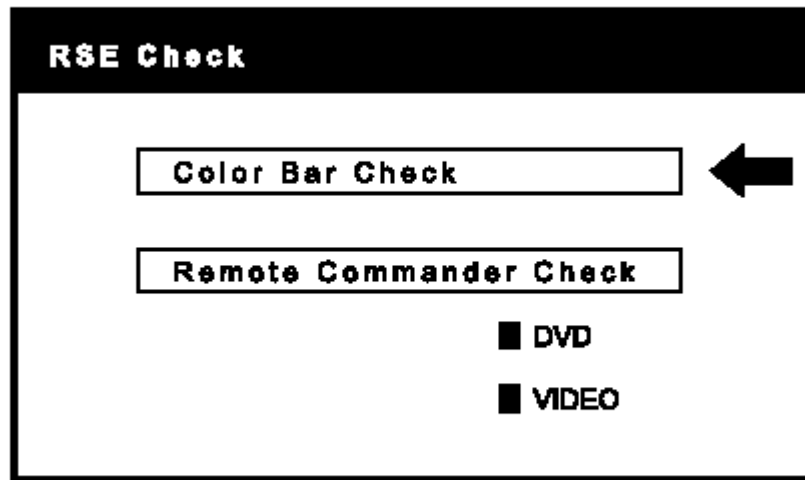


Fig. 10: Screen Display - RSE Check
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

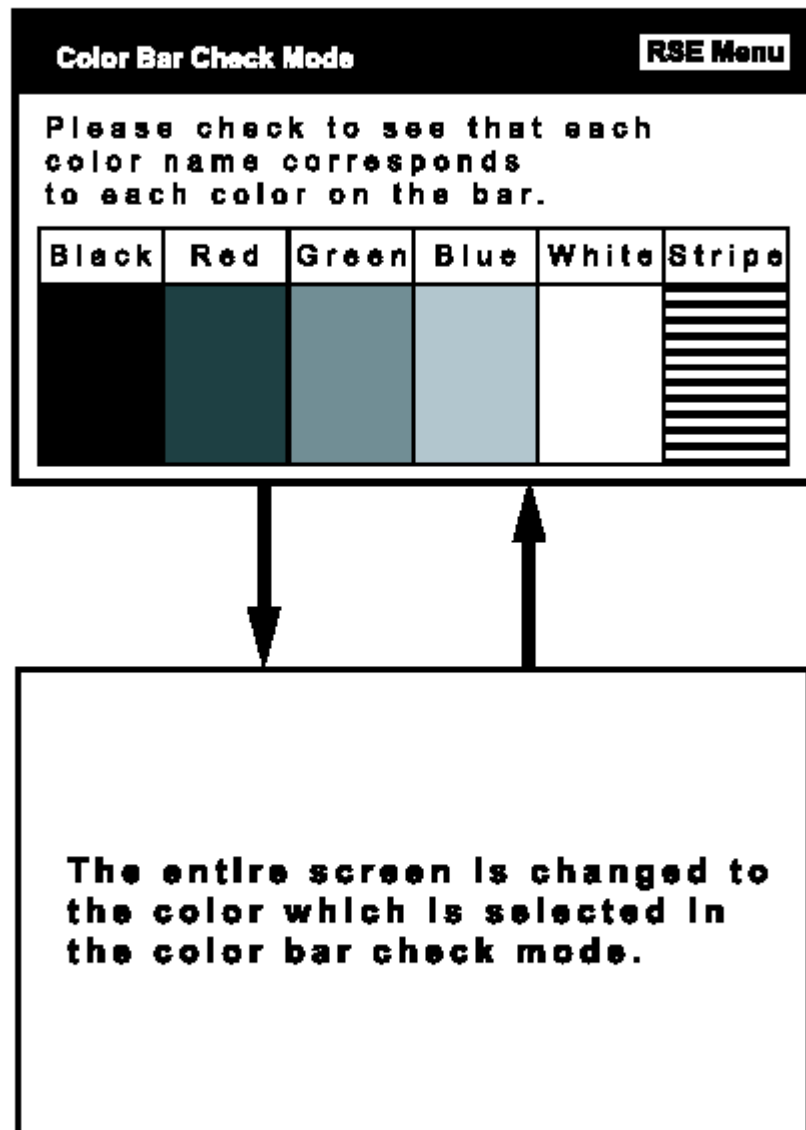


Fig. 11: Screen Display - Color Bar Check Mode
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. 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

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

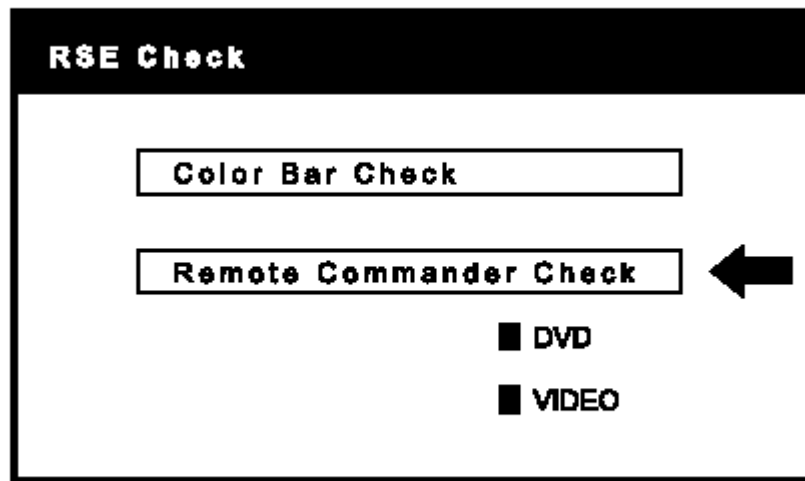


Fig. 12: Screen Display - RSE Check

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

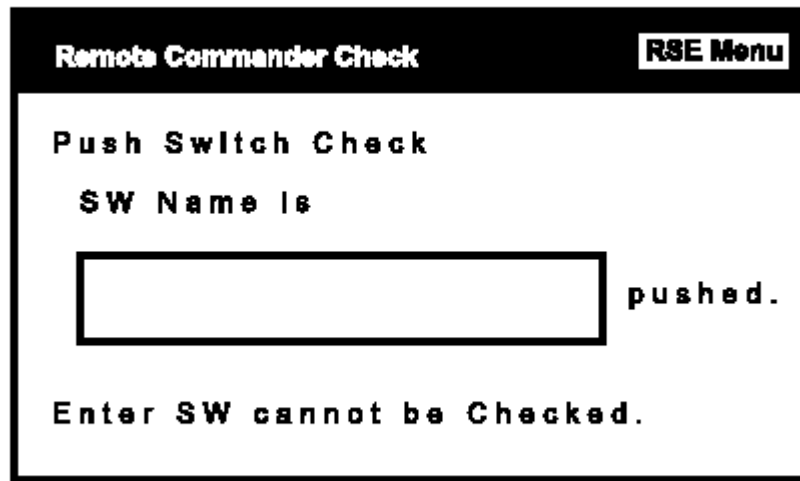


Fig. 13: Screen Display - Remote Commander Check
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

PROBLEM SYMPTOMS TABLE

PROBLEM SYMPTOMS TABLE

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

Symptom	Suspected Area	See
Black screen	Television display power source circuit	Refer to <u>Television Display Power Source Circuit</u>
	AVC-LAN circuit*1	Refer to <u>AVC-LAN Circuit</u>
	AVC-LAN circuit*2	Refer to <u>AVC-LAN Circuit</u>
	AVC-LAN circuit*3	Refer to <u>AVC-LAN Circuit</u>
	Television display assembly	Refer to <u>REMOVAL</u>
	Adjust the settings for contrast, tint, color and brightness	-

Color on display screen is not usual. (When video terminal used)	Operation check (Color bar check)	Refer to <u>OPERATION CHECK</u>
	Display signal circuit between video terminal and television display	Refer to <u>Display Signal Circuit between Video Terminal and Television Display</u>
	Television display assembly	Refer to <u>REMOVAL</u>
Color on display screen is not usual. (When disc player assembly is playing)	Adjust the settings for contrast, tint, color and brightness	-
	Operation check (Color bar check)	Refer to <u>OPERATION CHECK</u>
	Display signal circuit between disc player changer and television display assembly	Refer to <u>Display Signal Circuit between Disc Player Changer and Television Display Assembly</u>
	Television display assembly	Refer to <u>REMOVAL</u>
Only DVD screen is not displayed or not stabilized.	Check and clean disc	Refer to <u>SYSTEM DESCRIPTION</u>
	Adjust the settings for contrast, tint, color and brightness	-
	Disc player changer power source circuit	Refer to <u>Disc Player Changer Power Source Circuit</u>
	Display signal circuit between disc player changer and television display assembly	Refer to <u>Display Signal Circuit between Disc Player Changer and Television Display Assembly</u>
	Television display assembly	Refer to <u>REMOVAL</u>
Only display screen of external device does not appear or is not stabilized.	Check if the external device is normal	-
	Display signal circuit between video terminal and television display	Refer to <u>Display Signal Circuit between Video Terminal and Television Display</u>
	Television display assembly	Refer to <u>REMOVAL</u>
RSE display appears on the television display assembly, but does not appear on the navigation receiver assembly.	Display signal circuit between television display assembly and navigation receiver assembly	Refer to <u>Display Signal Circuit between Television Display Assembly and Navigation Receiver Assembly</u>
	Television display assembly	Refer to <u>REMOVAL</u>
Television display does not turn on.	Television display does not turn on	Refer to <u>Television Display does not Turn ON</u>
	Television display power source circuit	Refer to <u>Television Display Power Source Circuit</u>
	Television display assembly	Refer to <u>REMOVAL</u>

*1: w/o Navigation System

*2: w/ Navigation System for DVD

*3: w/ Navigation System for SD

SOUND

Symptom	Suspected Area	See
Quality of sound from wireless headphone is poor or no sound can be heard. (When video terminal used)	Check if the external device is normal	-
	Sound from wireless headphone is difficult to hear, cannot be heard, or quality is poor	Refer to <u>Sound from Wireless Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor</u>
	Television display power source circuit	Refer to <u>Television Display Power Source Circuit</u>
	Sound signal circuit between video terminal and television display	Refer to <u>Sound Signal Circuit between Video Terminal and Television Display</u>
	Television display assembly	Refer to <u>REMOVAL</u>
Quality of sound from wireless headphone is poor or no sound can be heard. (When disc player assembly is playing)	Check if the external device is normal	-
	Sound from wireless headphone is difficult to hear, cannot be heard, or quality is poor	Refer to <u>Sound from Wireless Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor</u>
	Television display power source circuit	Refer to <u>Television Display Power Source Circuit</u>
	Sound signal circuit between disc player changer and television display assembly	Refer to <u>Sound Signal Circuit between Disc Player Changer and Television Display Assembly</u>
	Mute signal circuit between disc player changer and television display assembly	Refer to <u>Mute Signal Circuit between Disc Player Changer and Television Display Assembly</u>
	Television display assembly	Refer to <u>REMOVAL</u>
Quality of sound from headphone connected headphone terminal is poor or no sound can be heard. (When video terminal used)	Sound from wired headphones is difficult to hear, cannot be heard, or quality is poor	Refer to <u>Sound from Wired Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor</u>
	Television display power source circuit	Refer to <u>Television Display Power Source Circuit</u>
	Sound signal circuit between headphone terminal and television display	Refer to <u>Sound Signal Circuit between Headphone Terminal and Television Display</u>
	Sound signal circuit between video terminal and television display	Refer to <u>Sound Signal Circuit between Video Terminal and Television Display</u>
	Television display assembly	Refer to <u>REMOVAL</u>

Quality of sound from headphone connected headphone terminal is poor or no sound can be heard. (When disc player assembly is playing)	Sound from wired headphones is difficult to hear, cannot be heard, or quality is poor	Refer to <u>Sound from Wired Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor</u>
	Television display power source circuit	Refer to <u>Television Display Power Source Circuit</u>
	Sound signal circuit between headphone terminal and television display	Refer to <u>Sound Signal Circuit between Headphone Terminal and Television Display</u>
	Sound signal circuit between disc player changer and television display assembly	Refer to <u>Sound Signal Circuit between Disc Player Changer and Television Display Assembly</u>
	Mute signal circuit between disc player changer and television display assembly	Refer to <u>Mute Signal Circuit between Disc Player Changer and Television Display Assembly</u>
	Television display assembly	Refer to <u>REMOVAL</u>
No sound can be heard from speakers.*1	Sound signal circuit between disc player changer and television display assembly	Refer to <u>Sound Signal Circuit between Disc Player Changer and Television Display Assembly</u>
	Mute signal circuit between disc player changer and television display assembly	Refer to <u>Mute Signal Circuit between Disc Player Changer and Television Display Assembly</u>
	Sound signal circuit between multi-media interface ECU and television display assembly	Refer to <u>Sound Signal Circuit between Multi-media Interface ECU and Television Display Assembly</u>
	Sound signal circuit between Radio Receiver and multi-media interface ECU	Refer to <u>Sound Signal Circuit between Radio Receiver and Multi-media Interface ECU</u>
	Mute signal circuit between multi-media interface ECU and television display assembly	Refer to <u>Mute Signal Circuit between Multi-media Interface ECU and Television Display Assembly</u>
	Mute signal circuit between radio receiver and multi-media interface ECU	Refer to <u>Mute Signal Circuit between Radio Receiver and Multi-media Interface ECU</u>
	Television display assembly	Refer to <u>REMOVAL</u>
	Sound signal circuit between disc player changer and television display assembly	Refer to <u>Sound Signal Circuit between Disc Player Changer and Television Display Assembly</u>
	Mute signal circuit between disc player changer and television display assembly	Refer to <u>Mute Signal Circuit between Disc Player Changer and Television Display Assembly</u>
	Sound signal circuit between stereo component tuner assembly	Refer to <u>Sound Signal Circuit between Stereo Component Tuner</u>

