

GROUP 54B

AUDIO AND NAVIGATION SYSTEM

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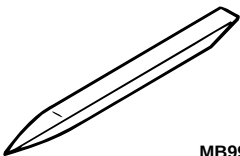
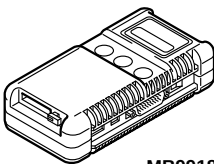
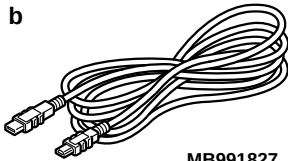
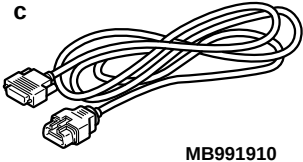
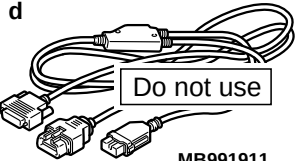
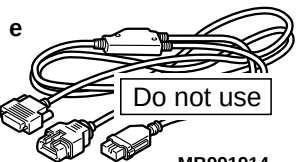
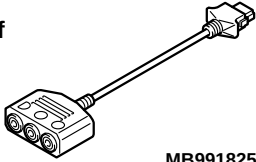
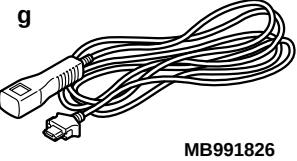
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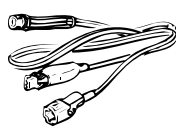
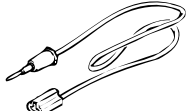
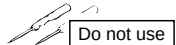
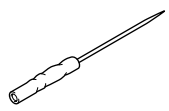
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SPECIAL TOOL

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Tool	Tool number and name	Supersession	Application
 MB990784	MB990784 Ornament remover	General service tool	Removal of center outlet, center panel or cover.
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991914 f  MB991825 g  MB991826 YB9919580000	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 Daimler Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness	MB991824-KIT <i>NOTE: G: MB991826 M. U. T. -III Trigger Harness is not necessary when pushing V. C. I. ENTER key.</i>	⚠ 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 service data check.

Tool	Tool number and name	Supersession	Application
a  b  c  d  YB9912230000	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222 Harness set a. Test harness b. LED harness c. LED harness adaptor d. Probe	General service tools	Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector. a. Connector pin contact pressure inspection b. Power circuit inspection c. Power circuit inspection d. Commercial tester connection
 MB992006	MB992006 Extra fine probe	-	Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector.

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 - Troubleshooting contents P. 00-6.

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TROUBLESHOOTING FOR NOISE

AM/FM RADIO AND CD PLAYER

The noise is generated during the engine run.

CAUTION

Check that no noise of external origin is present. Because the signal reception becomes poor indoors, check in the open air. If this check is neglected, the source of noise cannot be

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determined, resulting in a false recognition. Therefore, be sure to perform this check.

CAUTION

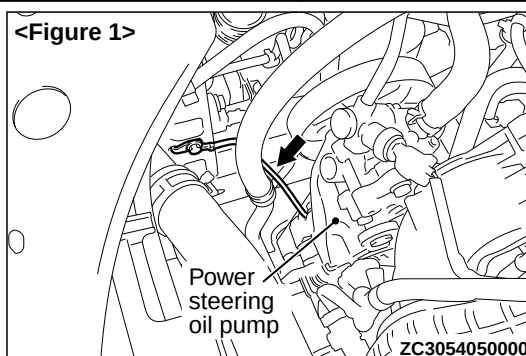
When implementing the noise prevention, start the prevention from the object causing the strongest noise.

CAUTION

Check that the audio main body and others are securely grounded.

Noise types () indicates the sound type.	Situation	Cause	Countermeasure
AM, FM: (Crack, tapping, rattle, plash)	•When the engine speed is increased, the scratch noise becomes faster and the sound volume decreases. •When the ignition switch is turned to ACC, the noise disappears.	•Radiation noise caused mainly by the spark plug •Noise wraparound	Check or replace the ground cable ground bolt. (Refer to Figure 1).
AM, FM: Wiper motor noise (hum, distorted hum)	Synchronized with the wiper movement, and also becomes faster when wiper movement is sped up. When the wiper is stopped, the noise also stops.	Caused by the sparks generated by the wiper motor brush.	Replace the wiper motor.
Noise from other electrical equipment	-	The noise may be generated when the electrical equipment become old.	Repair or replace the electrical equipment.
Static electricity (cracking, popping)	No noise is generated when the vehicle comes to a complete stop.	The parts or wiring move for some reason, and cause the noise by contacting against the body metal parts.	Return the parts and wiring to the normal positions.
	Various types of noise are generated in various parts of the body.	Caused by the looseness between the body and the hood, liftgate, bumper, exhaust pipe and muffler, suspension, or others.	Securely tighten the mounting bolts of each part.

NOTE: For trouble symptoms other than the noise, perform the following troubleshooting procedures. Refer to P. 54B-18.



DIAGNOSIS FUNCTION

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DTC READING METHOD

Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P. 00-15.

HOW TO ERASE DTC

Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P. 00-15.

DATA LIST REFERENCE TABLE

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Item No.	Check item (scan tool display)	Check condition	Normal condition
01	RADIO remote SW (SEEK-)	SEEK (-) switch: ON	ON
02	RADIO remote SW (SEEK+)	SEEK (+) switch: ON	ON
03	RADIO remote SW (MODE)	MODE switch: ON	ON
04	RADIO remote SW (VOL-)	VOL (-) switch: ON	ON
05	RADIO remote SW (VOL+)	VOL (+) switch: ON	ON

DIAGNOSTIC TROUBLE CODE CHART

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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.54B-7
U1415	Coding not completed or failed	P.54B-9
B2420	Power supply circuit malfunction	P.54B-10
B2421	Radio tuner failure	P.54B-12
B2423	6-disc CD player error	P.54B-13
B2450	Switch panel communication error	P.54B-15
B2451	Panel type error	P.54B-16

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC U0019: Bus off (CAN-B)

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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 or CD changer, be sure to check that the power supply

circuit, ground circuit, and communication circuit are normal.

TROUBLE JUDGMENT

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

COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

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

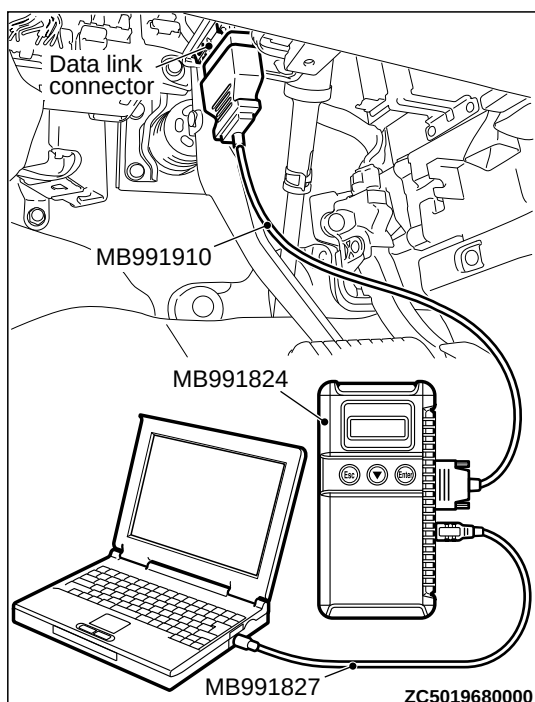
Use scan tool MB991958 to diagnose the CAN bus lines.

- (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 54D, Diagnosis P.54D-10.) On completion, go to Step 2.

**STEP 2. Recheck for diagnostic trouble code.**

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

- (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 or CD changer.

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.00-15).

DTC U1415: Coding not completed/Data fail

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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 or CD changer, 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 radio and CD player or CD changer, the

combination meter sets the diagnostic trouble code No.U1415.

COMMENTS ON TROUBLE SYMPTOM

The radio and CD player or CD changer, ETACS-ECU, or CAN bus line may have a problem.

PROBABLE CAUSES

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

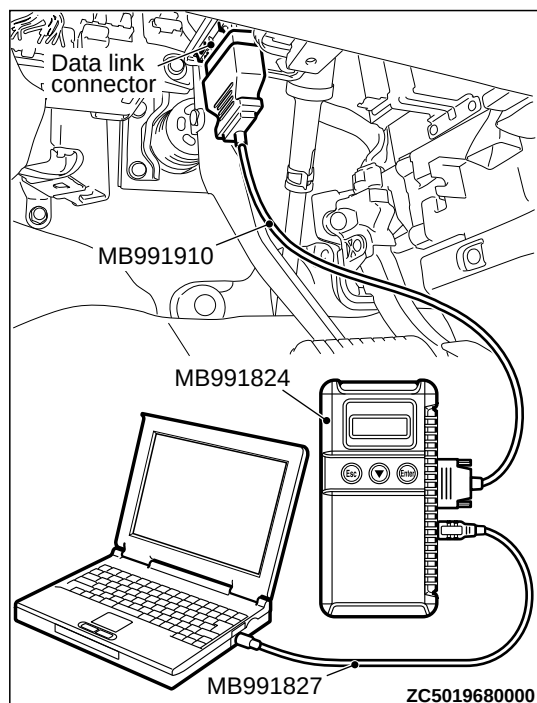
DIAGNOSIS

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

Use scan tool MB991958 to diagnose the CAN bus lines.



- (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 54D, Diagnosis P.54D-10.) On completion, go to Step 2.**STEP 2. Using scan tool MB991958, read the other system DTC.**

Check if DTC is set to the ETACS-ECU.

Q:Is the DTC set?**YES:** Diagnose the ETACS-ECU (Refer to GROUP 54Ad, ETACS-ECU, Diagnosis P.54Ad-8).**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 or CD changer.

- (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 or CD changer.**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.00-15).**DTC B2420: Power integrated circuit**

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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 or CD changer, be sure to check that the power supply circuit, ground circuit, and communication circuit are normal.

TROUBLE JUDGMENT

If the radio and CD player or CD changer 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 CD changer or CAN bus line may have a problem.

PROBABLE CAUSES

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

DIAGNOSIS

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

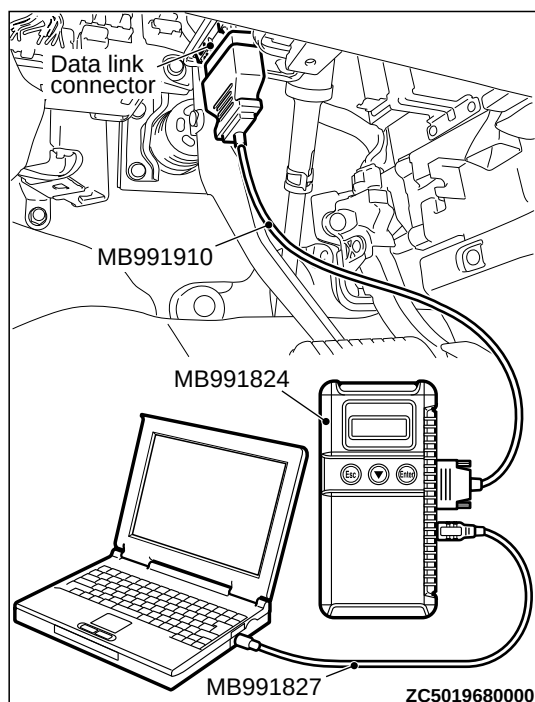
Use scan tool MB991958 to diagnose the CAN bus lines.

- (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 54D, Diagnosis P.54D-10.) On completion, go to Step 2.



STEP 2. Recheck for diagnostic trouble code.

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

- (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 or CD changer.

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.00-15).

DTC B2421: Radio tuner

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⚠ 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 or CD changer, 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 or CD changer and the microcomputer, the diagnostic trouble code is set.

COMMENTS ON TROUBLE SYMPTOM

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

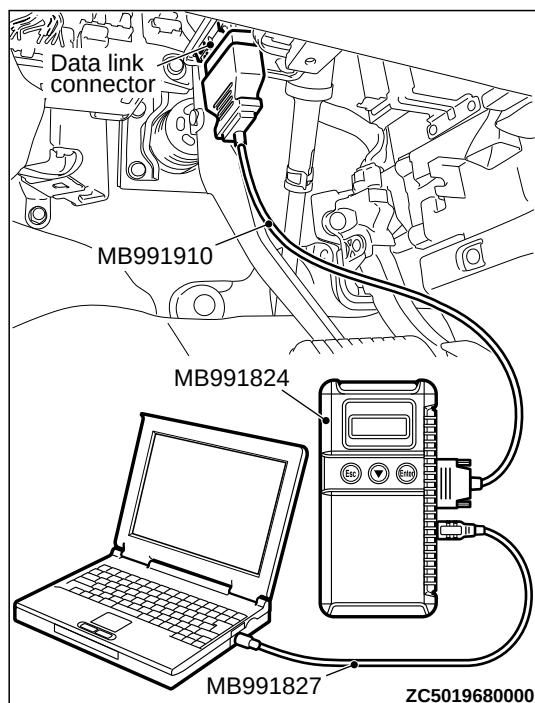
PROBABLE CAUSES

- Malfunctions of radio and CD player or CD changer
- 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.



- (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 54D, Diagnosis P.54D-10.) On completion, go to Step 2.

STEP 2. Recheck for diagnostic trouble code.

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

- (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 or CD changer.

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.00-15).

DTC B2424: CD player error

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

COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

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

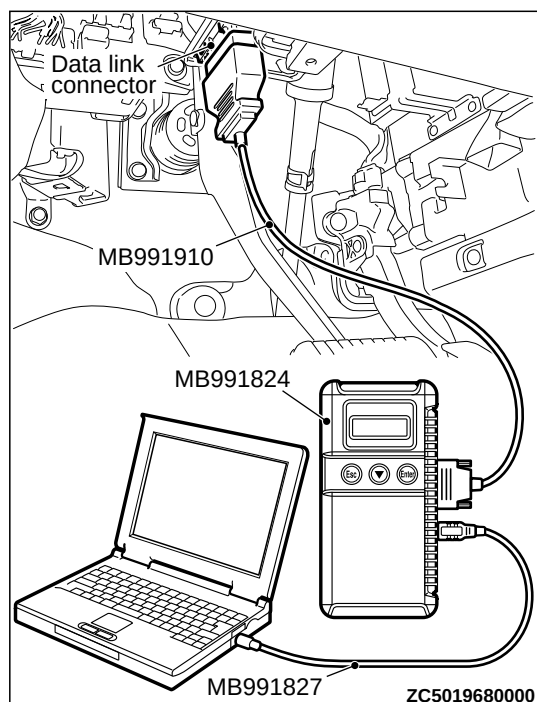
Use scan tool MB991958 to diagnose the CAN bus lines.

- (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 54D, Diagnosis P.54D-10.) On completion, go to Step 2.

**STEP 2. CD check**

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

NO: The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-15).

Code No.B2450 Switch panel communication

M15410800354USA0000010000

⚠ 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 or CD changer, be sure to check that the power supply circuit, ground circuit, and communication circuit are normal.

TROUBLE JUDGMENT

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

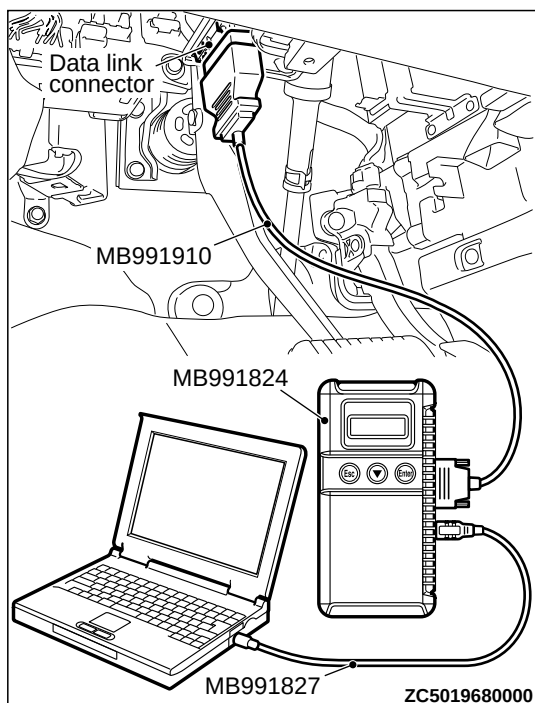
PROBABLE CAUSES

- Malfunctions of radio and CD player or CD changer
- 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.



- (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 54D, Diagnosis P.54D-10.) On completion, go to Step 2.**STEP 2. Connection status check of radio and CD player or CD changer with center panel assembly**

Check that the radio and CD player or CD changer 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 or CD changer 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 or CD changer.

- (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 or CD changer.**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.00-15).**DTC B2451: Audio panel type error**

M15410800355USA0000010000

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 or CD changer consecutively receive the display trouble signal from the center panel assembly for 1 minute, the diagnostic trouble code is set.

COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

- 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.

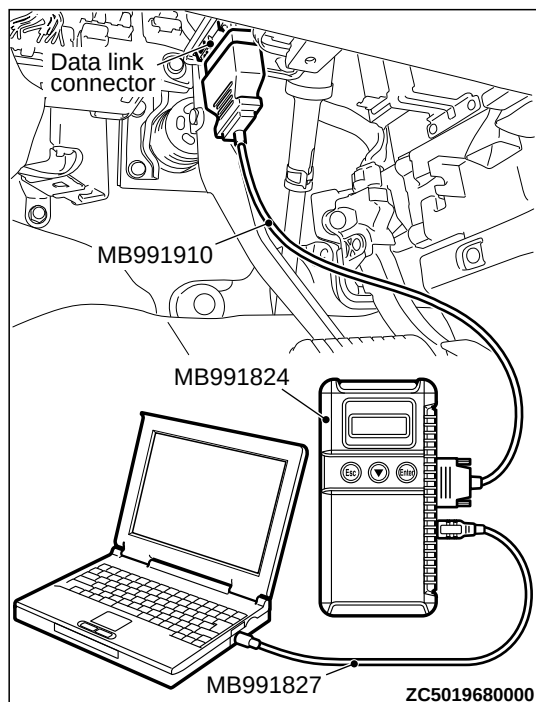
Use scan tool MB991958 to diagnose the CAN bus lines.

- (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 54D, Diagnosis P.54D-10.) On completion, go to Step 2.



STEP 2. Recheck for diagnostic trouble code.

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

- (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 or CD changer.

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.00-15).

TROUBLE SYMPTOM CHART

M15410800007USA0000010000

Trouble symptom	Inspection procedure No.	Reference page
Power is not turned ON when the power switch is turned ON.	1	P.54B-18
No sound is heard. <vehicles with amplifier>	2	P.54B-23
No sound is heard from one of the speakers. <vehicles without audio amplifier>	3	P.54B-29
No sound is heard from one of the speakers. <vehicles with audio amplifier>		P.54B-39
Noise is present while moving (AM).	4	P.54B-51
Noise is present while moving (FM).	5	P.54B-51
Sound mixed with noise, only at night (AM).	6	P.54B-52
Noise is overpowering both AM and FM.	7	P.54B-53
Excessive noise on AM and FM.	8	P.54B-53
Noise is detected with engine running.	9	P.54B-54
Noise appears during vibration or shocks.	10	P.54B-55
Noise is present while moving (FM).	11	P.54B-56
Constant noise.	12	P.54B-57
No reception (AM).	13	P.54B-58
Poor reception.	14	P.54B-58
Distortion on AM and/or FM.	15	P.54B-59
Distortion on FM only.	16	P.54B-60
Auto select function inoperative, too few automatic stations are selected.	17	P.54B-60
Preset stations are erased.	18	P.54B-61
CD cannot be Inserted.	19	P.54B-61
No sound. (CD only).	20	P.54B-62
CD sound skips.	21	P.54B-62
Sound quality is poor.	22	P.54B-63
CD cannot be ejected.	23	P.54B-63

SYMPTOM PROCEDURES

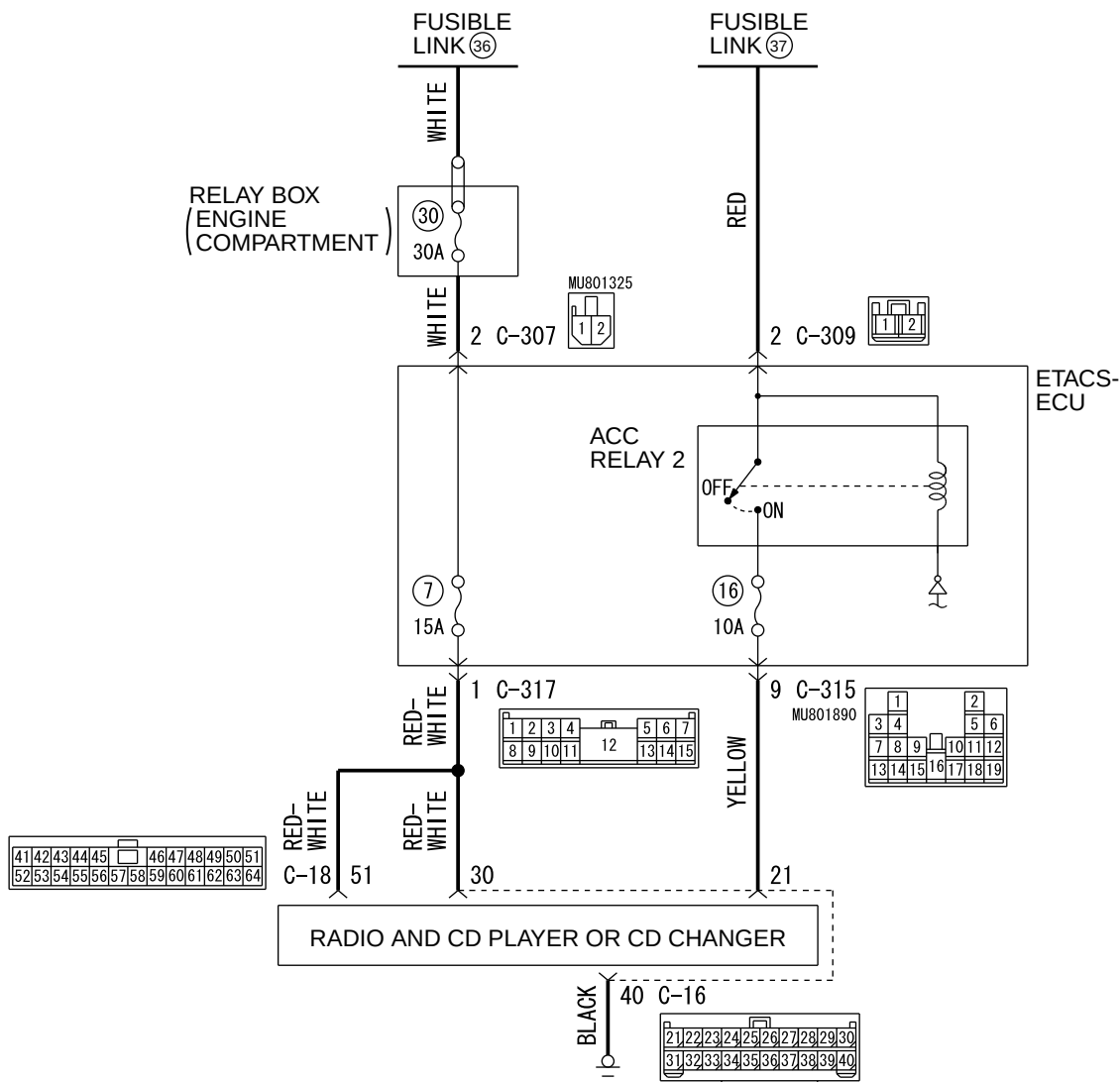
Inspection Procedure 1: Power is not turned ON when the power switch is turned ON.

M15410800009USA0000010000

⚠ CAUTION

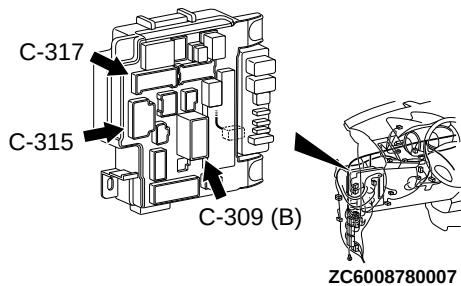
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Radio and CD Player or CD Changer Power Supply Circuit

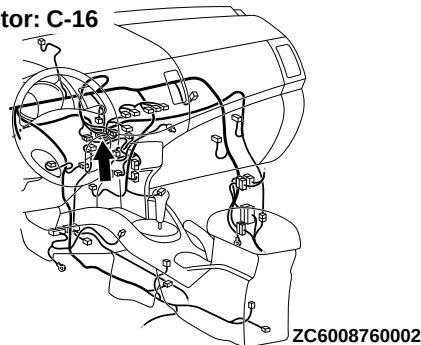


D7G54M007A00

Connectors: C-309, C-315, C-317



Connector: C-16



OPERATION

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

changer cannot be turned ON, the radio and CD player or CD changer, or power supply circuit for radio and CD player or CD changer may have a problem, or the option coding information may be inconsistent.

PROBABLE CAUSES

- Malfunctions of radio and CD player or CD changer
- 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. 00-34.)
- (2) Check that the "AUDIO" is set to "enabled."

Q:Is the check result normal?

YES: Go to Step 2.

NO: Operate scan tool MB991958 to set the option coding "AUDIO" to "enabled," and check the trouble symptom.

STEP 2. 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 check result normal?

YES: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis P. 54Ad-8.

NO: Go to Step 3.

STEP 3. Check ETACS-ECU connector C-317 and radio and CD player or CD changer connector C-18 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 or CD changer connector C-18 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 ETACS-ECU connector C-317 (terminal 1) and radio and CD player or CD changer connector C-16 (terminal 30).

*Check the power supply lines (battery power supply) for open circuit.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 1) and radio and CD player or CD changer connector C-16 (terminal 30) 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. 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 6.

NO: Refer to GROUP 54Ad, Troubleshooting - Inspection Procedure 1 "The ignition switch (ACC) signal is not received" P. 54Ad-61.

STEP 6. 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.

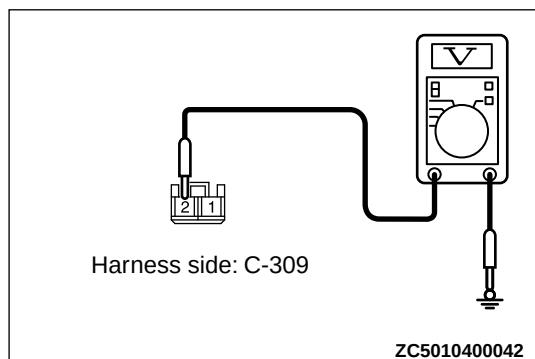
(3) Measure the voltage between terminal 2 and ground.

OK: Battery voltage

Q: Is the measured voltage battery voltage?

YES: Go to Step 8.

NO: Go to Step 7.



STEP 7. 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 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. 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 9.

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 9. Check the power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-315.

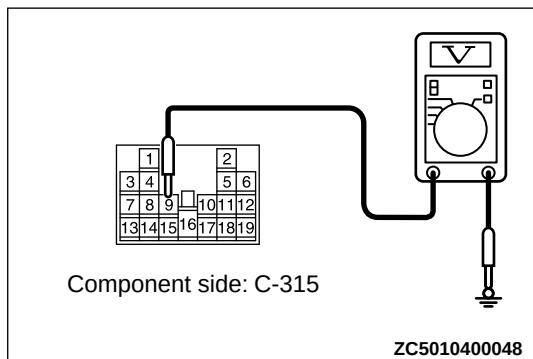
- (1) Disconnect the connector, and measure at the ETACS-ECU side connector.
- (2) Turn the ignition switch to the "ACC" position.
- (3) Measure voltage between terminal 9 and ground.

OK: Battery voltage

Q: Is the measured voltage battery voltage?

YES: Go to Step 10.

NO: Replace the ETACS-ECU.



STEP 10. Check the wiring harness between radio and CD player or CD changer connector C-16 (terminal 21) and ETACS-ECU connector C-315 (terminal 9).

* Check the power supply line for open circuit.

Q: Is the wiring harness between radio and CD player or CD changer connector C-16 (terminal 21) and ETACS-ECU connector C-315 (terminal 9) in good condition?

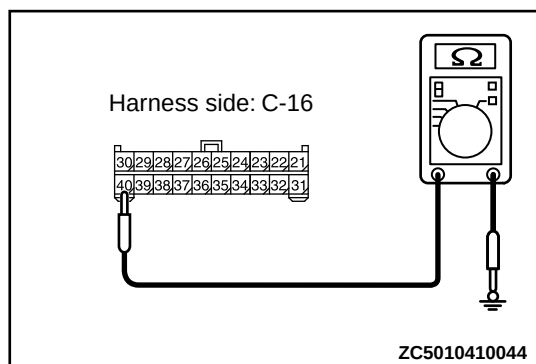
YES:

Go to Step 11.

