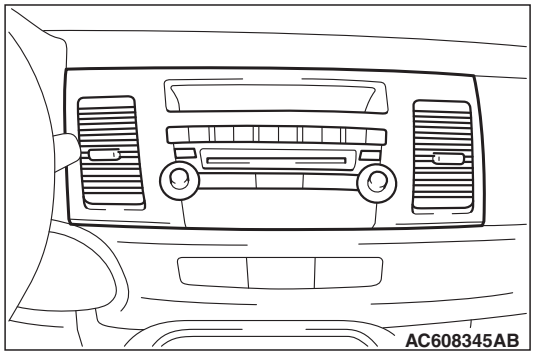
RADIO AND CD PLAYER

GENERAL INFORMATION

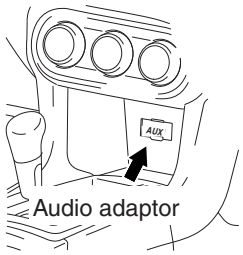
M1544000100895


AC608345AB

- Two types of audio, radio and CD player, CD changer built-in type radio and CD player have been established. Radio and CD player, CD changer built-in type radio and CD player have designed to fit uniformally into the instrument panel.

<Vehicles without instrument panel console box>

<Vehicles with instrument panel console box>



AC802019AE

The audio adapter has been established onto the center tray. With this modification, portable music player can be connected.

Item	Radio and CD player	CD changer built-in type radio and CD player <Option>
Electronic tuning radio	Equipped	Equipped
SIRIUS™ satellite radio	Equipped (Only the vehicles with the satellite radio tuner)	Equipped (Only the vehicles with the satellite radio tuner)
Hands-free cellular phone system	Equipped (Only the vehicles with the hands free module)	Equipped (Only the vehicles with the hands free module)
CD player*1 (compatible with MP3*2)	Equipped	Equipped
6-disk CD autochanger*1 (compatible with MP3*2)	–	Equipped
Audio integrated 4-ch power amplifier <vehicles with 4 speakers, 6 speakers>	General 140 W	General 140 W
Audio amplifier-integrated 8-ch power amplifier and digital signal processor (DSP) <Rockford Fosgate® premium sound system>	–	General 710 W (maximum)

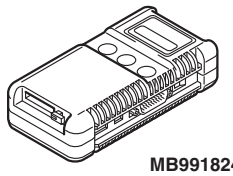
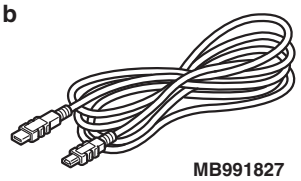
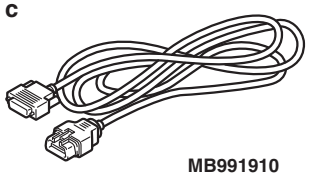
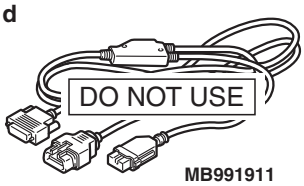
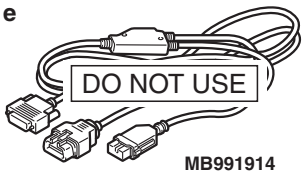
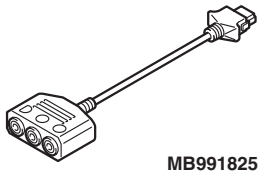
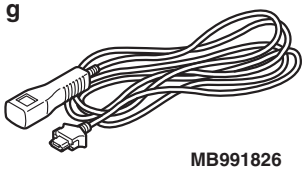
NOTE:

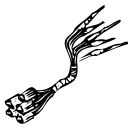
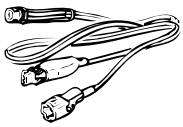
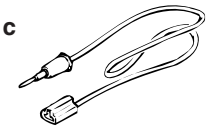
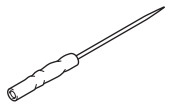
- **1: CD-R/CD-RW may not be played.*
- **2: Some may not be played.*

TSB Revision

SPECIAL TOOLS

M1542000602146

Tool	Tool number and name	Supersession	Application
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991914 f  MB991825 g  MB991826 MB991958	MB991958 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826 M.U.T.-III sub-assembly a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable c. M.U.T.-III main harness A (Vehicles with CAN communication system) d. M.U.T.-III main harness B (Vehicles without CAN communication system) e. M.U.T.-III main harness C (for Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness	MB991824-KIT *NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.*	**⚠ CAUTION** **M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.** DTC and data list.

Tool	Tool number and name	Supersession	Application
a  b  c  d MB991223	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222 Harness set a. Check harness b. LED harness c. LED harness adapter d. Probe	General service tool (jumper)	Continuity check and voltage measurement at harness wire or connector a. For checking connector pin contact pressure b. For checking power supply circuit c. For checking power supply circuit d. For connecting a locally sourced tester
 MB992006	MB992006 Extra fine probe	–	Continuity check and voltage measurement at harness wire or connector

DIAGNOSIS

INTRODUCTION TO AUDIO SYSTEM DIAGNOSIS

M1544004700521

RADIO AND CD PLAYER ERROR CODES

If the radio and CD player detects any malfunction in itself or the inserted CD, the error codes below will be shown on the display.

Error code	Cause	Cause of trouble and its solution
ERROR	Power supply error	This error code will be shown if there is any problem in the power supply system of the radio and CD player. Check the connectors and wiring harness of the power supply system, and check that the battery voltage is normal. Check that the same error does not appear.
ERROR 01	Focus error	These error codes will be shown if there is any problem with the CD or there is excessive vibration on the vehicle. If the error codes are not displayed when the vehicle is stopped and another CD is inserted, there is a problem with the CD. Check if there is any of the following problems with the CD. • Contamination, scratch, or deformation • Formation of moisture or grease Repair the CD and insert it again. Then, check that no error appears.
ERROR 02	Abnormal disc	

Error code	Cause	Cause of trouble and its solution
ERROR 03	Mechanical error	This error codes will be shown if there is any internal mechanical or electrical problem in the radio and CD player. Replace the radio and CD player check that no error codes are shown.
ERROR HOT	Protection against high temperature	If the internal temperature is extremely high, this error code will be shown. Turn off the radio and CD player and wait until they cool down. Wait for a while, and then turn on the unit again. Check that the same error does not appear.
ERROR DC	Detection abnormal output to the speaker	This error code will be shown if the radio and CD player or the audio amplifier has an internal error or is contaminated with the foreign material, and there is a problem with output to the speaker. If it is contaminated with the foreign material, turn OFF the power. Dry the foreign material if it is liquid, and remove it if it is solid. Then, check if the error code is displayed. If the error code is displayed, replace the radio and CD player or the audio amplifier.

SATELLITE RADIO ERROR CODES <Vehicles with satellite radio tuner>

The display displays the error codes below if an abnormality related to the satellite radio is detected.

Error code	Cause	Cause of trouble and its solution
ANTENNA ERROR	Antenna error	This code is displayed when there is a failure, improper connection, or open circuit in the satellite antenna base and the satellite radio tuner cannot receive normal voltage value or current value. Check the satellite radio tuner, the satellite antenna base and the antenna feeder cable, and replace if necessary.
ACQUIRING SIGNAL	Cannot pick up signal	This code is displayed when the signal is too weak and it cannot be received. Move to a place where the signal can be received easily, or check if there is foreign material that interferes with signal reception on the satellite antenna base, and remove if necessary.
CALL 888-539-SIRIUS	Unauthorized channel	This code is displayed when the channel to be received is not included in the contract with SIRIUS™ satellite radio. Contact SIRIUS™ satellite radio and make a contract for the channel.
NO CHANNEL	There is no selectable channel	There is no channel that can be selected. Cancel the SKIP settings so that the channels can be selected.
INVALID CHANNEL	Channel is invalid	No program is broadcast on this channel now, or this channel cannot be received. Ask SIRIUS™ satellite radio.
SAT ERROR	Mechanical fault or bad connection	This code is displayed when the satellite radio tuner has a mechanical problem or when an error occurs in the communication with radio and CD player. Check the radio and CD player, the satellite radio tuner, and each harness and connector, and replace if necessary. (Refer to P.54A-661.)
OFF AIR	OFF AIR	This code is displayed when this channel is not broadcast at this moment, or broadcast of the satellite radio is interrupted. Check the airtime and the broadcast conditions of SIRIUS™ satellite radio.
NOT ACTIVATED	ID not registered	This code is displayed when the SIRIUS ID is not written to the satellite radio tuner. Replace the satellite radio tuner.

Error code	Cause	Cause of trouble and its solution
READING	Data reading in progress	This code is displayed when the data received is being read. Wait until reading of the data received is completed.
UPDATING	Channel data updating in progress	This code is displayed when SIRIUS™ satellite radio is updating the channel data. Wait until update is completed.
SUB UPDATINGPRESS ANY KEY	Contract status updating complete	This code is displayed when the contract status is updated. This code disappears when any of the audio switch is pressed.

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1544004800409

Refer to GROUP 00, Troubleshooting contents P.00-7.

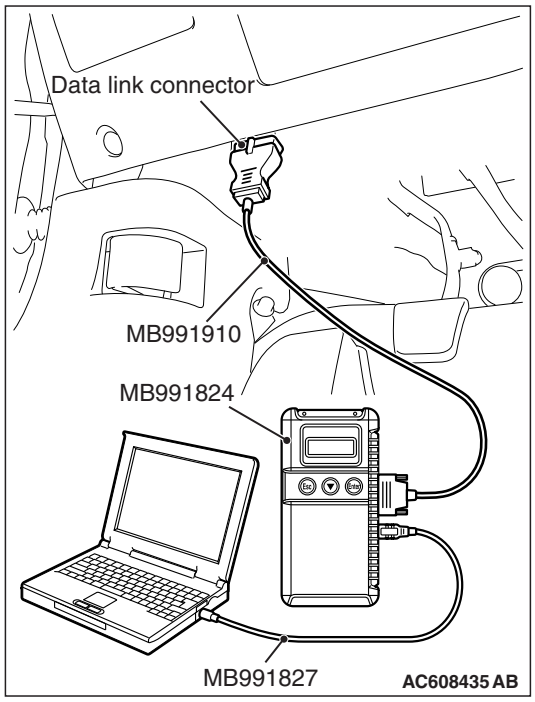
DIAGNOSIS FUNCTION

M1544013200353

HOW TO CONNECT THE SCAN TOOL (M.U.T.-III)

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to special tool MB991824.
5. Connect special tool MB991910 to the data link connector.
6. Turn the power switch of special tool MB991824 to the "ON" position.

   NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.
7. Start the scan tool system on the personal computer.

NOTE: Disconnecting scan tool MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

NOTE: If the battery voltage is low, diagnostic trouble codes will not be set. Check the battery if scan tool MB991958 does not display.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "System select" from the start-up screen.
4. Select "From 2006 MY" of "Model Year." When the "Vehicle Information" is displayed, check the contents.
5. Select "Meter" from "System List," and press the "OK" button.

   NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.
6. Select "Diagnostic Trouble Code." to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "CAN bus diagnosis" from the start-up screen.
4. When the vehicle information is displayed, confirm that it matches the vehicle being diagnosed.
   - If they match, go to Step 8.
   - If not, go to Step 5.
5. Select the "view vehicle information" button.
6. Enter the vehicle information and select the "OK" button.
7. When the vehicle information is displayed, confirm again that it matches the vehicle being diagnosed.
   - If they match, go to Step 8.
   - If not, go to Step 5.
8. Select the "OK" button.
9. When the optional equipment screen is displayed, choose the one which the vehicle is fitted with, and then select the "OK" button.

CHECK OF FREEZE FRAME DATA

The freeze frame data can be checked by using scan tool MB991958.

When detecting fault and storing the diagnostic trouble code, the ECU connected to CAN bus line obtains the data before the determination of the diagnostic trouble code and the data when the diagnostic trouble code is determined, and then stores the ECU status of that time. By analyzing each data from scan tool MB991958, the troubleshooting can be performed more efficiently. The displayed items are as the table below.

Display item list

Item No.	Item name	Data item	Unit
1	Odometer	Total driving distance after the diagnostic trouble code is generated	mile
2	Ignition cycle	Number of times the ignition switch is turned "ON" or "LOCK (OFF)" after the past failure transition	Number of counts is displayed.
4	Accumulated minute	Cumulative time for current malfunction of diagnostic trouble code	min

DIAGNOSTIC TROUBLE CODE CHART

M1544012900348

⚠ CAUTION

On troubleshooting, if the ignition switch is turned ON while disconnecting connector(s), diagnostic trouble code(s) associated with other system may be set. On completion, confirm all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

DTC No.	Description	Reference page
U0019	Bus off (CAN-B)	P.54A-348
U0141	ETACS CAN timeout	P.54A-349
U0151	SRS-ABG CAN timeout	P.54A-352
U0154	OCM (occupant classification-ECU) CAN timeout	P.54A-354
U0155	Meter CAN timeout	P.54A-356
U0164	A/C CAN timeout	P.54A-358
U0168	WCM CAN timeout	P.54A-360
U0195	Satellite radio CAN timeout	P.54A-362
U0197	Hands free module CAN timeout	P.54A-364
U1415	Coding not completed/Data fail	P.54A-366
B2420	Power integrated circuit	P.54A-368
B2421	Radio tuner	P.54A-369
B2423	6 CD player error	P.54A-371
B2424	CD player error	P.54A-372
B2450	Switch panel communication	P.54A-374
B2451	Audio panel type error	P.54A-375

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DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC U0019: Bus off (CAN-B)

⚠ CAUTION
If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, always diagnose the CAN bus lines.

⚠ CAUTION
Before replacing the radio and CD player, be sure to check that the power supply circuit, ground circuit, and communication circuit are normal.

TROUBLE JUDGMENT

When the radio and CD player is returned from the bus off state, or when the bus error is indicated to the radio and CD player state, the DTC U0019 (CAN-B) is set.

COMMENTS ON TROUBLE SYMPTOM

The radio and CD player, power supply for the radio and CD player, ground circuit, or CAN bus line may have a problem.

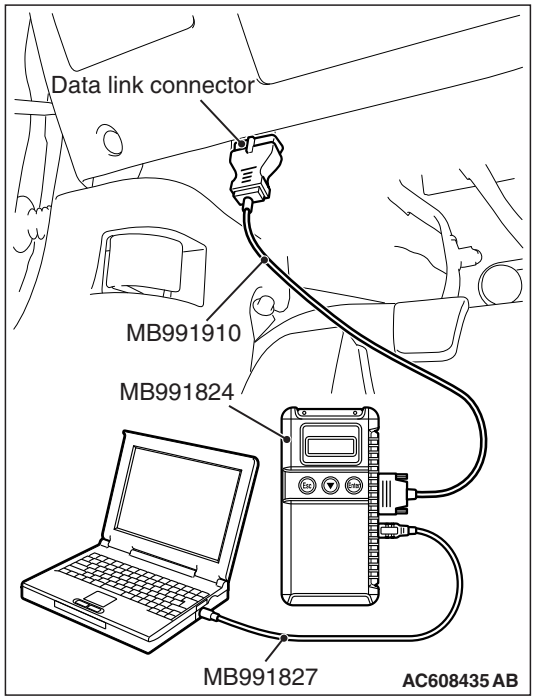
PROBABLE CAUSES

- Malfunctions of radio and CD player
- Malfunction of CAN bus line wiring harness and connector

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-345."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).

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STEP 2. Check whether the scan tool MB991958 can communicate with the radio and CD player.

Q: Is the check result normal?

YES : Erase the diagnosis code. The procedure is complete.

NO : Check the power supply circuit of the radio and CD player, and repair if necessary.

DTC U0141: ETACS CAN timeout

⚠ CAUTION

If DTC U0141 is set, be sure to diagnose the CAN bus line.

⚠ CAUTION

When replacing the radio and CD player, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

If the signal from ETACS-ECU cannot be received, the radio and CD player sets the DTC U0141.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10 – 16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with ETACS-ECU cannot be established for 2,500 ms or more, the radio and CD player determines that a problem has occurred.

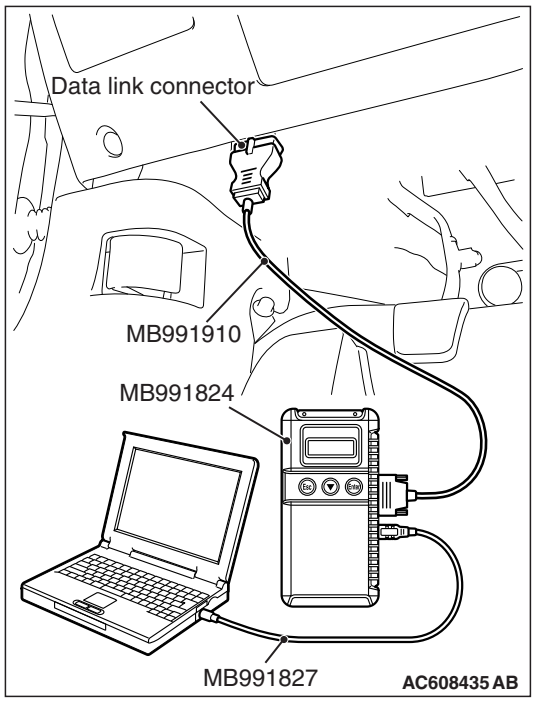
TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The radio and CD player may be defective
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-345."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. Using scan tool MB991958, read the ETACS diagnostic trouble code.
Check if DTC is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to P.54A-678).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C diagnostic trouble code.
Check if DTC U0141 is set to the A/C-ECU.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

DTC U0151: SRS-ECU CAN timeout

⚠ CAUTION

- **If DTC U0151 is set, be sure to diagnose the CAN bus line.**
- **When replacing the radio and CD player, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

If the signal from SRS-ECU cannot be received, the radio and CD player sets DTC U0151.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10–16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with SRS-ECU cannot be established for 2,500 ms or more, the radio and CD player determines that a problem has occurred.

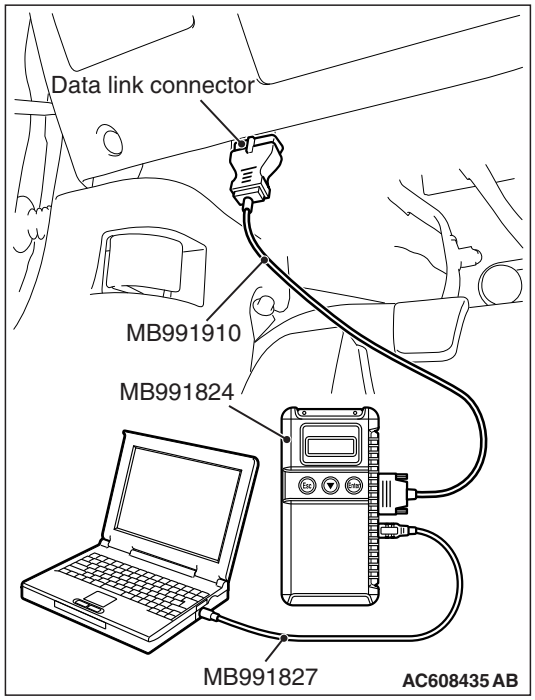
TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The radio and CD player may be defective
- The SRS-ECU may be defective

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-345."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. Using scan tool MB991958, read the SRS-ECU diagnostic trouble code

Check again if the DTC is set to the SRS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Troubleshooting P.52B-32).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0151 is set to the A/C-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the SRS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

DTC U0154: OCM (occupant classification-ECU) CAN timeout

⚠ CAUTION
If DTC U0154 is set, be sure to diagnose the CAN bus line.

⚠ CAUTION
When replacing the radio and CD player, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

When the signals from occupant classification-ECU cannot be received, the radio and CD player sets DTC U0154.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10 – 16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communications with occupant classification-ECU cannot be established for 2,500 ms or more, the radio and CD player determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The radio and CD player may be defective.
- The occupant classification-ECU may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

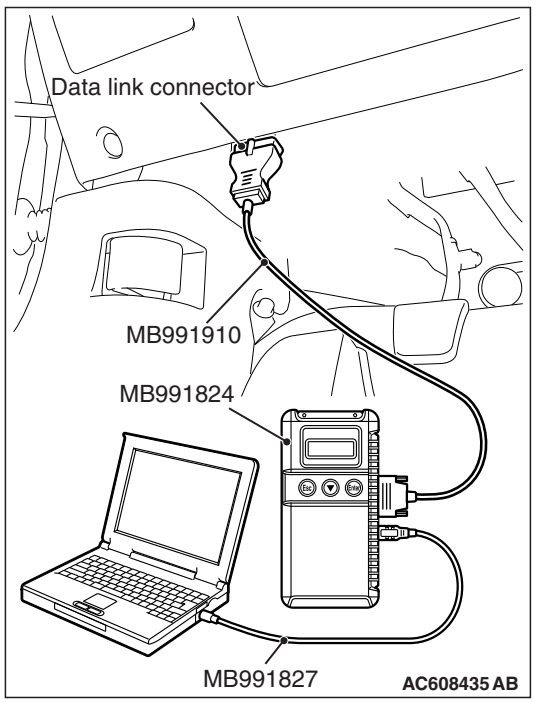
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-345."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).



STEP 2. Using scan tool MB991958, read the occupant classification-ECU diagnostic trouble code.
Check if DTC is set to the occupant classification-ECU.

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Diagnosis P.52B-319).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.
Check if the DTC U0154 is set to the A/C-ECU.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the radio and CD player.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the occupant classification-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the radio and CD player.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

DTC U0155: Meter CAN timeout

⚠ CAUTION
If DTC U0155 is set in the radio and CD player, diagnose the CAN main bus line.

⚠ CAUTION
Whenever the radio and CD player is replaced, ensure that the communication circuit is normal.

DIAGNOSTIC FUNCTION
When the signals from combination meter cannot be received, the radio and CD player sets DTC U0155.

JUDGMENT CRITERIA
With the ignition switch in the ON position, system voltage between 10 – 16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communications with combination meter cannot be established for 2,500 ms or more, the radio and CD player determines that a problem has occurred.

TROUBLESHOOTING HINTS
- The CAN bus line may be defective.
- The radio and CD player may be defective.
- The combination meter may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

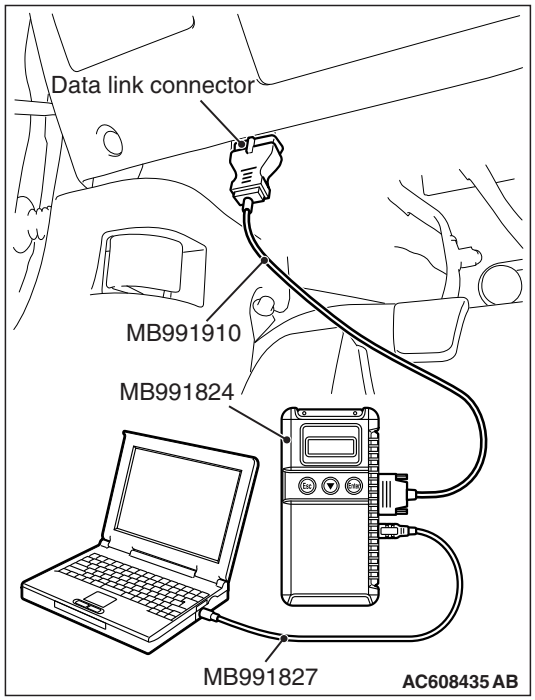
STEP 1. Using scan tool MB991958, diagnose the CAN bus line

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-345."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-17).



STEP 2. Using scan tool MB991958 read the combination meter diagnostic trouble code.

Check whether a combination meter DTCs are set or not.

(1) Turn the ignition switch to the "ON" position.
(2) Check for combination meter DTCs.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the combination meter (Refer to combination meter, Diagnosis P.54A-33).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0155 is set to the A/C-ECU.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

DTC U0164: A/C CAN timeout

⚠ CAUTION

- **If DTC U0164 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

If the signal from A/C-ECU cannot be received, the radio and CD player sets DTC U0164.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10–16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with A/C-ECU cannot be established for 2,500 ms or more, the radio and CD player determines that a problem has occurred.

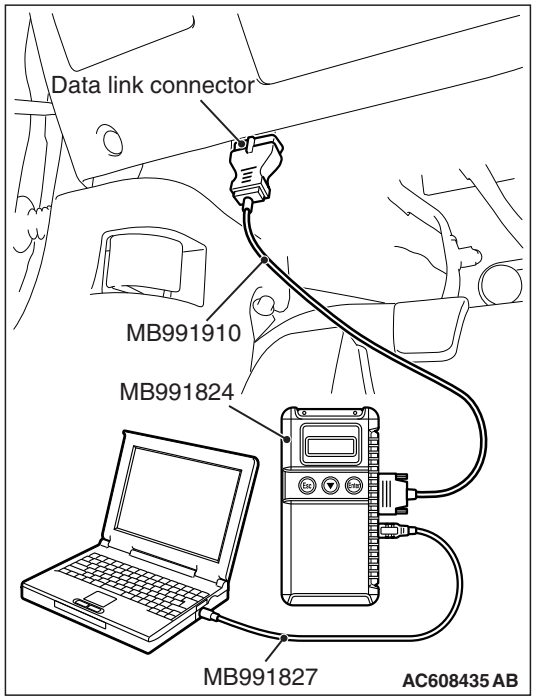
TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The A/C-ECU may be defective.
- The radio and CD player may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-345."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).

TSB Revision

STEP 2. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.
Check if DTC is set to the A/C-ECU.

Q: Is the DTC set?

YES : Troubleshoot the A/C/Heater control unit (Refer to GROUP 55A, Manual A/C Diagnosis P.55A-9 or GROUP 55B, Auto A/C Diagnosis P.55B-8).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the ETACS diagnostic trouble code.
Check if the DTC U0164 is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the radio and CD player.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the A/C-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the radio and CD player.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

DTC U0168: WCM CAN timeout

⚠ CAUTION

- **If DTC U0168 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

If the signal from KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> cannot be received, the radio and CD player sets DTC U0168.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10 – 16 V (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> cannot be established for 2,500 ms or more, the radio and CD player determines that a problem has occurred.

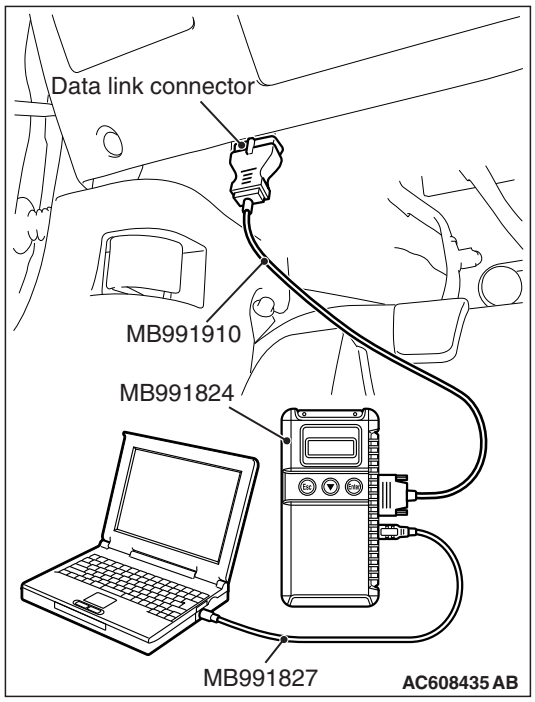
TROUBLESHOOTING HINTS

- Malfunction of CAN bus line may be defective.
- Malfunction of the KOS-ECU may be defective. <vehicles with KOS>
- Malfunction of the WCM may be defective. <vehicles with WCM>
- Malfunction of radio and CD player may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-345."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. Using scan tool MB991958, read the KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> diagnostic trouble code.

Check again if the DTC is set to the KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM>.

Q: Is the DTC set?

YES : Troubleshoot the KOS or WCM (Refer to GROUP 42B, Diagnosis P.42B-28 <KOS> or GROUP 42C, Diagnosis P.42C-17 <WCM>).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).

TSB Revision

DTC U0195: Satellite radio CAN timeout

⚠ CAUTION
If DTC U0195 is set in the radio and CD player, diagnose the CAN main bus line.

⚠ CAUTION
Whenever the radio and CD player is replaced, ensure that the communication circuit is normal.

DIAGNOSTIC FUNCTION

When the signals from satellite radio tuner cannot be received, the radio and CD player sets DTC U0195.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10 – 16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communications with satellite radio tuner cannot be established for 2,500 ms or more, the radio and CD player determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The radio and CD player may be defective.
- The satellite radio tuner may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

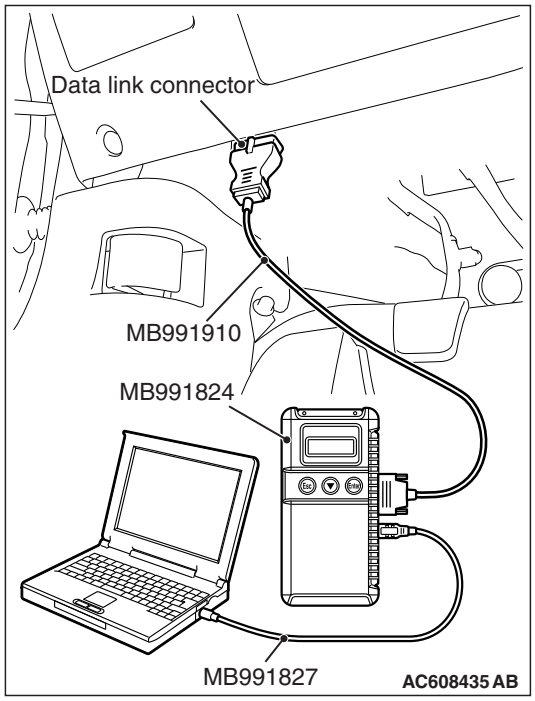
STEP 1. Using scan tool MB991958, diagnose the CAN bus line

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-345."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-17).



STEP 2. Using scan tool MB991958 read the satellite radio tuner diagnostic trouble code.

Check whether a satellite radio tuner DTCs are set or not.
(1) Turn the ignition switch to the "ON" position.
(2) Check for satellite radio tuner DTCs.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the satellite radio tuner. (Refer to P.54A-640.)
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the SRS-ECU diagnostic trouble code.

Check if the DTC U0195 is set to the SRS-ECU.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

DTC U0197: Hands free module CAN timeout

⚠ CAUTION
- **If DTC U0197 is set, be sure to diagnose the CAN bus line.**
- **When replacing the radio and CD player, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

When the signals from hands free module cannot be received, the radio and CD player sets DTC U0197.

JUDGMENT CRITERIA

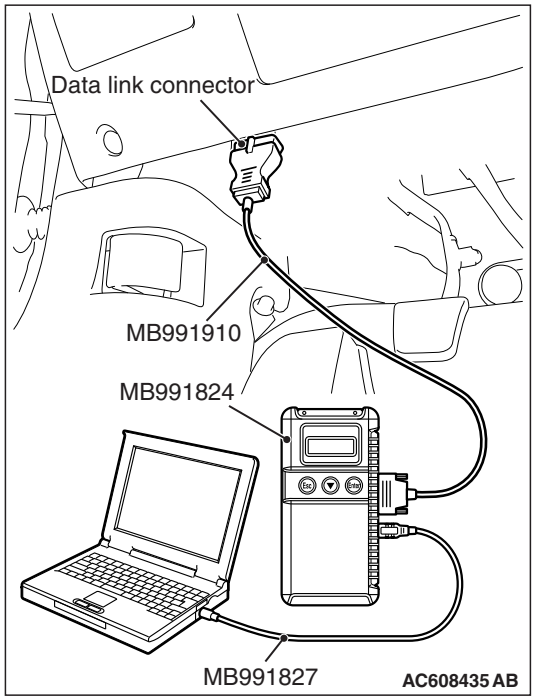
With the ignition switch in the ON position, system voltage between 10 – 16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communications with hands free module cannot be established for 2,500 ms or more, the radio and CD player determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The radio and CD player may be defective.
- The hands free module may be defective.

DIAGNOSIS

Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-345."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. Using scan tool MB991958, read the hands free module diagnostic trouble code.

Check again if the DTC is set to the hands free module.
(1) Turn the ignition switch to the "ON" position.
(2) Check for hands free module DTCs.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Troubleshoot the hands-free cellular phone system. (Refer to P.54A-563.)
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

Check if the DTC U0197 is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the hands free module.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

DTC U1415: Coding not completed/Data fail

⚠ CAUTION
If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, always diagnose the CAN bus lines.

⚠ CAUTION
Before replacing the radio and CD player, be sure to check that the power supply circuit, ground circuit, and communication circuit are normal.

TROUBLE JUDGMENT

When the vehicle information data is not registered to the audio unit, the radio and CD player sets the diagnostic trouble code No.U1415.

TECHNICAL DESCRIPTION (COMMENT)

The audio unit, ETACS-ECU, or CAN bus line may have a problem.

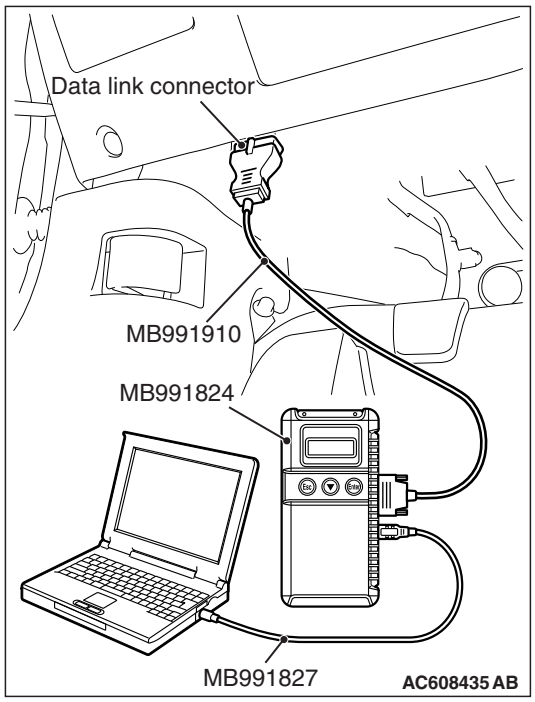
TROUBLESHOOTING HINTS

- Malfunctions of radio and CD player
- Malfunction of the ETACS-ECU
- Malfunction of CAN bus line wiring harness and connector

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-345."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. Using scan tool MB991958, read the other system DTC.

Check if the diagnostic trouble code relating to the coding error is set to the ETACS-ECU.
(1) Turn the ignition switch to the "ON" position.
(2) Check for DTCs.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to GROUP 54A, ETACS-ECU, Diagnosis P.54A-678), and then go to Step 3.
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if the DTC is set.

Q: Is the DTC set?

YES : Replace the radio and CD player.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

TSB Revision

DTC B2420: Power integrated circuit

⚠ CAUTION
If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, always diagnose the CAN bus lines.

⚠ CAUTION
Before replacing the radio and CD player, be sure to check that the power supply circuit, ground circuit, and communication circuit are normal.

TROUBLE JUDGMENT

If the radio and CD player continuously apply the voltage of two volts or more to the speakers for one minute or more, it is determined that the offset voltage is exceeded, and then the diagnostic trouble code is set.

COMMENTS ON TROUBLE SYMPTOM

The radio and CD player or CAN bus line may have a problem.

PROBABLE CAUSES

- Malfunctions of radio and CD player
- Malfunction of CAN bus line wiring harness and connector

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

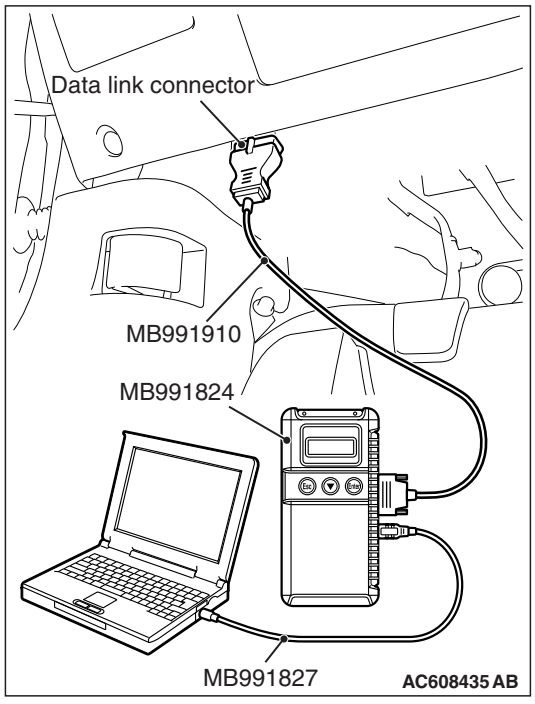
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-345."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-17).



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STEP 2. Recheck for diagnostic trouble code.
Check again if the DTC is set to the radio and CD player.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if the DTC is set.

Q: Is the diagnostic trouble code set?

YES : Replace the radio and CD player.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

DTC B2421: Radio tuner

⚠ CAUTION
If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, always diagnose the CAN bus lines.

⚠ CAUTION
Before replacing the radio and CD player, be sure to check that the power supply circuit, ground circuit, and communication circuit are normal.

TROUBLE JUDGMENT

If the communication cannot be established consecutively for 10 times between the incorporated tuner of radio and CD player and the microcomputer, the diagnostic trouble code is set.

COMMENTS ON TROUBLE SYMPTOM

The radio and CD player or CAN bus line may have a problem.

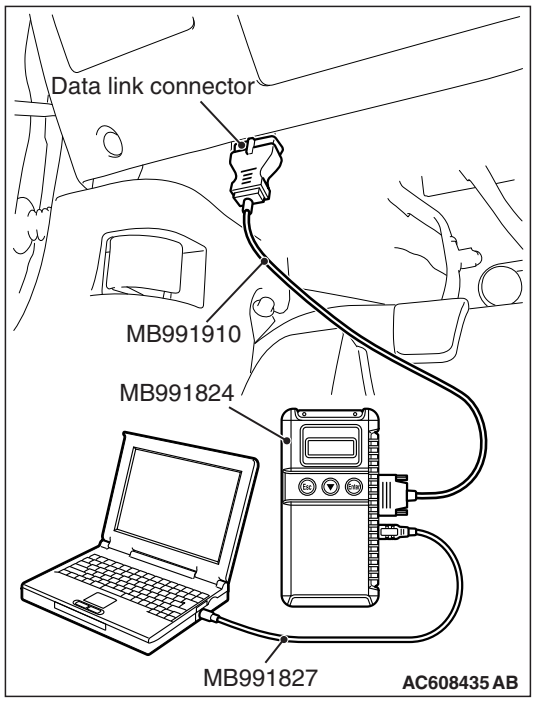
PROBABLE CAUSES

- Malfunctions of radio and CD player
- Malfunction of CAN bus line wiring harness and connector

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-345."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if the DTC is set.

Q: Is the DTC set?

YES : Replace the radio and CD player.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

DTC B2423: 6 CD player error

⚠ CAUTION
If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, always diagnose the CAN bus lines.

⚠ CAUTION
Before replacing the radio and CD player, be sure to check that the power supply circuit, ground circuit, and communication circuit are normal.

TROUBLE JUDGMENT

During the use of the CD changer of radio and CD player, if any of the ERROR, ERROR01, ERROR02, ERROR03, ERROR DC or ERROR HOT continues for 1 minute, the diagnostic trouble code is set.

COMMENTS ON TROUBLE SYMPTOM

The radio and CD player or CAN bus line may have a problem.

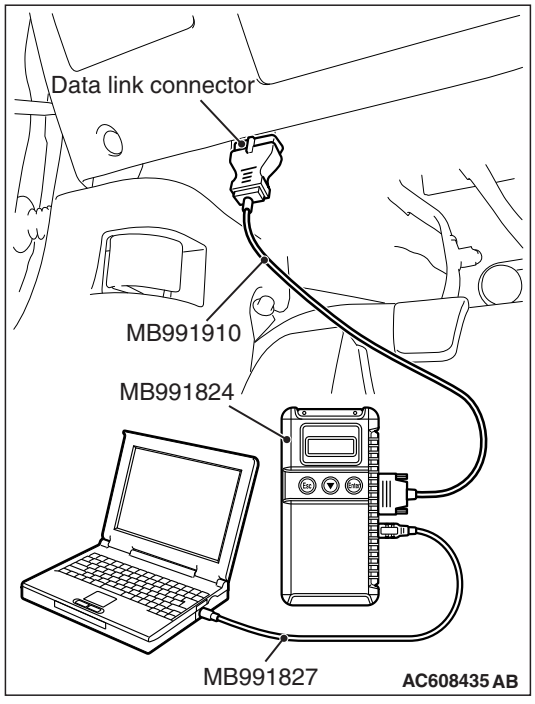
PROBABLE CAUSES

- Malfunctions of radio and CD player
- Malfunction of CAN bus line wiring harness and connector

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A



STEP 1. Using scan tool MB991958, diagnose the CAN bus line

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-345."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. CD check

Playback a clean and unscratched CD for one minute, and recheck if the diagnostic trouble code is set to the radio and CD player.

(1) Erase the diagnostic trouble code.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Playback the clean, unscratched CD for one minute.
(4) Check if diagnostic trouble code is set.

Q: Is the DTC set?

YES : Go to Step 3.
NO : Clean the CD, use a CD without scratches and burrs, or remove the CD burrs, and then reinsert the CD.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if the DTC is set.

Q: Is the DTC set?

YES : Replace the radio and CD player.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

DTC B2424: CD player error

⚠ CAUTION
If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, always diagnose the CAN bus lines.

⚠ CAUTION
Before replacing the radio and CD player, be sure to check that the power supply circuit, ground circuit, and communication circuit are normal.

TROUBLE JUDGMENT

During the use of the CD player of radio and CD player, if any of the ERROR, ERROR01, ERROR02, ERROR03, ERROR DC or ERROR HOT continues for 1 minute, the diagnostic trouble code is set.

COMMENTS ON TROUBLE SYMPTOM

The radio and CD player or CAN bus line may have a problem.

PROBABLE CAUSES

- Malfunctions of radio and CD player
- Malfunction of CAN bus line wiring harness and connector

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

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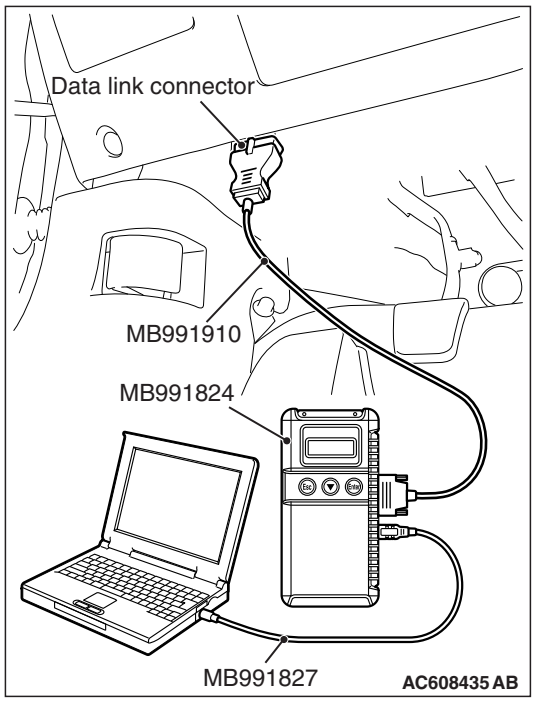


STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-345."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. CD check

Playback a clean and unscratched CD for one minute, and recheck if the diagnostic trouble code is set to the radio and CD player.

(1) Erase the diagnostic trouble code.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Playback the clean, unscratched CD for one minute.
(4) Check if diagnostic trouble code is set.

Q: Is the diagnostic trouble code set?

YES : Go to Step 3.
NO : Clean the CD, use a CD without scratches and burrs, or remove the CD burrs, and then reinsert the CD.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if the DTC is set.

Q: Is the DTC set?

YES : Replace the radio and CD player.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

TSB Revision

DTC B2450: Switch panel communication

⚠ CAUTION
If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, always diagnose the CAN bus lines.

⚠ CAUTION
Before replacing the radio and CD player, be sure to check that the power supply circuit, ground circuit, and communication circuit are normal.

TROUBLE JUDGMENT

If the radio and CD player cannot establish the communication with center panel assembly for 1 minute or more, the diagnostic trouble code is set.

COMMENTS ON TROUBLE SYMPTOM

The radio and CD player, center panel assembly, or CAN bus line may have a problem.

PROBABLE CAUSES

- Malfunctions of radio and CD player
- Malfunction of center panel assembly
- Malfunction of CAN bus line wiring harness and connector

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

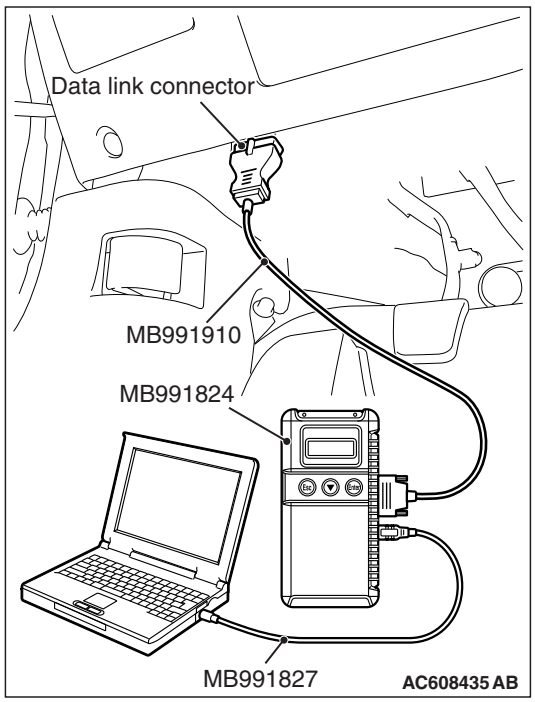
Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958 to the data link connector.
(2) Turn the ignition switch to "ON" position.
(3) Diagnose the CAN bus line.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).