No sound can be heard from speakers.*2	and television display assembly	<u>Assembly and Television Display Assembly</u>
	Sound signal circuit between stereo component tuner assembly and multi-media interface ECU	Refer to <u>Sound Signal Circuit between Stereo Component Tuner Assembly and Multi-media Interface ECU</u>
	Sound signal circuit between navigation receiver assembly and multi-media interface ECU	Refer to <u>Sound Signal Circuit between Navigation Receiver Assembly and Multi-media Interface ECU</u>
	Mute signal circuit between stereo component tuner assembly and television display assembly	Refer to <u>Mute Signal Circuit between Stereo Component Tuner Assembly and Television Display Assembly</u>
	Mute signal circuit between stereo component tuner assembly and multi-media interface ECU	Refer to <u>Mute Signal Circuit between Stereo Component Tuner Assembly and Multi-media Interface ECU</u>
	Mute signal circuit between navigation receiver assembly and multi-media interface ECU	Refer to <u>Mute Signal Circuit between Navigation Receiver Assembly and Multi-media Interface ECU</u>
	Television display assembly	Refer to <u>REMOVAL</u>
No sound can be heard from speakers.*3	Sound signal circuit between disc player changer and television display assembly	Refer to <u>Sound Signal Circuit between Disc Player Changer and Television Display Assembly</u>
	Sound signal circuit between navigation receiver assembly and television display assembly	Refer to <u>Sound Signal Circuit between Navigation Receiver Assembly and Television Display Assembly</u>
	Mute signal circuit between disc player changer and television display assembly	Refer to <u>Mute Signal Circuit between Disc Player Changer and Television Display Assembly</u>
	Mute signal circuit between navigation receiver assembly and television display assembly	Refer to <u>Mute Signal Circuit between Navigation Receiver Assembly and Television Display Assembly</u>
	Television display assembly	Refer to <u>REMOVAL</u>

*1: w/o Navigation System

*2: w/ Navigation System for DVD

*3: w/ Navigation System for SD

REMOTE CONTROL

Symptom	Suspected Area	See
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A remote control system does not operate.	A remote control system does not operate	Refer to <u>A Remote Control System does not Operate</u>
	Television display power source circuit	Refer to <u>Television Display Power Source Circuit</u>
	AVC-LAN circuit*1	Refer to <u>AVC-LAN Circuit</u>
	AVC-LAN circuit*2	Refer to <u>AVC-LAN Circuit</u>
	AVC-LAN circuit*3	Refer to <u>AVC-LAN Circuit</u>
	Television display assembly	Refer to <u>REMOVAL</u>

*1: w/o Navigation System

*2: w/ Navigation System for DVD

*3: w/ Navigation System for SD

TERMINALS OF ECU

TERMINALS OF ECU

1. TELEVISION DISPLAY ASSEMBLY

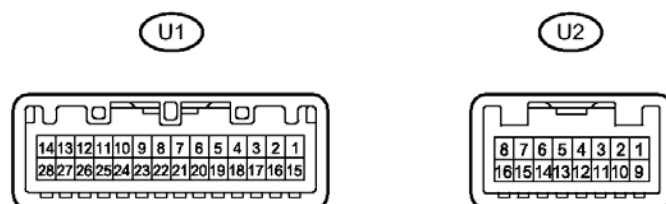


Fig. 14: ECU Connector Terminal Identification - Television Display Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
U1-1 (NTSC) - U1-2 (SGN1)	B - W	Display signal (Output)	RSE system is playing	Pulse generation (Refer to <u>Fig. 15</u>)
U1-3 (SLD) - U1-27 (GND)	Shield - BR	Shield ground	Always	Below 1 V
U1-4 (MUT1) - U1-27	L - BR	Mute signal	Disc player assembly is playing	4 V or higher -->

(GND)			--> Change modes	Below 1 V
U1-5 (R1+) - U1-27 (GND)	B - BR	Sound signal (Input)	Disc player assembly is playing	A waveform synchronized with sound signals is output
U1-6 (R1-) - U1-27 (GND)	W - BR	Sound signal (Input)	Disc player assembly is playing	A waveform synchronized with sound signals is output
U1-7 (TX1+) - U1-27 (GND)	P - BR	AVC-LAN communication signal	Ignition switch ACC	2 to 3 V
U1-8 (TX+) - U1-27 (GND)	B - BR	AVC-LAN communication signal	Ignition switch ACC	2 to 3 V
U1-9 (R+) - U1-27 (GND)	B - BR	Sound signal (Output)	RSE system is playing	A waveform synchronized with sound signals is output
U1-10 (R-) - U1-27 (GND)	W - BR	Sound signal (Output)	RSE system is playing	A waveform synchronized with sound signals is output
U1-11 (MUTE) - U1-27 (GND)	R - BR	Mute signal	RSE system is playing -- > Change modes	4 V or higher --> Below 1 V
U1-12 (GND2) - Body ground	BR - Body ground	Ground	Always	Below 1 V
U1-13 (ACC) - U1-27 (GND)	GR - BR	ACC power source	Ignition switch ACC	11 to 14 V
U1-14 (+B2) -	V - BR	Battery power	Always	11 to 14 V

U1-27 (GND)		source		
U1-15 (VD) - U1-16 (SGN2)	Y - BR	Video signal (Input)	Disc player assembly is playing	Pulse generation (Refer to Fig. 15)
U1-16 (SGN2) - U1-27 (GND)	BR - BR	Ground	Always	Below 1 V
U1-19 (L1+) - U1-27 (GND)	R - BR	Sound signal (Input)	Disc player assembly is playing	A waveform synchronized with sound signals is output
U1-20 (L1-) - U1-27 (GND)	G - BR	Sound signal (Input)	Disc player assembly is playing	A waveform synchronized with sound signals is output
U1-21 (TX1-) - U1-27 (GND)	V - BR	AVC-LAN communication signal	Ignition switch ACC	2 to 3 V
U1-22 (TX-) - U1-27 (GND)	W - BR	AVC-LAN communication signal	Ignition switch ACC	2 to 3 V
U1-23 (L+) - U1-27 (GND)	R - BR	Sound signal (Output)	RSE system is playing	A waveform synchronized with sound signals is output
U1-24 (L-) - U1- 27 (GND)	G - BR	Sound signal (Output)	RSE system is playing	A waveform synchronized with sound signals is output
U1-25 (SLD9) - U1-27 (GND)	Shield - BR	Shield ground	Always	Below 1 V
U1-27 (GND) - Body ground	BR - Body ground	Ground	Always	Below 1 V

U1-28 (+B) - U1-27 (GND)	V - BR	Battery power source	Always	11 to 14 V
U2-1 (AGND) - U1-27 (GND)	Shield - BR	Shield ground	Always	Below 1 V
U2-2 (VV+) - U2-10 (VV-)	BR - Y	Display signal (Input)	VTR is displayed	Pulse generation (Refer to Fig. 16)
U2-3 (VAR+) - U2-11 (VA-)	B - W	Sound signal (Input)	External device playing (When video terminal used)	A waveform synchronized with sound signals is output
U2-4 (VAL+) - U2-11 (VA-)	R - W	Sound signal (Input)	External device playing (When video terminal used)	A waveform synchronized with sound signals is output
U2-6 (HP2L) - U1-27 (GND)	G - BR	Sound signal (Output)	RSE system is playing	A waveform synchronized with sound signals is output
U2-7 (SLD2) - U1-27 (GND)	Shield - BR	Shield ground	Always	Below 1 V
U2-8 (HP2R) - U1-27 (GND)	R - BR	Sound signal (Output)	RSE system is playing	A waveform synchronized with sound signals is output
U2-9 (KLK) - U1-27 (GND)	Shield - BR	Shield ground	Always	Below 1 V
U2-12 (ADPG) - LG -		Ground	Always	Below 1 V

U1-27 (GND)	BR			
U2-14 (HP1L) - U1-27 (GND)	W - BR	Sound signal (Output)	RSE system is playing	A waveform synchronized with sound signals is output
U2-15 (SLD1) - U1-27 (GND)	Shield - BR	Shield ground	Always	Below 1 V
U2-16 (HP1R) - U1-27 (GND)	B - BR	Sound signal (Output)	RSE system is playing	A waveform synchronized with sound signals is output

- a. Using an oscilloscope, check the waveform.

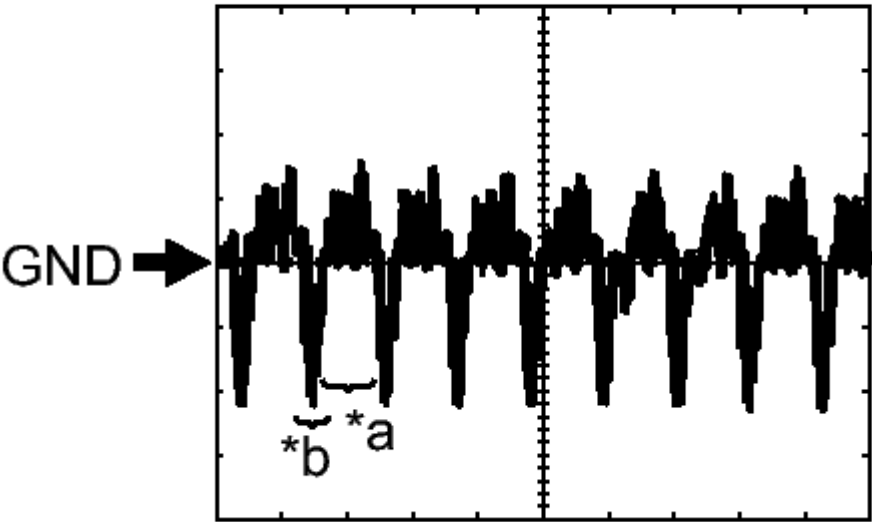


Fig. 15: Identifying Waveform 1
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

WAVEFORM 1 (REFERENCE)

Item	Content
	U1-1 (NTSC) -

Terminal No. (Symbols)	U1-2 (SGN1) U1-15 (VD) - U1-16 (SGN2)
Tool Setting	200 mV/DIV., 100 μsec./DIV.
Condition	Disc player assembly is playing

TEXT IN ILLUSTRATION

*a	Video Waveform
*b	Synchronization Signal

- b. Using an oscilloscope, check the waveform.