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 11. Check the ground circuit to the radio and CD player or CD changer. Measure the resistance at radio and CD player or CD changer connector C-16.

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



- (2) Measure resistance between terminal 40 and ground.
OK: The resistance should be 2 ohm or less.

Q: Is the measured resistance 2 ohms or less?

YES: Go to Step 13.

NO: Go to Step 12.

STEP 12. Check the wiring harness between radio and CD player or CD changer connector C-16 (terminal 40) and ground.

*Check the ground wires for open circuit.

Q: Is the wiring harness between radio and CD player or CD changer connector C-16 (terminal 40) 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 13. Retest the system

Check if the radio and CD player or CD changer 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. 00-15).

NO: Replace the radio and CD player or CD changer.

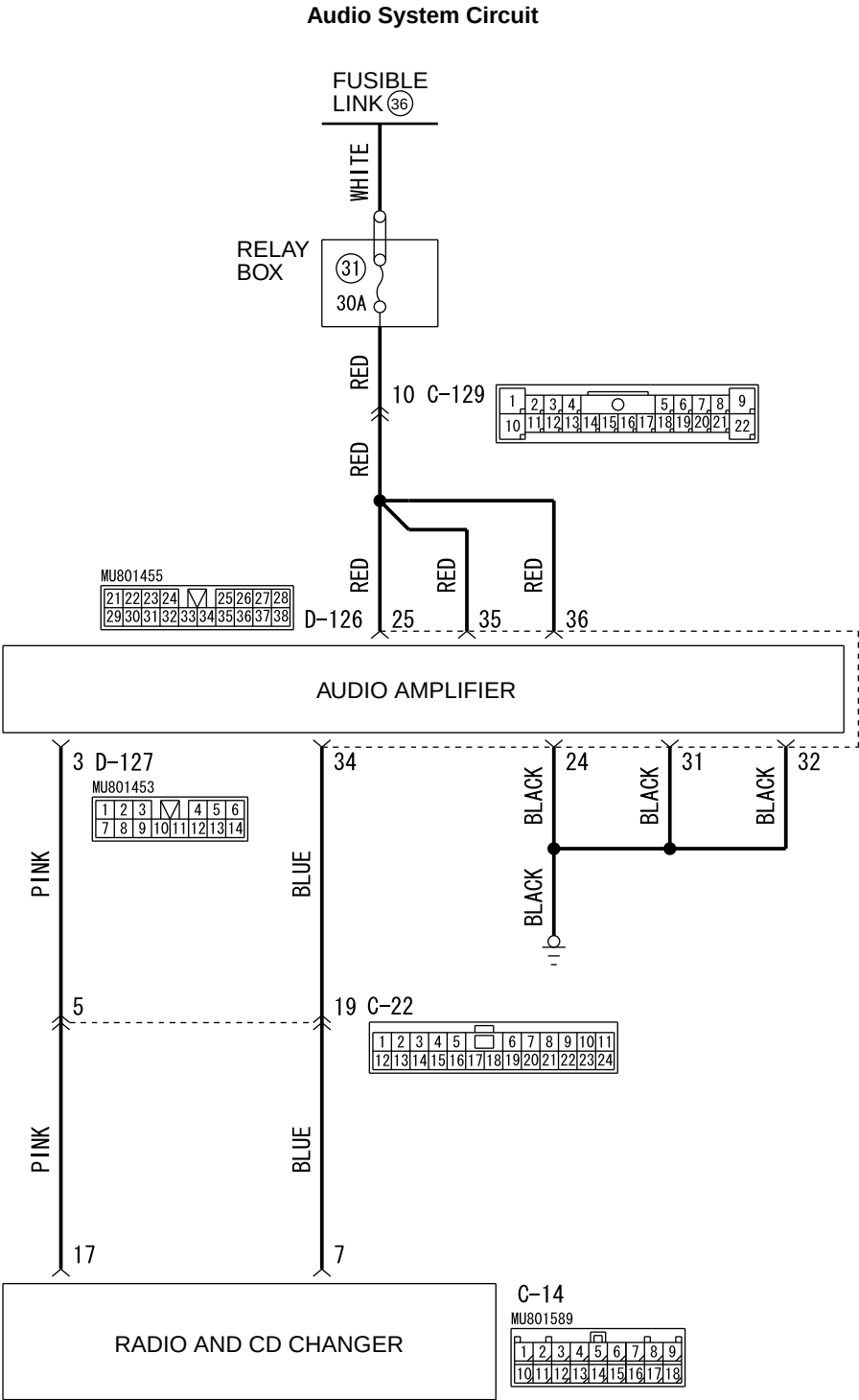
Inspection Procedure 2: No sound is heard. <Vehicles with audio amplifier>

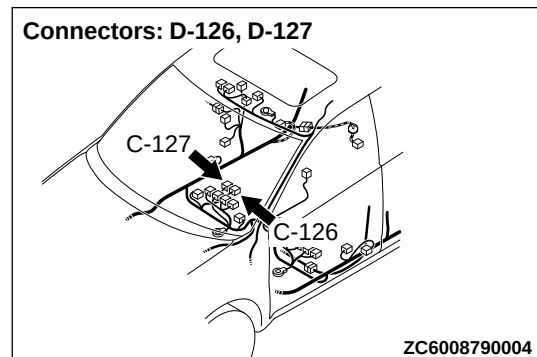
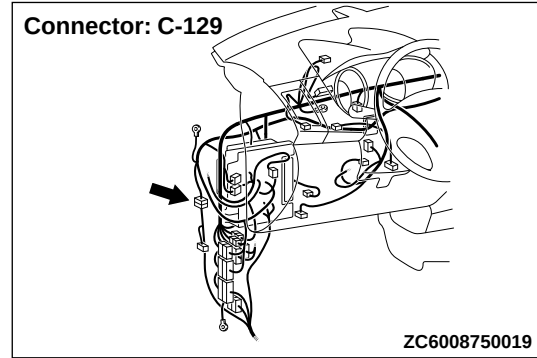
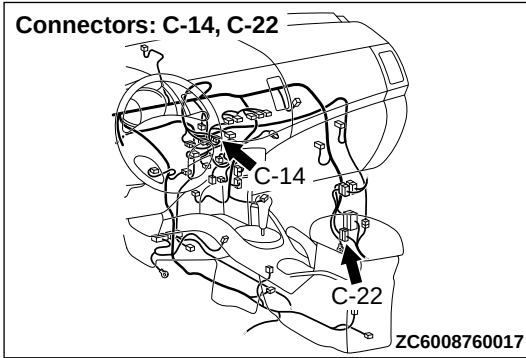
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CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

AUDIO AND NAVIGATION SYSTEM
DIAGNOSIS





COMMENTS ON TROUBLE SYMPTOM

If the audio sound is not output, the radio and CD changer, 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 changer
- 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.00-34.)
- (2) Check that the "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 "Speaker" to "Premium," and check the trouble symptom.

STEP 2. Check audio amplifier connector D-126 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-126 in good condition?

YES: Go to Step 3.

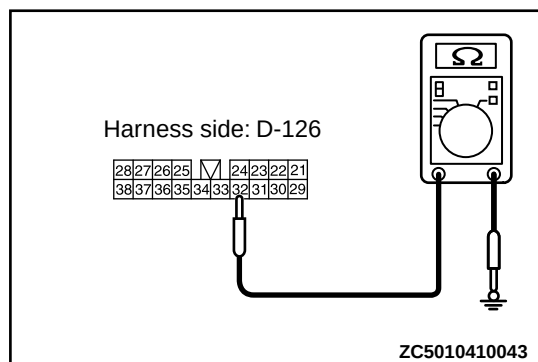
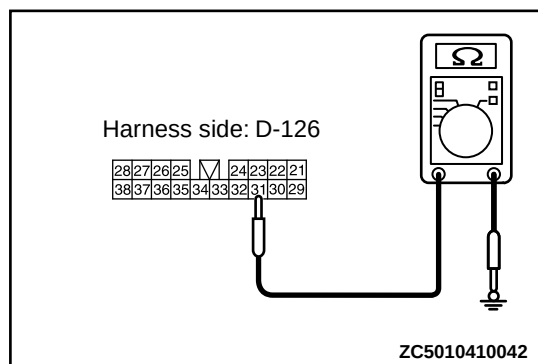
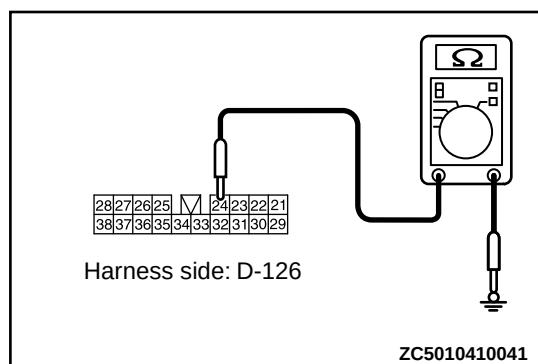
NO: Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 3. Check the ground circuit to the rear monitor.

Measure the resistance at audio amplifier connector D-126.

- (1) Disconnect audio amplifier connector D-126, 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-126 (terminal 24, 31, 32) and ground.

* Check the ground wires for open circuit.

Q: Is the wiring harness between audio amplifier connector D-126 (terminal 24, 31, 32) and ground in good condition?

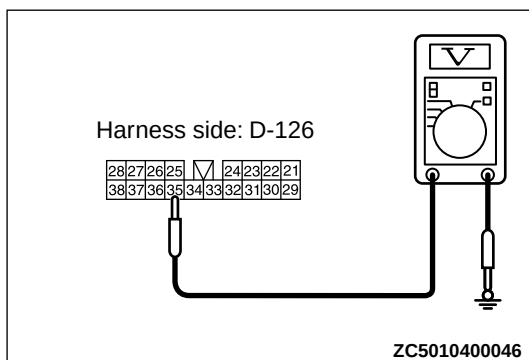
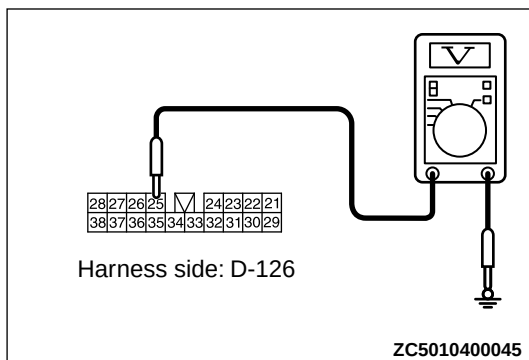
YES: The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P. 00-15).

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 5. Check the power supply circuit to the ETACS-ECU.
Measure the voltage at audio amplifier connector D-126.

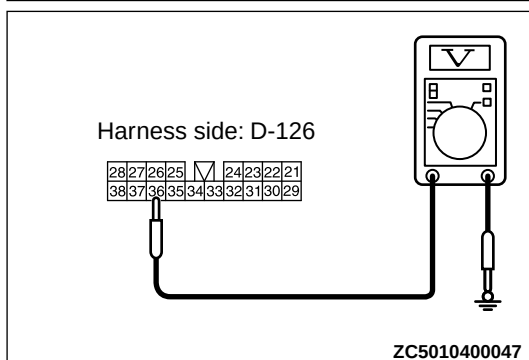
- (1) Disconnect audio amplifier connector D-126, and measure the voltage available at the wiring harness-side connector.
- (2) Measure the voltage between terminal 25 and ground.

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-126 (terminal 25, 35, 36) and fusible link (36).

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

Q: Is the wiring harness between audio amplifier connector D-126 (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 changer connector C-14 and audio amplifier connector C-127 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q:Are radio and CD changer connector C-14 and audio amplifier C-127 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 changer connector C-14 (terminal 17) and audio amplifier connector D-127 (terminal 3)

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.

• Check the communication lines for open circuit.

Q:Is the wiring harness between radio and CD changer connector C-14 (terminal 17) and audio amplifier connector D-127 (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. 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.00-15).

NO: Replace the radio and CD changer.

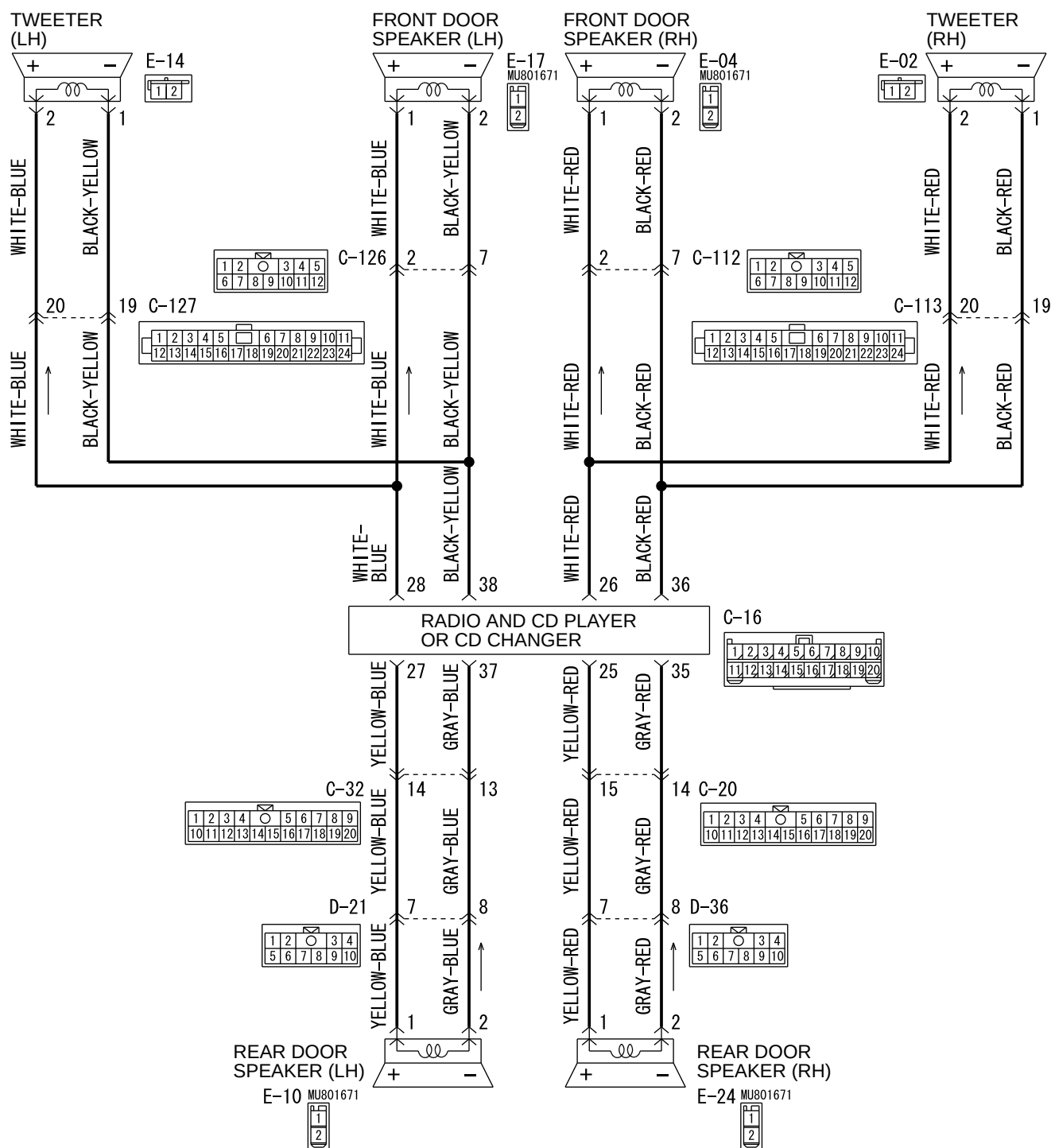
Inspection Procedure 3: No sound is heard from one of the speakers. <Vehicles without audio amplifier>

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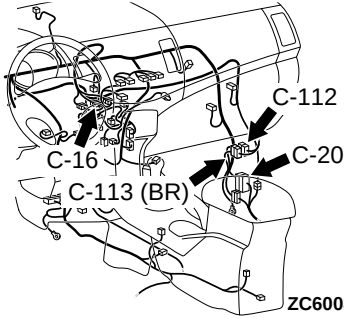
** CAUTION**

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

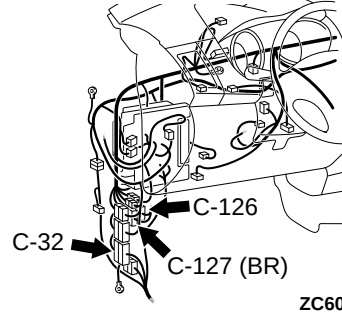
Speaker System Circuit



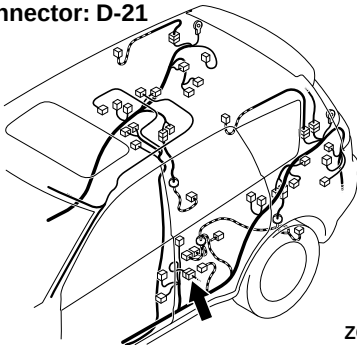
Connectors: C-16, C-20, C-112, C-113



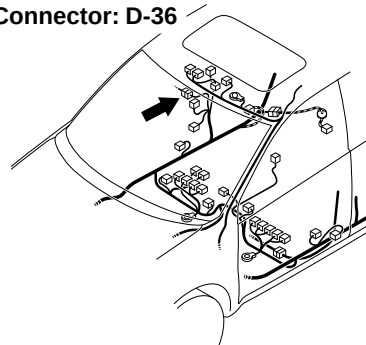
Connectors: C-32, C-126, C-127



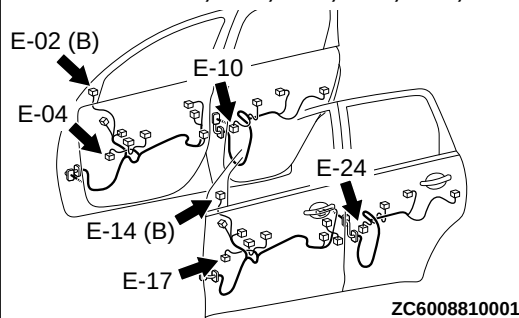
Connector: D-21



Connector: D-36



Connectors: E-02, E-04, E-10, E-14, E-17, E-24



COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

- Malfunction of speaker
- Malfunctions of radio and CD player or CD changer
- 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 the scan tool to read the ETACS-ECU option coding information. (Refer to GROUP 00, Coding Table P.00-34.)
- (2) Check that the "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 "Speaker" to "6 speakers" or "4 speakers," and check the trouble symptom.

STEP 2. Checking with audio speaker check.

Perform the audio speaker check, and check which speaker does not output the sound. Refer to P.54B-163.

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.00-15).

NO<abnormal for all>: Go to Step 27.

NO<only front door speaker (RH) is abnormal>: Go to Step 3.

NO<only front door speaker (LH) is abnormal>: Go to Step 7.

NO<only rear door speaker (RH) is abnormal>: Go to Step 11.

NO<only rear door speaker (LH) is abnormal>: Go to Step 15.

NO<only tweeter (RH) vehicles with 6 speakers is abnormal>: Go to Step 19.

NO<only tweeter (LH) vehicles with 6 speakers is abnormal>: Go to Step 23.

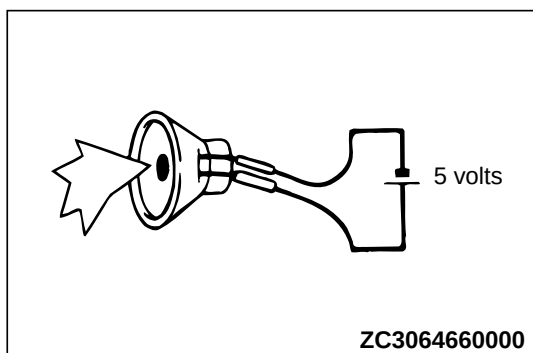
STEP 3. Check front door speaker (RH) connector E-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q:Is front door speaker (RH) connector E-04 in good condition?**

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. Front door speaker (RH) check.

- (1) Remove the front door speaker (RH). Refer to P.54B-163.



(2) Check that the front door speaker (RH) outputs the noise when the voltage of five volts is applied to the front door speaker (RH) connector terminal.

Q: Does the front door speaker (RH) output the noise?

YES: Go to Step 5.

NO: Replace the front door speaker (RH).

STEP 5. Check radio and CD player or CD changer connector C-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player or CD changer connector C-16 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 radio and CD player or CD changer connector C-16 (terminal 26, 36) and front door speaker (RH) connector E-04 (terminal 1, 2).

NOTE: Also check intermediate connector C-112 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-112 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

*Check the communication lines for open circuit.

Q: Is the wiring harness between radio and CD player or CD changer connector C-16 (terminal 26, 36) and front door speaker (RH) connector E-04 (terminal 1, 2) in good condition?

YES: Check the trouble symptom. Go to Step 27.

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 front door speaker (LH) connector E-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

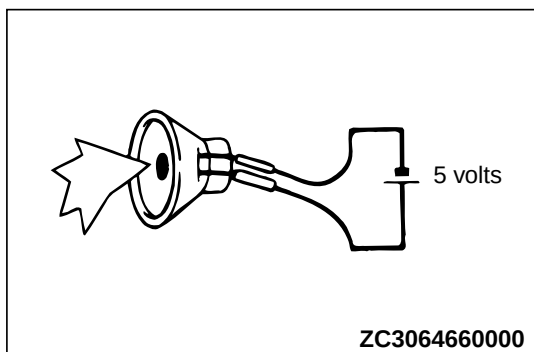
Q: Is front door speaker (LH) connector E-17 in good condition?

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. Front door speaker (LH) check.

(1) Remove the front door speaker (LH). Refer to P.54B-163.



(2) Check that the front door speaker (LH) outputs the noise when the voltage of five volts is applied to the front door speaker (LH) connector terminal.

Q: Does the front door speaker (LH) output the noise?

YES: Go to Step 9.

NO: Replace the front door speaker (LH).

STEP 9. Check radio and CD player or CD changer connector C-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player or CD changer connector C-16 in good condition?

YES: Go to Step 10.

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

STEP 10. Check the wiring harness between radio and CD player or CD changer connector C-16 (terminal 28, 38) and front door speaker (LH) connector E-17 (terminal 1, 2).

NOTE: Also check intermediate connector C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-126 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

*Check the communication lines for open circuit.

Q: Is the wiring harness between radio and CD player or CD changer connector C-16 (terminal 28, 38) and front door speaker (LH) connector E-17 (terminal 1, 2) in good condition?

YES: Check the trouble symptom. Go to Step 27.

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 11. Check rear door speaker (RH) connector E-24 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

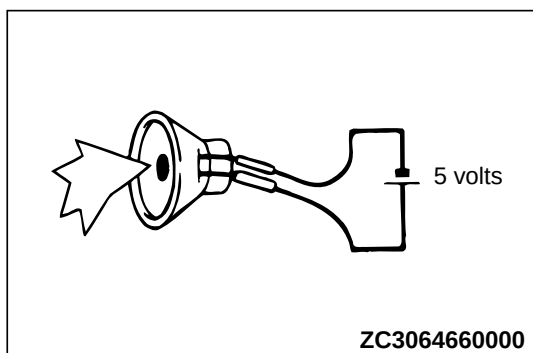
Q: Is rear door speaker (RH) connector E-24 in good condition?

YES: Go to Step 12.

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

STEP 12. Rear door speaker (RH) check

(1) Remove the rear door speaker (RH). Refer to P.54B-163.



(2) Check that the rear door speaker (RH) outputs the noise when the voltage of five volts is applied to the rear door speaker (RH) connector terminal.

Q: Does the rear door speaker (RH) output the noise?

YES: Go to Step 13.

NO: Replace the rear door speaker (RH).

STEP 13. Check radio and CD player or CD changer connector C-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player or CD changer connector C-16 in good condition?

YES: Go to Step 14.

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

STEP 14. Check the wiring harness between radio and CD player or CD changer connector C-16 (terminal 25, 35) and rear door speaker (RH) connector E-10 (terminal 1, 2).

NOTE: Also check intermediate connectors C-20 and D-36 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-20 or D-36 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

*Check the communication lines for open circuit.

Q: Is the wiring harness between radio and CD player or CD changer connector C-16 (terminal 25, 35) and rear door speaker (RH) connector E-10 (terminal 1, 2) in good condition?

YES: Check the trouble symptom. Go to Step 27.

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. Check rear door speaker (LH) connector E-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

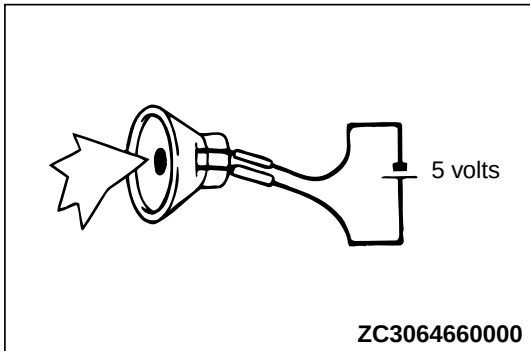
Q: Is rear door speaker (LH) connector E-10 in good condition?

YES: Go to Step 16.

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

STEP 16. Rear door speaker (LH) check.

(1) Remove the rear door speaker (LH). Refer to P.54B-163.



- (2) Check that the rear door speaker (LH) outputs the noise when the voltage of five volts is applied to the rear door speaker (LH) connector terminal.

Q: Does the rear door speaker (LH) output the noise?

YES: Go to Step 17.

NO: Replace the rear door speaker (LH).

STEP 17. Check radio and CD player or CD changer connector C-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player or CD changer connector C-16 in good condition?

YES: Go to Step 18.

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

STEP 18. Check the wiring harness between radio and CD player or CD changer connector C-16 (terminal 27, 37) and rear door speaker (LH) connector E-10 (terminal 1, 2).

NOTE: Also check intermediate connectors C-32 and D-21 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-32 or D-21 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

* Check the communication lines for open circuit.

Q: Is the wiring harness between radio and CD player or CD changer connector C-16 (terminal 27, 37) and rear door speaker (LH) connector E-10 (terminal 1, 2) in good condition?

YES: Check the trouble symptom. Go to Step 27.

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 19. Check tweeter (RH) connector E-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

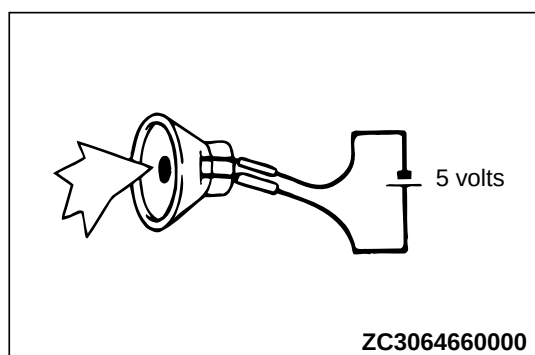
Q: Is tweeter (RH) connector E-02 in good condition?

YES: Go to Step 20.

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

STEP 20. Tweeter (RH) check.

- (1) Remove the tweeter (RH). Refer to P.54B-163.



(2) Check that the tweeter (RH) outputs the noise when the voltage of five volts is applied to the tweeter (RH) connector terminal.

Q: Does the tweeter (RH) output the noise?

YES: Go to Step 21.

NO: Replace the tweeter (RH).

STEP 21. Check radio and CD player or CD changer connector C-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player or CD changer connector C-16 in good condition?

YES: Go to Step 22.

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

STEP 22. Check the wiring harness between radio and CD player or CD changer connector C-16 (terminal 26, 36) and tweeter (RH) connector E-02 (terminal 2, 1).

NOTE: Also check intermediate connector C-113 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-113 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

*Check the communication lines for open circuit.

Q: Is the wiring harness between radio and CD player or CD changer connector C-16 (terminal 26, 36) and tweeter (RH) connector E-02 (terminal 2, 1) in good condition?

YES: Check the trouble symptom. Go to Step 27.

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 23. Check tweeter (LH) connector E-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

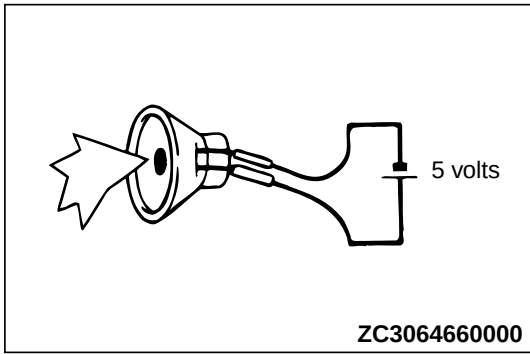
Q: Is tweeter (LH) connector E-14 in good condition?

YES: Go to Step 24.

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

STEP 24. Tweeter (LH) check.

(1) Remove the tweeter (LH). Refer to P.54B-163.



