

2004 ACCESSORIES & EQUIPMENT

Audio System - RAV4

DESCRIPTION

The radio wave bands used in radio broadcasting are as follows:

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	

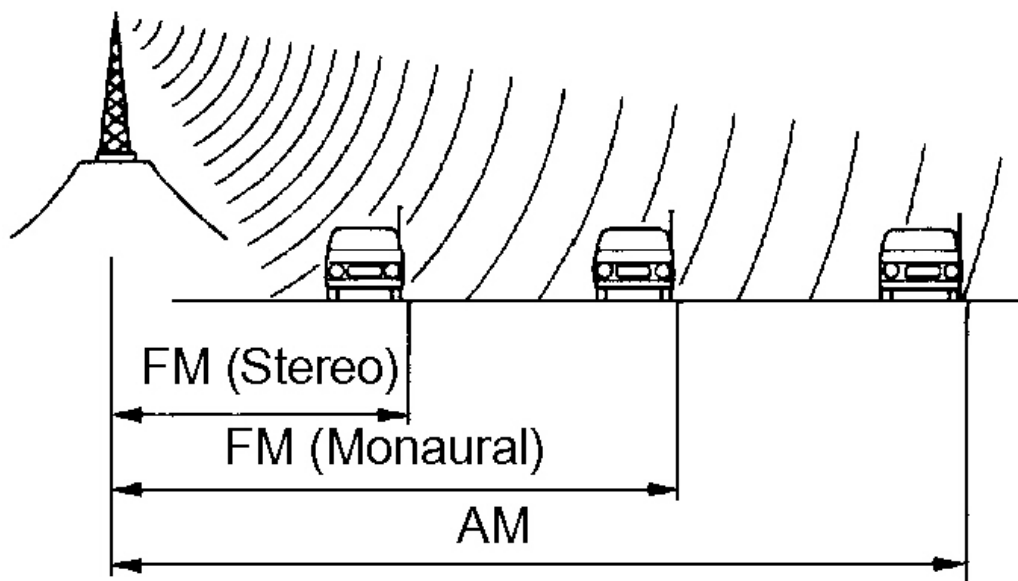
LF: Low Frequency
MF: Medium Frequency
HF: High Frequency
VHF: Very High Frequency

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Fig. 1: Radio Wave Band Broadcasting Table
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1. SERVICE AREA

There are great differences in the size of the service areas for AM and FM broadcasts. Sometimes FM stereo broadcasts cannot be received in an area where AM broadcasts can be received very clearly.



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Fig. 2: Identifying FM & AM Service Areas

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Not only do FM stereo broadcasts have the smallest service area, but it also picks up static and other types of interference ("noise") easily.

2. RECEPTION PROBLEMS

Besides static, there are also problems called "fading", "multi-path" and "fade out". These problems are not caused by electrical noise but by the nature of the radio waves themselves.

1. Fading:

Besides electrical interference, AM broadcasts are also susceptible to other types of interference, especially at night. This is because AM radio waves bounce off the ionosphere at night. These radio waves then interfere with the radio waves that reach the vehicle's antenna directly. This type of interference is called "fading".

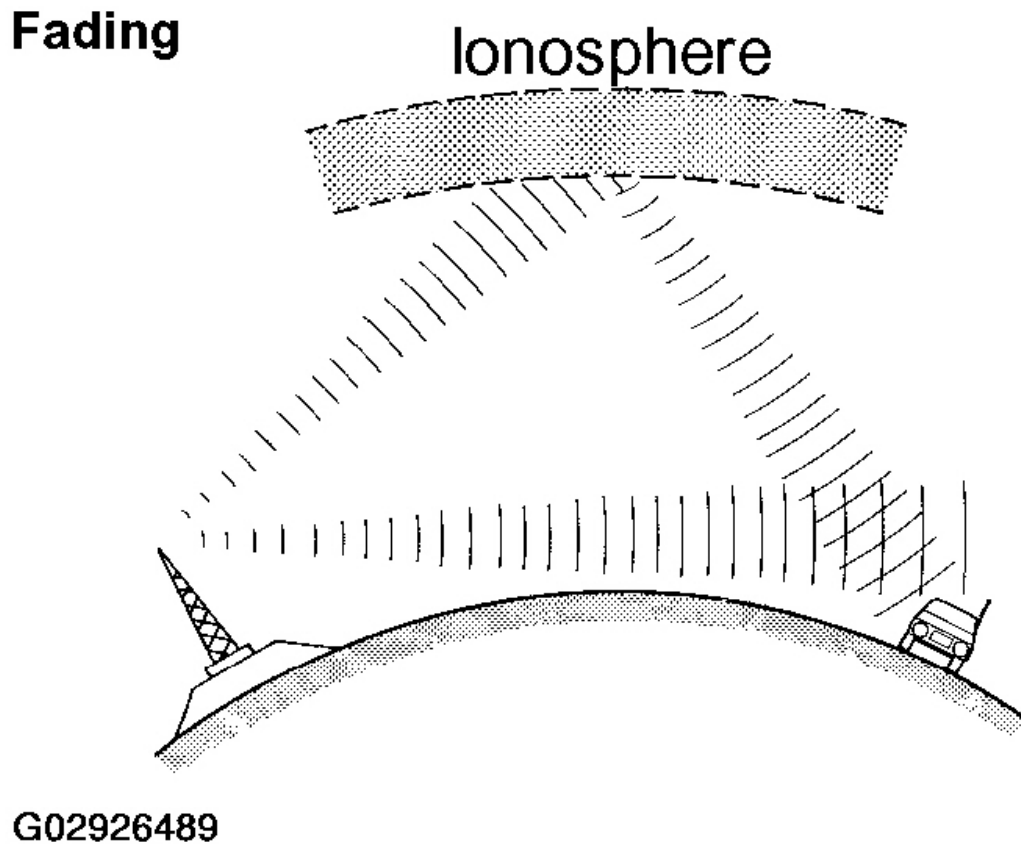


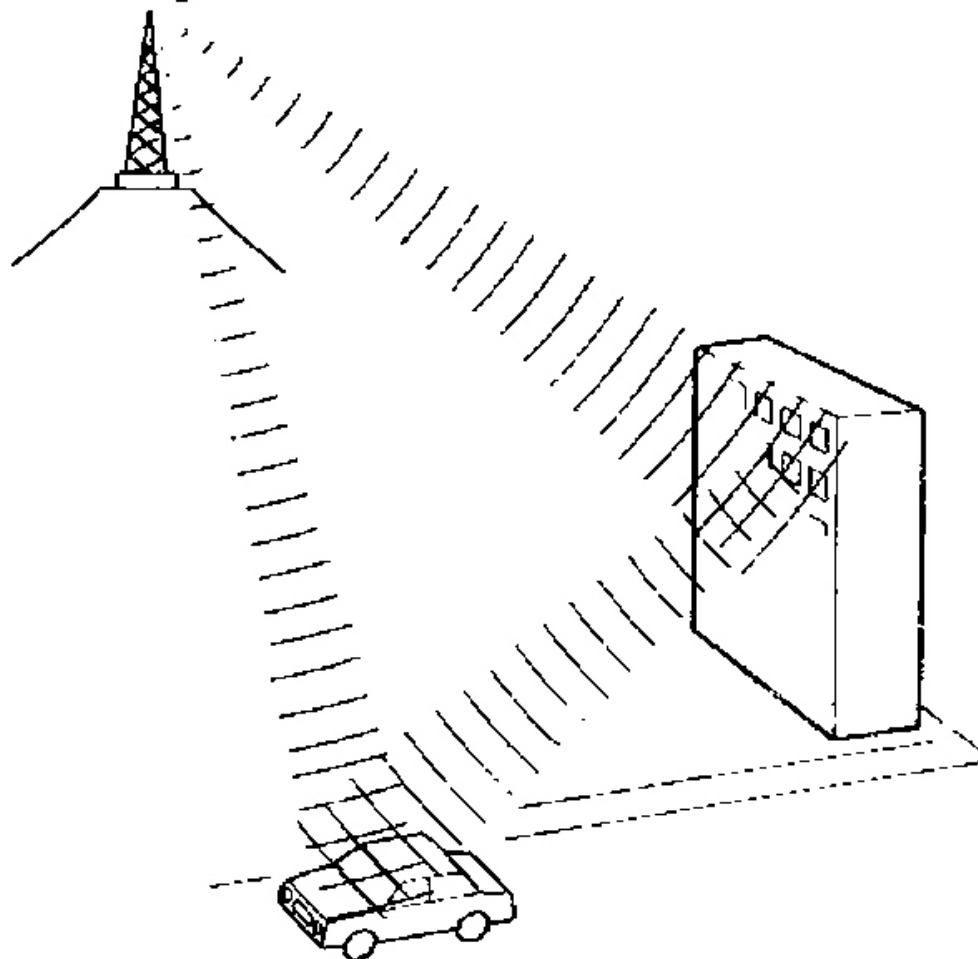
Fig. 3: Identifying Fading Interference

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2. Multi-path:

One type of interference caused by bounce of radio waves against obstructions is called "multi-path". Multi-path occurs when a signal from the broadcast transmitter antenna bounces off buildings and mountains and interferes with the signals that reach the vehicle's antenna directly.

Multi-path



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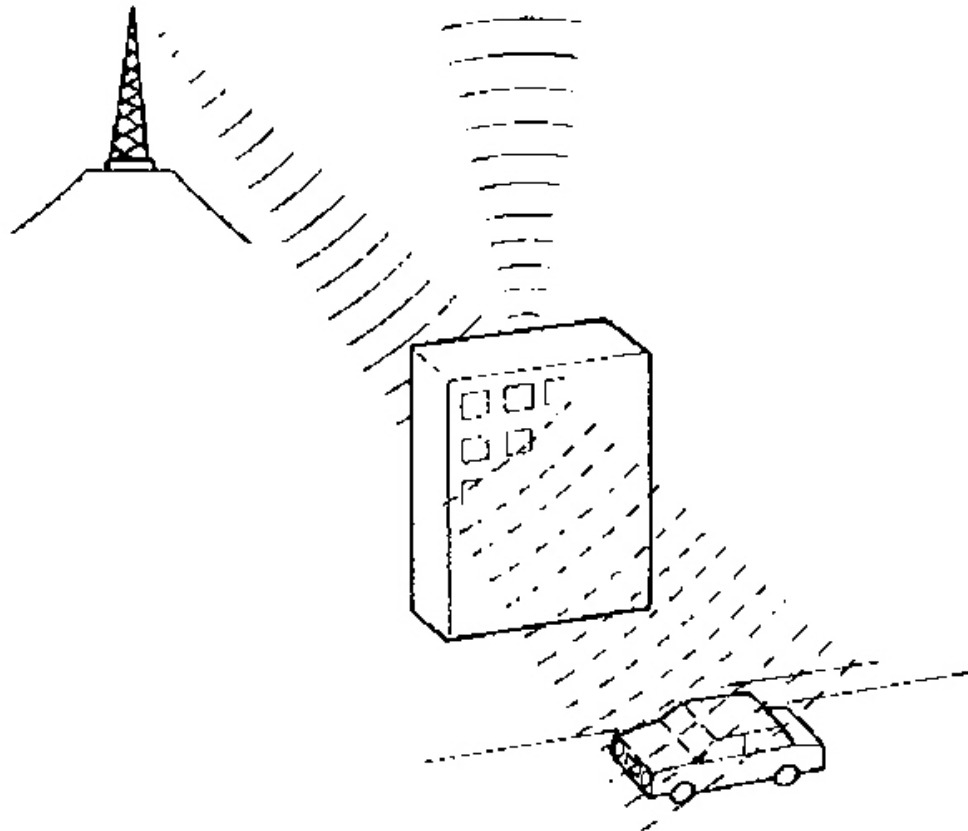
Fig. 4: Identifying Multi-Path Interference

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3. Fade Out:

Because FM radio waves are of higher frequencies than AM radio waves, they bounce off buildings, mountains and other obstructions. For this reason, FM signals often seem to gradually disappear or fade out as the vehicle goes behind buildings or other obstructions. This is called "fade out".

Fade Out



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Fig. 5: Identifying Fading Out Of FM Signal Due To Obstructions
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3. NOISE PROBLEMS

- a. Questionnaire for noise:

For noise troubleshooting it is very important to understand the customer's claims. Use the questionnaire in **Fig. 6** and diagnose the problem accurately.

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AM	Noise occurs at a specific place.	Strong possibility of foreign noise.
	Noise occurs when listening to faint broadcasting.	Sometimes different local stations broadcast the same program. The vehicle user may be listening to the station with worse reception.
	Noise occurs only at night.	Strong possibility buzzing is from distant broadcasting.
FM	Noise occurs during driving and at a specific place.	Strong possibility of multi-path noise and fading noise caused by the changes of FM waves.

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Fig. 6: AM/FM Noise Symptom Table

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HINT:

In the case that the noise occurrence condition does not meet any of the above, check based on the "Trouble Phenomenon". Refer to multi-path and fading.

b. Matters that require attention when checking:

- Noise coming into the radio usually is negligible. The radio has noise protection and extremely loud noise is unlikely. When extremely loud noise comes into the radio, check if the grounding is normal where the antenna is installed.
- Check if all the regular noise prevention parts are properly installed and if there is any installation of non-authorized parts and non-authorized wiring.
- If you leave the radio out of tune (not tuning), it is easy to diagnose the phenomenon as noise occurs frequently.

4. COMPACT DISC PLAYER

Compact disc players use a laser beam pick-up to read the digital signals recorded on the CD and reproduce analog signals of the music, etc.

HINT:

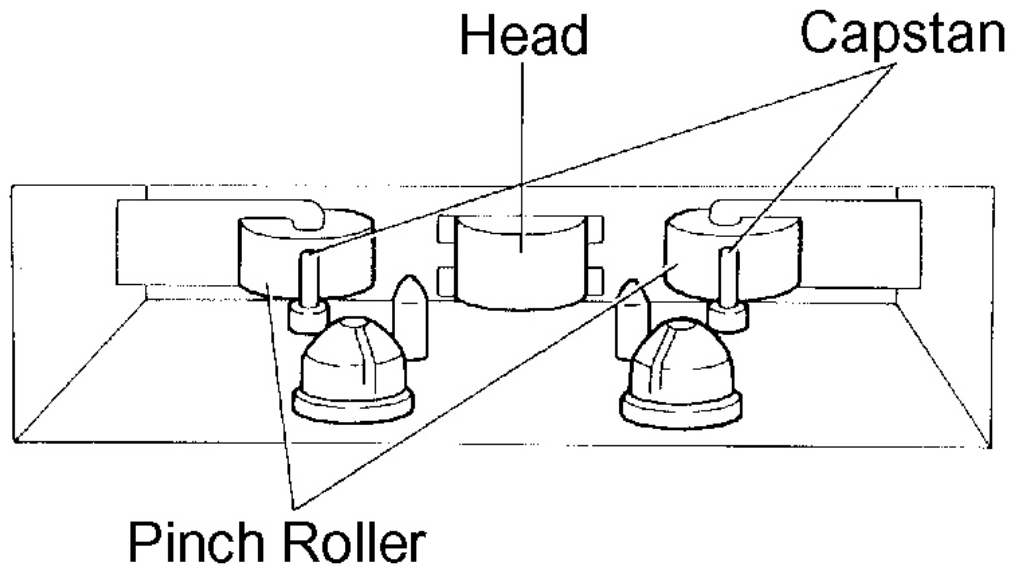
Never attempt to disassemble or put oil on any part of the player unit. Do not insert any object other than a disc into the magazine.