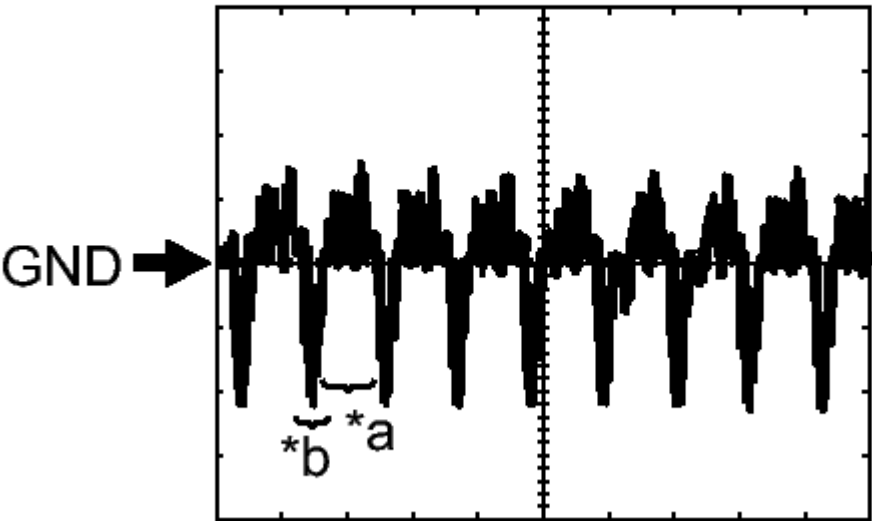


Fig. 16: Identifying Waveform 2
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

WAVEFORM 2 (REFERENCE)

Item	Content
Terminal No. (Symbols)	U2-2 (VV+) - U2-10 (VV-)
Tool Setting	200 mV/DIV., 100 μsec./DIV.
Condition	External device playing (When VTR terminal used)

TEXT IN ILLUSTRATION

*a	Video Waveform
*b	Synchronization Signal

2. DISC PLAYER ASSEMBLY

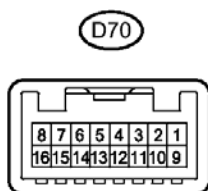


Fig. 17: ECU Connector Terminal Identification - Disc Player Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
D70-1 (L-) - D70-13 (GND)	G - BR	Sound signal (Output)	Disc player assembly is playing	A waveform synchronized with sound signals is output
				A waveform

D70-2 (L+) - D70-13 (GND)	R - BR	Sound signal (Output)	Disc player assembly is playing	synchronized with sound signals is output
D70-3 (R-) - D70-13 (GND)	W - BR	Sound signal (Output)	Disc player assembly is playing	A waveform synchronized with sound signals is output
D70-4 (R+) - D70-13 (GND)	B - BR	Sound signal (Output)	Disc player assembly is playing	A waveform synchronized with sound signals is output
D70-5 (SLD1) - D70-13 (GND)	Shield - BR	Shield ground	Always	Below 1 V
D70-6 (MUT2) - D70-13 (GND)	L - BR	Mute signal	Disc player assembly is playing --> Change modes	4 V or higher --> Below 1 V
D70-7 (ACC) - D70-13 (GND)	GR - BR	ACC power source	Ignition switch ACC	11 to 14 V
D70-8 (+B) - D70-13 (GND)	V - BR	Battery power source	Always	11 to 14 V
D70-9 (TX+) - D70-13 (GND)	P - BR	AVC-LAN communication signal	Ignition switch ACC	2 to 3 V
D70-10 (TX-) - D70-13 (GND)	V - BR	AVC-LAN communication signal	Ignition switch ACC	2 to 3 V
D70-13 (GND) - Body ground	BR - Body ground	Ground	Always	Below 1 V
D70-14				

(SLD2) - D70-13 (GND)	Shield - BR	Shield ground	Always	Below 1 V
D70-15 (SGND) - Body ground	BR - Body ground	Ground	Always	Below 1 V
D70-16 (NTSC) - D70-15 (SGND)	Y - BR	Video signal (Output)	Disc player assembly is playing	Pulse generation (Refer to Fig. 18)

- a. Using an oscilloscope, check the waveform.

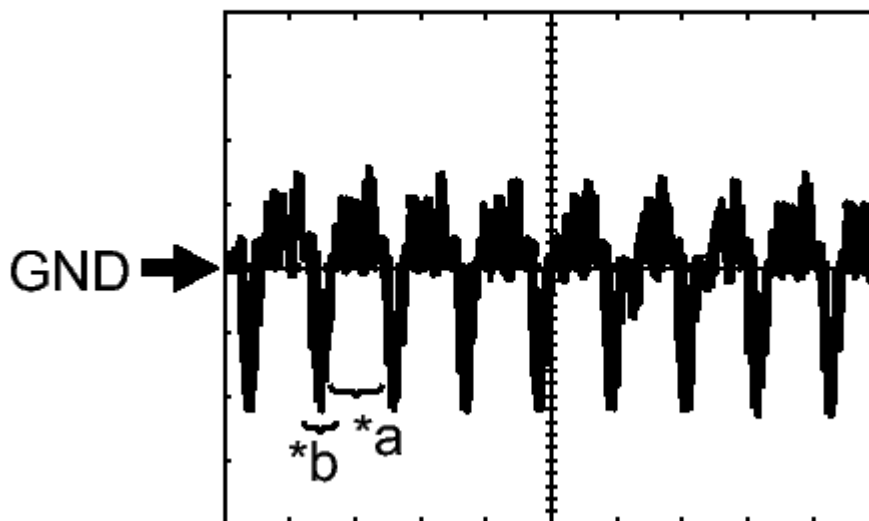


Fig. 18: Identifying Waveform 1

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

WAVEFORM 1 (REFERENCE)

Item	Content
Terminal No. (Symbols)	D70-16 (NTSC) - D70-15 (SGND)
Tool Setting	200 mV/DIV., 100

	μsec./DIV.
Condition	Disc player assembly is playing

TEXT IN ILLUSTRATION

*a	Video Waveform
*b	Synchronization Signal

3. HEADPHONE TERMINAL



Fig. 19: ECU Connector Terminal Identification - Headphone Terminal
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	for RH Side	*b	for LH Side
----	-------------------	----	-------------------

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
S1-1 (HP2R) - Body ground	R - Body ground	Sound signal (Input)	RSE system is playing	A waveform synchronized with sound signals is output
S1-2 (HP2L) - Body ground	G - Body ground	Sound signal (Input)	RSE system is playing	A waveform synchronized with sound signals is output
S1-3 (SGN2) - Body	Shield - Body	Shield ground	Always	Below 1 V

ground	ground			
O1-1 (HP1R) - Body ground	B - Body ground	Sound signal (Input)	RSE system is playing	A waveform synchronized with sound signals is output
O1-2 (HP1L) - Body ground	W - Body ground	Sound signal (Input)	RSE system is playing	A waveform synchronized with sound signals is output
O1-3 (SGN1) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V

4. VIDEO TERMINAL



Fig. 20: ECU Connector Terminal Identification - Video Terminal
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
P3-1 (VAR+) - Body ground	B - Body ground	Sound signal (Output)	External device playing (When video terminal used)	A waveform synchronized with sound signals is output
P3-2 (VAL+) - Body ground	R - Body ground	Sound signal (Output)	External device playing (When video terminal used)	A waveform synchronized with sound signals is output

P3-3 (VA-) - Body ground	W - Body ground	Ground	Always	Below 1 V
P3-5 (VV+) - P3-6 (VV-)	BR - Y	Display signal	VTR is displayed	Pulse generation (Refer to Fig. 21)
P3-7 (SG) - Body ground	Shield - Body ground	Shield ground	Always	Below 1 V
P3-8 (ADPG) - Body ground	LG - Body ground	Ground	Always	Below 1 V

- a. Using an oscilloscope, check the waveform.

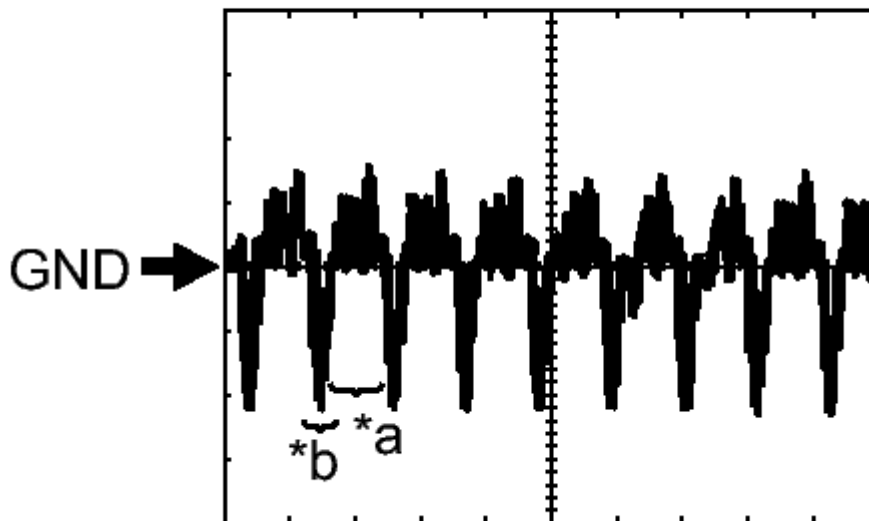


Fig. 21: Identifying Waveform 2

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

WAVEFORM 2 (REFERENCE)

Item	Content
Terminal No.	P3-5 (VV+) -

(Symbols)	P3-6 (VV-)
Tool Setting	200 mV/DIV., 100 μsec./DIV.
Condition	External device playing (When VTR terminal used)

TEXT IN ILLUSTRATION

*a	Video Waveform
*b	Synchronization Signal

5. **RADIO RECEIVER ASSEMBLY (w/o Navigation System)**
6. **NAVIGATION RECEIVER ASSEMBLY (w/ Navigation System for DVD)**
7. **NAVIGATION RECEIVER ASSEMBLY (w/ Navigation System for SD)**
8. **STEREO COMPONENT TUNER ASSEMBLY (w/ Navigation System)**
9. **MULTI-MEDIA INTERFACE ECU (w/o Navigation System)**
10. **MULTI-MEDIA INTERFACE ECU (w/ Navigation System for DVD)**
11. **STEREO COMPONENT AMPLIFIER ASSEMBLY (w/o Navigation System)**
12. **STEREO COMPONENT AMPLIFIER ASSEMBLY (w/ Navigation System for DVD)**

DTC CHECK / CLEAR

DTC CHECK / CLEAR

HINT:

- Refer to Audio and Visual System (w/o Navigation System). Refer to **DTC CHECK / CLEAR** .
- Refer to Navigation System (w/ Navigation System for DVD). Refer to **DTC CHECK / CLEAR** .
- Refer to Navigation System (w/ Navigation System for SD). Refer to **DTC CHECK / CLEAR** .

SYMPTOM TESTS

A Remote Control System does not Operate

INSPECTION PROCEDURE

PROCEDURE

1. CLEAN INFRARED RAY RECEIVING PORTION

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

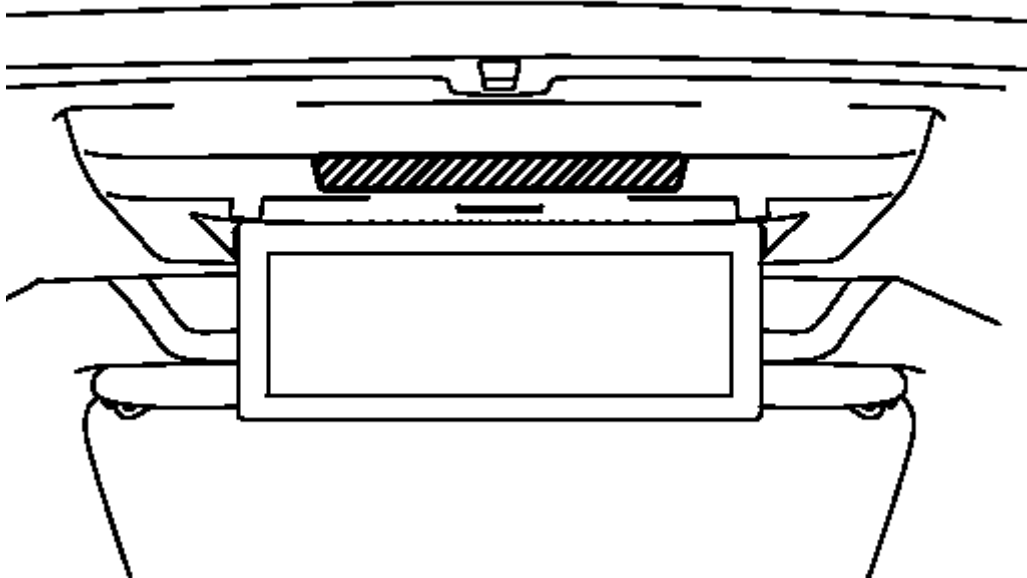


Fig. 22: Identifying Infrared Ray Receiving Portion On Television Display Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Check whether the same malfunction occurs.

OK

The function returns to normal.

NG --> See step 2

OK --> END

2. CHECK SYSTEM

- a. Check that the remote control operation of the rear system is not locked by the navigation receiver assembly.

*a

*1



*2

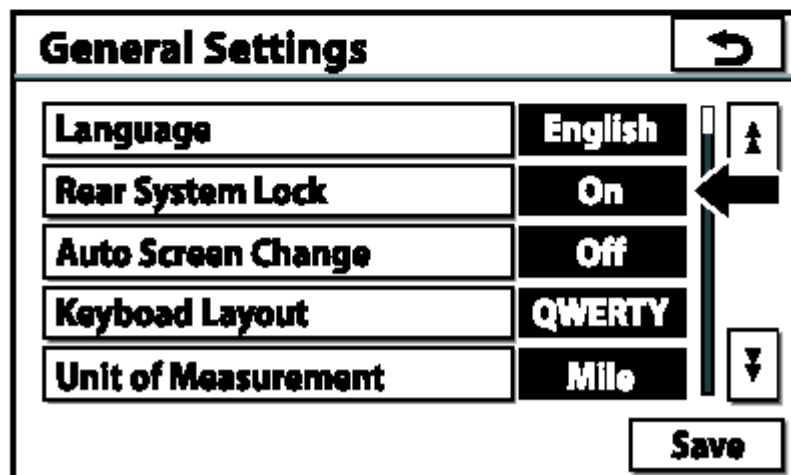


Fig. 23: Screen Display - General Settings

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Check if "Rear System Locked" appears on the television display.

OK

The message does not appear.

HINT:

If the rear system is locked and the remote control is used in the rear seat area, an operation not possible message (for example, "Rear System Locked") is displayed. If the message is displayed, enter the navigation display screen setting, and change "Rear System Lock" to Off.