(2) Check that the tweeter (LH) outputs the noise when the voltage of five volts is applied to the tweeter (LH) connector terminal.

Q: Does the tweeter (LH) output the noise?

YES: Go to Step 25.

NO: Replace the tweeter (LH).

STEP 25. Check radio and CD player or CD changer connector C-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player or CD changer connector C-16 in good condition?

YES: Go to Step 26.

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

STEP 26. Check the wiring harness between radio and CD player or CD changer connector C-16 (terminal 28, 38) and tweeter (LH) connector E-14 (terminal 2, 1).

NOTE: Also check intermediate connector C-127 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-127 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

*Check the communication lines for open circuit.

Q: Is the wiring harness between radio and CD player or CD changer connector C-16 (terminal 28, 38) and tweeter (LH) connector E-14 (terminal 2, 1) in good condition?

YES: Check the trouble symptom. Go to Step 27.

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 27. Retest the system

Check if the sound is output from the speakers.

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.00-15).

NO: Replace the radio and CD player or CD changer.

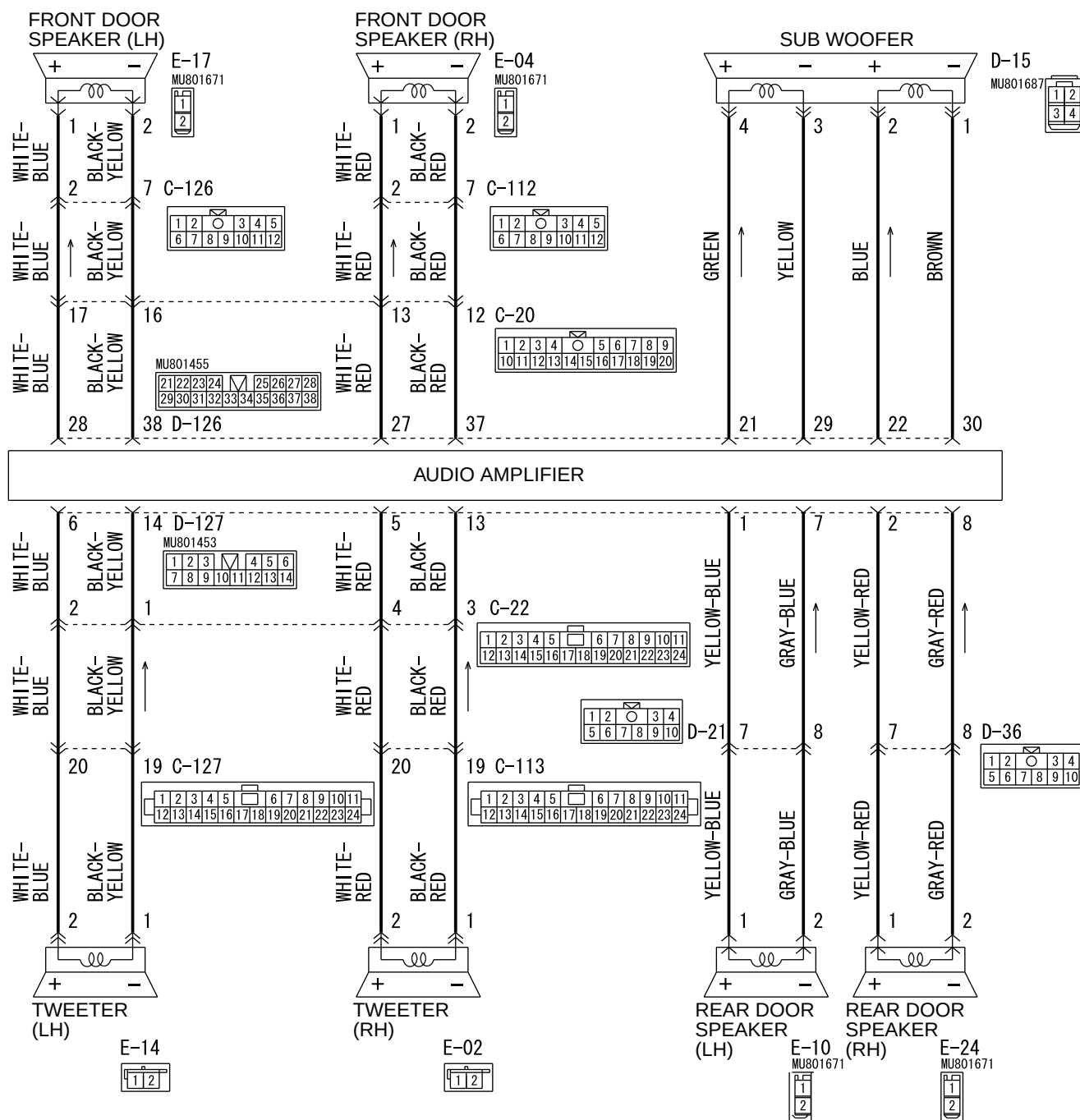
Inspection Procedure 3: No sound is heard from one of the speakers. <Vehicles with audio amplifier>

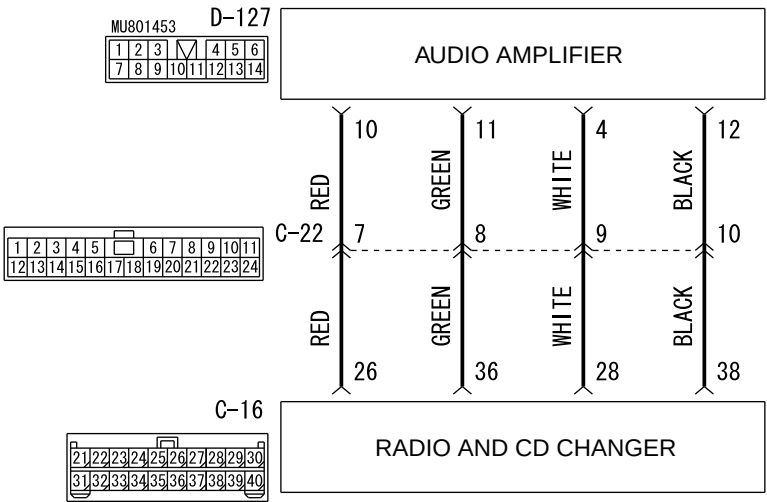
M15410800357USA0000010000

** CAUTION**

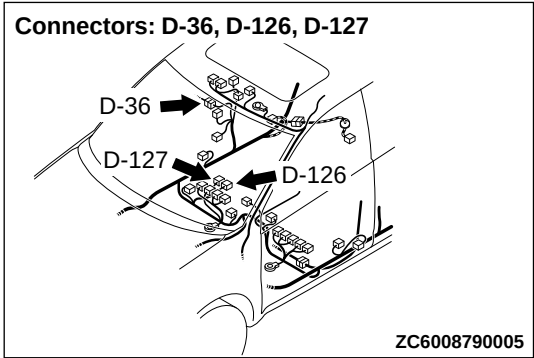
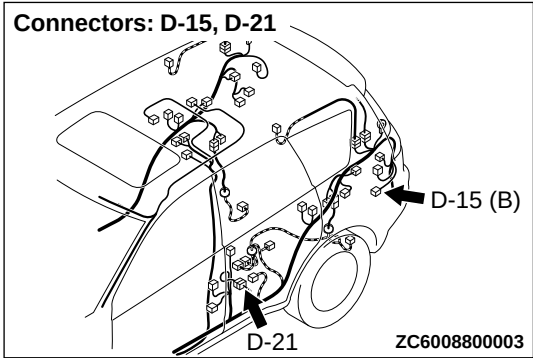
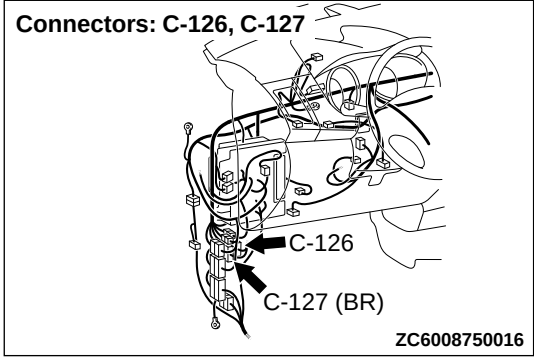
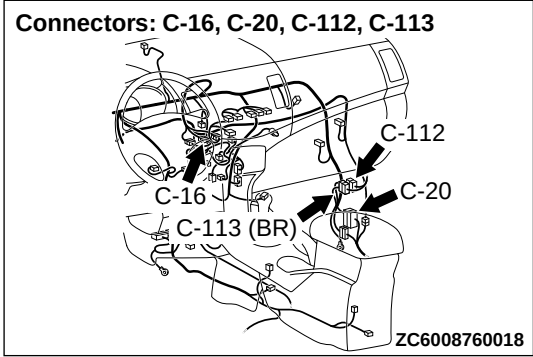
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Speaker System Circuit

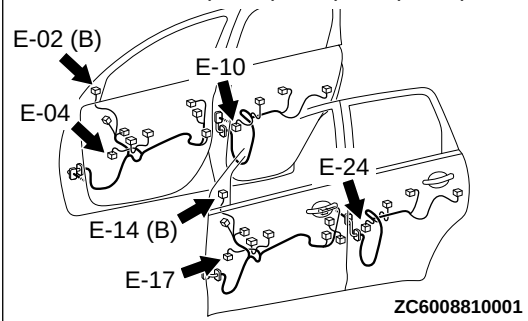




D7G54M010A00



Connectors: E-02, E-04, E-10, E-14, E-17, E-24

**COMMENTS ON TROUBLE SYMPTOM**

If the sound is not heard from one of the speakers, the speaker, radio and CD changer, audio amplifier, communication line from the radio and CD changer 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 changer
- 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. 00-34.)
- (2) Check that the "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 "Speaker" to "Premium," and check the trouble symptom.

STEP 2. Checking with audio speaker check.

Perform the audio speaker check, and check which speaker does not output the sound. Refer to P.54B-163.

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. 00-15).

NO<abnormal for all>: Refer to Inspection Procedure 2 "No sound is heard" P. 54B-23.

NO<only front door speaker (RH) is abnormal>: Go to Step 3.

NO<only front door speaker (LH) is abnormal>: Go to Step 9.

NO<only rear door speaker (RH) is abnormal>: Go to Step 15.

NO<only rear door speaker (LH) is abnormal>: Go to Step 19.

NO<only tweeter (RH) is abnormal>: Go to Step 23.

NO<only tweeter (LH) is abnormal>: Go to Step 27.

NO<only subwoofer is abnormal>: Go to Step 31.

STEP 3. Check front door speaker (RH) connector E-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door speaker (RH) connector E-04 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 front door speaker (RH).

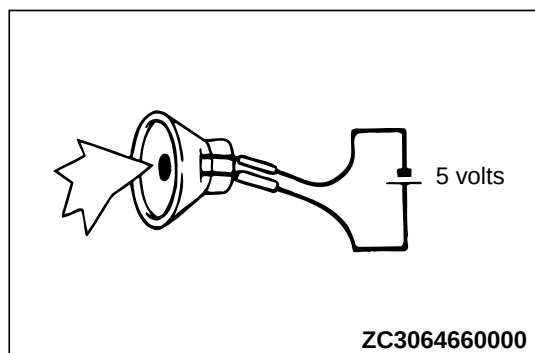
(1) Remove the front door speaker (RH). Refer to P.54B-170.

(2) Check that the front door speaker (RH) outputs the noise when the voltage of five volts is applied to the front door speaker (RH) connector terminal.

Q: Does the front door speaker (RH) output the noise?

YES: Go to Step 5.

NO: Replace the front door speaker (RH).



STEP 5. Check audio amplifier connector D-126 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-126 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 audio amplifier connector D-126 (terminal 27, 37) and front door speaker (RH) connector E-04 (terminal 1, 2).

NOTE: Also check intermediate connectors C-20 and C-112 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-20 or C-112 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

• Check the communication lines for open circuit.

Q: Is the wiring harness between audio amplifier connector D-126 (terminal 27, 37) and front door speaker (RH) connector E-04 (terminal 1, 2) 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 changer connector C-104 and audio amplifier connector C-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are radio and CD changer connector C-104 and audio amplifier connector C-16 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 changer connector C-16 (terminal 26, 36) and audio amplifier connector D-127 (terminal 10, 11).

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.

* Check the communication lines for open circuit.

Q: Is the wiring harness between radio and CD changer connector C-16 (terminal 26, 36) and audio amplifier connector D-127 (terminal 10, 11) in good condition?

YES: Check the trouble symptom, and go to Step 35.

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 front door speaker (LH) connector E-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

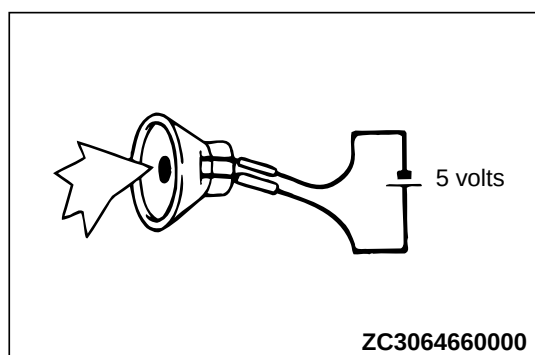
Q: Is front door speaker (LH) connector E-17 in good condition?

YES: Go to Step 10.

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

STEP 10. Check the front door speaker (LH).

(1) Remove the front door speaker (LH). Refer to P.54B-170.



(2) Check that the front door speaker (LH) outputs the noise when the voltage of five volts is applied to the front door speaker (LH) connector terminal.

Q: Does the front door speaker (LH) output the noise?

YES: Go to Step 11.

NO: Replace the front door speaker (LH).

STEP 11. Check audio amplifier connector D-126 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-126 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.

STEP 12. Check the wiring harness between audio amplifier connector D-126 (terminal 28, 38) and front door speaker (LH) connector E-17 (terminal 1, 2).

NOTE: Also check intermediate connectors C-20 and C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-20 and C-126 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

*Check the communication lines for open circuit.

Q: Is the wiring harness between audio amplifier connector D-126 (terminal 28, 38) and front door speaker (LH) connector E-17 (terminal 1, 2) 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 radio and CD changer connector C-16 and audio amplifier connector C-127 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD changer connector C-16 and audio amplifier connector C-127 in good condition?

YES: Go to Step 14.

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

STEP 14. Check the wiring harness between radio and CD changer connector C-16 (terminal 28, 38) and audio amplifier connector D-127 (terminal 4, 12)

*Check the communication lines for open 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 changer connector C-16 (terminal 28, 38) and audio amplifier connector D-127 (terminal 4, 12) in good condition?

YES: Check the trouble symptom, and go to Step 35.

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. Check rear door speaker (RH) connector E-24 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door speaker (RH) connector E-24 in good condition?

YES: Go to Step 16.

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

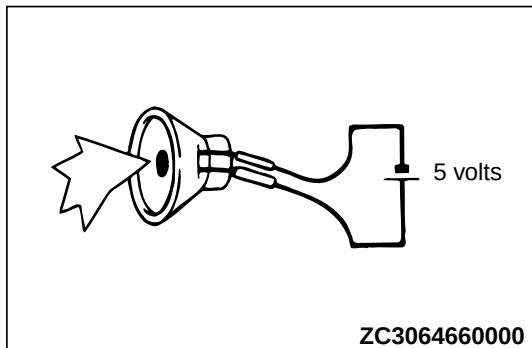
STEP 16. Check the rear door speaker (RH).

- (1) Remove the rear door speaker (RH). Refer to P.54B-170.
- (2) Check that the rear door speaker (RH) outputs the noise when the voltage of five volts is applied to the rear door speaker (RH) connector terminal.

Q: Does the rear door speaker (RH) output the noise?

YES: Go to Step 17.

NO: Replace the rear door speaker (RH).



STEP 17. Check audio amplifier connector D-127 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-127 in good condition?

YES: Go to Step 18.

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

STEP 18. Check the wiring harness between audio amplifier connector D-127 (terminal 2, 8) and rear door speaker (RH) connector E-24 (terminal 1, 2).

NOTE: Also check intermediate connector D-36 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-36 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

*Check the communication lines for open circuit.

Q: Is the wiring harness between audio amplifier connector D-127 (terminal 2, 8) and rear door speaker (RH) connector E-24 (terminal 1, 2) in good condition?

YES: Check the trouble symptom, and go to Step 35.

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 19. Check rear door speaker (LH) connector E-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door speaker (LH) connector E-10 in good condition?

YES: Go to Step 20.

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

STEP 20. Check the rear door speaker (LH).

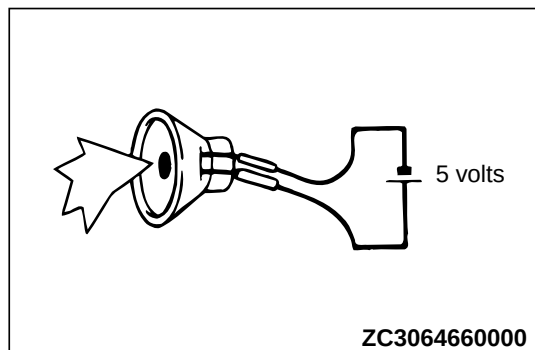
(1) Remove the rear door speaker (LH). Refer to P.54B-170.

(2) Check that the rear door speaker (LH) outputs the noise when the voltage of five volts is applied to the rear door speaker (LH) connector terminal.

Q: Does the rear door speaker (LH) output the noise?

YES: Go to Step 21.

NO: Replace the rear door speaker (LH).



STEP 21. Check audio amplifier connector D-127 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-127 in good condition?

YES: Go to Step 22.

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

STEP 22. Check the wiring harness between audio amplifier connector D-127 (terminal 1, 7) and rear door speaker (LH) connector E-10 (terminal 1, 2).

NOTE: Also check intermediate connector D-21 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-21 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

*Check the communication lines for open circuit.

Q: Is the wiring harness between audio amplifier connector D-127 (terminal 1, 7) and rear door speaker (LH) connector E-10 (terminal 1, 2) in good condition?

YES: Check the trouble symptom, and go to Step 35.

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 23. Check tweeter (RH) connector E-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is tweeter (RH) connector E-02 in good condition?

YES: Go to Step 24.

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

STEP 24. Check the tweeter (RH).

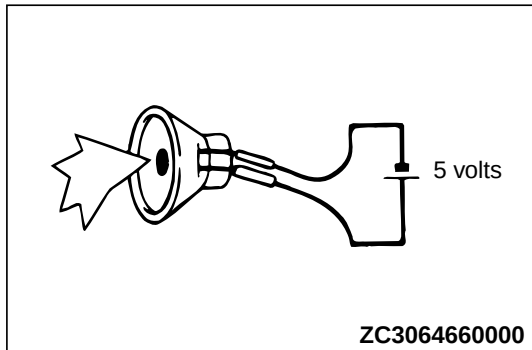
(1) Remove the tweeter (RH). Refer to P.54B-170.

(2) Check that the tweeter (RH) outputs the noise when the voltage of five volts is applied to the tweeter (RH) connector terminal.

Q: Does the tweeter (RH) output the noise?

YES: Go to Step 25.

NO: Replace the tweeter (RH).



STEP 25. Check audio amplifier connector D-127 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-127 in good condition?

YES: Go to Step 26.

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

STEP 26. Check the wiring harness between audio amplifier connector D-127 (terminal 5, 13) and tweeter (RH) connector E-02 (terminal 2, 1).

NOTE: Also check intermediate connectors C-22 and C-113 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-113 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

• Check the communication lines for open circuit.

Q: Is the wiring harness between audio amplifier connector D-127 (terminal 5, 13) and tweeter (RH) connector E-02 (terminal 2, 1) in good condition?

YES: Check the trouble symptom, and go to Step 35.

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 27. Check tweeter (LH) connector E-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is tweeter (LH) connector E-14 in good condition?

YES: Go to Step 28.

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

STEP 28. Check the tweeter (LH).

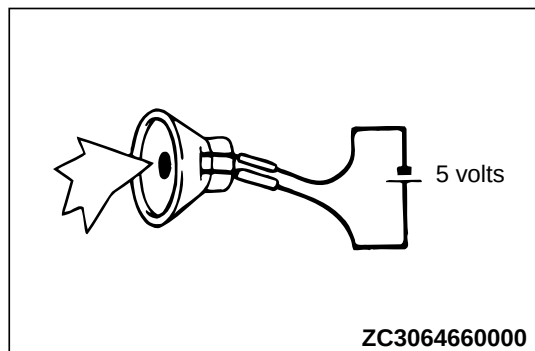
(1) Remove the tweeter (LH). Refer to P.54B-170.

(2) Check that the tweeter (LH) outputs the noise when five volts are applied to the tweeter (LH) connector terminal.

Q: Does the tweeter (LH) output the noise?

YES: Go to Step 29.

NO: Replace the tweeter (LH).



STEP 29. Check audio amplifier connector D-127 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-127 in good condition?

YES: Go to Step 30.

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

STEP 30. Check the wiring harness between audio amplifier connector D-127 (terminal 6, 14) and tweeter (LH) connector E-14 (terminal 2, 1).

NOTE: Also check intermediate connectors C-22 and C-113 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-113 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

• Check the communication lines for open circuit.

Q: Is the wiring harness between audio amplifier connector D-127 (terminal 6, 14) and tweeter (LH) connector E-14 (terminal 2, 1) in good condition?

YES: Check the trouble symptom, and go to Step 35.

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 31. Check subwoofer connector D-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is subwoofer connector D-15 in good condition?

YES: Go to Step 32.

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

STEP 32. Check the Subwoofer.

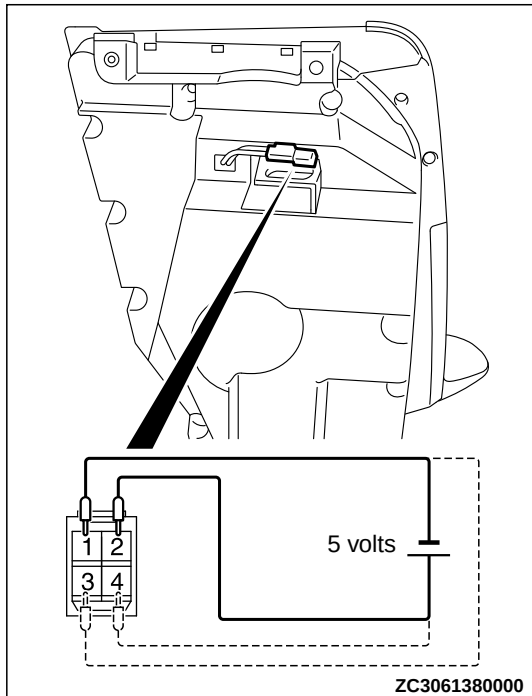
(1) Remove the subwoofer. Refer to P.54B-170.

(2) Check that the subwoofer outputs the noise when five volts are applied to the subwoofer connector terminal.

Q:Does the subwoofer output the noise?

YES: Go to Step 33.

NO: Replace the subwoofer.



STEP 33. Check audio amplifier connector D-126 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q:Is audio amplifier connector D-126 in good condition?

YES: Go to Step 34.

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

STEP 34. Check the wiring harness between audio amplifier connector D-126 (terminal 21, 22, 29, 30) and subwoofer connector D-15 (terminal 4, 2, 3, 1).

*Check the communication lines for open circuit.

Q:Is the wiring harness between audio amplifier connector D-126 (terminal 21, 22, 29, 30) and subwoofer connector D-15 (terminal 4, 2, 3, 1) in good condition?

YES: Check the trouble symptom, and go to Step 35.

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 35. 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: 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. 00-15).

NO: Replace the radio and CD player or CD changer.

Inspection Procedure 4: Noise is present while moving (AM).

M15410800028USA0000010000

DIAGNOSIS

STEP 1. Ask the driver about the noise.

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

Q: Is the detected noise a vehicle noise?

YES (Vehicle noise is detected.): It may not be possible to prevent noise if the signal is weak. Go to step 2.

NO (External noise is detected.): In almost all cases, prevention on the receiver side is next to impossible when the signal is weak. Go to Step 4.

STEP 2. Ask the driver about the location where the noise occurs

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 4.

STEP 3. Check if the noise can be eliminated by adjusting the radio.

- (1) Adjust the radio as follows.
- (2) Change to a different station with a stronger signal. This will boost the systems resistance to outside interference.
- (3) Suppress high tones to reduce noise.

Q: Has the noise been eliminated?

YES: The noise has now been eliminated. Inform the customer that it is normal to hear noise while receiving a weak station.

NO: Go to Step 4.

STEP 4. Check for the noise.

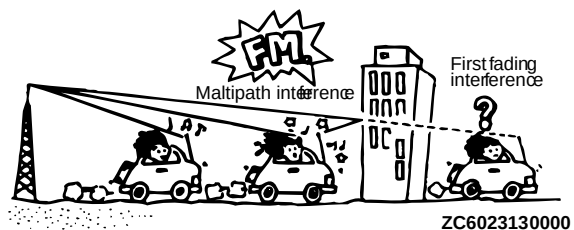
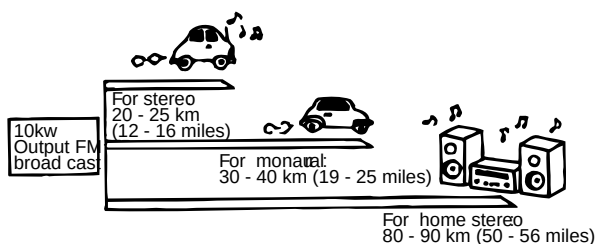
Q: Does noise still exist?

YES: If there is still more noise than on other similar radio's find out the type of noise. Ask the owner for the name and frequency of the affected stations, and consult with the radio manufacturer service center.

NO: System is operating normally.

Inspection Procedure 5: Noise is present while moving (FM).

M15410800029USA0000010000



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.

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 (12 - 16 miles) for stereo reception, and 30 - 40 km (19 - 25 miles) for monaural reception.
2. The signal will become weak when an area of shadow from the transmitting antenna (places where there are obstructions such as mountains 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.

5. Change to a different station with a stronger wave to boost resistance to interference.
6. Suppress high tones to reduce noise.
7. Does vehicle have an antenna which extend? If not eliminate this step.

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

8. If due to vehicle noise: It may not be possible to prevent noise if the signal is weak.
9. 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 6: Sound mixed with noise, only at night (AM).

M15410800034USA0000010000

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

1. It is significantly easier to receive long-distance signals at night. This means that even stations that are received without a problem during the day may experience problems at night. Remember that the weaker station is more susceptible to interference. The appearance of a beat sound may occur in the evening. A beat sound is created when two signals close in frequency interfere with each other. A common sign of this type of interference is a repetitious high-pitched sound that may overpower the desired radio station. This sound is generated not only by sound signals but electrical waves as well.
2. The changing system may also be a source of noise. When diagnosing radio noise, do not overlook the possibility of a problem with the vehicle's generator.

DIAGNOSIS

STEP 1. Check the vehicle's lighting system.

Q: Does the noise disappear when the vehicle's headlights are turned "OFF"?

YES: Go to Step 2.

NO: Go to Step 3.

STEP 2. Check that the following actions disappear the noise.

Tune to a station with a stronger signal.

Q: Is there more noise than on radio in other vehicles?

YES: Consult the radio manufacturer's service center.

NO: Check that there is no noise.

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: Consult the radio manufacturer's service center.

NO: If there is more noise than other radios, consult the radio manufacturer's service center.

Inspection Procedure 7: Noise is overpowering both AM and FM.

M15410800032USA0000010000

DIAGNOSIS

STEP 1. Check the state of the antenna.

Q:Is the mast antenna assembled?

YES: Go to Step 2.

NO: Assemble the mast antenna. Check to see that the noise is gone.

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

Q:Does noise occur when the engine is stopped ?

YES(When the engine is stopped): Go to Step 3.

NO(When the engine is running): Check the vehicle's noise suppressor. (Refer to Inspection Procedure 9 P.54B-54.)

STEP 3. Verify that the following actions disappear the noise.

- (1) Tune to a station with a stronger wave.
- (2) Extend the antenna completely (Mast antenna).
- (3) Adjust the sound quality to suppress high tones.

Q:Is the noise eliminated?

YES: Consult the radio manufacturer's service center.

NO: Go to Step 4.

STEP 4. 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 5.

NO: Consult the radio manufacturer's service center.

STEP 5. Check the connection of the antenna plug and radio and CD player or CD changer.

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. Verify that the noise is eliminated when the antenna plug is properly attached.

Q:Is the noise eliminated?

YES: Consult the radio manufacturer's service center.

NO: Go to Step 7.

STEP 7. Verify 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: Either repair or replace the antenna assembly. Check to see that the noise is gone.

Inspection Procedure 8: Excessive noise on AM and FM.