STEP 2. Connection status check of radio and CD player with center panel assembly

Check that the radio and CD player are connected to the center panel assembly without any problem.

Q: Is the connection established?

YES : Go to Step 3.

NO : Securely connect the radio and CD player with the center panel assembly.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if the DTC is set.

Q: Is the DTC set?

YES : Replace the radio and CD player.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

DTC B2451: Audio panel type error

⚠ CAUTION

If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, always diagnose the CAN bus lines.

TROUBLE JUDGMENT

If the radio and CD player consecutively receive the display trouble signal from the center panel assembly for 1 minute, the diagnostic trouble code is set.

TECHNICAL DESCRIPTION (COMMENT)

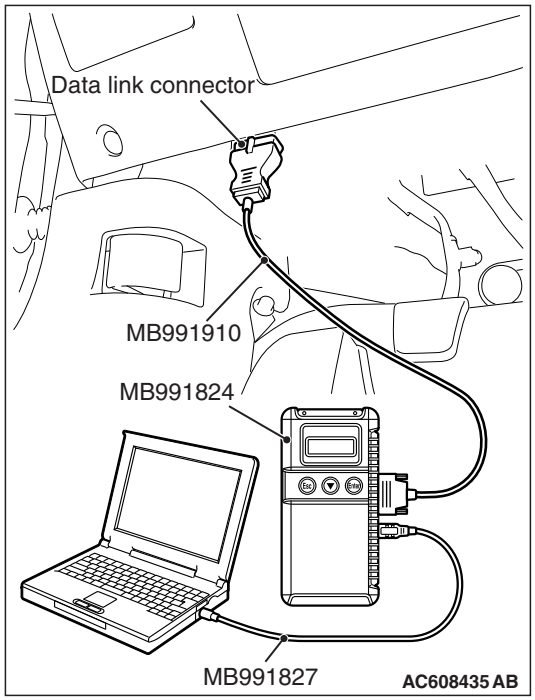
The center panel assembly or CAN bus line may have a problem.

TROUBLESHOOTING HINTS

- Malfunction of center panel assembly
- Malfunction of CAN bus line wiring harness and connector

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.



⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-345."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD player.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if the DTC is set.

Q: Is the DTC set?

YES : Go to Step 3.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

STEP 3. Replace the center panel assembly temporarily, and check whether the diagnostic trouble code is set.

Check again if the DTC is set to the radio and CD player.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.

Q: Is the DTC set?

YES : Replace the radio and CD player.
NO : Replace the center panel assembly.

TSB Revision

TROUBLE SYMPTOM CHART

M1544004901669

Trouble symptom		Inspection Procedure No.	Reference page
Power of the radio and CD player does not turn ON when the ignition switch is in the "ACC" position or "ON" Position.		1	P.54A-378
No sound is heard. <Vehicles with audio amplifier>		2	P.54A-383
No sound is heard from one of the speakers.	<Vehicles without audio amplifier>	3	P.54A-389
	<Vehicles with audio amplifier>		P.54A-395
The audio does not operate normally by operating the radio and CD player of the center panel unit.		4	P.54A-402
Audio illumination does not work normally.		5	P.54A-406
The sound of external input are not played.		6	P.54A-411
Noise	Noise appears at certain places when traveling (AM).	7	P.54A-413
	Noise is present while moving (FM).	8	P.54A-413
	Sound mixed with noise, only at night (AM).	9	P.54A-414
	Broadcasts can be heard but both AM and FM have a lot of noise.	10	P.54A-415
	There is more noise on either AM or FM.	11	P.54A-415
	Noise sometimes appears on FM during traveling.	12	P.54A-416
	There is noise when starting the engine.	13	P.54A-417
	Some noise appears when there is vibration or shocks during traveling.	14	P.54A-419
	Ever-present noise.	15	P.54A-420
Radio	Noise comes out, but neither AM nor FM sounds.	16	P.54A-421
	Poor reception.	17	P.54A-421
	Distortion on AM or on both AM and FM.	18	P.54A-422
	Distortion on FM only.	19	P.54A-423
	Using the auto select function, too few automatic stations are selected.	20	P.54A-423
	Preset stations are erased.	21	P.54A-424
CD player	CD cannot be inserted.	22	P.54A-424
	No sound (CD only).	23	P.54A-425
	CD sound skips.	24	P.54A-425
	Sound quality is poor.	25	P.54A-426
	CD cannot be ejected.	26	P.54A-426

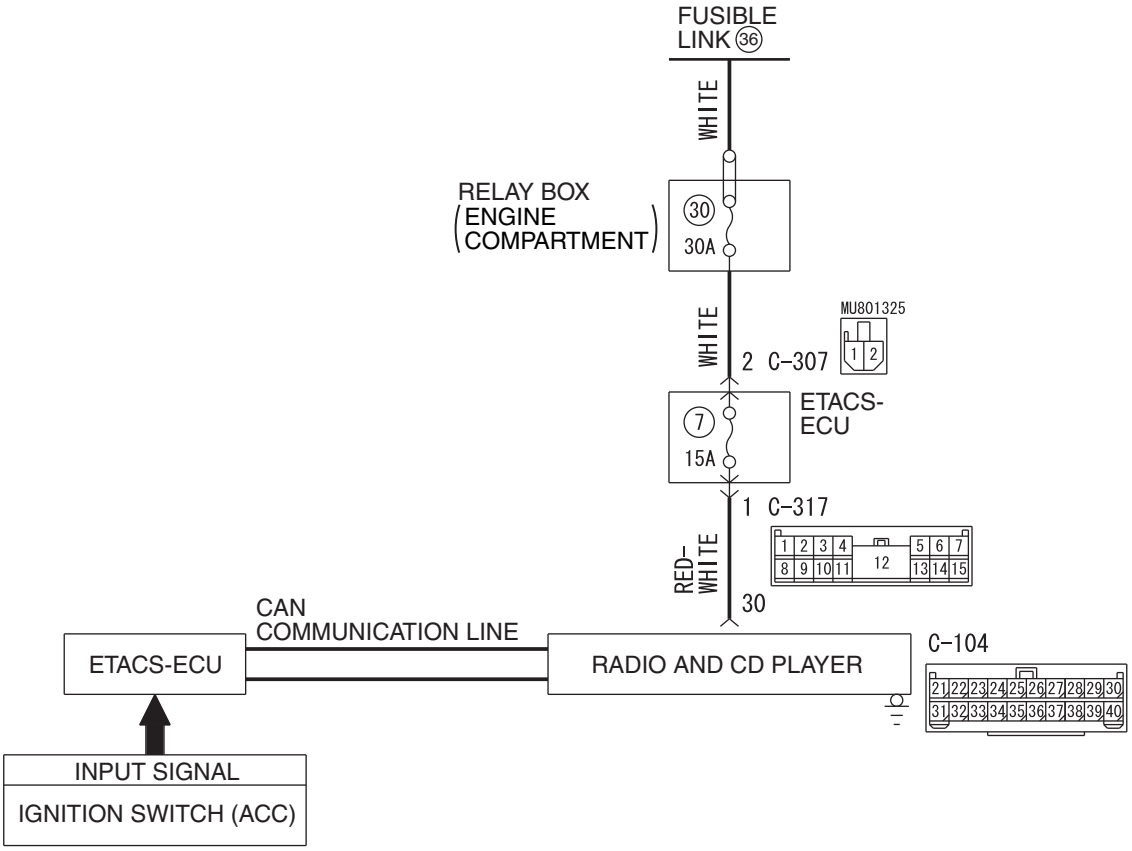
TSB Revision

SYMPTOM PROCEDURES

Inspection Procedure 1: Power of the radio and CD player does not turn ON when the Ignition switch is in the "ACC" position or "ON" Position.

⚠ CAUTION
Before replacing the radio and CD player, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Radio and CD Player Power Supply Circuit



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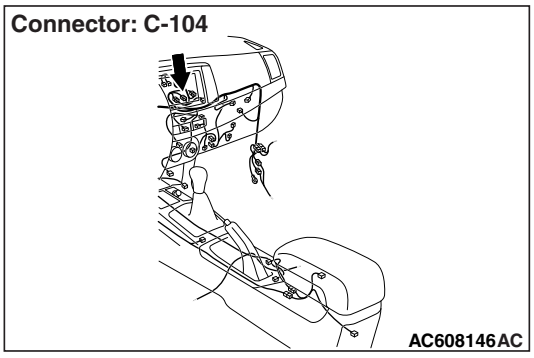

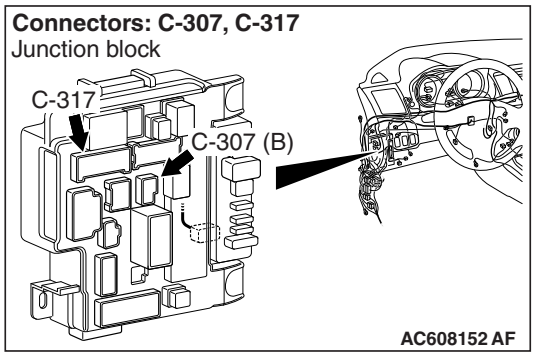

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⚠ CAUTION
When the ignition switch is turned to the ACC position for 30 minutes with the ETACS-ECU function, the ACC power is cut-off automatically. For this function, the time to cut-off can be changed with the operation of ETACS system by the scan tool MB991958. (Refer to P.54A-768.)

OPERATION

When the ignition switch is in the ON or ACC position, the radio and CD player power can be turned ON. With the radio and CD player power ON, when the ignition switch is turned to the OFF position, the power for radio and CD player is also turned OFF.

COMMENTS ON TROUBLE SYMPTOM

Provided that the audio diagnostic trouble code is not set, if the power for radio and CD player cannot be turned ON, the radio and CD player, or power supply circuit for radio and CD player may have a problem, or the option coding information may be inconsistent.

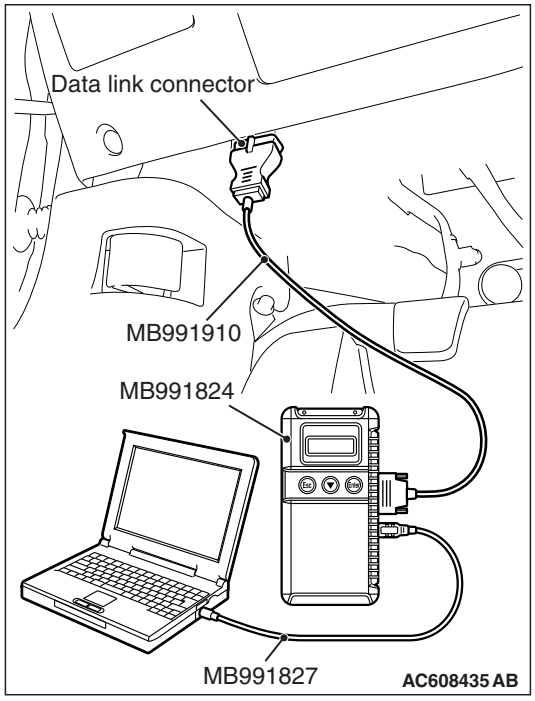
PROBABLE CAUSES

- Malfunctions of radio and CD player
- Malfunction of the ETACS-ECU
- Option coding information inconsistency
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A



STEP 1. ETACS-ECU coding data check.

(1) Operate scan tool MB991958 to read the ETACS-ECU option coding information (Refer to GROUP 00, Coding Table P.00-33).
(2) Check that the "AUDIO" is set to "Present."

Q: Is the check result normal?

YES : Go to Step 2.
NO : Operate scan tool MB991958 to set the option coding "AUDIO" to "Present," and check the trouble symptom.

STEP 2. Using scan tool MB991958, diagnose the CAN bus line.

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958 to the data link connector.
(2) Turn the ignition switch to "ON" position.
(3) Diagnose the CAN bus line.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-17.) On completion, go to Step 3.

STEP 3. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

Check if the diagnostic trouble code is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to GROUP 54A, ETACS, Diagnosis P.54A-678), and then go to Step 4.
NO : Go to Step 4.

STEP 4. Using scan tool MB991958, check data list.

Check the input signal of ACC relay.

- Turn the ignition switch to the ACC position.

Item No.	Item name	Normal conditions
Item 288	ACC switch	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 5.
NO : Refer to GROUP 54A, ETACS, Diagnosis – Inspection Procedure 1 "The ignition switch (ACC) signal is not received" P.54A-735.

STEP 5. Check ETACS-ECU connector C-317 and radio and CD player connector C-104 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are ETACS-ECU connector C-317 and radio and CD player connector C-104 in good condition?

YES : Go to Step 6.
NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 6. Check the wiring harness between ETACS-ECU connector C-317 (terminal 1) and radio and CD player connector C-104 (terminal 30).

- Check the power supply lines (battery power supply) for open circuit and short circuit.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 1) and radio and CD player connector C-104 (terminal 30) in good condition?

YES : Go to Step 7.

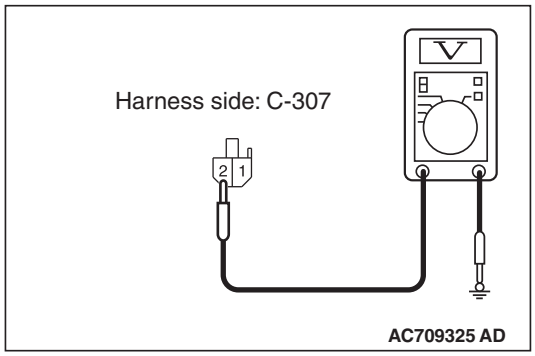
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 7. Check the power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-307.

(1) Disconnect the connector, and measure at the wiring harness-side connector.

(2) Measure the voltage between terminal 2 and ground.

OK: Battery positive voltage



Q: Is the measured voltage battery positive voltage?

YES : Go to Step 9.

NO : Go to Step 8.

STEP 8. Check the wiring harness between ETACS-ECU connector C-307 (terminal 2) and fusible link (36)

- Check the power supply line for open circuit and short circuit.

Q: Is the wiring harness between ETACS-ECU connector C-307 (terminal 2) and fusible link (36) in good condition?

YES : Go to Step 9.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 9. Check that the radio and CD player is correctly grounded

The radio and CD player should be connected to the ground with an assembling screw.

Q: Is the radio and CD player correctly grounded?

YES : Go to Step 10.

NO : Securely install and ground the radio and CD player.

STEP 10. Retest the system

Check if the radio and CD player power is turned ON.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).

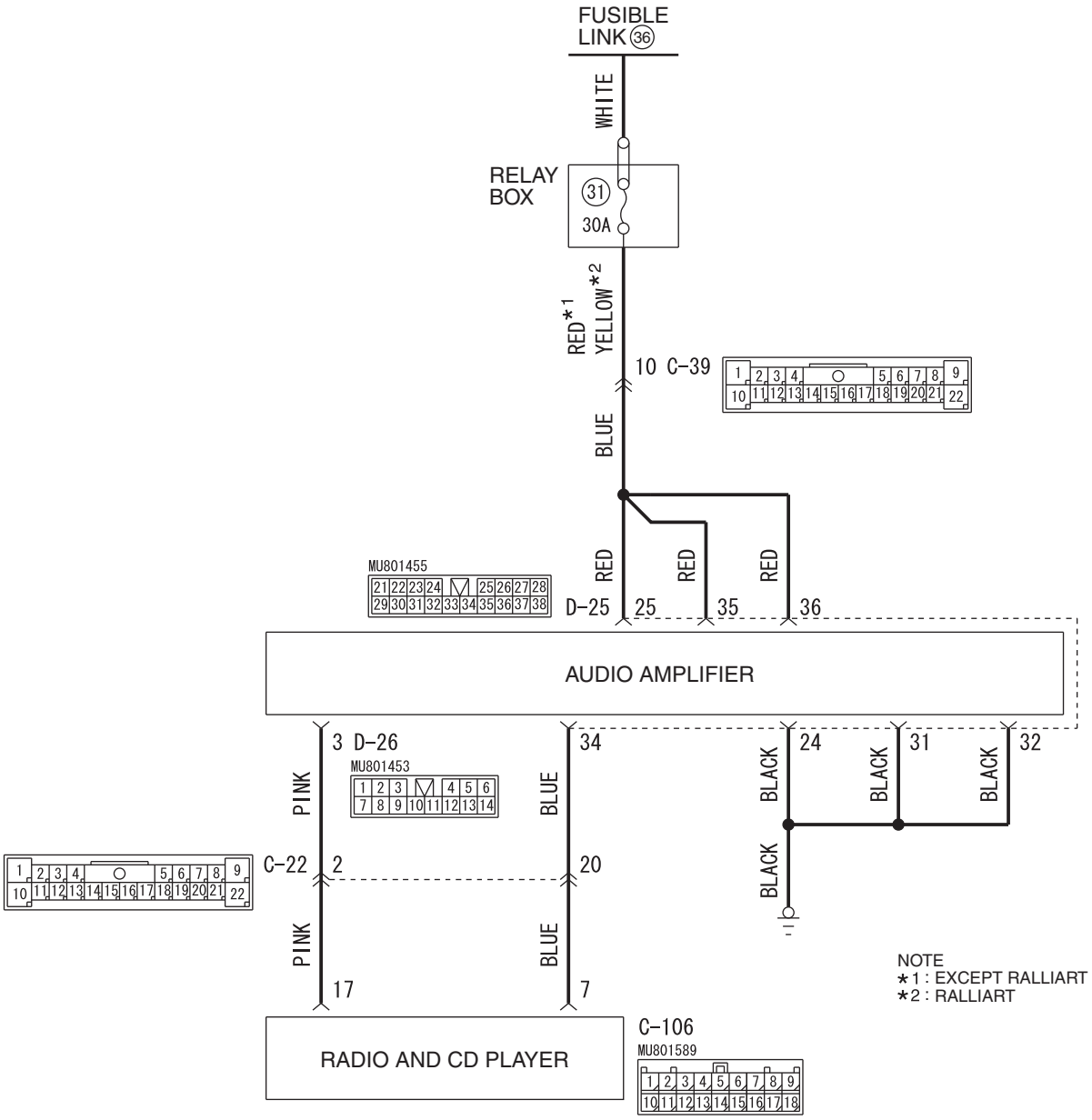
NO : Replace the radio and CD player.

Inspection Procedure 2: No sound is heard. <Vehicles with audio amplifier>

⚠ CAUTION

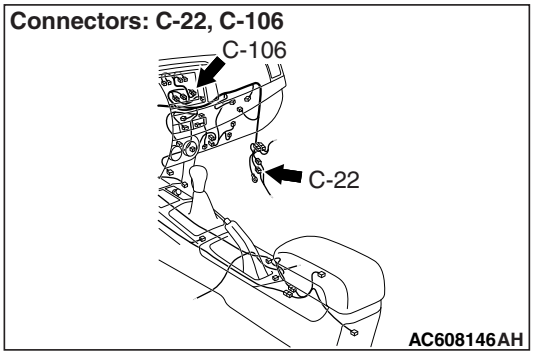
Before replacing the radio and CD player or audio amplifier, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Audio System Circuit

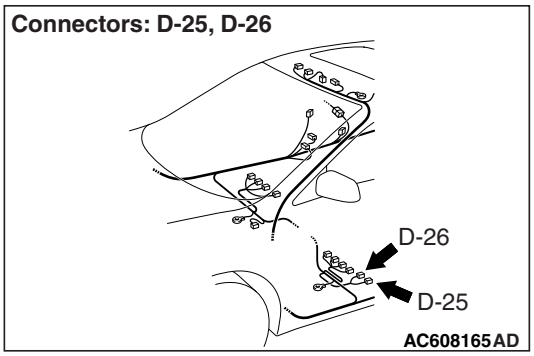


W9H54M033A

Connectors: C-22, C-106



Connectors: D-25, D-26



COMMENTS ON TROUBLE SYMPTOM

If the audio sound is not output, the radio and CD player, audio amplifier, or power supply circuit of audio amplifier may have a problem, or the option coding information may be inconsistent.

PROBABLE CAUSES

- Malfunctions of radio and CD player
- Malfunction of audio amplifier
- Option coding information inconsistency
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Check the ETACS-ECU coding data.

(1) Operate the scan tool MB991958 to read the ETACS-ECU option coding information (Refer to GROUP 00, Coding Table P.00-33).
(2) Check that the "Number of speaker" is set to "Premium."

Q: Is the check result normal?

YES : Go to Step 2.
NO : Operate scan tool MB991958 to set the option coding "Number of speaker" to "Premium," and check the trouble symptom.

STEP 2. Check audio amplifier connector D-25 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-25 in good condition?

YES : Go to Step 3.
NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

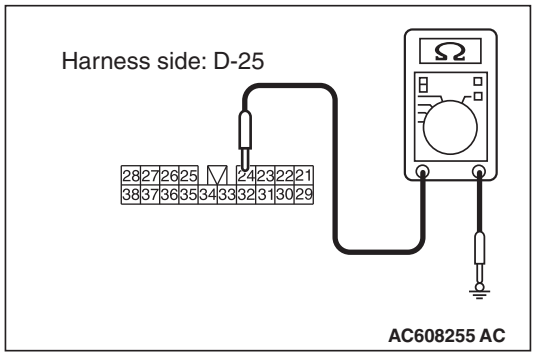
TSB Revision

STEP 3. Check the ground circuit to the rear monitor. Measure the resistance at audio amplifier connector D-25.

(1) Disconnect audio amplifier connector D-25, and measure the resistance available at the wiring harness side of the connector.

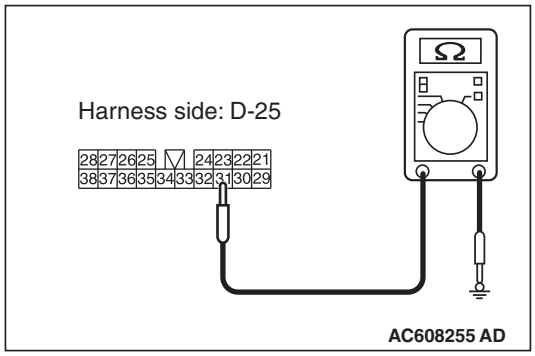
(2) Measure the resistance between terminal 24 and ground.

OK: The resistance should be 2 ohms or less



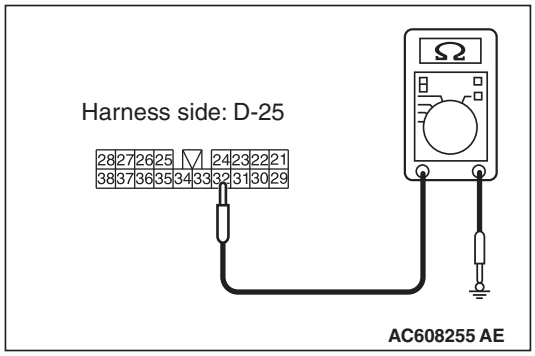
(3) Measure the resistance between terminal 31 and ground.

OK: The resistance should be 2 ohms or less



(4) Measure the resistance between terminal 32 and ground.

OK: The resistance should be 2 ohms or less



Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.
NO : Go to Step 4.

STEP 4. Check the wiring harness between audio amplifier connector D-25 (terminal 24, 31, 32) and ground.

- Check the ground wires for open circuit.

Q: Is the wiring harness between audio amplifier connector D-25 (terminal 24, 31, 32) and ground in good condition?

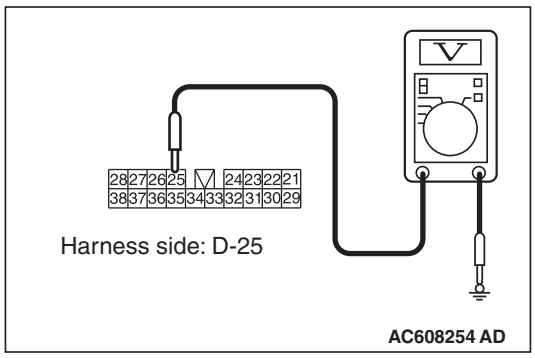
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 5. Check the power supply circuit to the ETACS-ECU. Measure the voltage at audio amplifier connector D-25.

(1) Disconnect audio amplifier connector D-25, and measure the voltage available at the wiring harness-side connector.

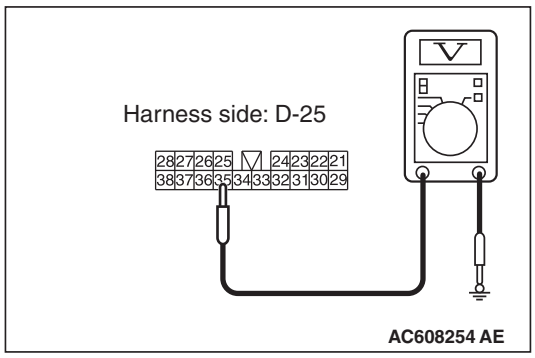
(2) Measure the voltage between terminal 25 and ground.

OK: The voltage should measure approximately 12 volts (battery positive voltage).



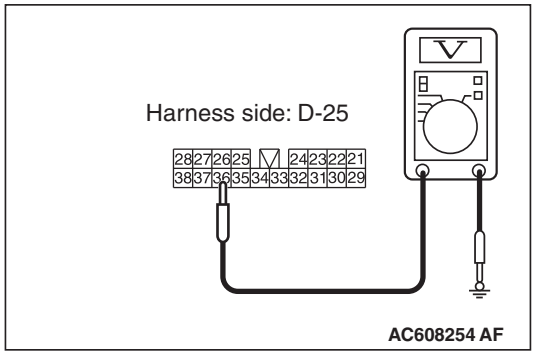
(3) Measure the voltage between terminal 35 and ground.

OK: The voltage should measure approximately 12 volts (battery positive voltage).



(4) Measure the voltage between terminal 36 and ground.

OK: The voltage should measure approximately 12 volts (battery positive voltage).



Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 7.
NO : Go to Step 6.

STEP 6. Check the wiring harness between audio amplifier connector D-25 (terminal 25, 35, 36) and fusible link (36).

- Check the power supply lines for open circuit and short circuit.

Q: Is the wiring harness between audio amplifier connector D-25 (terminal 25, 35, 36) and fusible link (36) in good condition?

YES : Go to Step 7.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 7. Check radio and CD player connector C-106 and audio amplifier connector D-26 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are radio and CD player connector C-106 and audio amplifier D-26 in good condition?

YES : Go to Step 8.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 8. Check the wiring harness between radio and CD player connector C-106 (terminal 17) and audio amplifier connector D-26 (terminal 3)

- Check the communication line for open circuit and short circuit.

NOTE: Also check intermediate connector C-22 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between radio and CD player connector C-106 (terminal 17) and audio amplifier connector D-26 (terminal 3) in good condition?

YES : Go to Step 9.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 9. Check the wiring harness between radio and CD player connector C-106 (terminal 7) and audio amplifier connector D-25 (terminal 34)

- Check the communication line for open circuit and short circuit.

NOTE: Also check intermediate connector C-22 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between radio and CD player connector C-106 (terminal 7) and audio amplifier connector D-25 (terminal 34) in good condition?

YES : Go to Step 10.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 10. Retest the system

Replace the audio amplifier, then check that the audio sound is output.

Q: Is the check result normal?

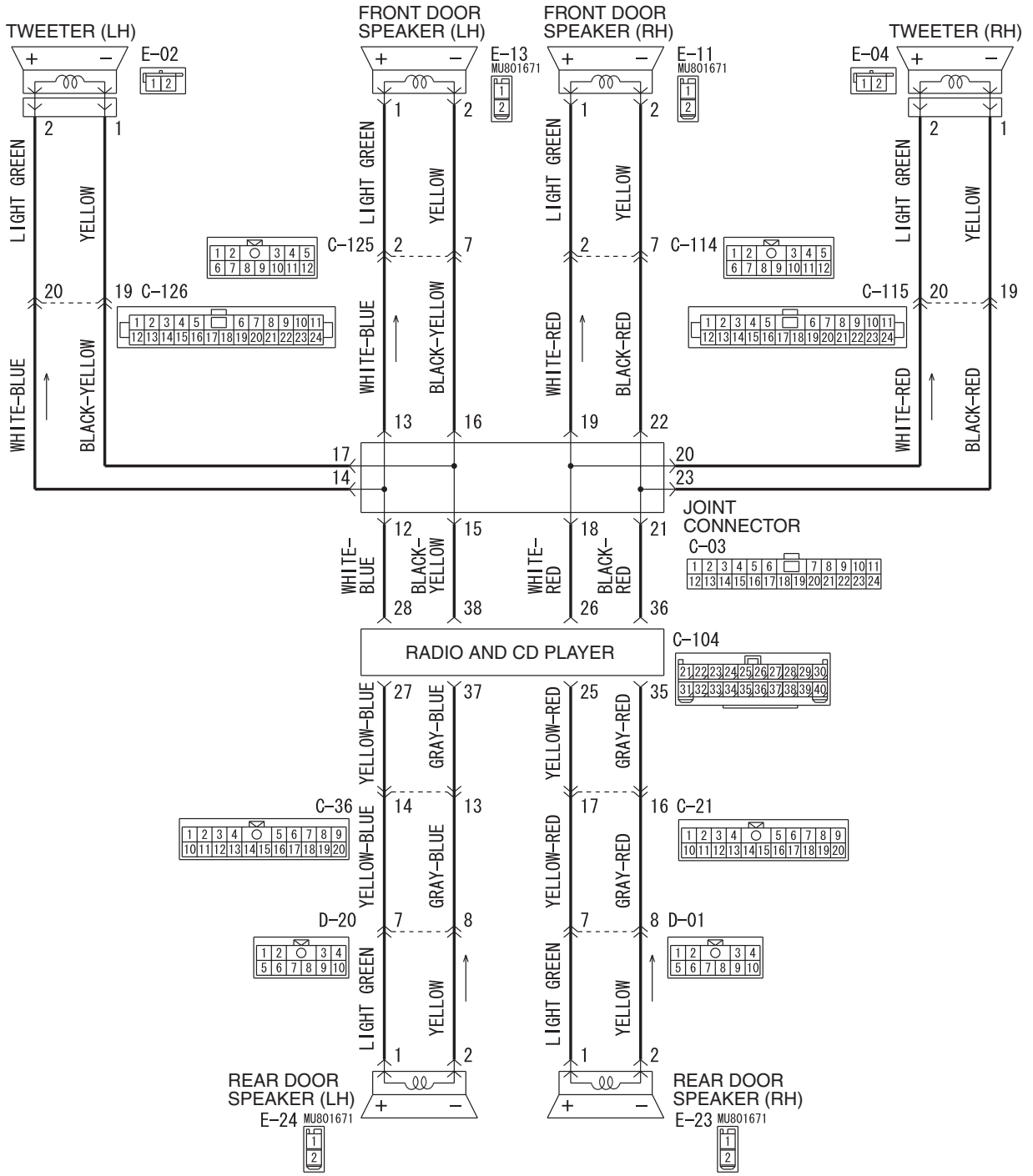
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

NO : Replace the radio and CD player.

Inspection Procedure 3: No sound is heard from one of the speakers. <Vehicles without audio amplifier>

⚠ CAUTION
Before replacing the radio and CD player, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Speaker System Circuit



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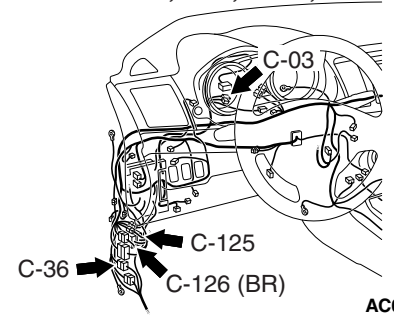
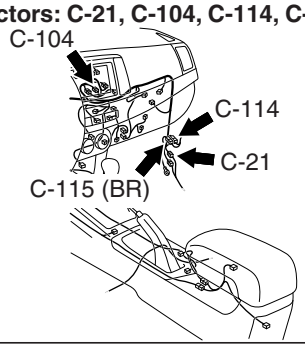
TSB Revision

Connectors: C-03, C-36, C-125, C-126



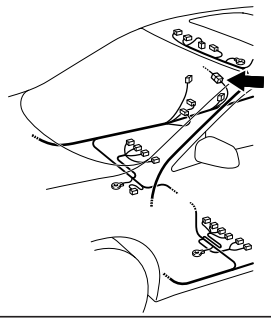
AC608145AQ

Connectors: C-21, C-104, C-114, C-115



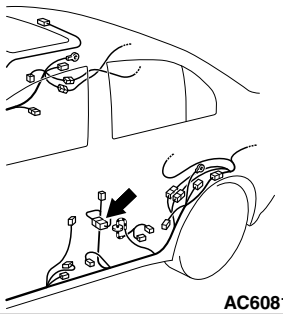
AC608146AI

Connector: D-01



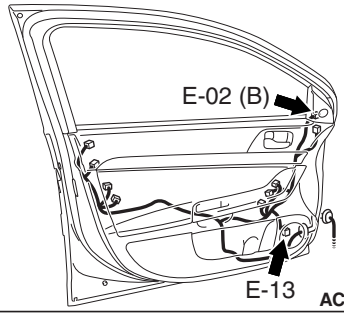
AC608165AE

Connector: D-20



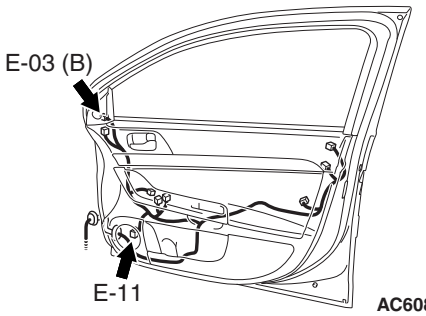
AC608166AB

Connectors: E-02, E-13



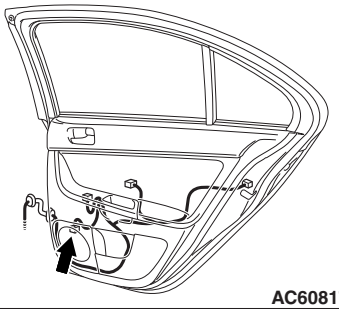
AC608167AB

Connectors: E-03, E-11



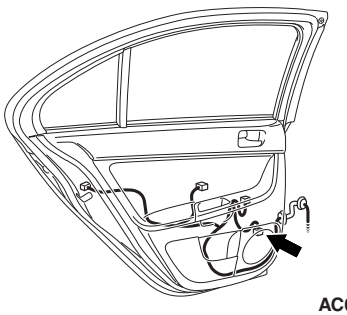
AC608168AB

Connector: E-23



AC608170AB

Connector: E-24



AC608169AB

COMMENTS ON TROUBLE SYMPTOM

If the sound is not output from one of the speakers, the speaker, radio and CD player, communication line from the radio and CD player to the speakers may have a problem.

PROBABLE CAUSES

- Malfunction of speaker
- Malfunctions of radio and CD player
- Damaged harness wires and connectors

TSB Revision

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. ETACS-ECU coding data check.

(1) Operate the scan tool to read the ETACS-ECU option coding information (Refer to GROUP 00, Coding Table P.00-33).

(2) Check that the "Number of speaker" is set to "6 speakers" or "4 speakers."

Q: Is the check result normal?

YES : Go to Step 2.

NO : Operate the scan tool to set the option coding "Number of speaker" to "6 speakers" or "4 speakers," and check the trouble symptom.

STEP 2. Checking with speaker test

Perform the speaker test, and check which speaker does not output the sound (Refer to P.54A-630).

NOTE: In the following procedure, check the speaker or tweeter that is abnormal.

Q: Is the check result normal?

YES (normal for all) : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).

NO (abnormal for all) : Check the radio and CD player power supply and ground circuit, and repair if necessary. If the radio and CD player power supply and ground circuit is normal, replace the radio and CD player.

NO (Either a speaker is abnormal) : Go to Step 3.

STEP 3. Check door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-24 <rear-LH> or E-23 <rear-RH>, or tweeter connector E-02 <LH> or E-04 <RH> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-24 <rear-LH> or E-23 <rear-RH>, or tweeter connector E-02 <LH> or E-04 <RH> in good condition?

YES : Go to Step 4.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 4. Check the speaker or tweeter.

(1) Remove the speaker or tweeter (Refer to P.54A-631).
(2) Check that the speaker or tweeter outputs the noise when the voltage of 5 V is applied to the speaker or tweeter connector terminal.

Q: Does the speaker or tweeter output the noise?

YES : Go to Step 5.
NO : Replace the speaker or tweeter.

STEP 5. Check radio and CD player connector C-104 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player connector C-104 in good condition?

YES : Go to Step 6.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 6. Check the wiring harness between the speaker or tweeter connector terminal and the radio and CD player connector terminal.

Check the communication lines for open circuit and short circuit.

- <Front door speaker (LH)> Check the wiring harness between front door speaker (LH) connector E-13 (terminal 1, 2) and radio and CD player connector C-104 (terminal 28, 38).

  NOTE: Also check joint connector C-03 and intermediate connector C-125 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 or intermediate connector C-125 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Front door speaker (RH)> Check the wiring harness between front door speaker (RH) connector E-11 (terminal 1, 2) and radio and CD player connector C-104 (terminal 26, 36).

  NOTE: Also check joint connector C-03 and intermediate connector C-114 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 or intermediate connector C-114 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (LH)> Check the wiring harness between rear door speaker (LH) connector E-24 (terminal 1, 2) and radio and CD player connector C-104 (terminal 27, 37).

  NOTE: Also check intermediate connectors C-36 and D-20 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-36 or D-20 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (RH)> Check the wiring harness between rear door speaker (RH) connector E-23 (terminal 1, 2) and radio and CD player connector C-104 (terminal 25, 35).

  NOTE: Also check intermediate connectors C-21 and D-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-21 or D-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Tweeter (LH)> Check the wiring harness between tweeter (LH) connector E-02 (terminal 1, 2) and radio and CD player connector C-104 (terminal 38, 28).

  NOTE: Also check joint connector C-03 and intermediate connector C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 or intermediate connector C-126 is damaged, repair or

replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- <Tweeter (RH)> Check the wiring harness between tweeter (RH) connector E-04 (terminal 1, 2) and radio and CD player connector C-104 (terminal 36, 26).

  NOTE: Also check joint connector C-03 and intermediate connector C-115 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 or intermediate connector C-115 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between the speaker or tweeter connector terminal and the radio and CD player connector terminal in good condition?

YES : Replace the radio and CD player.

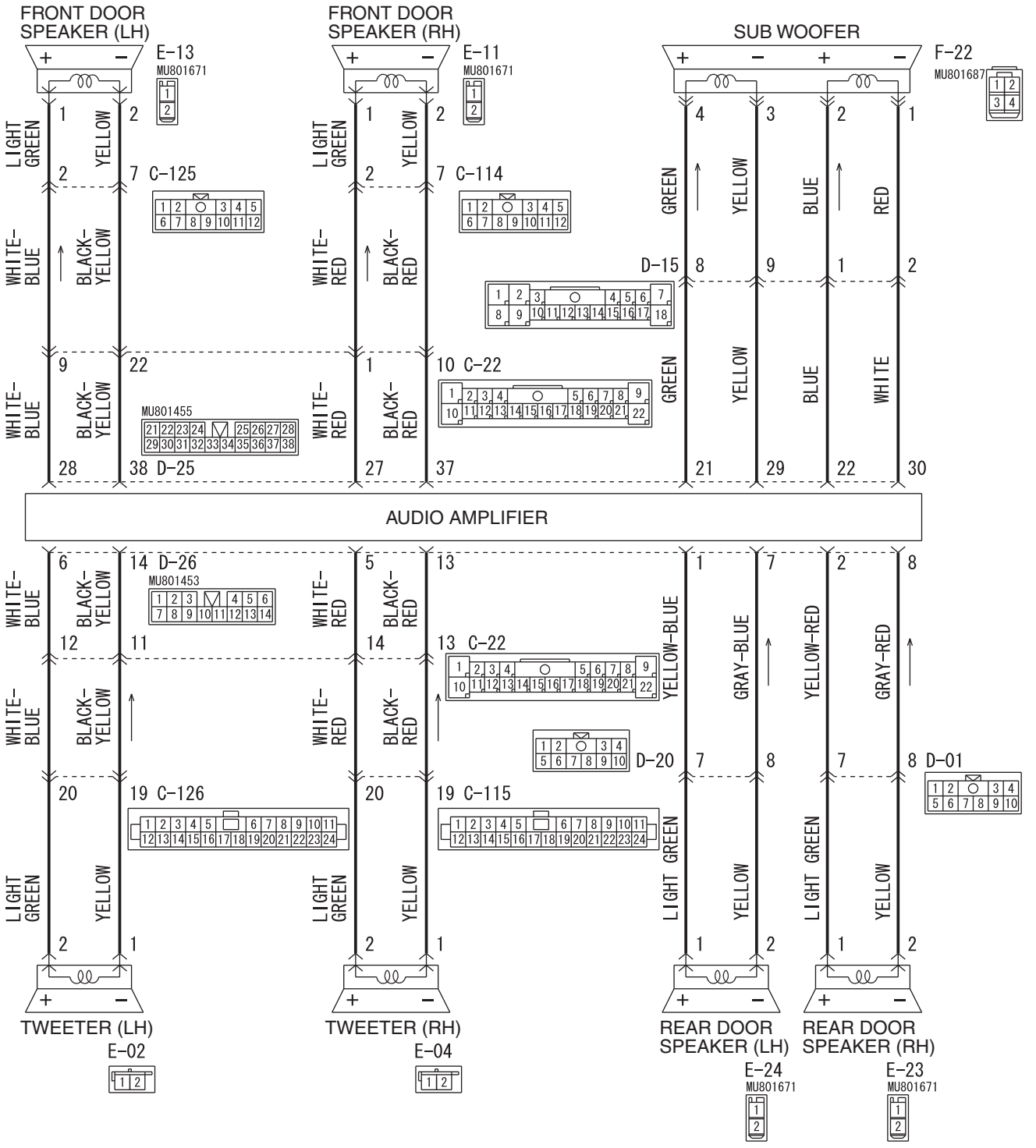
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Inspection Procedure 3: No sound is heard from one of the speakers. <Vehicles with audio amplifier>

⚠ CAUTION

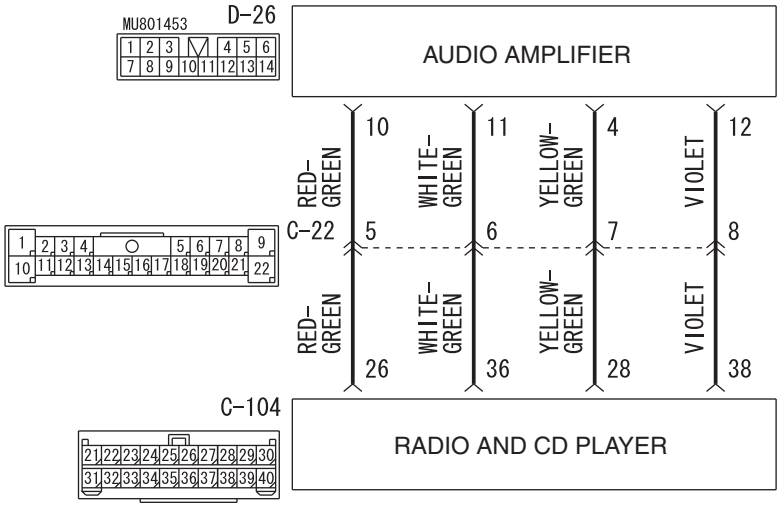
Before replacing the radio and CD player or audio amplifier, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Speaker System Circuit



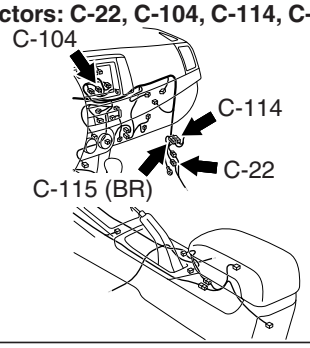
W9H54M035A

TSB Revision



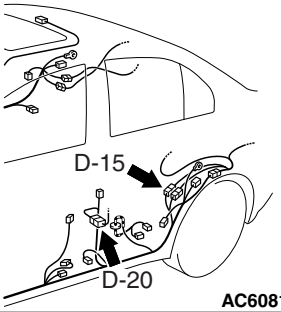
WAH54M011A

Connectors: C-22, C-104, C-114, C-115



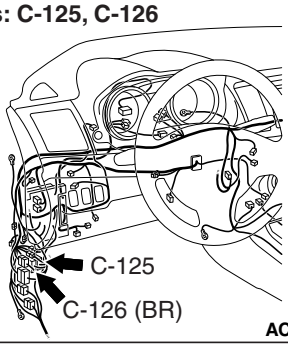
AC608146AJ

Connectors: D-15, D-20



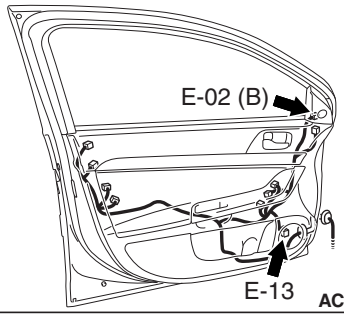
AC608166AC

Connectors: C-125, C-126



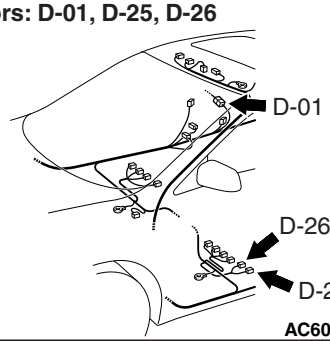
AC608145AR

Connectors: E-02, E-13



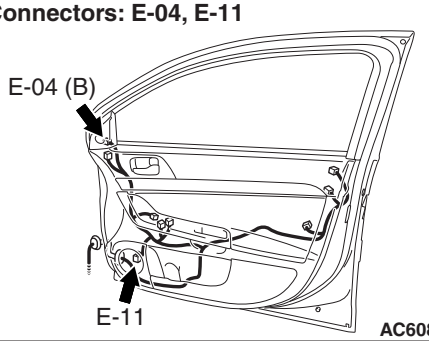
AC608167AB

Connectors: D-01, D-25, D-26



AC608165AF

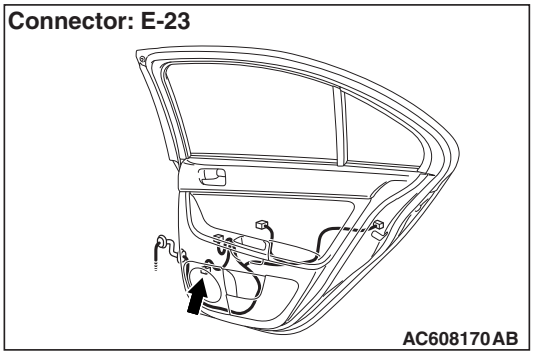
Connectors: E-04, E-11



AC608168AK

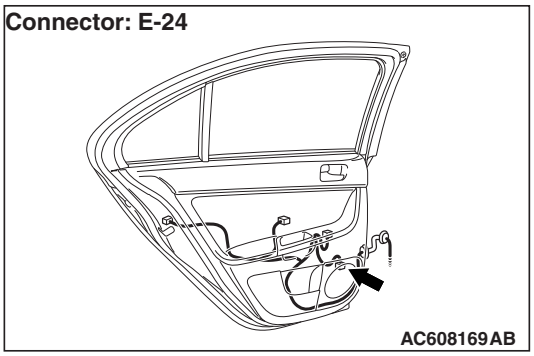
TSB Revision

Connector: E-23



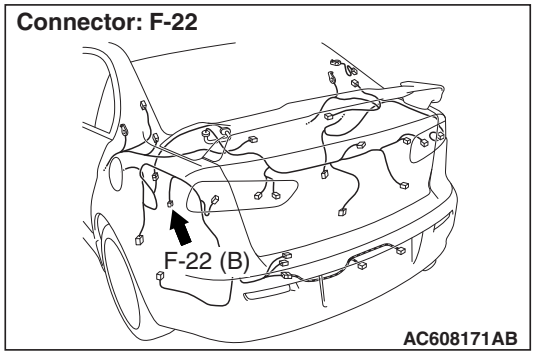
AC608170AB

Connector: E-24



AC608169AB

Connector: F-22



AC608171AB

COMMENTS ON TROUBLE SYMPTOM

If the sound is not heard from one of the speakers, the speaker, radio and CD player, audio amplifier, communication line from the radio and CD player to the audio amplifier, or communication line from the audio amplifier to the speaker may have a problem. Also, the option coding information may be inconsistent.