TEXT IN ILLUSTRATION

*1	Television Display Assembly
*2	Navigation Receiver Assembly
*a	Example

NG --> RELEASE LOCK

OK: Go to next step

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: Go to next step

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 --> See step 5

OK --> END (REMOTE CONTROL WAS DEFECTIVE)

5. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**

Television Display does not Turn ON

INSPECTION PROCEDURE

PROCEDURE

1. CLEAN INFRARED RAY RECEIVING PORTION

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

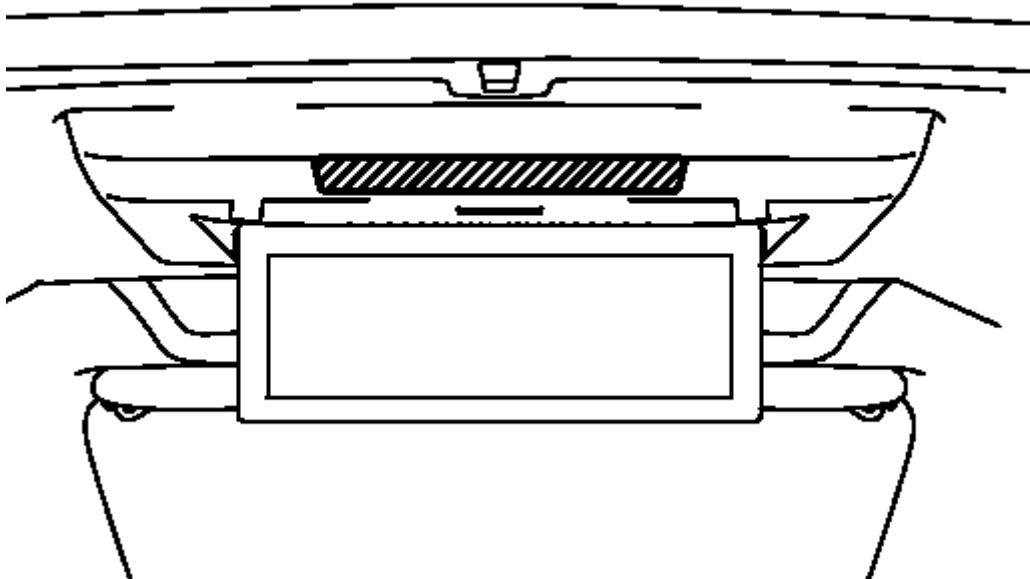


Fig. 24: Identifying Infrared Ray Receiving Portion On Television Display Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Check whether the same malfunction occurs.

OK

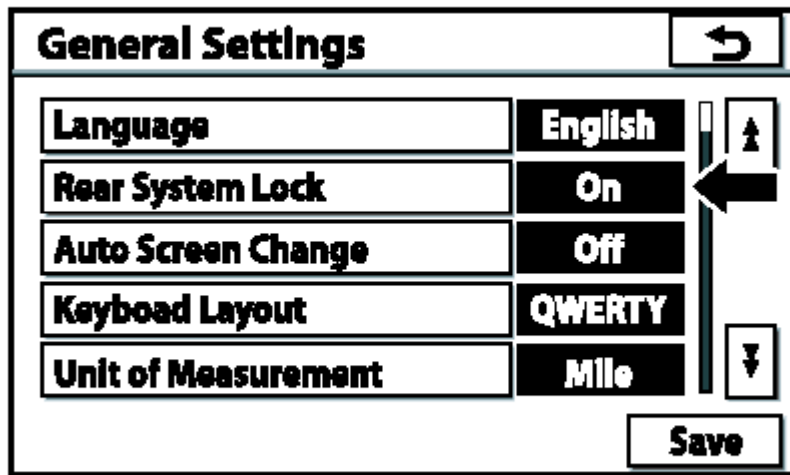
The function returns to normal.

NG --> See 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.



H

Fig. 25: Screen Display - General Settings (Rear System Lock)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Check that "Rear System Lock" is Off on the "General Settings" screen.

OK

"Rear System Lock" is Off.

NG --> RELEASE LOCK

OK: Go to next step

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: Go to next step

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 --> See step 5

OK --> END (REMOTE CONTROL WAS DEFECTIVE)

- 5. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**

Sound from Wireless Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor

INSPECTION PROCEDURE

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: Go to next step

2. CHECK WIRELESS HEADPHONE SETTING

- a. Check the wireless headphone settings.
 - 1. Check that the volume is not set to "0".
 - 2. 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: Go to next step

3. CLEAN INFRARED RAY RECEIVING PORTION

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

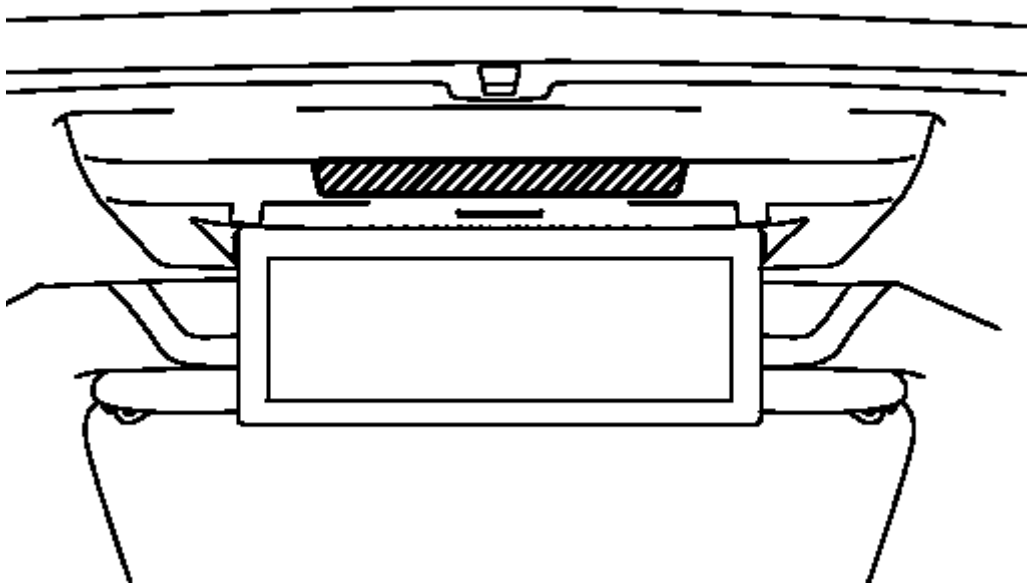


Fig. 26: Identifying Infrared Ray Receiving Portion On Television Display Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Check whether the same malfunction occurs.

OK

The function returns to normal.

NG --> See 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 --> See step 5

OK --> END (WIRELESS HEADPHONE WAS DEFECTIVE)

- 5. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**

Sound from Wired Headphones is Difficult to Hear, cannot be Heard, or Quality is Poor

INSPECTION PROCEDURE

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: Go to next step

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 --> See step 3

OK --> END (HEADPHONE WAS DEFECTIVE)

3. PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE

CIRCUIT TESTS

Sound Signal Circuit between Video Terminal and Television Display

DESCRIPTION

This is the sound signal circuit from the video terminal to the television display assembly.

WIRING DIAGRAM

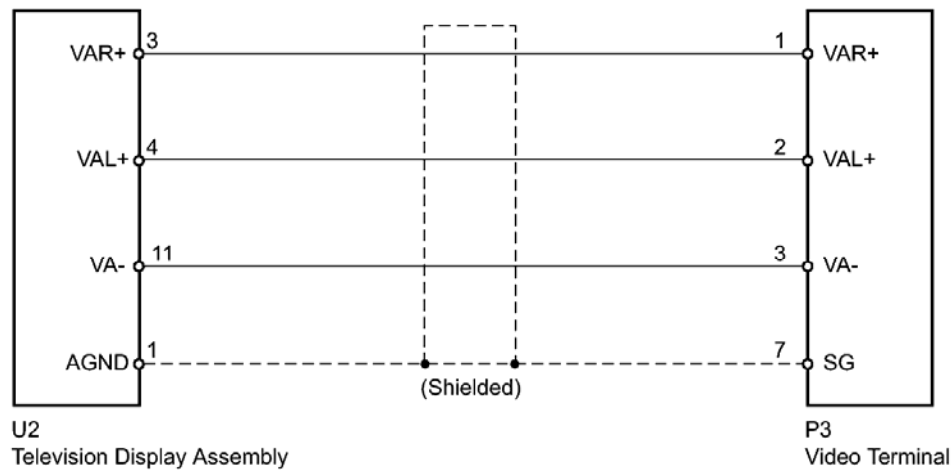


Fig. 27: Sound Signal Circuit Between Video Terminal And Television Display - Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. CHECK TELEVISION DISPLAY ASSEMBLY

- a. Disconnect the U2 television display assembly connector.

*1

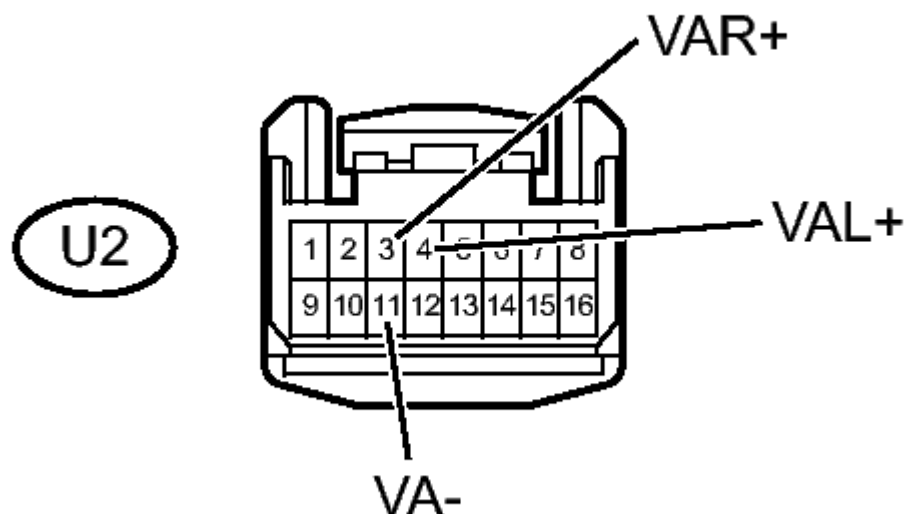


Fig. 28: Checking Television Display Assembly With U2 Connector End View

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using an oscilloscope, check the signal waveform between 3 (VAR+) or 4 (VAL+) and 11 (VA-) according to the conditions, as shown in the chart below.

Signal Waveform

Tester Connection	Condition	Specified Condition
U2-3 (VAR+) - U2-11 (VA-)	Audio sound is being produced	A waveform synchronized with sound is output
U2-4 (VAL+) - U2-11 (VA-)		

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to Television Display Assembly)
----	---

NG --> See step 2

OK --> See step 3

2. CHECK HARNESS AND CONNECTOR (VIDEO TERMINAL - TELEVISION DISPLAY)

- a. Disconnect the P3 video terminal connector.
b. Disconnect the U2 television display assembly connector.
c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
P3-1 (VAR+) - U2-3	Always	Below 1 ohms

(VAR+)		
P3-2 (VAL+) - U2-4 (VAL+)	Always	Below 1 ohms
P3-3 (VA-) - U2-11 (VA-)	Always	Below 1 ohms
P3-7 (SG) - U2-1 (AGND)	Always	Below 1 ohms
P3-1 (VAR+) - Body ground	Always	10 kohms or higher
P3-2 (VAL+) - Body ground	Always	10 kohms or higher
P3-3 (VA-) - Body ground	Always	10 kohms or higher
P3-7 (SG) - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 4

3. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**
4. **REPLACE VIDEO TERMINAL. Refer to REMOVAL**

Sound Signal Circuit between Headphone Terminal and Television Display

DESCRIPTION

This is the sound signal circuit from the television display assembly to the headphone terminal.