NOTE: **CD players use an invisible laser beam which could cause hazardous radiation exposure. Be sure to operate the player correctly as instructed.**

5. Tape player/head cleaning: MAINTENANCE

- a. Raise the cassette door with your finger. Next, using a pencil or similar object, push in the guide.
- b. Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, pinch rollers and capstans.

Example



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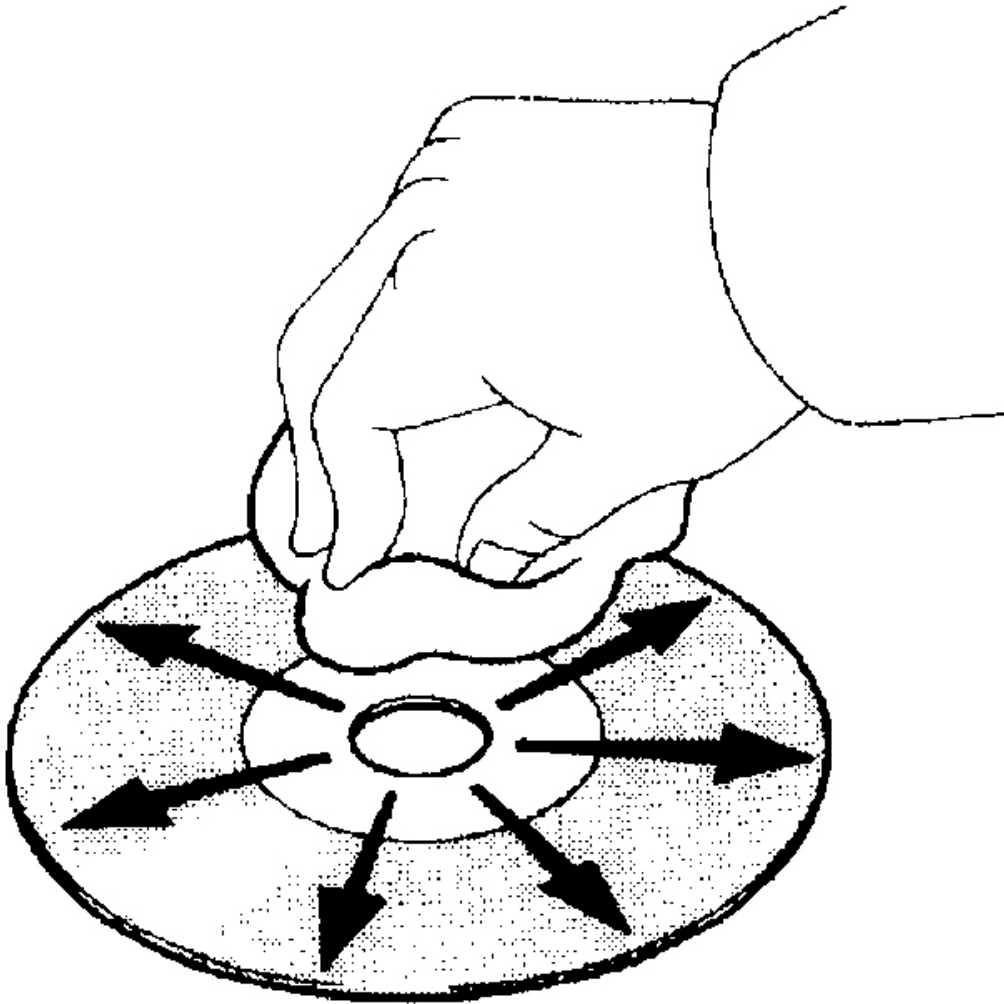
Fig. 7: Cleaning Tape Player/Head

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6. CD player/disc cleaning: MAINTENANCE

If the disc gets dirty, clean the disc by wiping the surface from the center to outside in the radial directions with a soft cloth.

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



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Fig. 8: Cleaning CD Disc With Soft Cloth

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7. OUTLINE OF AVC-LAN

a. What is AVC-LAN?

AVC-LAN stands for Audio Visual Communication-Local Area Network. This is a unified standard, co-developed by 6 audio manufactures associated with Toyota Motor Corporation.

The unified standard covers signals, such as audio signals, visual signals, signals for switch

indications and communication signals.

b. Objectives

Recently the car audio system has been rapidly developed and functions have been changed drastically. The conventional system has been switched to the multi-media type such as a navigation system. At the same time, the level to audio systems customers that need has been upgraded. These led to the creation of this standardization.

The concrete objectives are explained below.

1. When products made by different manufactures were combined together, malfunctions often occurred (for example, sound did not come out). This problem has been resolved by the standardization of signals.
 2. Various types of aftermarket products have been able to be added or replaced freely.
 3. Because of (2) above, each manufacture has become able to concentrate on developing products in their strongest field. This has enabled many types of products to be provided inexpensively.
 4. Before, a new product developed by a manufacturer could not be used due to a lack of compatibility with other manufactures products. With the new standard, users can enjoy new products without incompatibility.
- c. The above descriptions are the objectives introduced by AVC-LAN. By this standardization, development of new products will no longer cause systematic errors. Thus, this is a very effective standard for future products.

HINT:

- When +B short or GND short is detected in the AVC-LAN circuit, communication stops. Accordingly the audio system does not function normally.
- When an audio system is not equipped with a navigation system, the audio head unit is the master unit. When an audio system is equipped with a navigation system, the radio receiver is the master unit.
- A car audio system using the AVC-LAN circuit has a diagnosis function.
- Each product has its own specified numbers called physical addresses. Numbers also allotted to functions in a product, are called logical addresses.

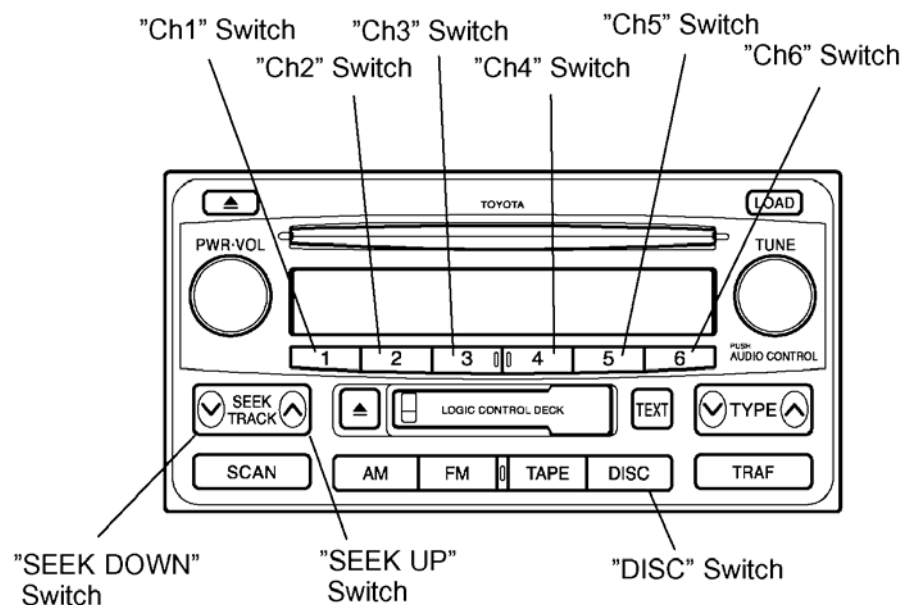
TROUBLESHOOTING

1. DIAGNOSIS CHECK

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Example



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Fig. 9: Identifying Audio System Components Example

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- a. Starting Diagnosis Mode (all elements are lighting in the switch check mode)
 1. Turn off the audio system and turn the ignition switch to ACC. While pressing and holding down the preset switches "1" and "6", press "DISC" 3 times.
 2. Reference:
 - When the system enters the Diagnosis Mode, a "beep" tone is emitted 3 times and all the elements are lighting in the switch check mode.
 - It takes about 40 seconds to complete the check.
 - Turn all the elements in the LCD on.
 - When pressing the switch, confirm that a beep tone is emitted.
 - Press the "SEEK UP" switch to enter the "Service Check Screen".
- b. Service Check Screen

Reference:

In the service check mode, the system check and the diagnosis memory check are performed. Check results are displayed in ascending order of the device codes (physical address.)

TERMS & DEFINITIONS

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

Code No. (physical address) List

CODE NO. LIST

Code No. (physical address)	Equipment name
190	Radio receiver (Audio head unit)
440	Stereo component amplifier

c. Finishing Diagnosis Mode

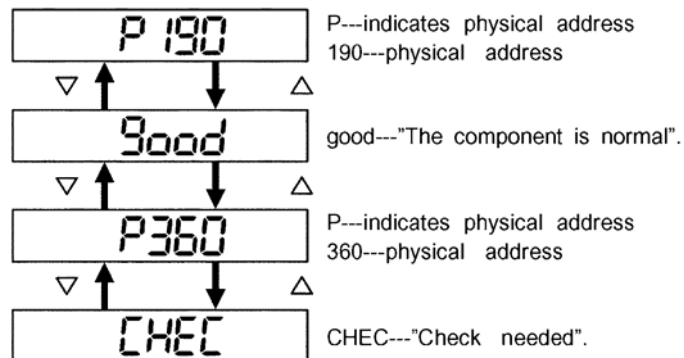
Press "DISC" for 2 seconds or more, or turn the ignition switch OFF.

d. The service Check Mode Result Display is for checking the current and the past system conditions.

1. Press the "SEEK TRACK" switch to see the check result of each device.

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△ : SEEK TRACK UP
▽ : SEEK TRACK DOWN

The illustration shows the case that the system has 2 devices with codes 190 and 360, The device at physical address 360 requires a check.

The check result is displayed in the numerical order of the device code. The device code is displayed first, and then the check result.

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Fig. 10: Identifying Service Check Mode Result Display
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2. Check Result Display.

CHECK RESULT DISPLAY

Display	Original Language	Meaning	Action to be taken
good	Good (normal)	No DTCs are detected in both "System Check Mode" and "Diagnosis Memory Mode".	
NCON	No connection	The system recognized the component when it was registered, but the component gives no response to the "Diagnosis Mode ON	Check the power source circuit and the communication circuit of the device indicated by the device code (physical address).

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		Request".	
ECHN	Exchange	One or more DTCs for "Exchange" is detected in either "System Check Mode" or "Diagnosis Memory Mode".	Go to the detailed information mode to check the trouble area referring to the DTC list.
CHEC	Check	When no DTCs are detected for "Exchange", one or more DTC for "Check is detected in either "System Check Mode" or "Diagnosis Memory Mode".	Go to the detailed information mode to check the trouble area referring to the DTC list.
OLD	Old version	Old DTC application is identified and DTC is detected in either "System Check Mode" or "Diagnosis Memory Mode".	
NRES	No response	The device gives no response to "System Check Mode ON Request", "System Check Result Request" and "Diagnosis Memory Request".	Check the power source circuit and the communication circuit of the device indicated by the device code (physical address).

3. To perform the Service Check again, press the preset switch "1".

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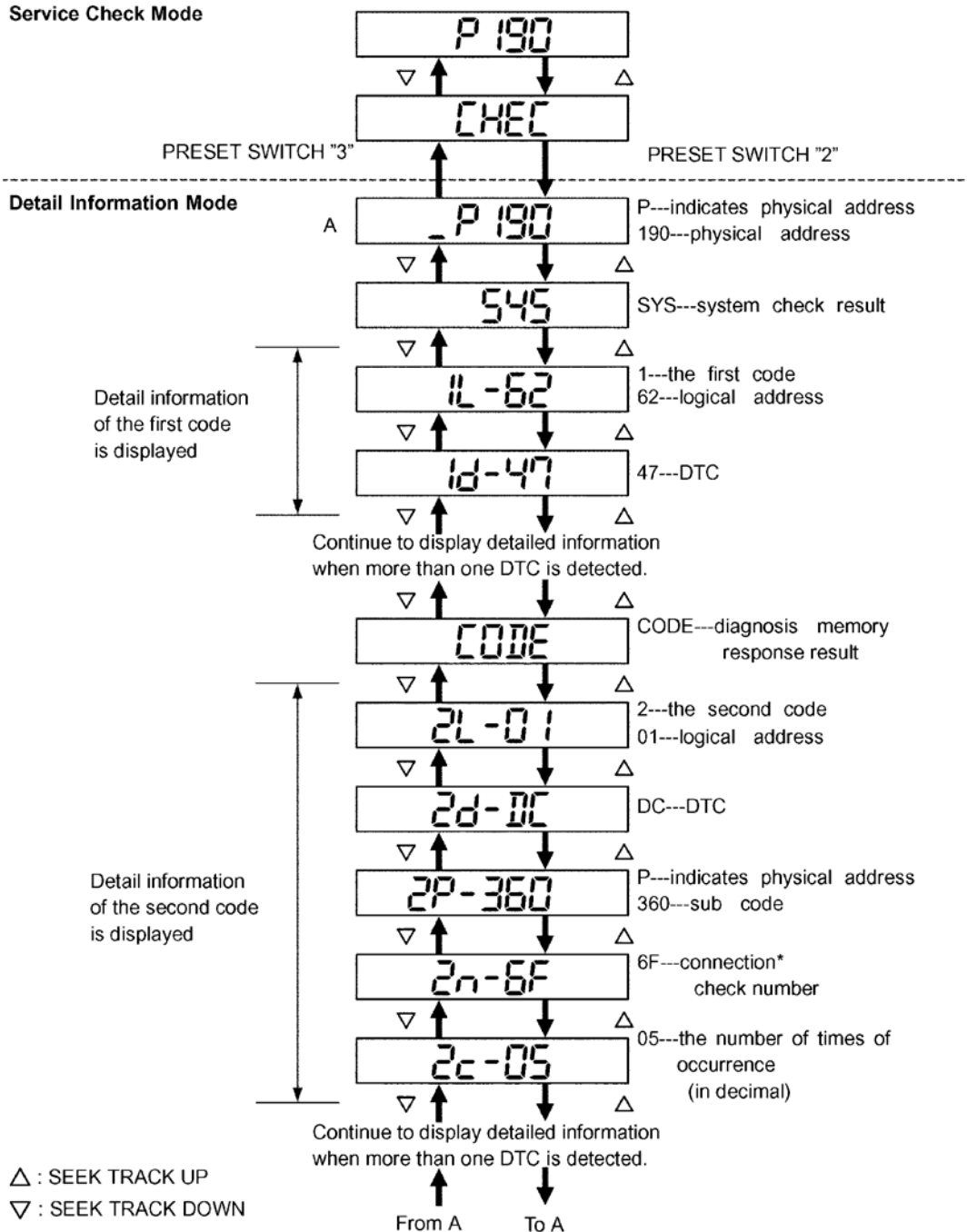
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- e. Detailed Information Mode (when displaying the troubled device's DTC).
 - 1. With "CHEC" or "ECHN" being displayed, press the preset switch "2" to go to the detailed information mode.
 - 2. Press the "SEEK TRACK" switch to display "System Check Result (SYS)" and "Diagnosis Memory Response (CODE)".

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Service Check Mode



The illustration shows the case that the component with code 190 has DTC 47 and "dC" as a result of the system check and the diagnosis memory response.

The detailed information mode shows the system check result first, then the diagnosis memory response result.

*: For the DTCs without sub codes, sub codes are not displayed.

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Fig. 11: Identifying Detailed Information Mode

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3. Displayed Items in Detailed Information Mode.