M15410800033USA0000010000

DIAGNOSIS

Radio reception can be affected by Radio Frequency (RF) emissions from a variety of sources. The

disturbance is even greater if the station is weak or poorly tuned. FM reception is not as sensitive to disturbances as AM. AM reception is sensitive to electrical disturbances such as power lines, lightening and other types of similar electrical phenomena.

STEP 1. Check if the customer heard the noise under any of the following conditions.

- A motorcycle was passing.
- Lighting was flashing.
- Passed beneath a power line.
- Passed beneath a telephone line.
- Passed by a signal generator.
- Passed by any other sources of electrical noise.
- Passed under a bridge or through a tunnel.

Q: Did the noise occur during any of the circumstances listed above?

YES: The observed noise is normal.

NO: Go to Step 2.

STEP 2. Compare the customer's radio to another identical model.

Operate the radio in a vehicle with a known good audio system of the same type as the customer's.

Q: Is there more noise on the customer's radio?

YES: Check all power and ground connections. If all connections are in good condition, consult the radio manufacturers service center.

NO: The observed noise is normal.

Inspection Procedure 9: Noise is detected with engine running.

M15410800027USA0000010000

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.

⚠ CAUTION

Confirm that the noise is not from an external source.

⚠ CAUTION

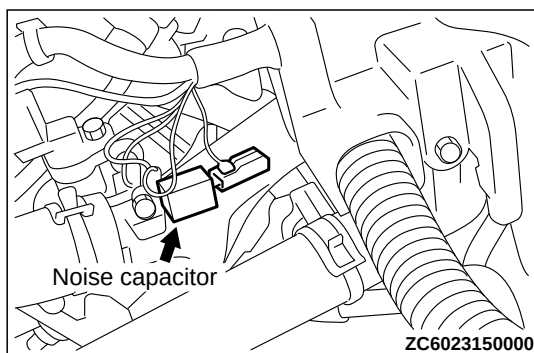
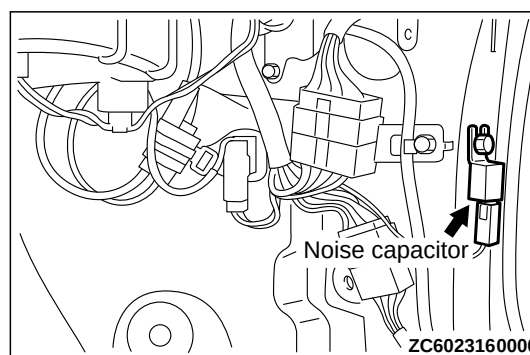
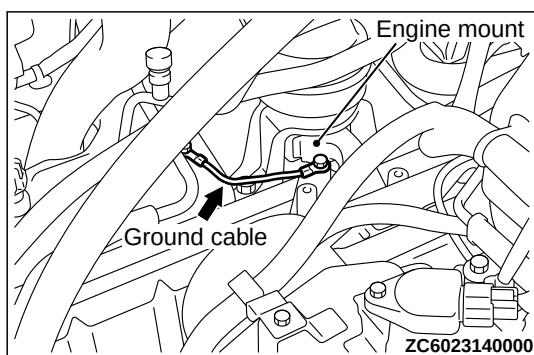
Noise prevention should be performed by suppressing strong sources of noise first.

NOTE: Voltage surges can be induced in the electrical system by the collapse of a field (i. e.

When power is removed from the coil in an A/C compressor clutch). This induced voltage surge will radiate a Radio Frequency (RF) signal that is picked up by the audio unit. In the case of the compressor clutch a "pop" will be heard through the speakers. The capacitor, installed on this vehicle, will store the excess voltage and prevent the production of RF noise. This is because the capacitor will charge and discharge as the voltage fluctuates. This has the effect of "attracting" noise and bleeding it to ground without interfering with the normal flow of current through the system.

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. ▪ Check or replace the noise capacitor.

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 10: Noise appears during vibration or shocks.

M15410800030USA0000010000

DIAGNOSIS

STEP 1. Check the fit of the mast antenna.

Q: Is the mast antenna base fitted securely?

YES: Go to Step 2.

NO: Install the mast antenna, and tighten the mounting nut (Refer to P. 54B-173). Check that there is no noise.

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 or CD changer are fitted securely. Check that there is no noise.

STEP 3. 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 4.**NO:** It may be static electricity noise.

STEP 4. 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 5.**NO:** Tighten the screw securely. Check that there is no noise.

STEP 5. Check by replacing radio and CD player or CD changer.**Q: Do the other radio and CD player or CD changer work normally?****YES:** Either repair or replace the original radio and CD player or CD changer. Check that there is no noise.**NO:** Either repair or replace the antenna assembly. Check that there is no noise.

Inspection Procedure 11: Noise is present while moving (FM).

M15410800031USA0000010000

DIAGNOSIS**STEP 1. Check the state of the antenna.****Q: Is the mast antenna assembled?****YES:** Go to Step 2.**NO:** Assemble the mast antenna. Check that there is no noise.**STEP 2. Check the radio after adjusting it.****Q: Readjust the radio. Is the noise eliminated?****YES:** Check that there is no noise.**NO:** Go to Step 3.**STEP 3. Check with several broad casting.***NOTE: Multipath noise and fading noise: Because of 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 signal is disrupted by obstructing objects and the signal strength fluctuates intricately within a narrow range.

Q: Is the problem station or location specific?

YES: The effect of an electrical field condition (multipath noise, fading noise) could be the cause. Check that there is not noise.

NO: Go to Step 4.

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

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. 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.

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. Check that there is no noise.

STEP 6. Check by replacing radio and CD player or CD changer.

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

YES: Either repair or replace the original radio and CD player or CD changer. Check that there is no noise.

NO: Either repair or replace the antenna assembly. Check that there is no noise.

Inspection Procedure 12: Constant noise.

M15410800380USA0000010000

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 4 to 11, obtain information on the factors listed above. (Refer to P. 54B-18.) Determine whether the problem occurs on AM or FM, the station names, frequencies, etc. and contact the radio manufacturer's service center.

Inspection Procedure 13: No reception (AM).

M15410800381USA0000010000

DIAGNOSIS**STEP 1. Check the state of the antenna.****Q:Is the mast antenna assembled?****YES:** Go to Step 2.**NO:** Assemble the mast antenna. The radio should sound normally.**STEP 2. Check to see if inspections are taking place in 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. 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 reception of the strongest radio frequency possible within the area?**YES:** There is no action to be taken.**NO:** Go to Step 4.**STEP 4. Tune the radio, and then check it.****Q:Did the sensitivity improve after tuning?****YES:** There is no action to be taken.**NO:** Go to Step 5.**STEP 5. Check the connection of the antenna plug and radio and CD player or CD changer.****Q:Is the antenna plug thoroughly connected to the radio and CD player or CD changer?****YES:** Go to Step 6.**NO:** Thoroughly connect the antenna plug and the radio and CD player or CD changer. The radio should sound normally.**STEP 6. Check by replacing radio and CD player or CD changer.****Q:Do the other radio and CD player or CD changer work normally?****YES:** Either repair or replace the original radio and CD player or CD changer. The radio should sound normally.**NO:** Either repair or replace the antenna assembly. The radio should sound normally.

Inspection Procedure 14: Poor reception.

M15410800221USA0000010001

DIAGNOSIS**STEP 1. Check the state of the antenna.****Q:Is the mast antenna assembled?****YES:** Go to Step 2.**NO:** Assemble the mast antenna. Check that a poor reception is resolved.**STEP 2. Check to see if inspections are taking place in 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. 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 reception of the strongest radio frequency possible within the area?**YES:** Check that a poor reception is resolved.**NO:** Go to Step 4.**STEP 4. Tune the radio, and then check it.****Q:Did the sensitivity improve after tuning?****YES:** Check that a poor reception is resolved.**NO:** Go to Step 5.

STEP 5. Check with several broadcasting stations.

NOTE: Two types of noise are addressed in this procedure, multipath and fading noise. The frequency of FM waves is extremely high. This makes them susceptible to effects from geological formations and buildings. These effects disrupt the broadcast signal and obstruct reception in many ways.

**Multipath noise is 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).*

**A fading or buzzing noise may occur when the broadcast beam is disrupted by obstructing objects and the signal strength fluctuates 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 connection of the antenna plug and radio and CD player or CD changer.

Q: Is the antenna plug thoroughly connected to the radio and CD player or CD changer?

YES: Go to Step 7.

NO: Thoroughly connect the antenna plug and the radio and CD player or CD changer. Check that a poor reception is resolved.

STEP 7. Check by replacing radio and CD player or CD changer.

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

YES: Either repair or replace the original radio and CD player or CD changer. Check that a poor reception is resolved.

NO: Either repair or replace the antenna assembly. Check that a poor reception is resolved.

Inspection Procedure 15: Distortion on AM and/or FM.

M15410800025USA0000010000

DIAGNOSIS

STEP 1. Check the level of distortion.

Check how often sound is distorted.

Q: Is the sound distortion steady?

YES (Constant distortion): Go to Step 3.

NO (Occasional distortion): Go to Step 2.

STEP 2. Check the location of the distortion.

Q: Is there distortion when the vehicle is near the radio station?

YES: The antenna is receiving too strong a signal.

NO: Go to Step 3.

STEP 3. Check the wires at each speaker.

Q: Are the speaker wires contacting the paper speaker cone?

YES: Move the speaker wires away from the paper speaker cone. The speaker should now be free of distortion.

NO: Go to Step 4.

STEP 4. Remove the speakers, and check the paper cone for foreign material or damage.

Q: Is there foreign material or damage on the paper cone of the speaker?

YES: Repair or replace the speakers. The speaker should now be free of distortion.

NO: Go to Step 5.

STEP 5. Check for distortion with the speaker installed.

Q: Does a distortion occur?

YES: Install the speaker securely. The speaker should now be free of distortion.

NO: Repair or replace the radio and CD player or CD changer. The speaker should now be free of distortion.

INSPECTION PROCEDURE 16: Distortion on FM only.

M15410800026USA0000010000

DIAGNOSIS

STEP 1. Check that the distortion is present when the radio is tuned to another station.

Q: Does the distortion persist when the radio is tuned to another station?

YES: Go to Step 2.

NO: The signal from that station is too weak.

STEP 2. Relocate the reception area and check the radio.

Q: When relocating the reception area does the distortion increase or decrease?

YES: The cause may be multipath or fading noise. Multipath noise is 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). A fading or buzzing noise may occur when the broadcast beam is disrupted by obstructing objects and the signal strength fluctuates within a narrow range.

NO: Replace the radio and CD player. Check that a distortion is resolved.

Inspection Procedure 17: Auto select function inoperative, too few automatic stations are selected.

M15410800023USA0000010000

DIAGNOSIS

STEP 1. Check the state of the antenna.

Q: Is the mast antenna assembled?

YES: Go to Step 2.

NO: Assemble the mast antenna. The auto-select function should operate normally.

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 to see if inspections are taking place in 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 6.

NO: Go to Step 7.

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 connection of the antenna feeder cable and radio and CD player or CD changer.

Q:Is the antenna feeder cable thoroughly connected to the radio and CD player or CD changer?

YES: Repair or replace the radio and CD player or CD changer. The auto-select function should operate normally.

NO: Thoroughly connect the antenna feeder cable and the radio and CD player or CD changer. The auto-select function should operate normally.

Inspection Procedure 18: Preset stations are erased.

M15410800024USA0000010000

CIRCUIT OPERATION

Power is continuously supplied to the radio and CD player or CD changer.

TECHNICAL DESCRIPTION (COMMENT)

The cause is probably a faulty radio and CD player or CD changer memory backup power supply system circuit.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Refer to Inspection Procedure 1 P.54B-18.

Inspection Procedure 19: CD cannot be inserted.

M15410800020USA0000010000

DIAGNOSIS

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

Q:Has a CD been already loaded?

YES: Take out the CD (If the CD cannot be ejected, refer to Inspection Procedure 23 P. 54B-63). Check that a CD can be inserted.

NO: Go to Step 2.

STEP 2. Check how a CD is inserted.

Ensure that the ignition switch is at "ACC" or "ON" position.

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

Q:If you try to load the CD, does the CD stop halfway and then rejected?

YES: Refer to Inspection Procedure 23 P. 54B-63.

NO: Go to Step 3.

STEP 3. Check after the CD is loaded.

NOTE: Even though the CD is loaded, "ERROR 01" 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 01" displayed and the CD ejected?

YES: Go to Step 4.

NO: There is no action to be taken.

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. Check that a CD can be inserted.

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 or repair the CD player. Check that a CD can be inserted.

Inspection Procedure 20: No sound. (CD only)

M15410800326USA0000010000

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 radio and CD player or CD changer when the ignition switch is at "ACC" or "ON" position.

Q:Is the radio and CD player or CD changer energized when the ignition switch is turned to the "ACC" or "ON" position?

YES: Replace the radio and CD player or CD changer. The CD player or CD changer should sound normally.

NO: Check the memory backup power supply circuit. Refer to Inspection Procedure 1 P. 54B-18.

inspection procedure 21: CD sound skips.

M15410800022USA0000010000

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 or CD changer.

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 22: 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: Replace the audio. The sound quality should return to normal.

M15410800012USA0000010000

Inspection Procedure 23: CD cannot be ejected.

DIAGNOSIS

Check the power of ignition switch "ACC" position.

Q: Does the radio and CD player or CD changer power turn ON when the ignition switch is in the "ACC" or "ON" position?

YES: Either replace the audio. Check that a CD can be ejected normally.

NO: Check the memory backup power supply circuit. Refer to Inspection Procedure 1 P. 54B-18.

M15410800021USA0000010000

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 - Troubleshooting contents P. 00-6.

M15410800006USA0000010000

Precautions on servicing MMCS

Prior to disconnecting the vehicle battery

The MMCS stores a lot of information which your customer registers in its memory. All of this

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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

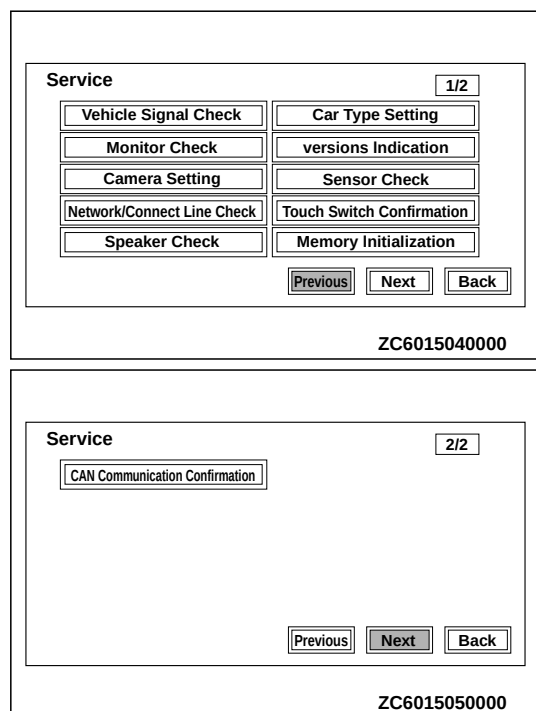
1. The precision of the GPS positioning is limited due to its operation principles. So, some of customer reports do not mean that the system is defective. Prior to troubleshooting, interrogate your customer about how the navigation system is used and where he/she drives. If you determine that the system 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.

Service mode

M15410800218USA0000010000

How to initiate the service mode

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.

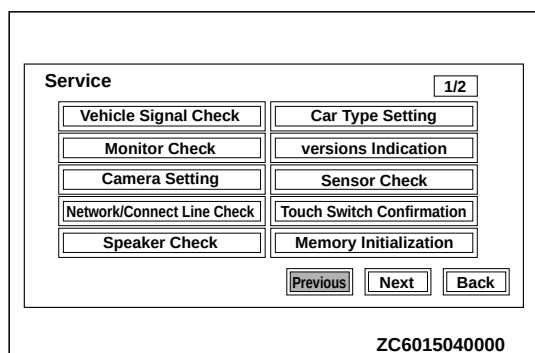
• If "NAVI" button is pressed with the service mode active, the service mode will terminate and change to the navigation screen.

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

- Vehicle Signal Check
- Monitor Check
- Network/Connect Line Check
- Car Type Setting
- Versions Indication
- Sensor Check
- Touch Switch Confirmation
- CAN communication Confirmation

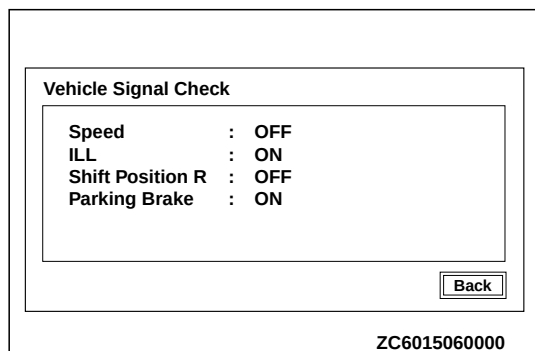
VEHICLE SIGNAL CHECK

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



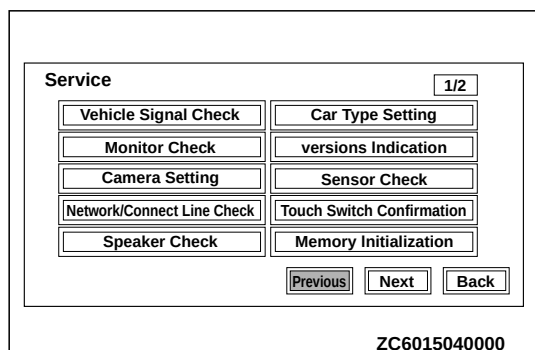
2. The check results will be displayed for the items below.

- "Speed": "ON" when the vehicle speed is 6 km/h or more, and "OFF" when the vehicle speed is 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.
- "Parking Brake": "ON" when the parking brake is pulled, and "OFF" when it is released.

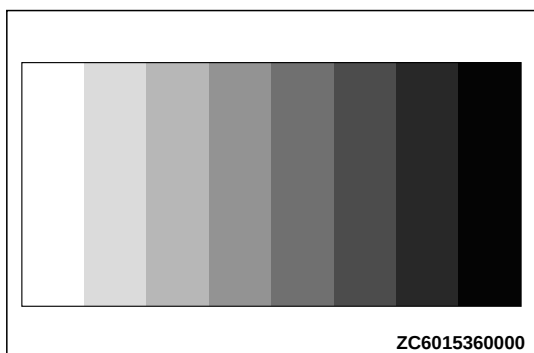


MONITOR CHECK

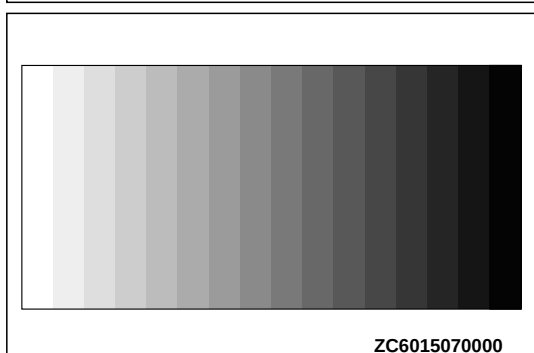
1. Select "Monitor Check" on "Service" screen.



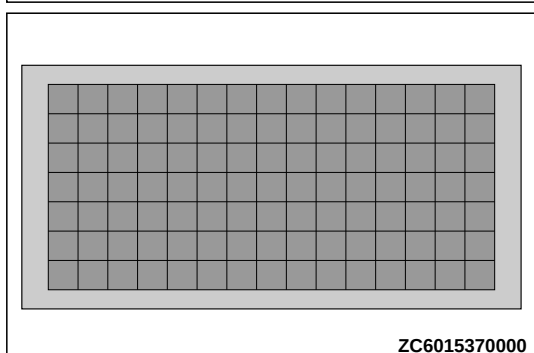
2. Eight color bars will be displayed.



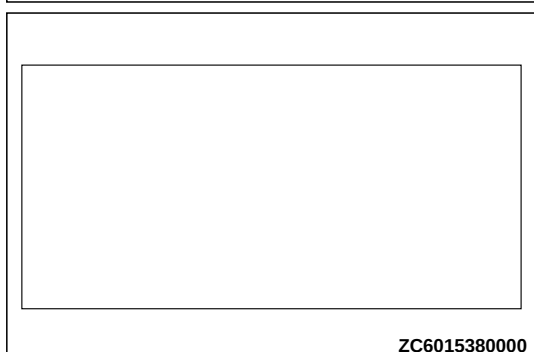
3. When "Enter" is pressed on the navigation unit joystick while the eight color bars are shown, gray scale will be displayed with a 16-step gradation.



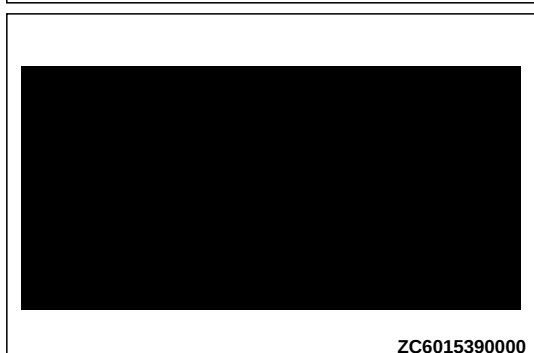
4. When "Enter" is pressed while the gray scale is shown with a 16-step gradation, a crosshatch pattern will be displayed (Each cell should be square).



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

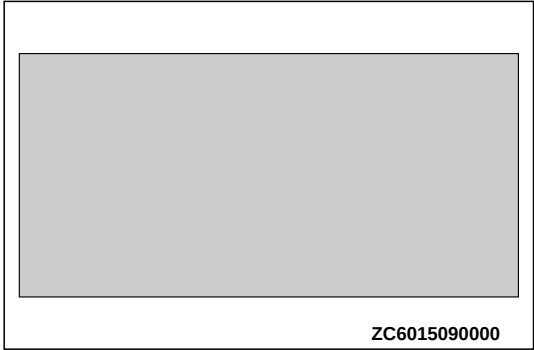


6. When "Enter" is pressed on the navigation unit joystick while the screen is white, it will turn black.





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



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

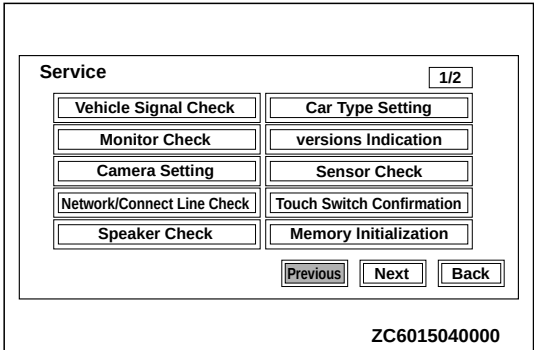


9. When "Enter" is pressed on the navigation unit joystick while the screen is green, it will turn blue.

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.



Network/Connect Line Check

Now checking the connection of the line.
Please wait.

Progress bar: 10 empty boxes

ZC6015110000

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

Network/Connect Line Result

DVD Drive	NG	Premium Audio	N/A
HDD Drive	OK	Rear Seat Display	N/A
SDRAM	OK	CAN BOX	OK
Rear Camera	N/A	Video Input	N/A
GPS Receiver	OK	TMC Antenna	N/A

NG Code Back

ZC6015120000

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: 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.

NG Code Indication

DVD Driver	0103

Back

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SPEAKER CHECK

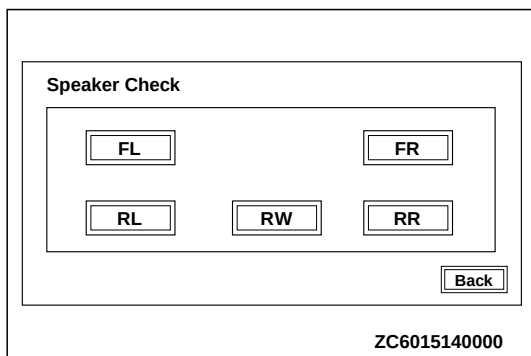
1. Select "Speaker Check" on "Service" screen.

Service 1/2

Vehicle Signal Check	Car Type Setting
Monitor Check	versions Indication
Camera Setting	Sensor Check
Network/Connect Line Check	Touch Switch Confirmation
Speaker Check	Memory Initialization

Previous Next Back

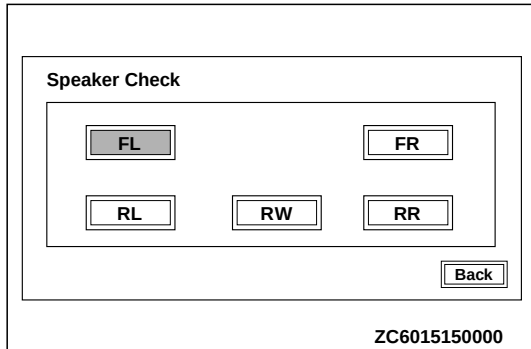
ZC6015040000



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

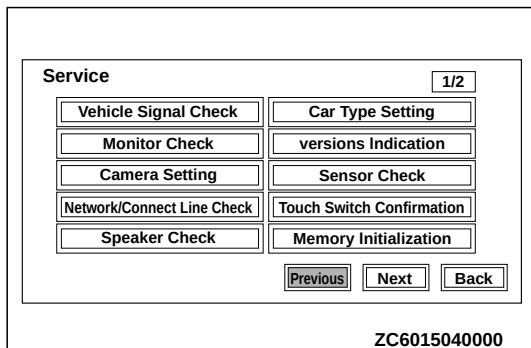
NOTE:

- *The number of the speakers being displayed depends on how many speakers are connected.
- *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.



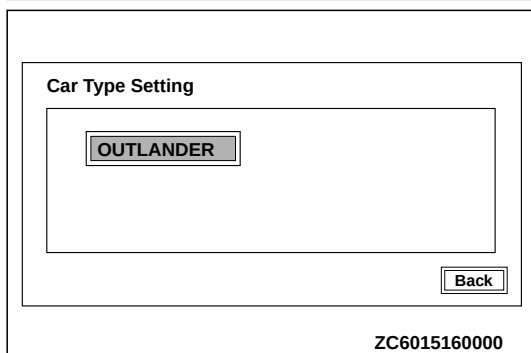
CAR TYPE SETTING

1. Select "Car Type Setting" on "Service" screen.



2. The vehicle name is displayed.

NOTE: It cannot be changed to another vehicle model.



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.

Service 1/2

Vehicle Signal Check	Car Type Setting
Monitor Check	versions Indication
Camera Setting	Sensor Check
Network/Connect Line Check	Touch Switch Confirmation
Speaker Check	Memory Initialization

ZC6015040000

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

Sensor Check

You can check the sensors.
Please don't move your car until after 5 seconds. After this you can move your car by changing the directions. If you are ready, please push Start

ZC6015170000

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

Sensor Check

Please don't move your car.

ZC6015180000

Sensor Check

Please move more than 10m
while changing direction of tha car.

ZC6015190000

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

Sensor Check

Speed Sensor	OK
Gyro Sensor	NG

ZC6015200000

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 Indication

Gyro Sensor	5

Back

ZC6015210000

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.

Service 1/2

Vehicle Signal Check	Car Type Setting
Monitor Check	versions Indication
Camera Setting	Sensor Check
Network/Connect Line Check	Touch Switch Confirmation
Speaker Check	Memory Initialization

Previous Next Back

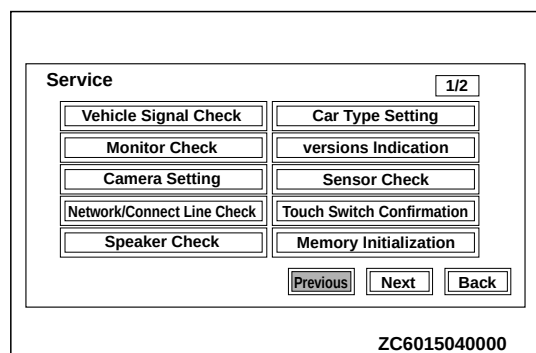
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2. If you touch the screen, the color of the dotted coordinate at the touched area will be changed.

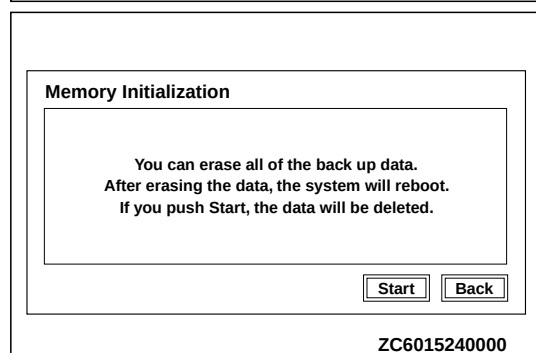
If you complete the touch switch confirmation, please push [MENU]

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ZC601523

**MEMORY INITIALIZATION**

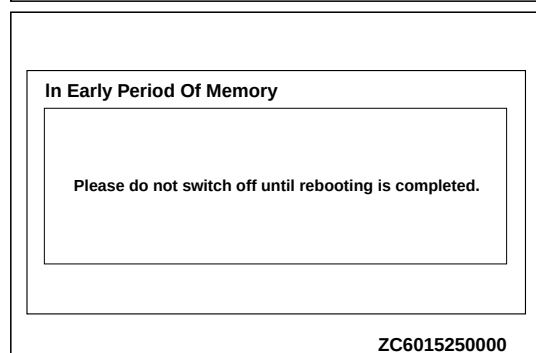
1. Select "Memory Initialization" on "Service" screen.