WIRING DIAGRAM

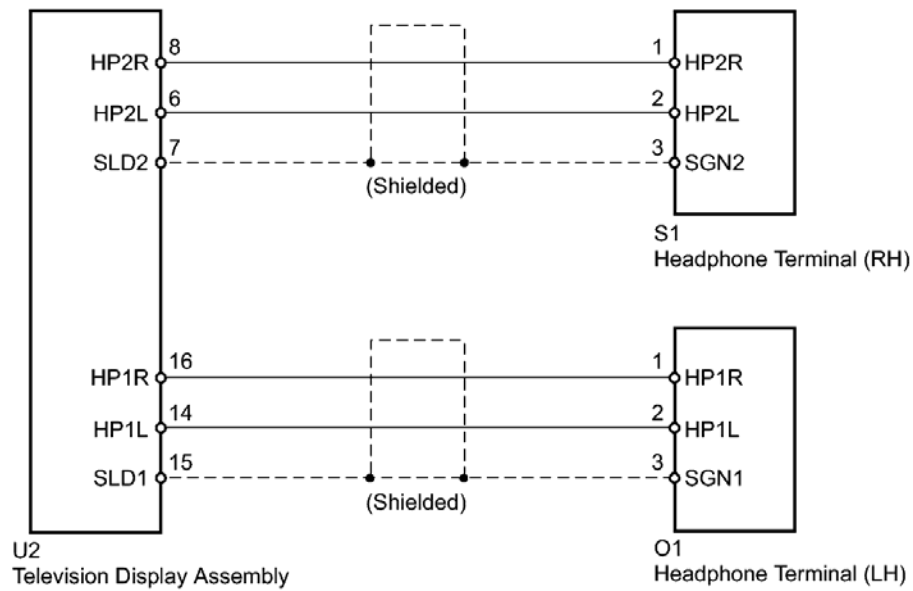


Fig. 29: Sound Signal Circuit Between Headphone Terminal And Television Display - Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

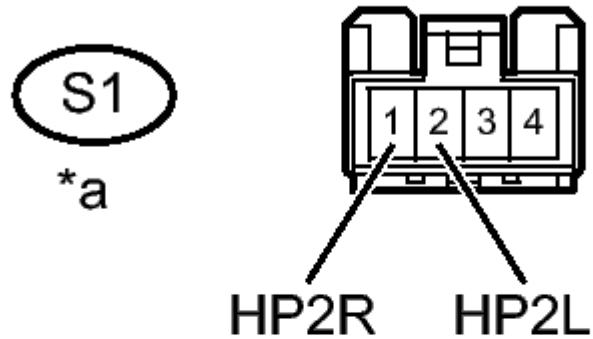
INSPECTION PROCEDURE

PROCEDURE

1. CHECK HEADPHONE TERMINAL

- Disconnect the S1 headphone terminal RH connector.

*1



*2

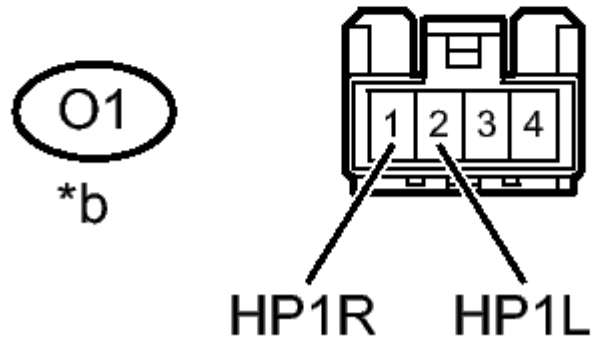


Fig. 30: Checking Headphone Terminal With S1 & O1 Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disconnect the O1 headphone terminal LH connector.
- c. Using an oscilloscope, check the signal waveform between each terminal and the body ground according to the conditions, as shown in the chart below.

Signal Waveform

FOR RH SIDE

Tester Connection	Condition	Specified Condition
S1-1 (HP2R) - Body ground	Audio sound is	A waveform synchronized

S1-2 (HP2L) - Body ground	being produced	with sound is output
------------------------------------	-------------------	-------------------------

FOR LH SIDE

Tester Connection	Condition	Specified Condition
O1-1 (HP1R) - Body ground	Audio sound is being produced	A waveform synchronized with sound is output
O1-2 (HP1L) - Body ground		

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to Headphone Terminal RH)
*2	Front view of wire harness connector (to Headphone Terminal LH)
*a	for RH Side
*b	for LH Side

RESULT

Result	Proceed to
NG	A
OK (Headphone terminal	B

RH is abnormal)	
OK (Headphone terminal LH is abnormal)	C

B --> See step 3

C --> See step 4

A: Go to next step

2. CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - HEADPHONE TERMINAL)

- Disconnect the U2 television display assembly connector.
- Disconnect the S1 or O1 headphone terminal connector(s).
- Measure the resistance according to the value(s) in the table below.

Standard Resistance

FOR RH SIDE

Tester Connection	Condition	Specified Condition
U2-8 (HP2R) - S1-1 (HP2R)	Always	Below 1 ohms
U2-6 (HP2L) - S1-2 (HP2L)	Always	Below 1 ohms
U2-7 (SLD2) - S1-3 (SGN2)	Always	Below 1 ohms
U2-8 (HP2R) - Body ground	Always	10 kohms or higher
U2-6 (HP2L) - Body ground	Always	10 kohms or higher

U2-7 (SLD2) - Body ground	Always	10 kohms or higher
------------------------------------	--------	-----------------------

FOR LH SIDE

Tester Connection	Condition	Specified Condition
U2-16 (HP1R) - O1-1 (HP1R)	Always	Below 1 ohms
U2-14 (HP1L) - O1-2 (HP1L)	Always	Below 1 ohms
U2-15 (SLD1) - O1-3 (SGN1)	Always	Below 1 ohms
U2-16 (HP1R) - Body ground	Always	10 kohms or higher
U2-14 (HP1L) - Body ground	Always	10 kohms or higher
U2-15 (SLD1) - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 5

- 3. REPLACE HEADPHONE TERMINAL RH. Refer to REMOVAL**
- 4. REPLACE HEADPHONE TERMINAL LH. Refer to REMOVAL**
- 5. PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**

Sound Signal Circuit between Stereo Component Tuner Assembly and Television Display Assembly

DESCRIPTION

This is the sound signal circuit from the television display assembly to the stereo component tuner assembly.

WIRING DIAGRAM

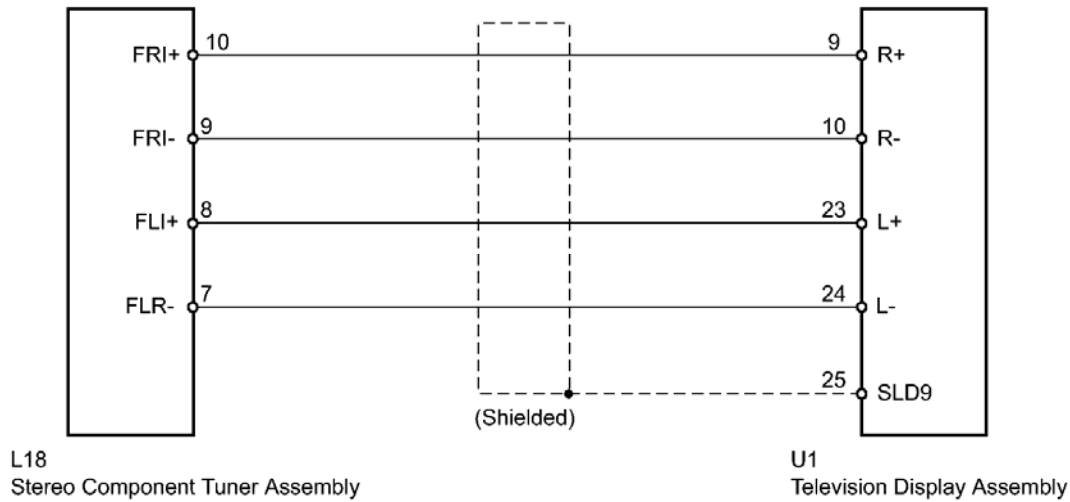


Fig. 31: Sound Signal Circuit Between Stereo Component Tuner Assembly And Television Display Assembly Wiring Diagram

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. **CHECK STEREO COMPONENT TUNER ASSEMBLY**
 - a. Disconnect the L18 stereo component tuner assembly connector.

*1

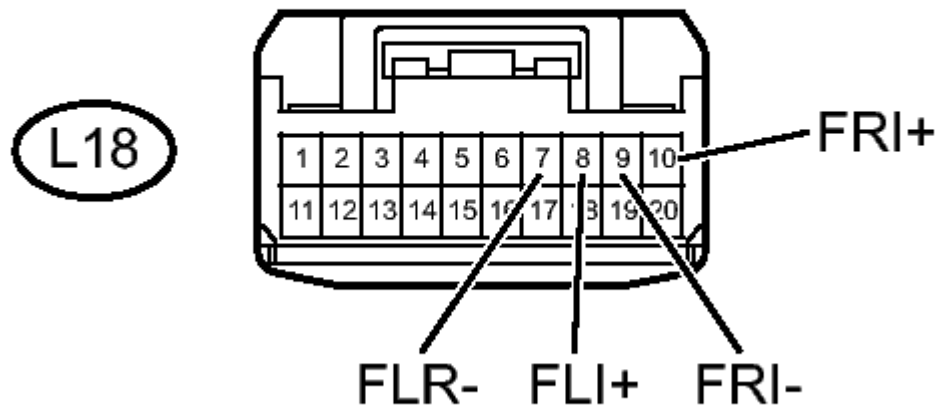


Fig. 32: Checking Stereo Component Tuner Assembly With L18 Connector End View
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using an oscilloscope, check the signal waveform between each terminal and the body ground according to the conditions, as shown in the chart below.

Signal Waveform

Tester Connection	Condition	Specified Condition
L18-10 (FRI+) - Body ground	Audio sound is being produced	A waveform synchronized with sound is output
L18-9 (FRI-) - Body ground		
L18-8 (FLI+) - Body ground		
L18-7 (FLR-) - Body ground		

TEXT IN ILLUSTRATION

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

NG --> See step 2

OK --> See step 3

2. CHECK HARNESS AND CONNECTOR (STEREO COMPONENT TUNER - TELEVISION DISPLAY)

- Disconnect the L18 stereo component tuner assembly connector.
- Disconnect the U1 television display assembly connector.
- Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
U1-9 (R+) - L18-10 (FRI+)	Always	Below 1 ohms
U1-10 (R-) - L18-9 (FRI-)	Always	Below 1 ohms
U1-23 (L+) - L18-8 (FLI+)	Always	Below 1 ohms
U1-24 (L-) - L18-7 (FLR-)	Always	Below 1 ohms
U1-9 (R+) - Body ground	Always	10 kohms or higher
U1-10 (R-) - Body ground	Always	10 kohms or higher
U1-23 (L+) - Body ground	Always	10 kohms or higher

U1-24 (L-) - Body ground	Always	10 kohms or higher
U1-25 (SLD9) - Body ground	Always	10 kohms or higher

NG --> **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK --> **See step 4**

3. **REPLACE STEREO COMPONENT TUNER ASSEMBLY. Refer to REMOVAL**
4. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**

Sound Signal Circuit between Disc Player Changer and Television Display Assembly

DESCRIPTION

This is the sound signal circuit from the disc player assembly to the television display assembly.

WIRING DIAGRAM

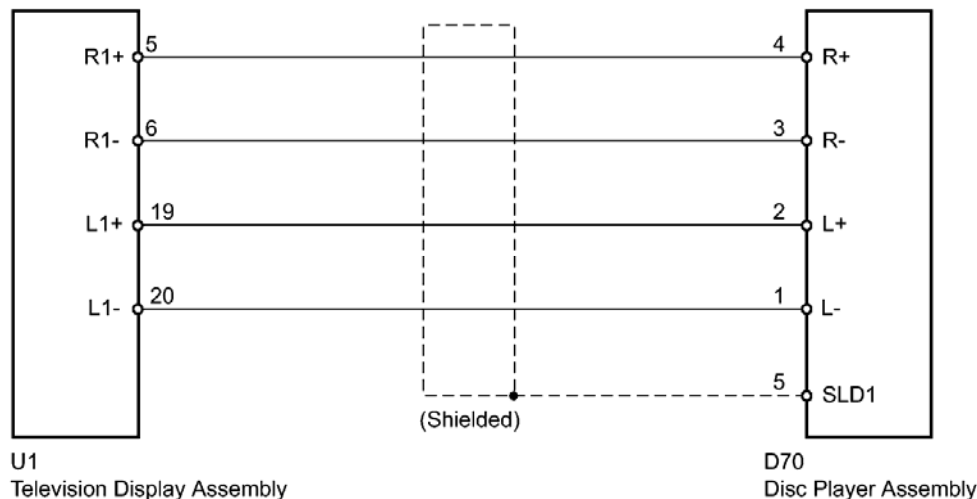


Fig. 33: Sound Signal Circuit Between Disc Player Changer And Television Display Assembly - Wiring Diagram

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. CHECK TELEVISION DISPLAY ASSEMBLY

- a. Disconnect the U1 television display assembly connector.