Division Code for DTC display	Meaning	The order of detailed information displayed when the "SEEK TRACK UP" switch is pressed. The order is reversed when the "SEEK TRACK DOWN" switch is pressed.
SYS	System check result is displayed.	Logical address → DTC
CODE	Diagnosis memory check result is displayed.	Logical address → DTC → Sub code → Connection confirmation number → The number of times of occurrence

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Fig. 12: Identifying Detailed Information Mode Chart
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4. Check the trouble area by referring to the DTC list.
5. To return to the service check mode, press the preset switch "3".
- f. Clearing Individual DTC Memory (when clearing the memory of the DTC detected in the past individually).

Press the preset switch "5" for 2 seconds or more while the "ECHN" is displayed in the service check mode or during the detailed information mode.

HINT:

- Beep sound is emitted once when the DTC memory is completely cleared.
 - When the DTC memory is cleared, only the component code (physical address) is displayed for the target component.
 - To check the DTC, press the preset switch "1" and perform the service check again.
- g. Clearing all the DTC memory (when clearing all the memory of the DTC detected in the past).
 1. Start the diagnosis mode after repairing the trouble area.
 2. Press the preset switch "5" for 2 seconds or more. ("CLR" is displayed at this time.)

HINT:

- Beep sounds once when the DTC memory is completely cleared.
 - When the DTC memory for all the devices are cleared, only the component codes (physical address) are displayed.
3. Press the preset switch "1" to perform the service check again, and check that no DTCs are displayed for all the component codes (physical address).

2. DIAGNOSIS CODE LIST

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Terms	Meaning
Physical address	Three-digit code (shown in hexadecimal) which is given to each component comprising the AVC-LAN. Corresponding to the function, individual symbols are specified.
Logical address	Two-digit code (shown in hexadecimal) which is given to each function comprising the inner system of the AVC-LAN.

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Fig. 13: Terms & Meaning Table

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HINT:

Titles for each unit are stated in the following order: physical address (part name).

3. 190 (RADIO RECEIVER)

HINT:

- *¹ : Even if no failure is detected, trouble code may be stored depending on the battery condition or voltage for starting the engine.
 - *² : The code is stored 180 seconds after the power supply connector is disconnected after engine start.
 - *³ : The code may be stored when the engine key is turned 1 minute after engine start.
 - *⁴ : The code may be stored when the engine key is turned again after engine start.
 - *⁵ : The code is stored 210 seconds after the master component power supply connector is disconnected with the ignition switch in the ACC or ON position.
- a. Logical address: 01 (Communication control)

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DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts
D6 *1	Absence of Master	Component in which this code is recorded had been disconnected from system or master component with ignition switch in ACC or ON.	• Check harness for power supply system of radio receiver. • Check harness for communication system of radio receiver.
D7 *5	Connection Check Error	Component in which this code is recorded had been disconnected from system or master component with ignition switch in ACC or ON.	• Check harness for power supply of radio receiver. • Check harness for communication system of radio receiver.
D8 *2	No Response to Connection Check	Component shown by sub code is or has been disconnected from system after engine start.	• Check harness for power supply system of component shown by sub code. • Check harness for communication system of component shown by sub code.
D9 *1	Last Mode Error	Audio or visual component operated before engine stop is or has been disconnected with ignition switch in ACC or ON.	• Check harness for power supply system of component shown by sub code. • Check harness for communication system of component shown by sub code.
DA	No Response to ON/OFF Instruction	No response is identified when changing mode (audio and visual mode change). Detected when sound and picture does not change by button operation.	• Check harness for power supply system of component shown by sub code. • Check harness for communication system of component shown by sub code. • If error occurs again, replace component shown by sub code.
DB *1	Mode Status Error	Dual alarm is detected.	• Check harness for power supply of component shown by sub code. • Check harness for communication system of component shown by sub code.
DC *3	Transmission Error	Transmission to component shown by auxiliary code has failed. (Detecting this DTC does not necessarily mean actual failure.)	If same sub code is recorded in other component, check harness for power supply and communication system of all components shown by code. (If not, delete DTC and recheck.)
DD *4	Master Reset (Momentary Interruption)	After engine is started, master component had been disconnected from system.	• Check harness for power supply system of multi-display. • Check harness for communication system of radio receiver. • If this error occurs frequently, replace radio receiver.
DE *4	Slave Reset (Momentary Interruption)	After engine is started, component shown by sub code had been disconnected from system.	• Check harness for power supply of component shown by sub code. • Check harness for communication system of component shown by sub code.
DF *4	Master Error	Due to defective cognition of component with a display, master function is switched to audio equipment. Error occurs in communication between sub-master (audio) and master component.	• Check harness for power supply of radio receiver. • Check harness for communication system of radio receiver. • Check harness for communication system between radio receiver and sub-master component.
E0 *1	Registration Completion Instruction Error	"Registration Completion Instruction" command from master cannot be received.	Since this DTC is provided for engineering purposes, it may be detected when no actual failure exists.
E2	ON/OFF Instruction Parameter Error	Error occurs in ON/OFF controlling command from master component.	Replace radio receiver.
E3 *1	Registration Request Transmission	Registration Request command is output from component shown by sub code. Receiving Connection Check Instruction, Registration Request command is output from sub-master component.	Since this DTC is provided for engineering purposes, it may be detected when no actual failure exists.
E4 *1	Multiple Frame Abort	Multiple frame transmission is aborted.	Since this DTC is provided for engineering purposes, it may be detected when no actual failure exists.

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Fig. 14: Communication Control Diagnosis Table

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- b. Logical address: 61 (Cassette switch)

DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts
40	Mechanical Error of Media	Malfunction due to mechanical failure is identified. Or cassette tape is cut or entangled.	• Inspect cassette tape. • Replace radio receiver.
41	EJECT Error	Malfunction due to mechanical failure.	Replace radio receiver.
42	Tape caught in the radio receiver	Hub lock etc.	Inspect cassette tape.

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Fig. 15: Cassette Switch Diagnosis Table

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- c. Logical address: 62 (CD player)

DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts
42	No Disc Readout	Disc cannot be read.	• Inspect CD. • Replace radio receiver.
44	CD player Error	Error is detected in CD player.	Replace radio receiver.
45	EJECT Error	Magazine cannot be ejected.	Replace radio receiver.
47	Detection of high temperature	High temperature is detected in CD player.	With ignition switch off, leave vehicle in cool shaded place for a while and recheck. After deleting the DTC memory, if same code detected, replace radio receiver.
48	Detection of excess current	Excess current is applied CD player.	Replace radio receiver.

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Fig. 16: CD Player Diagnosis Table

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4. 440 (STEREO COMPONENT AMPLIFIER)

HINT:

- *¹ : Even if no failure is detected, this code may be stored depending on the battery condition or voltage for starting the engine.
- *² : The code may be stored when the engine key is turned again 1 minute after engine start.
- *³ : The code may be stored when the engine key is turned again after engine start.
- *⁴ : The code is stored 210 seconds after the master component power supply is disconnected with the ignition switch in the ACC or ON position.

Logical address: 01 (Communication control)

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DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts
D6 *1	Absence of Master	Component in which this code is recorded has been disconnected from system with ignition switch in ACC or ON. Or, when this code was recorded, radio receiver was disconnected.	• Check harness for power supply of radio receiver. • Check harness for communication system of radio receiver. • Check harness for power supply of stereo component amplifier. • Check harness for communication system of stereo component amplifier.
D7	Communication Check Error	Component in which this code is recorded is or was disconnected from system after engine start. Or, when this code was recorded, radio receiver was disconnected.	• Check harness for power supply of radio receiver. • Check harness for communication system of radio receiver. • Check harness for power supply of stereo component amplifier. • Check harness for communication system of stereo component amplifier.
DC *2	Transmission Error	Transmission to component shown by auxiliary code has been failed. (Detecting this DTC does not necessarily mean actual failure.)	If same auxiliary code is recorded in other component, check harness for power supply and communication system of all components shown by code.
DD *3	Master Reset (Momentary Interruption)	After engine was started, radio receiver was disconnected from system.	• Check harness for power supply of radio receiver. • Check harness for communication system of radio receiver. • Check harness for power supply of stereo component amplifier. • Check harness for communication system of stereo component amplifier. • If this error occurs frequently, replace radio receiver.
DF *4	Master Error	Due to defective condition of component with a display, master function is switched to audio equipment. Error occurs in communication between sub-master (audio) and master component.	• Check harness for power supply of radio receiver. • Check harness for communication system of radio receiver. • Check harness for communication system between radio receiver and sub-master component.
E0 *1	Registration Completion Instruction Error	"Registration Completion Instruction" command from master cannot be received.	Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists.
E1 *1	Audio processor ON error	While source equipment is operating, AMP output is stopped.	• Check harness for power supply of radio receiver. • Check harness for communication system of radio receiver.
E2	ON/OFF Instruction Parameter Error	Error occurs in ON/OFF controlling command from radio receiver.	Replace radio receiver.
E3 *1	Registration Request Transmission	• Registration Request command is output from slave component. • Registration Connection Check Instruction, Registration Request command is output from sub-master component.	Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists.

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Fig. 17: Stereo Component Amplifier Communication Control Diagnosis Table
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5. PROBLEM SYMPTOMS TABLE

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NOTE: When replacing the internal mechanism (computer part) of the audio system, be careful that no part of your body or clothing comes in contact with the terminals of the leads from the IC, and other part of the replacement part (spare part).

HINT:

This inspection procedure is a simple type of troubleshooting which should be carried out on the vehicle while the system is operating with a system component malfunctioning (except for the wires and connectors).

Take the following items into consideration during inspection.

- Open or short circuit of the wire harness
- Connector or terminal connection fault

PROBLEM & CONNECTOR OR TERMINAL CONNECTION FAULT REFERENCE

	Problem	No.
Radio	Radio does not operate when power switch is turned to 'ON'.	1
	Display indicates when power switch is turned to 'ON', but no sound (including 'noise') is produced.	2
	Noise is present, but AM - FM does not operate.	3
	One of the speakers does not work.	4
	Either AM or FM does not work.	5
	Reception is poor.	6
	Sound quality is poor.	7
	Preset memory disappears.	8
Tape Player	Cassette tape cannot be inserted.	9
	Cassette tape can be inserted, but no power is produced.	10

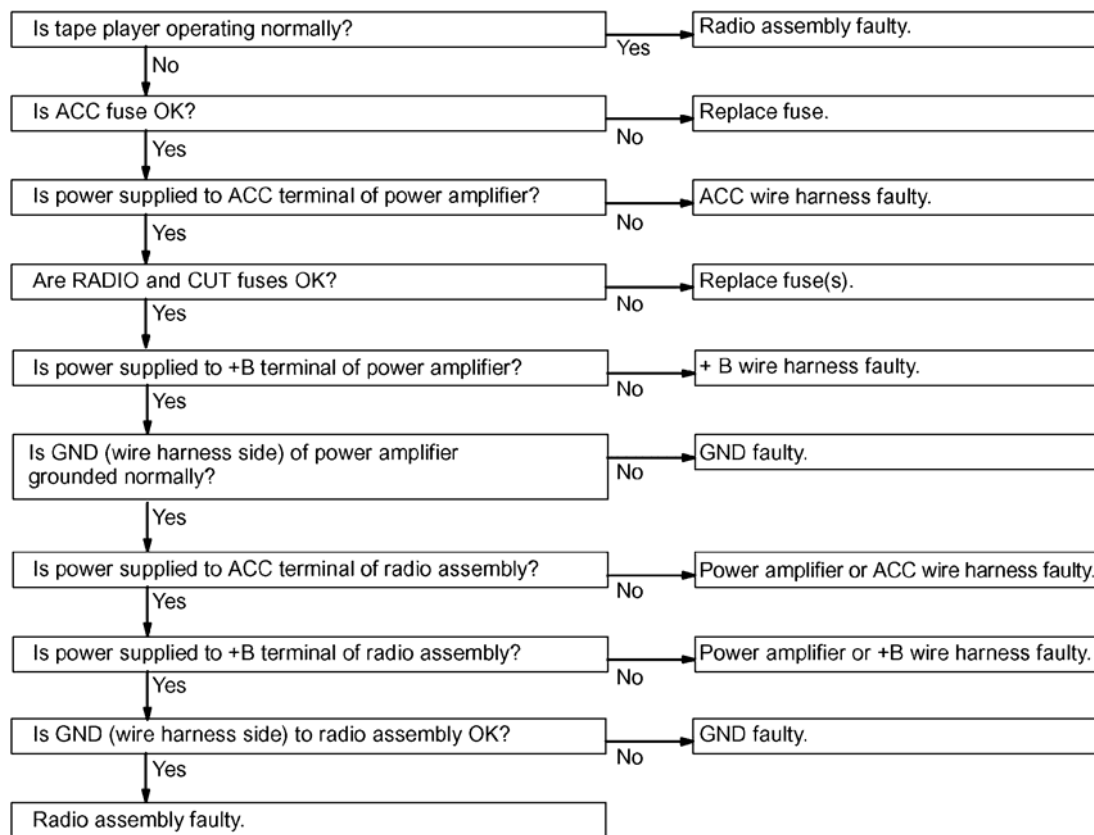
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	Power comes in, but tape player does not operate.	11
	One of the speakers does not work.	12
	Sound quality is poor (Volume faint).	13
	Tape is jammed, malfunction with tape speed or auto-reverse.	14
	Cassette tape cannot be ejected.	15
CD Player	CD cannot be inserted.	16
	CD can be inserted, but no power is produced.	17
	Power turns on, but CD player does not operate.	18
	CD skips and audio is not smooth.	19
	Sound quality is poor (volume faint).	20
	One of the speakers does not work.	21
	CD cannot be ejected.	22
Power Amplifier	No power turns on.	23
	Power turns on, but woofer (power) amplifier does not operate.	24
	One of the speakers does not work.	25
Noise	Noise occurs.	26
	Noise is produced by vibration or shock during driving.	27
	Noise is produced when engine starts.	28

The term "AM" includes LW, MW and SW, and the term "FW" includes UKW.