PROBABLE CAUSES

- Malfunction of speaker
- Malfunctions of radio and CD player
- Malfunction of audio amplifier
- Option coding information inconsistency
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. ETACS-ECU coding data check.

(1) Operate scan tool MB991958 to read the ETACS-ECU option coding information (Refer to GROUP 00, Coding Table P.00-33).

(2) Check that the "Number of speaker" is set to "Premium."

Q: Is the check result normal?

YES : Go to Step 2.

NO : Operate scan tool MB991958 to set the option coding "Number of speaker" to "Premium," and check the trouble symptom.

STEP 2. Checking with speaker test

Perform the speaker test, and check which speaker does not output the sound (Refer to P.54A-630).

NOTE: In the following procedure, check the speaker or tweeter that is abnormal.

Q: Is the check result normal?

YES (normal for all) : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).

NO (abnormal for all) : Check the radio and CD player power supply and ground circuit, and repair if necessary. If the radio and CD player power supply and ground circuit is normal, replace the radio and CD player.

NO (Either a speaker is abnormal) : Go to Step 3.

STEP 3. Check door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-24 <rear-LH> or E-23 <rear-RH>, or tweeter connector E-02 <LH> or E-04 <RH>, or sub woofer connector F-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-24 <rear-LH> or E-23 <rear-RH>, or tweeter connector E-02 <LH> or E-04 <RH>, or sub woofer connector F-22 in good condition?

YES : Go to Step 4.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 4. Check the speaker, tweeter or subwoofer.

(1) Remove the speaker, tweeter or subwoofer (Refer to P.54A-631).

(2) Check that the speaker or tweeter outputs the noise when the voltage of 5 V is applied to the speaker or tweeter connector terminal. <speaker or tweeter>

(3) Check that the subwoofer outputs the noise when the voltage of 5 V is applied to the subwoofer connector terminal. <subwoofer>

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the speaker, tweeter or subwoofer.

STEP 5. Check audio amplifier connector D-25 <front door speaker or sub woofer> or D-26 <rear door speaker or tweeter> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-25 <front door speaker or sub woofer> or D-26 <rear door speaker or tweeter> in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 6. Check the wiring harness between the speaker, tweeter or sub woofer connector terminal and the audio amplifier connector terminal.

Check the communication lines for open circuit and short circuit.

- <Front door speaker (LH)> Check the wiring harness between front door speaker (LH) connector E-13 (terminal 1, 2) and audio amplifier connector D-25 (terminal 28, 38).

  NOTE: Also check intermediate connectors C-22 and C-125 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-125 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Front door speaker (RH)> Check the wiring harness between front door speaker (RH) connector E-11 (terminal 1, 2) and audio amplifier connector D-25 (terminal 27, 37).

  NOTE: Also check intermediate connectors C-22 and C-114 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-114 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (LH)> Check the wiring harness between rear door speaker (LH) connector E-24 (terminal 1, 2) and audio amplifier connector D-26 (terminal 1, 7).

  NOTE: Also check intermediate connector D-20 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-20 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (RH)> Check the wiring harness between rear door speaker (RH) connector E-23 (terminal 1, 2) and audio amplifier connector D-26 (terminal 2, 8).

  NOTE: Also check intermediate connector D-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- <Tweeter (LH)> Check the wiring harness between tweeter (LH) connector E-02 (terminal 1, 2) and audio amplifier connector D-26 (terminal 14, 6).

  NOTE: Also check intermediate connectors C-22 and C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-126 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Tweeter (RH)> Check the wiring harness between tweeter (RH) connector E-04 (terminal 1, 2) and audio amplifier connector D-26 (terminal 13, 5).

  NOTE: Also check intermediate connectors C-22 and C-115 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-115 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Subwoofer> Check the wiring harness between subwoofer connector F-22 (terminal 1, 2, 3, 4) and audio amplifier connector D-25 (terminal No.30, 22, 29, 21).

  NOTE: Also check intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between the speaker, tweeter or sub woofer connector terminal and the audio amplifier connector terminal in good condition?

YES <front door speaker> : Go to Step 7.
YES <except front door speaker> : Go to Step 9.
NO (harness wire is abnormal) : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 7. Check radio and CD player connector C-104 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player connector C-104 in good condition?

YES : Go to Step 8.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 8. Check the harness wire between radio and CD player connector C-104 (terminal 26, 28, 36, 38) and audio amplifier connector D-26 (terminal 10, 4, 11, 12).

- Check the communication lines for open circuit and short circuit.

NOTE: Also check intermediate connector C-22 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between radio and CD player connector C-104 (terminal 26, 28, 36, 38) and audio amplifier connector D-26 (terminal 10, 4, 11, 12) in good condition?

YES : Check the trouble symptom, go to Step 9.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 9. Replace the audio amplifier temporarily, and check the trouble symptom.

Replace the audio amplifier temporarily, and check that the sound is output from the speaker.

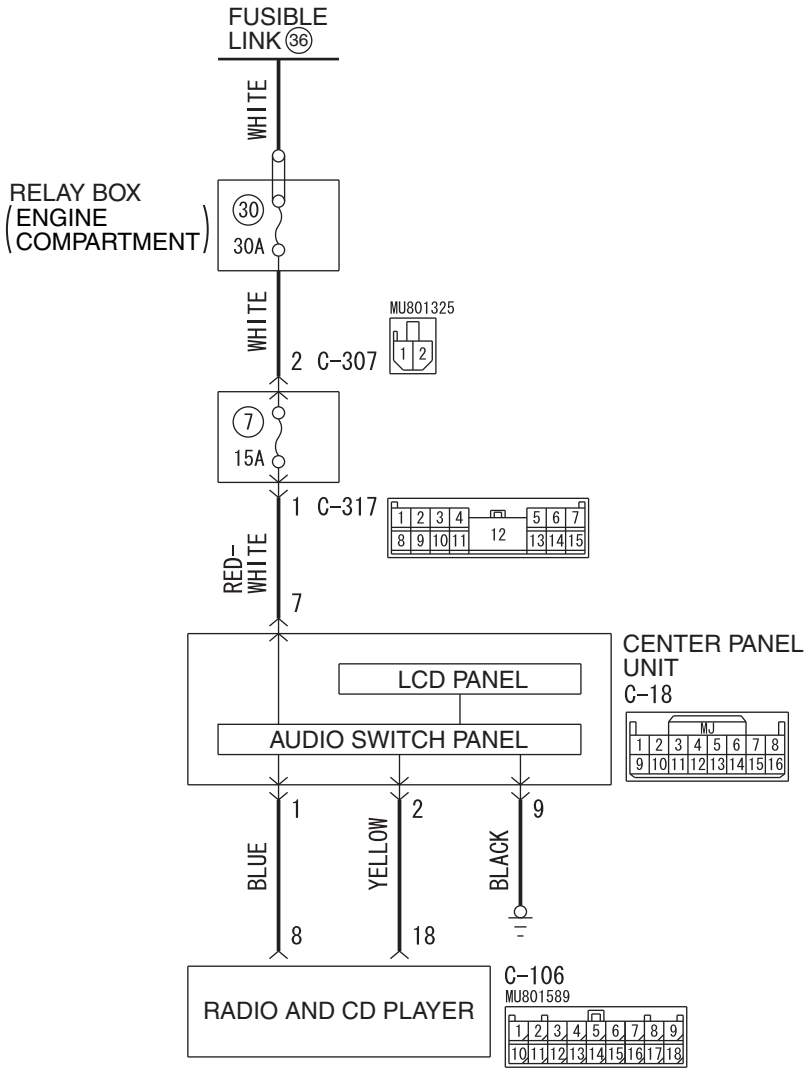
Q: Is the check result normal?

YES : Replace the audio amplifier.
NO : Replace the radio and CD player.

Inspection Procedure 4: The audio does not operate normally by operating the radio and CD player of the center panel unit.

⚠ CAUTION
Before replacing the radio and CD player, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Center Panel Unit Power Supply Circuit



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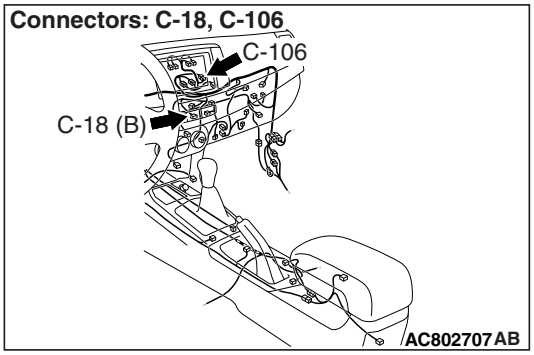

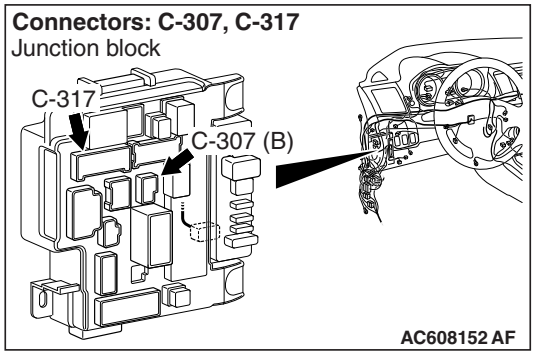

COMMENTS ON TROUBLE SYMPTOM

When the audio does not operate normally by operating the audio control unit of the center panel unit, the radio and CD player, center panel unit, or the power supply circuit system of center panel unit may be faulty.

PROBABLE CAUSES

- The radio and CD player may be defective.
- The center panel unit may be defective.
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check center panel unit connector C-18 and radio and CD player connector C-106 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are center panel unit connector C-18 and radio and CD player connector C-106 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 2. Check the wiring harness between center panel unit connector C-18 (terminal 1, 2) and radio and CD player connector C-106 (terminal 8, 18).

- Check the communication lines for open circuit and short circuit.

Q: Is the wiring harness between center panel unit connector C-18 (terminal 1, 2) and radio and CD player connector C-106 (terminal 8, 18) in good condition?

YES : Go to Step 3.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

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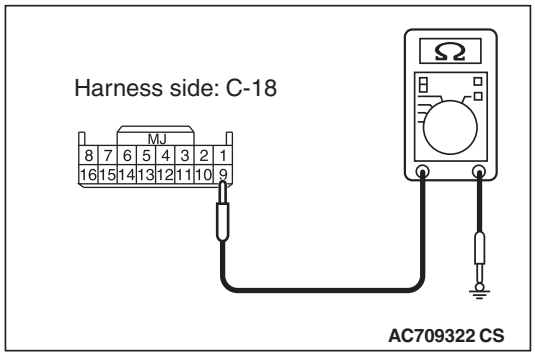
STEP 3. Check the ground circuit to the center panel unit. Measure the resistance at center panel unit connector C-18.

(1) Disconnect the connector, and measure at the wiring harness side.

(2) Measure resistance between terminal 9 and ground.

OK: The resistance should be 2 ohm or less.



Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.

STEP 4. Check the wiring harness between center panel unit connector C-18 (terminal 9) and ground.

- Check the ground wire for open circuit.

Q: Is the wiring harness between center panel unit connector C-18 (terminal 9) and ground in good condition?

YES : Check the trouble symptom.

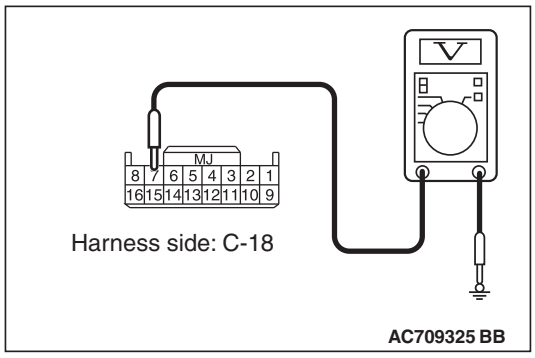
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 5. Check the power supply circuit to the center panel unit. Measure the voltage at center panel unit connector C-18.

(1) Disconnect the connector, and measure at the harness side connector.

(2) Measure voltage between terminal 7 and ground.

OK: Battery positive voltage



Q: Is the measured voltage battery positive voltage?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check the wiring harness between center panel unit connector C-18 (terminal 7) and fusible link 36.

- Check the power supply line for open circuit and short circuit.

NOTE: Also ETACS-ECU connector C-307, C-317 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector ETACS-ECU connector C-307, C-317 are damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection *P.00E-2**.*

Q: Is the wiring harness between center panel unit connector C-18 (terminal 7) and fusible link 36 in good condition?

YES : Check the trouble symptom.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 7. Replace the center panel unit temporarily, and check the trouble symptom.

Replace the center panel unit temporarily, and check that the audio works normally.

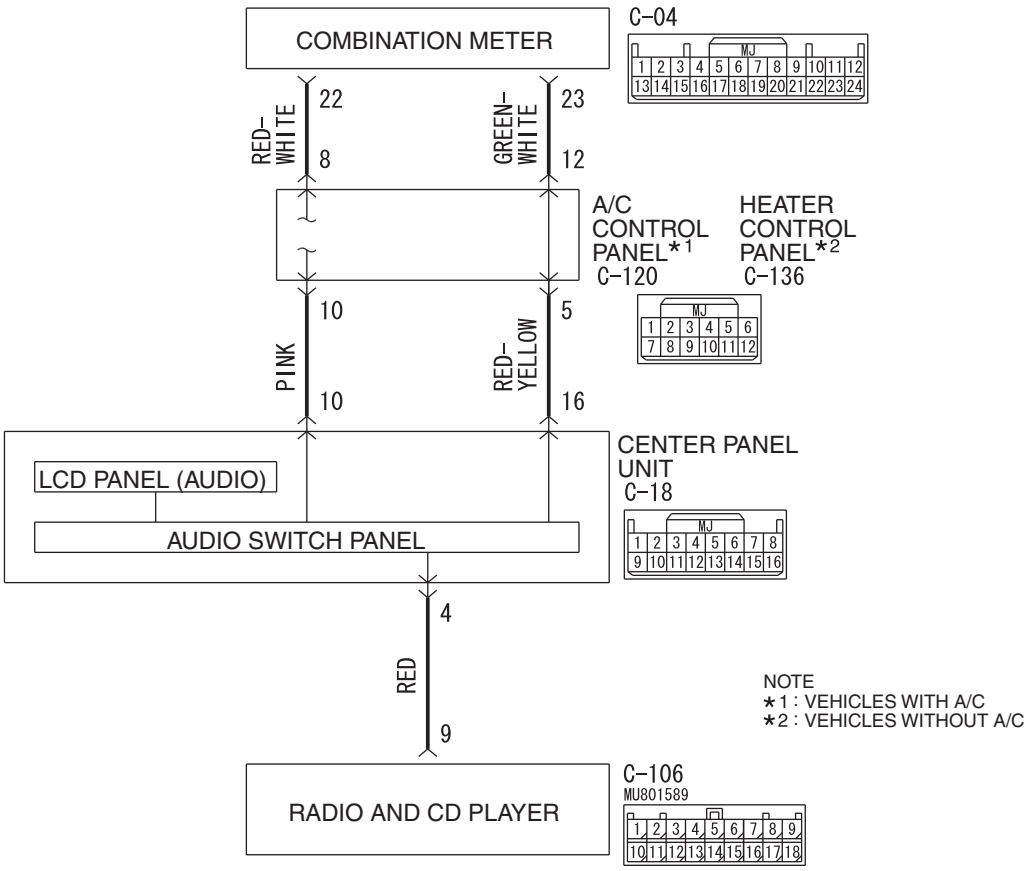
Q: Is the check result normal?

YES : Replace the center panel unit.
NO : Replace the radio and CD player.

Inspection Procedure 5: Audio illuminations does not work normally.

⚠ CAUTION
Before replacing the radio and CD player, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Center Panel Unit Communication Circuit



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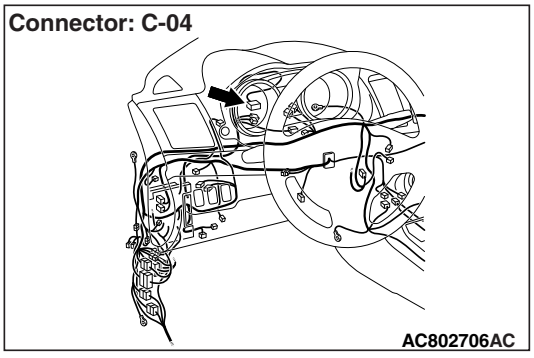

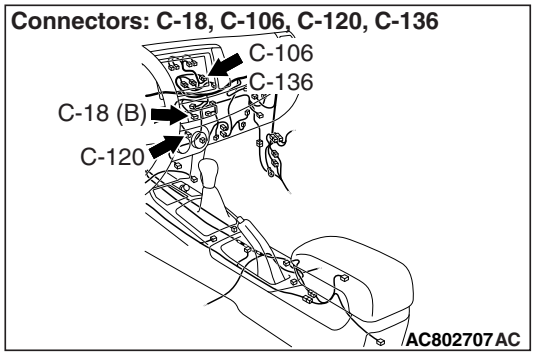

OPERATION

- When the position light is illuminated, the audio illumination is switched to the nighttime illumination.

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- When the brightness is adjusted using the combination meter rheostat switch, the audio illumination brightness is also adjusted.

COMMENTS ON TROUBLE SYMPTOM

The center panel unit, radio and CD player, combination meter, or communication line from the radio and CD player to the combination meter may have a problem.

PROBABLE CAUSES

- The combination meter may be defective.
- The radio and CD player may be defective.
- The center panel unit may be defective.
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Operation check of the center panel unit

Operate the audio control switch of the center panel unit, and check if the audio operates normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure 4 "The audio does not operate normally by operating the radio and CD player of the center panel unit." P.54A-402.

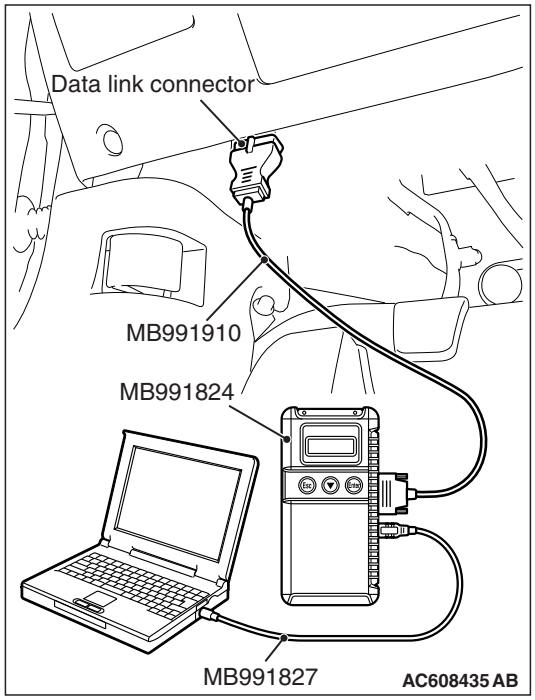
STEP 2. Check the combination meter.

Check whether the combination meter works normally.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Diagnose the combination meter (Refer to P.54A-33).



STEP 3. Using scan tool MB991958, read the combination meter diagnostic trouble code.

Check again if the DTC is set to the combination meter.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool P.54A-345".
(2) Turn the ignition switch to the "ON" position.
(3) Check for combination meter DTCs.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the combination meter (Refer to P.54A-33).
NO : Go to Step 4.

STEP 4. Check center panel unit connector C-18 and combination meter connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are center panel unit connector C-18 and combination meter connector C-04 in good condition?

YES : Go to Step 5.
NO : Repair the connector concerned.

STEP 5. Check the wiring harness between center panel unit connector C-18 (terminal 16) and combination meter connector C-04 (terminal 23).

- Check the power supply line for open circuit and short circuit.

NOTE: Also check A/C control panel connector C-120 <vehicle with A/C> or heater control panel C-136 <vehicle without A/C> for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If A/C control panel connector C-120 <vehicle with A/C> or heater control panel C-136 <vehicle without A/C> is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between center panel unit connector C-18 (terminal 16) and combination meter connector C-04 (terminal 23) in good condition?

YES : Go to Step 6.
NO : Repair the wiring harness.

STEP 6. Check A/C control panel C-120 <Vehicle with A/C> or heater control panel C-136 <vehicle without A/C> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C control panel C-120 <Vehicle with A/C> or heater control panel C-136 <vehicle without A/C> in good condition?

YES : Go to Step 7.
NO : Repair the connector concerned.

STEP 7. Check the wiring harness between A/C control panel C-120 (terminal 8) <Vehicle with A/C> or heater control panel C-136 (terminal 8) <vehicle without A/C> and combination meter connector C-04 (terminal 22).

- Check the wiring harness for open circuit and short circuit.

Q: Is the wiring harness between A/C control panel C-120 (terminal 8) <Vehicle with A/C> or heater control panel C-136 (terminal 8) <vehicle without A/C> and combination meter connector C-04 (terminal 22) in good condition?

YES : Go to Step 8.
NO : Repair the wiring harness.

STEP 8. Check the wiring harness between A/C control panel C-120 (terminal 10) <Vehicle with A/C> or heater control panel C-136 (terminal 10) <vehicle without A/C> and center panel unit connector C-18 (terminal 10).

- Check the wiring harness for open circuit and short circuit.

Q: Is the wiring harness between A/C control panel C-120 (terminal 10) <Vehicle with A/C> or heater control panel C-136 (terminal 10) <vehicle without A/C> and center panel unit connector C-18 (terminal 10) in good condition?

YES : Go to Step 9.
NO : Repair the wiring harness.

STEP 9. Check radio and CD player connector C-106 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player connector C-106 in good condition?

YES : Go to Step 10.
NO : Repair the connector concerned.

STEP 10. Check the wiring harness between center panel unit connector C-18 (terminal 4) and radio and CD player connector C-106 (terminal 9).

- Check the communication lines for open circuit and short circuit.

Q: Is the wiring harness between center panel unit connector C-18 (terminal 4) and radio and CD player connector C-106 (terminal 9) in good condition?

YES : Go to Step 11.
NO : Repair the wiring harness.

STEP 11. Replace the A/C control panel <vehicle with A/C> or heater control panel <vehicle without A/C> temporarily, and check the trouble symptom.

Replace the A/C control panel <vehicle with A/C> or heater control panel <vehicle without A/C> temporarily, and check that the audio illumination works normally.

Q: Is the check result normal?

YES : Replace the A/C control panel <vehicle with A/C> or heater control panel <vehicle without A/C>.
NO : Go to Step 12.

STEP 12. Replace the center panel unit temporarily, and check the trouble symptom.

Replace the center panel unit temporarily, and check that the audio illumination works normally.

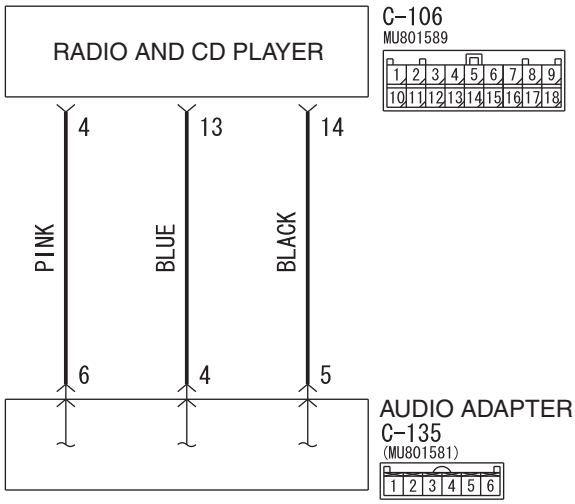
Q: Is the check result normal?

YES : Replace the center panel unit.
NO : Replace the radio and CD player.

Inspection Procedure 6: The sound of external input are not played.

⚠ CAUTION
Before replacing the radio and CD player, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Audio and Video Adapter Communication Circuit



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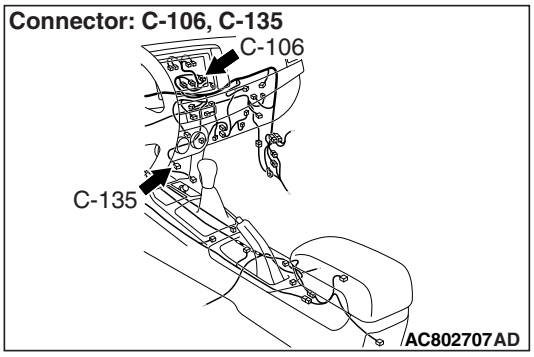

COMMENTS ON TROUBLE SYMPTOM

If the external input sound is not output, the radio and CD player, audio communication line of radio and CD player, or audio adapter may have a problem.

PROBABLE CAUSES

- The audio adapter may be defective.
- The radio and CD player may be defective.
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check the Radio and CD player.

Check that the Radio and CD player operates normally, and the sound is output.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Troubleshoot the radio and CD player (Refer to P.54A-377).

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STEP 2. Check the external sound input mode.
Check if the external sound input mode of the radio and CD player is set.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Set the external sound input mode.

STEP 3. Check the audio adapter.
Check if the audio adapter is normal. (Refer to P.54A-429.)

Q: Is the check result normal?

YES : Go to step 4.
NO : Replace the Audio adapter.

STEP 4. Check audio adapter connector C-135 and radio and CD player connector C-106 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are audio adapter connector C-135 and radio and CD player connector C-106 in good condition?

YES : Go to step 5.
NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 5. Check the wiring harness between audio adapter connector C-135 (terminal 5, 4, 6) and radio and CD player connector C-106 (terminal 14, 13, 4).

- Check the communication lines for open circuit and short circuit.

Q: Is the wiring harness between audio adapter connector C-135 (terminal 5, 4, 6) and radio and CD player connector C-106 (terminal 14, 13, 4) in good condition?

YES : Replace the audio adapter, and go to Step 6.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 6. Retest the system.
Check that the external input is normal.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).
NO : Replace the radio and CD player.

INSPECTION PROCEDURE 7: Noise Appears at Certain Places When Traveling (AM).

DIAGNOSIS

STEP 1. Check the noise occur when entering or near a particular structure (building, tunnel, mountain, etc.)

Q: Does the noise occur when entering or near a particular structure (building, tunnel, mountain, etc.)?
YES : Go to Step 3.
NO : Go to Step 2.

STEP 2. After taking the following measures to prevent the noise, check that no noise appears.
(1) Change to a different station with a stronger wave to boost resistance to interference.
(2) Suppress high tones to reduce noise.

Q: Do the following measures eliminate the noise?
YES : The procedure is complete.
NO : Go to Step 4.

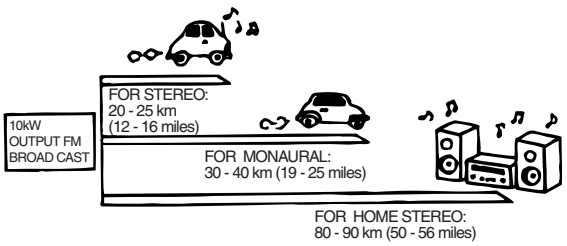
STEP 3. Ask the owner about the state of the noise.
Find out the following information from the owner.
- Place where the noise occurs.
- Locality conditions (valley, mountain, etc.)
- Name and frequency of stations affected by noise

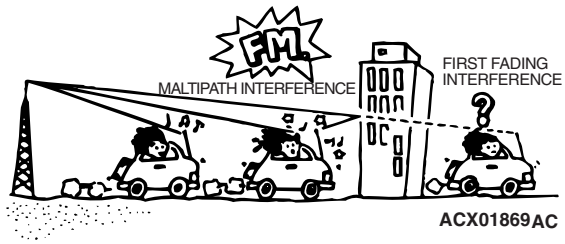
Q: Which is the noise, vehicle noise or external noise?
Vehicle noise : It may not be possible to prevent noise if the signal is weak. The procedure is complete.
External noise : In almost all cases, prevention on the receiver side is impossible. Weak signals especially are susceptible to interference. Go to Step 4.

STEP 4. Check that there is no noise.

Q: Does noise still exist?
YES : If there is more noise than on radios in other vehicles, find out the noise condition and the name and frequency of the receiving stations from the owner, and consult with the radio manufacturer's service center.
NO : Normal.

INSPECTION PROCEDURE 8: Noise is Present while Moving (FM).





DIAGNOSIS

NOTE: FM waves have the same properties as light, and can be deflected and blocked. FM signal reception is severely degraded in the shadow of obstructions such as buildings or mountains. An FM receiver will then only receive a reflected signal.

2. The signal will becomes weak when an area of shadow from the transmitting antenna (places where there are obstructions such as mountains

1. The signal becomes weak as the distance from the station's transmission antenna increases. The signal strength received depends on the signal strength of the transmitting station and intervening obstructions such as buildings and hills. Generally speaking, the area of good reception is approximately 20 – 25 km for stereo reception, and 30 – 40 km for monaural reception.
or buildings between the station transmitter and the vehicle), and noise will appear. <This is called first fading, and gives a steady buzzing noise.>

3. If a direct signal hits the antenna at the same time as a signal reflected by obstructions such as mountains or buildings, interference of the two signals will generate noise. When moving, noise will appear each time the vehicle's antenna passes through this kind of obstructed area. The strength and interval of the noise varies according to the signal strength and the conditions of deflection. <This is called multipath noise, and is a repetitive buzzing.>
4. Since FM stereo transmission and reception has a weaker field than monaural, it is often accompanied by a hissing noise.

After taking measures to prevent the noise, check that no noise occurs.

- Change to a different station with a stronger wave to boost resistance to interference.
- Suppress high tones to reduce noise.

If there is noise, the following causes can be considered.

- If due to vehicle noise: It may not be possible to prevent noise if the signal is weak.
- If due to external noise: In almost all cases, prevention on the receiver side is not possible. Weak signals especially are susceptible to interference.

If there is more noise than on radios in other vehicles, find out the noise condition and the name and frequency of the receiving stations from the owner, and consult with the radio manufacturer's service center.

INSPECTION PROCEDURE 9: Sound mixed with Noise, Only at Night (AM).

The following factors can be considered as possible causes of noise appearing at night.

1. Factors due to signal conditions: Due to the fact that long-distance signals are more easily received at night, even stations that are received without problem during the day may experience interference in a general worsening of reception conditions. The weaker a station is the more susceptible it is to interference, and a change to different station or the appearance of a beating sound* may occur.

NOTE: Beat sound: Two signals close in frequency interfere with each other, creating a repetitious high-pitched sound. This sound is generated not only by sound signals but electrical waves as well.*

2. Factors due to vehicles noise: Generator noise may be a cause.

DIAGNOSIS

STEP 1. Check that the noise still obvious even when the lights are off.

Q: Is the noise still obvious even when the lights are off?
YES : Go to Step 2.
NO : Go to Step 3.

STEP 2. Check that the noise fades away by the following action.
Tune to a station with a stronger wave.

Q: Does noise still exist?
YES : Consult the radio manufacturer's service center.
NO : The procedure is complete.

STEP 3. Check that the noise fades away when the vehicle harness is moved away from the radio (if the harness is not in the proper position).

Q: Does the noise fade away when the vehicle harness is moved any from the radio (If the harness is not in the proper position)?
YES : Repair the wiring harness.
NO : If there is more noise than other radios, consult the radio manufacturer's service center.

INSPECTION PROCEDURE 10: Broadcasts can be Heard but Both AM and FM have a lot of Noise.

DIAGNOSIS

STEP 1. Check the state of the antenna.
Check that there is no damage or crack in the roof antenna.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair or replace the roof antenna.

STEP 2. Check that the noise occur when the engine is stopped or the engine is running.

Q: Does noise occur when the engine is stopped or the engine is running?
When the engine is stopped : Go to Step 3.
When the engine is running : Check the vehicle's noise suppressor (Refer to Inspection Procedure 12 P.54A-417).

STEP 3. Check that the noise fades away by the following actions.
(1) Tune to a station with a stronger wave.
(2) Adjust the sound quality to suppress high tones.

Q: Is the noise eliminated?
YES : The procedure is complete.
NO : Go to Step 4.

STEP 4. Check that the radio and CD player is correctly earthed
The radio is connected to the earth with an assembling screw.

Q: Is the radio correctly earthed?
YES : Go to Step 5.
NO : Assemble the radio and CD player into the vehicle.

STEP 5. Check the antenna plug is connected to the radio and CD player.

Q: Is the antenna plug thoroughly connected to the radio and CD player?
YES : Go to Step 7.
NO : Go to Step 6.

STEP 6. Check that the noise is eliminated when the antenna plug is properly attached.

Q: Is the noise eliminated?
YES : The procedure is complete.
NO : Go to Step 7.

STEP 7. Check that the antenna is in good condition and is it properly mounted.

Q: Is the antenna in good condition and is it properly mounted?
YES : Consult the radio manufacturer's service center.
NO : Repair or replace the roof antenna.

INSPECTION PROCEDURE 11: There is More Noise on either AM or FM.

DIAGNOSIS
There is much noise only on AM. Due to differences in AM and FM systems, AM is more susceptible to noise interference.

STEP 1. Check which comes out more noise, AM or FM.

Q: Which comes out more noise, AM or FM?
AM : Go to Step 2.
FM : Refer to (Refer to Inspection Procedure 12 P.54A-416)

STEP 2. Check that there is noise under the following state(s).

- A motorcycle was passing.
- The levin was flashing.
- A vehicle passed close by, but it appeared to be a vehicle generating a particularly large amount of noise radiation.
- Passed beneath a power line.
- Passed beneath a telephone line.
- Passed close by a signal alternator.
- Passed close by some other sources of electrical noise.
- Passed under a bridge.

Q: Is there noise in the above states?
YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Continue to check for static; when static is detected, check for the conditions listed above.

Q: Is there noise in the state described in Step 2?
YES : Noise prevention on the radio side is difficult. If the problem is particularly worse than other radios, consult a service center.
NO : Go to Step 4.

STEP 4. Compare it with the other radios.

Q: Is the noise level worse than other radios?
YES : Consult a service center.
NO : If the noise level is roughly the same as other radios, there is no action to be taken.

INSPECTION PROCEDURE 12: Noise Sometimes Appears on FM During Traveling.

DIAGNOSIS

STEP 1. Check the state of the antenna.
Check that there is no damage or crack in the roof antenna.

Q: Is the mast antenna assembled?
YES : Go to Step 2.
NO : Repair or replace the roof antenna.

STEP 2. The check after adjusting the radio.

Q: Readjust the radio. Is the noise eliminated?
YES : The procedure is complete.
NO : Go to Step 3.

STEP 3. Check with several broadcasting stations.

NOTE: Multipath noise and fading noise: Because of the frequency of FM waves in extremely high, it is highly susceptible to effects from geological formations and buildings. These effects disrupt the broadcast signal and obstruct reception in several ways.

Multipath noise

- *This describes the echo that occurs when the broadcast signal is reflected by a large obstruction and enters the receiver with a slight time delay relative to the direct signal (repetitious buzzing).*

Fading noise

- *This is a buzzing noise that occurs when the broadcast beam is disrupted by obstructing objects and the signal strength fluctuates intricately within a narrow range.*

Q: Is the abnormality in reception generated only within a certain range?
YES : The effect of an electrical field condition (multipath noise, fading noise) could be the cause. The procedure is complete.
NO : Go to Step 4.

STEP 4. Check that noise appears when the radio switch is turned on while the vehicle is stopped.

NOTE: Static electricity noise: Body static electric from the shock absorber rubber bushings used to prevent vibration, tires, etc. occurs because of separation from the ground, causing a buzzing noise. There is no measures to discharge the static electricity of the vehicle body. Check that there is no noise.

Q: Does noise appear when the radio switch is turned on while the vehicle is stopped and the radio is tapped while tuned away from a station?
YES : Go to Step 5.
NO : It may be static electricity noise. The procedure is complete.

STEP 5. Check that the radio is correctly grounded.

The radio is connected to the ground with an assembling screw.

Q: Is the radio correctly grounded?
YES : Go to Step 6.
NO : Tighten the screw securely.

STEP 6. Check by replacing the radio and CD player.

Q: Are operations normal when using another radio and CD player?
YES : Either repair or replace the radio and CD player.
NO : Repair or replace the roof antenna.

INSPECTION PROCEDURE 13: There is Noise when Starting the Engine.

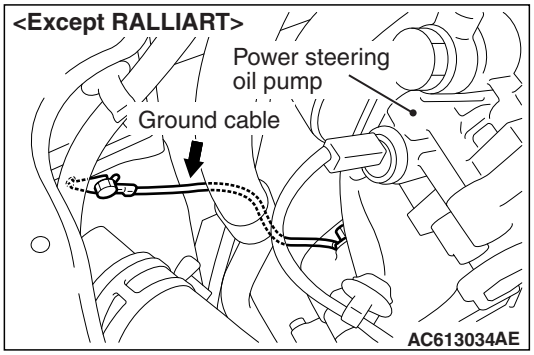
DIAGNOSIS

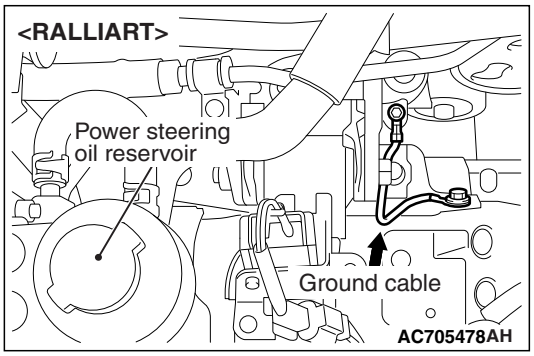
⚠ CAUTION

- **Never connect a noise filter to the high tension cable (spark plug wire). Spark plug wires incorporate resistors which have the effect of suppressing noise. If a spark plug wire is found to be causing noise, it must be replaced.**
- **Confirm that the noise is not from an external source.**
- **Noise prevention should be performed by suppressing strong sources of noise first.**

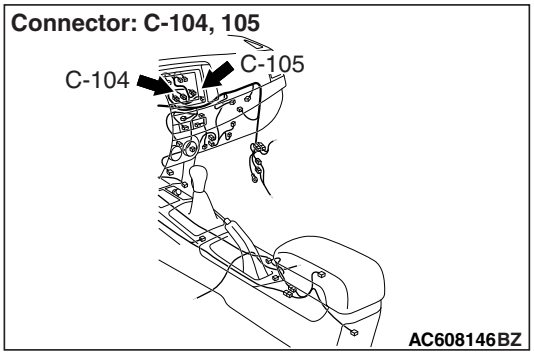
Description of noise	Condition	Cause	Solution
AM, FM: ignition noise (popping, snapping, cracking, buzzing)	• Increasing the engine speed causes the generator whine to speed up and the volume to decrease. • Disappears when the ignition switch turned to "ACC", and engine is off.	• Electrical interference from the spark plugs. • Engine noise.	• Check or replace the ground cable. • Check or replace spark plug wires.

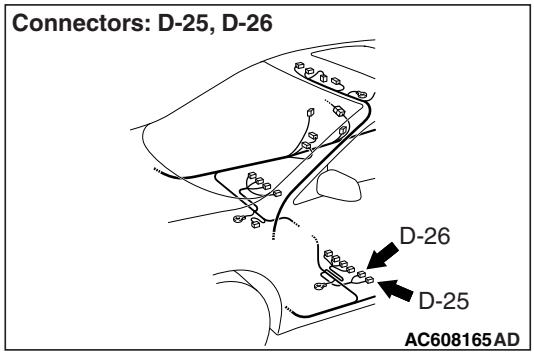
Description of noise	Condition	Cause	Solution
Other electrical components	-	• Noise may intensify due to aging electrical components.	• Repair or replace the electrical components.
Static electricity (cracking, crinkling)	Noise disappears when the vehicle is completely stopped.	• Noise occurs when parts or wiring move and contact vehicle body.	• Return parts or wiring to their proper position.
Static electricity (cracking, crinkling)	• Various noises are produced depending on the body part of the vehicle.	• This may be due to the recent removal of the front hood, bumpers, exhaust pipe and muffler, suspension, etc.	• Properly ground parts. • Properly ground all body parts.





INSPECTION PROCEDURE 14: Some Noise Appears When There is Vibration or Shocks during Traveling.





DIAGNOSIS

STEP 1. Check the fit of the antenna.

Q: Is the antenna base fitted securely?

YES : Go to Step 2.
NO : Install the antenna, and tighten the mounting nut (Refer to P.54A-634).

STEP 2. Check the fit of antenna feeder cable.

Q: Is the antenna feeder cable fitted securely?

YES : Go to Step 3.
NO : Ensure that the antenna base and the radio and CD player are fitted securely.

STEP 3. Check radio and CD player connector C-104, C-105 and amplifier connector D-25, D-26 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are radio and CD player connector C- 104, C-105 and amplifier connector D-25,D-26 in good condition?

YES : Go to Step 4.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 4. Check that noise appears when the radio switch is turned on while the vehicle is stopped and the radio is tapped while tuned away from a station.

NOTE: Body static electricity from the shock absorber rubber bushings used to prevent vibration, tires, etc. occurs because of separation from the ground, causing a buzzing noise. Since no measures can be taken to discharge the static electricity of the vehicle body. Check that there is no noise.

Q: Does noise appear when the radio switch is turned on while the vehicle is stopped and the radio is tapped while tuned away from a station?

YES : Go to Step 5.
NO : It may be static electricity noise.

STEP 5. Verify that the radio is correctly grounded.

The radio is connected to the ground with an assembling screw.

Q: Is the radio correctly grounded?

YES : Go to Step 6.
NO : Tighten the screw securely.

STEP 6. Check by replacing radio and CD player.