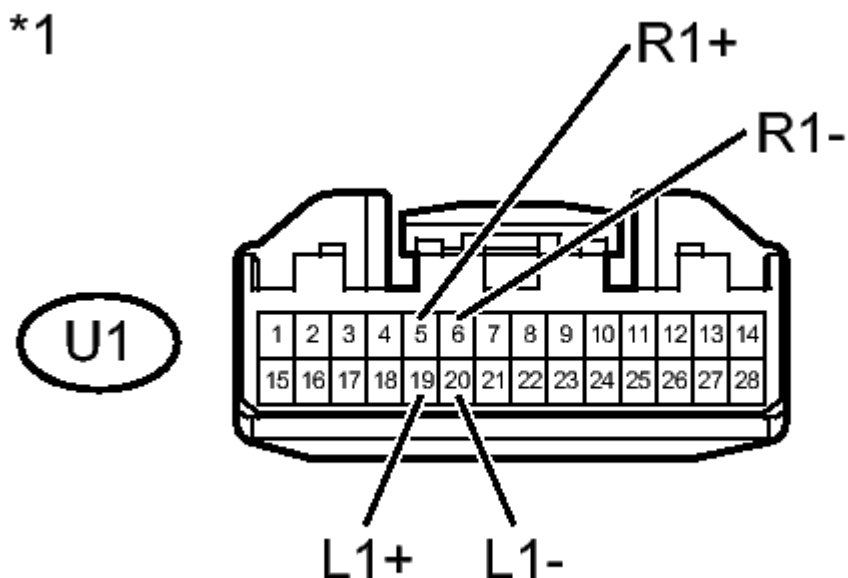


Fig. 34: Checking Television Display Assembly With U1 Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using an oscilloscope, check the signal waveform between each terminal and the body ground according to the conditions, as shown in the chart below.

Signal Waveform

Tester Connection	Condition	Specified Condition
U1-5 (R1+) - Body ground	Audio sound is being produced	A waveform synchronized with sound is output
U1-6 (R1-) - Body ground		
U1-19 (L1+) - Body ground		
U1-20 (L1-) - Body ground		

TEXT IN ILLUSTRATION

	Front view of wire harness
*1	connector (to Television Display Assembly)

NG --> See step 2

OK --> See step 3

2. CHECK HARNESS AND CONNECTOR (DISC PLAYER - TELEVISION DISPLAY)

- Disconnect the D70 disc player assembly connector.
- Disconnect the U1 television display assembly connector.
- Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D70-1 (L-) - U1-20 (L1-)	Always	Below 1 ohms
D70-2 (L+) - U1-19 (L1+)	Always	Below 1 ohms
D70-3 (R-) - U1-6 (R1-)	Always	Below 1 ohms
D70-4 (R+) - U1-5 (R1+)	Always	Below 1 ohms
D70-1 (L-) - Body ground	Always	10 kohms or higher
D70-2 (L+) - Body ground	Always	10 kohms or higher
D70-3 (R-) - Body ground	Always	10 kohms or higher

D70-4 (R+) - Body ground	Always	10 kohms or higher
D70-5 (SLD1) - Body ground	Always	10 kohms or higher

NG --> **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK --> **See step 4**

3. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**
4. **REPLACE DISC PLAYER ASSEMBLY. Refer to REMOVAL**

Display Signal Circuit between Disc Player Changer and Television Display Assembly

DESCRIPTION

This is the DVD image signal circuit from the disc player assembly to the television display assembly.

WIRING DIAGRAM

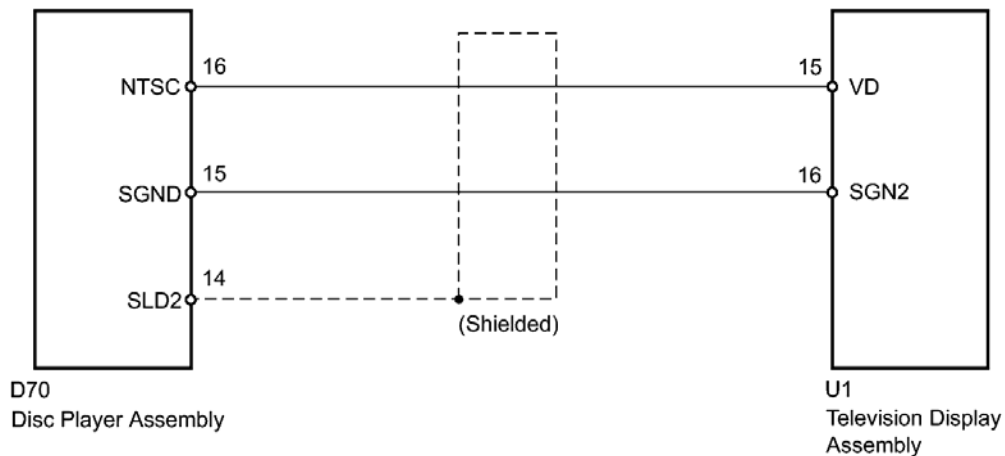


Fig. 35: Display Signal Circuit Between Disc Player Changer And Television Display Assembly - Wiring Diagram

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. CHECK TELEVISION DISPLAY ASSEMBLY

- a. Disconnect the U1 television display assembly connector.

*1

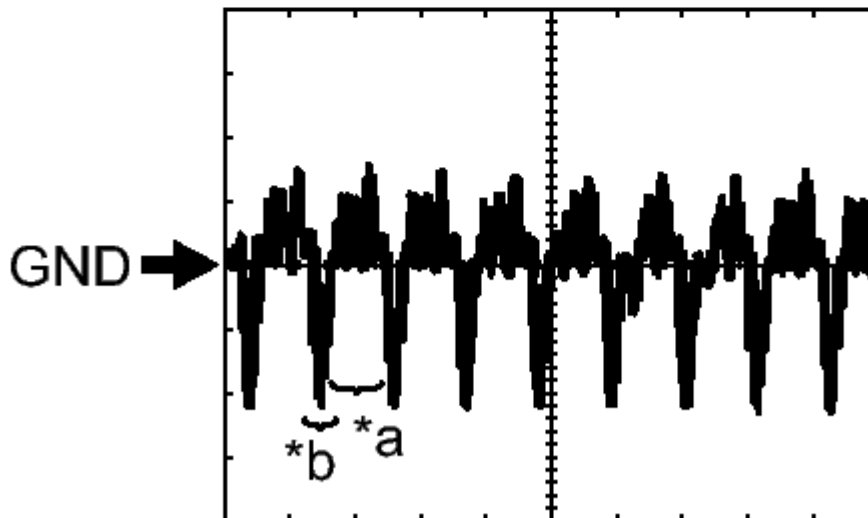
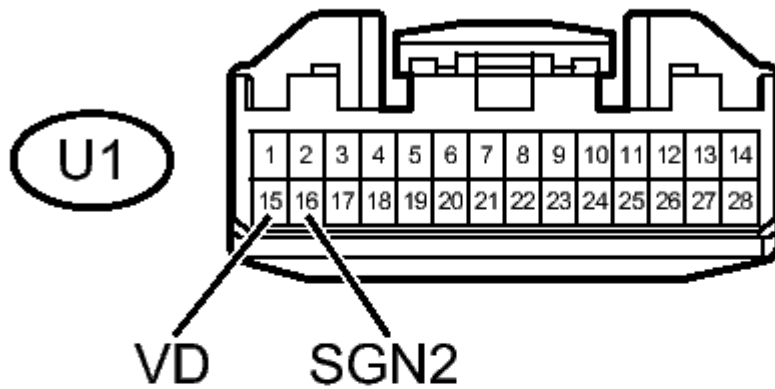


Fig. 36: Checking Television Display Assembly With Waveform
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using an oscilloscope, check the signal waveform between each terminal and the body ground according to the conditions, as shown in the chart below.

SIGNAL WAVEFORM (REFERENCE)

Tester Connection	Content
Terminal No. (Symbols)	U1-15 (VD) - U1-16 (SGN2)
Tool Setting	0.2 V/DIV., 100 μsec./DIV.
Condition	Disc player assembly is playing

OK

Waveform is as shown in the illustration.

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to Television Display Assembly)
*a	Video Waveform
*b	Synchronization Signal

NG --> See step 2

OK --> See step 3

2. CHECK HARNESS AND CONNECTOR (DISC PLAYER - TELEVISION DISPLAY ASSEMBLY)

- a. Disconnect the D70 disc player assembly connector.
- b. Disconnect the U1 television display assembly connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D70-16 (NTSC) - U1-15 (VD)	Always	Below 1 ohms
D70-15 (SGND) - U1-16 (SGN2)	Always	Below 1 ohms
D70-16 (NTSC) - Body ground	Always	10 kohms or higher
D70-15 (SGND) - Body ground	Always	10 kohms or higher
D70-14 (SLD2) - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 4

- 3. PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**
- 4. REPLACE DISC PLAYER ASSEMBLY. Refer to REMOVAL**

Mute Signal Circuit between Stereo Component Tuner Assembly and Television Display Assembly

DESCRIPTION

The navigation receiver assembly controls the volume according to the mute signal from the disc player assembly.

The mute signal is sent to reduce noise and popping sounds generated when switching the mode, etc.

WIRING DIAGRAM



Fig. 37: Mute Signal Circuit Between Stereo Component Tuner Assembly And Television Display Assembly - Wiring Diagram

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. CHECK STEREO COMPONENT TUNER ASSEMBLY

- a. Disconnect the L18 stereo component tuner assembly connector.

*1

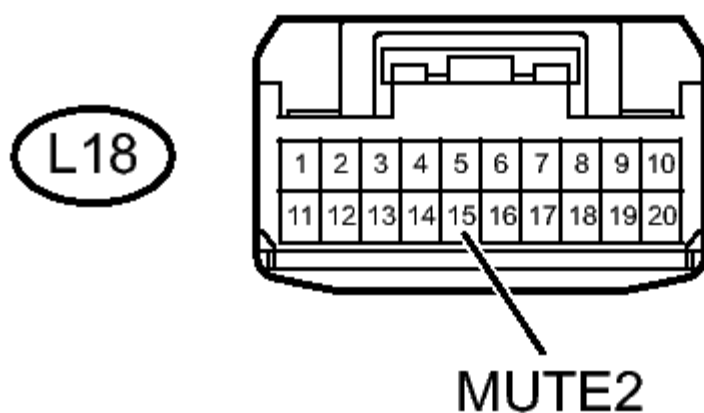


Fig. 38: Checking Stereo Component Tuner Assembly

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Condition	Specified Condition
L18-15 (MUTE2) - Body ground	Turn the ignition switch to ACC, disc player assembly is playing --> Changing modes	3.5 V or higher --> Below 1 V

TEXT IN ILLUSTRATION

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

NG --> See step 2

OK --> See step 3

2. CHECK HARNESS AND CONNECTOR (STEREO COMPONENT TUNER - TELEVISION DISPLAY)

- Disconnect the L18 stereo component tuner assembly connector.
- Disconnect the U1 television display assembly connector.
- Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
L18-15 (MUTE2) - U1-11 (MUTE)	Always	Below 1 ohms
L18-15 (MUTE2) - Body	Always	10 kohms or higher



NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 4

3. **REPLACE STEREO COMPONENT TUNER ASSEMBLY.** Refer to REMOVAL
4. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE.** Refer to PROBLEM SYMPTOMS TABLE

Mute Signal Circuit between Disc Player Changer and Television Display Assembly

DESCRIPTION

The navigation receiver assembly or radio receiver assembly controls the volume according to the mute signal from the disc player assembly.

The mute signal is sent to reduce noise and popping sounds generated when switching the mode, etc.

WIRING DIAGRAM



Fig. 39: Mute Signal Circuit Between Disc Player Changer And Television Display Assembly - Wiring Diagram

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. **CHECK TELEVISION DISPLAY ASSEMBLY**
 - a. Disconnect the U1 television display assembly connector.
 - b. Measure the voltage according to the value(s) in the table below.

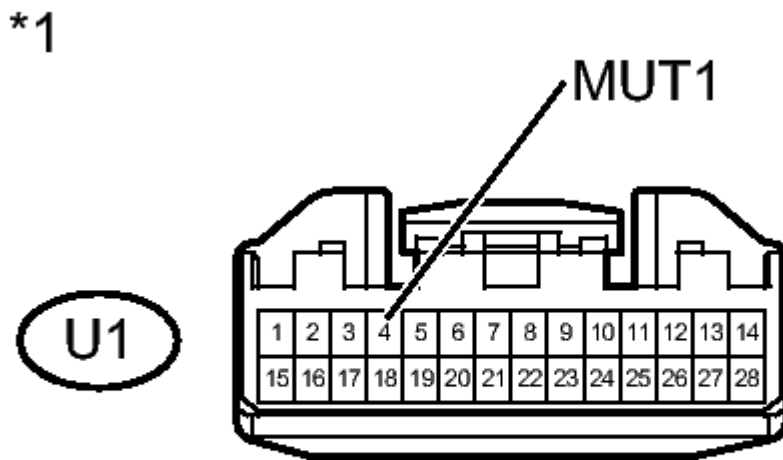


Fig. 40: Checking Television Display Assembly Voltage
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Voltage

Tester Connection	Condition	Specified Condition
U1-4 (MUT1) - Body ground	Turn the ignition switch to ACC, disc player assembly is playing --> Changing modes	3.5 V or higher --> Below 1 V

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to Television Display
----	--

|Assembly)|

NG --> See step 2

OK --> See step 3

2. CHECK HARNESS AND CONNECTOR (VIDEO TERMINAL - TELEVISION DISPLAY)

- a. Disconnect the D70 disc player assembly connector.
- b. Disconnect the U1 television display assembly connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D70-6 (MUT2) - U1-4 (MUT1)	Always	Below 1 ohms
D70-6 (MUT2) - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 4

3. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**
4. **REPLACE DISC PLAYER ASSEMBLY. Refer to REMOVAL**

Display Signal Circuit between Video Terminal and Television Display

DESCRIPTION

This is the display signal circuit from the video terminal to the television display assembly.