1. RADIO - DOES NOT OPERATE WHEN POWER SWITCH IS TURNED TO "ON"



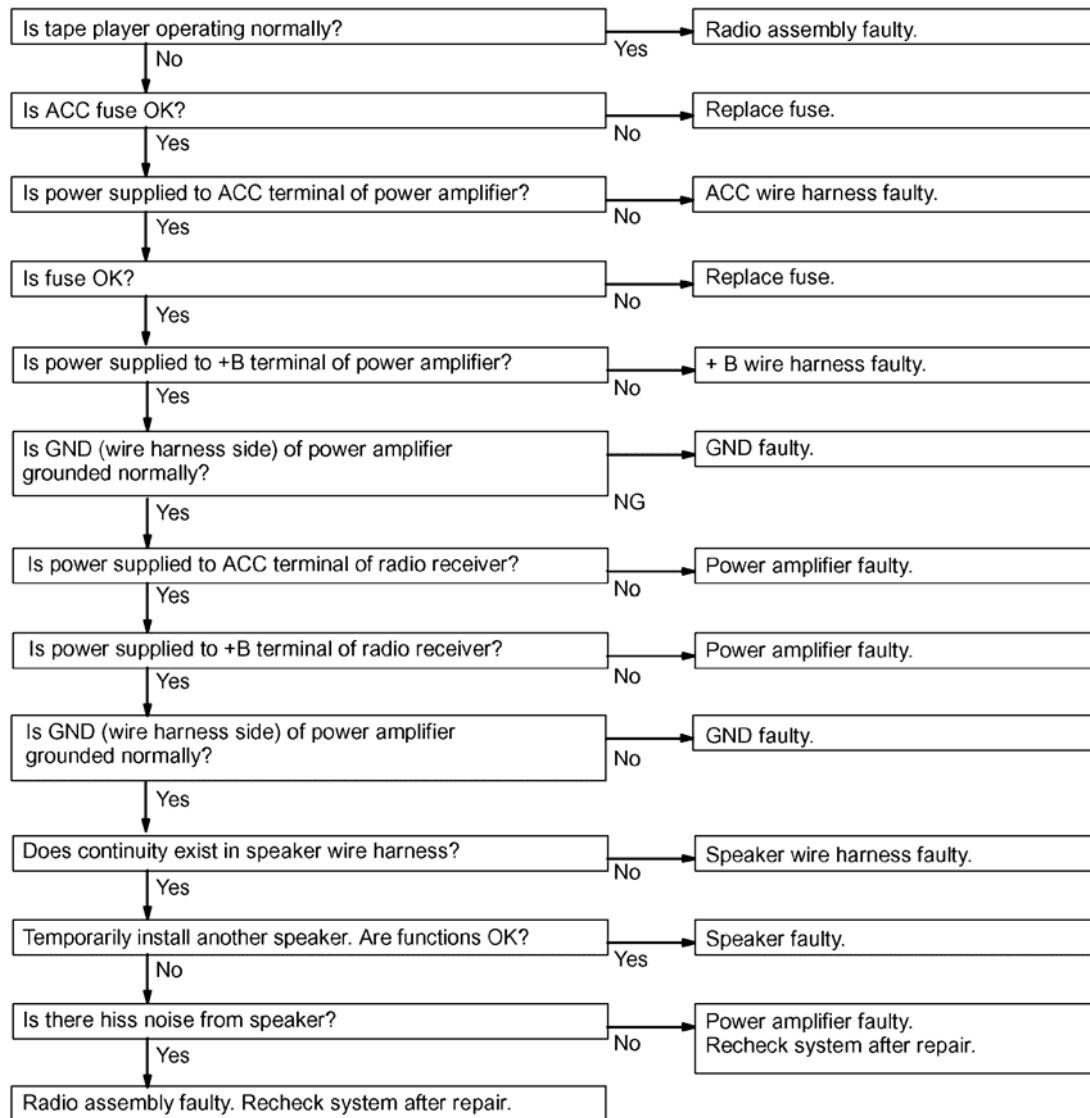
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Fig. 18: Flow Chart Of Radio - Does Not Operate When Power Switch Is Turned On
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2. RADIO - DISPLAY INDICATES WHEN POWER SWITCH IS TURNED TO "ON", BUT NO SOUND (INCLUDING "NOISE") IS PRODUCED

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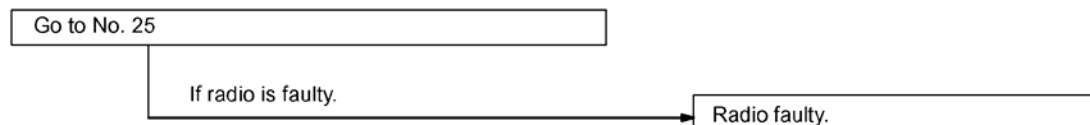


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Fig. 19: Flow Chart Of Radio - Display Indicates When Power Switch Is Turned On But No Sound Produced

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3. RADIO - NOISE IS PRESENT, BUT AM-FM DOES NOT OPERATE

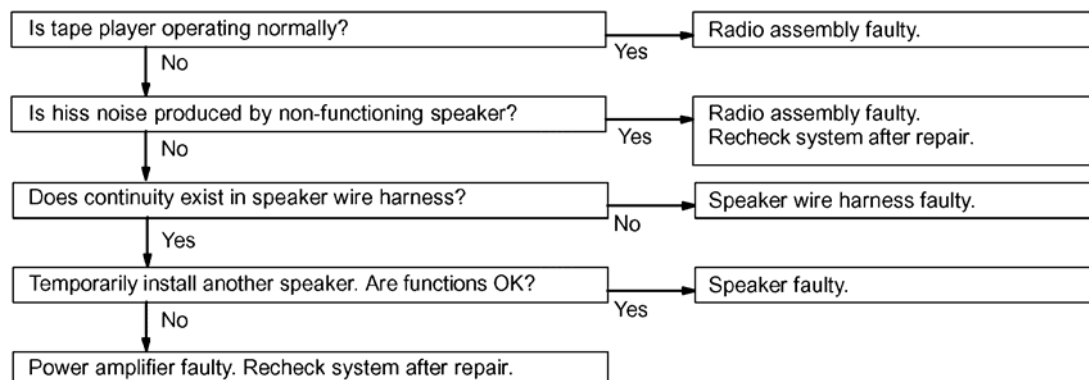


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Fig. 20: Flow Chart Of Radio - Noise Present But AM-FM Does Not Operate

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4. RADIO - ONE OF THE SPEAKERS DOES NOT WORK

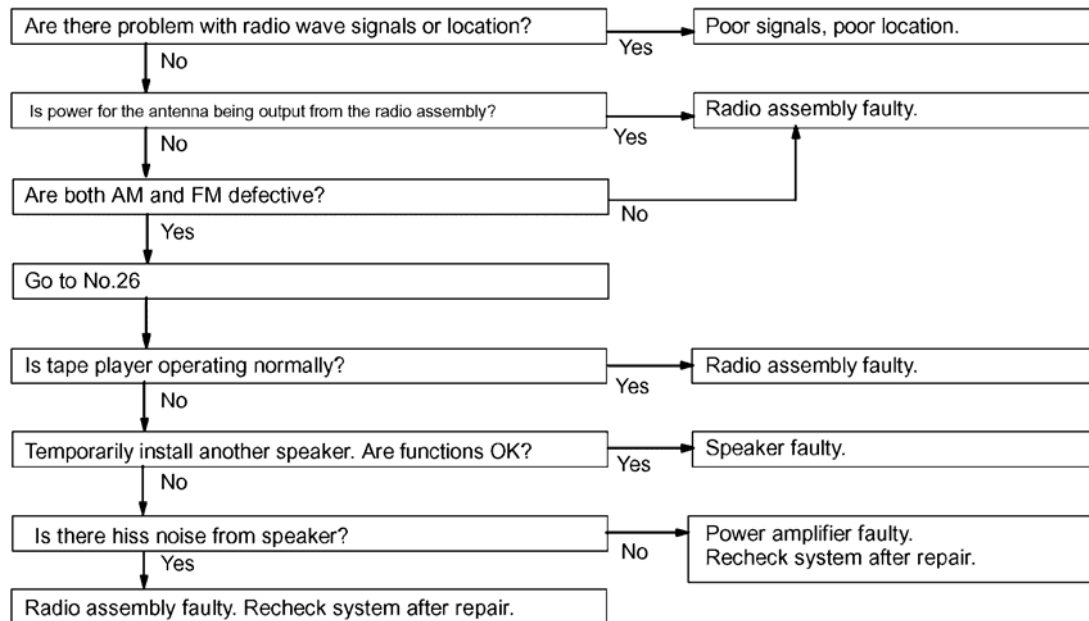


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Fig. 21: Flow Chart Of Radio - One Of Speakers Does Not Work

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

5. RADIO - EITHER AM OR FM DOES NOT WORK.



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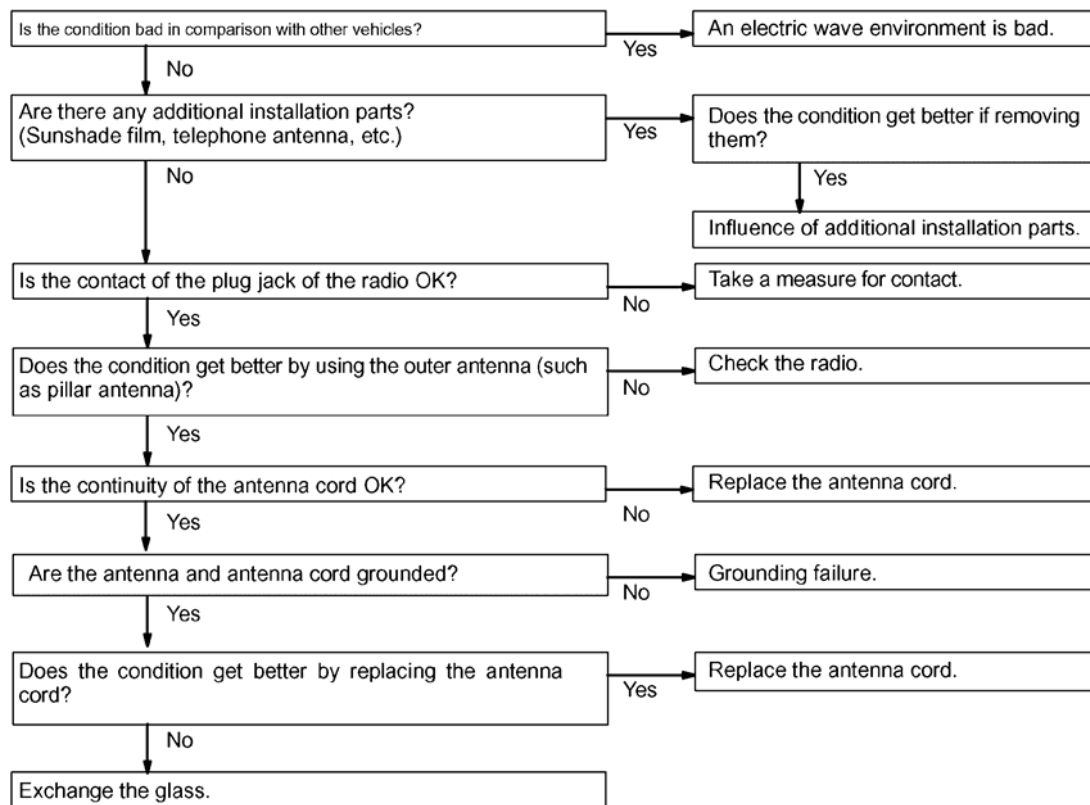
Fig. 22: Flow Chart Of Radio - Either AM Or FM Does Not Work

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

6. RADIO - RECEPTION POOR

2004 Toyota RAV4

2004 ACCESSORIES & EQUIPMENT Audio System - RAV4



G02926509

Fig. 23: Flow Chart Of Radio - Reception Poor
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. RADIO - SOUND QUALITY IS POOR

2004 Toyota RAV4

2004 ACCESSORIES & EQUIPMENT Audio System - RAV4

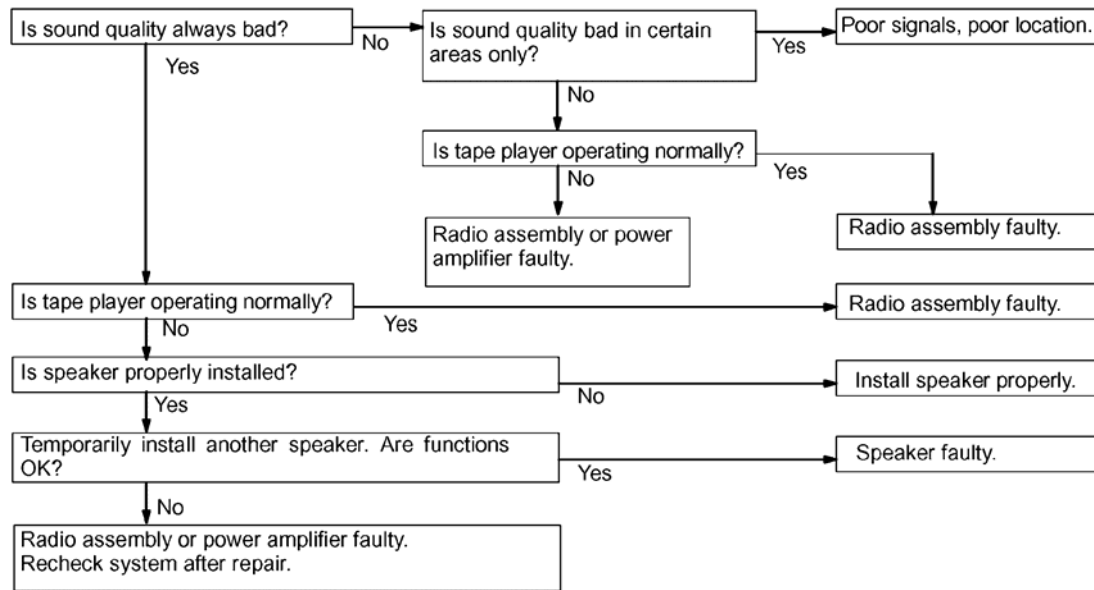


Fig. 24: Flow Chart Of Radio - Sound Quality Is Poor
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. RADIO - PRESET MEMORY DISAPPEARS

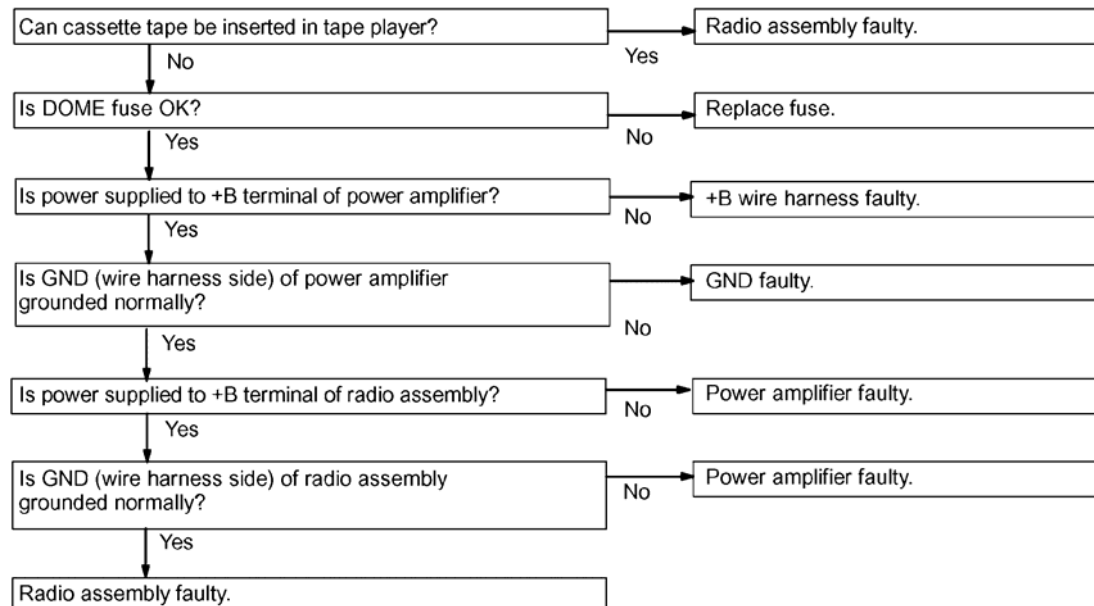
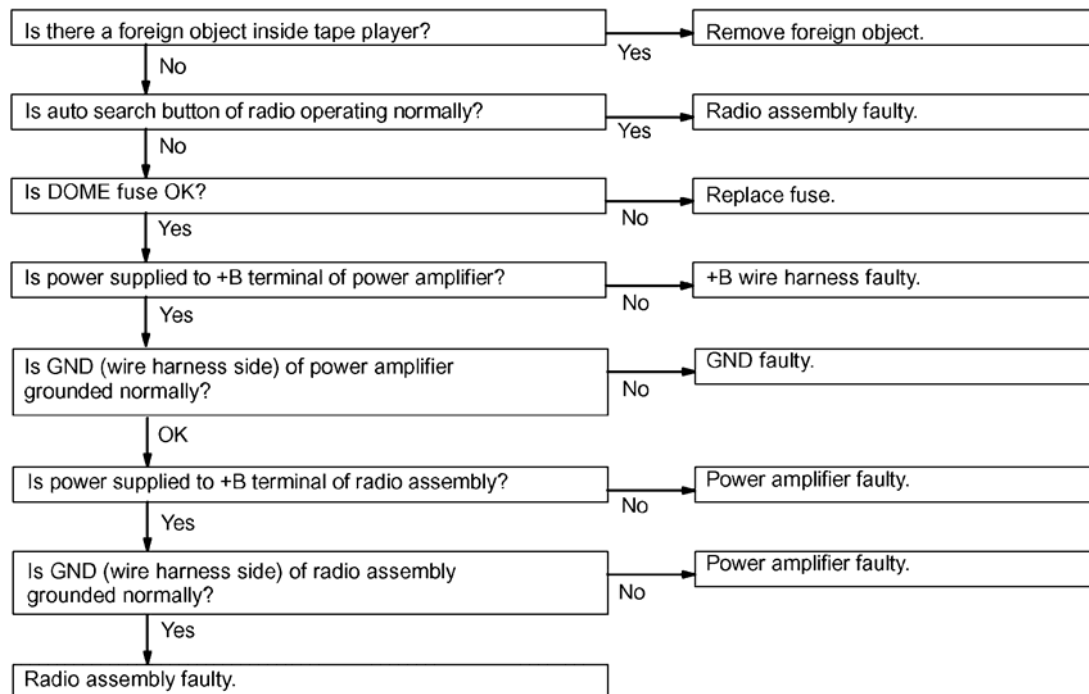