Q: Do the other radio and CD player work normally?

YES : Either repair or replace the original radio and CD player.
NO : Either repair or replace the antenna assembly.

INSPECTION PROCEDURE 15: Ever-present Noise.

DIAGNOSIS

Use the Symptom Chart to diagnose the possible cause(s) of the noise. Noise is often created by the following factors:

- Traveling conditions of the vehicle
- Terrain of area traveled through
- Surrounding buildings
- Signal conditions
- Time period

If there are still problems with noise, even after performing inspection procedures 7 to 14, obtain information on the factors listed above. Determine whether the problem occurs on AM or FM, the station names, frequencies, etc. and contact the radio manufacturer's service center.

INSPECTION PROCEDURE 16: Noise Comes Out, but neither AM nor FM Sounds.

DIAGNOSIS

STEP 1. Check the state of the antenna.
Check that there is no damage or crack in the roof antenna.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair or replace the roof antenna.

STEP 2. Check to see if inspections are taking place is an area exposed to special electric fields.

Q: Are inspections taking place under special electric field conditions (underground garage, inside a building, etc).?
YES : Go to Step 3.
NO : Go to Step 4.

STEP 3. Relocate and check.
Automatically receive in a good reception area that is not exposed to special electric fields.

Q: Is reception of the strongest radio frequency possible within the area?
YES : The procedure is complete.
NO : Go to Step 4.

STEP 4. Tune then check.

Q: Did the sensitivity improve after tuning?
YES : The procedure is complete.
NO : Go to Step 5.

STEP 5. Check the antenna plug is connected to the radio and CD player.

Q: Is the antenna plug thoroughly connected to the radio and CD player?
YES : Go to Step 6.
NO : Thoroughly the antenna plug connect to the radio and CD player.

STEP 6. Check by temporarily replacing the radio and CD player.

Q: Are operations normal when using another radio and CD player?
YES : Either repair or replace the new radio and CD player.
NO : Repair or replace the roof antenna.

INSPECTION PROCEDURE 17: Poor Reception.

DIAGNOSIS

STEP 1. Check the state of the antenna.
Check that there is no damage or crack in the roof antenna.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair or replace the roof antenna.

STEP 2. Check to see if inspections are taking place is an area exposed to special electric fields.

Q: Are inspections taking place under special electric field conditions (underneath garage, inside a building, etc).?
YES : Go to Step 3.
NO : Go to Step 4.

STEP 3. Relocate and check.
Automatically receive in a good reception area that is not exposed to special electric fields.

Q: Is reception of the strongest radio frequency possible within the area?
YES : Move the vehicle to check the trouble symptom.
NO : Go to Step 4.

STEP 4. Tune then check.

Q: Did the sensitivity improve after tuning?
YES : The procedure is complete.
NO : Go to Step 5.

STEP 5. Check with several broadcasting stations.

NOTE: Multipath noise and fading noise: Because the frequency of FM waves is extremely high, it is highly susceptible to effects from geological formations and buildings. These effects disrupt the broadcast signal and obstruct reception in several ways.

Multipath noise

- *This describes the echo that occurs when the broadcast signal is reflected by a large obstruction and enters the receiver with a slight time delay relative to the direct signal (repetitious buzzing).*

Fading noise

- *This is a buzzing noise that occurs when the broadcast beam is disrupted by obstructing objects and the signal strength fluctuates intricately within a narrow range.*

Q: Is the abnormality in reception generated only within a certain range?
YES : Check that a poor reception is resolved.
NO : Go to Step 6.

STEP 6. Check the antenna plug connection to the radio and tape player or radio and CD player.

Q: Is the antenna plug thoroughly connected to the radio and tape player or radio and CD player?
YES : Go to Step 7.
NO : Thoroughly connect the antenna plug and the radio and tape player or radio and CD player.

STEP 7. Check by temporarily replacing the radio and CD player.

Q: Does the other radio and CD player work normally?
YES : Either repair or replace the radio and CD player.
NO : Repair or replace the roof antenna.

INSPECTION PROCEDURE 18: Distortion on AM or on Both AM and FM.

DIAGNOSIS

STEP 1. Check the degree in which distortion is generated.

Q: How much distortion is generated?
Occasional distortion : Go to Step 2.
Constant distortion : Go to Step 3.

STEP 2. Check by the transmission antenna.

Q: Is there distortion by the transmission antenna?
YES : The input from the antenna is too big.
NO : Go to Step 3.

STEP 3. Check how the speakers are setup.

Q: Are any cords coming in contact with the paper cones of the speakers?
YES : Move the cords so that they do not come in contact with the paper cones of the speaker. Check that a distortion is resolved.
NO : Go to Step 4.

STEP 4. Check the speakers.

1. Remove the speakers.
2. Check to see if there is any ripping of the paper cones or any foreign obstacles in the paper cone.

Q: Are the speakers normal?
YES : Go to Step 5.
NO : Repair or replace the speakers.

STEP 5. Check how the speakers are setup.

Q: Check to see if the speakers are setup in a deformed manner.
YES : Correct the way the speakers are setup so they are securely setup.
NO : Repair or replace the radio and CD player.

INSPECTION PROCEDURE 19: Distortion on FM Only.

DIAGNOSIS

STEP 1. Check with another broadcasting station.

Q: Is there distortion when turning to another broadcasting station?
YES : Go to Step 2.
NO : The signal from that station is too weak.

STEP 2. Relocate the reception area and check.

Q: When relocating the reception area does the distortion increase or decrease?
YES : The cause may be multipath noise.
NO : Repair or replace the radio and CD player.

INSPECTION PROCEDURE 20: Using the Auto Select Function, too Few Automatic Stations are Selected.

DIAGNOSIS

STEP 1. Check the state of the antenna.
Check that there is no damage or crack in the roof antenna.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair or replace the roof antenna.

STEP 2. Check the number of radio stations.

Q: Are there sufficient numbers of radio stations within the area?
YES : Go to Step 3.
NO : Go to Step 4.

STEP 3. Check the distance from the transmission antenna.

Q: Is there a transmission antenna within a range of 2 miles?
YES : Go to Step 5.
NO : Go to Step 4.

STEP 4. The check if there are not that many radio stations and when there is no transmission antenna in the vicinity.
Execute automatic selection and check to see that the strongest radio frequency is receivable within the area.

Q: Is reception of the strongest radio frequency possible within the area?
YES : There is no action to be taken.
NO : Go to Step 5.

STEP 5. Check that there is no vehicle under special electric field condition.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Go to Step 6.

STEP 6. Relocate and check.
Automatically receive in a good reception area that is not exposed to special electric fields.

Q: Is reception of the strongest radio frequency possible within the area?
YES : There is no action to be taken.
NO : Go to Step 7.

STEP 7. Check the antenna plug is connected to the radio and CD player.

Q: Is the antenna plug thoroughly connected to the radio and CD player?
YES : Repair or replace the radio and CD player.
NO : Thoroughly connect the antenna plug and the radio and CD player.

INSPECTION PROCEDURE 21: Preset Stations are Erased.

CIRCUIT OPERATION
Power is continuously supplied to the radio and CD player.

TECHNICAL DESCRIPTION (COMMENT)
The cause is probably a faulty radio and CD player memory backup power supply system circuit.

TROUBLESHOOTING HINTS
- Damaged wiring harness or connector
- Malfunction of the radio and CD player

DIAGNOSIS
Refer to Inspection Procedure 1P.54A-378.

INSPECTION PROCEDURE 22: CD can not be Inserted.

DIAGNOSIS

STEP 1. Check that a CD has been already loaded.

Q: Has a CD been already loaded?
NO : Go to Step 2.
YES : Take out the CD (If the CD cannot be ejected, refer to Inspection Procedure 26 P.54A-426). Check that a CD can be inserted.

STEP 2. Check how a CD is inserted.
- Ensure that the ignition switch is at "ACC" or "ON".

NOTE: If you try to load a CD when the ignition switch is at the positions other than "ACC" or "ON", the CD will not be inserted completely and then rejected.

Q: If you try to load the CD, does the CD stops halfway and then rejected?
YES : Refer to Inspection Procedure 26 P.54A-426.
NO : Go to Step 3.

STEP 3. Check after the CD is loaded.

NOTE: Even though the CD is loaded, "ERROR" (error) is sometimes displayed with the CD rejected because of vibration/shock or dew on the CD face or optical lens.

Q: Though the CD is inserted completely, is "ERROR" (error) displayed and the CD ejected?
YES : Go to Step 4.
NO : The procedure is complete.

STEP 4. Check the CD.
Check the CD for the conditions below:
- Is the CD loaded with its label facing down?
- Is the recorded face dirty or scratched?
- Is there dew on the recorded face?

Q: Is the CD in good condition?
YES : Go to Step 5.
NO : The original CD is defective.

STEP 5. Check again using a normal CD, which is not dirty or scratched.
- Load another normal CD.
- Check that the CD player recognizes and play the CD.

Q: When you substitute another normal CD, is the CD loaded correctly?
YES : The original CD is defective. Check that a CD can be inserted.
NO : Replace the radio and CD player. The procedure is complete.

INSPECTION PROCEDURE 23: No Sound. (CD Only)

DIAGNOSIS

STEP 1. Check again using another CD, which is not dirty or scratched.

Q: When you substitute another normal CD, is the CD played normally?
YES : The original CD is defective. The CD player should sound normally.
NO : Go to Step 2.

STEP 2. Check power supply to the CD player when the ignition switch is at "ACC" or "ON" position.

Q: Is the radio and CD player energized when the ignition switch is turned to the "ACC" or "ON" position?
YES : Replace the radio and CD player. The procedure is complete.
NO : Check the memory backup power supply circuit. Refer to Inspection Procedure 1 P.54A-378.

INSPECTION PROCEDURE 24: CD Sound Skips.

DIAGNOSIS

STEP 1. Check the state in which the sound on the CD jumps.

Q: Does the sound jump when the car is parked?
YES : Go to Step 2.
NO : Go to Step 4.

STEP 2. Check the surface of the CD.

Q: Are there any scratches or soiling on the CD?
YES : The CD is defective if there are any scratches. Clean the CD surface if it is dirty. Check that a CD sound skip is resolved.
NO : Go to Step 3.

STEP 3. Check when replacing with a CD that can be played normally without any scratches or soiling.

Q: Does the CD play normally when replaced with a CD that is not scratched or dirty and can play normally?
YES : Defective CD used. Check that a CD sound skip is resolved.
NO : Go to Step 4.

STEP 4. Check by tapping the radio and CD player.

NOTE: Check by using a known-good CD which is free from scratches, dirt or any other abnormality.

Q: Does the sound jump when tapping the radio and CD player?
YES : Securely mount the audio. Check that a CD sound skip is resolved.
NO : Either replace the audio system or take the following measures if a servicing shop is nearby.
1. Investigate in detail the conditions when the sound jumps while driving the car.
2. Describe these conditions to the service shop for consultation.
3. Either replace the audio according to the instructions of the service shop.

Check that a CD sound skip is resolved.

INSPECTION PROCEDURE 25: Sound Quality is Poor.

DIAGNOSIS

Check to see that the CD can be played normally and that it is free of any scratches or soiling.
Replace with better sound quality CD.

Q: Is the sound quality better replacing the CD with a clean CD without any scratches that can be played?
YES : The CD is defective. The sound quality should return to normal.
NO : Either repair or replace the radio and CD player.

INSPECTION PROCEDURE 26: CD can not be Ejected.

DIAGNOSIS

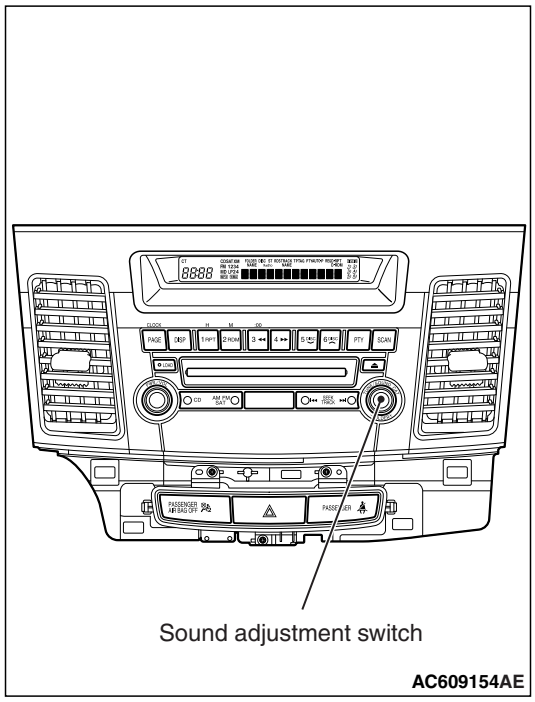
Check the power of ignition switch "ACC" or "ON" position.

Q: Does the radio and CD player power turn ON when the ignition switch is in the "ACC" or "ON" position?
YES : Either replace the radio and CD player.
NO : Check the memory backup power supply circuit. Refer to Inspection Procedure 1 P.54A-378.

ON-VEHICLE SERVICE

ADJUSTMENT OF VOLUME AND SOUND QUALITY AUTOMATIC CORRECTION FUNCTION

M1544014200226



When the following operations are performed with the audio power ON, the sound volume during driving and the ON/OFF of sound quality automatic correction function are switched.

1. Press and hold (approximately 2 seconds) the sound adjustment switch.
2. Press the sound adjustment switch (approximately 1.5 seconds or less) to switch to the SCV setting screen.
3. SCV ON (when the automatic correction function is ON) or SCV OFF (when the automatic correction function is OFF) is displayed.
4. Turn the sound adjustment switch knob to switch between SCV ON and OFF.
5. Press the sound adjustment switch or leave as it is for 10 seconds or more.
6. Go back to the audio normal screen.

SERVICE DATA

M1544014100218

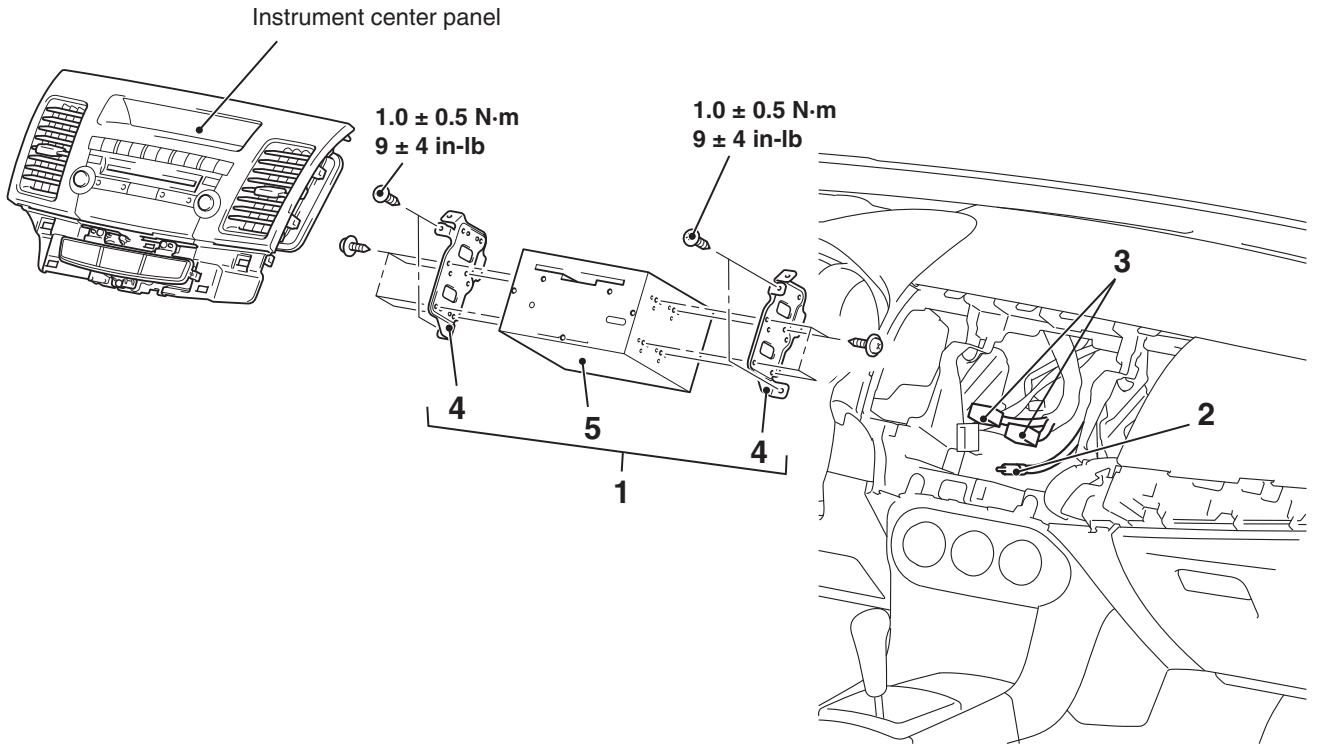
Item No.	Scan tool display	Check condition	Normal condition
1	RADIO remoto SW (SEEK-)	When the "CH down" switch is pushed	ON
2	RADIO remoto SW (SEEK+)	When the "CH up" switch is pushed	ON
3	RADIO remoto SW (MODE)	When the "Mode" switch is pushed	ON
4	RADIO remoto SW (VOL-)	When the "VOL down" switch is pushed	ON
5	RADIO remoto SW (VOL+)	When the "VOL up" switch is pushed	ON
10	On hook switch	When the "Hang-up" switch is pushed	ON
11	Off hook switch	When the "Pick-up" switch is pushed	ON
13	VR switch	When the "Speech" switch is pushed	ON

REMOVAL AND INSTALLATION

RADIO AND CD PLAYER

M1544010900513

Pre-removal operation	Post-installation operation
• Removal of instrument center panel (Refer to GROUP 52A – Instrument Center Panel assembly P.52A-7).	• Installation of instrument center panel (Refer to GROUP 52A – Instrument Center Panel assembly P.52A-7).



AC801901AC

Removal Steps

1. Radio and CD player assembly
2. Connector connection to radio and CD player (Antenna feeder)

Removal Steps (Continued)

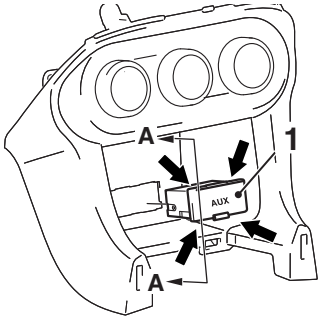
3. Connector connection to radio and CD player
4. Audio equip bracket
5. Radio and CD player

TSB Revision

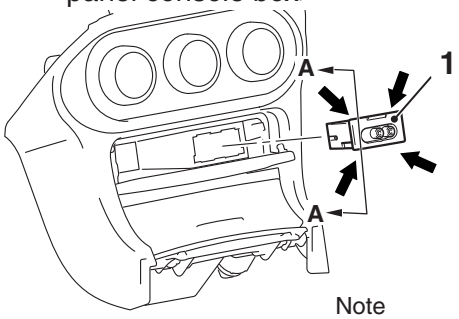
AUDIO ADAPTER

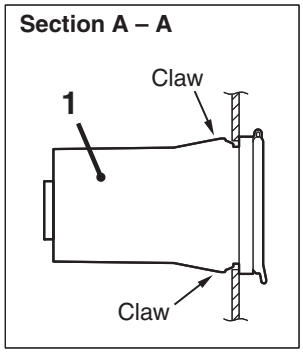
Pre-removal operation	Post-installation operation
• Removal of instrument console box (Refer to GROUP 52A – Instrument Center Panel assembly P.52A-7).	• Installation of instrument console box (Refer to GROUP 52A – Instrument Center Panel assembly P.52A-7).

<Vehicles with instrument panel console box>



<Vehicles without instrument panel console box>





Note
: Claw positions

AC608893AQ

Removal Step

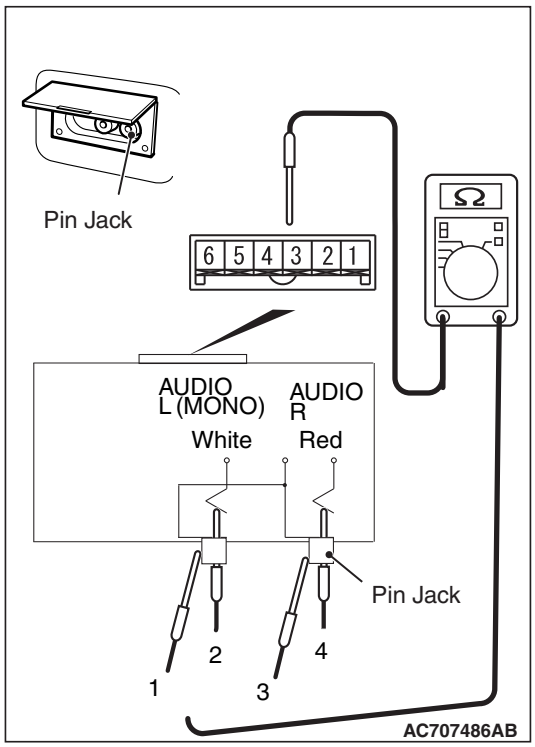
1. Audio adapter

INSPECTION

AUDIO ADAPTER INSPECTION

M1544019000012

1. Remove the audio adapter.(Refer to P.54A-428)
2. Check the continuity between terminals of audio adapter and pin jack.



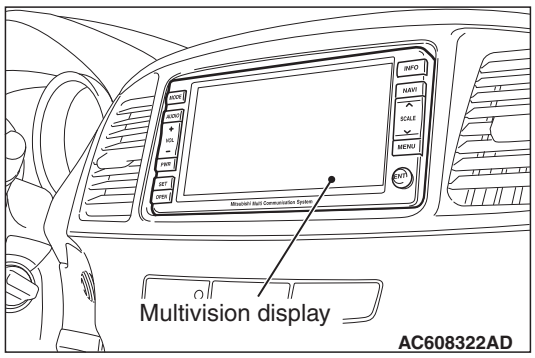
The connecting position of pin jack side circuit tester	Terminal number	Measurement value
1	5	Continuity exists. (2 Ω or less)
2	4	
3	5	
4	6	

TSB Revision

MMCS

GENERAL INFORMATION

M1546000100329

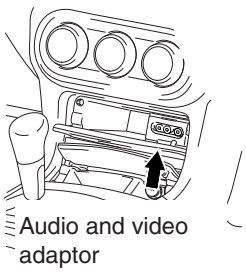


To the Mitsubishi multi-communication system (MMCS), the multivision display (7-inch liquid crystal display of wide 2 DIN size) with built-in hard disk drive (40 GB) and CD/DVD drive has been installed. (The map data includes Hawaii, Alaska, Puerto Rico, and the Virgin Islands.)

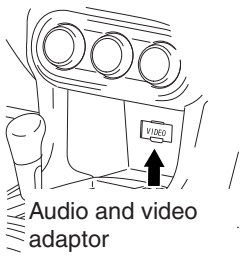
- The NAVTEQ map data has been stored. (Map data stored in hard disk drive)
- The 7-inch wide liquid crystal monitor has been adopted. The operation switch for operability has been equipped.
- Most sophisticated LSI* has been used as one for car navigation system.

  *NOTE: *:LSI stands for Large Scale Integration, and is a large-scale integrated circuit (IC) containing between 1,000 and 100,000 circuit elements.*
- U.S. English, French, and Spanish are available to select.
- Adopting the Rockford Fosgate ® premium sound system enables a great variety of sound and field settings through communication with the audio amplifier.
- The hands free cellular phone system can be used by connecting the hands free module.
- By attaching the satellite radio tuner, the SIRIUS™ satellite radio broadcasting becomes available.
- The language collaboration control between meter and hands free module is supported.
- The multivision display can be operated by the steering wheel audio remote control switch.

<Vehicles without instrument panel console box>



<Vehicles with instrument panel console box>



AC802019AF

The audio and video adapter has been established to the center tray in order to connect visual equipment such as game machine and video player.

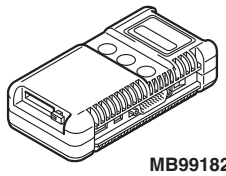
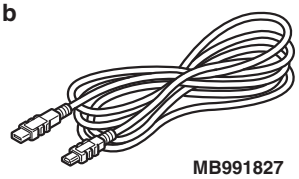
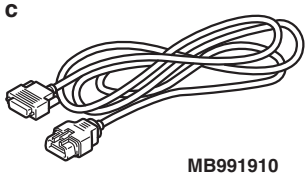
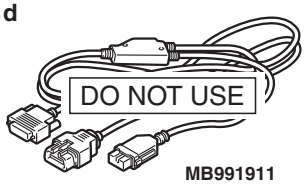
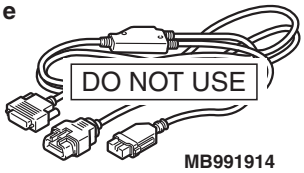
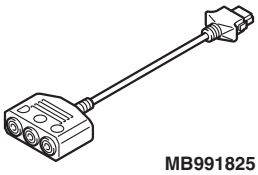
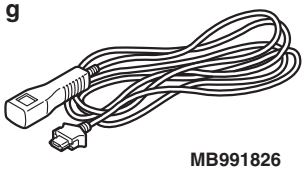
Function	Content
Navigation	• Displays the navigation functions including the map display, search, guidance, information search. Also, calculates Carpool/HOV lane. • The sound volume of the navigation guidance varies according to the vehicle speed by the vehicle speed-linked function.
Current vehicle location	Displays the position information of current location. (Longitude and latitude, altitude, GPS reception status)
CD/DVD	Plays the CD or DVD inserted to the drive (Designed for MP3/WMA file)

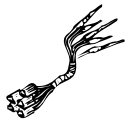
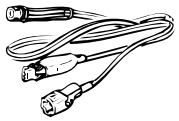
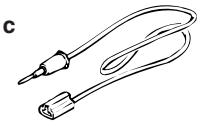
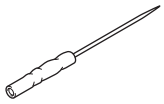
TSB Revision

Function	Content
Music server	Plays music recorded in the hard disk drive (10 GB: Approximately 2,000 songs) and records a music CD. (The title whose information is acquired from CDDB can be displayed.)
Radio	Displays the receiving station information. Also, the operation of receiving channel can be performed.
Sound control	Adjusts the high/middle/low tone and balance. Function to set music type, sound field, and others when adopting the Rockford Fosgate ® premium sound system
AUX	Plays the image and sound input through the audio and video adapter. (Image cannot be seen during driving because of the driving restriction.)
Drive information	Displays the average fuel consumption, instantaneous fuel consumption, possible cruising distance, driving time, and lap time.
Environmental data	Displays the atmospheric pressure, altitude and ambient temperature.
A/C information	Displays the A/C information.
ETACS function customization	ETACS-ECU customization function
Mobile Phone	Function to operate the cellular phone (calling, receiving, etc.) using the multivision display <Vehicles with hands free module>
SIRIUS	Displays the receiving channel and receiving channel name, and changes the band ranges and channels.<Vehicles with satellite radio tuner>
Calendar	Displays the calendar.

SPECIAL TOOLS

M1540200300095

Tool	Tool number and name	Supersession	Application
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991914 f  MB991825 g  MB991826 MB991958	MB991958 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826 M.U.T.-III sub-assembly a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable c. M.U.T.-III main harness A (Vehicles with CAN communication system) d. M.U.T.-III main harness B (Vehicles without CAN communication system) e. M.U.T.-III main harness C (for Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness	MB991824-KIT *NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.*	**⚠ CAUTION** **M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.** CAN bus diagnostics or data list check.

Tool	Tool number and name	Supersession	Application
a  b  c  d MB991223	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222 Harness set a. Check harness b. LED harness c. LED harness adapter d. Probe	General service tool (jumper)	Continuity check and voltage measurement at harness wire or connector a. For checking connector pin contact pressure b. For checking power supply circuit c. For checking power supply circuit d. For connecting a locally sourced tester
 MB992006	MB992006 Extra fine probe	–	Continuity check and voltage measurement at harness wire or connector

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1546001500085

Refer to GROUP 00, Troubleshooting contents P.00-7.

Precautions on servicing MMCS

M1546003000105

Prior to disconnecting the vehicle battery

The MMCS stores a lot of information which your customer registers in its memory. All of this information will be cleared when the battery terminals are disconnected. Therefore, the preset channels must be stored before the vehicle battery is disconnected. Vehicle's current position and destinations must be stored if the vehicle battery remains disconnected for long periods.

Diagnosis tips concerning the entire system

1. If at least two system functions are defective at the same time, it is possible that communication between the system components is abnormal. Check the system using the communication and wire connection check in the service mode.
2. If an error is displayed, check that relevant wiring harness connectors are engaged correctly. If a failure is found, repair the connectors and check the trouble symptom again.
3. If the wiring harness connectors are engaged correctly, check the wiring harness. If the wiring harness is in good condition, replace relevant component(s). Now the error code and the service mode data must be stored.

NOTE: If a system communication related failure is suspected, diagnose the system.

Diagnosis tips concerning the navigation function

1. The precision of the GPS positioning is limited due to its operation principles. So, some of customer reports do not mean that the system is defective.
   Prior to troubleshooting, question your customer about how the navigation system is used and where he/she drives. If you determine that the system is OK, explain to your customer about how the system works and how the customer should operate it.
2. If the system is not OK, diagnose the system according to the trouble symptom chart.

ERROR MESSAGE

M1546023500232

When the multivision display detects its own unintentional operation or malfunction in the loaded disk, it displays the following error messages.

Error messages	Error contents	Cause	Action
The unit is too hot. Please wait...	Malfunction of multivision display by high temperature	The temperature of HDD inside the multivision display is 201°F (94°C) or more.	Wait until the temperature drops to the operable temperature. After the temperature drops, the error message display is terminated, and then returns to the screen before the error message display.
The unit is too cold. Please wait...	Malfunction of multivision display by low temperature	The temperature of HDD inside the multivision display is -4°F (–20°C) or less.	Wait until the temperature rises to the operable temperature by working the air conditioning. After the temperature rises, the error message display is terminated, and the screen returns to the status before displaying the error message.
It is difficult to read the hard disk. Wait for a while until the hard disk is restored.	Malfunction of HDD by vibration	Severe vibration is applied to the multivision display, and the reading of the HDD data is prohibited.	When the multivision display confirms the HDD data reading availability, it restarts automatically. Check if the multivision display is securely installed to the vehicle body.
	HDD Partition Error	System malfunction occurs to the HDD inside the multivision display.	The multivision display checks HDD automatically. "Restart" is displayed after the completion of the check. Select "Restart" to restart the multivision display. If it does not restart, turn the ignition switch to the OFF position to turn off the power supply, and then turn the ignition switch to the ON position to restart. After the restart, check that the OK is displayed for the HDD Drive in the "Network/Connect Line Check" of the MMCS service mode. If not, replace the multivision display.

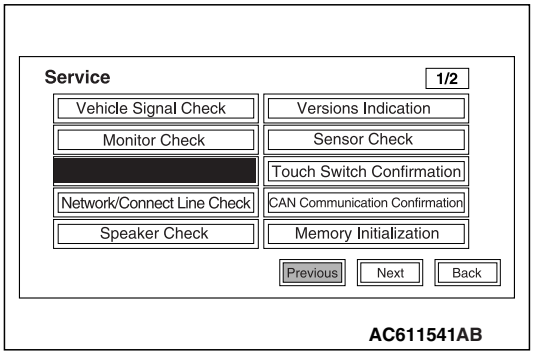
Error messages	Error contents	Cause	Action
Please check the disk.	Disk type error	The specification of the disk used has a problem.	The disk used may have a problem. Check the disk for scratches or dirt. Also, perform the Inspection procedure 8 "CD/DVD cannot be Played" of the troubleshooting. (Refer to P.54A-522.)
Play is impossible due to a focus error. Please eject the disk.	Focus error	The disk used has scratches and dirt, and the data cannot be read.	
Play is impossible. Please eject the disk.	Disk error Seek error Servo startup error TOC read error DVD-Video Disk info error (Disk information cannot be read.)	The data of the disk used has a malfunction, and the data cannot be read.	
Play is impossible due to a Mechanism error.	Power-on error Pickup operation error Mecha stack error Loading/eject error	The DVD drive inside the multivision display has a malfunction.	Perform the Inspection procedure 8 "CD/DVD cannot be Played" of the troubleshooting. (Refer to P.54A-522.)
The region code is incorrect. Please eject the disk.	DVD-Video region code error	The region code of the DVD does not match the specification of the multivision display.	Replace with the DVD that matches the specification of the multivision display.
Please eject the disk. The monitor panel is too hot. Screen display has stopped to protect the liquid crystal panel. Wait until the monitor panel has cooled down.	Monitor high temperature error	The temperature of the monitor is 203°F (95°C) or more for 60 seconds or more.	The monitor turns OFF 5 seconds after the error message appears. Wait until the temperature of the monitor drops. The temperature drops, and then the multivision display returns automatically.

NOTE: "Environment" is not displayed on the "INFO" screen. Ambient temperature is not displayed on the environment screen. If atmospheric pressure or altitude is not displayed on the environment display, the CAN box unit may have a problem in the CAN communication with A/C-ECU or engine control module. Check if a diagnostic trouble code is set in the CAN box unit.

SERVICE MODE

M1546016600408

HOW TO INITIATE THE SERVICE MODE



AC611541AB

1. With the navigation system active, press and hold both the "NAVI" and "SET" buttons for 3.5 seconds.
2. The service mode will be initiated. Then "Service" screen will be displayed.

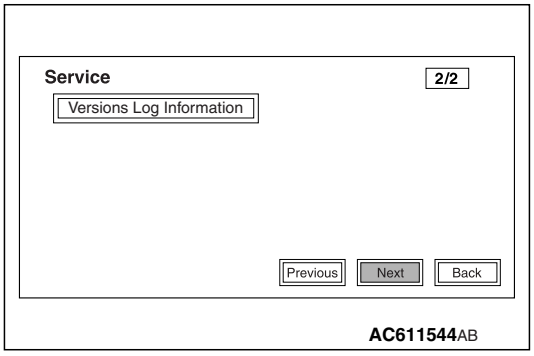
HOW TO TERMINATE THE SERVICE MODE

If the operations below are done, the service mode will be terminated.

- If "Back" button is selected on "Service" screen, the service mode will terminate and then return to the previous screen.
- If "NAVI" button is pressed with the service mode active, the service mode will terminate and change to the navigation screen.

  NOTE: If "NAVI" button is pressed, the following functions of the service mode will terminate.

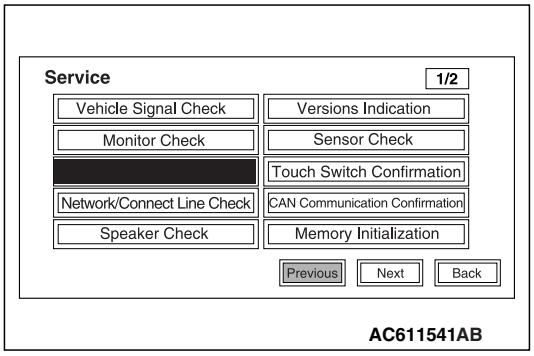
  - *Vehicle Signal Check*
  - *Monitor Check*
  - *Network/Connect Line Check*
  - *Speaker Check*
  - *Versions Indication*
  - *Sensor Check*
  - *Touch Switch Confirmation*
  - *CAN communication Confirmation*
  - *Memory Initialization*
  - *Versions Log Information*



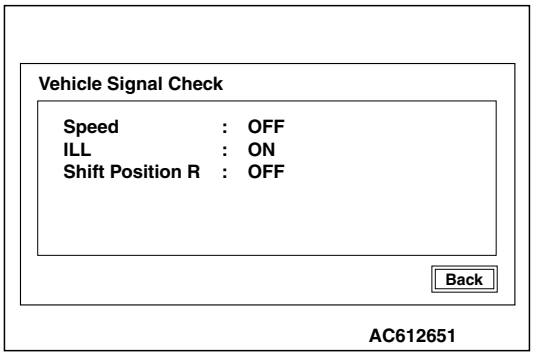
AC611544AB

VEHICLE SIGNAL CHECK

1. Select "Vehicle Signal Check" on "Service" screen.



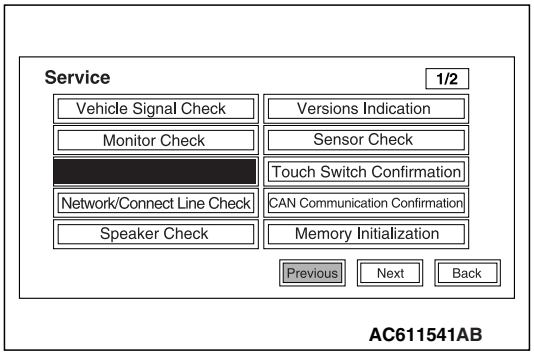
AC611541AB



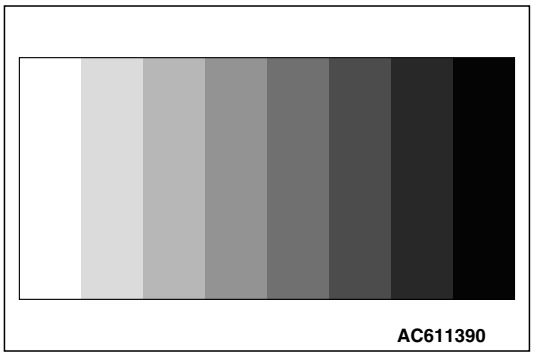
AC612651

2. The check results will be displayed for the items below.
   - "Speed": "ON" when the vehicle speed is 3.7 mph (6 km/h) or more, and "OFF" when the vehicle speed is 2.5 mph (4 km/h) or less.
   - "ILL": "ON" when the lighting switch is on (headlight position), and "OFF" when they are off (except headlight position).
   - "Shift Position R": "ON" when the selector lever is at R position, and "OFF" when it is at the other position.

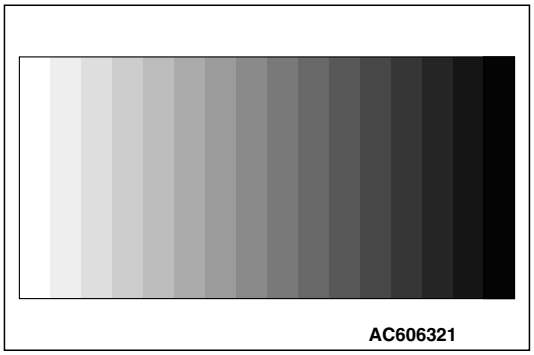
MONITOR CHECK



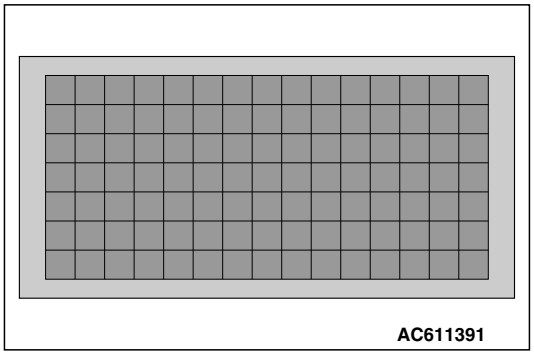
1. Select "Monitor Check" on "Service" screen.



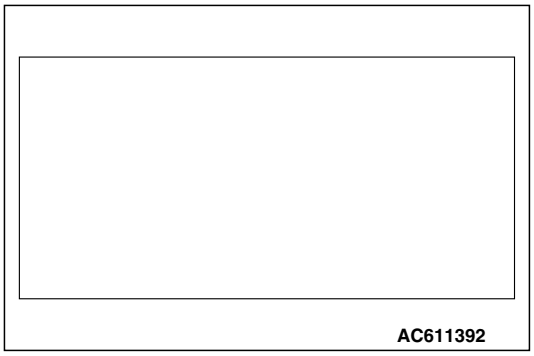
2. Eight color bars will be displayed.



3. When "Enter" is pressed on the navigation unit joystick while the eight color bars are shown, gray scale will be displayed with a 16-step gradation.



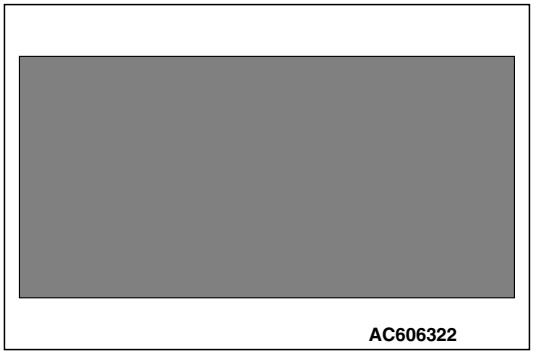
4. When "Enter" is pressed while the gray scale is shown with a 16-step gradation, a crosshatch pattern will be displayed (Each cell should be square).


AC611392

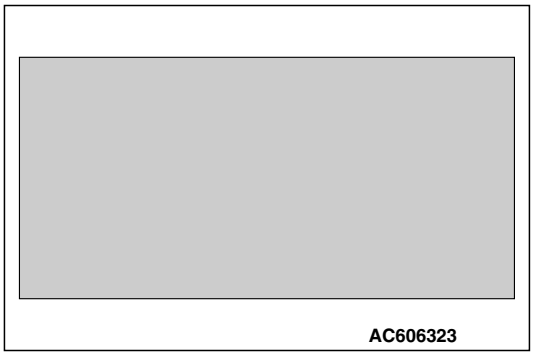
5. When "Enter" is pressed on the navigation unit joystick while the crosshatch pattern is shown, the screen will turn white.

AC611393

6. When "Enter" is pressed on the navigation unit joystick while the screen is white, it will turn black.


AC606322

7. When "Enter" is pressed on the navigation unit joystick while the screen is black, the screen will turn red.


AC606323

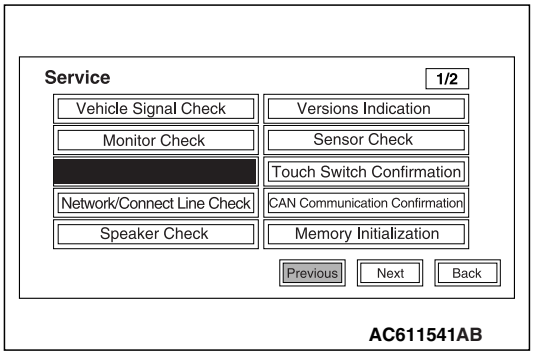
8. When "Enter" is pressed on the navigation unit joystick while the screen is red, it will turn green.

AC606324

9. When "Enter" is pressed on the navigation unit joystick while the screen is green, it will turn blue.
10. When "Enter" is pressed on the navigation unit joystick while the screen is green, it will return to the "Service" screen.

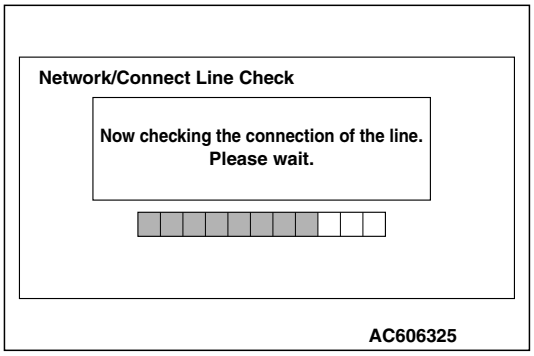
NETWORK AND CONNECT LINE CHECK

1. Select "Network/Connect Line Check" on "Service" screen.



AC611541AB

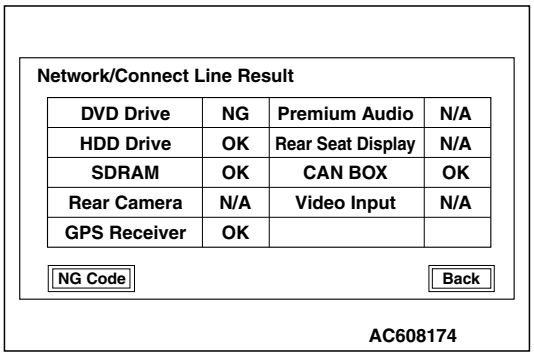
2. A network and connect line check will be initiated. The "Network/Connect Line Check" screen will display how the check is in progress.



AC606325

3. When the network and connect line check is finished, the screen will change to "Network/Connect Line Result" to show the check results.

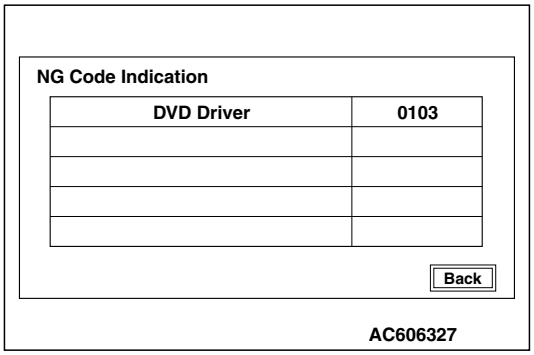
   NOTE:



AC608174

   If there is "NG" or "N/A" as the check results, select "NG Code" on the "Network/Connect Line Result" screen. Then "NG code Indication" screen will show the NG code.