WIRING DIAGRAM

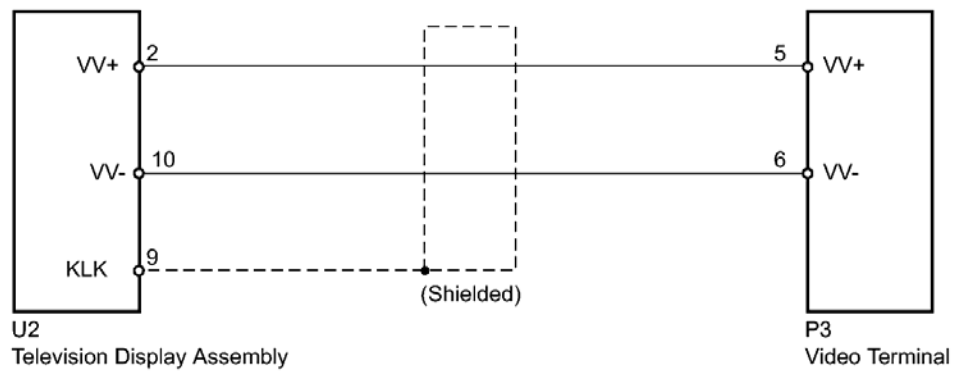


Fig. 41: Display Signal Circuit Between Video Terminal And Television Display - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. **CHECK TELEVISION DISPLAY ASSEMBLY**
 - a. Disconnect the U2 television display assembly connector.

*1

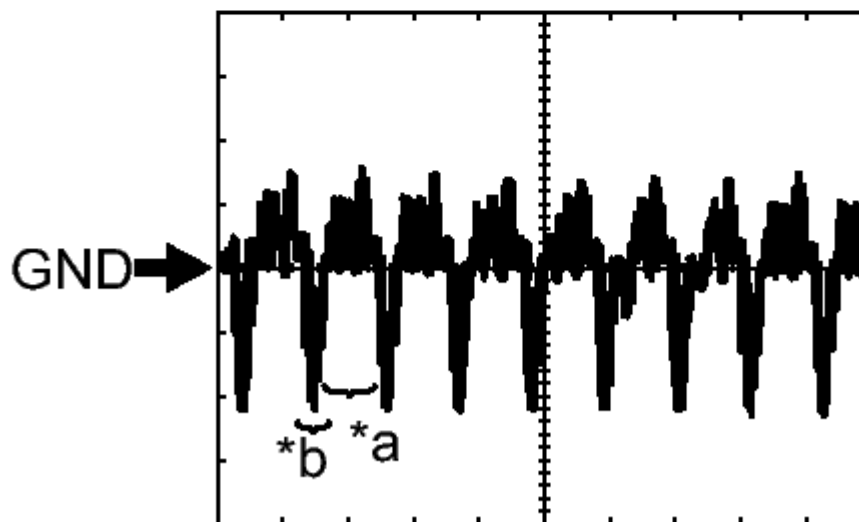
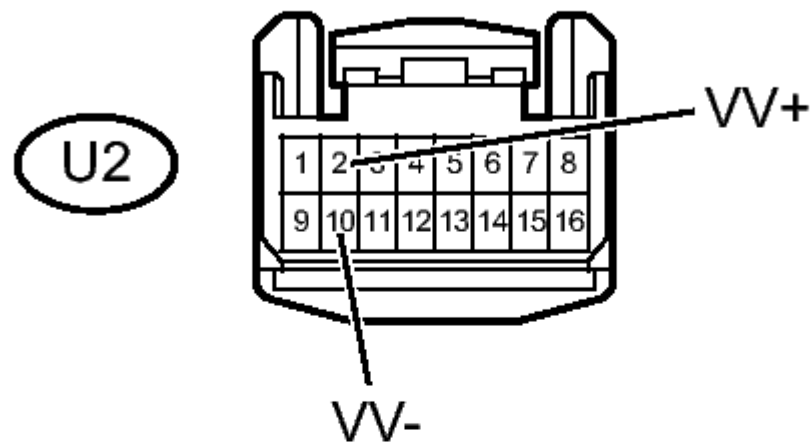


Fig. 42: Checking Television Display Assembly With Waveform
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using an oscilloscope, check the signal waveform between each terminal and the body ground according to the conditions, as shown in the chart below.

SIGNAL WAVEFORM (REFERENCE)

Tester Condition	Content
Terminal No. (Symbols)	U2-2 (VV+) - U2-10 (VV-)
Tool Setting	0.2 V/DIV., 100 μsec./DIV.
Condition	External device playing (When VTR terminal used)

OK

Waveform is as shown in the illustration.

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to Television Display Assembly)
*a	Video Waveform
*b	Synchronization Signal

NG --> See step 2

OK --> See step 3

2. CHECK HARNESS AND CONNECTOR (VIDEO TERMINAL - TELEVISION DISPLAY)

- Disconnect the P3 video terminal connector.
- Disconnect the U2 television display assembly connector.
- Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
P3-5 (VV+) - U2-2 (VV+)	Always	Below 1 ohms
P3-6 (VV-) - U2-10 (VV-)	Always	Below 1 ohms
U2-2 (VV+) - Body ground	Always	10 kohms or higher
U2-10 (VV-) - Body ground	Always	10 kohms or higher
U2-9 (CLK) - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 4

3. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**
4. **REPLACE VIDEO TERMINAL. Refer to REMOVAL**

Sound Signal Circuit between Multi-media Interface ECU and Television Display Assembly

DESCRIPTION

This is the sound signal circuit from the television display assembly to the multi-media interface ECU.

WIRING DIAGRAM

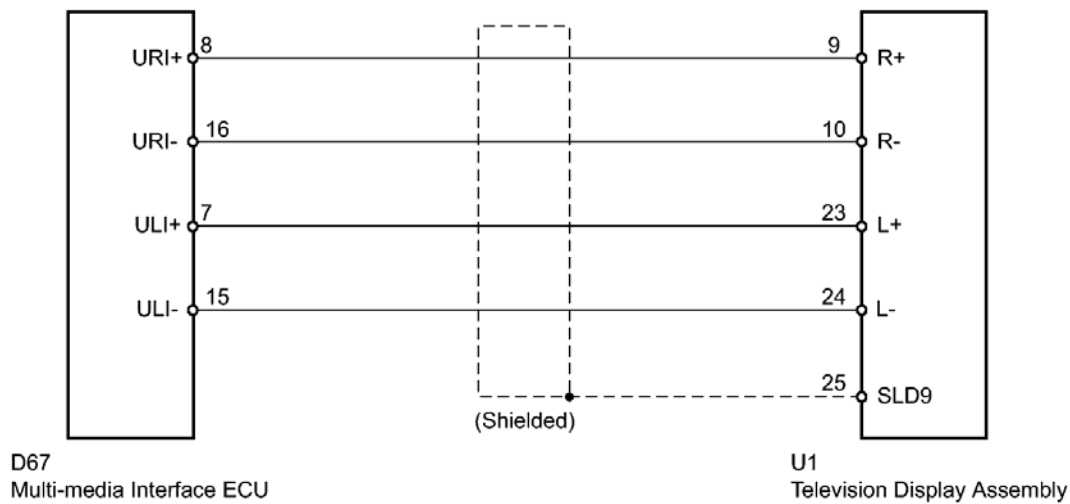


Fig. 43: Sound Signal Circuit Between Multi-Media Interface ECU And Television Display Assembly - Wiring Diagram

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. CHECK MULTI-MEDIA INTERFACE ECU

- Disconnect the D67 multi-media interface ECU connector.

*1

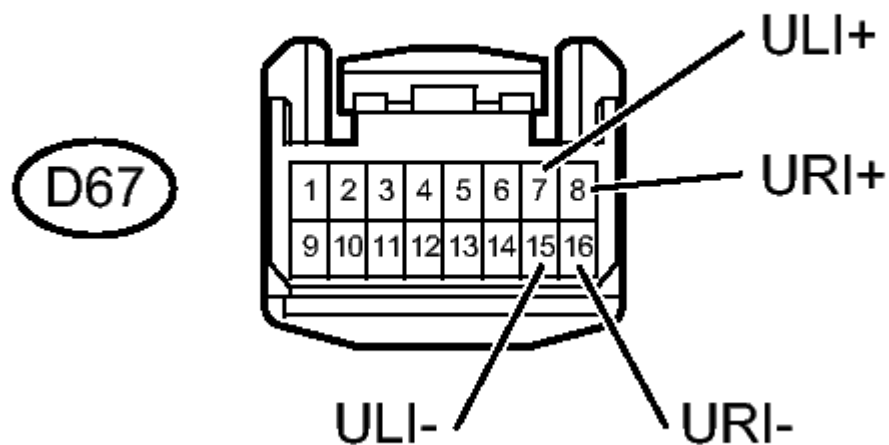


Fig. 44: Checking Multi-Media Interface ECU With D67 Connector End View
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using an oscilloscope, check the signal waveform between each terminal and the body ground according to the conditions, as shown in the chart below.

Signal Waveform

Tester Connection	Condition	Specified Condition
D67-8 (URI+) - Body ground	Audio sound is being produced	A waveform synchronized with sound is output
D67-16 (URI-) - Body ground		
D67-7 (ULI+) - Body ground		
D67-15 (ULI-) - Body ground		

TEXT IN ILLUSTRATION

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

NG --> See step 2

OK --> See step 3

2. CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - TELEVISION DISPLAY)

- a. Disconnect the D67 multi-media interface ECU connector.
- b. Disconnect the U1 television display assembly connector.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
U1-9 (R+) - D67-8 (URI+)	Always	Below 1 ohms
U1-10 (R-) - D67-16 (URI-)	Always	Below 1 ohms
U1-23 (L+) - D67-7 (ULI+)	Always	Below 1 ohms
U1-24 (L-) - D67-15 (ULI-)	Always	Below 1 ohms
U1-9 (R+) - Body ground	Always	10 kohms or higher
U1-10 (R-) - Body ground	Always	10 kohms or higher
U1-23 (L+) - Body ground	Always	10 kohms or higher
U1-24 (L-) - Body ground	Always	10 kohms or higher
U1-25 (SLD9) - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 4

- 3. REPLACE MULTI-MEDIA INTERFACE ECU. Refer to REMOVAL**
- 4. PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**

Mute Signal Circuit between Multi-media Interface ECU and Television Display Assembly

DESCRIPTION

The radio receiver assembly controls the volume according to the mute signal from the disc player assembly.

The mute signal is sent to reduce noise and popping sounds generated when switching the mode, etc.

WIRING DIAGRAM



Fig. 45: Mute Signal Circuit Between Multi-Media Interface ECU And Television Display Assembly - Wiring Diagram

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. CHECK MULTI-MEDIA INTERFACE ECU

- a. Disconnect the D67 multi-media interface ECU connector.

*1

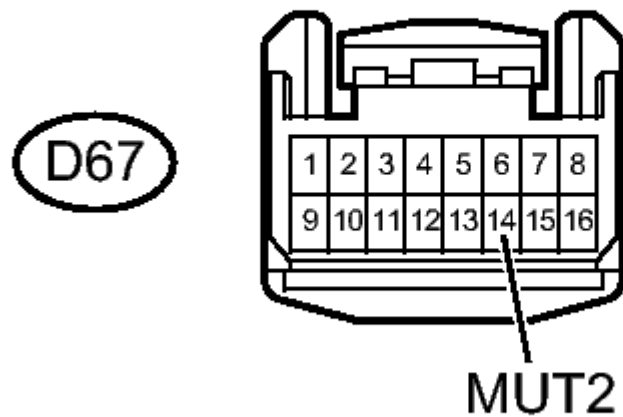


Fig. 46: Checking Multi-Media Interface ECU Voltage
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Condition	Specified Condition
D67-14 (MUT2) - Body ground	Turn the ignition switch to ACC, disc player assembly is playing --> Changing modes	3.5 V or higher --> Below 1 V

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to Multi-
----	--

media Interface ECU)

NG --> See step 2

OK --> See step 3

2. CHECK HARNESS AND CONNECTOR (MULTI-MEDIA INTERFACE ECU - TELEVISION DISPLAY)

- Disconnect the D67 multi-media interface ECU connector.
- Disconnect the U1 television display assembly connector.
- Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D67-14 (MUT2) - U1-11 (MUTE)	Always	Below 1 ohms
D67-14 (MUT2) - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 4

- REPLACE MULTI-MEDIA INTERFACE ECU. Refer to REMOVAL
- PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE

Display Signal Circuit between Television Display Assembly and Navigation Receiver Assembly

DESCRIPTION

This is the display signal circuit from the television display assembly to the navigation receiver assembly.