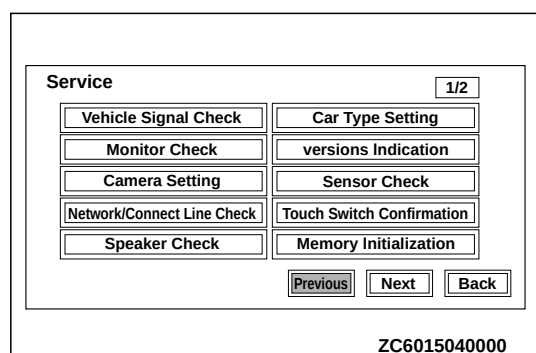
2. If you select "Start" on "Memory Initialization" screen, the settings such as registered locations and music server will be erased (initialized) from the memory.

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.



CAN Communication Confirmation

List Of Connection Equipment

Version Indication

CAN BOX Memory Data Indication

ZC6015260000

CAN List Of Connection Equipment

HVAC	OCM
SATR	CCN
HFM	WCM
FCM	
ORC	

ZC6015270000

Version Indication

Hardware : 1.2	Software : 01.02.03
CAN MATRIX : 05.25	CAN DRIVER : 73.00
NM : 43.24	KWP2000 : 49.10
TPMC : 33.11	DBKOM : 49.17
DIAG : 00h	

ZC6015280000

CAN BOX Memory Data Indication

Various Data

Coding Data

VIN

Tell-Tale Stack

Chrono Stack

ZC6015290000

Various Data

Origin : 04h Supplier : 85h

System ID : 08h Variation ID : 10h

Serial ID : 0000h

ECU Part Number : 008750A90

ECU Serial Number : 01234567890123

ZC6015300000

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
CNN	Combination meter
WCM	Wireless control module

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

Coding Data

Coding Data : 4000h

Back

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VIN

current VIN
0123456 0123456 012
Original VIN
0123456 0123456 012

Back

ZC6015320000

Tell-Tale Stack 2/8

Historical
DTC : C197h
Odometer : 0132h
Interrogation
DTC Read Counter : 04h
Odometer : 01a5h

Previ Next Back

ZC6015330000

Chrono Stack 2/8

DTC Value : 0197h
DTC Status : A0h
Odometer Mileage : 1B27h
Accumulation Timer : 06C4h
IG Counter : 15h

Previ Next Back

ZC6015340000

TROUBLE SYMPTOM CHART

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Trouble symptom		Inspection Procedure No.	Reference page
No navigation screen is displayed.		1	P.54B-76
No sound is heard. <Vehicles with audio amplifier>		2	P.54B-81
No sound is heard from one of the speakers.	<Vehicles without audio visual navigation unit>	3	P.54B-87
	<Vehicles with audio amplifier>		P.54B-97

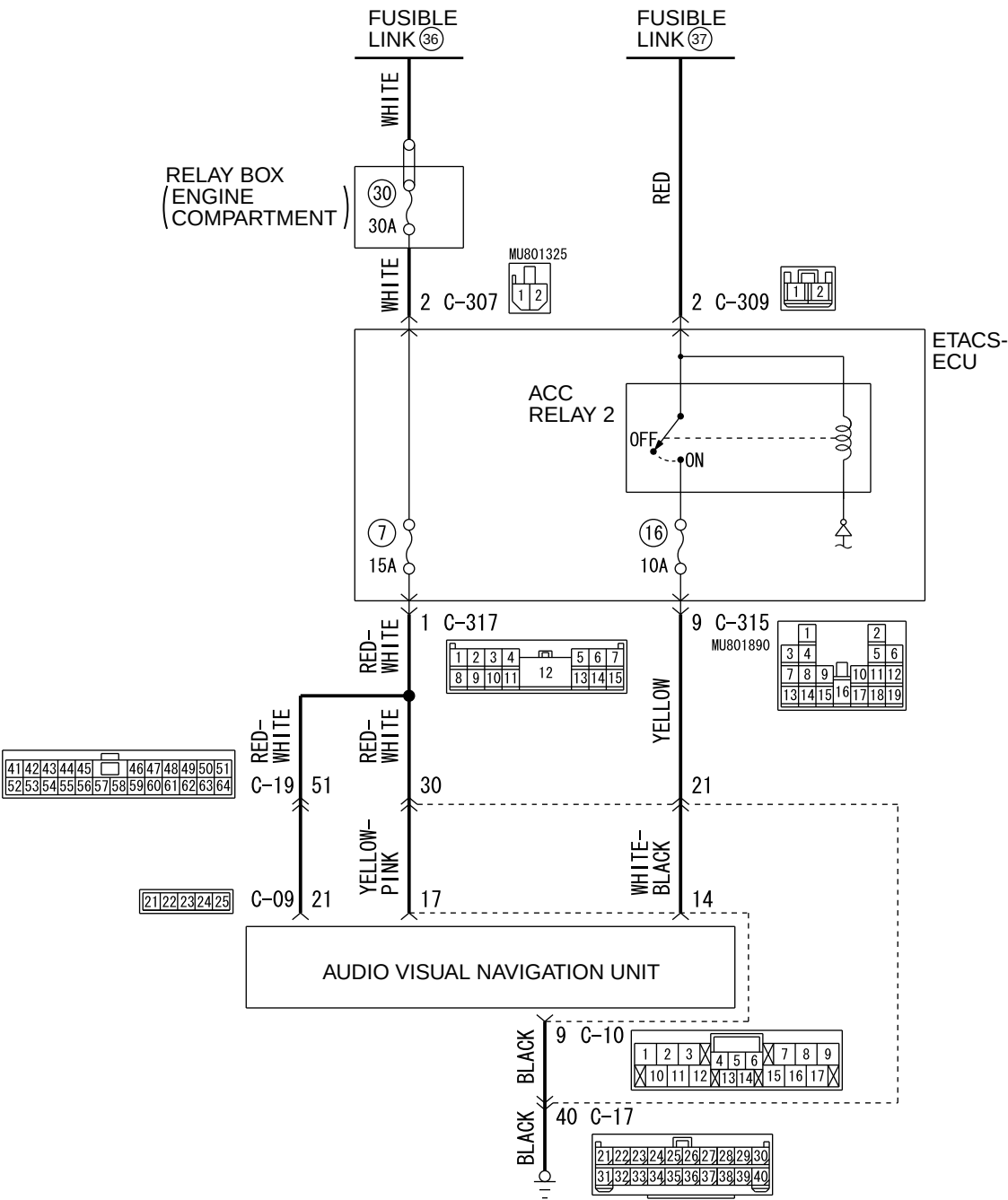
Trouble symptom	Inspection Procedure No.	Reference page
The navigation system can be operated while the vehicle is driven.	4	P.54B-109
The screen is not normal in the navigation mode.	5	P.54B-111
AM and/or FM station(s) cannot be received.	6	P.54B-113
GPS signal cannot be received.	7	P.54B-114
No DVD (video disk) cannot be played.	8	P.54B-115
Image of a DVD (video disk) is played, but no sound is played.	9	P.54B-116
Sound of a DVD (video disk) can be played, but no image is played.	10	P.54B-117
Check the CAN box unit power supply circuit.	11	P.54B-119
Communication with scan tool is not possible.	12	P.54B-122

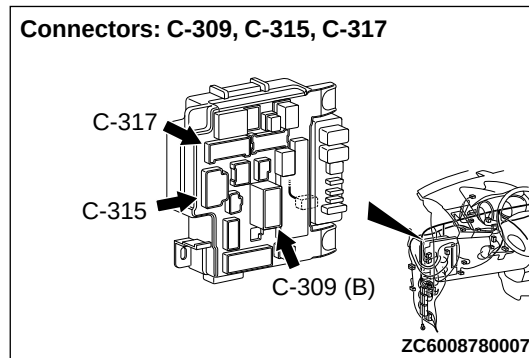
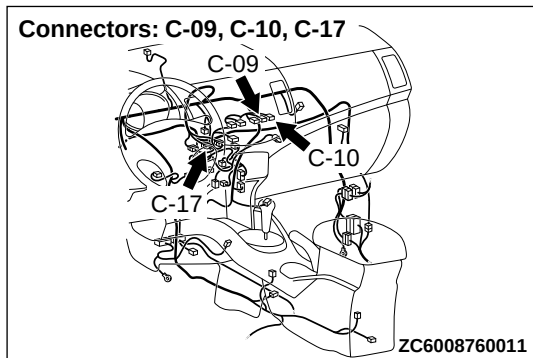
SYMPTOM PROCEDURES

Inspection Procedure 1: No navigation screen is displayed.

M15410800119USA0000010000

Audio Visual Navigation Unit Power Supply Circuit





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-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-10 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-10.

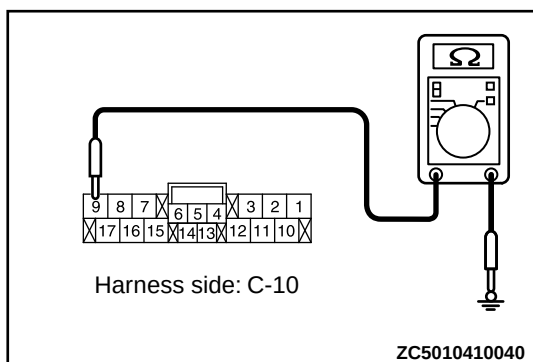
- (1) Disconnect audio visual navigation unit connector C-10, and measure the resistance available at the wiring harness side of the connector.
- (2) Measure the resistance between terminal 9 and ground.

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-10 (terminal 9) and ground.

NOTE: Also check intermediate connector C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17 is damaged,

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

*Check the ground wires for open circuit.

Q: Is the wiring harness between audio visual navigation unit connector C-10 (terminal 9) 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. 00-15).

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 4. 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 check result normal?

YES: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis P. 54Ad-8.

NO: Go to Step 5.

STEP 5. 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 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 audio visual navigation unit connector C-10 (terminal 17).

NOTE: Also check intermediate connector C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

*Check the power supply lines (battery supply) for open circuit.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 1) and audio visual navigation unit connector C-10 (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-09 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-09 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 ETACS-ECU connector C-317 (terminal 1) and audio visual navigation unit connector C-09 (terminal 21).

NOTE: Also check intermediate connector C-19 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-19 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

*Check the power supply lines (battery supply) for open circuit.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 1) and audio visual navigation unit connector C-09 (terminal 21) 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. 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 10.

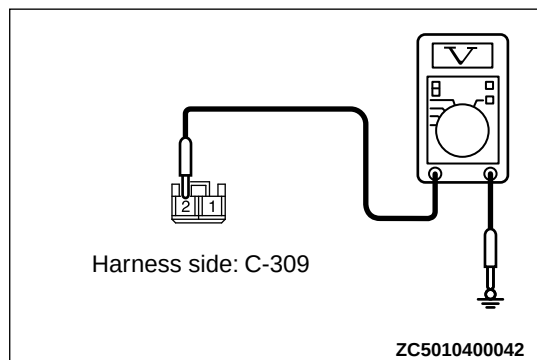
NO: Refer to GROUP 54Ad, Diagnosis - Inspection Procedure 1 "The ignition switch (ACC) signal is not received P. 54Ad-61."

STEP 10. 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 11.

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 11. 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 voltage

Q:Is the measured voltage battery voltage?

YES: Go to Step 13.

NO: Go to Step 12.

STEP 12. 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 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 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 14.

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 14. Check the wiring harness between audio visual navigation unit connector C-10 (terminal 14) and ETACS-ECU connector C-315 (terminal 9).

- * Check the power supply line for open circuit.

Q:Is the wiring harness between audio visual navigation unit connector C-10 (terminal 14) and ETACS-ECU connector C-315 (terminal 9) 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

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. 00-15).

NO: Replace the audio visual navigation unit.

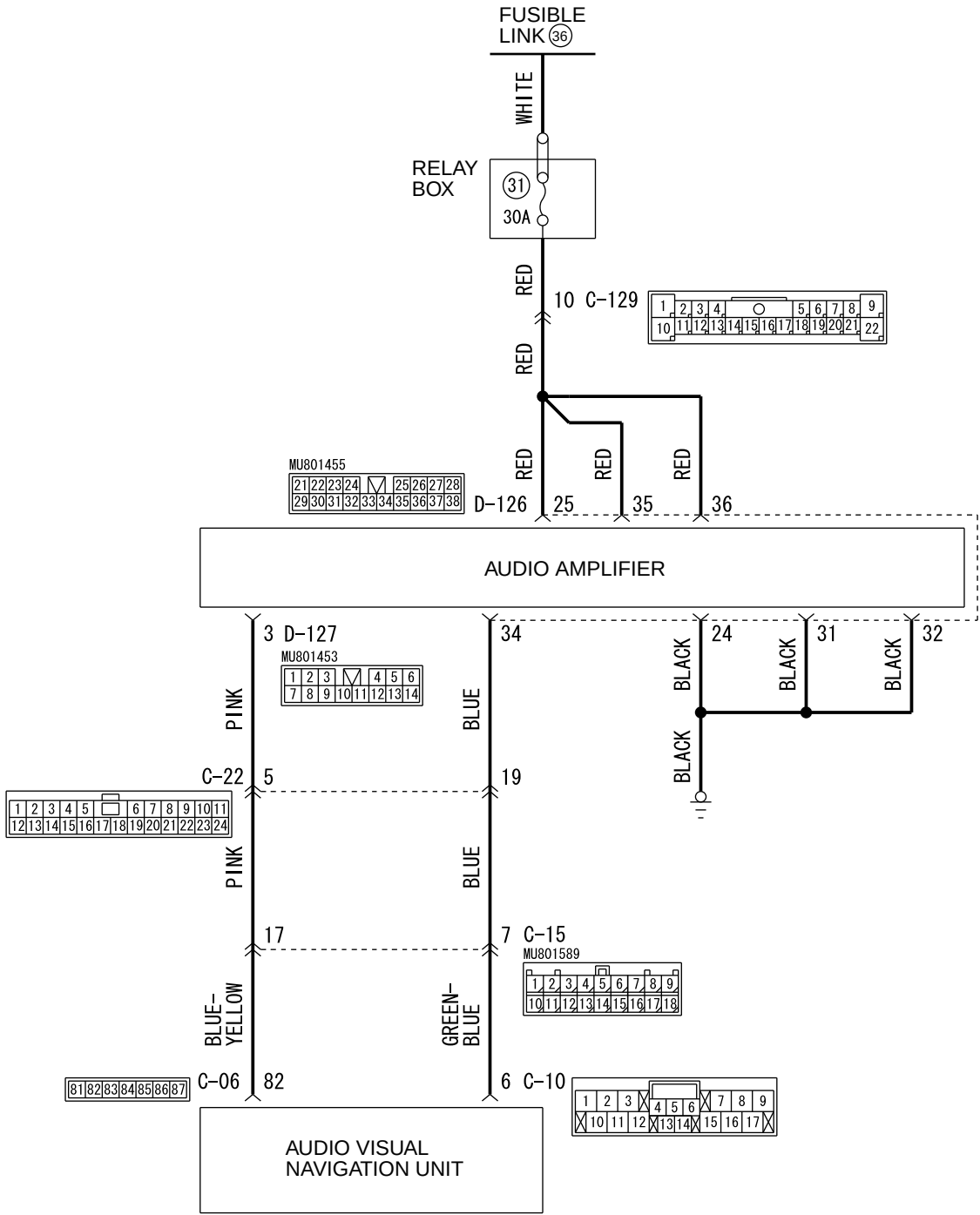
Inspection Procedure 2: No sound is heard. <Vehicles with audio amplifier>

M15410800356USA0000010001

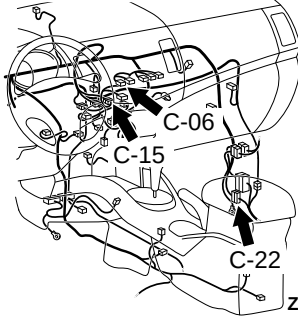
** CAUTION**

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Audio Visual Navigation System Circuit

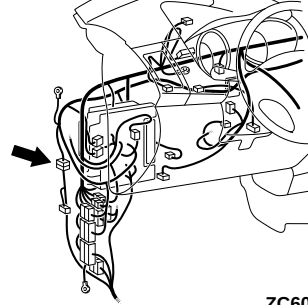


Connectors: C-06, C-15, C-22



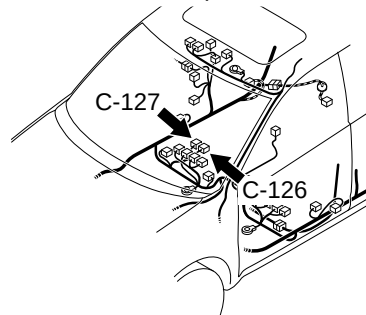
ZC6008760016

Connector: C-129



ZC6008750019

Connectors: D-126, D-127



ZC6008790004

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 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.00-34.)
- (2) Check that the "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 "Speaker" to "Premium," and check the trouble symptom.

STEP 2. Check audio amplifier connector D-126 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-126 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.

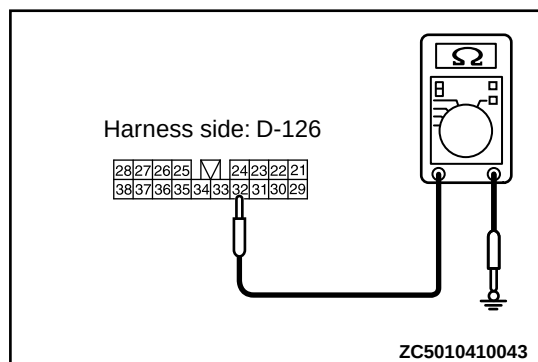
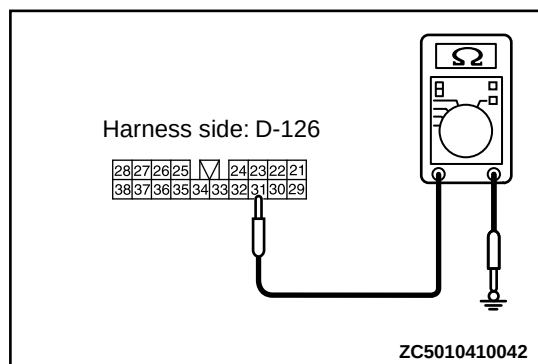
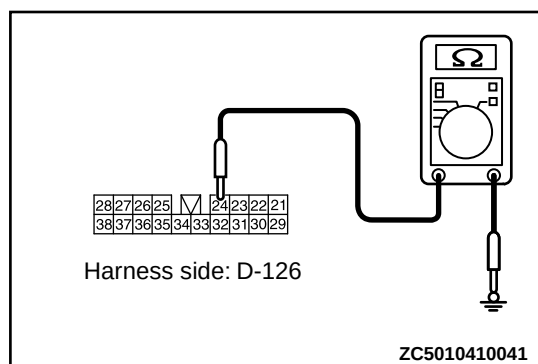
STEP 3. Check the ground circuit to the rear monitor.

Measure the resistance at audio amplifier connector D-126.

(1) Disconnect audio amplifier connector D-126, 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-126 (terminal 24, 31, 32) and ground.

* Check the ground wires for open circuit.

Q: Is the wiring harness between audio amplifier connector D-126 (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. 00-15).

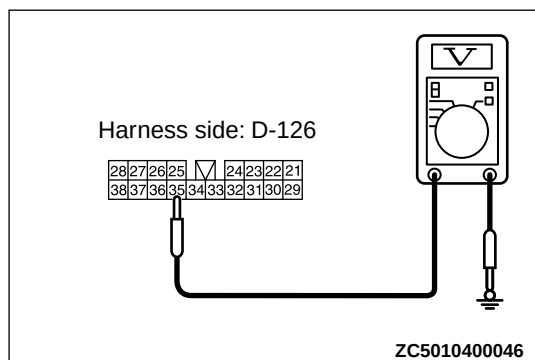
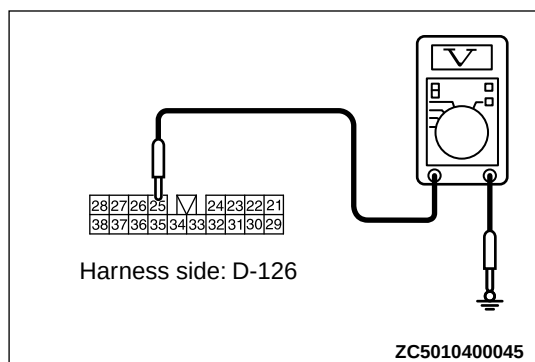
NO: The wiring harness may be damaged or the connector (s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 5. Check the power supply circuit to the ETACS-ECU.

Measure the voltage at audio amplifier connector D-126.

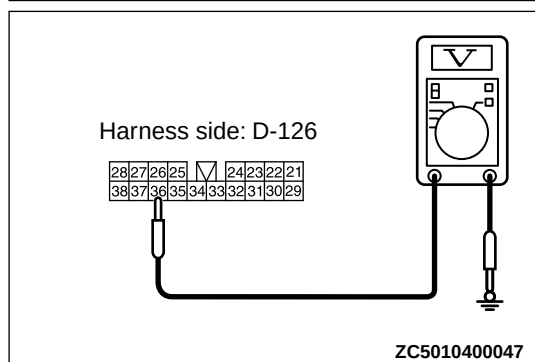
- (1) Disconnect audio amplifier connector D-126, and measure the voltage available at the wiring harness-side connector.
- (2) Measure the voltage between terminal 25 and ground.

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-126 (terminal 25, 35, 36) and fusible link (36).

NOTE: Also check intermediate connector C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-129 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

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

Q: Is the wiring harness between audio amplifier connector D-126 (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 audio visual navigation unit connector C-06 and audio amplifier connector D-127 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-06 and audio amplifier connector D-127 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 audio visual navigation unit connector C-06 (terminal 82) and audio amplifier connector D-127 (terminal 3)

NOTE: Also check intermediate connectors C-15 and C-22 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-15 or C-22 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

• Check the communication lines for open circuit.

Q: Is the wiring harness between audio visual navigation unit connector C-06 (terminal 82) and audio amplifier connector D-127 (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. 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.00-15).

NO: Replace the audio visual navigation unit.

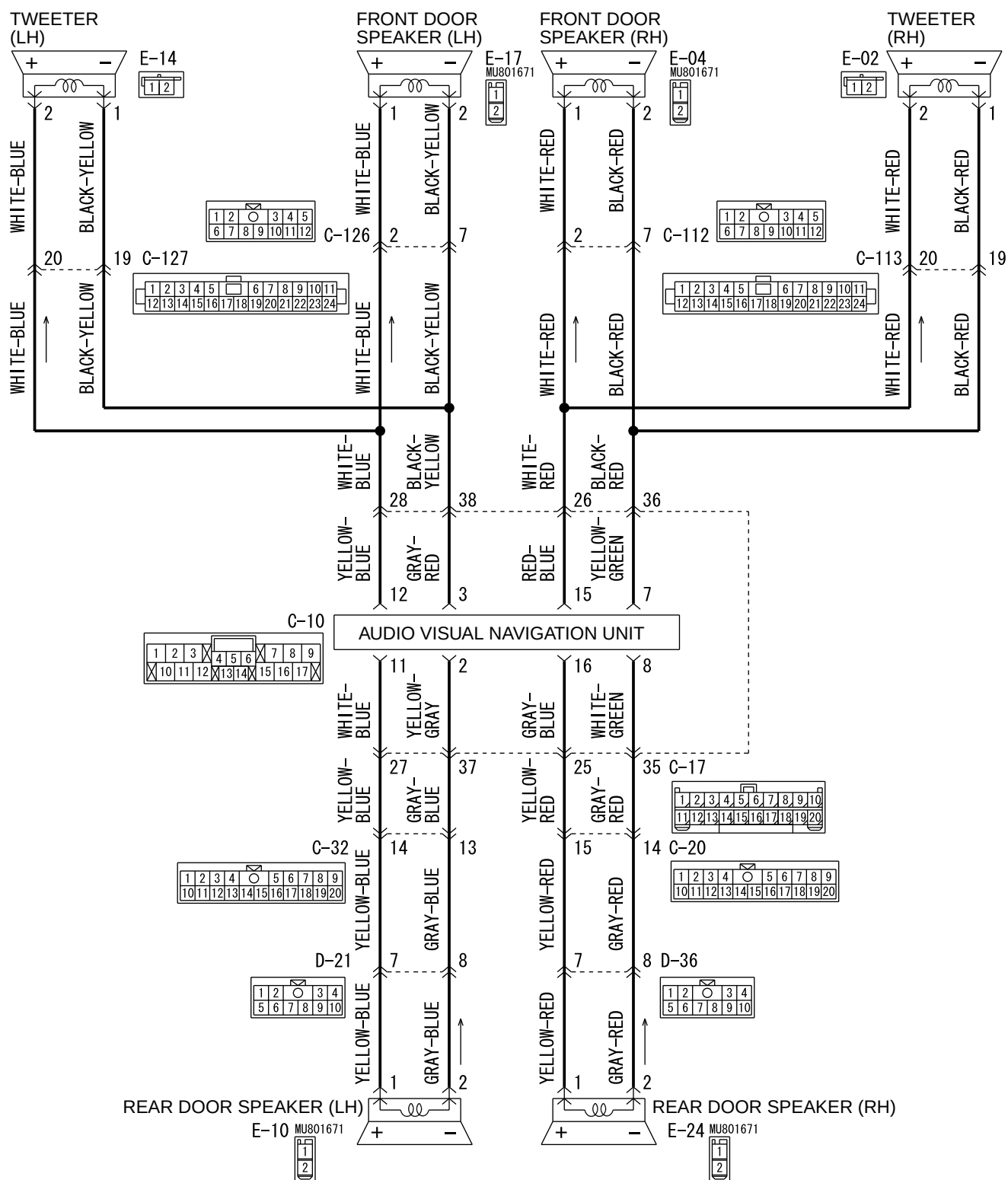
Inspection Procedure 3: No sound is heard from one of the speakers. <Vehicles without audio amplifier>

M15410800358USA0000010001

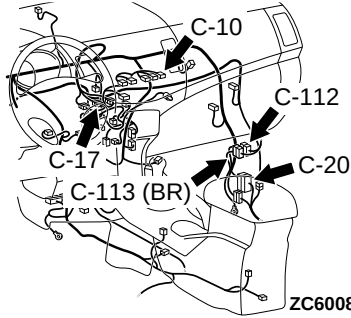
** CAUTION**

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

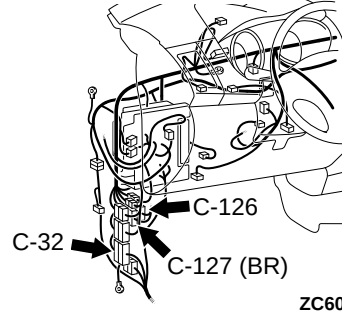
Speaker System Circuit



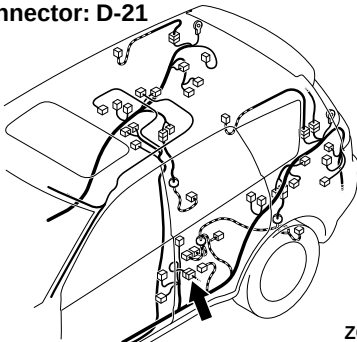
Connectors: C-10, C-17, C-20, C-112, C-113



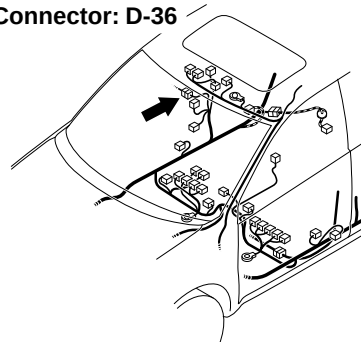
Connectors: C-32, C-126, C-127



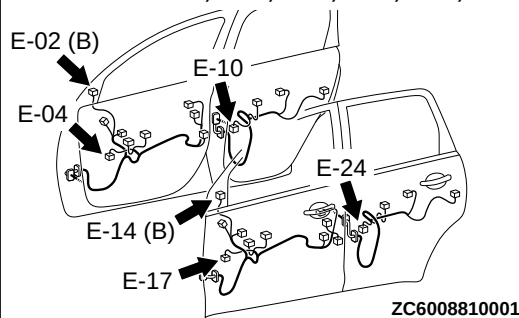
Connector: D-21



Connector: D-36



Connectors: E-02, E-04, E-10, E-14, E-17, E-24



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. 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. 00-34.)
- (2) Check that the "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 "Speaker" to "Premium," and check the trouble symptom.