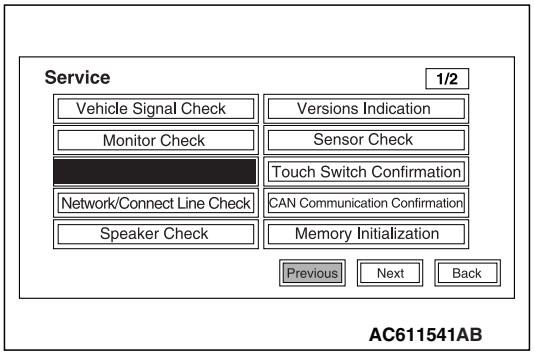
4. If "Back" is selected on "Network/Connect Line Result", the screen will return to "Service" screen.



AC606327

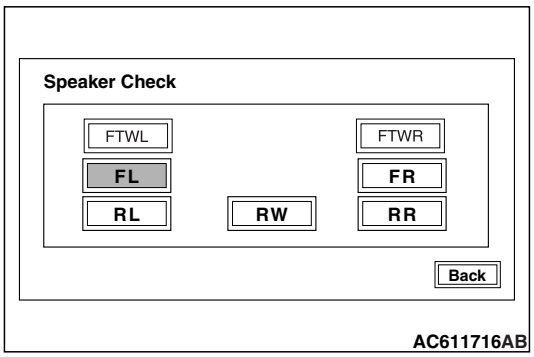
SPEAKER CHECK

1. Select "Speaker Check" on "Service" screen.



2. Select a speaker to be checked, and play test tone through the speaker.

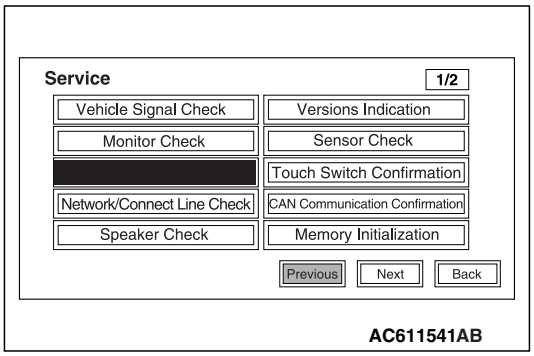
   NOTE:
   - *"FTWL", "FTWR", "RW" are displayed for vehicles with audio amplifier only.*
   - *Volume cannot be adjusted while test tone is being played.*
   - *During the test, only the selected speaker sounds. If "Back" is selected during the test, the test tone will disappear.*



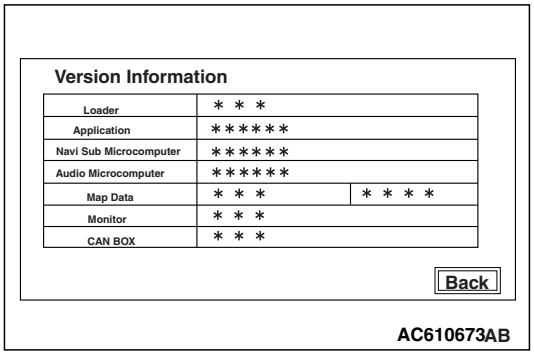
VERSIONS INDICATION

Displays versions indication (Loader, Application, Audio Microcomputer, Navi Sub Microcomputer, Map Data, Monitor, and CAN BOX).

1. Select "Versions Indication" on "Service" screen.



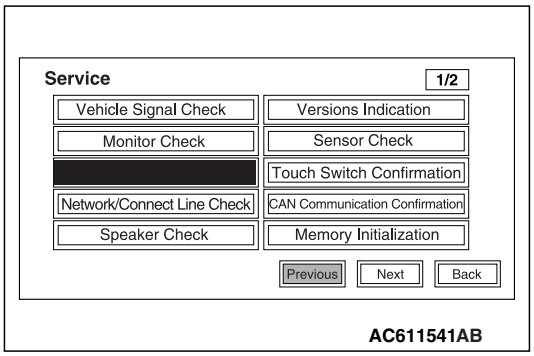
2.3.Versions indication is displayed.



SENSOR CHECK

The speed sensor and gyro sensor will be checked, depending on the vehicle conditions such as driving condition, stationary condition and travel direction change.

1. Select "Sensor Check" on "Service" screen.



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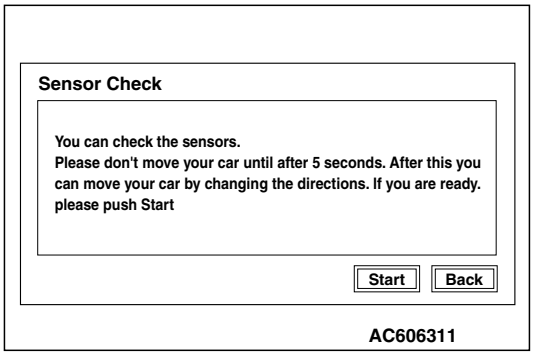
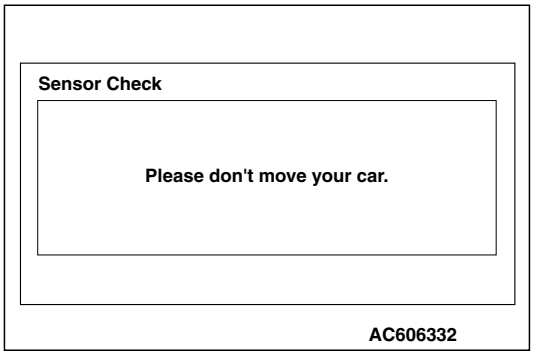
2. The sensor check with the vehicle stationary will be executed in accordance with the screen.

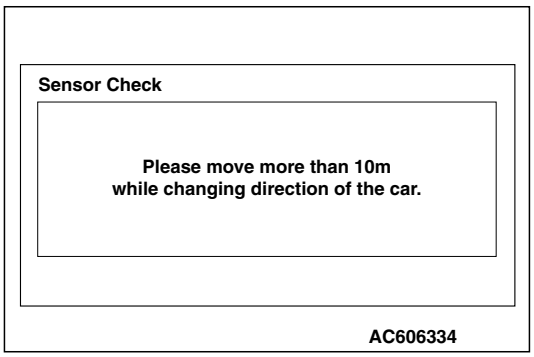


AC606311

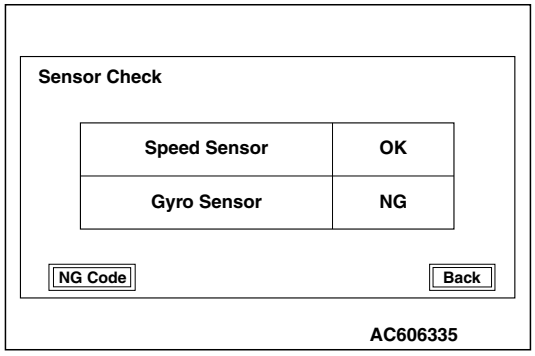


AC606332

3. The sensor check with the vehicle in motion will be executed in accordance with the screen.

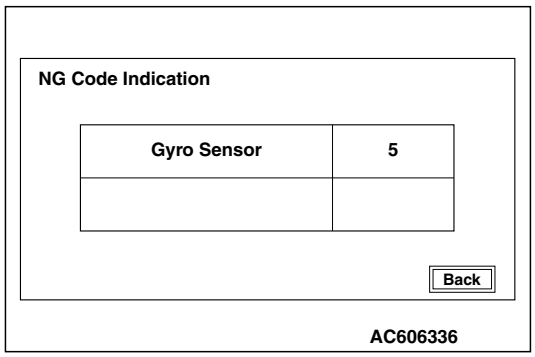


AC606334



4. When the sensor checks are complete, the screen will display the check results.

NOTE:



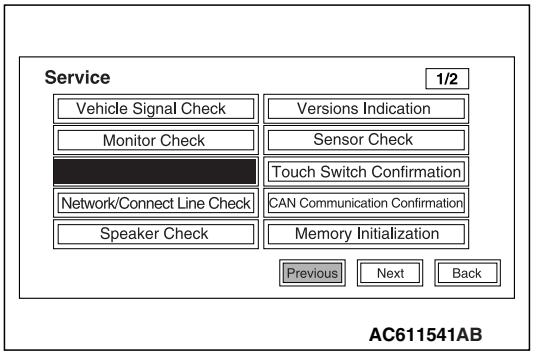
If there is "NG" or "N/A" as the check results, select "NG Code" on the "Sensor Check" screen. Then "NG code Indication" screen will show the NG code.

NG CODE REFERENCE TABLE FOR SENSOR CHECK

Sensor classification	NG code No.	Error items
Gyro sensor	1	Offset error while the vehicle is stationary (lower limit error)
	2	Offset error while the vehicle is stationary (upper limit error)
	5	Output error during driving
Speed sensor	6	Output error while the vehicle is stationary

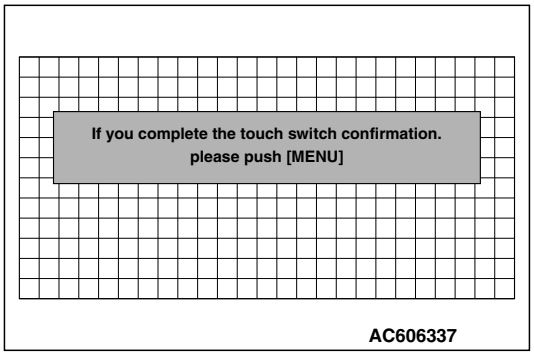
TOUCH SWITCH CONFIRMATION

1. Select "Touch Switch Confirmation" on "Service" screen.

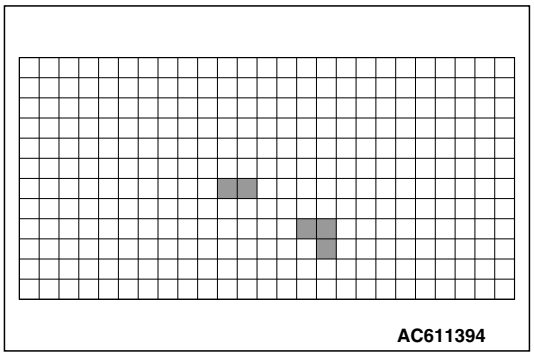


AC611541AB

2. If you touch the screen, the color of the dotted coordinate at the touched area will be changed.

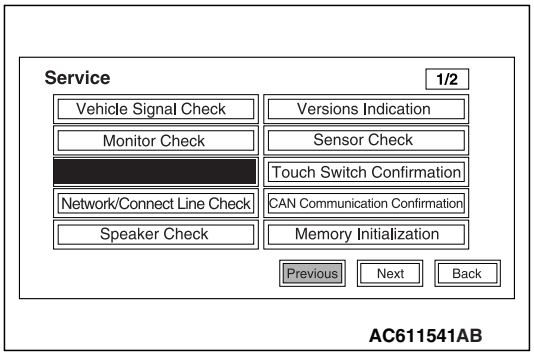


AC606337

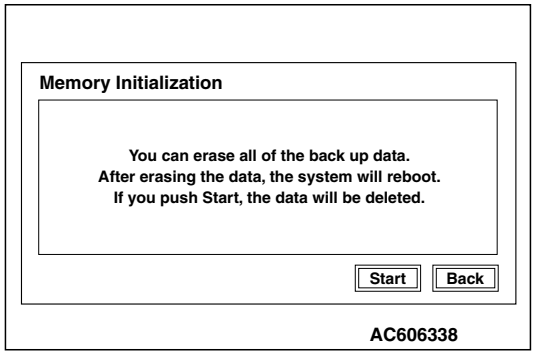

AC611394

MEMORY INITIALIZATION

1. Select "Memory Initialization" on "Service" screen.

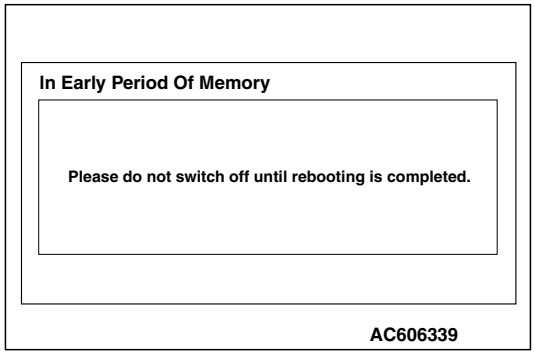


AC611541AB



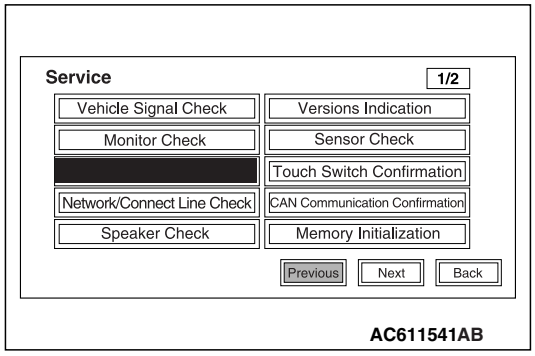
2. If you select "Start" on "Memory Initialization" screen, the settings such as registered locations and music server will be erased (initialized) from the memory.

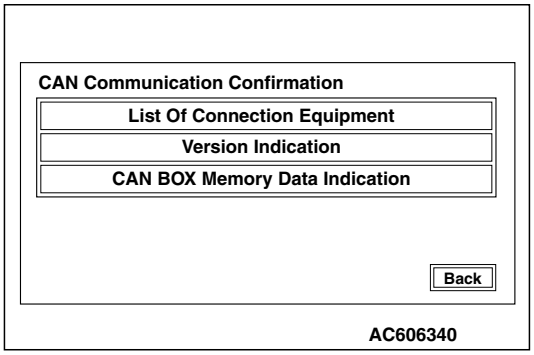
   NOTE: If the ignition switch is turned to "LOCK" (OFF) position during the initialization, the initialization will be suspended. If the ignition switch is turned to "ACC" or "ON" position, the initialization will be resumed.
3. After the memory initialization is complete, the navigation system will restart automatically.



CAN COMMUNICATION CONFIRMATION

1. Select "CAN Communication Confirmation" on "Service" screen.

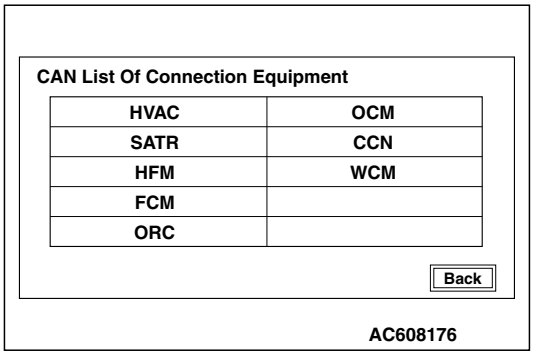


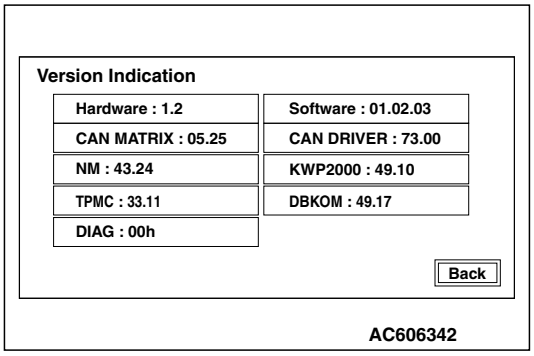


2. If "List Of Connection Equipment" is selected on "CAN Communication Confirmation" screen, the system will determine which equipment is installed according to the connected equipment reference table. Then the equipment which are connected to the CAN box unit will be displayed.

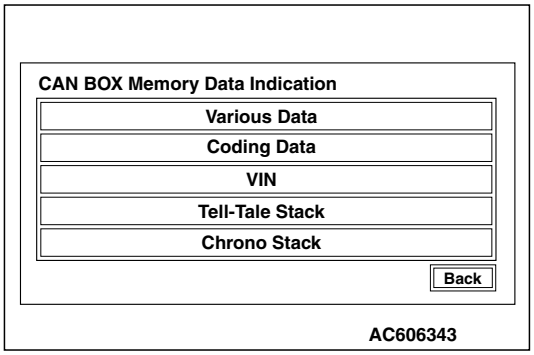
CAN BOX UNIT-CONNECTED EQUIPMENT REFERENCE TABLE

Screen indication	Equipment
HVAC	A/C-ECU
SATR	Satellite radio tuner
HFM	Hands free module
FCM	ETACS-ECU
ORC	SRS-ECU
OCM	Occupant classification-ECU
CCN	Combination meter
WCM	Wireless control module or KOS-ECU

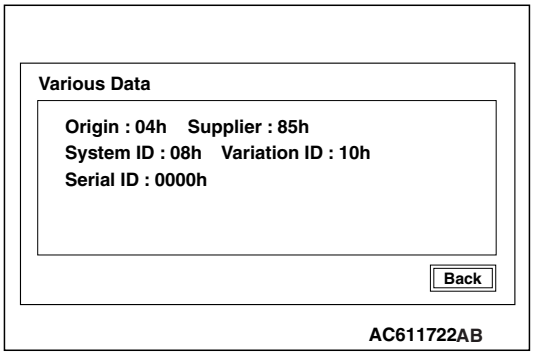




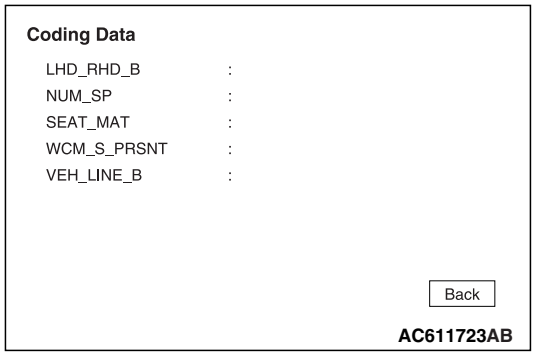
3. If "Version Indication" is selected on "CAN Communication Confirmation" screen, the version for each item is displayed.



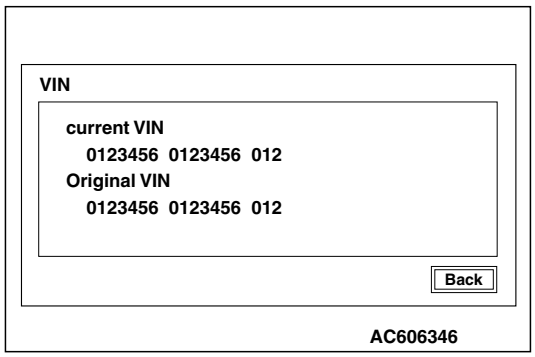
4. If "CAN BOX Memory Data Indication" is selected on "CAN Communication Confirmation" screen, "CAN BOX Memory Data Indication" will be displayed.
5. If any item is selected on "CAN BOX Memory Data Indication" screen, its relevant information is displayed.



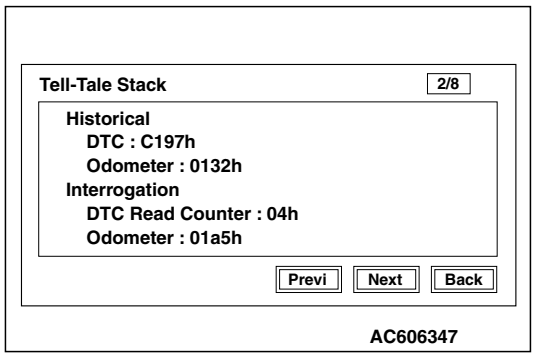
- Various Data



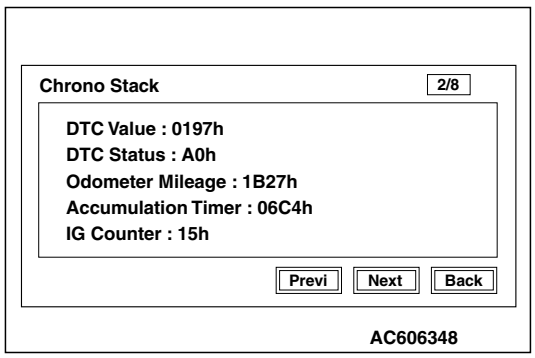
- Coding Data



- VIN



- Tell-Tale Stack



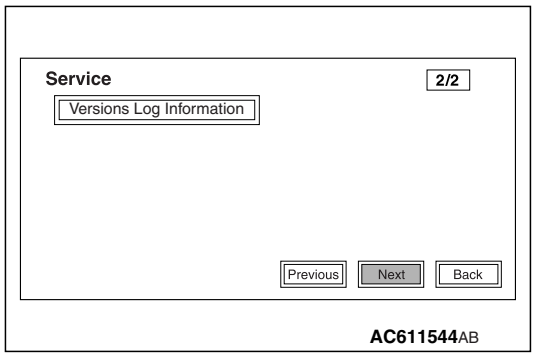
- Chrono Stack

VERSIONS LOG INFORMATION

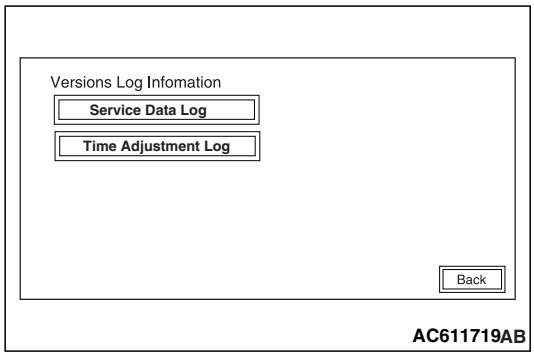
Displays logs for drive and HDD.

Service Data Log

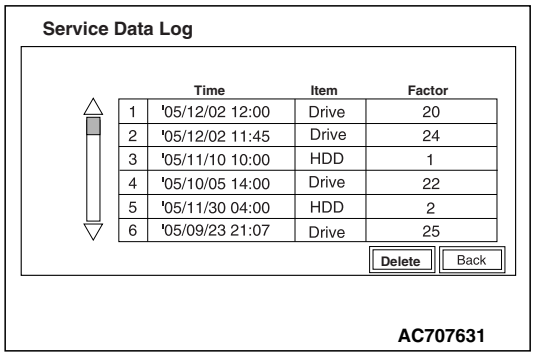
1. Select "Versions Log Information" on "Service" screen.



2. Select "Service Data Log" on the "Versions Log Information" screen.



3. The logs are displayed from the latest one.
4. The log data is erased by pressing "Delete."



EACH LOG INFORMATION: FACTOR CODE TABLE

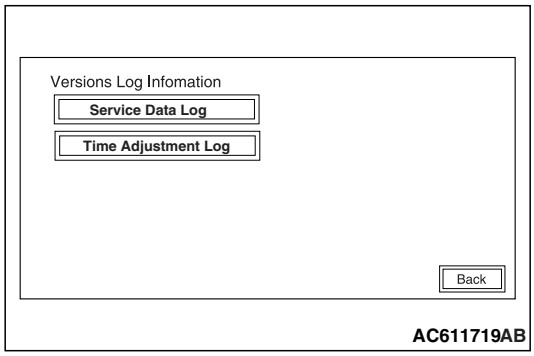
Item	Factor number	Produced log
Drive	20	Log concerning focus
	21	Log concerning disk type
	22	Log concerning disk
	25	Log concerning SEEK
	26	Log concerning servo start-up
	27	Log concerning power-On
	28	Log concerning loading / eject operation
	29	Log concerning pick-up operation
	30	Log concerning state of mechanism
	52	Log concerning TOC reading

Item	Factor number	Produced log
HDD	1	Log concerning high temperature
	2	Log concerning low temperature
Monitor	1	Log concerning high temperature
AMP	0	Log concerning connection
	15	Log concerning communication
SP*1	1,2,4,8	Log concerning number of speakers unexpected
CAR*2	0 -12, 128 -131, 133,160, 192,255	Log concerning vehicle model unexpected

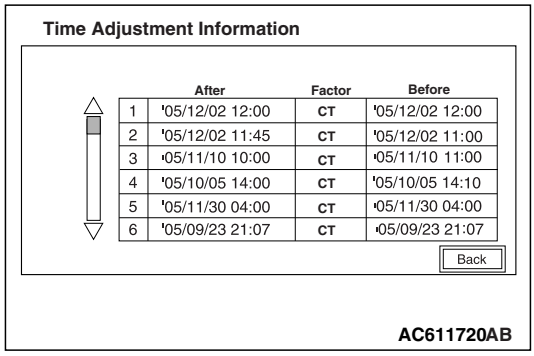
*NOTE: *1: The log is displayed when the number of speakers is unexpected.*

**2: The log is displayed when the vehicle model is unexpected.*

1. Select "Time Adjustment Log" on the "Versions Log Information" screen.



2. The time adjustment logs are displayed.
   As for Factor, the following two types are displayed.
   CT: Automatic adjustment
   MAN: Manual adjustment



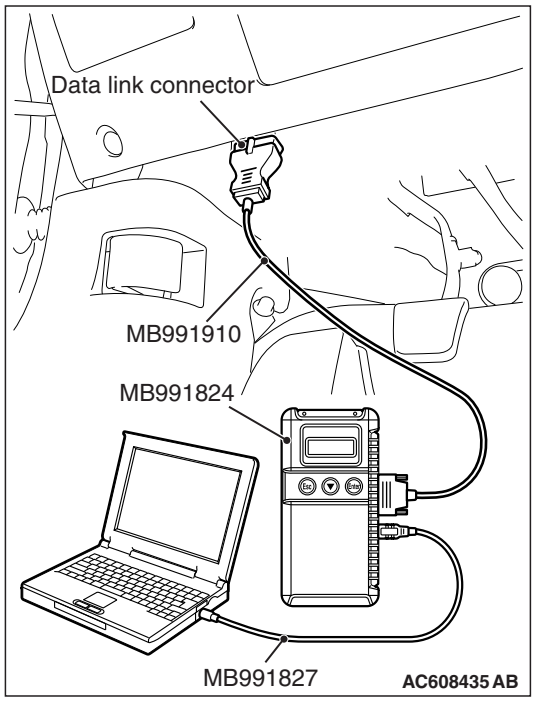
DIAGNOSIS FUNCTION

M1546001600468

HOW TO CONNECT THE SCAN TOOL (M.U.T.-III)

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to special tool MB991824.
5. Connect special tool MB991910 to the data link connector.
6. Turn the power switch of special tool MB991824 to the "ON" position.

   NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.
7. Start the M.U.T.-III system on the personal computer.

NOTE: Disconnecting scan tool MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

NOTE: If the battery voltage is low, diagnostic trouble codes will not be set. Check the battery if scan tool MB991958 does not display.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "System select" from the start-up screen.
4. Select "From 2006 MY" of "Model Year." When the "Vehicle Information" is displayed, check the contents.
5. Select "Meter" from "System List," and press the "OK" button.

NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.

6. Select "Diagnostic Trouble Code." to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "CAN bus diagnosis" from the start-up screen.
4. When the vehicle information is displayed, confirm that it matches the vehicle being diagnosed.
   - If they match, go to Step 8.
   - If not, go to Step 5.
5. Select the "view vehicle information" button.
6. Enter the vehicle information and select the "OK" button.
7. When the vehicle information is displayed, confirm again that it matches the vehicle being diagnosed.
   - If they match, go to Step 8.
   - If not, go to Step 5.
8. Select the "OK" button.
9. When the optional equipment screen is displayed, choose the one which the vehicle is fitted with, and then select the "OK" button.

CHECK OF FREEZE FRAME DATA

The freeze frame data can be checked by using scan tool MB991958.

When detecting fault and storing the diagnostic trouble code, the ECU connected to CAN bus line obtains the data before the determination of the diagnostic trouble code and the data when the diagnostic trouble code is determined, and then stores the ECU status of that time. By analyzing each data from scan tool MB991958, the troubleshooting can be performed more efficiently. The displayed items are as the table below.

Display item list

Item No.	Item name	Data item	Unit
1	Odometer	Total driving distance after the diagnostic trouble code is generated	mile
2	Ignition cycle	Number of times the ignition switch is turned "ON" or "LOCK (OFF)" after the past failure transition	Number of counts is displayed.
4	Accumulated minute	Cumulative time for current malfunction of diagnostic trouble code	min

DIAGNOSTIC TROUBLE CODE CHART

M1546001700294

⚠ CAUTION
On troubleshooting, if the ignition switch is turned ON while disconnecting connector(s), diagnostic trouble code(s) associated with other system may be set. On completion, confirm all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

DTC No.	Description	Reference page
B2226	AND [Audio visual Navigation (HDD) unit] error	P.54A-452
B2240	Communication error with CAN Box	P.54A-454
B2477	VIN not programmed	P.54A-457
U0019	Bus off (CAN-B)	P.54A-458
U0141	ETACS CAN timeout	P.54A-459
U0151	SRS-ABG CAN timeout	P.54A-461
U0154	OCM (occupant classification) CAN timeout	P.54A-463
U0155	Meter CAN timeout	P.54A-465
U0164	A/C CAN timeout	P.54A-468
U0168	WCM CAN timeout	P.54A-470
U0195	Satellite radio CAN timeout	P.54A-472
U0197	Hands free module CAN timeout	P.54A-474
U1415	Coding not completed/Data fail	P.54A-475
U1417	Implausible coding data	P.54A-477

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B2226: AND [Audio visual Navigation (HDD) unit] error

⚠ CAUTION
- **If DTC B2226 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit or audio visual navigation unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

TROUBLE JUDGMENT

When the CAN box unit receives the signal to indicate an abnormality (service data) occurred in the audio visual navigation unit, the CAN box unit sets DTC B2226.

TROUBLESHOOTING HINT

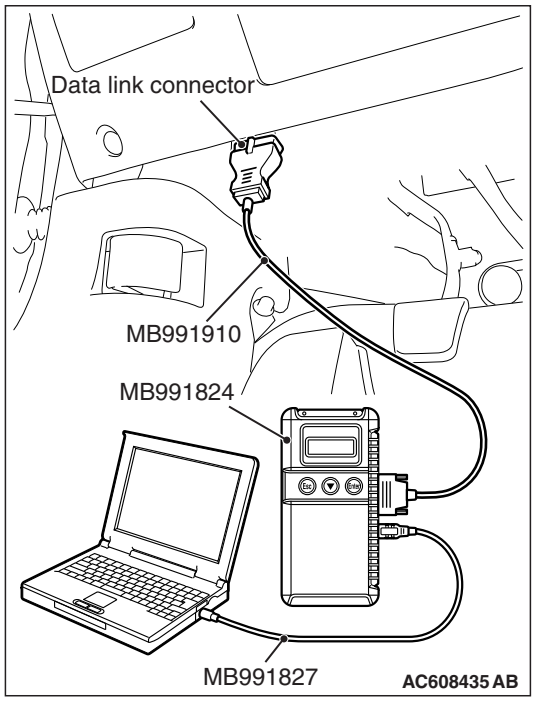
- The CAN box unit may be defective
- The audio visual navigation unit may be defective

DIAGNOSIS

Required Special Tools:
- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827 M.U.T.-III USB Cable

TSB Revision

- MB991910 M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2.Check that the of the MMCS service mode.

Check that the FACTOR CODE is set to the service data log in the MMCS service mode "Versions Log Information." (Refer to P.54A-437.)

Q: Is the FACTOR CODE set?

YES : Carry out the diagnosis for the corresponding code.(Refer to Trouble symptom chart P.54A-478)
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Go to Step 4.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).

STEP 4. Recheck for diagnostic trouble code.

Temporarily replace the audio visual navigation unit, and check if the DTC is set to the CAN box unit.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

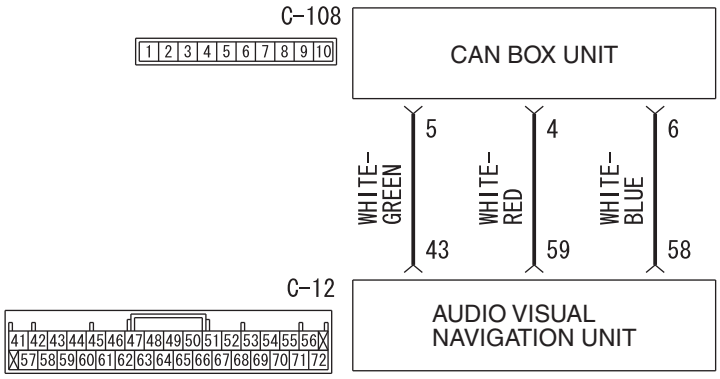
YES : Replace the CAN box unit.
NO : Replace the audio visual navigation unit.

DTC B2240: Communication error with CAN Box

⚠ CAUTION

- **If DTC B2240 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit or audio visual navigation unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

CAN Box Unit Communication Circuit



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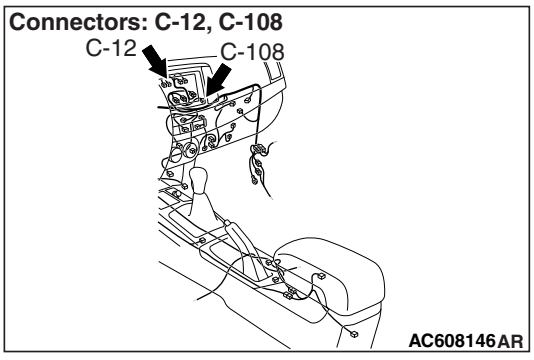


TROUBLE JUDGMENT

When the abnormality occurs in the transmission/reception data between the CAN box unit and audio visual navigation unit, the CAN box unit sets DTC B2240.

PROBABLE CAUSES

- Audio visual navigation unit malfunction
- CAN box unit malfunction
- Damaged wiring harness and connectors

TSB Revision

DIAGNOSIS

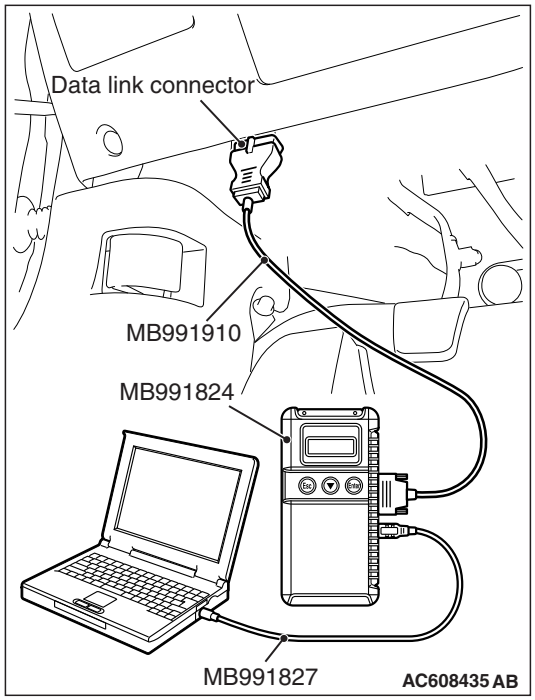
Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. Perform "Network/Connect Line Check" of the MMCS service mode.

Perform "Network/Connect Line Check" of the MMCS service mode, and check that the communication between the CAN box unit and the audio visual navigation unit is normal. (Refer to P.54A-437.)

OK: "CAN BOX OK" is displayed.

NOTE: When the communication between the audio visual navigation unit and the CAN box unit is not possible, "CAN BOX" is not displayed.

Q: Is "CAN BOX OK" displayed?

YES : Go to Step 5.
NO : Go to Step 3.

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STEP 3. Check CAN box unit connector C-108 and audio visual navigation unit connector C-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are CAN box unit connector C-108 and audio visual navigation unit connector C-12 in good condition?

YES : Go to Step 4.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The steering remote control switch should work normally.

STEP 4. Check the wiring harness between CAN box unit connector C-108 (terminal 5, 4, 6) and audio visual navigation unit connector C-12 (terminal 43, 59, 58).

- Check the communication lines for open circuit and short circuit.

Q: Is the wiring harness between CAN box unit connector C-108 (terminal 5, 4, 6) and audio visual navigation unit connector C-12 (terminal 43, 59, 58) in good condition?

YES : Go to Step 5.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Go to Step 6.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).

STEP 6. Recheck for diagnostic trouble code.

Temporarily replace the audio visual navigation unit, and check if the DTC is set to the CAN box unit.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.

NO : Replace the audio visual navigation unit.

TSB Revision

DTC B2477: VIN not programmed

⚠ CAUTION

- **If DTC B2477 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

TROUBLE JUDGMENT

With the ignition switch at the ON position, if the VIN code is not written to the CAN box unit, DTC B2477 is stored.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The ETACS-ECU may be defective.
- The CAN box unit may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

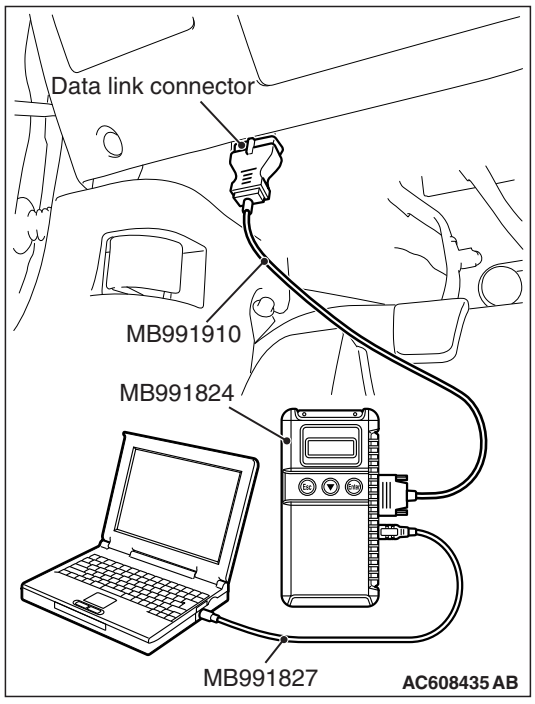
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).



STEP 2. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code

Check if the diagnosis code relating to the coding error is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to P.54A-678), and then go to Step 3.

NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).

DTC U0019: Bus off (CAN-B)

⚠ CAUTION

- **If DTC U0019 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

DIAGNOSTIC FUNCTION

If the CAN-B circuit malfunction occurs, the CAN box unit sets DTC U0019.

JUDGMENT CRITERIA

With the ignition switch at the ON position and the system voltage at 10 – 16 volts (data from ETACS-ECU), if the CAN box unit becomes unable to transmit data normally due to the CAN-B bus circuit malfunction, the CAN box unit determines that a problem has occurred.

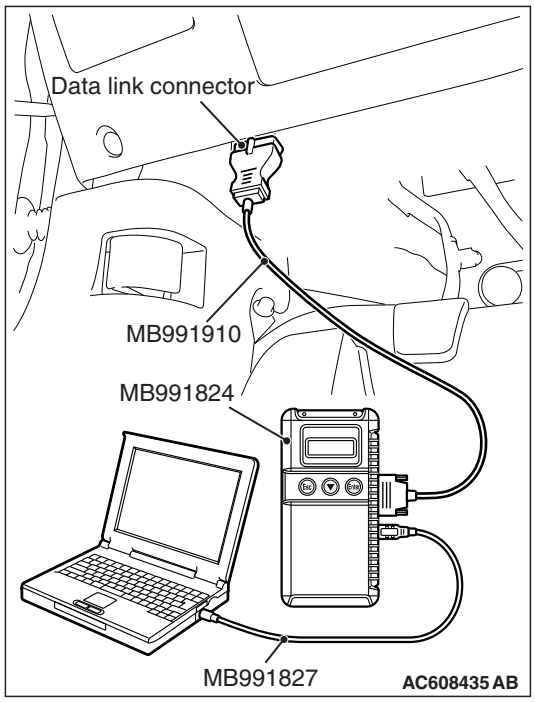
TROUBLESHOOTING HINTS

The CAN bus line may be defective

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. Check whether the scan tool MB991958 can communicate with the CAN box unit.

Q: Is the check result normal?

YES : Erase the diagnosis code. The procedure is complete.
NO : Check the power supply circuit of the CAN box unit, and repair if necessary.

DTC U0141: ETACS CAN timeout

⚠ CAUTION
If DTC U0141 is set, be sure to diagnose the CAN bus line.

⚠ CAUTION
When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)

DIAGNOSTIC FUNCTION

If the signal from ETACS-ECU cannot be received, the CAN box unit sets the DTC U0141.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10 – 16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with ETACS-ECU cannot be established for 2,500 ms or more, the CAN box unit determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The CAN box unit may be defective
- The ETACS-ECU may be defective

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DIAGNOSIS

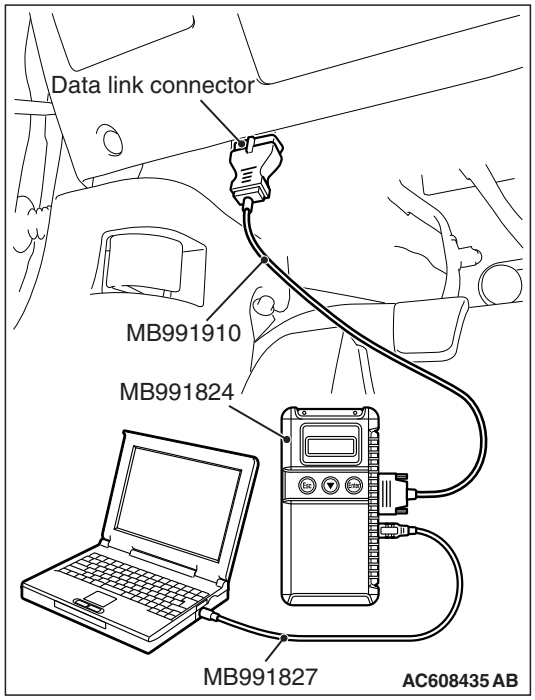
Required Special Tools:

- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to P.54A-678).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C diagnostic trouble code.

Check if DTC U0141 is set to the A/C-ECU.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

DTC U0151: SRS-ECU CAN timeout

⚠ CAUTION
- **If DTC U0151 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

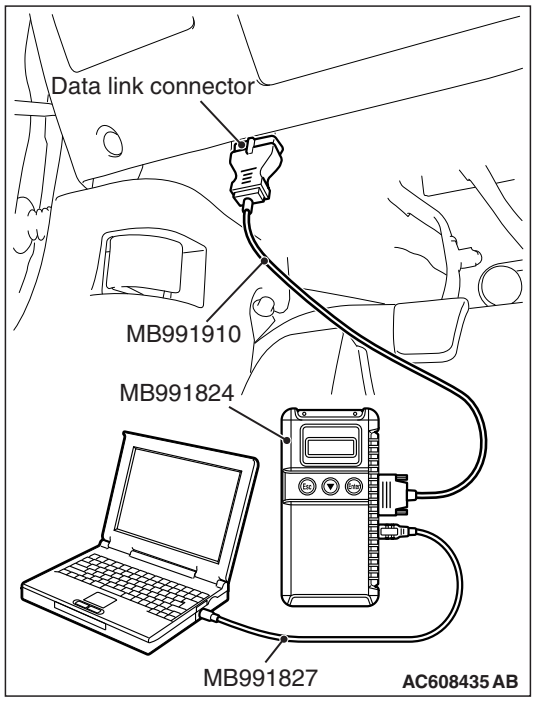
DIAGNOSTIC FUNCTION
If the signal from SRS-ECU cannot be received, the CAN box unit sets DTC U0151.

JUDGMENT CRITERIA
With the ignition switch in the ON position, system voltage between 10–16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with SRS-ECU cannot be established for 2,500 ms or more, the CAN box unit determines that a problem has occurred.

TROUBLESHOOTING HINTS
- The CAN bus line may be defective
- The SRS-ECU may be defective
- The CAN box unit may be defective

DIAGNOSIS
Required Special Tools:
- MB991958 Scan Tool (M.U.T.-III Sub Assembly)

- MB991824: Vehicles Communication Interface (V.C.I.)
- MB991827 M.U.T.-III USB Cable
- MB991910 M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. Using scan tool MB991958, read the SRS-ECU diagnostic trouble code

Check again if the DTC is set to the SRS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Troubleshooting P.52B-32).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0151 is set to the A/C-ECU.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the SRS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

DTC U0154: OCM (occupant classification-ECU) CAN timeout

⚠ CAUTION
If DTC U0154 is set, be sure to diagnose the CAN bus line.

⚠ CAUTION
When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)

DIAGNOSTIC FUNCTION
When the signals from occupant classification-ECU cannot be received, the CAN box unit sets DTC U0154.

JUDGMENT CRITERIA
With the ignition switch in the ON position, system voltage between 10 – 16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communications with occupant classification-ECU cannot be established for 2,500 ms or more, the CAN box unit determines that a problem has occurred.

TROUBLESHOOTING HINTS
- The CAN bus line may be defective.
- The CAN box unit may be defective.
- The occupant classification-ECU may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

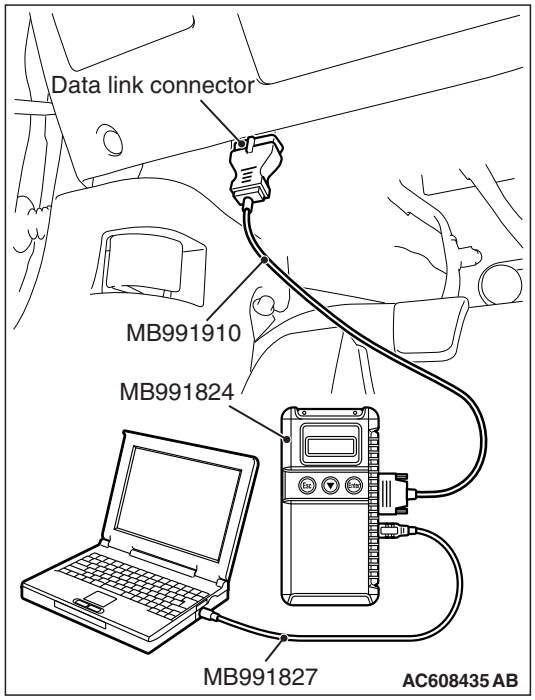
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).