Fig. 25: Flow Chart Of Radio - Preset Memory Disappears
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. TAPE PLAYER - CASSETTE TAPE CANNOT BE INSERTED



G02926512

Fig. 26: Flow Chart Of Tape Player - Cassette Tape Cannot Be Inserted
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. TAPE PLAYER - CASSETTE TAPE CAN BE INSERTED, BUT NO POWER IS PRODUCED

2004 Toyota RAV4

2004 ACCESSORIES & EQUIPMENT Audio System - RAV4

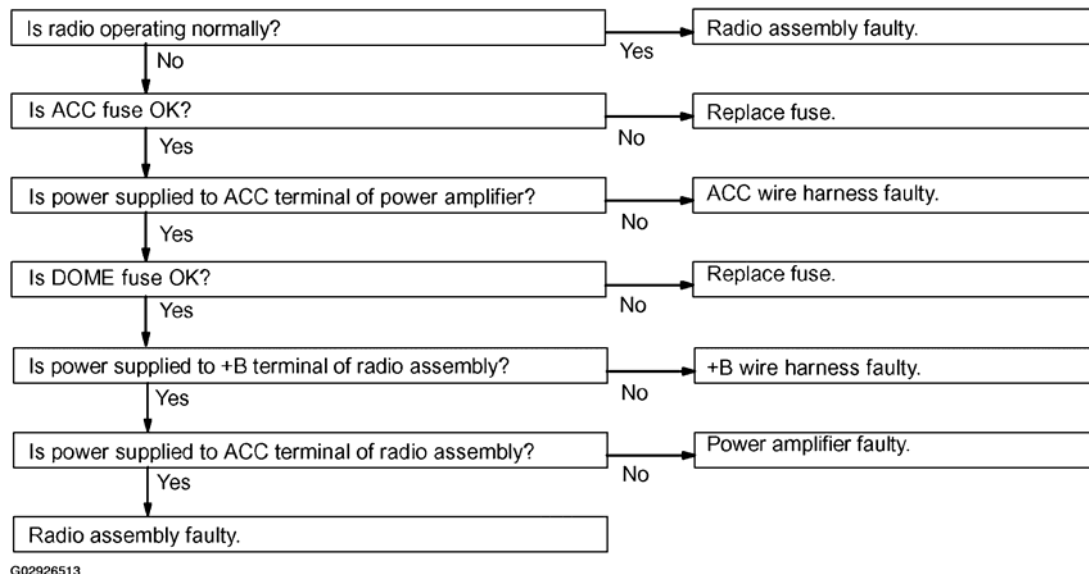


Fig. 27: Flow Chart Of Tape Player - Cassette Tape Can Be Inserted, But No Power Produced
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. TAPE PLAYER - POWER TURNS ON, BUT TAPE PLAYER DOES NOT OPERATE

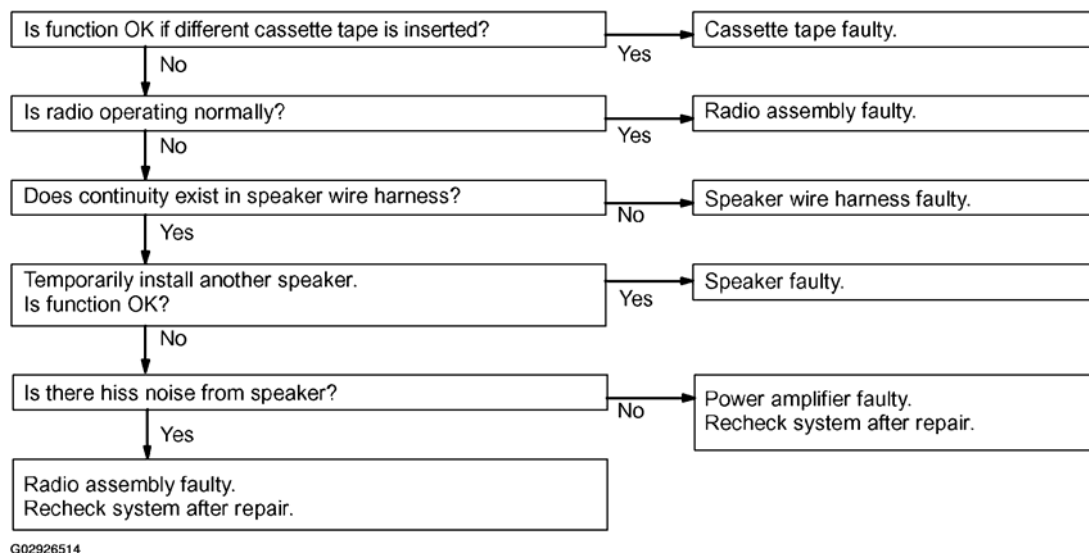
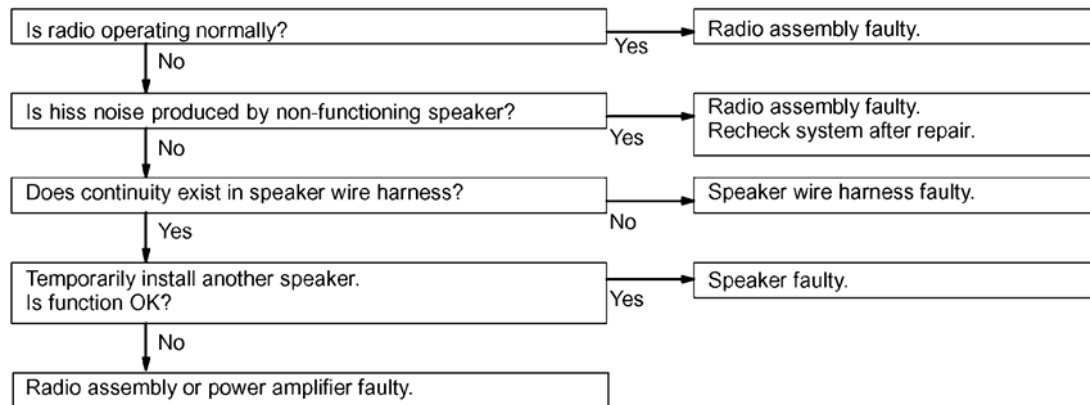


Fig. 28: Flow Chart Of Tape Player - Power Turns On, But Tape Player Does Not Operate
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. TAPE PLAYER - ONE OF THE SPEAKERS DOES NOT WORK

2004 Toyota RAV4

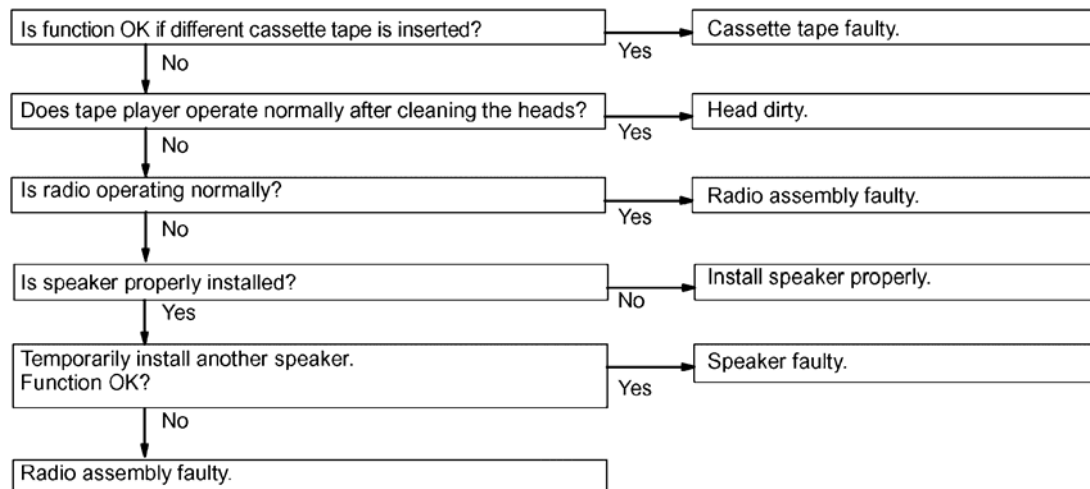
2004 ACCESSORIES & EQUIPMENT Audio System - RAV4



G02926515

Fig. 29: Flow Chart Of Tape Player - One Of Speakers Does Not Work
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. TAPE PLAYER - SOUND QUALITY IS POOR (VOLUME FAINT)



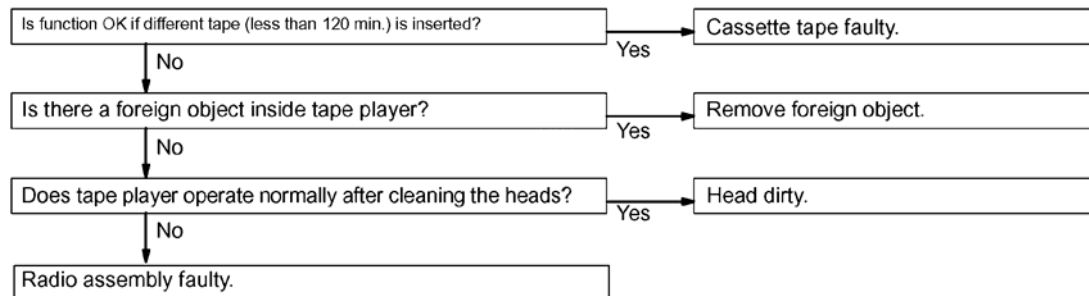
G02926516

Fig. 30: Flow Chart Of Tape Player - Sound Quality Is Poor (Volume Faint)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. TAPE PLAYER - TAPE IS JAMMED, MALFUNCTION WITH TAPE SPEED OR AUTO-REVERSE

2004 Toyota RAV4

2004 ACCESSORIES & EQUIPMENT Audio System - RAV4

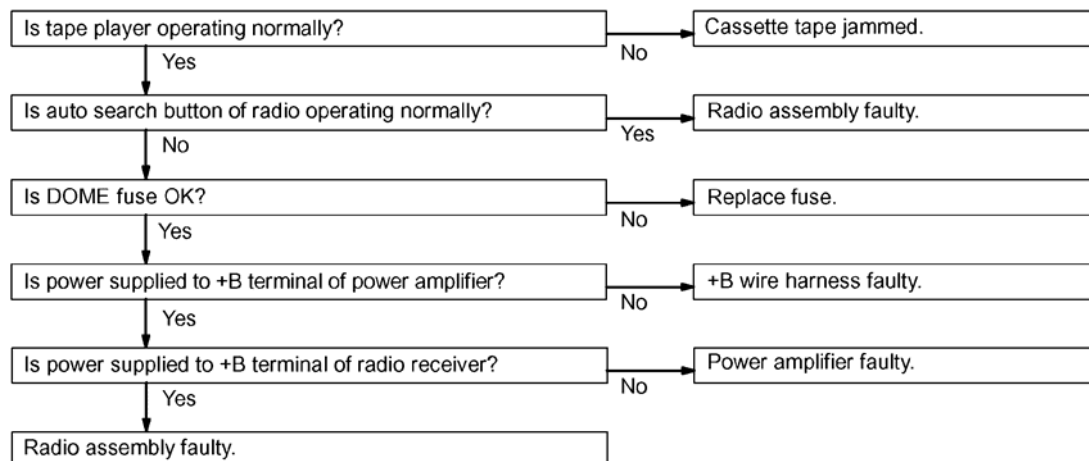


G02926517

Fig. 31: Flow Chart Of Tape Player - Tape Jammed, Malfunction With Tape Speed Or Auto Reverse

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

15. TAPE PLAYER - CASSETTE TAPE CANNOT BE EJECTED



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Fig. 32: Flow Chart Of Tape Player - Cassette Tape Cannot Be Ejected