WIRING DIAGRAM

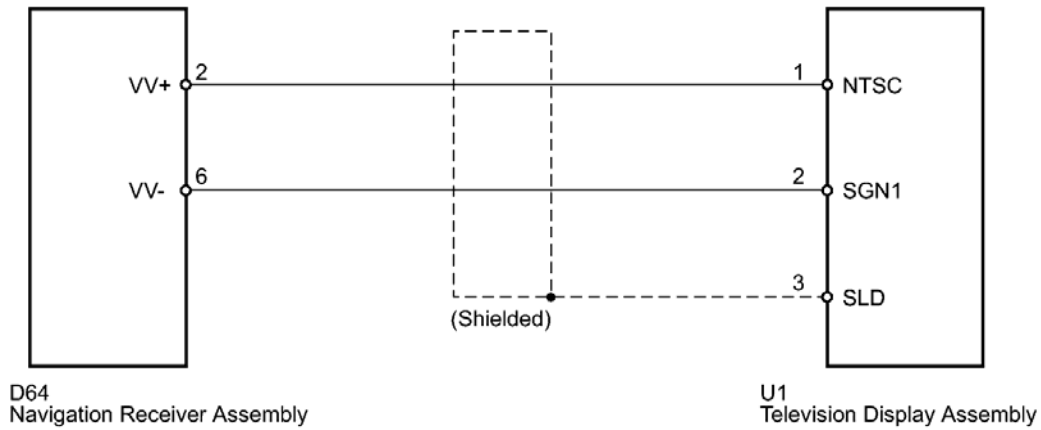


Fig. 47: Display Signal Circuit Between Television Display Assembly And Navigation Receiver Assembly - Wiring Diagram

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. CHECK NAVIGATION RECEIVER ASSEMBLY

- Disconnect the D64 navigation receiver assembly connector.

*1

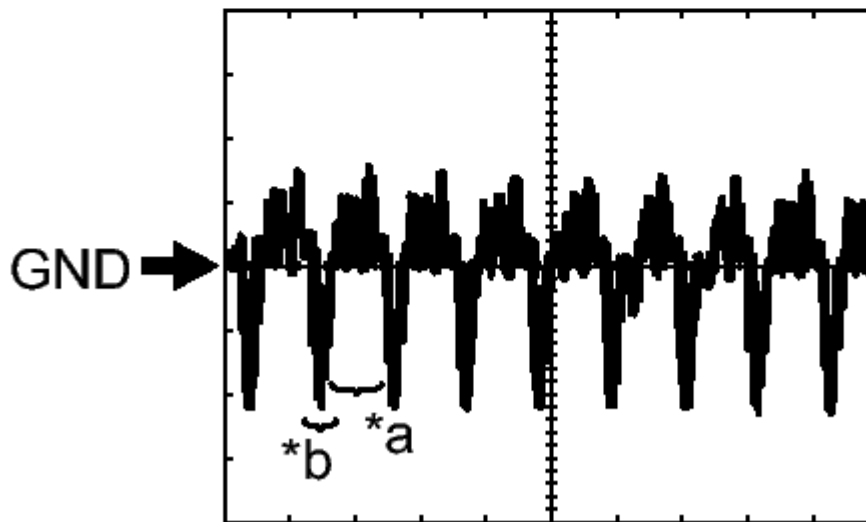
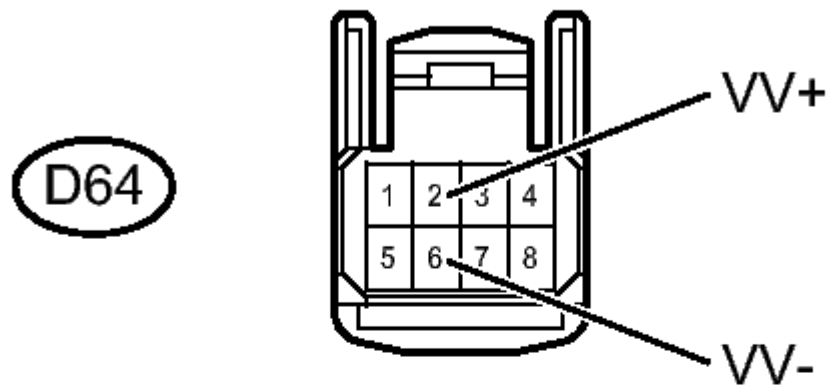


Fig. 48: Checking Navigation Receiver Assembly With Waveform
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using an oscilloscope, check the signal waveform between each terminal and the body ground according to the conditions, as shown in the chart below.

SIGNAL WAVEFORM (REFERENCE)

Item	Content
Terminal No. (Symbols)	D64-2 (VV+) - D64-6 (VV-)
Tool Setting	0.2 V/DIV., 100 μsec./DIV.
Condition	RSE system is playing

OK

Waveform is as shown in the illustration.

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to Navigation Receiver Assembly)
*a	Video Waveform
*b	Synchronization Signal

NG --> See step 2

OK --> See step 3

2. CHECK HARNESS AND CONNECTOR (NAVIGATION RECEIVER - TELEVISION DISPLAY)

- Disconnect the D64 navigation receiver assembly connector.
- Disconnect the U1 television display assembly connector.
- Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D64-2		

(VV+) - U1-1 (NTSC)	Always	Below 1 ohms
D64-6 (VV-) - U1-2 (SGN1)	Always	Below 1 ohms
U1-1 (NTSC) - Body ground	Always	10 kohms or higher
U1-2 (SGN1) - Body ground	Always	10 kohms or higher
U1-3 (SLD) - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 4

3. **REPLACE NAVIGATION RECEIVER ASSEMBLY. Refer to REMOVAL**
4. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**

Television Display Power Source Circuit

DESCRIPTION

This is the power source circuit of the television display assembly.

WIRING DIAGRAM

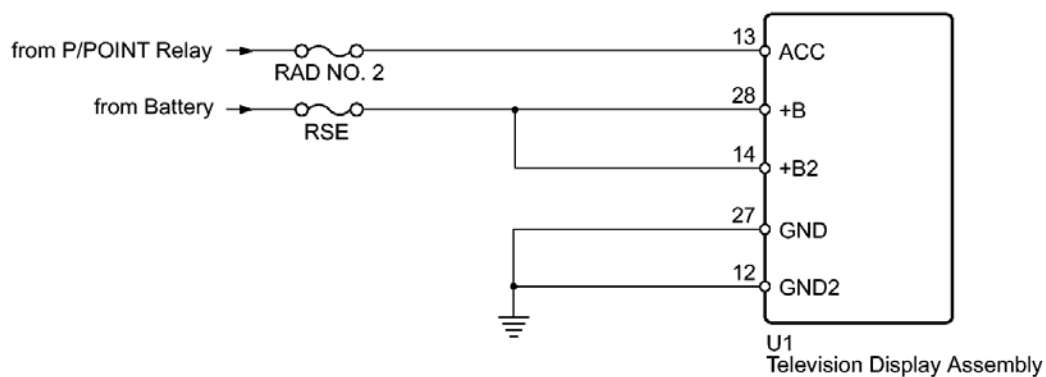


Fig. 49: Television Display Power Source Circuit - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

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

PROCEDURE

- 1. **CHECK HARNESS AND CONNECTOR (TELEVISION DISPLAY - BATTERY AND BODY GROUND)**
 - a. Disconnect the U1 television display assembly connector.

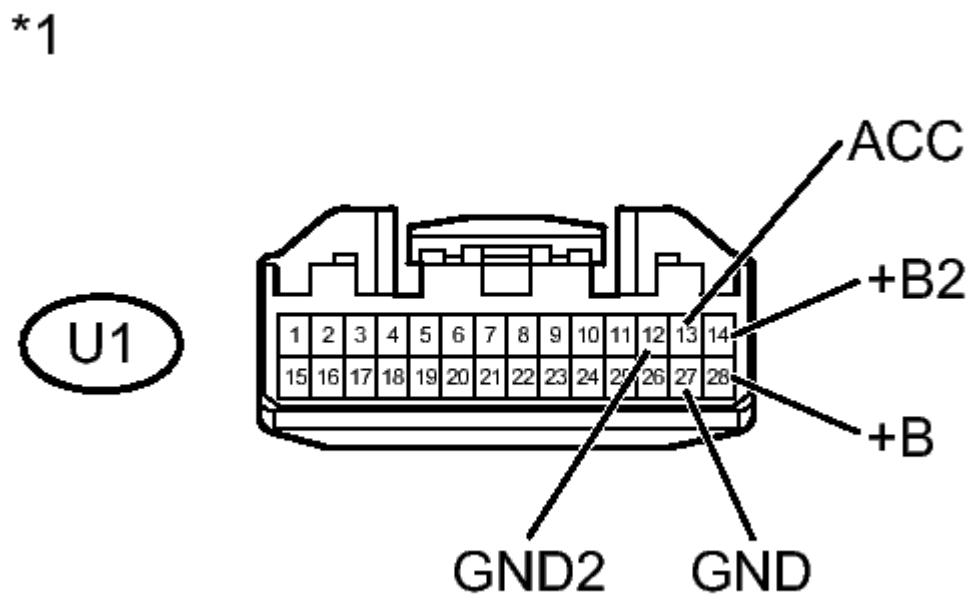


Fig. 50: Checking Harness And Connector (Television Display - Battery And Body Ground)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
U1-27 (GND) - Body ground	Always	Below 1 ohms

U1-12 (GND2) - Body ground	Always	Below 1 ohms
-------------------------------------	--------	-----------------

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

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
U1-14 (+B2) - U1- 27 (GND)	Always	11 to 14 V
U1-28 (+B) - U1-27 (GND)	Always	11 to 14 V
U1-13 (ACC) - U1-27 (GND)	Ignition switch ACC	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 --> **See step 2**

2. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**

Disc Player Changer Power Source Circuit

DESCRIPTION

This is the power source circuit of the disc player assembly.

WIRING DIAGRAM

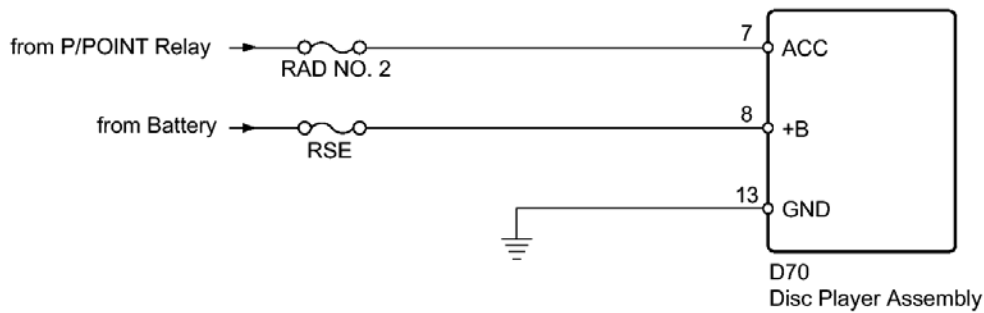


Fig. 51: Disc Player Changer Power Source Circuit - Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

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

PROCEDURE

1. **CHECK HARNESS AND CONNECTOR (DISC PLAYER - BATTERY AND BODY GROUND)**
 - a. Disconnect the D70 disc player assembly connector.

*1

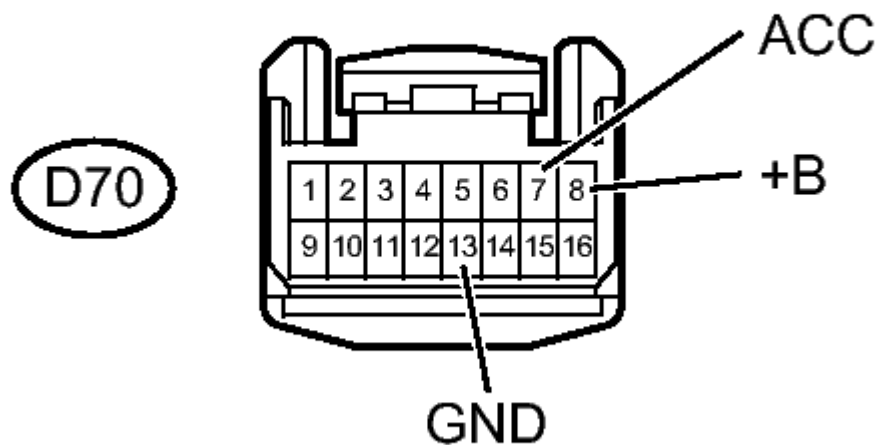


Fig. 52: Checking Disc Player Assembly Resistance With D70 Connector End View
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
D70-13 (GND) - Body ground	Always	Below 1 ohms

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

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
D70-8 (+B) - D70-13 (GND)	Always	11 to 14 V
D70-7 (ACC) - D70-13 (GND)	Ignition switch ACC	11 to 14 V

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to Disc Player Assembly)
----	--

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 2

2. REPLACE DISC PLAYER ASSEMBLY. Refer to REMOVAL