STEP 2. Using scan tool MB991958, read the occupant classification-ECU diagnostic trouble code.

Check if DTC is set to the occupant classification-ECU.

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Diagnosis P.52B-319).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0154 is set to the A/C-ECU.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the occupant classification-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

DTC U0155: Meter CAN timeout

⚠ CAUTION
- **If DTC U0155 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

DIAGNOSTIC FUNCTION
When the signals from combination meter cannot be received, the CAN box unit sets DTC U0155.

JUDGMENT CRITERIA
With the ignition switch in the ON position, system voltage between 10 – 16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communications with combination meter cannot be established for 2,500 ms or more, the CAN box unit determines that a problem has occurred.

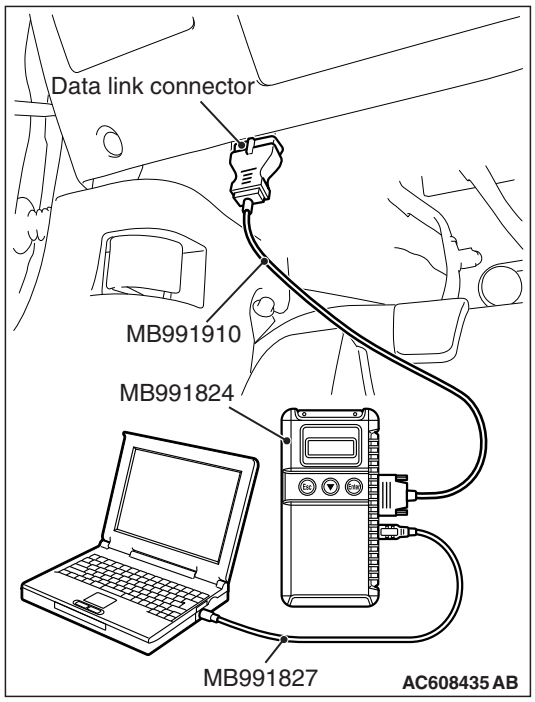
TROUBLESHOOTING HINTS
- The CAN bus line may be defective.
- The CAN box unit may be defective.
- The combination meter may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A

STEP 1. Using scan tool MB991958, diagnose the CAN bus line



⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. Using scan tool MB991958 read the combination meter diagnostic trouble code.

Check whether a combination meter DTCs are set or not.
(1) Turn the ignition switch to the "ON" position.
(2) Check for combination meter DTCs.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the combination meter (Refer to combination meter, Diagnosis P.54A-33).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0155 is set to the A/C-ECU.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

DTC U0164: A/C CAN timeout

⚠ CAUTION

- **If DTC U0164 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

DIAGNOSTIC FUNCTION

If the signal from A/C-ECU cannot be received, the CAN box unit sets DTC U0164.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10–16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with A/C-ECU cannot be established for 2,500 ms or more, the CAN box unit determines that a problem has occurred.

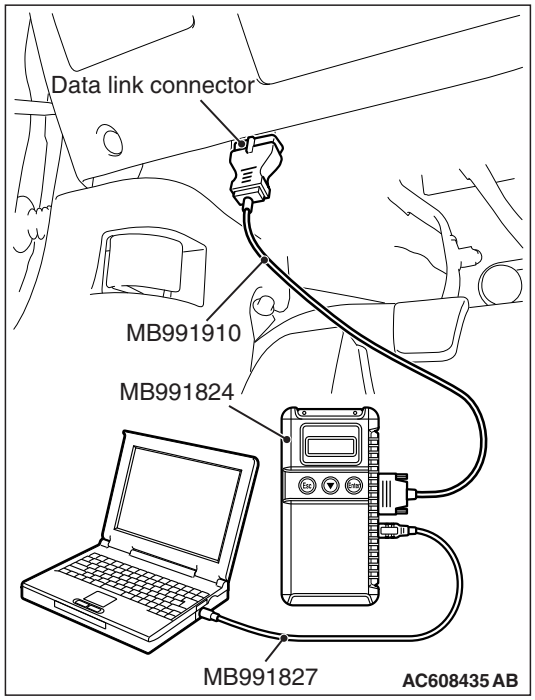
TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The A/C-ECU may be defective.
- The CAN box unit may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-452."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.
Check if DTC is set to the A/C-ECU.

Q: Is the DTC set?

YES : Troubleshoot the A/C/Heater control unit (Refer to GROUP 55A, Manual A/C Diagnosis P.55A-9 or GROUP 55B, Auto A/C Diagnosis P.55B-8).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the ETACS diagnostic trouble code.
Check if the DTC U0164 is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the A/C-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

DTC U0168: WCM/KOS CAN timeout

⚠ CAUTION

- **If DTC U0168 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

DIAGNOSTIC FUNCTION

If the signal from KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> cannot be received, the CAN box unit sets DTC U0168.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10 – 16 V (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> cannot be established for 2,500 ms or more, the CAN box unit determines that a problem has occurred.

TROUBLESHOOTING HINTS

- Malfunction of CAN bus line may be defective.
- Malfunction of the KOS-ECU may be defective. <vehicles with KOS>
- Malfunction of the WCM may be defective. <vehicles with WCM>
- Malfunction of CAN box unit may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

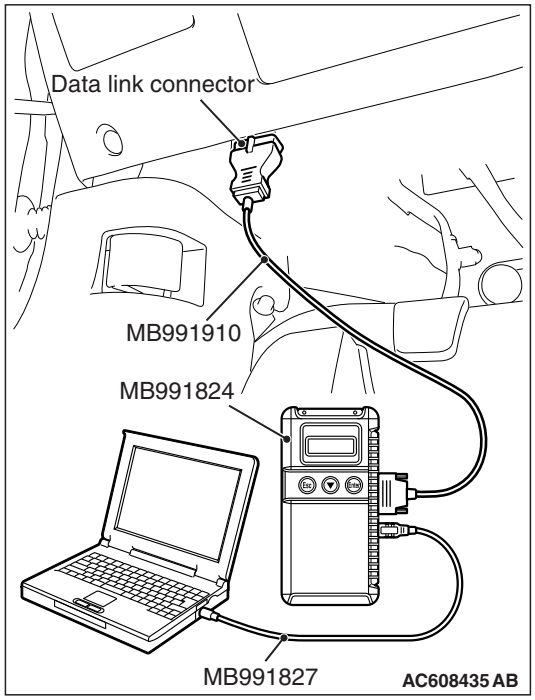
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).



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STEP 2. Using scan tool MB991958, read the KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> diagnostic trouble code.

Check again if the DTC is set to the KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM>.

Q: Is the DTC set?

YES : Troubleshoot the KOS or WCM (Refer to GROUP 42B, Diagnosis P.42B-28 <KOS> or GROUP 42C, Diagnosis P.42C-17 <WCM>).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the diagnostic trouble code.

Check if the DTC U0168 is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the WCM or KOS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

DTC U0195: Satellite radio CAN timeout

⚠ CAUTION
If DTC U0195 is set in the CAN box unit, diagnose the CAN main bus line.

⚠ CAUTION
Whenever the CAN box unit is replaced, ensure that the communication circuit is normal. (Check that the voltage is 10 V or more.)

DIAGNOSTIC FUNCTION

When the signals from satellite radio tuner cannot be received, the CAN box unit sets DTC U0195.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10 – 16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communications with satellite radio tuner cannot be established for 2,500 ms or more, the CAN box unit determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The CAN box unit may be defective.
- The satellite radio tuner may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A

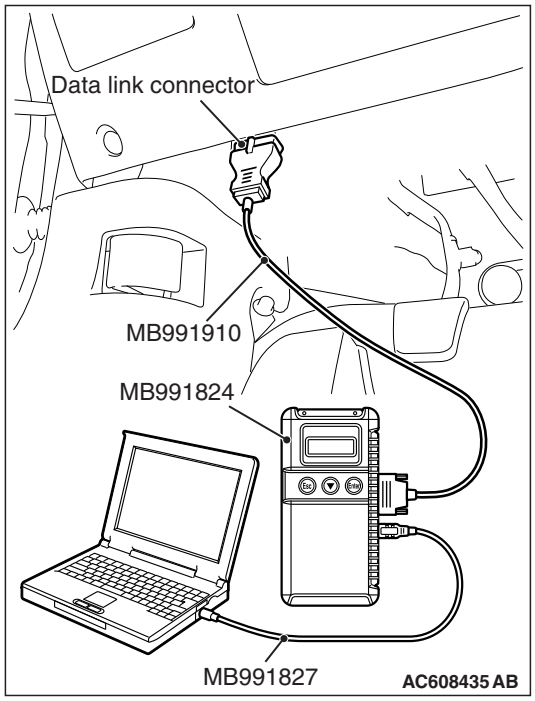
STEP 1. Using scan tool MB991958, diagnose the CAN bus line

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-17).



STEP 2. Using scan tool MB991958 read the satellite radio tuner diagnostic trouble code.

Check whether a satellite radio tuner DTCs are set or not.
(1) Turn the ignition switch to the "ON" position.
(2) Check for satellite radio tuner DTCs.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the satellite radio tuner. (Refer to P.54A-640.)
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the SRS-ECU diagnostic trouble code.

Check if the DTC U0195 is set to the SRS-ECU.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).

DTC U0197: Hands free module CAN timeout

⚠ CAUTION

- **If DTC U0197 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

DIAGNOSTIC FUNCTION

When the signals from hands free module cannot be received, the CAN box unit sets DTC U0197.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10 – 16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communications with hands free module cannot be established for 2,500 ms or more, the CAN box unit determines that a problem has occurred.

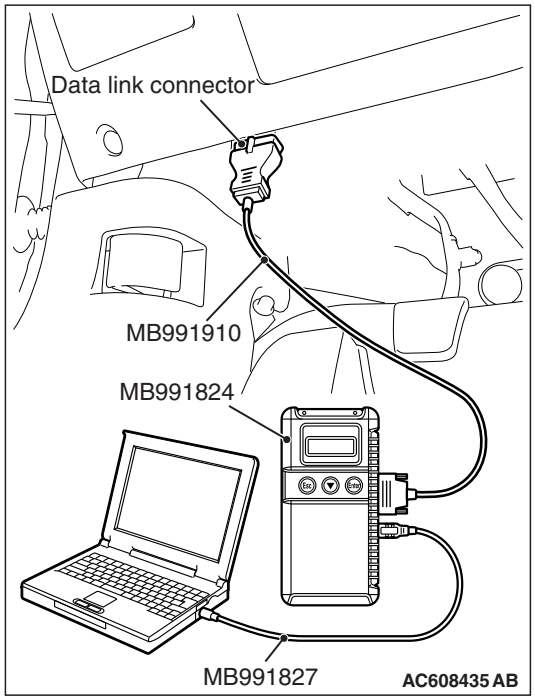
TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The CAN box unit may be defective.
- The hands free module may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. Using scan tool MB991958, read the hands free module diagnostic trouble code.
Check again if the DTC is set to the hands free module.

Q: Is the DTC set?

YES : Troubleshoot the hands-free cellular phone system. (Refer to P.54A-563.)
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).

DTC U1415: Coding not completed/Data fail

⚠ CAUTION
If DTC U1415 is set, diagnose the CAN bus lines.

⚠ CAUTION
When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)

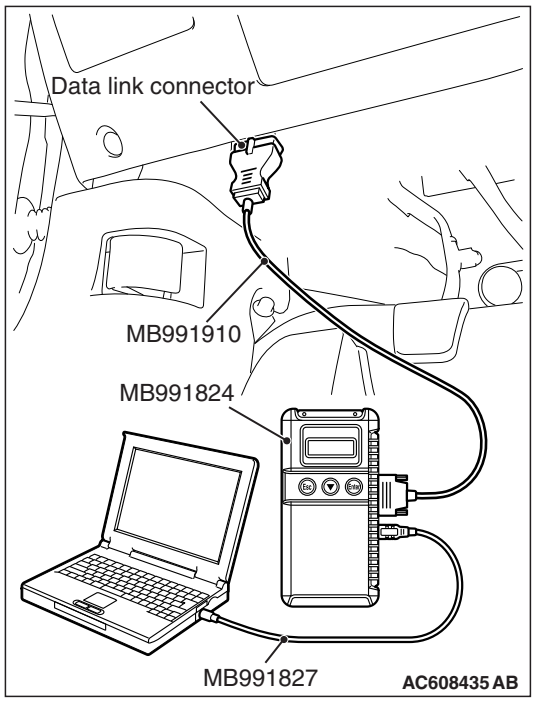
DIAGNOSTIC FUNCTION
If the vehicle information data is not registered to the CAN box unit, the CAN box unit sets DTC U1415.

JUDGMENT CRITERIA
With the global coding counter value "0," if all the global coding data (vehicle information) are not stored, the CAN box unit determines that a problem has occurred.

TROUBLESHOOTING HINTS
- The CAN bus line may be defective.
- The CAN box unit may be defective.
- The ETACS-ECU may be defective.

DIAGNOSIS

Required Special Tools:
- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-17).

STEP 2. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

Check if the diagnosis code relating to the coding error is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to P.54A-678), and then go to Step 3.
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).

DTC No.U1417 Implausible coding data

⚠ CAUTION

- **If diagnostic trouble code U1417 is set in CAN box unit, always diagnose the CAN bus lines. If there is any fault in the CAN bus lines, an incorrect diagnostic trouble code may be set. In this case, the set diagnostic trouble code is not highly reliable.**
- **Before replacing the CAN box unit, ensure that the communication circuit is normal. (Check that the voltage is 10 V or more.)**
- **When the diagnostic trouble code U1417 is set in CAN box unit, the diagnostic trouble code may also be set in ETACS-ECU. When the diagnostic trouble code is set in ETACS-ECU, carry out the diagnosis of the diagnostic trouble code for ETACS-ECU first.**

CIRCUIT OPERATION

CAN box unit receives the vehicle information stored in the ETACS-ECU via CAN bus lines.

TECHNICAL DESCRIPTION (COMMENT)

CAN box unit communicates with ETACS-ECU via CAN bus lines. This diagnostic trouble code is set when the vehicle information received from the ETACS-ECU is invalid.

TROUBLESHOOTING HINTS

- Malfunction of ETACS-ECU
- Engine control module malfunction
- ETACS-ECUs have been interchanged between two vehicles.
- CAN box unit malfunction
- External noise interference

DIAGNOSIS

Required Special Tools:

- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

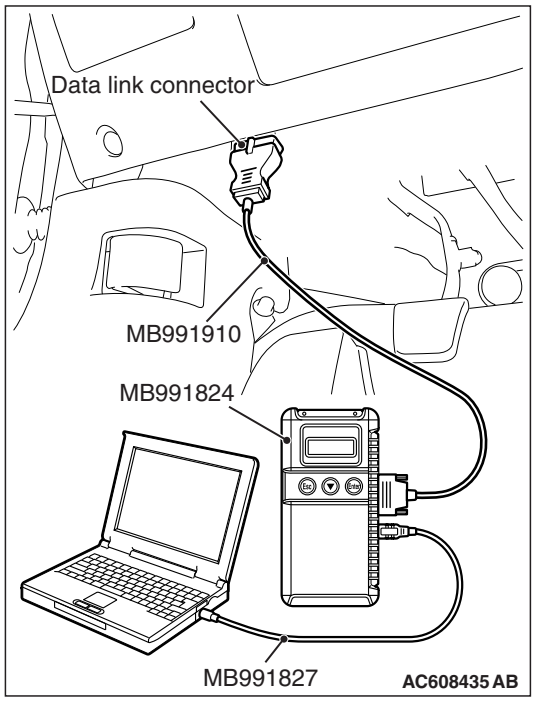
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-17).



STEP 2. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.
Check if the diagnostic trouble code relating to the coding error is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to P.54A-678), and then go to Step 3.
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).

TROUBLE SYMPTOM CHART

M1546001800804

Inspection procedure No.	Trouble symptom		Reference page
1	No navigation screen is displayed.		P.54A-479
2	No sound is heard.	<Vehicles without audio amplifier>	P.54A-486
		<Vehicles with audio amplifier>	P.54A-490
3	No sound is heard from one of the speakers.	<vehicles without audio amplifier>	P.54A-497
		<vehicles with audio amplifier>	P.54A-504
4	The navigation system can be operated while the vehicle is driven.		P.54A-513
5	The screen is not normal in the navigation mode.		P.54A-516
6	The AM/FM radio broadcasting cannot be received.		P.54A-519
7	GPS signal can not be received.		P.54A-521
8	CD/DVD cannot be played.		P.54A-522
9	Image of a DVD is played, but no sound is played.		P.54A-523
10	Sound of a DVD can be played, but no image is played.		P.54A-524
11	The picture and sound of external input are not played.		P.54A-525
12	Check the CAN box unit power supply circuit.		P.54A-528

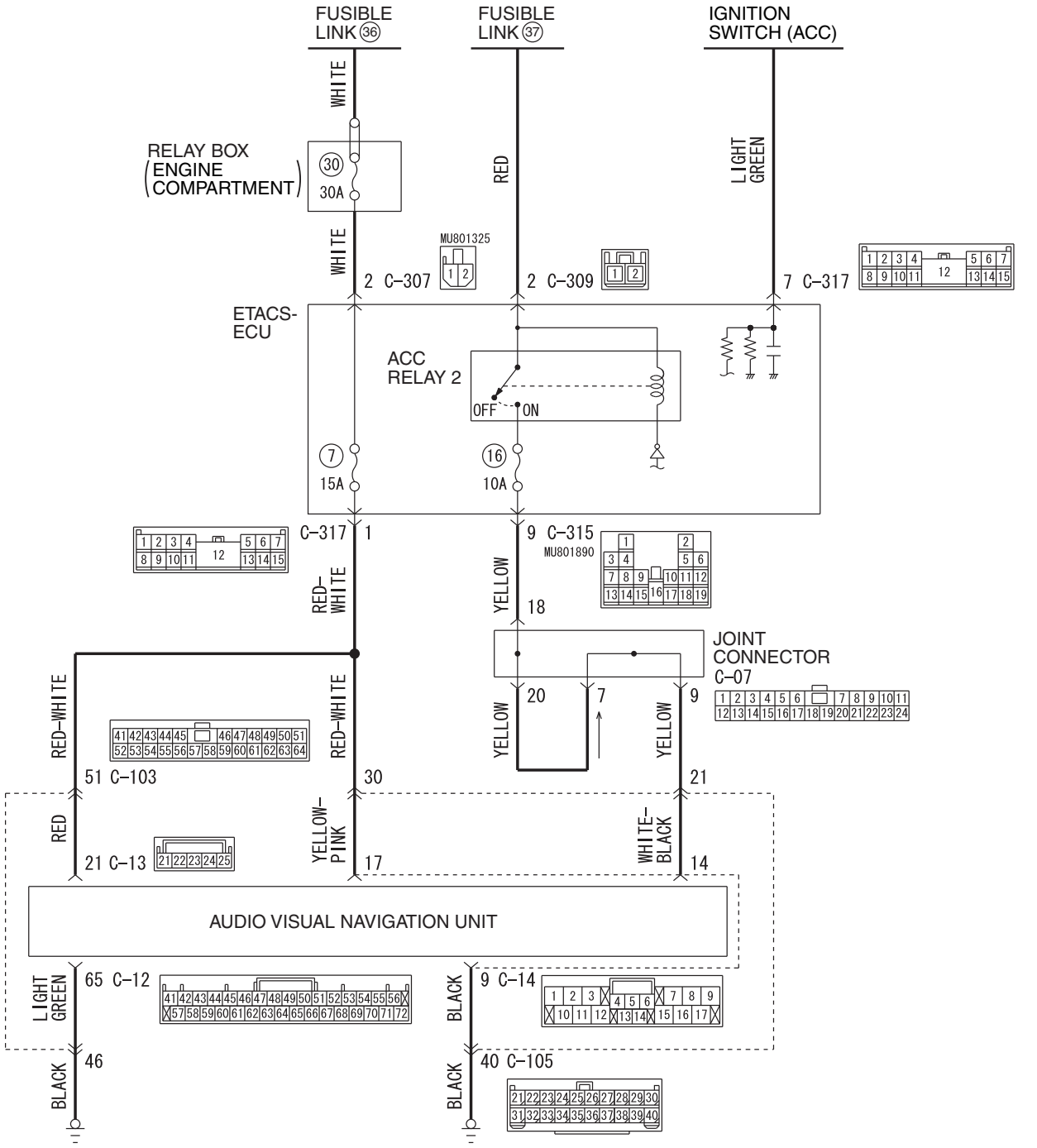
SYMPTOM PROCEDURES

Inspection Procedure 1: No Navigation Screen is Displayed.

⚠ CAUTION

Before replacing the audio visual navigation unit, ensure that the power supply circuit, the ground circuit, and the communication circuit are normal. (Check that the voltage is 10 V or more.)

Audio Visual Navigation Unit Power Supply Circuit



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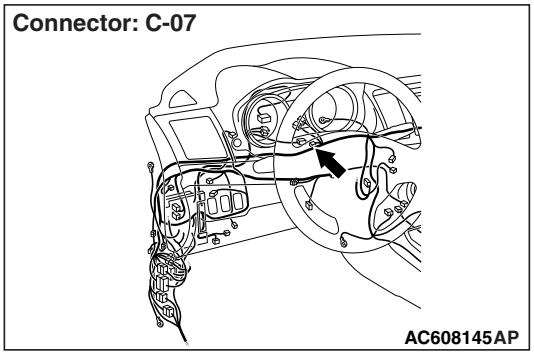
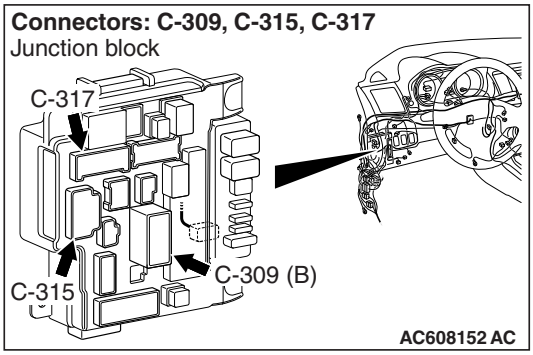
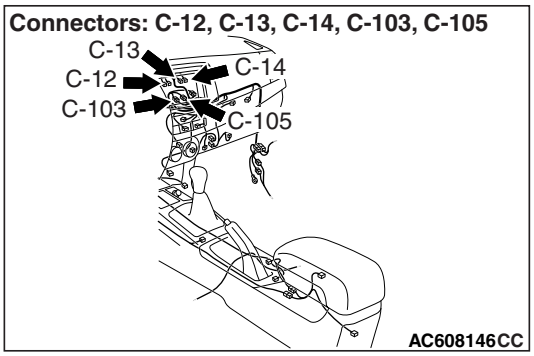






⚠ CAUTION

When the ignition switch is turned to the ACC position for 30 minutes with the ETACS-ECU function, the ACC power is cut-off automatically. For this function, the time to cut-off can be changed with ETACS system by the scan tool MB991958 or the MMCS operation. (Refer to P.54A-768 <ETACS> or P.54A-768 <MMCS>)

COMMENTS ON TROUBLE SYMPTOM

When the ignition switch is turned to the ACC or ON position, if the screen is not displayed at all, the power supply circuit or audio visual navigation unit may have a problem.

PROBABLE CAUSES

- Malfunction of power supply circuit
- Malfunction of audio visual navigation unit

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A

STEP 1. Check audio visual navigation unit connector C-12, C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-14 in good condition?

YES : Go to Step 2.

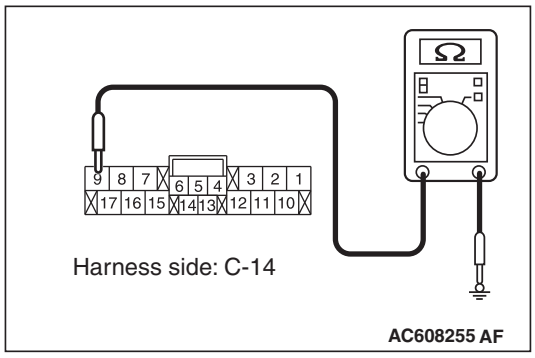
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 2. Check the ground circuit to the audio visual navigation unit connector. Measure the resistance at audio visual navigation unit connector C-12, C-14.

(1) Disconnect audio visual navigation unit connector C-12, C-14, and measure the resistance available at the wiring harness side of the connector.

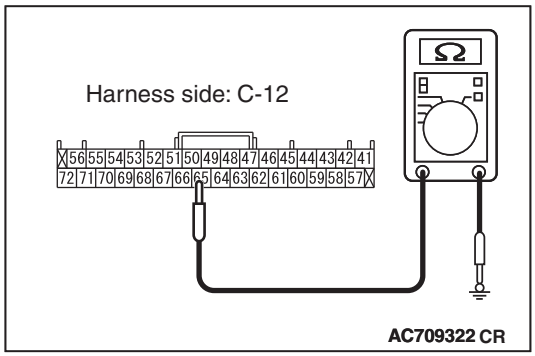
(2) Measure the resistance between audio visual navigation unit connector C-14 terminal 9 and ground.

OK: The resistance should be 2 ohms or less



(3) Measure the resistance between audio visual navigation unit connector C-12 terminal 65 and ground.

OK: The resistance should be 2 ohms or less



Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check the wiring harness between audio visual navigation unit connector C-14 (terminal 9), C-12 (terminal 65) and ground.

- Check the ground wire for open circuit.

NOTE: Also check intermediate connector C-105, C-103 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-105, C-103 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between audio visual navigation unit connector C-14 (terminal 9), C-12 (terminal 65) and ground in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 4. Check ETACS-ECU connector C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-317 in good condition?

YES : Go to Step 5.

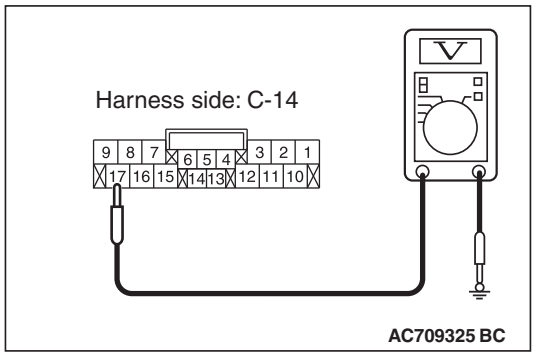
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 5. Check the power supply circuit to the multivision display. Measure the voltage at multivision display connector C-14.

(1) Disconnect the connector, and measure at the wiring harness-side connector.

(2) Measure the voltage between multivision display connector C-14 terminal 17 and ground.

OK: Battery positive voltage



Q: Is the measured voltage battery positive voltage?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check the wiring harness between ETACS-ECU connector C-317 (terminal 1) and audio visual navigation unit connector C-14 (terminal 17).

- Check the power supply line (battery supply) for open circuit and short circuit.

NOTE: Also check intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 1) and audio visual navigation unit connector C-14 (terminal 17) in good condition?

YES : Go to Step 7.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 7. Check audio visual navigation unit connector C-13 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-13 in good condition?

YES : Go to Step 8.

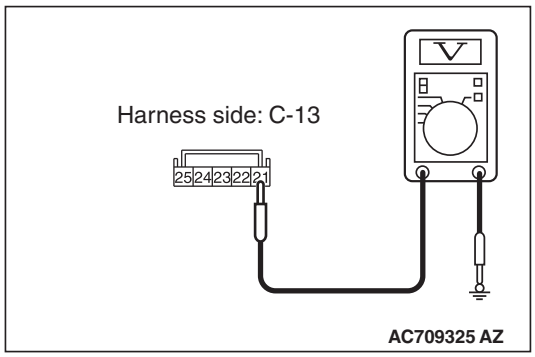
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 8. Check the power supply circuit to the multivision display. Measure the voltage at multivision display connector C-13.

(1) Disconnect the connector, and measure at the wiring harness-side connector.

(2) Measure the voltage between multivision display connector C-13 terminal 21 and ground.

OK: Battery positive voltage



Q: Is the measured voltage battery positive voltage?

YES : Go to Step 10.

NO : Go to Step 9.

STEP 9. Check the wiring harness between ETACS-ECU connector C-317 (terminal 1) and audio visual navigation unit connector C-13 (terminal 21).

- Check the power supply line (battery supply) for open circuit and short circuit.

NOTE: Also check intermediate connector C-103 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-103 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 1) and audio visual navigation unit connector C-13 (terminal 21) in good condition?

YES : Go to Step 10.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 10. Using scan tool MB991958, check data list.

Check the input signal of ACC relay.

- Turn the ignition switch to the ACC position.

Item No.	Item name	Normal conditions
Item 288	ACC switch	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 11.

NO : Refer to GROUP 54A, ETACS, Diagnosis – Inspection Procedure 1 "The ignition switch (ACC) signal is not received P.54A-735."

STEP 11. Check ETACS-ECU connector C-309 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-309 in good condition?

YES : Go to Step 12.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The steering remote control switch should work normally.

STEP 12. Check the power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-309.

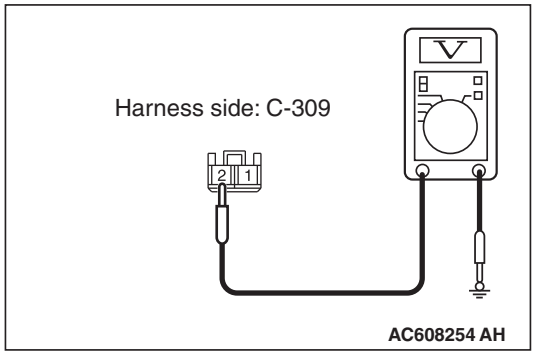
(1) Disconnect the connector, and measure at the wiring harness-side connector.
(2) Turn the ignition switch to the "ACC" position.
(3) Measure the voltage between terminal 2 and ground.

OK: Battery positive voltage

Q: Is the measured voltage battery positive voltage?

YES : Go to Step 14.

NO : Go to Step 13.



STEP 13. Check the wiring harness between ETACS-ECU connector C-309 (terminal 2) and fusible link (37)

- Check the power supply line for open circuit and short circuit.

Q: Is the wiring harness between ETACS-ECU connector C-309 (terminal 2) and fusible link (37) in good condition?

YES : Go to Step 14.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 14. Check ETACS-ECU connector C-315 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-315 in good condition?

YES : Go to Step 15.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The steering remote control switch should work normally.

STEP 15. Check the wiring harness between audio visual navigation unit connector C-14 (terminal 14) and ETACS-ECU connector C-315 (terminal 9).

- Check the power supply line for open circuit and short circuit.

NOTE: Also check joint connector C-07 and intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-07 or intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between audio visual navigation unit connector C-14 (terminal 14) and ETACS-ECU connector C-315 (terminal 9) in good condition?

YES : Go to Step 16.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 16. Retest the system

Check if the audio visual navigation unit power is turned ON.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).

NO : Replace the audio visual navigation unit.

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Inspection Procedure 2: No sound is heard. <Vehicles without audio amplifier>

⚠ CAUTION
Before replacing the audio visual navigation unit, ensure that the power supply circuit, the ground circuit, and the communication circuit are normal. (Check that the voltage is 10 V or more.)

COMMENTS ON TROUBLE SYMPTOM

If the audio sound is not output, the audio visual navigation unit, audio amplifier, or power supply circuit of audio amplifier may have a problem, or the option coding information may be inconsistent.

PROBABLE CAUSES

- The audio visual navigation unit may be defective
- The audio amplifier may be defective
- Option coding information inconsistency
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Check the audio visual navigation unit operation.

Q: Check the sources from which the sound is not output.

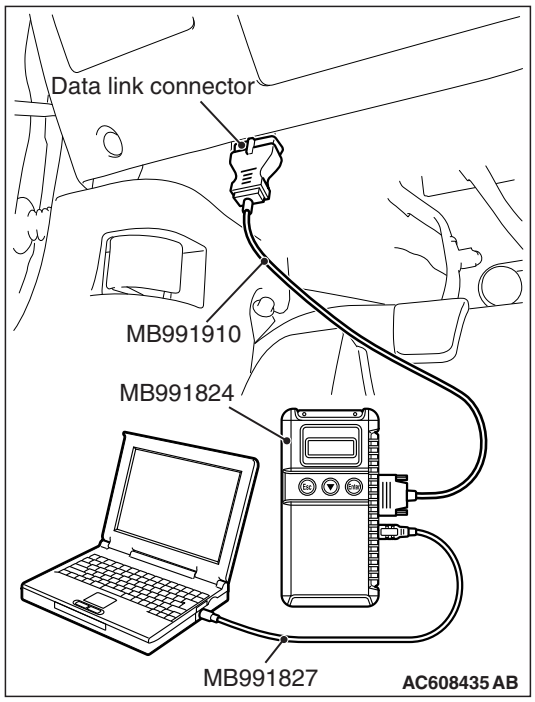
No sound only from radio : Perform Inspection Procedure 6 "The AM/FM Radio Broadcasting cannot be Received." (Refer to P.54A-519.)

No sound only when the CD is played : Perform Inspection Procedure 8 "CD/DVD cannot be Played." (Refer to P.54A-522.)

No sound only when the DVD is played : Perform Inspection Procedure 8 "CD/DVD cannot be Played."(Refer to P.54A-522.) or Inspection Procedure 9 "Image of a DVD is Played, but no Sound is Played." (Refer to P.54A-523.)

No sound only when the music server is used : Go to Step 8.

No sound from any of the sources : Go to Step 2.



STEP 2. Check the ETACS-ECU coding data.

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to "ON" position.
(3) Operate the scan tool MB991958 to read the ETACS-ECU option coding information (Refer to GROUP 00, Coding Table P.00-33).
(4) Check that the "Number of speaker" is set to "6 speakers" or "4 speakers".

Q: Is the check result normal?

YES : Go to Step 3.
NO : Operate scan tool MB991958 to set the option coding "Number of speaker" to "6 speakers" or "4 speakers" and check the trouble symptom.

STEP 3. Check the MMCS service mode, CAN communication confirmation, and coding data.

(1) Display the CAN Communication Confirmation and Coding Data of the MMCS service mode. (Refer to P.54A-437)
(2) Check if "6 SPEAKER (2 TWEETER)" or "4 SPEAKER" is displayed as the number of installed speakers.

Q: Is the check result normal?

YES : Go to step 4.
NO : Go to step 5.

STEP 4. Check the service data log for the MMCS service mode.

With the service data log of MMCS service mode displayed, check if the service data log for SP (speaker) is displayed. (Refer to P.54A-437)

Q: Is the service data log for SP (speaker) displayed?

YES : Go to step 5.
NO : Go to step 8.

STEP 5. Using scan tool MB991958, diagnose the CAN bus line.

Use scan tool MB991958 to diagnose the CAN bus lines.
(1) Turn the ignition switch to "ON" position.
(2) Diagnose the CAN bus line.

Q: Is the check result normal?

YES : Go to Step 6.
NO : Repair the CAN bus line.

STEP 6. Using scan tool MB991958, read the CAN box unit diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

Q: Is the DTC set?

YES : Troubleshoot the MMCS (Refer to P.54A-452).
NO : Go to Step 7.

STEP 7. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

Check if the diagnostic trouble code is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to GROUP 54A – ETACS-ECU – Troubleshooting P.54A-678).
NO : Go to Step 8.

STEP 8. Check the service data log for the MMCS service mode.

(1) Display the service data log for the MMCS service mode. (Refer to P.54A-437)
(2) Check if the service data log for drive and HDD is displayed.

Q: Is the service data log displayed?

YES (The service data log for drive is displayed.) : Perform Inspection Procedure 8 "CD/DVD cannot be Played."(Refer to P.54A-522.) or Inspection Procedure 9 "Image of a DVD is Played, but no Sound is Played." (Refer to P.54A-523.) Go to Step 9.
YES (The service data log for HDD is displayed.) : Abnormalities relating to high or low temperature may be present. Check if the audio visual navigation unit can output the sound at the operable temperature. If it cannot output the sound, go to Step 9.
NO : Go to Step 9.

STEP 9. Perform "Network/Connect Line Check" in the MMCS service mode.

(1) Display "Network/Connect Line Check" in the MMCS service mode. (Refer to P.54A-437)
(2) Check if "DVD Drive OK" is displayed.
(3) Check if "HDD Drive OK" is displayed.

Q: Is the check result normal?

YES : Go to Step 11.
NO : Go to Step 10.

TSB Revision

STEP 10. Retest the system

Check that the audio sound is output.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).

NO : Go to step 11.

STEP 11. Retest the system

Temporarily replace the audio visual navigation unit and check if the sound is output.

Q: Is the check result normal?

YES : Replace the audio visual navigation unit.

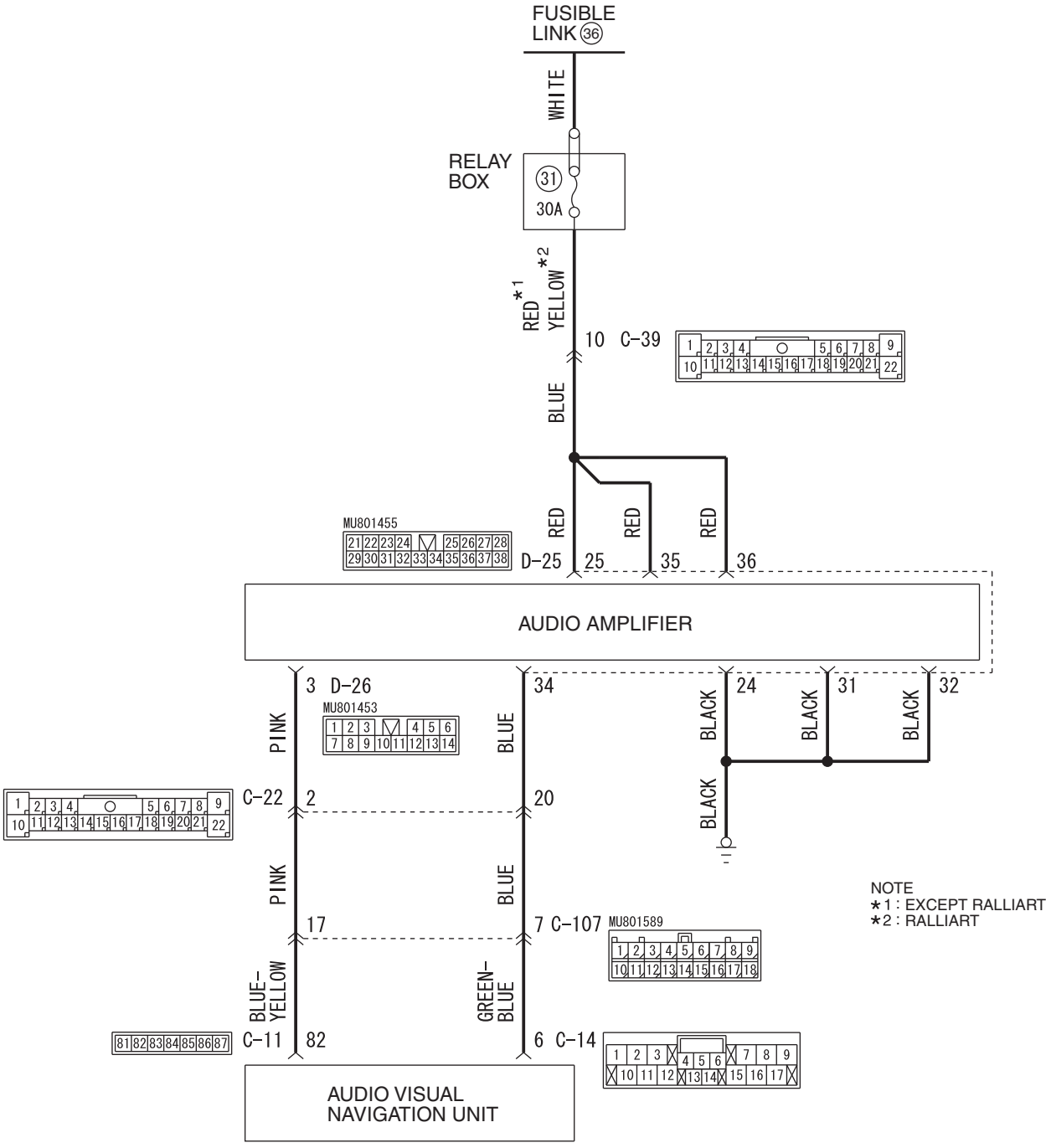
NO : Perform Inspection Procedure 3 "No sound is heard from one of the speakers. <Vehicles without audio amplifier>" (Refer to P.54A-497.)

Inspection Procedure 2: No Sound is Heard. <Vehicles with Audio Amplifier>

⚠ CAUTION

Before replacing the audio visual navigation unit, ensure that the power supply circuit, the ground circuit, and the communication circuit are normal. (Check that the voltage is 10 V or more.)

Audio Visual Navigation System Circuit



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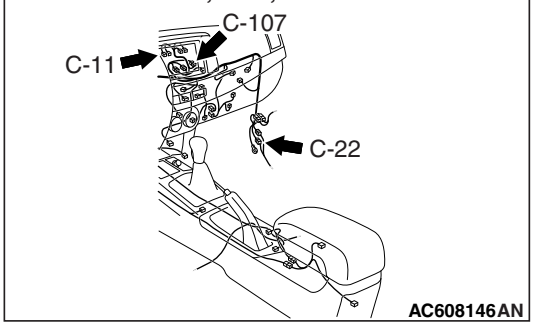
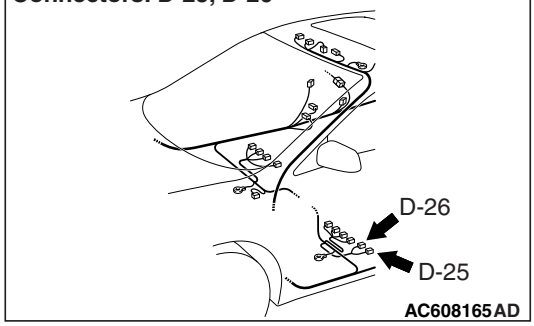
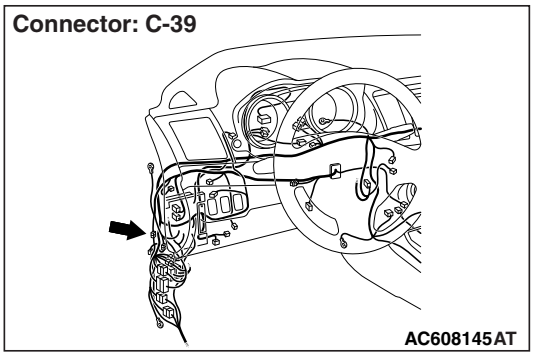
Connectors: C-11, C-22, C-107



Connectors: D-25, D-26



Connector: C-39



COMMENTS ON TROUBLE SYMPTOM

If the audio sound is not output, the audio visual navigation unit, audio amplifier, or power supply circuit of audio amplifier may have a problem, or the option coding information may be inconsistent.

PROBABLE CAUSES

- Malfunctions of audio visual navigation unit
- Malfunction of audio amplifier
- Option coding information inconsistency
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Check the audio visual navigation unit operation.

Q: Check the sources from which the sound is not output.

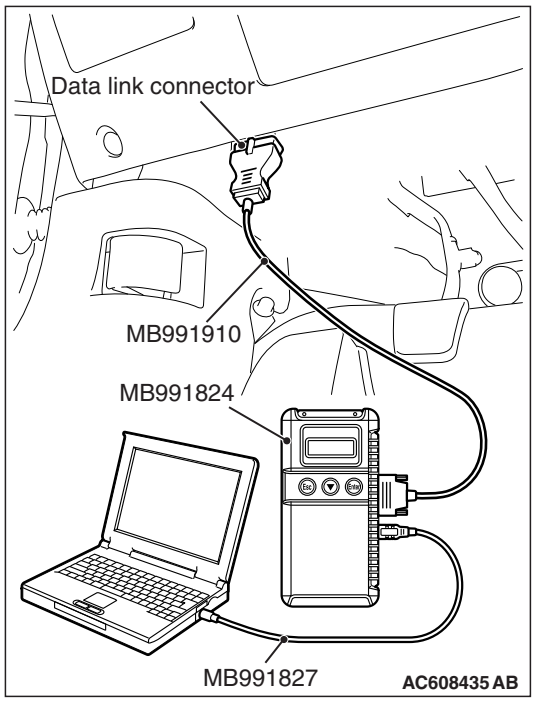
No sound only from radio : Perform Inspection Procedure 6 "The AM/FM Radio Broadcasting cannot be Received." (Refer to P.54A-519.)

No sound only when the CD is played : Perform Inspection Procedure 8 "CD/DVD cannot be Played." (Refer to P.54A-522.)

No sound only when the DVD is played : Perform Inspection Procedure 8 "CD/DVD cannot be Played."(Refer to P.54A-522.) or Inspection Procedure 9 "Image of a DVD is Played, but no Sound is Played." (Refer to P.54A-523.)

No sound only when the music server is used : Go to Step 8.