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

16. CD PLAYER - CD CANNOT BE INSERTED

2004 Toyota RAV4

2004 ACCESSORIES & EQUIPMENT Audio System - RAV4

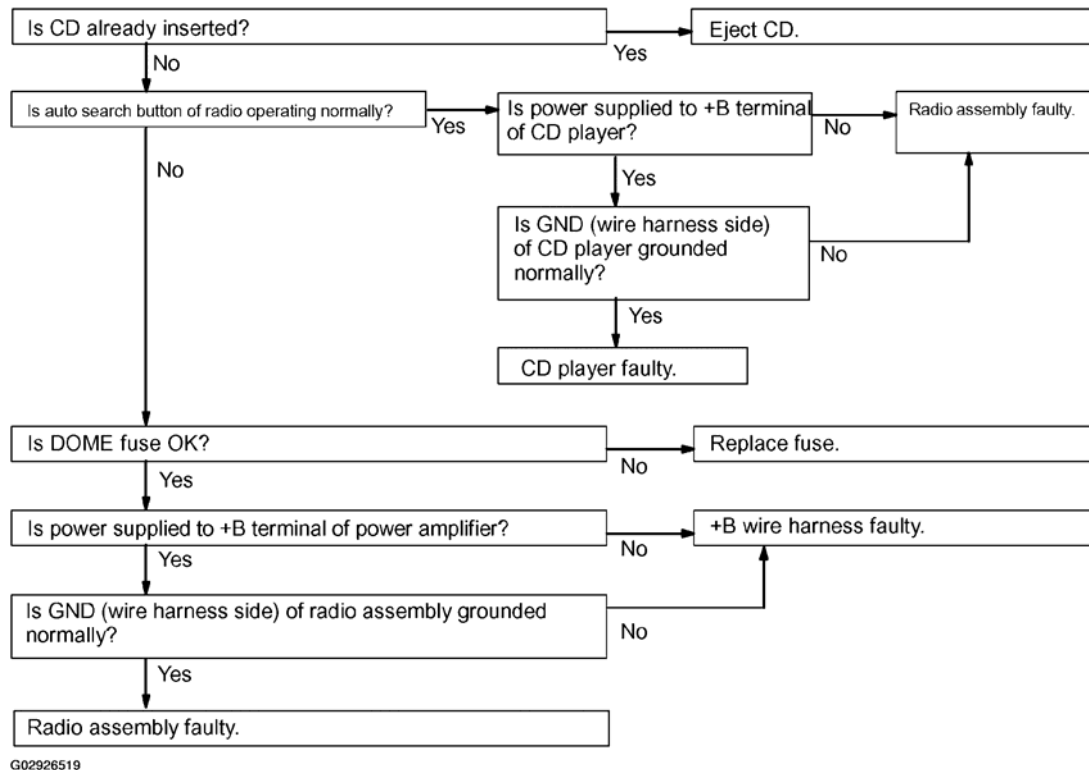


Fig. 33: Flow Chart Of CD Player - CD Cannot Be Inserted

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

17. CD PLAYER - CD CAN BE INSERTED, BUT NO POWER IS PRODUCED

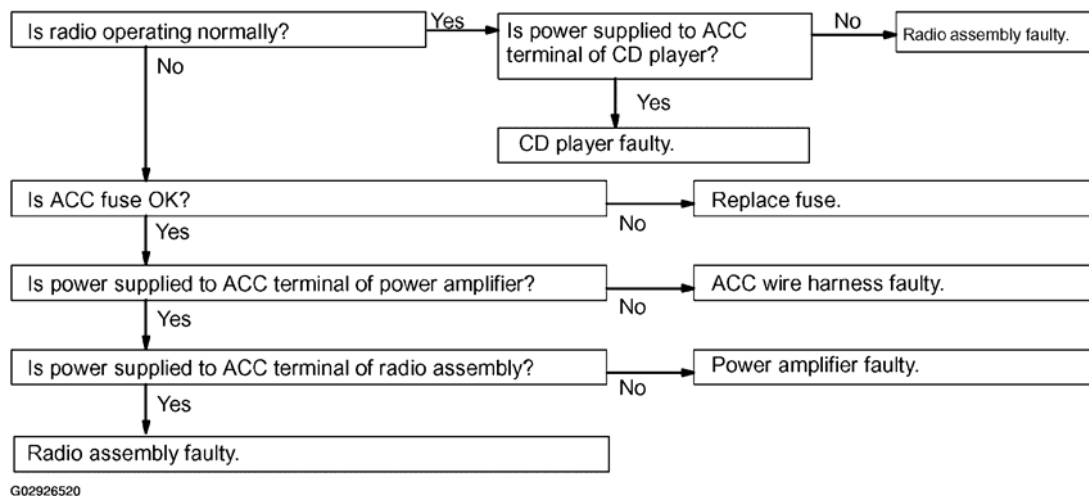
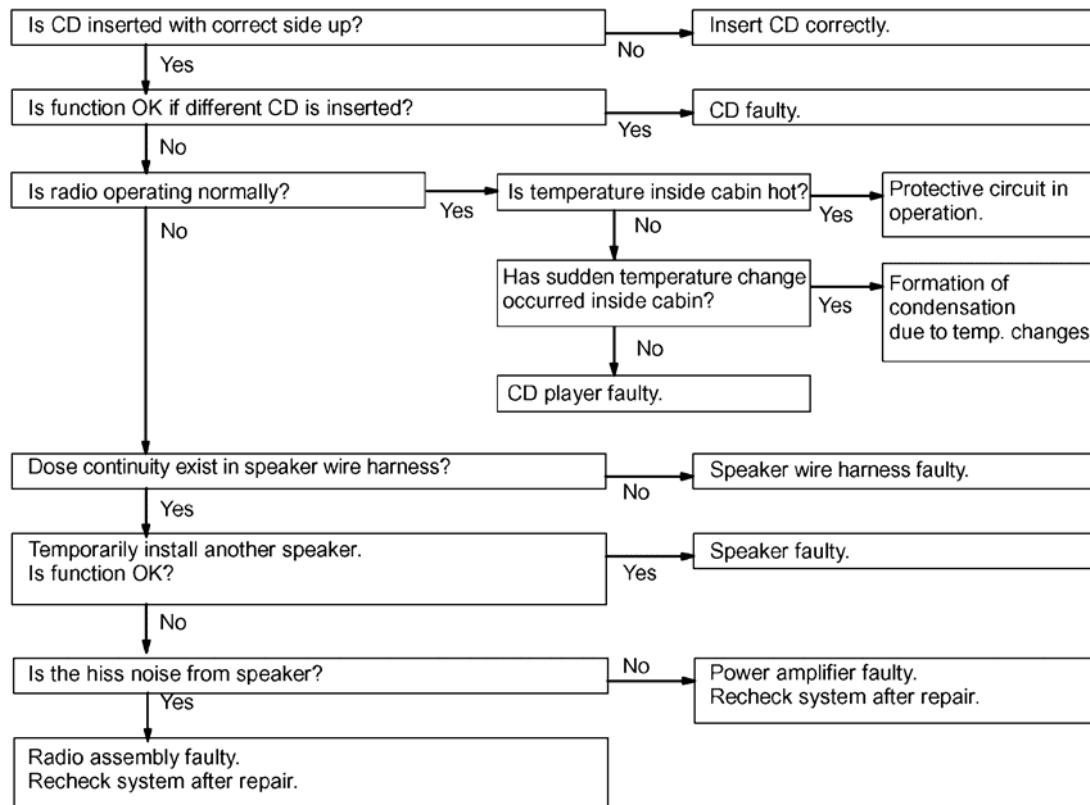


Fig. 34: Flow Chart Of CD Player - CD Can Be Inserted, But No Power Is Produced

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

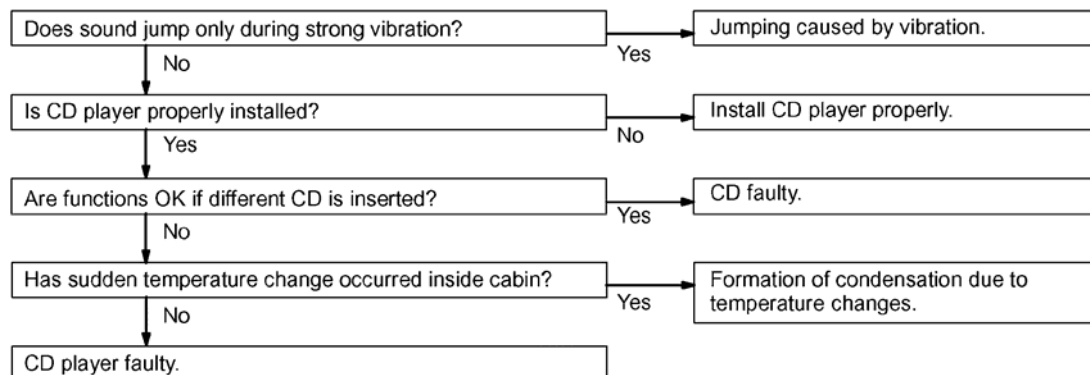
18. CD PLAYER - POWER TURNS ON, BUT CD PLAYER DOES NOT OPERATE



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Fig. 35: Flow Chart Of CD Player - Power Turns On, But CD Player Does Not Operate
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

19. CD PLAYER - CD SKIPS AND AUDIO IS NOT SMOOTH



G02926522

Fig. 36: Flow Chart Of CD Player - CD Skips & Audio Is Not Smooth

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

20. CD PLAYER - SOUND QUALITY IS POOR (VOLUME FAINT)

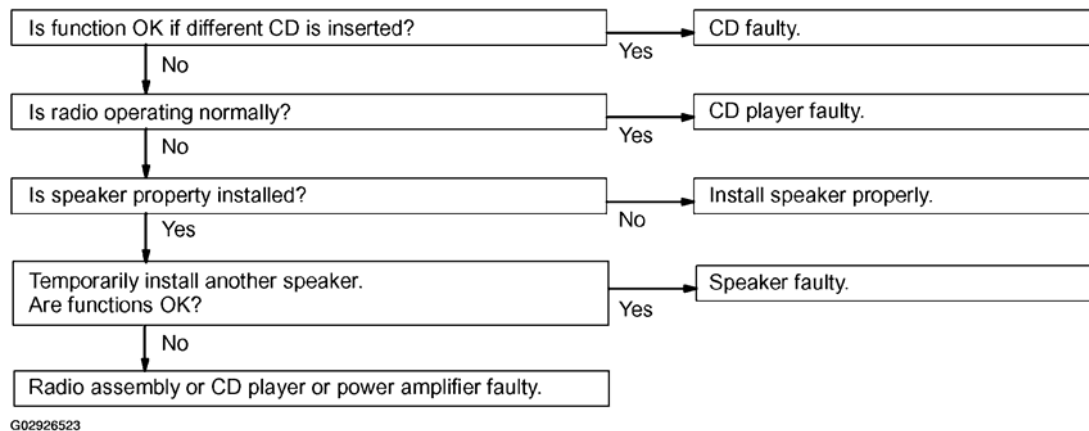


Fig. 37: Flow Chart Of CD Player - Sound Quality Is Poor (Volume Faint)

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

21. CD PLAYER - ONE OF THE SPEAKERS DOES NOT WORK

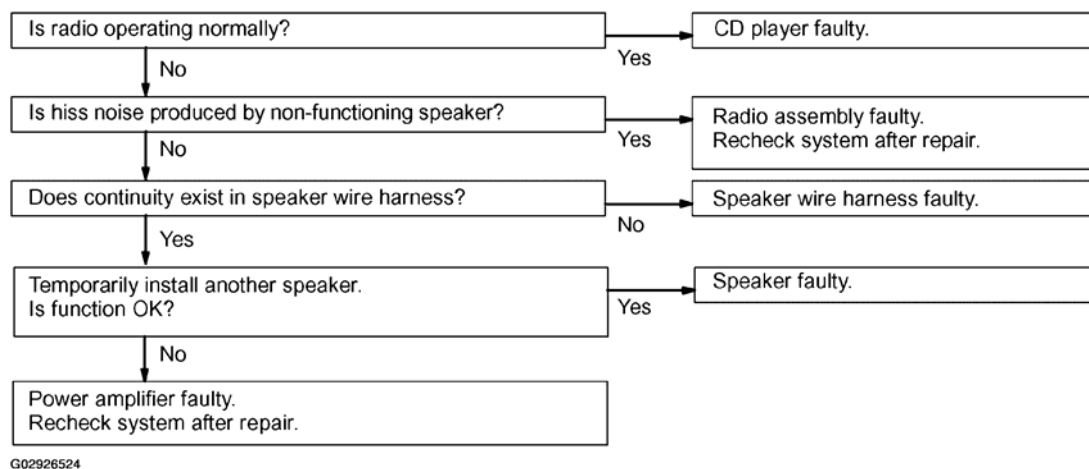


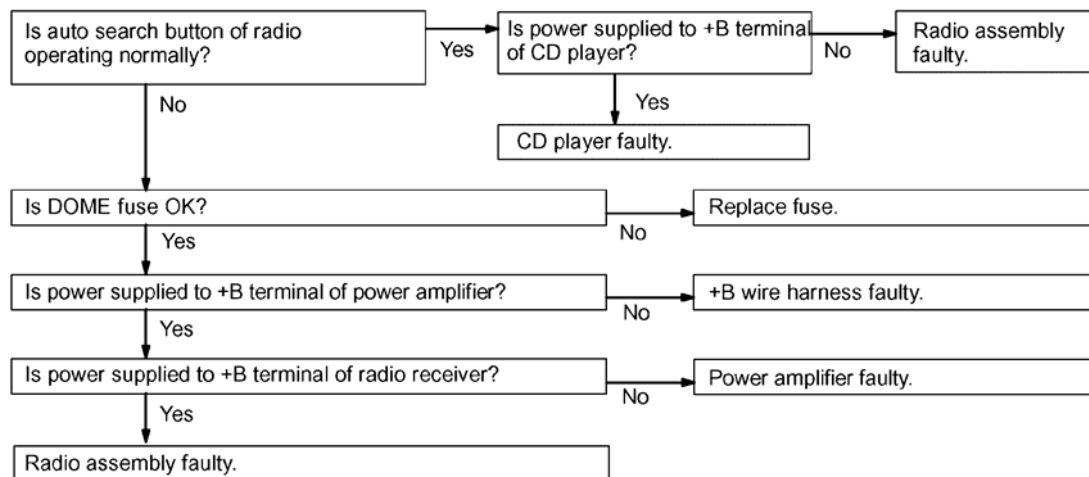
Fig. 38: Flow Chart Of CD Player - One Of Speakers Does Not Work

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

22. CD PLAYER - CD CANNOT BE EJECTED

2004 Toyota RAV4

2004 ACCESSORIES & EQUIPMENT Audio System - RAV4



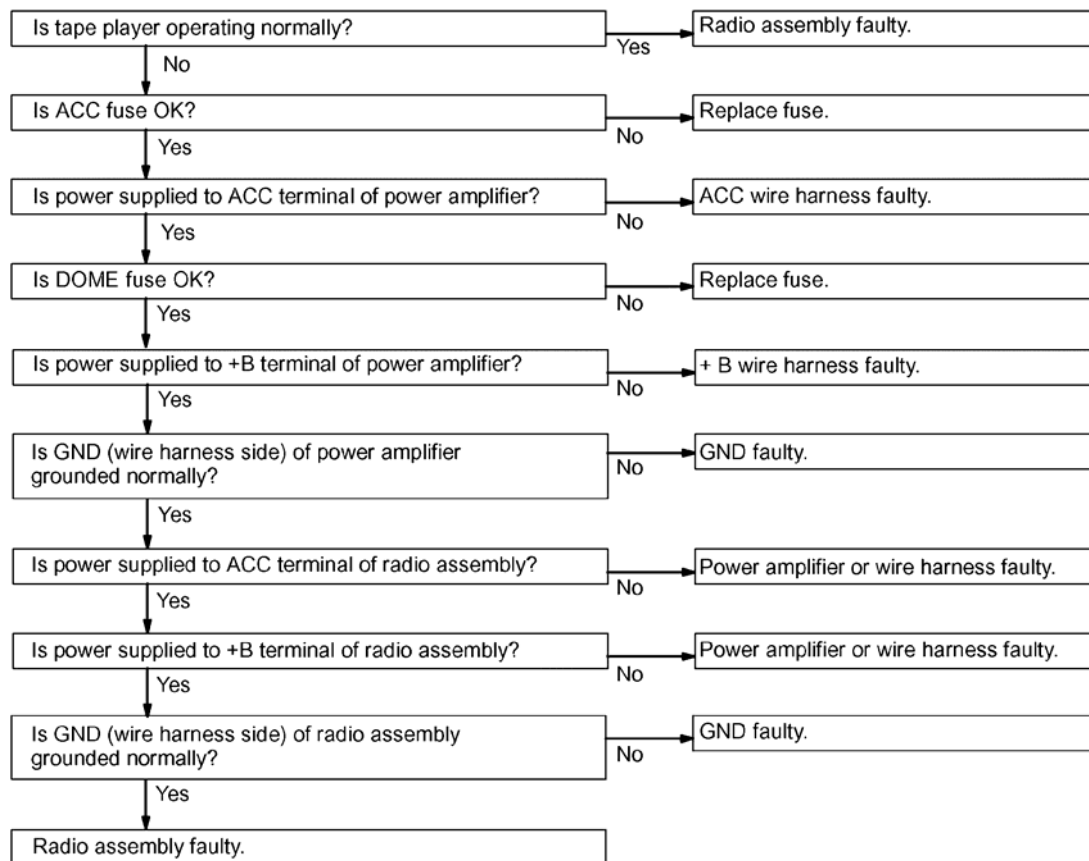
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Fig. 39: Flow Chart Of CD Player - CD Cannot Be Ejected
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