STEP 2. Checking with audio speaker check.

Perform the audio speaker check, and check which speaker does not output the sound. Refer to P.54B-163.

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. 00-15).

NO<abnormal for all>: Refer to Inspection Procedure 2 "No sound is heard" P.54B-81.

NO<only front door speaker (RH) is abnormal>: Go to Step 3.

NO<only front door speaker (LH) is abnormal>: Go to Step 7.

NO<only rear door speaker (RH) is abnormal>: Go to Step 11.

NO<only rear door speaker (LH) is abnormal>: Go to Step 15.

NO<only tweeter (RH) is abnormal>: Go to Step 19.

NO<only tweeter (LH) is abnormal>: Go to Step 23.

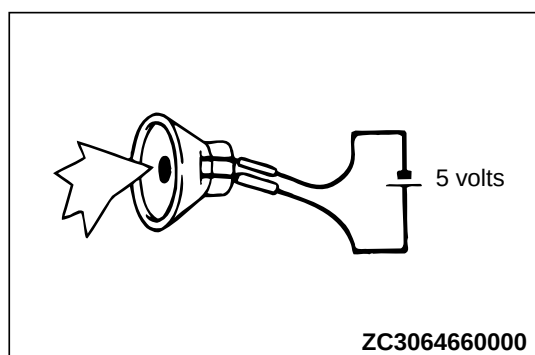
STEP 3. Check front door speaker (RH) connector E-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q:Is front door speaker (RH) connector E-04 in good condition?**

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 front door speaker (RH).

- (1) Remove the front door speaker (RH). Refer to P.54B-170.



(2) Check that the front door speaker (RH) outputs the noise when the voltage of five volts is applied to the front door speaker (RH) connector terminal.

Q: Does the front door speaker (RH) output the noise?

YES: Go to Step 5.

NO: Replace the front door speaker (RH).

STEP 5. Check audio visual navigation unit connector C-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-10 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 audio visual navigation unit connector C-10 (terminal 7, 15) and front door speaker (RH) connector E-04 (terminal 2, 1).

NOTE: Also check intermediate connectors C-17 and C-112 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17 or C-112 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

*Check the communication lines for open circuit.

Q: Is the wiring harness between audio visual navigation unit connector C-10 (terminal 7, 15) and front door speaker (RH) connector E-04 (terminal 2, 1) in good condition?

YES: Check the trouble symptom, and go to Step 27.

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 front door speaker (LH) connector E-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

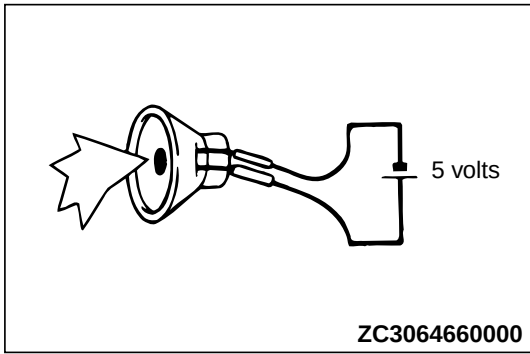
Q: Is front door speaker (LH) connector E-17 in good condition?

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 front door speaker (LH).

(1) Remove the front door speaker (LH). Refer to P.54B-170.



(2) Check that the front door speaker (LH) outputs the noise when the voltage of five volts is applied to the front door speaker (LH) connector terminal.

Q:Does the front door speaker (LH) output the noise?

YES: Go to Step 9.

NO: Replace the front door speaker (LH).

STEP 9. Check audio visual navigation unit connector C-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q:Is audio visual navigation unit connector C-10 in good condition?

YES: Go to Step 10.

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

STEP 10. Check the wiring harness between audio visual navigation unit connector C-10 (terminal 3, 12) and front door speaker (LH) connector E-17 (terminal 2, 1).

NOTE: Also check intermediate connectors C-20 and C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-20 or C-126 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

* Check the communication lines for open circuit.

Q:Is the wiring harness between audio visual navigation unit connector C-10 (terminal 3, 12) and front door speaker (LH) connector E-17 (terminal 2, 1) in good condition?

YES: Check the trouble symptom, and go to Step 27.

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 11. Check rear door speaker (RH) connector E-24 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

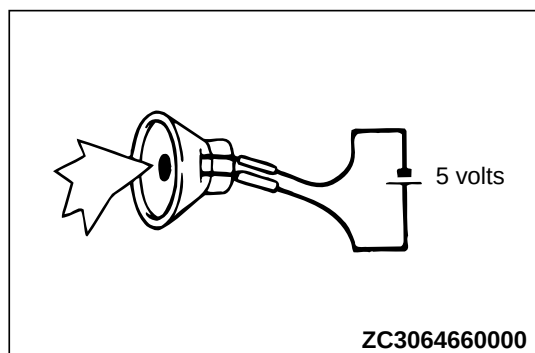
Q:Is rear door speaker (RH) connector E-24 in good condition?

YES: Go to Step 12.

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

STEP 12. Check the rear door speaker (RH).

(1) Remove the rear door speaker (RH). Refer to P.54B-170.



(2) Check that the rear door speaker (RH) outputs the noise when the voltage of five volts is applied to the rear door speaker (RH) connector terminal.

Q: Does the rear door speaker (RH) output the noise?

YES: Go to Step 13.

NO: Replace the rear door speaker (RH).

STEP 13. Check audio visual navigation unit connector C-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-10 in good condition?

YES: Go to Step 14.

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

STEP 14. Check the wiring harness between audio visual navigation unit connector C-10 (terminal 8, 16) and rear door speaker (RH) connector E-24 (terminal 2, 1).

NOTE: Also check intermediate connectors C-17, C-20 and D-36 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17, C-20 or D-36 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

*Check the communication lines for open circuit.

Q: Is the wiring harness between audio visual navigation unit connector C-10 (terminal 8, 16) and rear door speaker (RH) connector E-24 (terminal 2, 1) in good condition?

YES: Check the trouble symptom, and go to Step 27.

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. Check rear door speaker (LH) connector E-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

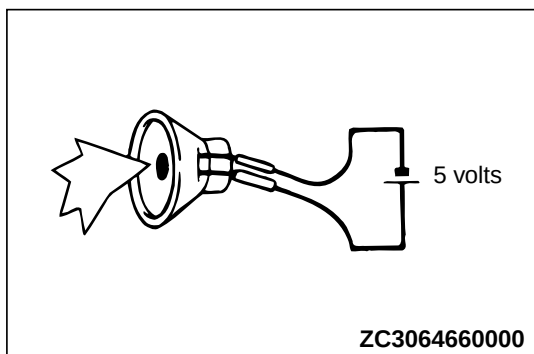
Q: Is rear door speaker (LH) connector E-10 in good condition?

YES: Go to Step 16.

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

STEP 16. Check the rear door speaker (LH).

(1) Remove the rear door speaker (LH). Refer to P.54B-170.



(2) Check that the rear door speaker (LH) outputs the noise when the voltage of five volts is applied to the rear door speaker (LH) connector terminal.

Q: Does the rear door speaker (LH) output the noise?

YES: Go to Step 17.

NO: Replace the rear door speaker (LH).

STEP 17. Check audio visual navigation unit connector C-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-10 in good condition?

YES: Go to Step 18.

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

STEP 18. Check the wiring harness between audio visual navigation unit connector C-10 (terminal 2, 11) and rear door speaker (LH) connector E-10 (terminal 2, 1).

NOTE: Also check intermediate connectors C-17, C-32 and D-21 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17, C-32 or D-21 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

* Check the communication lines for open circuit.

Q: Is the wiring harness between audio visual navigation unit connector C-10 (terminal 2, 11) and rear door speaker (LH) connector E-10 (terminal 2, 1) in good condition?

YES: Check the trouble symptom, and go to Step 27.

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 19. Check tweeter (RH) connector E-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

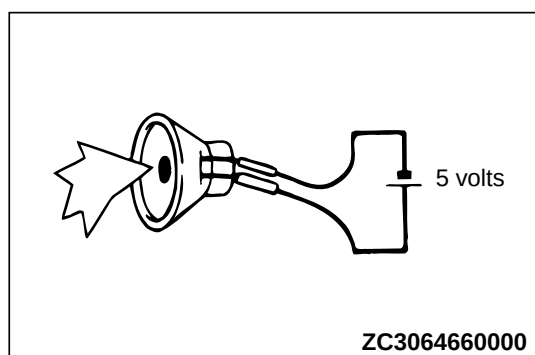
Q: Is tweeter (RH) connector E-02 in good condition?

YES: Go to Step 20.

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

STEP 20. Check the tweeter (RH).

(1) Remove the tweeter (RH). Refer to P.54B-170.



(2) Check that the tweeter (RH) outputs the noise when the voltage of five volts is applied to the tweeter (RH) connector terminal.

Q: Does the tweeter (RH) output the noise?

YES: Go to Step 21.

NO: Replace the tweeter (RH).

STEP 21. Check audio visual navigation unit connector C-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-10 in good condition?

YES: Go to Step 22.

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

STEP 22. Check the wiring harness between audio visual navigation unit connector C-10 (terminal 7, 15) and tweeter (RH) connector E-02 (terminal 1, 2).

NOTE: Also check intermediate connectors C-17 and C-113 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17 or C-113 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

*Check the communication lines for open circuit.

Q: Is the wiring harness between audio visual navigation unit connector C-10 (terminal 7, 15) and tweeter (RH) connector E-02 (terminal 1, 2) in good condition?

YES: Check the trouble symptom, and go to Step 27.

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 23. Check tweeter (LH) connector E-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

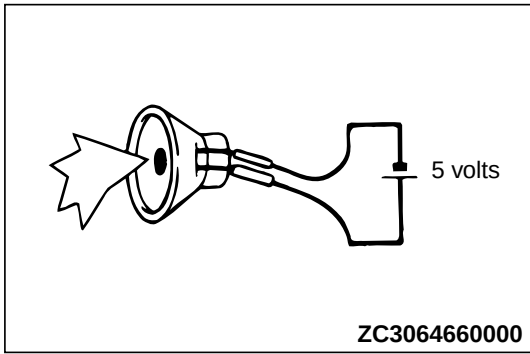
Q: Is tweeter (LH) connector E-14 in good condition?

YES: Go to Step 24.

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

STEP 24. Check the tweeter (LH).

(1) Remove the tweeter (LH). Refer to P.54B-170.



(2) Check that the tweeter (LH) outputs the noise when the voltage of five volts is applied to the tweeter (LH) connector terminal.

Q: Does the tweeter (LH) output the noise?

YES: Go to Step 25.

NO: Replace the tweeter (LH).

STEP 25. Check audio visual navigation unit connector C-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-10 in good condition?

YES: Go to Step 26.

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

STEP 26. Check the wiring harness between audio visual navigation unit connector C-10 (terminal 3, 12) and tweeter (LH) connector E-14 (terminal 1, 2).

NOTE: Also check intermediate connectors C-17 and C-127 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17 or C-127 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

* Check the communication lines for open circuit.

Q: Is the wiring harness between audio visual navigation unit connector C-10 (terminal 3, 12) and tweeter (LH) connector E-14 (terminal 1, 2) in good condition?

YES: Check the trouble symptom, and go to Step 27.

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 27. 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: 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. 00-15).

NO: Replace the audio visual navigation unit.

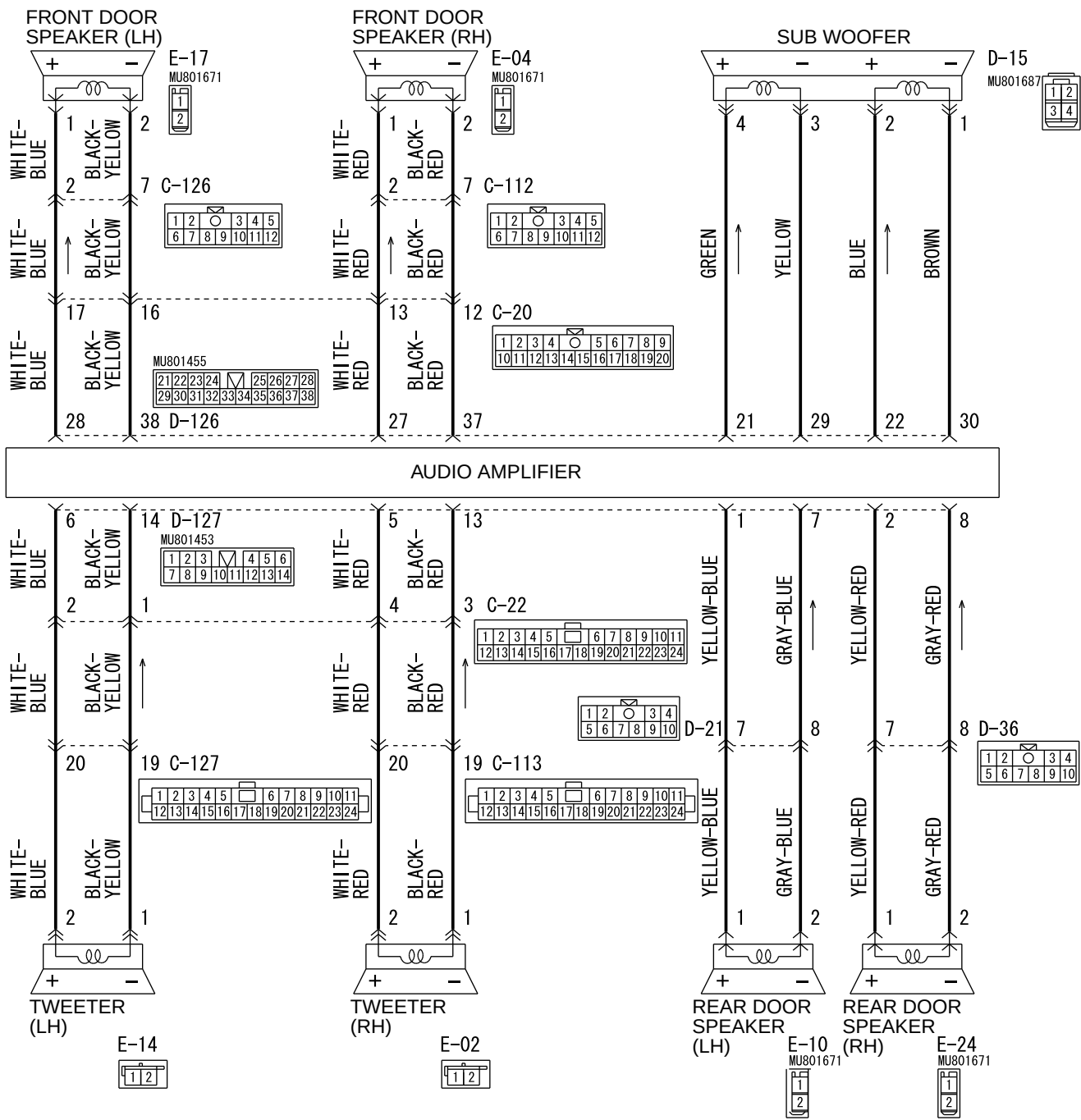
Inspection Procedure 3: No sound is heard from one of the speakers. <Vehicles with audio amplifier>

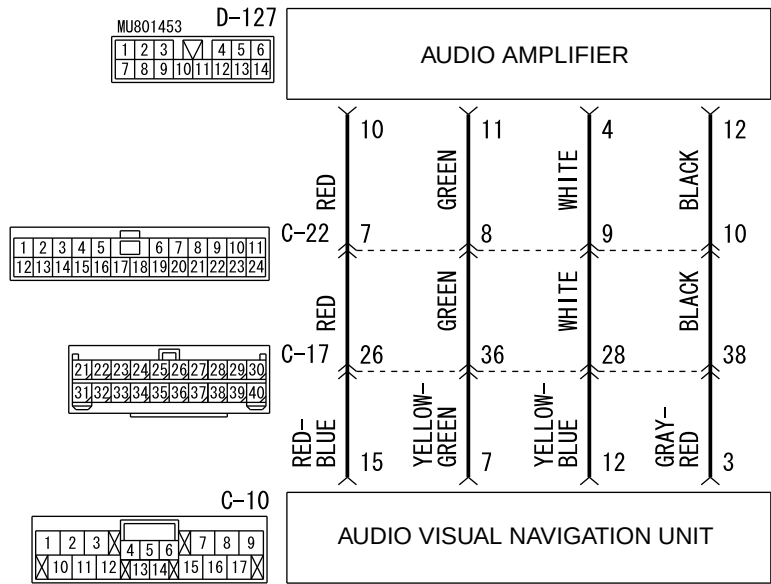
M15410800357USA0000010001

** CAUTION**

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

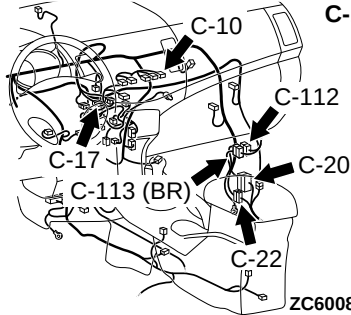
Speaker System Circuit





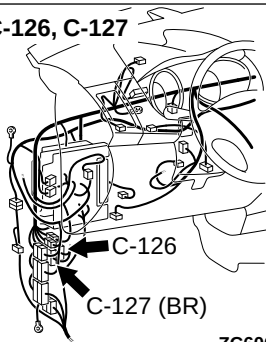
D7G54M042A00

Connectors: C-10, C-17, C-20, C-22, C-112, C-113



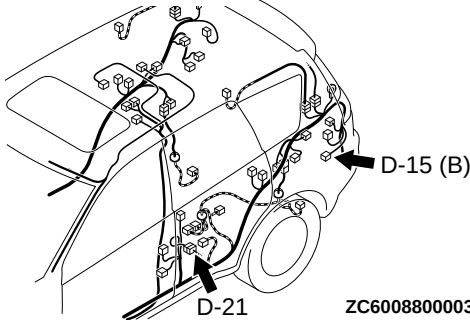
ZC6008760013

Connectors: C-126, C-127



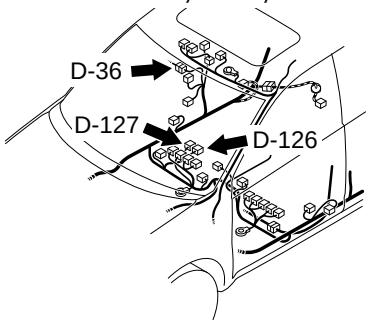
ZC6008750016

Connectors: D-15, D-21



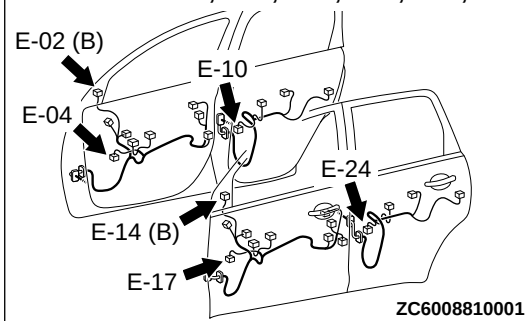
ZC6008800003

Connectors: D-36, D-126, D-127



ZC6008790005

Connectors: E-02, E-04, E-10, E-14, E-17, E-24

**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. 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. 00-34.)
- (2) Check that the "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 "Speaker" to "Premium," and check the trouble symptom.

STEP 2. Checking with audio speaker check.

Perform the audio speaker check, and check which speaker does not output the sound. Refer to P.54B-163.

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. 00-15).

NO<abnormal for all>: Refer to Inspection Procedure 2 "No sound is heard" P. 54B-81.

NO<only front door speaker (RH) is abnormal>: Go to Step 3.

NO<only front door speaker (LH) is abnormal>: Go to Step 9.

NO<only rear door speaker (RH) is abnormal>: Go to Step 15.

NO<only rear door speaker (LH) is abnormal>: Go to Step 19.

NO<only tweeter (RH) is abnormal>: Go to Step 23.

NO<only tweeter (LH) is abnormal>: Go to Step 27.

NO<only subwoofer is abnormal>: Go to Step 31.

STEP 3. Check front door speaker (RH) connector E-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door speaker (RH) connector E-04 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 front door speaker (RH).

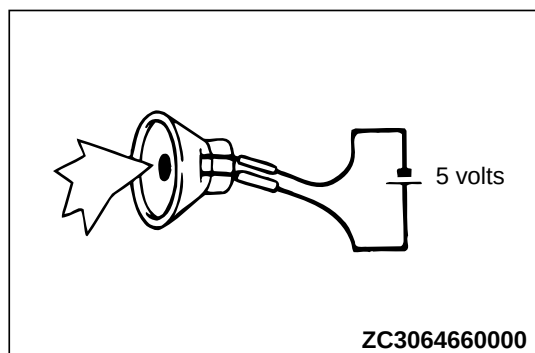
(1) Remove the front door speaker (RH). Refer to P.54B-170.

(2) Check that the front door speaker (RH) outputs the noise when five volts are applied to the front door speaker (RH) connector terminal.

Q: Does the front door speaker (RH) output the noise?

YES: Go to Step 5.

NO: Replace the front door speaker (RH).



STEP 5. Check audio amplifier connector D-126 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-126 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 audio amplifier connector D-126 (terminal 27, 37) and front door speaker (RH) connector E-04 (terminal 1, 2).

NOTE: Also check intermediate connectors C-20 and C-112 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-20 or C-112 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

• Check the communication lines for open circuit.

Q: Is the wiring harness between audio amplifier connector D-126 (terminal 27, 37) and front door speaker (RH) connector E-04 (terminal 1, 2) 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-10 and audio amplifier connector D-127 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are audio visual navigation unit connector C-10 and audio amplifier connector D-127 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 audio visual navigation unit connector C-10 (terminal 7, 15) and audio amplifier connector D-127 (terminal 11, 10).

NOTE: Also check intermediate connectors C-17 and C-22 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17 or C-22 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

• Check the communication lines for open circuit.

Q: Is the wiring harness between audio visual navigation unit connector C-10 (terminal 7, 15) and audio amplifier connector D-127 (terminal 11, 10) in good condition?

YES: Check the trouble symptom, and go to Step 35.

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 front door speaker (LH) connector E-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

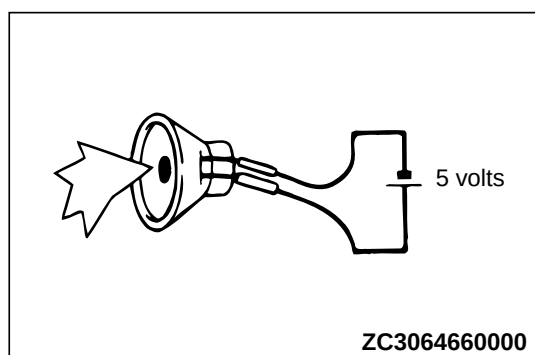
Q: Is front door speaker (LH) connector E-17 in good condition?

YES: Go to Step 10.

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

STEP 10. Check the front door speaker (LH).

(1) Remove the front door speaker (LH). Refer to P.54B-170.



(2) Check that the front door speaker (LH) outputs the noise when five volts are applied to the front door speaker (LH) connector terminal.

Q: Does the front door speaker (LH) output the noise?

YES: Go to Step 11.

NO: Replace the front door speaker (LH).

STEP 11. Check audio amplifier connector D-126 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-126 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.

STEP 12. Check the wiring harness between audio amplifier connector D-126 (terminal 28, 38) and front door speaker (LH) connector E-17 (terminal 1, 2).

NOTE: Also check intermediate connectors C-20 and C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-20 or C-126 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

*Check the communication lines for open circuit.

Q: Is the wiring harness between audio amplifier connector D-126 (terminal 28, 38) and front door speaker (LH) connector E-17 (terminal 1, 2) 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-10 and audio amplifier connector D-127 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are audio visual navigation unit connector C-10 and audio amplifier connector D-127 in good condition?

YES: Go to Step 14.

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

STEP 14. Check the wiring harness between audio visual navigation unit connector C-10 (terminal 3, 12) and audio amplifier connector D-127 (terminal 12, 4)

*Check the communication lines for open circuit.

NOTE: Also check intermediate connectors C-17 and C-22 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17 or 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 audio visual navigation unit connector C-10 (terminal 3, 12) and audio amplifier connector D-127 (terminal 12, 4) in good condition?

YES: Check the trouble symptom, and go to Step 35.

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. Check rear door speaker (RH) connector E-24 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door speaker (RH) connector E-24 in good condition?

YES: Go to Step 16.

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

STEP 16. Check the rear door speaker (RH).

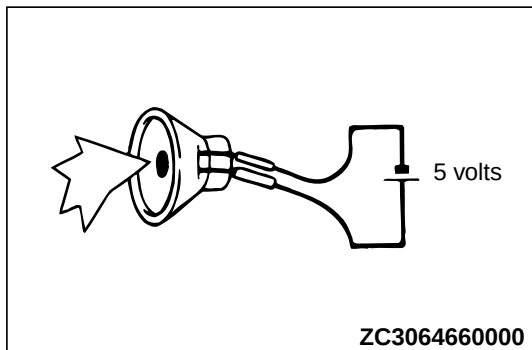
(1) Remove the rear door speaker (RH). Refer to P.54B-170.

(2) Check that the rear door speaker (RH) outputs the noise when five volts are applied to the rear door speaker (RH) connector terminal.

Q: Does the rear door speaker (RH) output the noise?

YES: Go to Step 17.

NO: Replace the rear door speaker (RH).



STEP 17. Check audio amplifier connector D-127 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-127 in good condition?

YES: Go to Step 18.

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

STEP 18. Check the wiring harness between audio amplifier connector D-127 (terminal 2, 8) and rear door speaker (RH) connector E-24 (terminal 1, 2).

NOTE: Also check intermediate connector D-36 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-36 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

•Check the communication lines for open circuit.

Q: Is the wiring harness between audio amplifier connector D-127 (terminal 2, 8) and rear door speaker (RH) connector E-24 (terminal 1, 2) in good condition?

YES: Check the trouble symptom, and go to Step 35.

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 19. Check rear door speaker (LH) connector E-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door speaker (LH) connector E-10 in good condition?

YES: Go to Step 20.

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

STEP 20. Check the rear door speaker (LH).

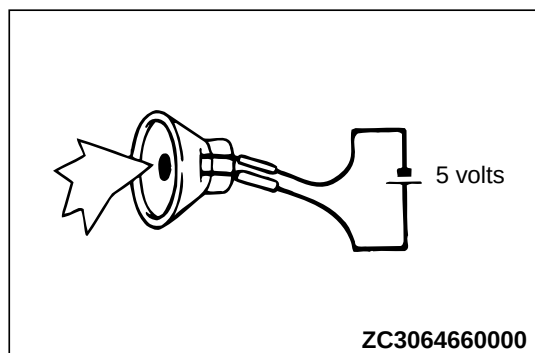
(1) Remove the rear door speaker (LH). Refer to P.54B-170.

(2) Check that the rear door speaker (LH) outputs the noise when five volts are applied to the rear door speaker (LH) connector terminal.

Q: Does the rear door speaker (LH) output the noise?

YES: Go to Step 21.

NO: Replace the rear door speaker (LH).



STEP 21. Check audio amplifier connector D-127 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-127 in good condition?

YES: Go to Step 22.

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

STEP 22. Check the wiring harness between audio amplifier connector D-127 (terminal 1, 7) and rear door speaker (LH) connector E-10 (terminal 1, 2).

NOTE: Also check intermediate connector D-21 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-21 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

•Check the communication lines for open circuit.

Q: Is the wiring harness between audio amplifier connector D-127 (terminal 1, 7) and rear door speaker (LH) connector E-10 (terminal 1, 2) in good condition?

YES: Check the trouble symptom, and go to Step 35.

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 23. Check tweeter (RH) connector E-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is tweeter (RH) connector E-02 in good condition?

YES: Go to Step 24.

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

STEP 24. Check the tweeter (RH).

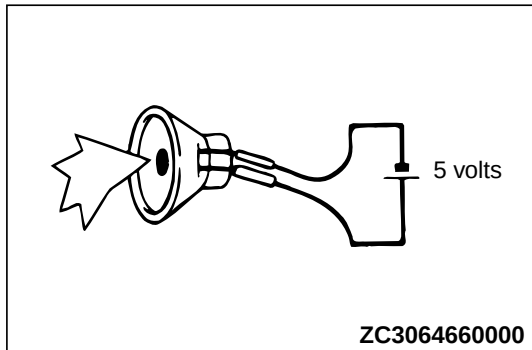
(1) Remove the tweeter (RH). Refer to P.54B-170.

(2) Check that the tweeter (RH) outputs the noise when five volts are applied to the tweeter (RH) connector terminal.