No sound from any of the sources : Go to Step 2.



STEP 2. Check the ETACS-ECU coding data.

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to "ON" position.
(3) Operate the scan tool MB991958 to read the ETACS-ECU option coding information (Refer to GROUP 00, Coding Table P.00-33).
(4) Check that the "Number of speaker" is set to "Premium."

Q: Is the check result normal?

YES : Go to Step 3.
NO : Operate scan tool MB991958 to set the option coding "Number of speaker" to "Premium," and check the trouble symptom.

STEP 3. Check the MMCS service mode, CAN communication confirmation, and coding data.

(1) Display the CAN Communication Confirmation and Coding Data of the MMCS service mode. (Refer to P.54A-437)
(2) Check if PREMIUM is displayed.

Q: Is the check result normal?

YES : Go to step 4.
NO : Go to step 5.

STEP 4. Check the service data log for the MMCS service mode.

With the service data log of MMCS service mode displayed, check if the service data log for SP (speaker) is displayed. (Refer to P.54A-437)

Q: Is the service data log for SP (speaker) displayed?

YES : Go to step 5.
NO : Go to step 8.

STEP 5. Using scan tool MB991958, diagnose the CAN bus line.

Use scan tool MB991958 to diagnose the CAN bus lines.
(1) Turn the ignition switch to "ON" position.
(2) Diagnose the CAN bus line.

Q: Is the check result normal?

YES : Go to Step 6.
NO : Repair the CAN bus line.

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STEP 6. Using scan tool MB991958, read the CAN box unit diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.

Q: Is the DTC set?

YES : Troubleshoot the MMCS (Refer to P.54A-452).
NO : Go to Step 7.

STEP 7. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.
Check if the diagnostic trouble code is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to GROUP 54A – ETACS-ECU – Troubleshooting P.54A-678).
NO : Go to Step 8.

STEP 8. Check the service data log for the MMCS service mode.
(1) Display the service data log for the MMCS service mode. (Refer to P.54A-437)
(2) Check if the service data log for drive and HDD is displayed.

Q: Is the service data log displayed?

YES (The service data log for drive is displayed.) : Perform Inspection Procedure 8 "CD/DVD cannot be Played."(Refer to P.54A-522.) or Inspection Procedure 9 "Image of a DVD is Played, but no Sound is Played." (Refer to P.54A-523.) Go to Step 9.
YES (The service data log for HDD is displayed.) : Abnormalities relating to high or low temperature may be present. Check if the audio visual navigation unit can output the sound at the operable temperature. If it cannot output the sound, go to Step 9.
YES (The service data log for AMP is displayed.) : Go to Step 9.
NO : Go to Step 9.

STEP 9. Perform "Network/Connect Line Check" in the MMCS service mode.
(1) Display "Network/Connect Line Check" in the MMCS service mode. (Refer to P.54A-437)
(2) Check if "DVD Drive OK" is displayed.
(3) Check if "HDD Drive OK" is displayed.
(4) Check if "Premium Audio OK" is displayed.

Q: Is the check result normal?

YES : Go to Step 15.
NO : Go to Step 10.

STEP 10. Check audio amplifier connector D-25 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-25 in good condition?

YES : Go to Step 11.

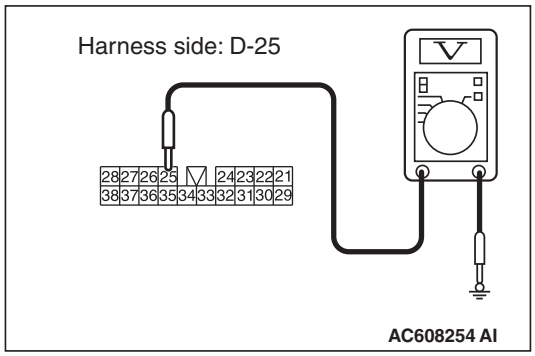
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 11. Check the power supply circuit to the ETACS-ECU. Measure the voltage at audio amplifier connector D-25.

(1) Disconnect audio amplifier connector D-25, and measure the voltage available at the wiring harness-side connector.

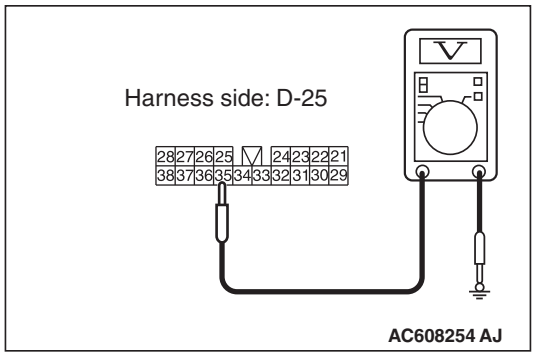
(2) Measure the voltage between terminal 25 and ground.

OK: The voltage should measure approximately 12 volts (battery positive voltage).



(3) Measure the voltage between terminal 35 and ground.

OK: The voltage should measure approximately 12 volts (battery positive voltage).



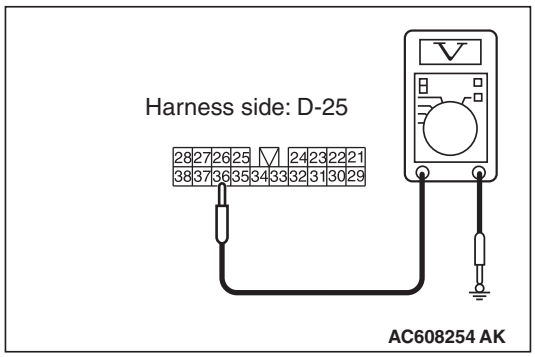
(4) Measure the voltage between terminal 36 and ground.

OK: The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 13.

NO : Go to Step 12.



STEP 12. Check the wiring harness between audio amplifier connector D-25 (terminal 25, 35, 36) and fusible link (36).

NOTE: Also check intermediate connector C-39 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-39 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- Check the power supply lines for open circuit and short circuit.

Q: Is the wiring harness between audio amplifier connector D-25 (terminal 25, 35, 36) and fusible link (36) in good condition?

YES : Go to Step 13.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 13. Check audio visual navigation unit connector C-11, C-14 and audio amplifier connector D-26 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-11, C-14 and audio amplifier connector D-26 in good condition?

YES : Go to Step 14.

NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 14. Check the wiring harness between audio visual navigation unit connector C-11 (terminal 82) and audio amplifier connector D-26 (terminal 3), wiring harness between audio visual navigation unit connector C-14 (terminal 6) and audio amplifier connector D-25 (terminal 34)

NOTE: Also check intermediate connectors C-22 and C-107 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-107 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- Check the communication line for open circuit and short circuit.

Q: Is the wiring harness between audio visual navigation unit connector C-11 (terminal 82) and audio amplifier connector D-26 (terminal 3), wiring harness between audio visual navigation unit connector C-14 (terminal 6) and audio amplifier connector D-25 (terminal 34) in good condition?

YES : Go to Step 15.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 15. Retest the system

Replace the audio amplifier, then check that the audio sound is output.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

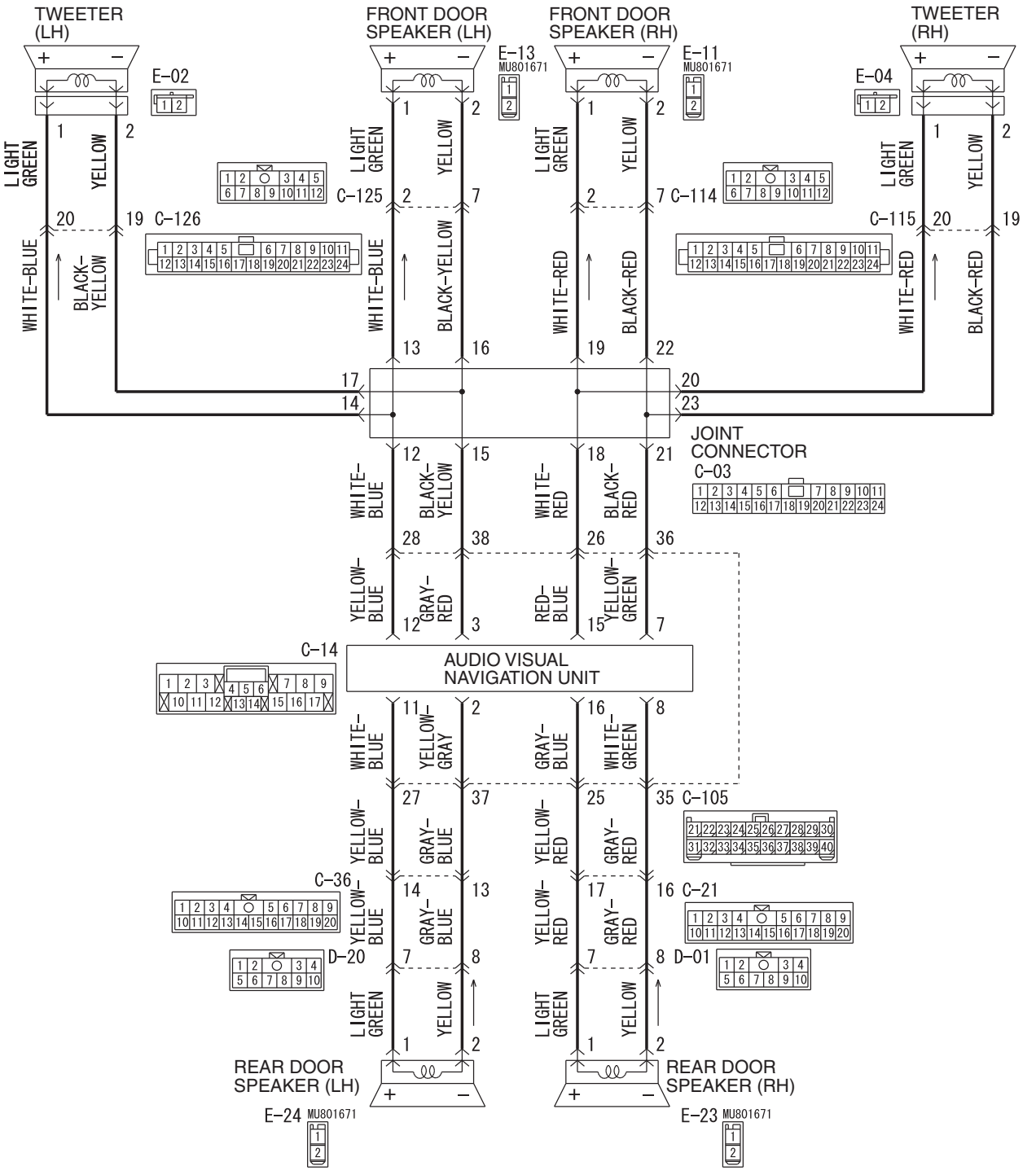
NO : Replace the audio visual navigation unit.

Inspection Procedure 3: No Sound is Heard from one of the Speakers. <Vehicles without Audio Amplifier>

⚠ CAUTION

Before replacing the audio visual navigation unit, ensure that the power supply circuit, the ground circuit, and the communication circuit are normal. (Check that the voltage is 10 V or more.)

Speaker System Circuit



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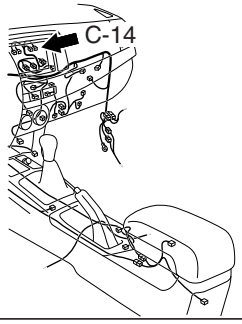
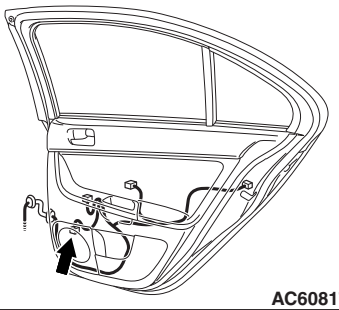
TSB Revision

Connectors: C-14



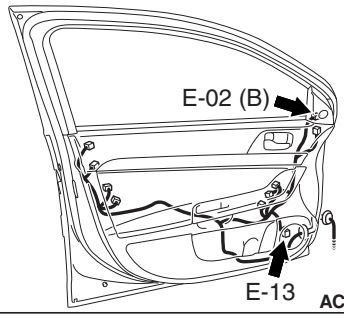
AC608146CG

Connector: E-23



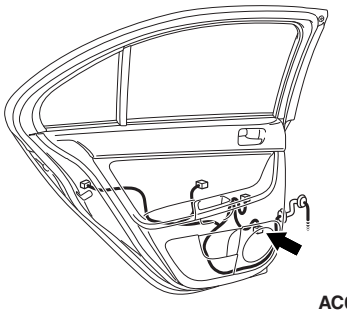
AC608170AB

Connectors: E-02, E-13



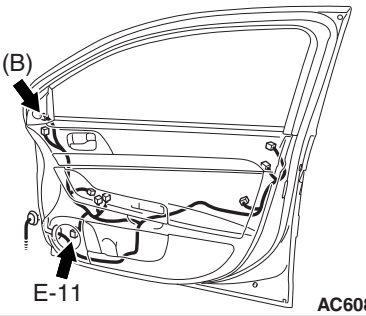
AC608167AB

Connector: E-24



AC608169AB

Connectors: E-04, E-11



AC608168AQ

COMMENTS ON TROUBLE SYMPTOM

If the sound is not heard from one of the speakers, the speaker, audio visual navigation unit, communication line from the audio visual navigation unit to the speaker may have a problem. Also, the option coding information may be inconsistent.

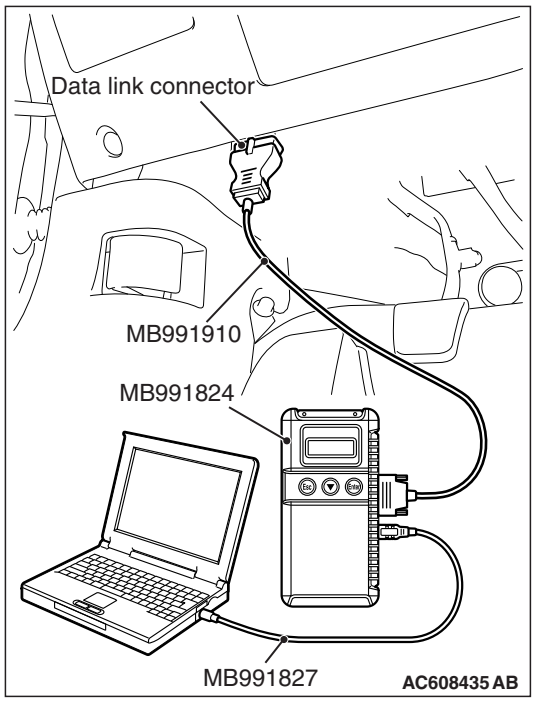
PROBABLE CAUSES

- Malfunction of speaker
- Malfunctions of audio visual navigation unit
- Option coding information inconsistency
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A



STEP 1. Check the ETACS-ECU coding data.

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to "ON" position.
(3) Operate the scan tool MB991958 to read the ETACS-ECU option coding information (Refer to GROUP 00, Coding Table P.00-33).
(4) Check that the "Number of speaker" is set to "6 speakers" or "4 speakers".

Q: Is the check result normal?

YES : Go to Step 2.
NO : Operate scan tool MB991958 to set the option coding "Number of speaker" to "6 speakers" or "4 speaker" and check the trouble symptom.

STEP 2. Check the MMCS service mode, CAN communication confirmation, and coding data.

(1) Display the CAN Communication Confirmation and Coding Data of the MMCS service mode. (Refer to P.54A-437)
(2) Check if "6 SPEAKER (2 TWEETER)" or "4 SPEAKER" is displayed as the number of installed speakers.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Go to Step 4.

STEP 3. Check the service data log for the MMCS service mode.

With the service data log of MMCS service mode displayed, check if the service data log for SP (speaker) is displayed. (Refer to P.54A-437.)

Q: Is the service data log for SP (speaker) displayed?

YES : Go to step 4.
NO : Go to step 7.

STEP 4. Using scan tool MB991958, diagnose the CAN bus line.

Use scan tool MB991958 to diagnose the CAN bus lines.
(1) Turn the ignition switch to "ON" position.
(2) Diagnose the CAN bus line.

Q: Is the check result normal?

YES : Go to step 5.
NO : Repair the CAN bus line.

STEP 5. Using scan tool MB991958, read the CAN box unit diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

Q: Is the DTC set?

YES : Troubleshoot the MMCS (Refer to P.54A-452).
NO : Go to Step 6.

STEP 6. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

Check if the diagnostic trouble code is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to GROUP 54A – ETACS-ECU – Troubleshooting P.54A-678).
NO : Go to Step 7.

STEP 7. Checking with audio speaker check

Perform the audio speaker check, and check which speaker does not output the sound (Refer to P.54A-437).

NOTE: In the following procedure, check the speaker or tweeter that is abnormal.

Q: Is the check result normal?

YES (normal for all) : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).
NO (abnormal for all) : Check the audio visual navigation unit power supply and ground circuit, and repair if necessary. If the audio visual navigation unit power supply and ground circuit is normal, replace the audiovisual navigation unit.
NO (Either a speaker is abnormal) : Go to Step 8.

STEP 8. Check door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-23 <rear-LH> or E-24 <rear-RH>, or tweeter connector E-02 <LH> or E-04 <RH> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-23 <rear-LH> or E-24 <rear-RH>, or tweeter connector E-02 <LH> or E-04 <RH> in good condition?

YES : Go to Step 9.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 9. Check the speaker or tweeter.

(1) Remove the speaker or tweeter (Refer to P.54A-631).
(2) Check that the speaker or tweeter outputs the noise when the voltage of 5 V is applied to the speaker or tweeter connector terminal.

Q: Does the speaker or tweeter output the noise?

YES : Go to Step 10.
NO : Replace the speaker or tweeter.

STEP 10. Check audio visual navigation unit connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-14 in good condition?

YES : Go to Step 11.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 11. Check the wiring harness between the speaker or tweeter connector terminal and the audio visual navigation unit connector terminal.

Check the communication lines for open circuit and short circuit.

- <Front door speaker (LH)> Check the wiring harness between front door speaker (LH) connector E-13 (terminal 1, 2) and audio visual navigation unit connector C-14 (terminal 12, 3).

  NOTE: Also check intermediate connectors C-125 and C-105, joint connector C-03 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-125 or C-105, joint connector C-03 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Front door speaker (RH)> Check the wiring harness between front door speaker (RH) connector E-11 (terminal 1, 2) and audio visual navigation unit connector C-14 (terminal 15, 7).

  NOTE: Also check intermediate connectors C-114 and C-105, joint connector C-03 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-114 and C-105, joint connector C-03 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (LH)> Check the wiring harness between rear door speaker (LH) connector E-24 (terminal 1, 2) and audio visual navigation unit connector C-14 (terminal 11, 2).

  NOTE: Also check intermediate connectors D-20, C-105 and C-36 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-20, C-105 and C-36 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (RH)> Check the wiring harness between rear door speaker (RH) connector E-23 (terminal 1, 2) and audio visual navigation unit connector C-14 (terminal 16, 8).

  NOTE: Also check intermediate connectors C-21, D-01 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-21, D-01 and C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Tweeter (LH)> Check the wiring harness between tweeter (LH) connector E-02 (terminal 2, 1) and audio visual navigation unit connector C-14 (terminal 12, 3).

  NOTE: Also check intermediate connectors C-126 and C-105, joint connector C-03 for loose, corroded, or dam-

aged terminals, or terminals pushed back in the connector. If intermediate connector C-126 or C-105, joint connector C-03 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- <Tweeter (RH)> Check the wiring harness between tweeter (RH) connector E-04 (terminal 2, 1) and audio visual navigation unit connector C-14 (terminal 15, 7).

  NOTE: Also check intermediate connectors C-115 and C-105, joint connector C-03 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-115 and C-105, joint connector C-03 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between the speaker or tweeter connector terminal and the audio amplifier connector terminal in good condition?

YES : Go to Step 12.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 12. Replace the audio visual navigation unit temporarily, and check the trouble symptom.

Replace the audio visual navigation unit temporarily, and check that the sound is output from the speaker.

Q: Is the check result normal?

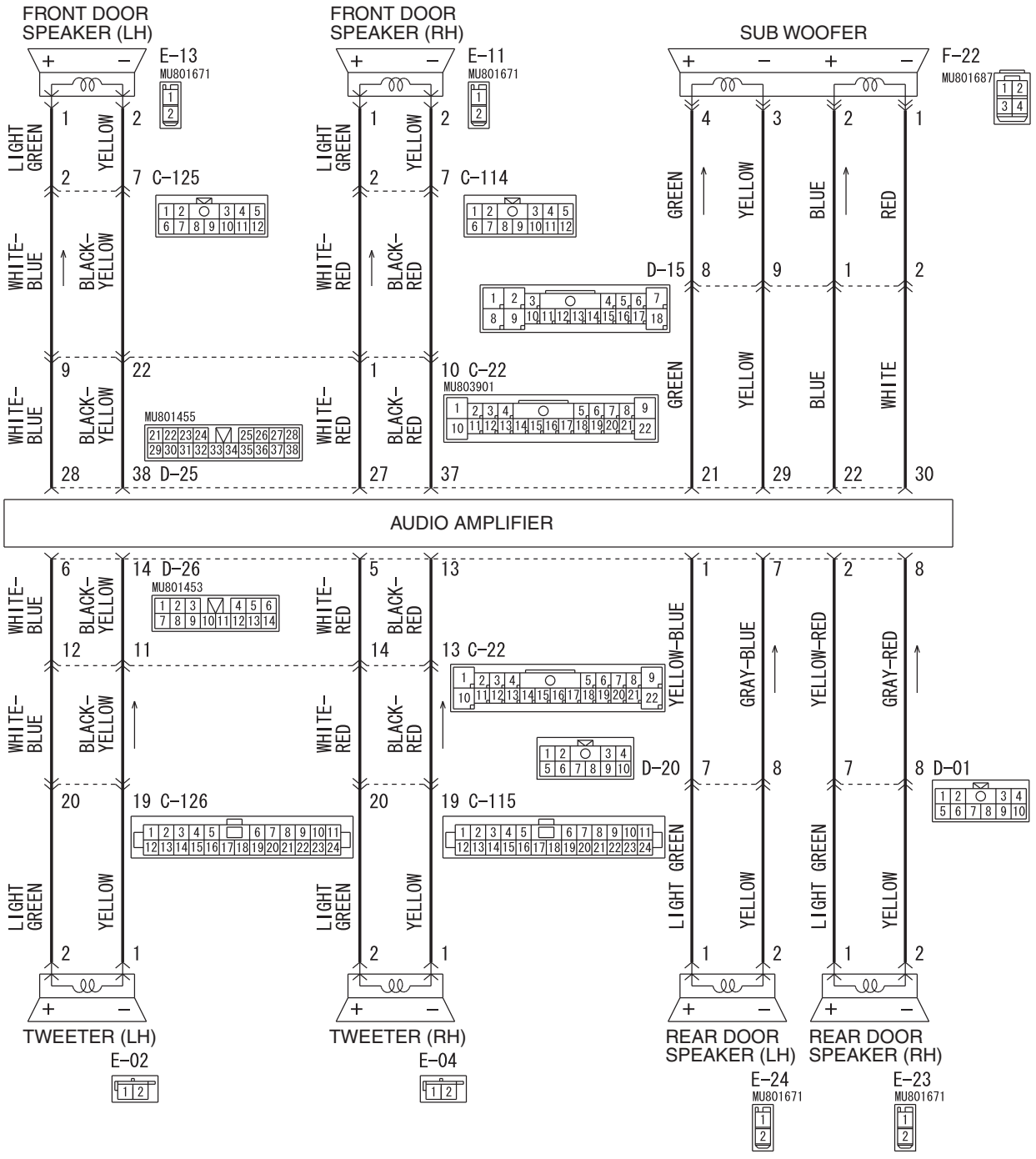
YES : Replace the audio visual navigation unit.
NO : Replace the speaker or tweeter of output not sound.

Inspection Procedure 3: No Sound is Heard from one of the Speakers. <Vehicles with Audio Amplifier>

⚠ CAUTION

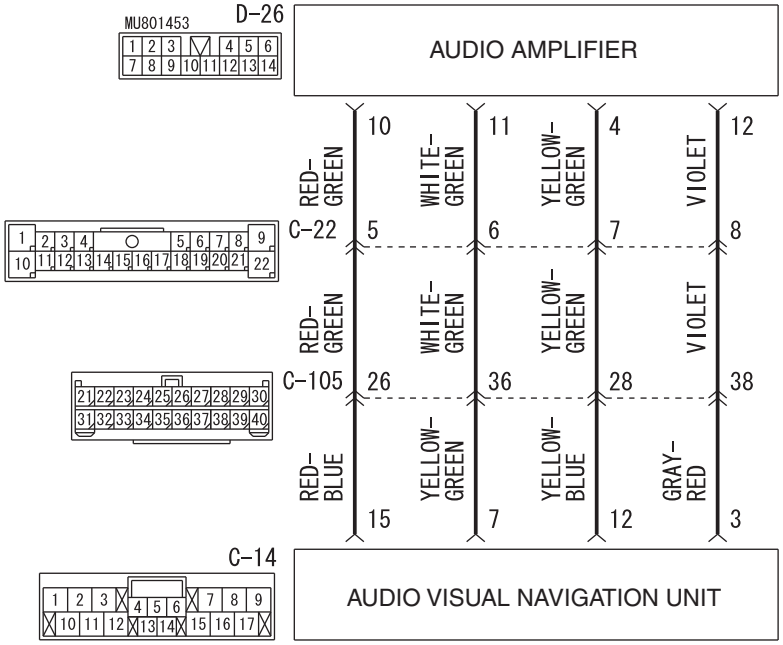
Before replacing the ECU, ensure that the power supply circuit, the ground circuit, and the communication circuit are normal. (Check that the voltage is 10 V or more.)

Speaker System Circuit



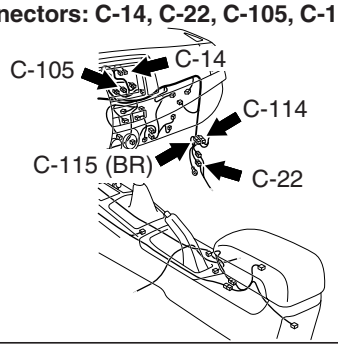
WAH54M013A

TSB Revision



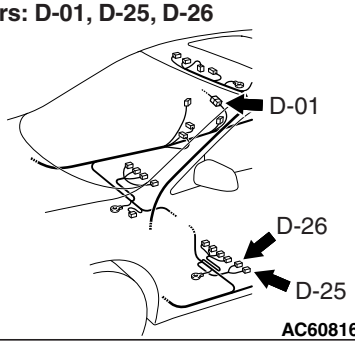
WAH54M014A

Connectors: C-14, C-22, C-105, C-114, C-115



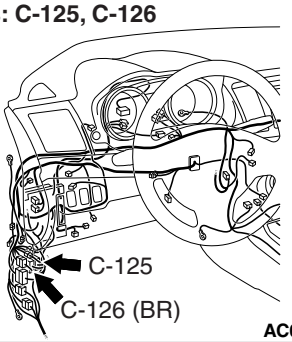
AC608146AP

Connectors: D-01, D-25, D-26



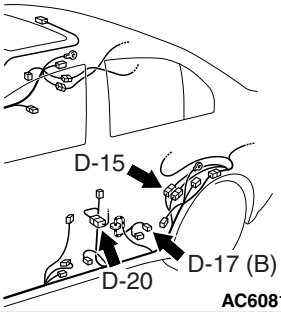
AC608165AF

Connectors: C-125, C-126



AC608145AR

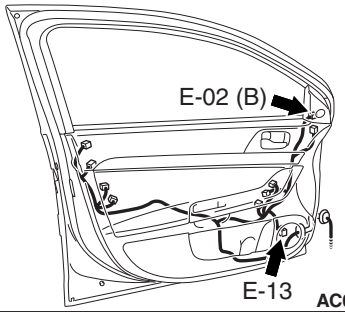
Connectors: D-15, D-17, D-20



AC608166AD

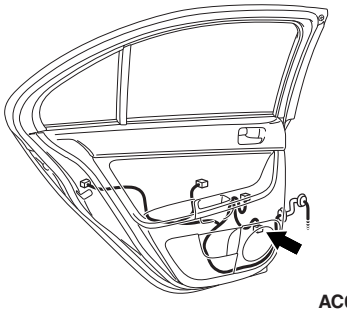
TSB Revision

Connectors: E-02, E-13



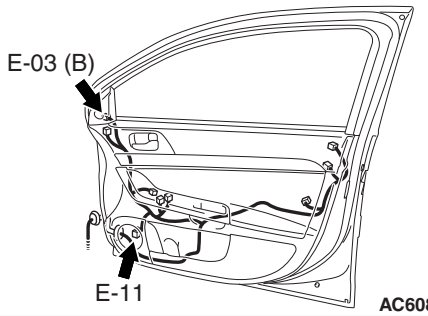
AC608167 AB

Connector: E-24



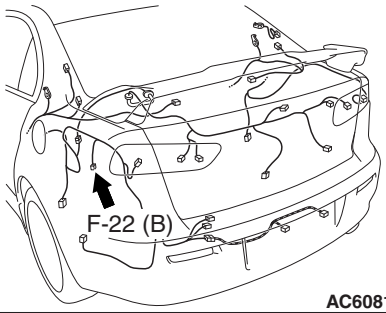
AC608169 AB

Connectors: E-03, E-11



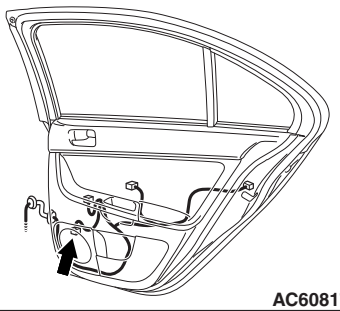
AC608168 AB

Connector: F-22



AC608171 AB

Connector: E-23



AC608170 AB

COMMENTS ON TROUBLE SYMPTOM

If the sound is not heard from one of the speakers, the speaker, audio visual navigation unit, audio amplifier, communication line from the audio visual navigation unit to the audio amplifier, or communication line from the audio amplifier to the speaker may have a problem. Also, the option coding information may be inconsistent.

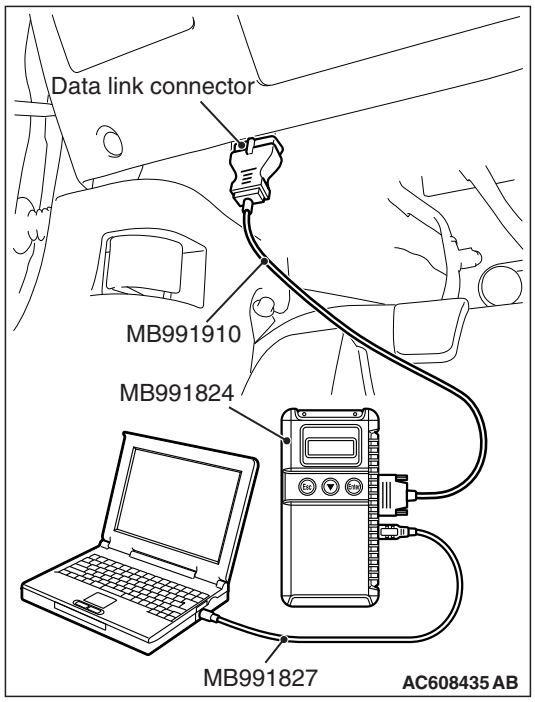
PROBABLE CAUSES

- Malfunction of speaker
- Malfunctions of audio visual navigation unit
- Malfunction of audio amplifier
- Option coding information inconsistency
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A



STEP 1. Check the ETACS-ECU coding data.

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-450."
(2) Turn the ignition switch to "ON" position.
(3) Operate the scan tool MB991958 to read the ETACS-ECU option coding information (Refer to GROUP 00, Coding Table P.00-33).
(4) Check that the "Number of speaker" is set to "Premium."

Q: Is the check result normal?

YES : Go to Step 2.
NO : Operate scan tool MB991958 to set the option coding "Number of speaker" to "Premium," and check the trouble symptom.

STEP 2. Check the MMCS service mode, CAN communication confirmation, and coding data.

(1) Display the CAN Communication Confirmation and Coding Data of the MMCS service mode. (Refer to P.54A-437)
(2) Check if PREMIUM is displayed.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Go to Step 4.

STEP 3. Check the service data log for the MMCS service mode.

With the service data log of MMCS service mode displayed, check if the service data log for SP (speaker) is displayed. (Refer to P.54A-437.)

Q: Is the service data log for SP (speaker) displayed?

YES : Go to step 4.
NO : Go to step 7.

STEP 4. Using scan tool MB991958, diagnose the CAN bus line.

Use scan tool MB991958 to diagnose the CAN bus lines.
(1) Turn the ignition switch to "ON" position.
(2) Diagnose the CAN bus line.

Q: Is the check result normal?

YES : Go to step 5.
NO : Repair the CAN bus line.

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STEP 5. Using scan tool MB991958, read the CAN box unit diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.

Q: Is the DTC set?

YES : Troubleshoot the MMCS (Refer to P.54A-452).
NO : Go to Step 6.

STEP 6. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.
Check if the diagnostic trouble code is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to GROUP 54A – ETACS-ECU – Troubleshooting P.54A-678).
NO : Go to Step 7.

STEP 7. Checking with audio speaker check
Perform the audio speaker check, and check which speaker does not output the sound (Refer to P.54A-437).

NOTE: In the following procedure, check the speaker, tweeter or subwoofer that is abnormal.

Q: Is the check result normal?

YES (normal for all) : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-14).
NO (abnormal for all) : Refer to Inspection Procedure 2 "No sound is heard" P.54A-490.
NO (Either a speaker, a tweeter or a subwoofer is abnormal) : Go to Step 8.

STEP 8. Check door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-23 <rear-LH> or E-24 <rear-RH>, or tweeter connector E-02 <LH> or E-04 <RH>, or subwoofer connector F-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-23 <rear-LH> or E-24 <rear-RH>, or tweeter connector E-02 <LH> or E-04 <RH>, or subwoofer connector F-22 in good condition?

YES : Go to Step 9.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 9. Check the speaker, tweeter or subwoofer.

(1) Remove the speaker, tweeter or subwoofer (Refer to P.54A-631).
(2) Check that the speaker or tweeter outputs the noise when the voltage of 5 V is applied to the speaker or tweeter connector terminal. <speaker or tweeter>
(3) Check that the subwoofer outputs the noise when the voltage of 5 V is applied to the subwoofer connector terminal. <subwoofer>

Q: Does the speaker, tweeter or subwoofer output the noise?

YES : Go to Step 10.
NO : Replace the speaker, tweeter or subwoofer.

STEP 10. Check audio amplifier connector D-125 <front door speaker or sub woofer> or D-126 <tweeter or rear door speaker> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-125 <front door speaker or sub woofer> or D-126 <tweeter or rear door speaker> in good condition?

YES : Go to Step 11.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 11. Check the wiring harness between the speaker or tweeter connector terminal and the audio amplifier connector terminal.

Check the communication lines for open circuit and short circuit.

- <Front door speaker (LH)> Check the wiring harness between front door speaker (LH) connector E-13 (terminal 1, 2) and audio amplifier connector D-25 (terminal 28, 38).

  NOTE: Also check intermediate connectors C-22 and C-125 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-125 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Front door speaker (RH)> Check the wiring harness between front door speaker (RH) connector E-11 (terminal 1, 2) and audio amplifier connector D-25 (terminal 27, 37).

  NOTE: Also check intermediate connectors C-22 and C-114 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-114 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (LH)> Check the wiring harness between rear door speaker (LH) connector E-24 (terminal 1, 2) and audio amplifier connector D-26 (terminal 1, 7).

  NOTE: Also check intermediate connector D-20 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-20 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (RH)> Check the wiring harness between rear door speaker (RH) connector E-23 (terminal 1, 2) and audio amplifier connector D-26 (terminal 2, 8).

  NOTE: Also check intermediate connector D-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Tweeter (LH)> Check the wiring harness between tweeter (LH) connector E-02 (terminal 1, 2) and audio amplifier connector D-26 (terminal 14, 6).

  NOTE: Also check intermediate connectors C-22 and C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-126 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Tweeter (RH)> Check the wiring harness between tweeter (RH) connector E-04 (terminal 1, 2) and audio amplifier connector D-26 (terminal 13, 5).

  NOTE: Also check intermediate connectors C-22 and C-115

for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-115 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- <Subwoofer> Check the wiring harness between subwoofer connector F-22 (terminal 1, 2, 3, 4) and audio amplifier connector D-25 (terminal 30, 22, 29, 21).

  NOTE: Also check intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between the speaker, tweeter or subwoofer connector terminal and the audio amplifier connector terminal in good condition?

YES <front door speaker> : Go to Step 12.
YES <except front door speaker> : Go to Step 14.
NO (harness wire is abnormal) : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 12. Check audio visual navigation unit connector D-26 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector D-26 in good condition?

YES : Go to Step 13.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 13. Check the wiring harness between audio visual navigation unit connector C-14 (terminal 3, 7, 12, 15) and audio amplifier connector D-26 (terminal 12, 11, 4, 10).

- Check the communication lines for open circuit and short circuit.

NOTE: Also check intermediate connectors C-22 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between audio visual navigation unit connector C-14 (terminal 3, 7, 12, 15) and audio amplifier connector D-26 (terminal 12, 11, 4, 10) in good condition?

YES : Check the trouble symptom, go to Step 14.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 14. Replace the audio amplifier temporarily, and check the trouble symptom.

Replace the audio amplifier temporarily, and check that the sound is output from the speaker.

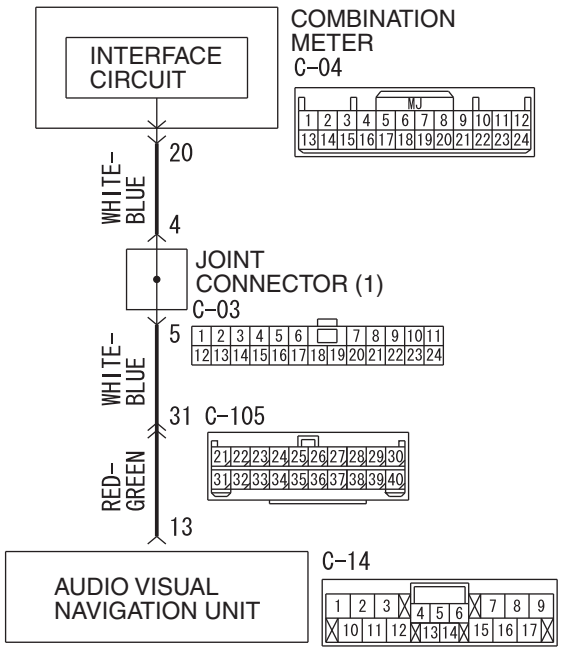
Q: Is the check result normal?

YES : Replace the audio amplifier.
NO : Replace the audio visual navigation unit.

Inspection Procedure 4: The Navigation System can be Operated while the Vehicle is Driven.

⚠ CAUTION
Before replacing the audio visual navigation unit, ensure that the power supply circuit, the ground circuit, and the communication circuit are normal. (Check that the voltage is 10 V or more.)

Audio Visual Navigation Unit Communication Circuit



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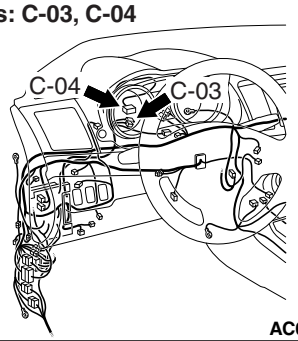
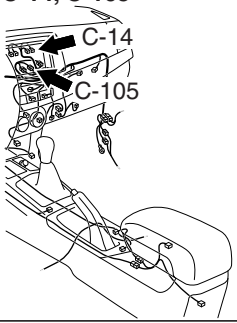
Connectors: C-03, C-04



AC608145AV

Connectors: C-14, C-105



AC608146AQ

COMMENTS ON TROUBLE SYMPTOM

There is a failure in the wiring harness between the combination meter and the audio visual navigation unit, the respective connector(s), the combination meter or the audio visual navigation unit.

PROBABLE CAUSES

- Malfunctions of combination meter
- Malfunctions of audio visual navigation unit
- Damaged harness wires and connectors

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DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Perform "Vehicle Signal Check" in the MMCS service mode.

Perform "Vehicle Signal Check" in the MMCS service mode to check whether vehicle speed signal is normal (Refer to P.54A-437).

Q: Is the vehicle speed signal transmitted normally?

YES : Replace the audio visual navigation unit.
NO : Go to Step 2.

STEP 2. Check the speed meter.

Check whether the speed meter works normally. (Refer to P.54A-112.)

Q: Does the speed meter work normally?

YES : Go to Step 3.
NO : Diagnose the combination meter (Refer to Combination meter – Troubleshooting P.54A-72).

STEP 3. Check combination meter connector C-04 and audio visual navigation unit connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-04 and audio visual navigation unit connector C-14 in good condition?

YES : Go to Step 4.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 4. Check the wiring harness between combination meter connector C-04 (terminal 20) and audio visual navigation unit connector C-14 (terminal 13).

- Check the communication line for open circuit and short circuit.

NOTE: Also check joint connector C-03 and intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 or intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector C-04 (terminal 20) and audio visual navigation unit connector C-14 (terminal 13) in good condition?

YES : Go to Step 5.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 5. Substitute a known good audio visual navigation unit, and check the trouble symptom.

Check that no menus are active during driving.

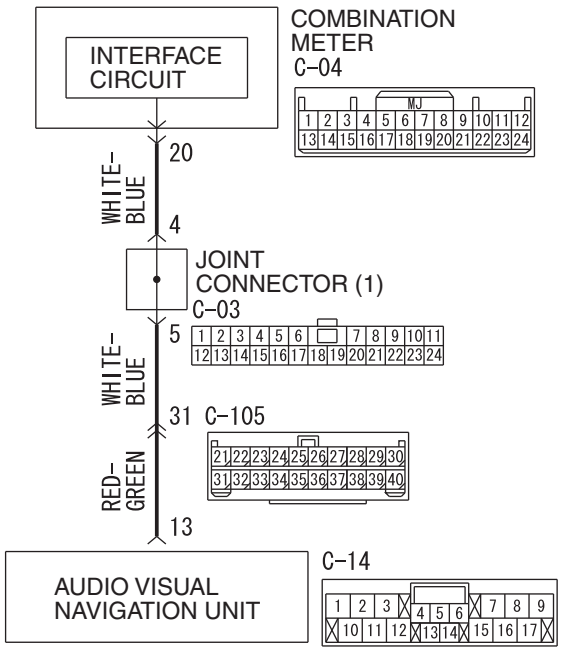
Q: Is the check result normal?

YES : Replace the audio visual navigation unit.
NO : Replace the combination meter.

Inspection Procedure 5: The Screen is not Normal in the Navigation Mode.

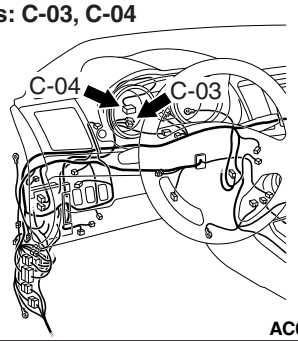
⚠ CAUTION
Before replacing the audio visual navigation unit, ensure that the power supply circuit, the ground circuit, and the communication circuit are normal. (Check that the voltage is 10 V or more.)

Audio Visual Navigation Unit Communication Circuit



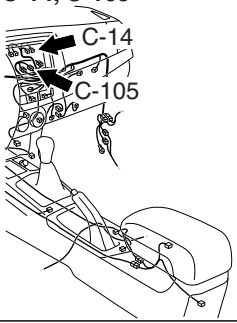
W9H54M044A

Connectors: C-03, C-04



AC608145AV

Connectors: C-14, C-105



AC608146AQ

COMMENTS ON TROUBLE SYMPTOM

There is a failure in the wiring harness between the combination meter and the audio visual navigation unit, the GPS antenna, the respective connector(s), the combination meter or the audio visual navigation unit.

PROBABLE CAUSES

- Malfunctions of GPS antenna
- Malfunctions of combination meter
- Malfunctions of audio visual navigation unit
- Damaged harness wires and connectors

TSB Revision

DIAGNOSIS

Required Special Tools:
- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Confirmation in MMCS service mode
Check the items below in the MMCS service mode. (Refer to P.54A-437.)
- Perform "Network/Connect Line Check" in the MMCS service mode to check that the communication and wire connection with the GPS are in good condition.
- Perform "Vehicle Signal Check", and then check the status of the vehicle speed signal.
- Perform "Sensor Check", and then check the status of the vehicle speed sensor and the gyro sensor.

Q: Is the check result normal?

YES (OK for all) : Go to Step 7.
NO <GPS is not OK> : Go to Step 2.
NO <The vehicle speed sensor is not OK, or vehicle speed pulse does not increase after starting from a standstill> : Go to Step 4.
NO <Gyro sensor is not OK> : Go to Step 7.

STEP 2. Check the fit of the GPS antenna cable.
Check whether the GPS antenna cable is connected properly.

Q: Is the GPS antenna cable connected properly?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).
NO : Go to Step 3.

STEP 3. Substitute a known good GPS antenna, and then check whether it works normally.