23. POWER AMPLIFIER - NO POWER TURNS ON

2004 Toyota RAV4

2004 ACCESSORIES & EQUIPMENT Audio System - RAV4



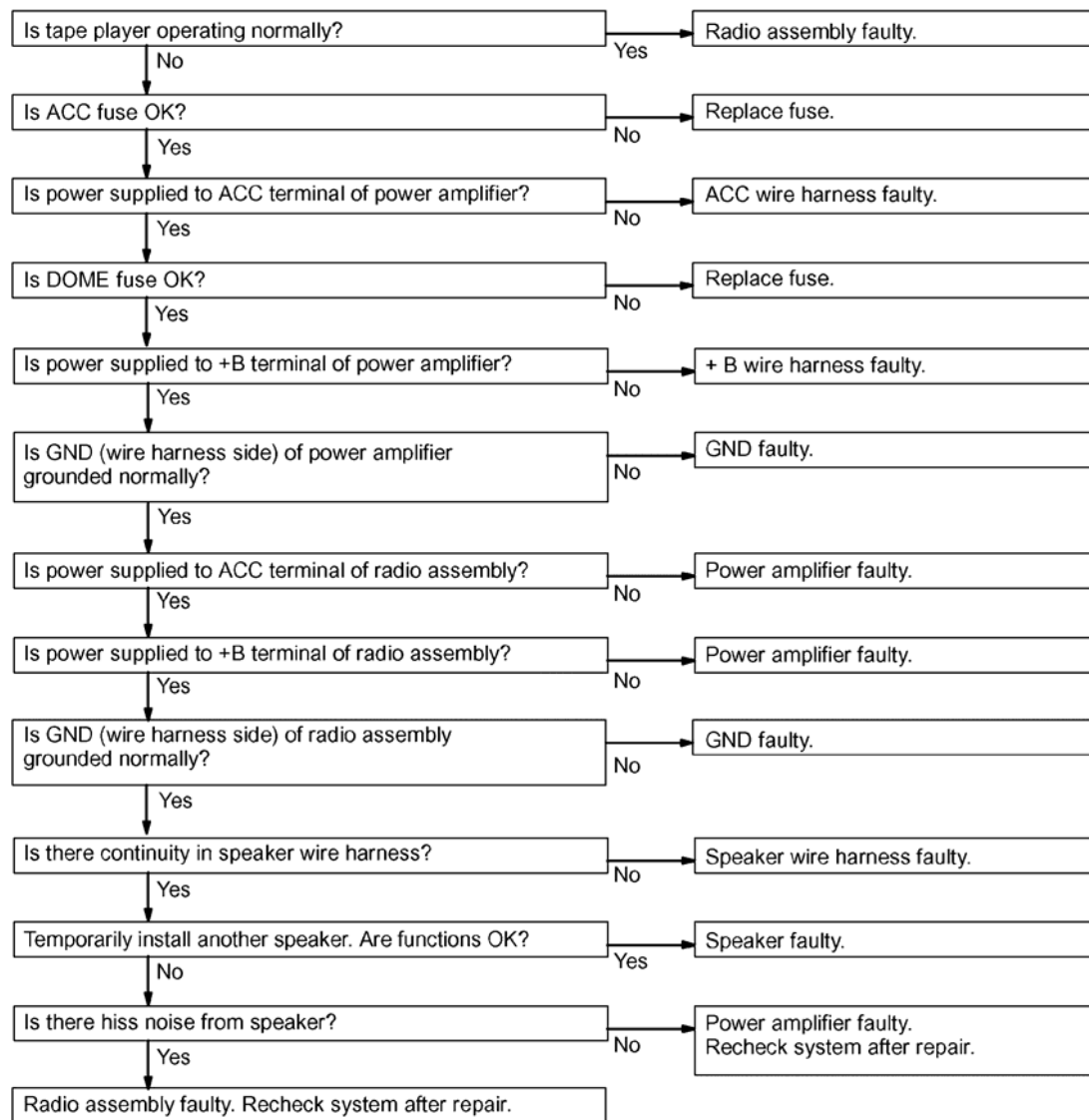
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Fig. 40: Flow Chart Of Power Amplifier - No Power Turns On
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

24. **POWER AMPLIFIER - POWER TURNS ON, BUT WOOFER (POWER) AMPLIFIER DOES NOT OPERATE**

2004 Toyota RAV4

2004 ACCESSORIES & EQUIPMENT Audio System - RAV4



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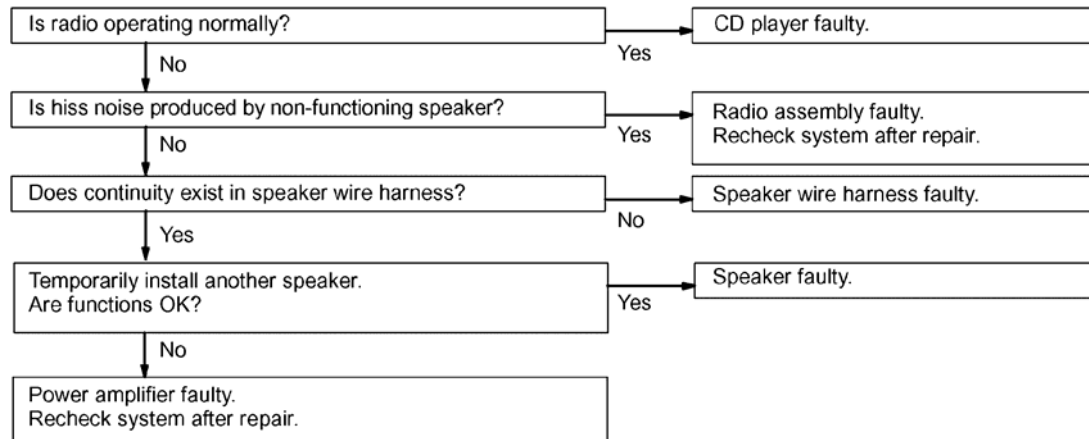
Fig. 41: Flow Chart Of Power Amplifier - Power Turns On, But Woofer Amplifier Does Not Operate

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

25. POWER AMPLIFIER - ONE OF THE SPEAKERS DOES NOT WORK

2004 Toyota RAV4

2004 ACCESSORIES & EQUIPMENT Audio System - RAV4



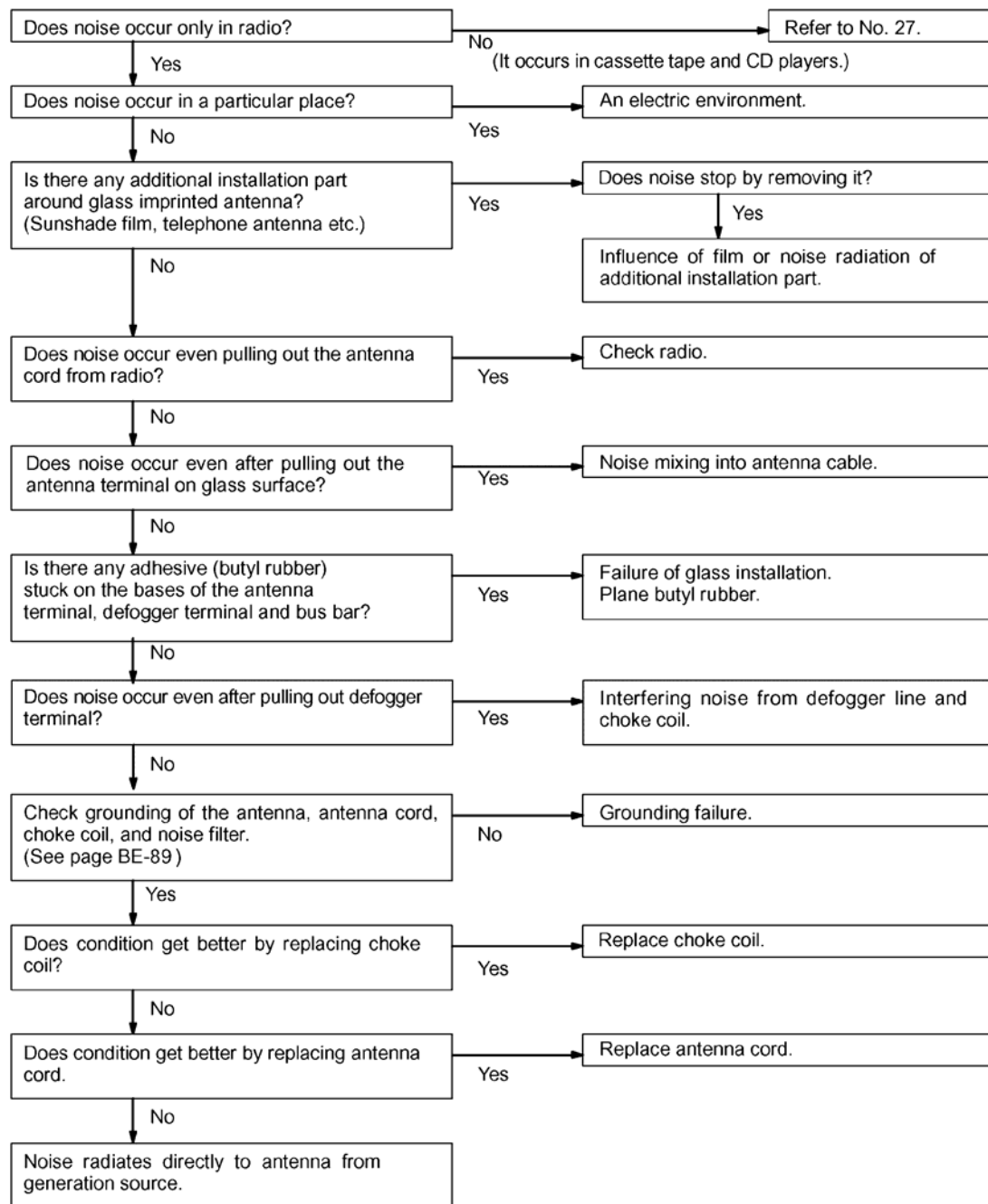
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Fig. 42: Flow Chart Of Power Amplifier - One Of Speakers Does Not Work
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

26. NOISE - NOISE OCCURS

2004 Toyota RAV4

2004 ACCESSORIES & EQUIPMENT Audio System - RAV4



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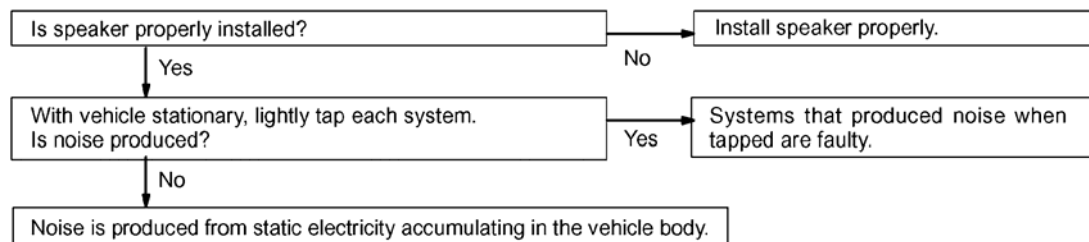
Fig. 43: Flow Chart Of Noise - Noise Occurs

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

27. NOISE - NOISE IS PRODUCED BY VIBRATION OR SHOCK DURING DRIVING

2004 Toyota RAV4

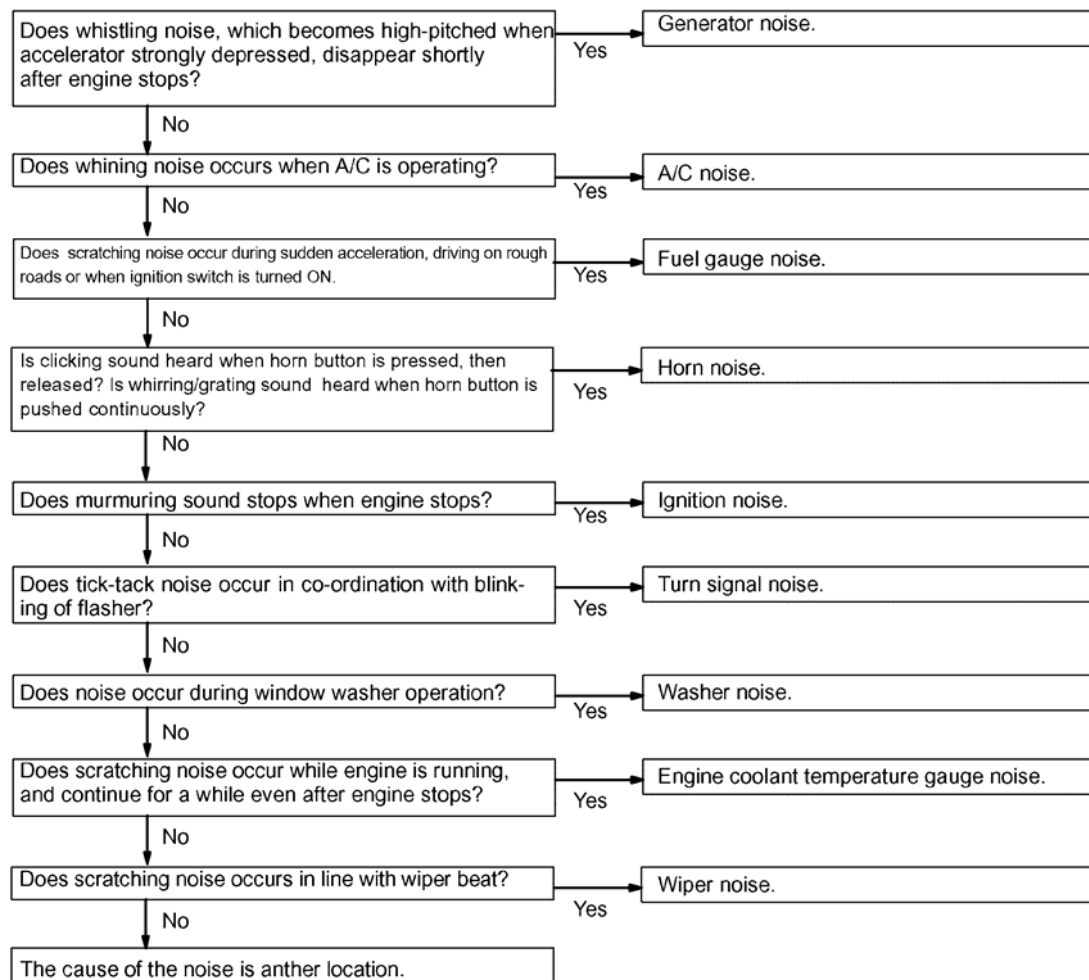
2004 ACCESSORIES & EQUIPMENT Audio System - RAV4