Q: Does the tweeter (RH) output the noise?

YES: Go to Step 25.

NO: Replace the tweeter (RH).



STEP 25. Check audio amplifier connector D-127 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-127 in good condition?

YES: Go to Step 26.

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

STEP 26. Check the wiring harness between audio amplifier connector D-127 (terminal 5, 13) and tweeter (RH) connector E-02 (terminal 2, 1).

NOTE: Also check intermediate connectors C-22 and C-113 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-113 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

• Check the communication lines for open circuit.

Q: Is the wiring harness between audio amplifier connector D-127 (terminal 5, 13) and tweeter (RH) connector E-02 (terminal 2, 1) in good condition?

YES: Check the trouble symptom, and go to Step 35.

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 27. Check tweeter (LH) connector E-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is tweeter (LH) connector E-14 in good condition?

YES: Go to Step 28.

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

STEP 28. Check the tweeter (LH).

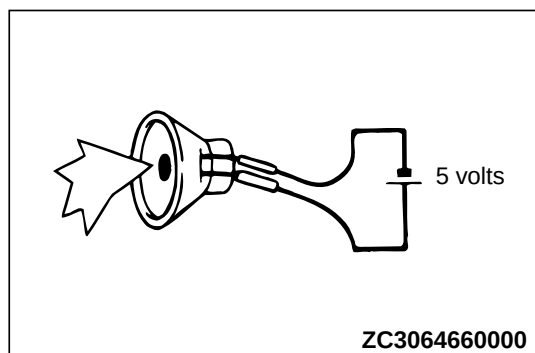
(1) Remove the tweeter (LH). Refer to P.54B-170.

(2) Check that the tweeter (LH) outputs the noise when five volts are applied to the tweeter (LH) connector terminal.

Q: Does the tweeter (LH) output the noise?

YES: Go to Step 29.

NO: Replace the tweeter (LH).



STEP 29. Check audio amplifier connector D-127 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-127 in good condition?

YES: Go to Step 30.

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

STEP 30. Check the wiring harness between audio amplifier connector D-127 (terminal 6, 14) and tweeter (LH) connector E-14 (terminal 2, 1).

NOTE: Also check intermediate connectors C-22 and C-113 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-113 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

• Check the communication lines for open circuit.

Q: Is the wiring harness between audio amplifier connector D-127 (terminal 6, 14) and tweeter (LH) connector E-14 (terminal 2, 1) in good condition?

YES: Check the trouble symptom, and go to Step 35.

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 31. Check subwoofer connector D-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is subwoofer connector D-15 in good condition?

YES: Go to Step 32.

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

STEP 32. Check the Subwoofer.

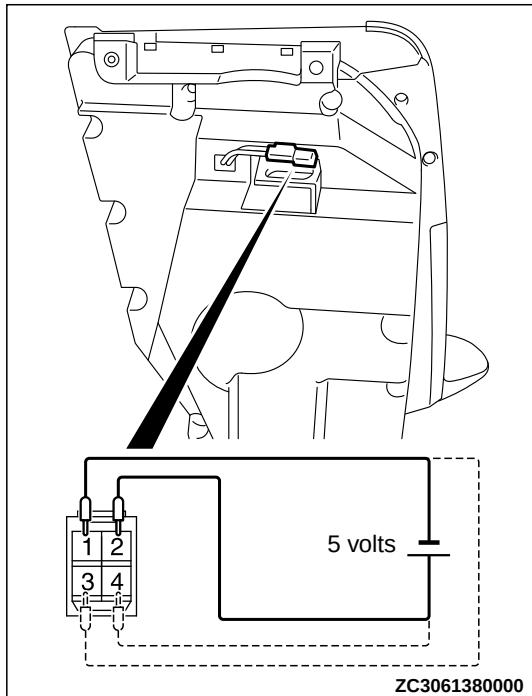
(1) Remove the subwoofer. Refer to P.54B-170.

(2) Check that the subwoofer outputs the noise when five volts are applied to the subwoofer connector terminal.

Q:Does the subwoofer output the noise?

YES: Go to Step 33.

NO: Replace the subwoofer.



STEP 33. Check audio amplifier connector D-126 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q:Is audio amplifier connector D-126 in good condition?

YES: Go to Step 34.

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

STEP 34. Check the wiring harness between audio amplifier connector D-126 (terminal 21, 22, 29, 30) and subwoofer connector D-15 (terminal 4, 2, 3, 1).

*Check the communication lines for open circuit.

Q:Is the wiring harness between audio amplifier connector D-126 (terminal 21, 22, 29, 30) and subwoofer connector D-15 (terminal 4, 2, 3, 1) in good condition?

YES: Check the trouble symptom, and go to Step 35.

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 35. 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?

NO: Replace the audio visual navigation unit.

CAUTION

supply circuit, the ground circuit and the communication circuit are normal.

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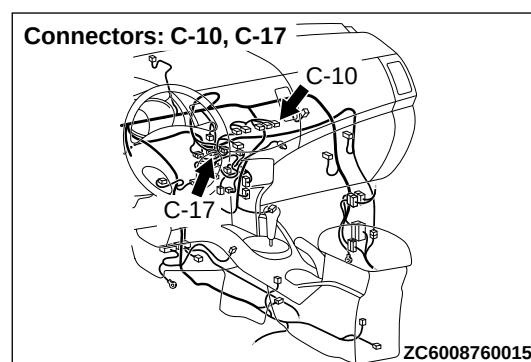
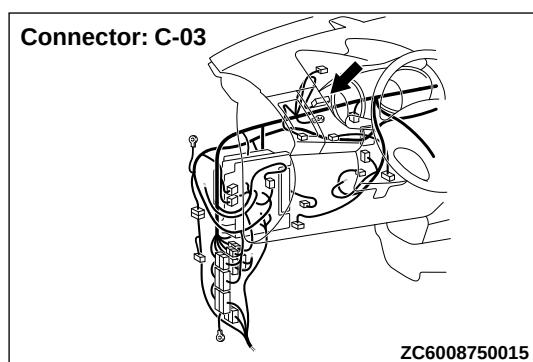
The diagram shows the rear panel of the C-17 unit with the following connections:

- INTERFACE CIRCUIT:** Connected to pins 23 (GREEN-WHITE) and 29 (YELLOW-YELLOW).
- COMBINATION METER C-03:** Connected to pins 1 through 12.
- AUDIO VISUAL NAVIGATION UNIT C-10:** Connected to pins 1 through 17.

The pinout table for the rear panel is as follows:

Pin	Color
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	GREEN-WHITE
24	
25	
26	
27	
28	
29	YELLOW-YELLOW
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	

D7G54M044A00



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.

- Malfunctions of combination meter
- Malfunctions of audio visual navigation unit
- 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. 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. 54B-64.)

Q:Is the vehicle speed signal transmitted normally?

YES: Replace the audio visual navigation unit.

NO: Go to Step 2.

STEP 2. Check the speedometer.

Check whether the speedometer works normally.

Q:Does the speedometer work normally?

YES: Go to Step 3.

NO: Diagnose the combination meter. Refer to GOUP 54Ab, Troubleshooting P. 54Ab-40.

STEP 3. Check combination meter connector C-03 and audio visual navigation unit connector C-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q:Is combination meter connector C-03 or audio visual navigation unit connector C-10 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 wiring harness between combination meter connector C-03 (terminal 20) and audio visual navigation unit connector C-10 (terminal 13).

•Check the communication lines for open circuit.

NOTE: Also check intermediate connector C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17 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-03 (terminal 20) and audio visual navigation unit connector C-10 (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.

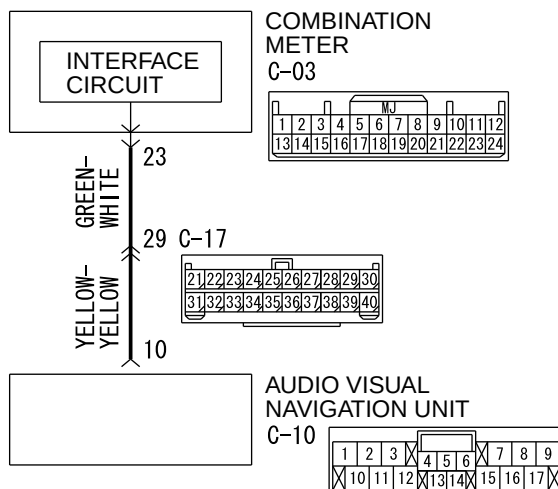
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CAUTION

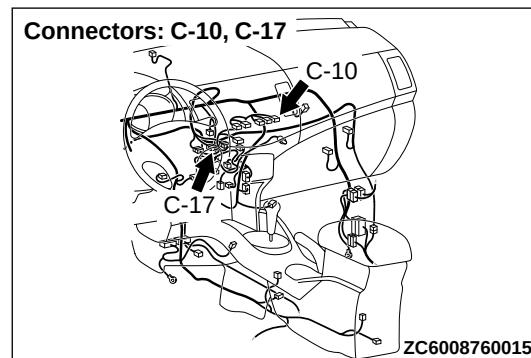
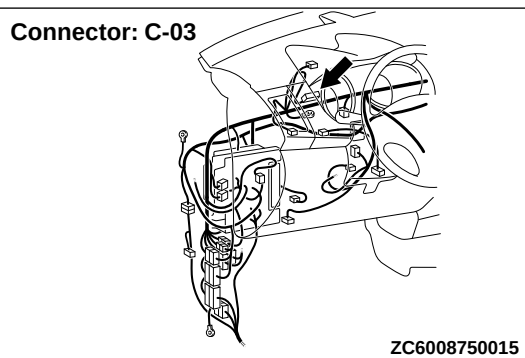
Before replacing the audio visual navigation unit or combination meter, ensure that the power

supply circuit, the ground circuit and the communication circuit are normal.

Audio Visual Navigation Unit Communication Circuit



D7G54M044A00



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

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. 54B-64.)

- 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.00-15).

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 speedometer.

Check whether the speedometer works normally.

Q:Does the speedometer work normally?

YES: Go to Step 5.

NO: Diagnose the combination meter. Refer to Goup 54Ab, Troubleshooting P. 54Ab-40.

STEP 5. Check combination meter connector C-03 and audio visual navigation unit connector C-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q:Is combination meter connector C-03 or audio visual navigation unit connector C-10 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 combination meter connector C-03 (terminal 20) and audio visual navigation unit connector C-10 (terminal 13).

▪ Check the communication lines for open circuit.

NOTE: Also check intermediate connector C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17 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-03 (terminal 20) and audio visual navigation unit connector C-10 (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: AM and/or FM station(s) cannot be received.

M15410800221USA0000010000

COMMENTS ON TROUBLE SYMPTOM

The roof antenna, the antenna feeder cable or the audio visual navigation unit may be defective.

PROBABLE CAUSES

- Malfunctions of roof antenna
- Malfunctions of antenna feeder cable
- Malfunctions of audio visual navigation unit

DIAGNOSIS**STEP 1. Check the frequency of the FM multiplex broadcast station which you selected.**

Check whether the station frequency selected is being broadcast in stereo.

Q: Is the station frequency selected being broadcast in stereo?

YES: Go to Step 2.

NO: Select a FM multiplex broadcast station.

STEP 2. Check the reception status of the station frequency.

Check whether the station frequency selected is strong enough for good reception.

Q: Is the station frequency strong enough for good reception?

YES: Go to Step 3.

NO: Go to Step 5.

STEP 3. Confirmation in MMCS service mode

Perform "Network/Connect Line Check" at the MMCS service mode to check that the communication and wire connection with the FM stereo receiver are in good condition.

Q: Are the communication and wire connection with the FM stereo receiver in good condition?

YES: Go to Step 4.

NO: Go to Step 5.

STEP 4. Substitute a known good audio visual navigation unit, and check whether it operates normally.

Q: Is the check result normal?

YES: Replace the audio visual navigation unit.

NO: Go to Step 5.

STEP 5. Check the roof antenna.

Check whether the roof antenna is damaged.

Q: Is the roof antenna damaged?

YES: Replace the roof antenna.

NO: Replace the antenna feeder cable.

Inspection Procedure 7: GPS signal cannot be received.

M15410800096USA0000010000

COMMENTS ON TROUBLE SYMPTOM

The GPS antenna or the audio visual navigation unit may be defective.

PROBABLE CAUSES

- Malfunctions of GPS antenna
- Malfunctions of audio visual navigation unit

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.54B-64.)

Q: Is the check result normal?

YES: Go to Step 2.

NO: Go to Step 4.

STEP 2. Check for the vehicle's current position.

Check that the vehicle is parked on a well-ventilated place.

Q: Is the vehicle parked on a well-ventilated place?

YES: Go to Step 3.

NO: Move the vehicle to a well-ventilated area.

STEP 3. Confirming GPS signal reception

(1) Turn the ignition switch to the "ACC" position.

(2) Wait for 15 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 GPS antenna, and check the trouble symptom.

When a known good GPS antenna is substituted, check whether GPS signal can be received.

Q: Is the check result normal?

YES: Replace the GPS antenna.

NO: Replace the audio visual navigation unit.

Inspection Procedure 8: No DVD (video disk) cannot be played.

M15410800105USA0000010000

COMMENTS ON TROUBLE SYMPTOM

The DVD (video disk) or the audio visual navigation unit may be defective.

PROBABLE CAUSES

- Defective DVD (video disk)
- Malfunctions of audio visual navigation unit

DIAGNOSIS**STEP 1. Confirmation in MMCS service mode**

Perform "Network/Connect Line Check" in the MMCS service mode, and check whether "OK" is displayed under "DVD drive". (Refer to P.54B-64.)

Q: Is "OK" displayed under "DVD drive" item?

YES: Go to Step 2.

NO: Replace the audio visual navigation unit.

STEP 2. Check that a DVD's recorded surface faces down.

Check that a DVD's recorded surface faces down.

Q: Is the DVD inserted with its recorded surface facing down?

YES: Go to Step 3.

NO: Check the DVD's recorded surface, and insert the DVD again. (For a one-sided disk, its recorded surface should face down)

STEP 3. Check a DVD (video disk) to be inserted.

Check whether the DVD (video disk) is an authorized one.

Q: Is the DVD (video disk) an authorized one?

YES: Go to Step 4.

NO: Use an authorized DVD (video disk).

STEP 4. Check a DVD (video disk) to be inserted.

Check that there are no stains or scratches on the DVD (video disk).

Q: Are there any stains or scratches on the DVD (video disk)?

YES: Clean or deburr the disk, or use a scratch and burr-free disk. Then insert the disk again.

NO: Go to Step 5.

STEP 5. Substitute a known good DVD (video disk), and check the trouble symptom.

When a known good DVD (video disk) is loaded, check whether it is played normally.

Q: Is the check result normal?

YES: Replace the DVD (video disk).

NO: Go to Step 6.

STEP 6. Check the trouble symptom.

When a DVD (video disk) is loaded, check whether it is played normally.

Q: Is the DVD (video disk) played normally?

YES: The procedure is complete.

NO: Replace the audio visual navigation unit.

Inspection Procedure 9: Image of a DVD (video disk) is played, but no sound is played.

M15410800106USA0000010000

COMMENTS ON TROUBLE SYMPTOM

The DVD (video disk) or the audio visual navigation unit may be defective.

PROBABLE CAUSES

- Defective DVD (video disk)
- Malfunctions of audio visual navigation unit

DIAGNOSIS

STEP 1. Check whether other sounds are emitted.

Check whether sound other than DVD (video disk) is emitted.

Q: Is sound other than DVD (video disk) emitted?

YES: Go to Step 2.

NO: Refer to "Inspection Procedure 2: No Sound is Heard P. 54B-81."

STEP 2. Check a DVD (video disk) to be inserted.

Check whether sound data is recorded in the DVD (video disk).

Q:Is sound data recorded in the DVD (video disk)?

YES: Go to Step 3.

NO: Use a DVD (video disk) containing sound data.

STEP 3. Confirmation in MMCS service mode

Perform "Network/Connect Line Check" in the MMCS service mode, and check whether "OK" is displayed under "DVD drive". (Refer to P.54B-64.)

Q:Is "OK" displayed under "DVD drive" item?

YES: Go to Step 4.

NO: Replace the audio visual navigation unit.

STEP 4. Check a scene to be played.

Check whether the scene accompanies sound.

Q:Does the scene accompany sound?

YES: Go to Step 5.

NO: Confirm by playing a sound-free scene.

STEP 5. Check how the DVD is played.

Check whether the disk was played at normal speed (not rewinded, fast-forwarded, slow, or pause).

Q:Was the disk played at normal speed (not rewind, fast-forward, slow, or pause)?

YES: Replace the audio visual navigation unit.

NO: Play the disk at normal speed.

Inspection Procedure 10: Sound of a DVD (video disk) can be played, but no image is played.

M15410800107USA0000010000

COMMENTS ON TROUBLE SYMPTOM

The DVD (video disk) or the audio visual navigation unit may be defective.

PROBABLE CAUSES

- Defective DVD (video disk)
- Malfunctions of audio visual navigation unit

DIAGNOSIS

STEP 1. Confirmation in MMCS service mode

Perform "Network/Connect Line Check" in the MMCS service mode, and check whether "OK" is displayed under "DVD drive". (Refer to P.54B-64.)

Q:Is "OK" displayed under "DVD drive" item?

YES: Go to Step 2.

NO: Replace the audio visual navigation unit.

STEP 2. Check DVD (video disk) to be inserted.

Check that there are no stains or scratches on the DVD (video disk).

Q:Are there any stains or scratches on the DVD (video disk)?

YES: Clean or deburr the disk, or use a scratch and burr-free disk. Then insert the disk again.

NO: Go to Step 3.

STEP 3. Substitute a known good DVD (video disk), and check the trouble symptom.

When a known good DVD (video disk) is loaded, check whether it is played normally.

Q:Is the check result normal?

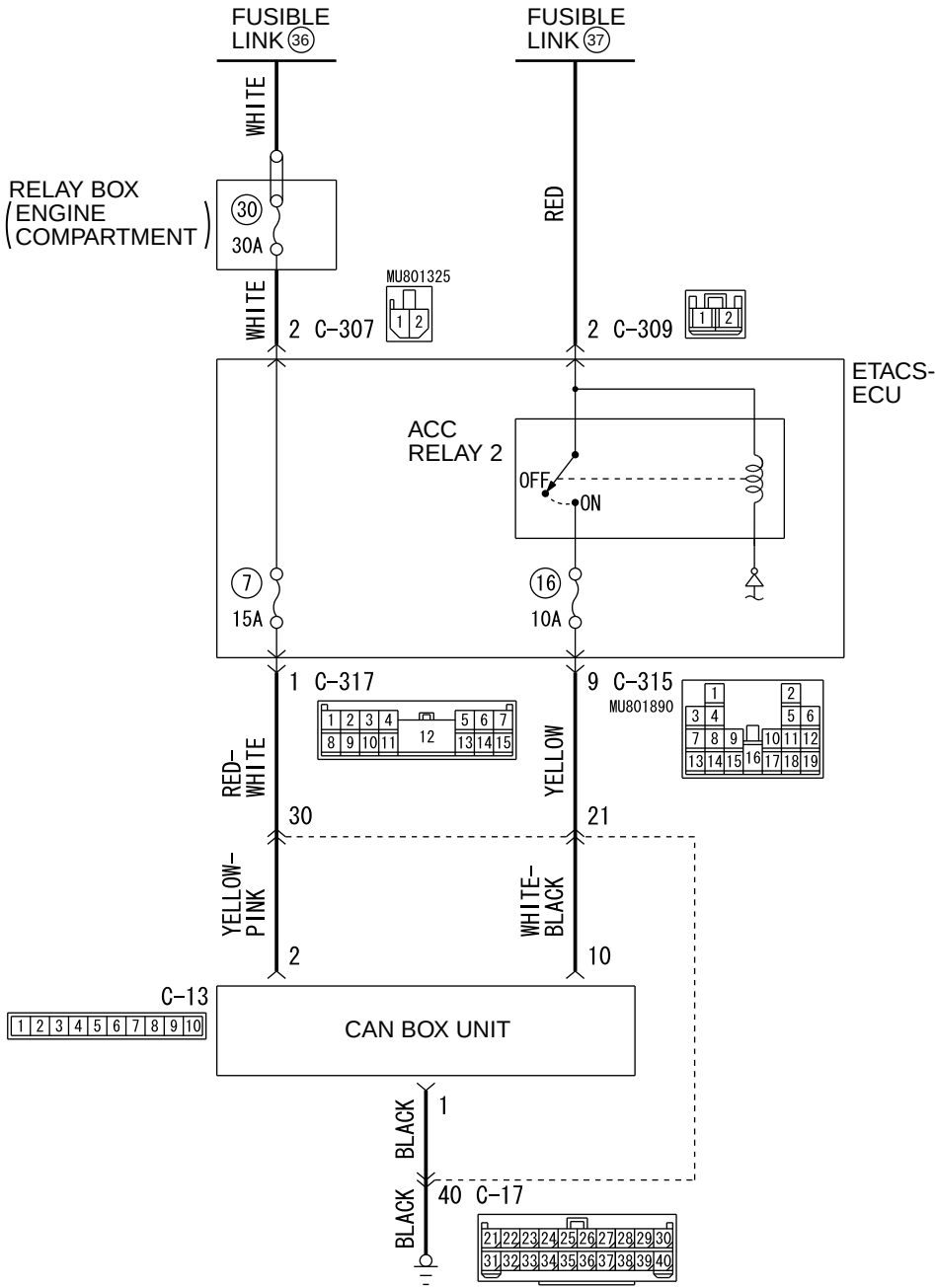
YES: Replace the DVD (video disk).

NO: Replace the audio visual navigation unit.

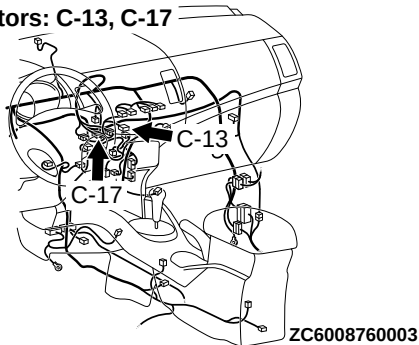
Inspection Procedure 11: Check the CAN box unit power supply circuit.

M15410800383USA0000010000

CAN Box Unit Power Supply Circuit



Connectors: C-13, C-17



ZC6008760003

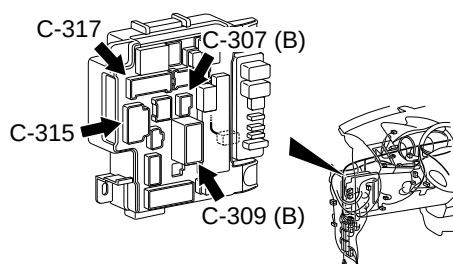
TECHNICAL DESCRIPTION (COMMENT)

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

Connectors: C-307, C-309, C-315, C-317



ZC6008780019

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check CAN box unit connectors C-13 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is CAN box unit connectors C-13 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.

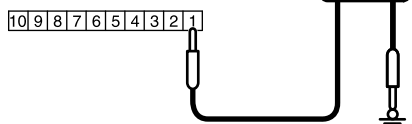
Measure the resistance at CAN box unit connectors C-13.

- (1) Disconnect CAN box unit connector C-13 and measure the resistance available at the wiring harness side of the connector.
- (2) Measure the resistance value between CAN box unit connector C-13 terminal 1 and ground.
 - 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.

Connector C-13
(Harness side)

ZC6022220006

STEP 3. Check the wiring harness between CAN box unit connector C-13 (terminal 1) and the ground.

Q: Is the wiring harness between CAN box unit connector C-13 (terminal 1) and the ground 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.

STEP 4. Check the battery power supply circuit to the CAN box unit. Measure the voltage at CAN box unit connectors C-13.

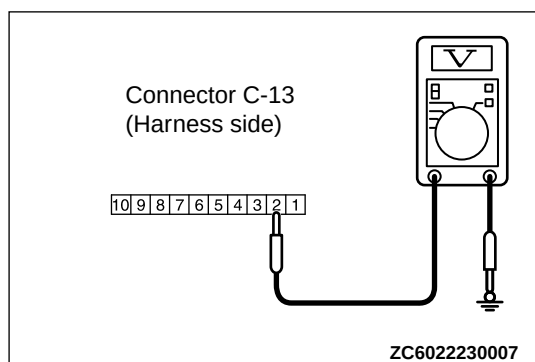
- (1) Disconnect CAN box unit connectors C-13 measure the voltage available at the wiring harness side of the connector.
- (2) Measure the voltage between CAN box unit connector C-13 terminal 2 and ground.

•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-13 (terminal 2) and fusible link (36).

NOTE: Also check intermediate connector C-17 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-17 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-13 (terminal 2) and fusible link (36) 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.

STEP 6. Check the wiring harness between CAN box unit connector C-13 (terminal 10) and fusible link (37).

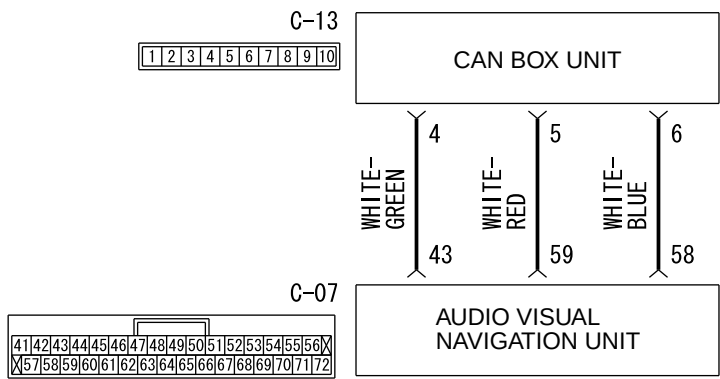
NOTE: Also check intermediate connector C-17 and ETACS-ECU connectors C-309 and C-315 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17 or ETACS-ECU connectors C-309 or C-315 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

Q:Is the wiring harness between CAN box unit connector C-13 (terminal 10) and fusible link (37) 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.

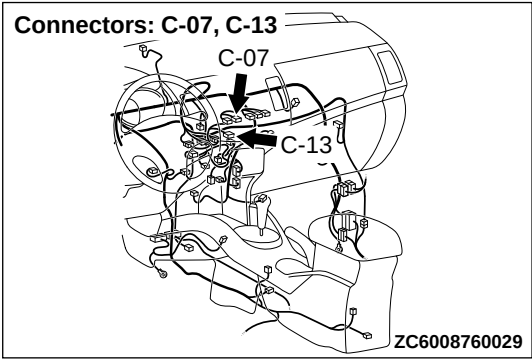
INSPECTION PROCEDURE 12: Communication with scan tool is not possible.

M15410800389USA0000010000

CAN Box Unit Communication Circuit



D7G54M072A00



COMMENTS ON TROUBLE SYMPTOM

When scan tool MB991958 cannot communicate with the MMCS (audio visual navigation unit), the CAN bus

line, CAN box unit power supply circuit system, audio visual navigation unit or, or CAN box unit may be faulty.

PROBABLE CAUSES

- Damaged wiring harness and connectors
- Audio visual navigation unit malfunction
- CAN box unit malfunction
- Wrong routing of scan tool harness
- Abnormality in power supply voltage to CAN box unit
- ECU malfunction of other system

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 (Vehicles with CAN communication system)

STEP 1. 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. 54B-64.)

NOTE: When the communication between the CAN box unit and the audio visual navigation unit is normal, "CAN BOX" is displayed on the check result screen. However, if the communication is not possible, "CAN BOX" is not displayed.

Q: Is "CAN BOX" displayed?

YES: Go to Step 2.

NO: Go to Step 3.

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

CAUTION

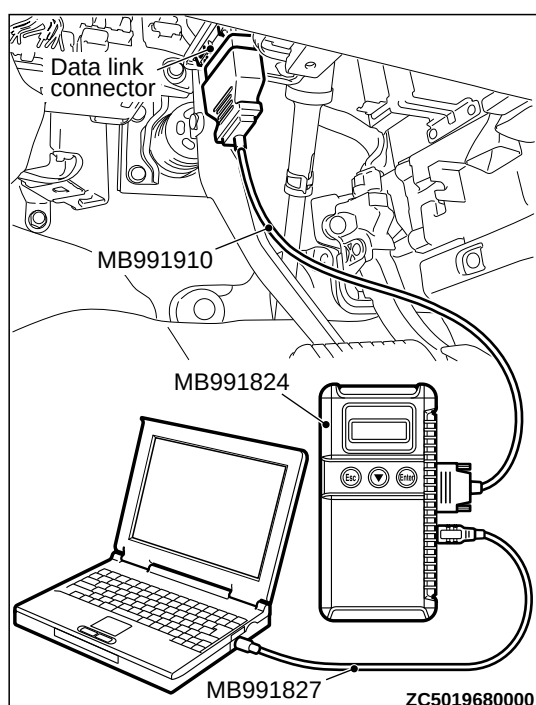
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to GROUP 54Ad, ETACS, Diagnosis, "How to connect the Scan Tool (M.U.T.-III) P.54Ad-5."
- (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: Intermittent malfunction is suspected. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P. 00-15.