Q: Is the check result normal?

YES : Replace the GPS antenna.
NO : Go to Step 7.

STEP 4. Check the speed meter.
Check whether the speed meter works normally.

Q: Does the speedometer work normally?

YES : Go to Step 5.
NO : Diagnose the combination meter (Refer to Combination meter – Diagnosis P.54A-72).

STEP 5. Check combination meter connector C-04 and audio visual navigation unit connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-04 and audio visual navigation unit connector C-14 in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 6. Check the wiring harness between combination meter connector C-04 (terminal 20) and audio visual navigation unit connector C-14 (terminal 13).

- Check the communication line for open circuit and short circuit.

NOTE: Also check joint connector C-03 and intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 or intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector C-04 (terminal 20) and audio visual navigation unit connector C-14 (terminal 13) in good condition?

YES : Go to Step 7.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 7. Substitute a known good audio visual navigation unit, and check the trouble symptom.

Check whether the navigation screen is normal.

Q: Is the navigation screen normal?

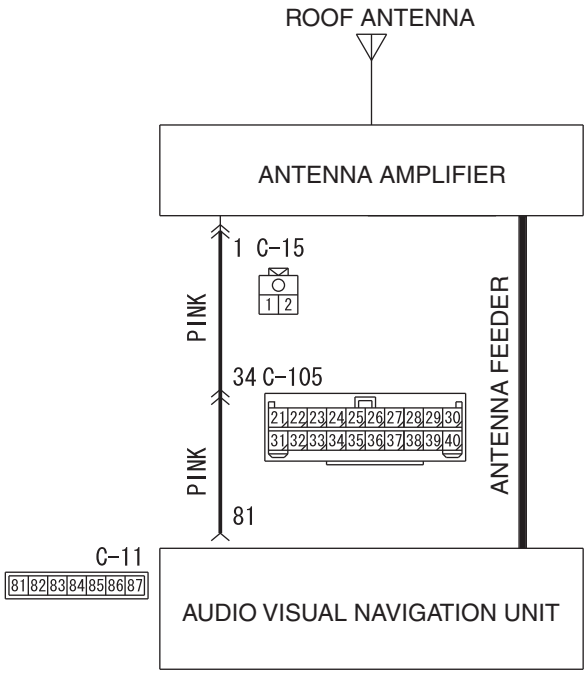
YES : Replace the audio visual navigation unit.

NO : Replace the combination meter.

Inspection Procedure 6: The AM/FM Radio Broadcasting Cannot be Received.

⚠ CAUTION
Before replacing the audio visual navigation unit, ensure that the power supply circuit, the ground circuit, and the communication circuit are normal. (Check that the voltage is 10 V or more.)

Antenna Circuit



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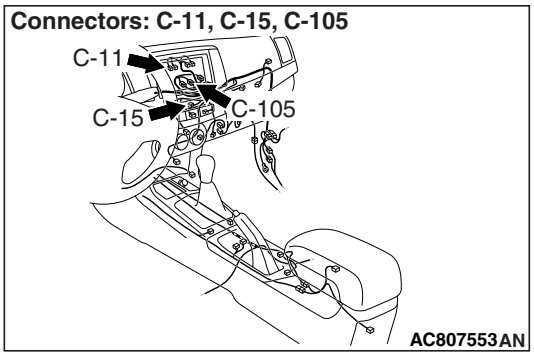

TECHNICAL DESCRIPTION (COMMENT)

In case of AM/FM radio broadcasting cannot be received., the roof antenna (antenna rod, antenna base), antenna fender or audio visual navigation unit may have a problem.

NOTE: The radio wave may not be received if the vehicle is placed in the area which is exposed to a special electric field. Thus, check that the radio broadcasting can be received using the radio of another vehicle before carrying out diagnosis.

TROUBLESHOOTING HINTS

- Malfunction of roof antenna (antenna rod, antenna base)
- Antenna feeder malfunction
- Malfunctions of audio visual navigation unit
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

STEP 1. Check the state of the antenna rod and antenna base.

Q: Is the roof antenna assembled?
YES : Go to Step 2.
NO : Assemble antenna rod and antenna base.

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STEP 2. Check to see if inspections are taking place is an area exposed to special electric fields.

Q: Is the reception area exposed to special electric fields?
YES : Go to Step 3.
NO : Go to Step 4.

STEP 3. Move the vehicle and check the radio.
Move the vehicle to a good reception area that is not exposed to special electric fields.

Q: Is the check result normal?
YES : Diagnosis complete.
NO : Go to Step 4.

STEP 4. Check damage in the roof antenna (the antenna rod, the antenna base).

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace antenna rod or antenna base.

STEP 5. Check the connection of the antenna plug and audio visual navigation unit.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Replace the antenna rod, antenna base and antenna fender.

STEP 6. Check audio visual navigation unit connector C-11 and radio antenna connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are audio visual navigation unit connector C-11 and radio antenna connector C-15 in good condition?
YES : Go to Step 7.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 7. Check the wiring harness between audio visual navigation unit connector C-11 (terminal 81) and radio antenna connector C-15 (terminal 1).

- Check the communication line for open circuit and short circuit.

NOTE: Also check intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between audio visual navigation unit connector C-11 (terminal 81) and radio antenna connector C-15 (terminal 1) in good condition?
YES : Go to Step 8.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 8. Substitute a known good audio visual navigation unit, and check the trouble symptom.

Q: Is the check result normal?
YES : Replace the audio visual navigation unit.
NO : Either repair or replace the antenna rod and antenna base.

Inspection Procedure 7: GPS signal can not be received.

⚠ CAUTION
Whenever the audio visual navigation unit is replaced, ensure that the power supply circuit and the grounding circuit are normal. (Check that the voltage is 10 V or more.)

COMMENTS ON TROUBLE SYMPTOM

The GPS antenna or the audio visual navigation unit may be defective.

PROBABLE CAUSES

- The GPS antenna may be defective
- The audio visual navigation unit may be defective

DIAGNOSIS

STEP 1. Confirmation in MMCS service mode
Perform "Network/Connect Line Check" in the MMCS service mode to check that the communication and wire connection with the GPS antenna are OK. (Refer to P.54A-437.)

Q: Is the check result normal?

YES : Go to Step 2.
NO : Check that the GPS antenna is correctly connected to the audio visual navigation unit, and go to Step 2.

STEP 2. Check for the vehicle's current position.
Check that the vehicle is parked at the place without the shield.

Q: Is the vehicle parked on the place without the shield?

YES : Go to Step 3.
NO : Move the vehicle to the place without the shield.

STEP 3. Confirming GPS signal reception
(1) Activate the audio visual navigation unit.
(2) Press the [INFO] button.
(3) Select [Vehicle Position].
(4) Wait for 5 minutes, and then check whether GPS signal can be received.

Q: Can GPS signal be received?

YES : The procedure is complete. (There is no failure)
NO : Go to Step 4.

STEP 4. Substitute a known good audio visual navigation unit, and check the trouble symptom.
(1) Temporarily replace the audio visual navigation unit.
(2) Activate the audio visual navigation unit.
(3) Press the [INFO] button.
(4) Select [Vehicle Position].
(5) Check if the GPS signals are being received after 5 minutes have elapsed.

Q: Is the check result normal?

YES : Replace the audio visual navigation unit.
NO : Replace the GPS antenna.

Inspection Procedure 8: CD/DVD cannot be played.

⚠ CAUTION
Before replacing the audio visual navigation unit, ensure that the power supply circuit, the ground circuit, and the communication circuit are normal. (Check that the voltage is 10 V or more.)

COMMENTS ON TROUBLE SYMPTOM
The CD/DVD or the audio visual navigation unit may be defective.

PROBABLE CAUSES
- Defective CD/DVD
- The audio visual navigation unit may be defective

DIAGNOSIS

STEP 1. Check the CD/DVD insertion surface.
Check if the CD/DVD is inserted with its correct surface facing upward.

Q: Is the check result normal?
YES : Go to step 2.
NO : Confirm the disc face, and insert it again. (If the disc is single-sided, its label should face up)

STEP 2. Check the CD/DVD.
- Check that the DVD has the correct region code.
- Check if the CD corresponds with the audio visual navigation unit.

Q: Is the check result normal?
YES : Go to step 3.
NO : Use the DVD with a correct region code. Or use the CD which corresponds with the audio visual navigation unit.

STEP 3. Check the CD/DVD.
Check that the CD/DVD is free of dirt or scratch.

Q: Is the check result normal?
YES : Go to step 4.
NO : Clean the disk, use a disk without scratches and burrs, or remove the burrs from the disk. Then, reinsert the disk.

STEP 4. Temporarily replace the CD/DVD with another one, and check the trouble symptom.
Check if another CD/DVD is played normally when it is inserted.

Q: Is the check result normal?
YES : Replace the used CD/DVD.
NO : Go to step 5.

STEP 5. Check the service data log for the MMCS service mode.
(1) Display the service data log for the MMCS service mode. (Refer to P.54A-437.)
(2) Check if the service data log for drive and HDD is displayed.

Q: Is the service data log displayed?
YES (The service data log for drive is displayed.) : Check for foreign materials or condensation. Repair if there is an abnormality, and then go to Step 6.
YES (The service data log for HDD is displayed.) : Abnormalities relating to high or low temperature may be present. Check if the audio visual navigation unit can be played at the operable temperature. If it cannot be played, go to Step 6.
NO : Go to step 6.

STEP 6. Perform "Network/Connect Line Check" in the MMCS service mode.
(1) Display "Network/Connect Line Check" in the MMCS service mode. (Refer to P.54A-437.)
(2) Check if "DVD Drive OK" is displayed.
(3) Check if "HDD Drive OK" is displayed.

Q: Is the check result normal?
YES : Go to step 7.
NO : Replace the audio visual navigation unit.

STEP 7. Retest the system.
Check if the CD/DVD is played normally when it is inserted.

Q: Is the check result normal?
YES : The procedure is complete.
NO : Go to step 8.

STEP 8. Temporarily replace the audio visual navigation unit, and check the trouble symptom.
After temporary replacement of the audio visual navigation unit, check that the CD/DVD is played normally when it is inserted.

Q: Is the check result normal?
YES : Replace the audio visual navigation unit.
NO : Replace the CD/DVD.

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Inspection Procedure 9: Image of a DVD is played, but no sound is played.

⚠ CAUTION
Before replacing the audio visual navigation unit, ensure that the power supply circuit, the ground circuit, and the communication circuit are normal. (Check that the voltage is 10 V or more.)

COMMENTS ON TROUBLE SYMPTOM

The DVD or the audio visual navigation unit may be defective.

PROBABLE CAUSES

- Defective DVD
- The audio visual navigation unit may be defective

DIAGNOSIS

STEP 1. Check whether other sounds are emitted.
Check whether sound other than DVD is emitted.
(1) Check if the sound is output when the music server is used.
(2) Check if the sound is output when the radio is used.
(3) Check if the sound is output when a CD is used.

Q: Is sound other than DVD emitted?
YES : Go to Step 2.
NO : Diagnose the MMCS. (Refer to P.54A-478.)

STEP 2. Check a DVD to be inserted.
Check if the sound is recorded in the DVD, using other DVD players.

Q: Is sound data recorded in the DVD?
YES : Go to Step 3.
NO : Use a DVD containing sound data.

STEP 3. Check the DVD.
Check that the DVD is free of dirt or scratch.

Q: Is the check result normal?
YES : Go to step 4.
NO : Clean the disk, use a disk without scratches and burrs, or remove the burrs from the disk. Then, reinsert the disk.

STEP 4. Temporarily replace the DVD with another DVD, and check the trouble symptom.
Check if the DVD is played normally when it is inserted.

Q: Is the check result normal?
YES : Replace the used DVD.
NO : Go to step 5.

STEP 5. Check the service data log for the MMCS service mode.
(1) Display the service data log for the MMCS service mode. (Refer to P.54A-437.)
(2) Check if the service data log for drive and HDD is displayed.

Q: Is the service data log displayed?
YES (The service data log for drive is displayed.) : Check for foreign materials or condensation. Repair if there is an abnormality, and then go to Step 6.
YES (The service data log for HDD is displayed.) : Abnormalities relating to high or low temperature may be present. Check if the audio visual navigation unit can be played at the operable temperature. If it cannot be played, go to Step 6.
NO : Go to step 6.

STEP 6. Perform "Network/Connect Line Check" in the MMCS service mode.
(1) Display "Network/Connect Line Check" in the MMCS service mode. (Refer to P.54A-437.)
(2) Check if "DVD Drive OK" is displayed.
(3) Check if "HDD Drive OK" is displayed.

Q: Is the check result normal?
YES : Go to step 7.
NO : Go to step 8.

STEP 7. Check the playing method.
Check whether the disk was played normally and not with special playback (fast rewind, fast forward, slow, pause). Also, check whether the mute mode was selected. After that, check if the DVD is played normally when it is inserted.

Q: Is the check result normal?
YES : The procedure is complete.
NO : Go to step 8.

STEP 8. Temporarily replace the audio visual navigation unit, and check the trouble symptom.
After temporary replacement of the audio visual navigation unit, check that the DVD is played normally when it is inserted.

Q: Is the check result normal?
YES : Replace the audio visual navigation unit.
NO : Replace the DVD.

Inspection Procedure 10: Sound of a DVD can be played, but no image is played.

⚠ CAUTION
Whenever the audio visual navigation unit is replaced, ensure that the power supply circuit and the grounding circuit are normal. (Check that the voltage is 10 V or more.)

COMMENTS ON TROUBLE SYMPTOM
The DVD or the audio visual navigation unit may be defective.

PROBABLE CAUSES
- Defective DVD
- The audio visual navigation unit may be defective

DIAGNOSIS

STEP 1. Check the DVD.
Check that the DVD is free of dirt or scratch.

Q: Is the check result normal?
YES : Go to step 2.
NO : Clean the disk, use a disk without scratches and burrs, or remove the burrs from the disk. Then, reinsert the disk.

STEP 2. Temporarily replace the DVD with another DVD, and check the trouble symptom.
Check if the new DVD is played normally when it is inserted.

Q: Is the check result normal?
YES : Replace the used DVD.
NO : Go to step 3.

STEP 3. Check the service data log for the MMCS service mode.
(1) Display the service data log for the MMCS service mode. (Refer to P.54A-437.)
(2) Check that the service data log for drive is displayed.
(3) Check that the service data log for monitor is displayed.
(4) Check that the service data log for HDD is displayed.

Q: Is the service data log displayed?
YES (The service data log for drive is displayed.) : Check for foreign materials or condensation. Repair if there is an abnormality, and then go to Step 4.
YES (The service data log for monitor or HDD is displayed.) : Abnormalities relating to high or low temperature may be present. Check if the DVD image is displayed on the monitor within the temperature range where the navigation and menu screens can be displayed. If the image is not displayed, go to Step 4.
NO : Go to step 4.

STEP 4. Perform "Network/Connect Line Check" in the MMCS service mode.

(1) Display "Network/Connect Line Check" in the MMCS service mode. (Refer to P.54A-437.)
(2) Check if "DVD Drive OK" is displayed.
(3) Check if "HDD Drive OK" is displayed.

Q: Is the check result normal?
YES : Go to step 5.
NO : Replace the audio visual navigation unit.

STEP 5. Temporarily replace the audio visual navigation unit, and check the trouble symptom.

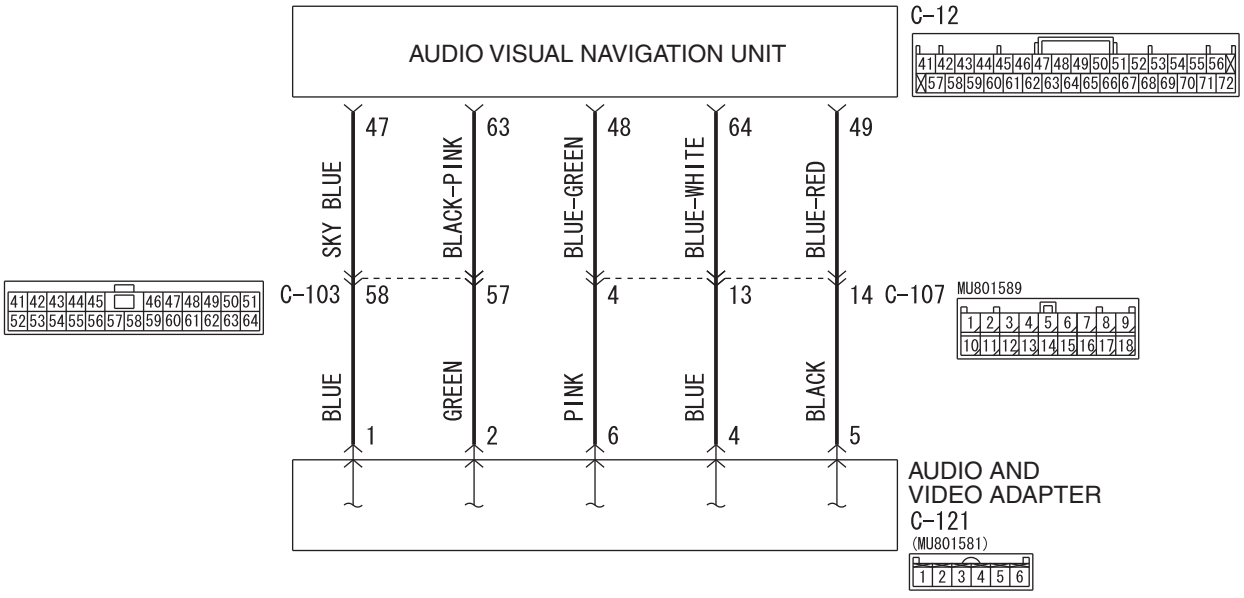
After temporary replacement of the audio visual navigation unit, check if the DVD image is displayed.

Q: Is the check result normal?
YES : Replace the audio visual navigation unit.
NO : Replace the DVD.

Inspection Procedure 11: The picture and sound of external input are not played.

⚠ CAUTION
Whenever the audio visual navigation unit is replaced, ensure that the power supply circuit and the grounding circuit are normal. (Check that the voltage is 10 V or more.)

Audio and Video Adapter Communication Circuit



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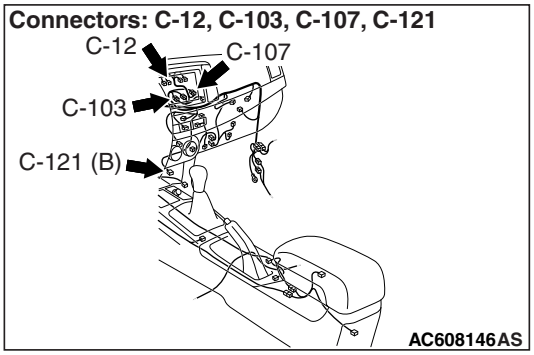


COMMENTS ON TROUBLE SYMPTOM

The wiring harness between audio and video adapter and audio visual navigation unit, audio and video adapter, or audio visual navigation unit may have a problem.

NOTE: Problem of the device to be connected and the connection problem between the audio and video adapter and the device is suspected. Thus, check the operation condition and connecting method of the devices to be connected to the audio visual navigation unit and audio and video adapter before diagnosis.

PROBABLE CAUSES

- The audio visual navigation unit may be defective
- The audio and video adaptor may be defective
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check of DVD picture

Check that the DVD picture is displayed normally.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Perform the troubleshooting related to the MMCS (Refer to P.54A-478).

STEP 2. Check the audio and video adapter.

Inspect the audio and video adapter.(Refer to P.54A-538)

Q: Is the check result normal?

YES : Go to Step 3.
NO : Replace the audio and video adapter.

STEP 3. Check audio navigation unit connector C-12 and audio and video adaptor connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are audio navigation unit connector C-12 and audio and video adaptor connector C-121 in good condition?

YES : Go to Step 4.
NO : Repair the connector concerned.

STEP 4. Check the wiring harness between audio visual navigation unit connector C-12 (terminal 47, 48, 49, 63, 64) and audio and video adaptor connector C-121 (terminal 1, 6, 5, 2, 4).

- Check the communication lines for open circuit and short circuit.

NOTE: Also check intermediate connectors C-103 and C-107 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-103 or C-107 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between audio visual navigation unit connector C-12 (terminal 47, 48, 49, 63, 64) and audio and video adaptor connector C-121 (terminal 1, 6, 5, 2, 4) in good condition?

YES : Go to Step 5.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The system should communicate with the CAN box unit normally.

STEP 5. Retest the system

Check that the external input is normal.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

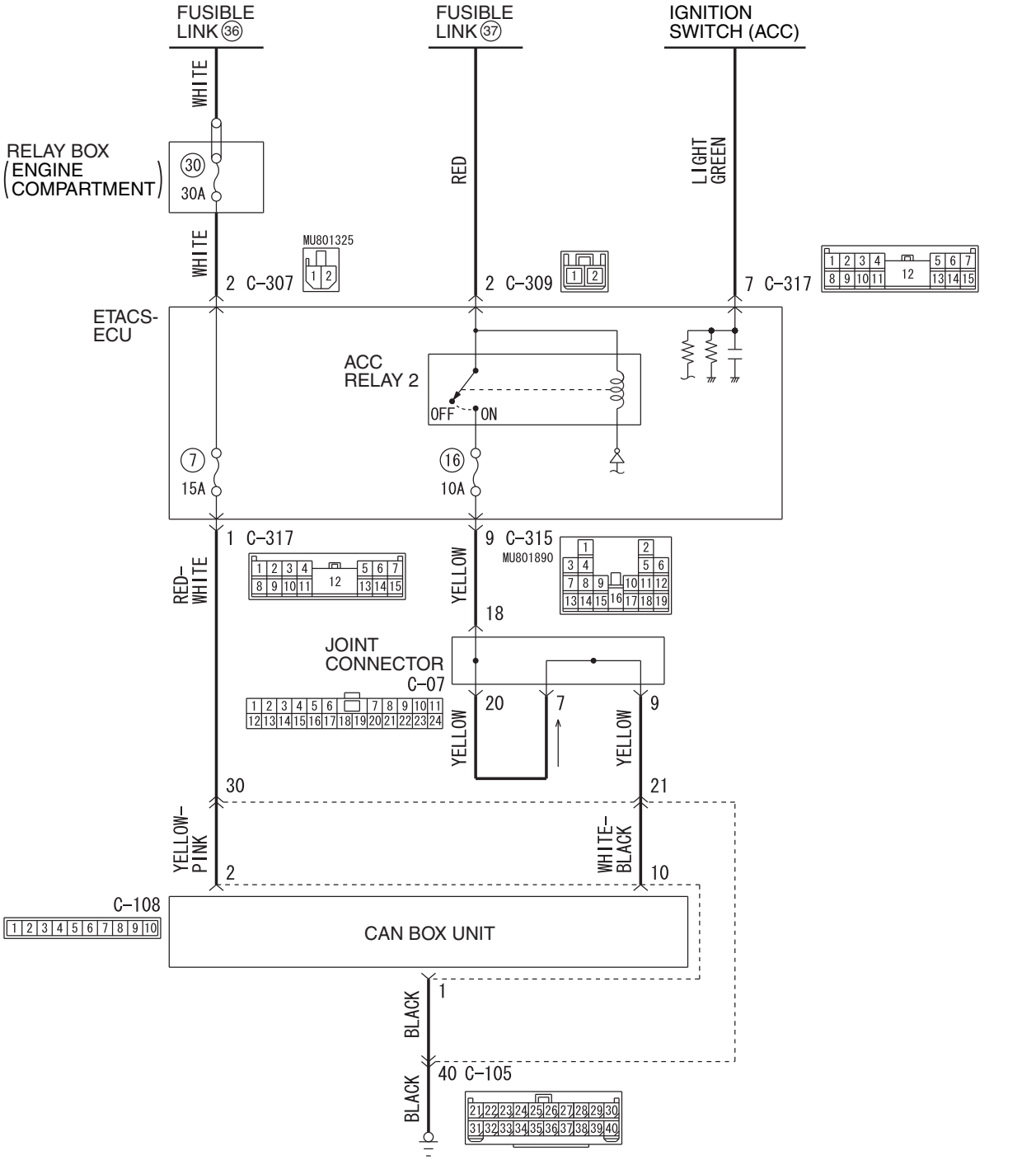
NO : Replace the audio and video adaptor.

Inspection Procedure 12: Check the CAN box unit power supply circuit.

⚠ CAUTION

Whenever the CAN box unit is replaced, ensure that the power supply circuit and the grounding circuit are normal. (Check that the voltage is 10 V or more.)

CAN Box Unit Power Supply Circuit



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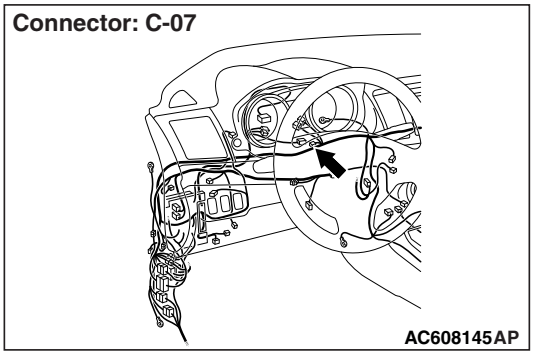
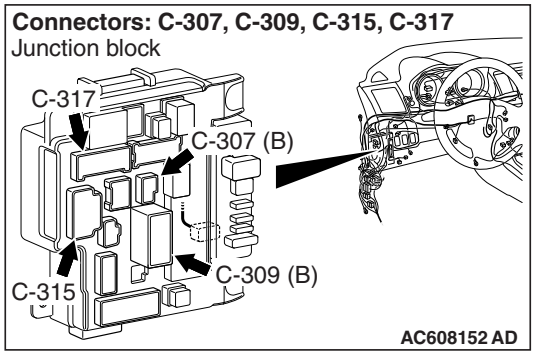
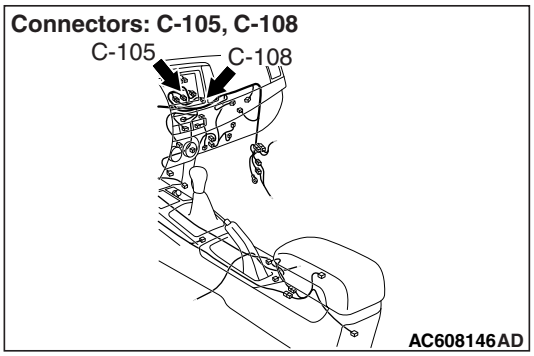






TECHNICAL DESCRIPTION (COMMENT)

If the CAN box unit functions do not work at all, the CAN box unit power supply system, ground system, or CAN box unit may have a problem.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The CAN box unit may be defective

DIAGNOSIS

Required Special Tools:

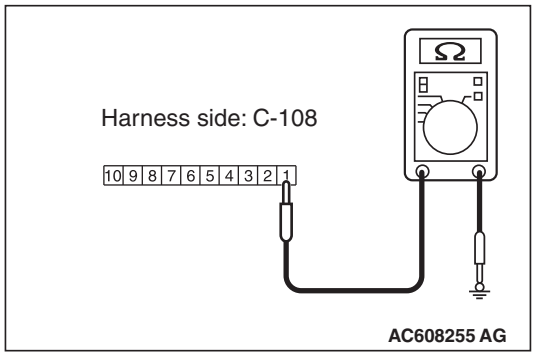
- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Check CAN box unit connectors C-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is CAN box unit connectors C-108 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.



STEP 2. Check the ground circuit to the CAN box unit. Measure the resistance at CAN box unit connector C-108.

(1) Disconnect CAN box unit connector C-108 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between CAN box unit connector C-108 terminal 1 and ground.

OK: The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Go to Step 3.

STEP 3. Check the wiring harness between CAN box unit connector C-108 (terminal 1) and the ground.

- Check the ground wire for open circuit.

NOTE: Also check intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between CAN box unit connector C-108 (terminal 1) and the ground in good condition?

YES : Go to Step 4.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 4. Check the battery power supply circuit to the CAN box unit. Measure the voltage at CAN box unit connectors C-108.

(1) Disconnect CAN box unit connectors C-108 measure the voltage available at the wiring harness side of the connector.

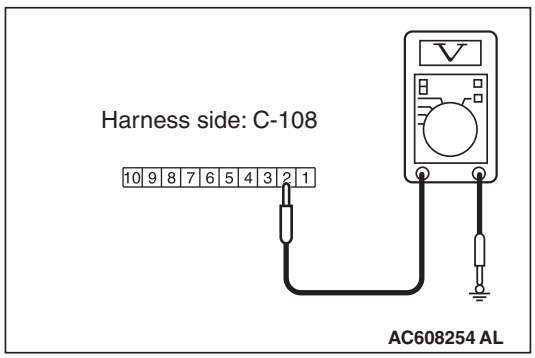
(2) Measure the voltage between CAN box unit connector C-108 terminal 2 and ground.

OK: The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 6.

NO : Go to Step 5.



STEP 5. Check the wiring harness between CAN box unit connector C-108 (terminal 2) and fusible link (36).

- Check the power supply line (battery supply) for open circuit and short circuit.

NOTE: Also check intermediate connector C-105 and ETACS-ECU connectors C-307 and C-317 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-105 or ETACS-ECU connector C-307 or C-317 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between CAN box unit connector C-108 (terminal 2) and fusible link (36) in good condition?

YES : Go to Step 6.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The system should communicate with the CAN box unit normally.

STEP 6. Using scan tool MB991958, check data list.

Check the input signal of ACC relay.

- Turn the ignition switch to the ACC position.

Item No.	Item name	Normal conditions
Item 288	ACC switch	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 7.

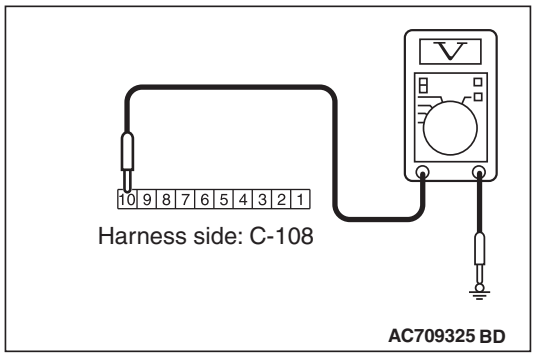
NO : Refer to GROUP 54A, ETACS, Diagnosis – Inspection Procedure 1 "The ignition switch (ACC) signal is not received P.54A-735."

STEP 7. Check ETACS-ECU connector C-315 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-315 in good condition?

YES : Go to Step 8.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.



STEP 8. Check the battery power supply circuit to the CAN box unit. Measure the voltage at CAN box unit connectors C-108.

(1) Disconnect CAN box unit connectors C-108 measure the voltage available at the wiring harness side of the connector.

(2) Measure the voltage between CAN box unit connector C-108 terminal 10 and ground.

OK:Battery positive voltage.

Q: Is the measured voltage battery positive voltage?

YES : Replace the CAN box unit.

NO : Go to Step 9.

STEP 9. Check the wiring harness between CAN box unit connectors C-108 (terminal 10) and ETACS-ECU connector C-315 (terminal 9).

- Check the power supply line for open circuit and short circuit.

NOTE: Also check joint connector C-07, intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-07, intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between CAN box unit connectors C-108 (terminal 10) and ETACS-ECU connector C-315 (terminal 9) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The system should communicate with the CAN box unit normally.

ETACS CUSTOMIZATION FUNCTION

M1546023000538

The following ETACS functions can be customized by selecting "Equipment" on the "Settings" screen of the audio visual navigation unit.

Group name	Setting item	Setting value
Keyless Entry System	Turn Signal Lights Answerback	Lock:Once Unlock:Twice (initial condition)
		Lock:Once Unlock:Off
		Lock:Off Unlock:Twice
		Lock:Twice Unlock:Once
		Lock:Off Unlock:Once
		Lock:Twice Unlock:Off
		Lock:Off Unlock:Off
	Horn Answerback Sounds at Keyless Entry Lock <vehicles without auto light>	Off
		One Button Push
		Two Button Pushes (initial condition)
	Horn Answerback Sounds at Keyless Entry Lock <vehicles with auto light>	Off
		One Button Push
		One Button Push at Daytime
		Two Button Pushes (initial condition)
	Duration of Horn Answerback Sounds	Short (initial condition)
		Long

Group name	Setting item	Setting value
Keyless Operation System	Turn Signal Lights Answerback	Lock:Once Unlock:Twice (initial condition)
		Lock:Once Unlock:Off
		Lock:Off Unlock:Twice
		Lock:Twice Unlock:Once
		Lock:Off Unlock:Once
		Lock:Twice Unlock:Off
		Lock:Off Unlock:Off
	Duration of Horn Answerback Sounds	Short (initial condition)
		Long
	Horn Answerback Sounds at Keyless Entry Lock <vehicles without auto light>	Off
		One Button Push
		Two Button Pushes (initial condition)
	Horn Answerback Sounds at Keyless Entry Lock <vehicles with auto light>	Off
		One Button Push
		One Button Push at Daytime
		Two Button Pushes (initial condition)
	Door Entry and Engine Start Function	Both Function On (initial condition)
		Door Entry Function On
		Engine Start Function On
		Both Function Off
	Keyless Operation Answerback Beep Sounds	Off
		Sound at Keyless Operation (initial condition)
		Sound at Keyless Entry
		Sound at both Keyless Entry and Keyless Operation
	Time for Remote Unlock Inactivation after Locking	Off
		3 seconds (initial condition)
		5 seconds
Wipers	Windshield Wipers Intermittent Operation <Vehicles without auto light >	4 seconds
		Variable
		Variable & Speed Sensitive (initial condition)
	Windshield Wipers Intermittent Operation <Vehicles with auto light >	4 seconds
		Variable
		Variable & Speed Sensitive
		Variable & Rain Sensitive (initial condition)
	Wipers Linked to Washer	Off
		On (initial condition)

Group name	Setting item	Setting value
Exterior Lights/Interior Lights	Headlight Auto-cutout Function	Off
		On (initial condition)
	Sensitivity for Auto Light <Vehicles with auto light >	Early
		Somewhat Early
		Normal (initial condition)
		Somewhat Late
		Late
	Interior Light Auto-cutout Time	Off
		3 minutes
		30 minutes (initial condition)
		60 minutes
	Duration Dome Light Remains In after Door is Closed	0 second
		7.5 seconds
		15 seconds
		30 seconds (initial condition)
		60 seconds
		120 seconds
		180 seconds
Theft Alarm	Panic Alarm	Off
		On (initial condition)
Turn Signal	Operation in Key Position	Ignition Switch On or Accessory
		Ignition Switch On (initial condition)
	Lane-change Signals (Flash Three Times with 1 Touch)	Off
		On (initial condition)
Power Door Locks	Automatic Relocking after Unlocked by Remote	30 seconds (initial condition)
		60 seconds
		120 seconds
		180 seconds
	Unlock Operation <Vehicles with keyless entry system>	All Doors
		Only Driver Door (initial condition)
	Automatic Unlock when Transmission Shifted to Park <vehicles with central door locking system (CVT, TC-SST)>	Off (initial condition)
		On
Others	Auto Cut of ACC Power	No Auto Cut
		Auto Cut after 30 minutes (initial condition)
		Auto Cut after 60 minutes

NOTE:

- *If the setting of "Wipers Linked to Washer" is changed, it cannot be reset to the initial value by the multivision display.*
- *Some items (e.g. "Coming home light", "Welcome light", "Deadlock Button Operation") cannot be set by the multivision display. (Refer to P.54A-768.)*

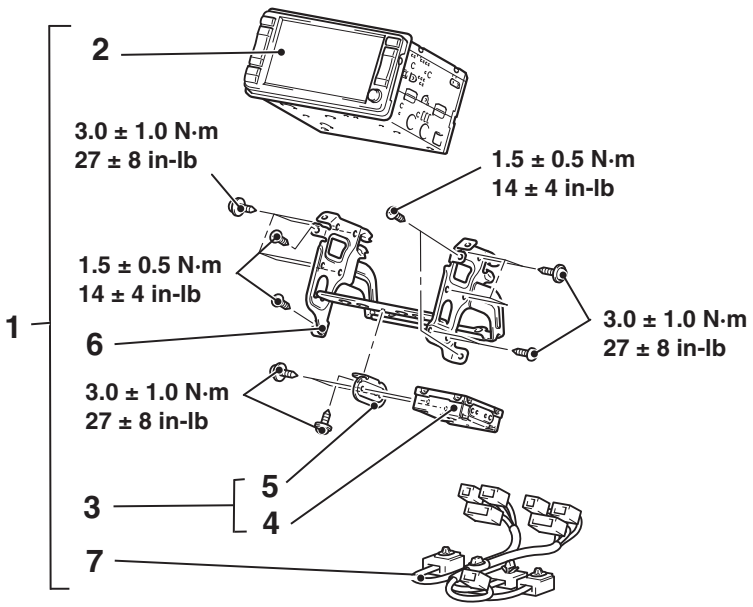
TSB Revision

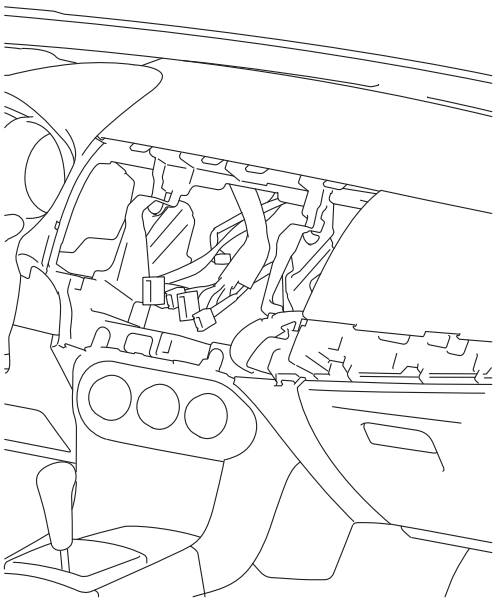
REMOVAL AND INSTALLATION

M1546001000615

Multivision display

Pre-removal operation	Post-installation operation
• Removal of Instrument center panel (Refer to GROUP 52A – Instrument Center Panel assembly P.52A-7)	• Installation of Instrument center panel (Refer to GROUP 52A – Instrument Center Panel assembly P.52A-7)





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Removal Steps

1. Multivision display assembly
2. Multivision display
3. CAN box unit assembly
4. CAN box unit

Removal Steps (Continued)

5. CAN box unit bracket
6. Bracket (LH/RH)
7. Navigation harness

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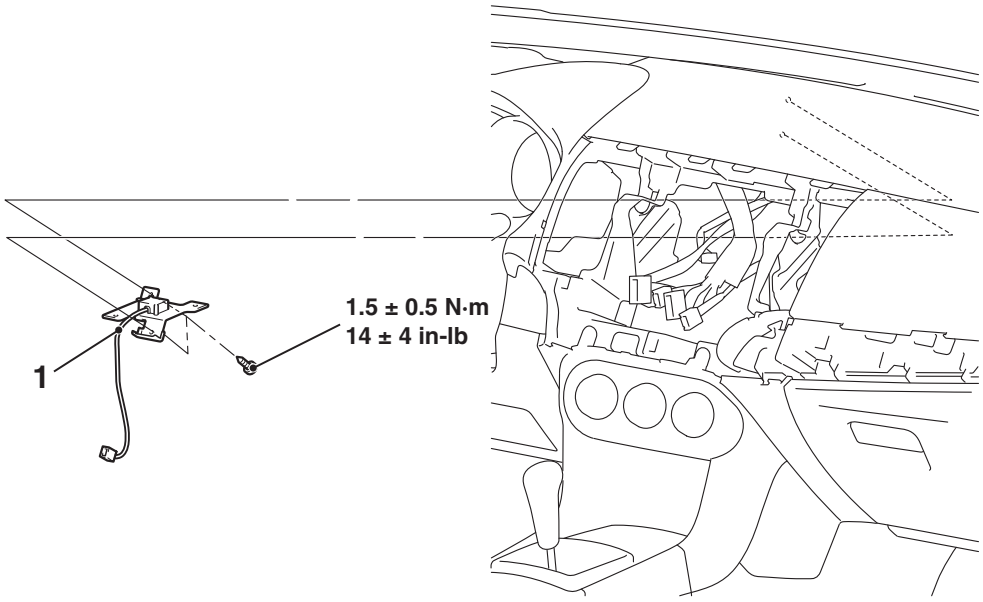
GPS antenna

Pre-removal operation	Post-installation operation
• Removal of multivision display assembly	• Installation of multivision display assembly



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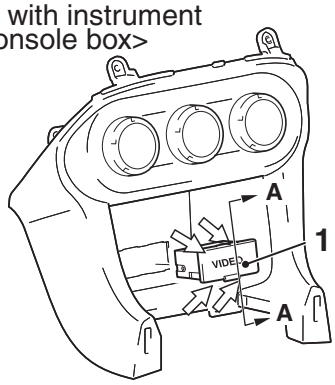
Removal Step

1. GPS antenna

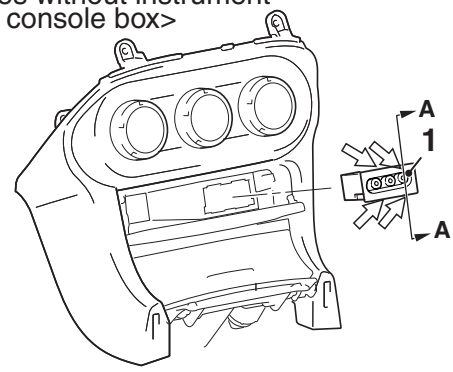
Audio and video adaptor

Pre-removal operation	Post-installation operation
• Removal of instrument panel center lower (Refer to GROUP 52A – Instrument Center Panel assembly P.52A-7)	• Installation of instrument panel center lower (Refer to GROUP 52A – Instrument Center Panel assembly P.52A-7)

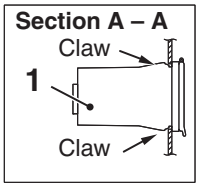
<Vehicles with instrument panel console box>



<Vehicles without instrument panel console box>



Note
⇦ : Claw positions



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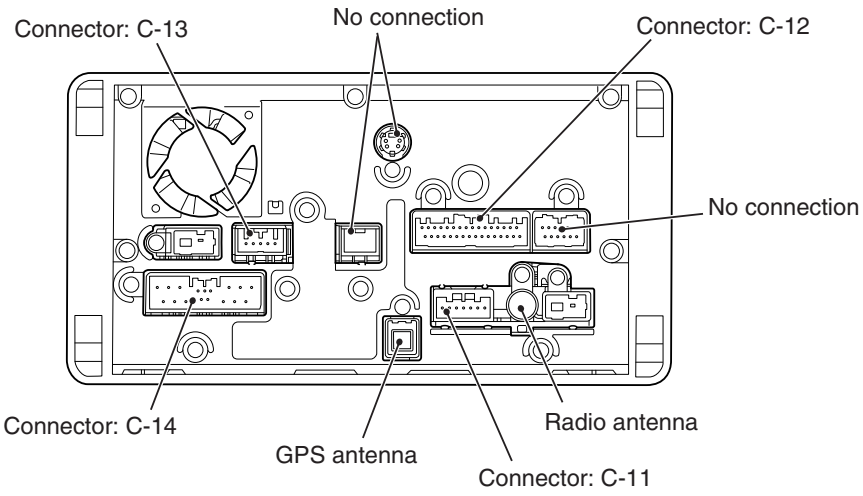
Removal Step

1. Audio and video adaptor

INSTALLATION SERVICE POINT

>>A<< MULTIVISION DISPLAY



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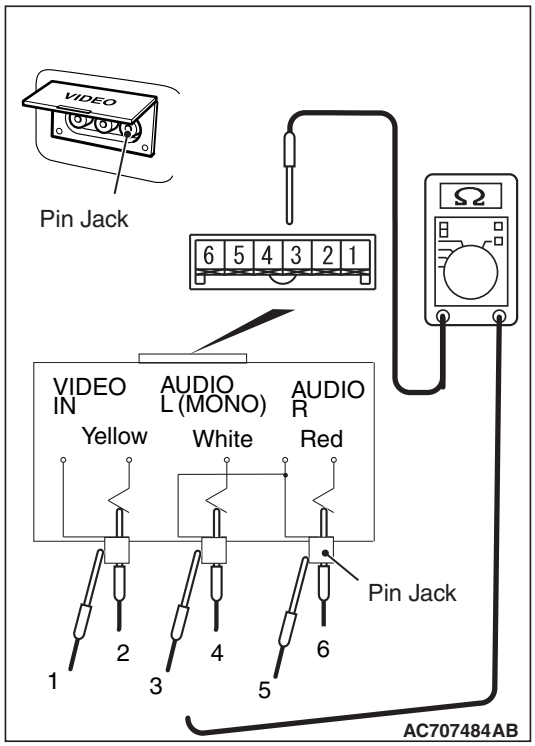
The connectors, antenna and cables connected to the multivision display are shown in the figure.

INSPECTION

AUDIO AND VIDEO ADAPTER INSPECTION

M1546312900055

1. Remove the audio and video adapter. (Refer to P.54A-536.)
2. Check that continuity exists between the terminal and the pin jack of audio and video adapter.



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The connecting position of pin jack side circuit tester	Terminal number	Measurement value
1	2	Continuity exists (2 Ω or less)
2	1	
3	5	
4	4	
5	5	
6	6	