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Fig. 44: Flow Chart Of Noise - Noise Is Produced By Vibration Or Shock During Driving
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

28. NOISE - NOISE IS PRODUCED WHEN ENGINE STARTS



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Fig. 45: Flow Chart Of Noise - Noise Is Produced When Engine Starts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2004 Toyota RAV4

2004 ACCESSORIES & EQUIPMENT Audio System - RAV4

LOCATION

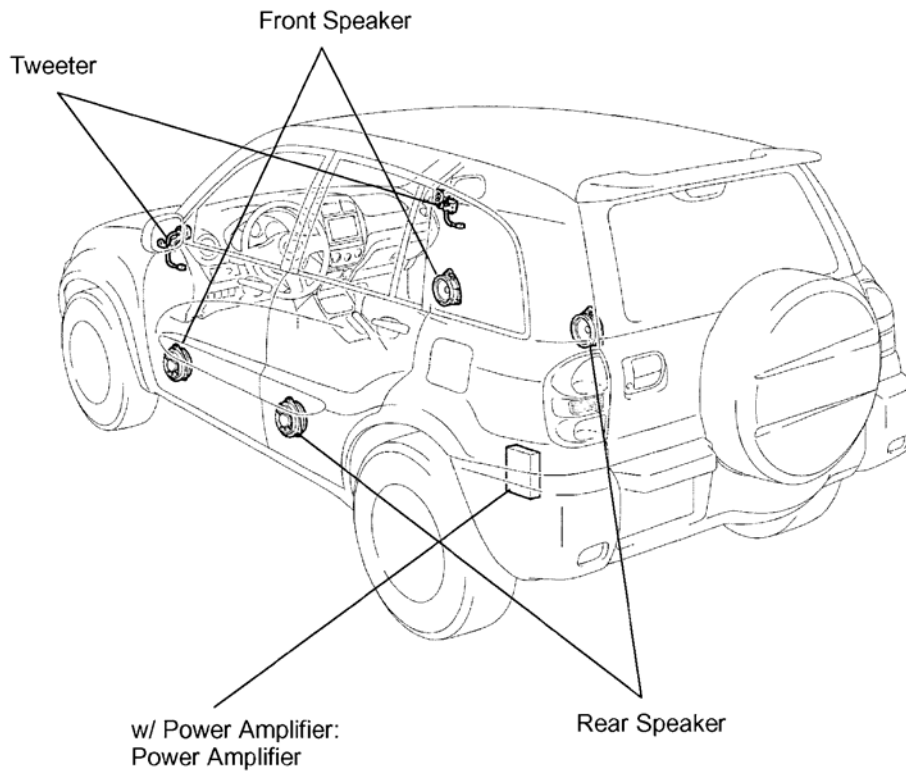
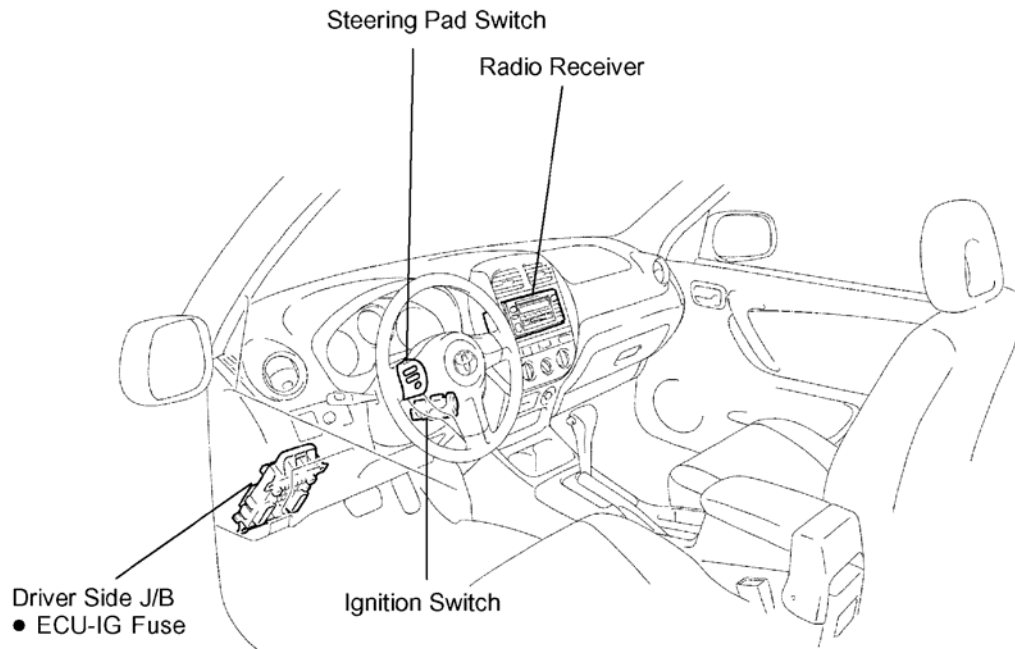
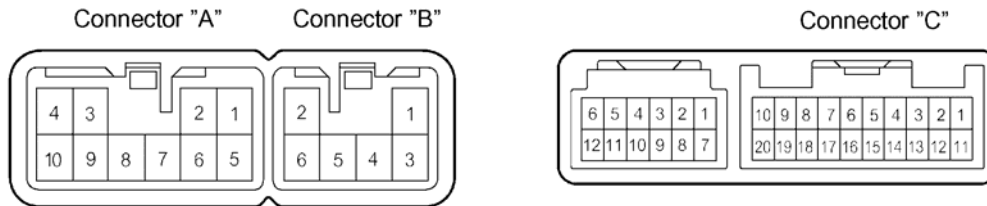


Fig. 46: Locating Audio System Components

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

INSPECTION**1. W/o Power amplifier type: CHECK RADIO RECEIVER ASSEMBLY**

Check the terminal of the receiver.

H
G02926533**Fig. 47: Identifying Connector Terminals Of Radio Receiver W/O Power Amplifier**
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Tester Connection (Symbols)	Condition	Specified Condition
A1 (FR+) - A7 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
A2 (FL+) - A7 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
A3 (ACC) - A7 (GND)	Ignition switch OFF → ACC or ON	0 → 10 - 14 V
A4 (+B) - A7 (GND)	Constant	10 - 14 V
A5 (FR-) - A7 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
A6 (FL-) - A7 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
A7 (GND) - Body ground	Constant	Below 1 V
A10 (ILL+) - A7 (GND)	Light control switch TAIL or HEAD	10 - 14 V
B1 (RR+) - A7 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
B2 (RL+) - A7 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
B3 (RR-) - A7 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
B6 (RL-) - A7 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
C6 (SWG) - A7 (GND)	Constant	Below 1 V
C7 (SW1) - A7 (GND)	Steering pad switch not operating	4 V or more
	→ SEEK+ switch push	→ Approx. 0.5 V
	→ SEEK- switch push	→ Approx. 0.9 V
	→ VOL+ switch push	→ Approx. 2.0 V
C8 (SW2) - A7 (GND)	→ VOL- switch push	→ Approx. 3.4 V
	Steering pad switch not operating	4 V or more
	→ MODE switch push	→ Below 2.5 V

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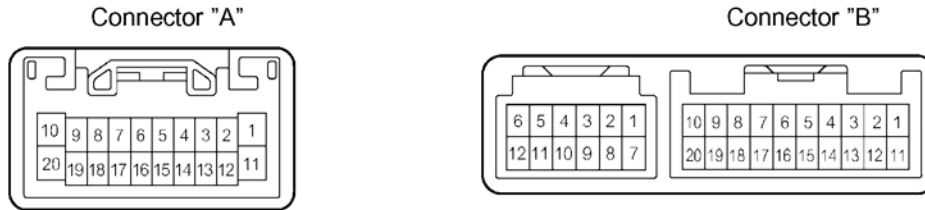
Fig. 48: Radio Receiver Assembly W/O Power Amplifier Specified Condition Table
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2004 Toyota RAV4

2004 ACCESSORIES & EQUIPMENT Audio System - RAV4

2. W/Power amplifier type: CHECK RADIO RECEIVER ASSEMBLY

Check the terminal of the receiver.



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Fig. 49: Identifying Connector Terminals Of Radio Receive W/Power Amplifier
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Tester Connection (Symbols)	Condition	Specified Condition
A1 (+B) - A20 (GND)	Constant	10 - 14 V
A2 (ILL+) - A20 (GND)	Light control switch TAIL or HEAD	10 - 14 V
A7 (MUTE) - A20 (GND)	Normally operating → Switching audio sound	3.5 V or more → Below 1 V
A8 (R+) - A10 (SGD3)	Audio system is emitting sound	A waveform synchronized with sound is output
A9 (L+) - A10 (SGD3)	Audio system is emitting sound	A waveform synchronized with sound is output
A11 (ACC) - A20 (GND)	Ignition switch OFF → ACC or ON	0 → 10 - 14 V
A18 (R-) - A10 (SGD3)	Audio system is emitting sound	A waveform synchronized with sound is output
A19 (L-) - A10 (SGD3)	Audio system is emitting sound	A waveform synchronized with sound is output
A10 (GND) - Body ground	Constant	Below 1 V
A20 (SLD) - Body ground	Constant	Below 1 V
B6 (SWG) - A20 (GND)	Constant	Below 1 V
B7 (SW1) - A20 (GND)	Steering pad switch not operating → SEEK+ switch push → SEEK- switch push → VOL+ switch push → VOL- switch push	4 V or more → Approx. 0.5 V → Approx. 0.9 V → Approx. 2.0 V → Approx. 3.4 V
B8 (SW2) - A20 (GND)	Steering pad switch not operating → MODE switch push	4 V or more → Below 2.5 V

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Fig. 50: Radio Receiver Assembly W/Power Amplifier Specified Condition Table
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. W/Power amplifier type: CHECK POWER AMPLIFIER

Check the terminal of the amplifier.

2004 Toyota RAV4

2004 ACCESSORIES & EQUIPMENT Audio System - RAV4

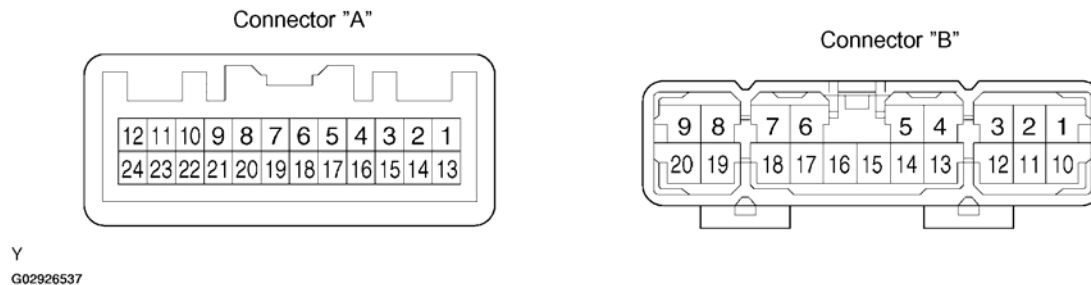


Fig. 51: Identifying Connector Terminals Of Power Amplifier
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

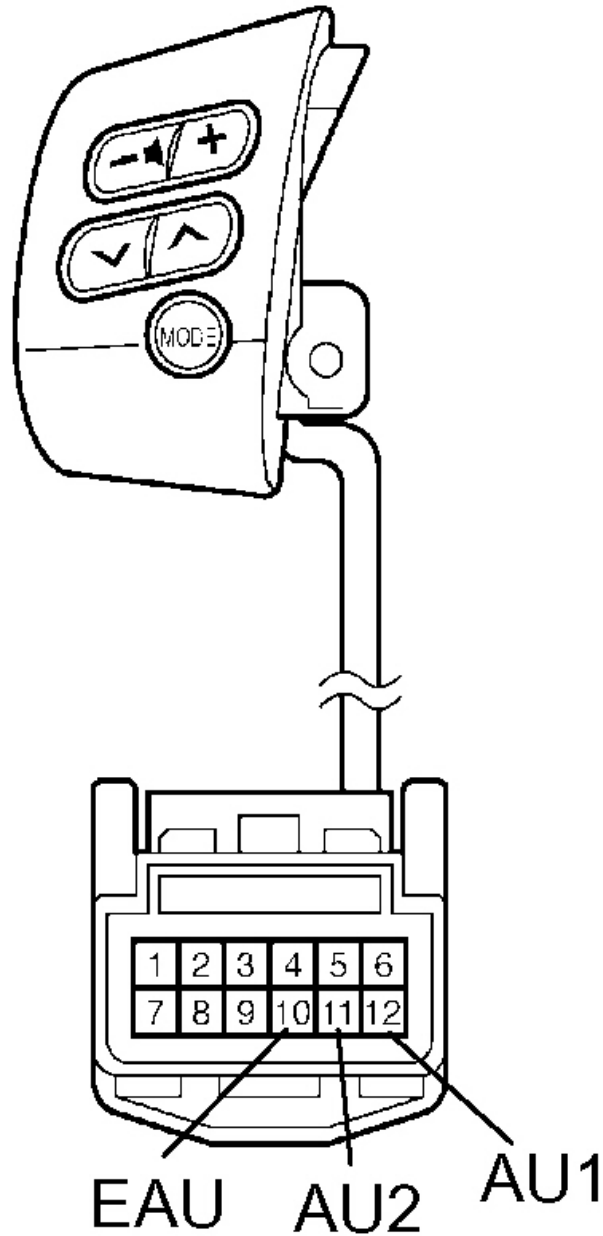
Tester Connection (Symbols)	Condition	Specified Condition
A1 (MUTE) - B15 (GND)	Normally operating → Switching audio sound	3.5 V or more → Below 1 V
A2 (L-) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
A3 (L+) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
A4 (R-) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
A5 (R+) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
A12 (ACC) - B15 (GND)	Ignition switch OFF → ACC or ON	0 → 10 - 14 V
B1 (+B) - B15 (GND)	Constant	10 - 14 V
B2 (SL+) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
B3 (SR+) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
B4 (RL+) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
B5 (RR+) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
B6 (FL+) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
B7 (FR+) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
B10 (+B2) - B15 (GND)	Constant	10 - 14 V
B11 (SL-) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
B12 (SR-) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
B13 (RL-) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
B14 (RR-) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
B15 (GND) - Body ground	Constant	Below 1 V
B16 (E) - Body ground	Constant	Below 1 V
B17 (FL-) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output
B18 (FR-) - B15 (GND)	Audio system is emitting sound	A waveform synchronized with sound is output

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Fig. 52: Power Amplifier Specified Condition Table
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. INSPECT STEERING PAD SWITCH

Check the resistance of the steering pad switch.



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Fig. 53: Identifying Steering Pad Switch Connector Terminals For Checking Resistance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2004 Toyota RAV4

2004 ACCESSORIES & EQUIPMENT Audio System - RAV4

TESTER CONNECTION SPECIFIED CONDITION

Tester Connection	Condition	Specified Condition
AU1 - EAU	No switch pushed	Approx. 100 kohm
AU1 - EAU	SEEK + switch pushed	Approx. 0 ohm
AU1 - EAU	SEEK - switch pushed	Approx. 0.3 ohm
AU1 - EAU	VOL + switch pushed	Approx. 1 kohm
AU1 - EAU	VOL - switch pushed	Approx. 3.2 kohm
AU2 - EAU	No switch pushed	Approx. 100 kohm
AU2 - EAU	MODE switch pushed	Approx. 0 ohm

If the resistance is not as specified, replace the switch.