NO: Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P. 54D-17).



STEP 3. Check CAN box unit connector C-13 and audio visual navigation unit connector C-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are CAN box unit connector C-13 and audio visual navigation unit connector C-07 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-13 (terminal 4, 5, 6) and audio visual navigation unit connector C-07 (terminal 43, 59, 58).

Q: Is the wiring harness between CAN box unit connector C-13 (terminal 4, 5, 6) and audio visual navigation unit connector C-07 (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. Substitute a known good CAN box unit, and check the trouble symptom.

Check whether scan tool MB991958 with CAN box unit normally.

Q: Is the check result normal?

YES: Replace the CAN box unit.

NO: Replace the audio visual navigation unit.

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 - Troubleshooting contents P. 00-6.

M15410800006USA0000010000

TROUBLE SYMPTOM CHART

M15410800007USA0000010003

Trouble symptom		Inspection Procedure No.	Reference page
Steering remote control switch does not function.	<Vehicles with radio and CD changer>	1	P.54B-124
	<Vehicles with MMCS>	2	P.54B-128
The illumination of the steering remote control switch does not come on.		3	P.54B-133

SYMPTOM PROCEDURES

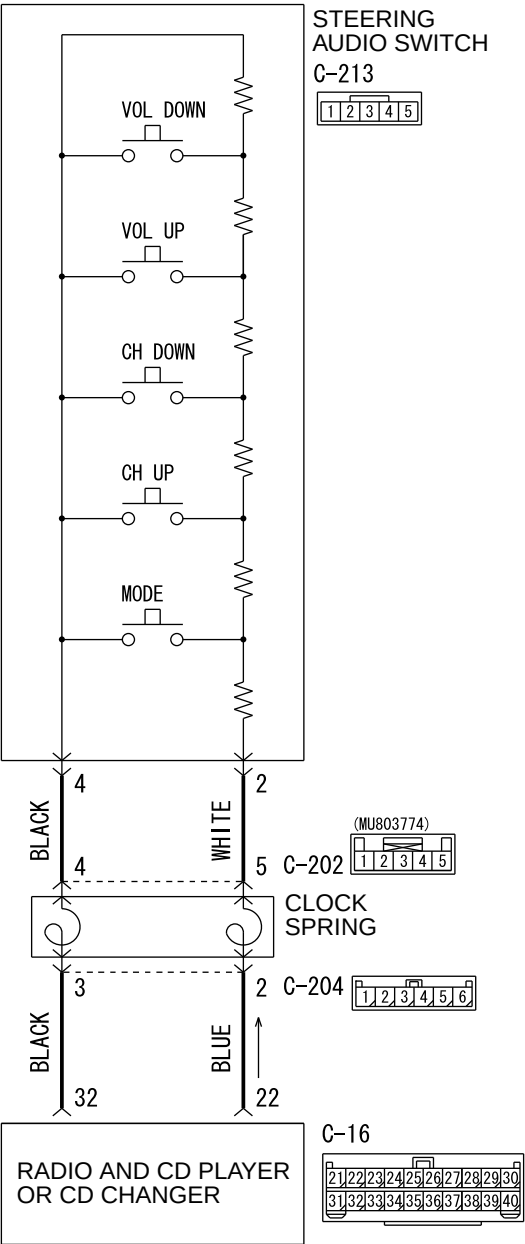
Inspection Procedure 1: steering remote control switch does not function. <vehicles with radio and CD changer>

M15410800223USA0000010000

CAUTION

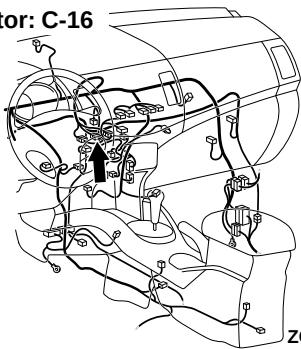
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Steering Audio Switch Circuit

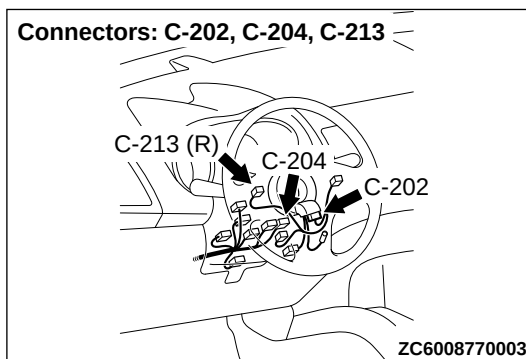


D7G54M019A00

Connector: C-16



ZC6008760002

**TECHNICAL DESCRIPTION (COMMENT)**

The power supply circuit to the steering remote control switch, the steering remote control switch, the radio and CD player or CD changer, or the clock spring may be defective.

TROUBLESHOOTING HINTS

- Malfunction of steering remote control switch
- Malfunctions of radio and CD player or CD changer
- Malfunction of the clock spring
- 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. Using scan tool MB991958, check data list.

Check whether the service data below are normal.

- (1) Turn the ignition switch to "ON" position.
- (2) Operate each switch of the steering remote control. Check whether the normal conditions listed below are displayed.

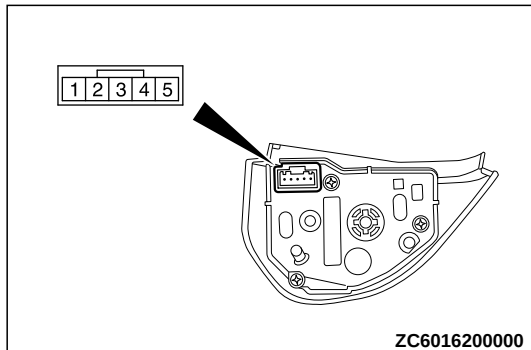
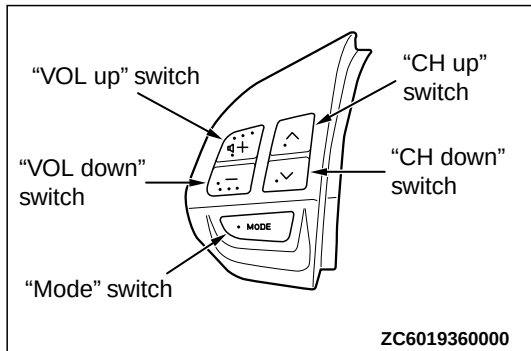
Item No.	Item name	Normal condition
Item 1	RADIO remoto SW (SEEK-)	ON
Item 2	RADIO remoto SW (SEEK+)	ON
Item 3	RADIO remoto SW (MODE)	ON
Item 4	RADIO remoto SW (VOL-)	ON
Item 5	RADIO remoto SW (VOL+)	ON

OK: Normal condition is displayed.

Q:Is the check result normal?

YES: Replace the radio and CD player or CD changer.

NO: Go to Step 2.



STEP 2. Check the remote controlled radio switch.

Remove the remote controlled radio switch. Then check continuity between the switch terminals.

Switch Position	Tester Connection	Measurement Value
No push	2 - 3	Approximately 3.1 kΩ
	2 - 4	Approximately 71 kΩ
Mode		Approximately 270 Ω
CH up		Approximately 740 Ω
CH down		Approximately 1.3 kΩ
VOL up		Approximately 2.1 kΩ
VOL down		Approximately 3.1 kΩ

Q: Is the remote controlled radio switch in good condition?

YES: Go to Step 3.

NO: Replace the remote controlled radio switch.

STEP 3. Check clock spring connector C-202 and C-204 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are clock spring connector C-202 and C-204 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 clock spring.

Check whether the clock spring is in good condition. Refer to GROUP 52B, Air bag module and clock spring P.52B-336.

Q: Is the check result normal?

YES: Go to Step 5.

NO: Replace the clock spring.

STEP 5. Check radio and CD player or CD changer connector C-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player or CD changer connector C-16 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. The steering remote control switch should work normally.

STEP 6. Check the wiring harness between radio and CD player or CD changer connector C-16 (terminal 22, 32) and clock spring connector C-204 (terminal 2, 3).

*Check the communication lines for open or short circuit.

Q:Is the wiring harness between radio and CD player or CD changer connector C-16 (terminal 22, 32) and clock spring connector C-204 (terminal 2, 3) 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 steering remote control switch connector C-213 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q:Is steering remote control switch connector C-213 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. The steering remote control switch should work normally.

STEP 8. Check the wiring harness between steering remote control switch connector C-213 (terminal 2, 4) and clock spring connector C-202 (terminal 5, 4).

* Check the communication lines for open or short circuit.

Q:Is the wiring harness between steering remote control switch connector C-213 (terminal 2, 4) and clock spring connector C-202 (terminal 5, 4) 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. Retest the system

Check whether you can operate the radio and CD player or the CD changer by using the steering remote control.

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.00-15).

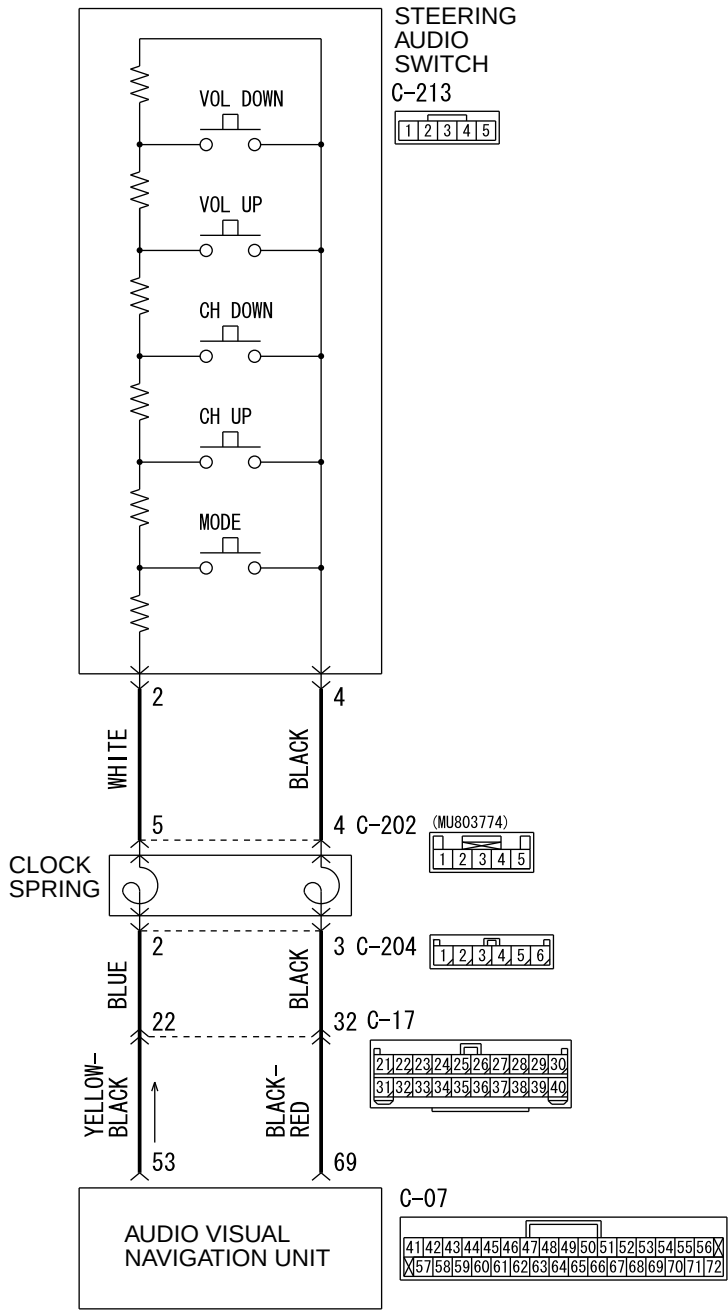
NO: Replace the radio and CD player or CD changer.

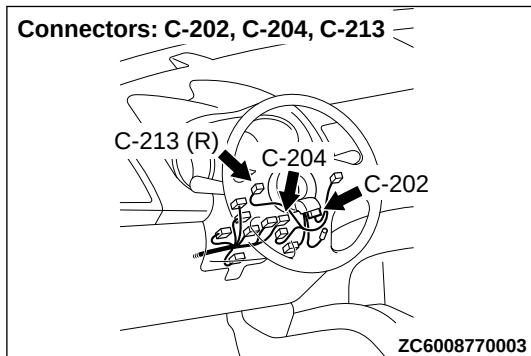
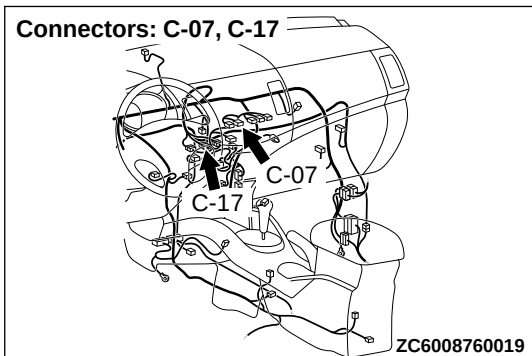
Inspection Procedure 2: Steering remote control switch does not function. <vehicles with MMCS>

⚠ CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Steering Audio Switch Circuit



**TECHNICAL DESCRIPTION (COMMENT)**

The power supply circuit to the steering remote control switch, the steering remote control switch, the audio visual navigation unit, or the clock spring may be defective.

TROUBLESHOOTING HINTS

- Malfunction of steering remote control switch
- Malfunctions of audio visual navigation unit
- Malfunction of the clock spring
- 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. Using scan tool MB991958, check data list.

Check whether the service data below are normal.

- (1) Turn the ignition switch to "ON" position.
- (2) Operate each switch of the steering remote control. Check whether the normal conditions listed below are displayed.

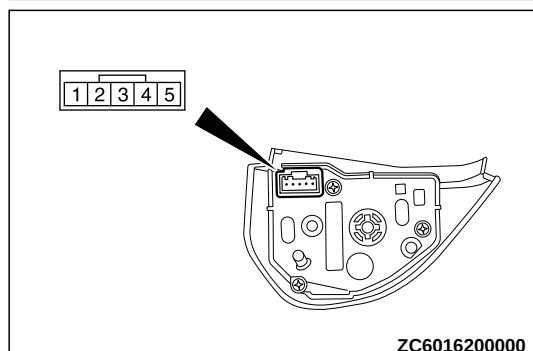
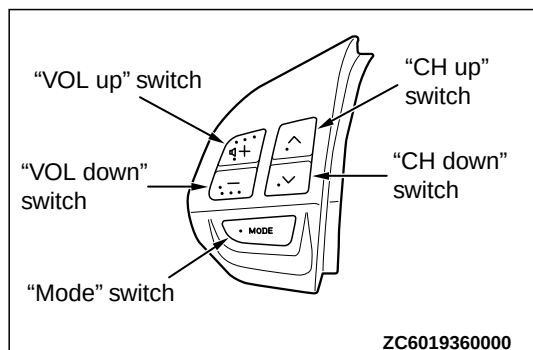
Item No.	Item name	Normal condition
Item 1	RADIO remoto SW (SEEK-)	ON
Item 2	RADIO remoto SW (SEEK+)	ON
Item 3	RADIO remoto SW (MODE)	ON
Item 4	RADIO remoto SW (VOL-)	ON
Item 5	RADIO remoto SW (VOL+)	ON

OK: Normal condition is displayed.

Q:Is the check result normal?

YES: Replace the audio visual navigation unit.

NO: Go to Step 2.



STEP 2. Check the remote controlled radio switch.

Remove the remote controlled radio switch. Then check continuity between the switch terminals.

Switch Position	Tester Connection	Measurement Value
No push	2 - 3	Approximately 3.1 kΩ
	2 - 4	Approximately 71 kΩ
Mode		Approximately 270 Ω
CH up		Approximately 740 Ω
CH down		Approximately 1.3 kΩ
VOL up		Approximately 2.1 kΩ
VOL down		Approximately 3.1 kΩ

Q: Is the remote controlled radio switch in good condition?

YES: Go to Step 3.

NO: Replace the remote controlled radio switch.

STEP 3. Check clock spring connector C-202 and C-204 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are clock spring connector C-202 and C-204 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 clock spring.

Check whether the clock spring is in good condition. Refer to GROUP 52B, Air bag module and clock spring P.52B-336.

Q: Is the check result normal?

YES: Go to Step 5.

NO: Replace the clock spring.

STEP 5. Check audio visual navigation unit connector C-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-07 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. The steering remote control switch should work normally.

STEP 6. Check the wiring harness between audio visual navigation unit connector C-07 (terminal 53, 69) and clock spring connector C-204 (terminal 2, 3).

NOTE: Also check intermediate connector C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

* Check the communication lines for open or short circuit.

Q: Is the wiring harness between audio visual navigation unit connector C-07 (terminal 53, 69) and clock spring connector C-204 (terminal 2, 3) 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 steering remote control switch connector C-213 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is steering remote control switch connector C-213 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. The steering remote control switch should work normally.

STEP 8. Check the wiring harness between steering remote control switch connector C-213 (terminal 2, 4) and clock spring connector C-202 (terminal 5, 4).

* Check the communication lines for open or short circuit.

Q: Is the wiring harness between steering remote control switch connector C-213 (terminal 2, 4) and clock spring connector C-202 (terminal 5, 4) 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. Retest the system

Check whether you can operate the audio visual navigation unit by using the steering remote control.

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. 00-15).

NO: Replace the audio visual navigation unit.

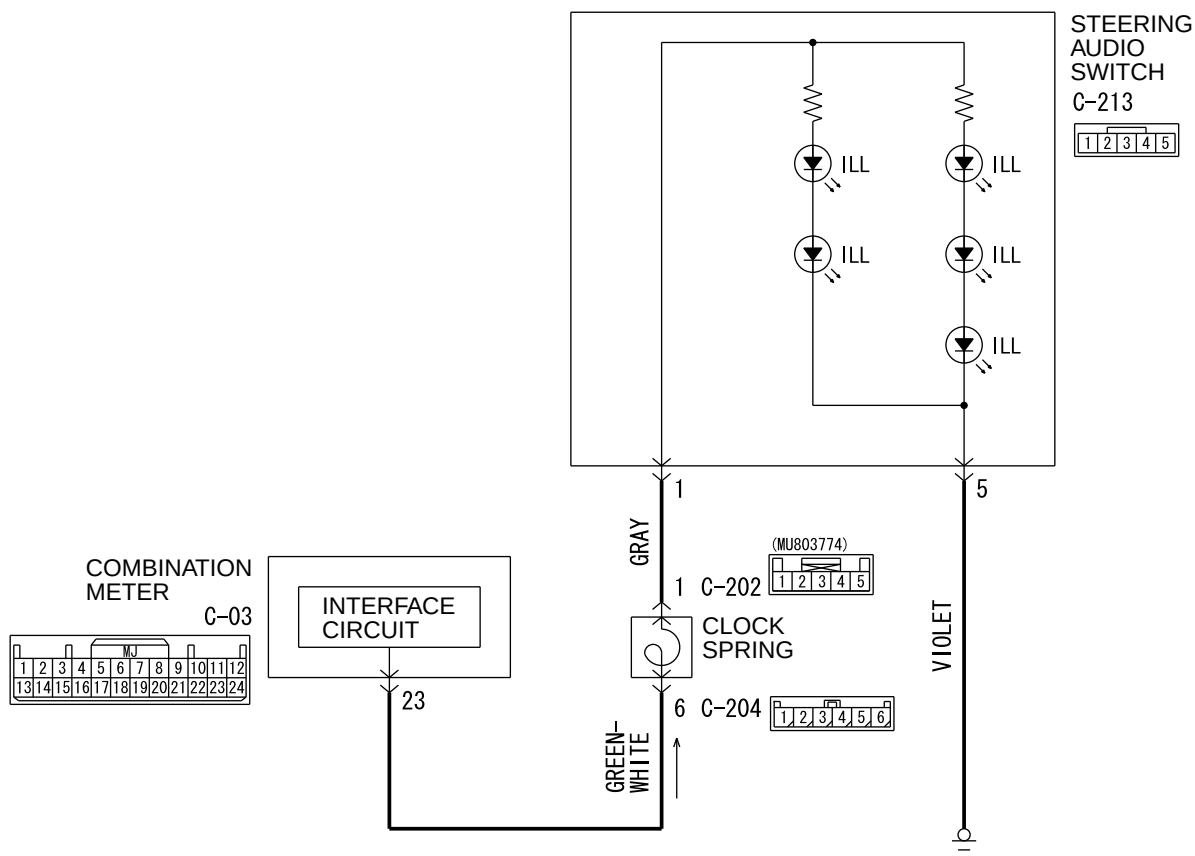
Inspection Procedure 3: The illumination of the steering remote control switch does not come on.

M15410800373USA0000010000

CAUTION

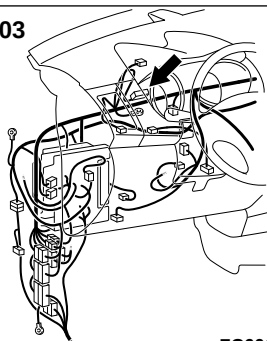
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Steering Audio Switch Illumination Circuit



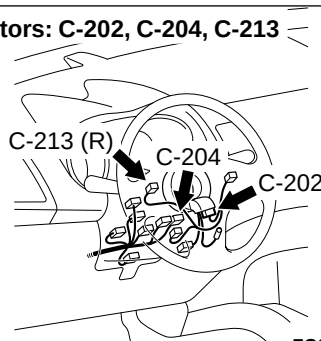
D7G54M049A00

Connector: C-03



ZC6008750015

Connectors: C-202, C-204, C-213



ZC6008770003

TECHNICAL DESCRIPTION (COMMENT)

The power supply circuit to the steering remote control switch, the steering remote control switch, the combination meter, or the clock spring may be defective.

TROUBLESHOOTING HINTS

- Malfunction of steering remote control switch
- Malfunctions of combination meter
- Malfunction of the clock spring
- 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 combination metre.

Check whether the combination meter works normally.

Q:Does the combination meter operate normally?

YES: Go to Step 2.

NO: Diagnose the combination meter. (Refer to GROUP 54Ab, Diagnosis P.54Ab-40.)

STEP 2. Check steering remote control switch connector C-213 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q:Is steering remote control switch connector C-213 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. The steering remote control switch should work normally.

STEP 3. Check the wiring harness between steering remote control switch connector C-213 (terminal 5) and ground.

- Check the ground wire.

Q:Is the wiring harness between steering remote control switch connector C-213 (terminal 5) and 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 clock spring connectors C-202 and C-204 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q:Are clock spring connectors C-202 and C-204 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. The steering remote control switch should work normally.

STEP 5. Check the clock spring.

Check whether the clock spring is in good condition (Refer to GROUP 52B, Air bag module and clock spring P.52B-336).

Q: Is the check result normal?

YES: Go to Step 6.

NO: Replace the clock spring.

STEP 6. Check the wiring harness between steering remote control switch connector C-213 (terminal 1) and clock spring connector C-202 (terminal 1).

*Check the power supply lines.

Q: Is the wiring harness between steering remote control switch connector C-213 (terminal 1) and clock spring connector C-202 (terminal 1) 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 combination meter connector C-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-03 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. The steering remote control switch should work normally.

STEP 8. Check the wiring harness between combination meter connector C-03 (terminal 23) and clock spring connector C-204 (terminal 6).

*Check the power supply lines.

Q: Is the wiring harness between combination meter connector C-03 (terminal 23) and clock spring connector C-204 (terminal 6) 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. Retest the system

Check whether the illumination of the steering remote control switch comes on normally.

Q: Does the illumination of the steering remote control switch come on normally?

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.00-15).

NO: Replace the steering remote control switch.

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M15410800006USA0000010000

Refer to GROUP 00 - Troubleshooting contents P. 00-6.

TROUBLE SYMPTOM CHART

M15410800007USA0000010004

Trouble symptom	Inspection Procedure No.	Reference page
A satellite radio cannot be received.	1	P.54B-136
Check the satellite radio tuner power supply circuit.	2	P.54B-139

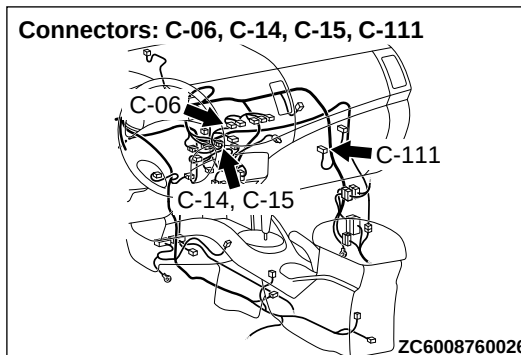
SYMPTOM PROCEDURES

Inspection Procedure 1: A satellite radio cannot be received.

M15410800375USA0000010000

CAUTION

Before replacing the satellite radio tuner, radio and CD changer <vehicles with radio and CD changer> or audio visual navigation unit <vehicles with MMCS>, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.



COMMENTS ON TROUBLE SYMPTOM

There may be a failure in the wiring harness from the satellite radio tuner to the radio and CD changer <vehicles with radio and CD changer> or audio visual navigation unit <vehicles with MMCS>, its respective connector(s), the satellite radio tuner, the CD changer <vehicles with radio and CD changer> or the audio visual navigation unit <vehicles with MMCS>.

PROBABLE CAUSES

- Malfunctions of satellite radio tuner
- Malfunctions of changer <vehicles with radio and CD changer> or audio visual navigation unit <vehicles with MMCS>
- 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

STEP1. Check whether AM or FM broadcast frequency is received.

Check whether AM or FM broadcast frequency is received.

Q:Is AM or FM broadcast frequency received?

YES: Go to Step 2.

NO: Diagnose the radio <vehicles with radio and CD changer> or the audio visual navigation unit <vehicles with MMCS>. Refer to P.54B-18<vehicles with radio and CD changer> or P.54B-74<vehicles with MMCS>.

STEP 2. 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 GROUP 54Ad, ETACS, Diagnosis, "How to connect the Scan Tool (M.U.T.-III) P.54Ad-5."
- (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.

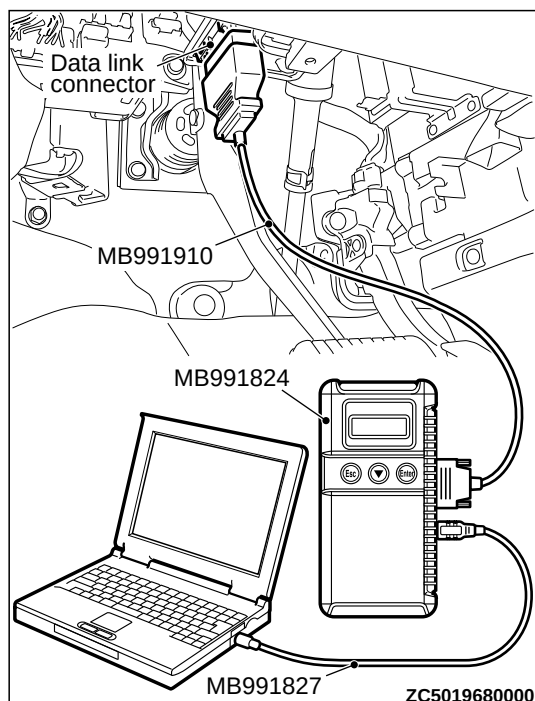
Q:Is the CAN bus line found to be normal?

YES<vehicles with radio and CD changer>: Go to Step 3.

YES<vehicles with MMCS>: Go to Step 6.

NO<vehicles with radio and CD changer or MMCS>:

Repair the CAN bus line. (Refer to GROUP 54D, Diagnosis P.54D-17).



STEP 3. Check satellite radio tuner connector C-111 and radio and CD changer connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q:Is satellite radio tuner connector C-111 or radio and CD changer connector C-14 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 wiring harness between satellite radio tuner connector C-111 (terminal 6, 7, 14) and radio and CD changer connector C-14 (terminal 5, 6, 15).

*Check the communication lines for open circuit.

Q: Is the wiring harness between satellite radio tuner connector C-111 (terminal 20) and radio and CD changer 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 radio and CD changer, and check the trouble symptom.

Check whether satellite radio broadcast can be received.

Q: Can a satellite radio be received?

YES: Replace the radio and CD changer.

NO: Replace the satellite radio tuner.

STEP 6. Check satellite radio tuner connector C-111 and audio visual navigation unit connector C-06 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is satellite radio tuner connector C-111 or audio visual navigation unit connector C-06 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 satellite radio tuner connector C-111 (terminal 6, 7, 14) and audio visual navigation unit connector C-06 (terminal 85, 86, 87).

*Check the communication lines for open circuit.

NOTE: Also check intermediate connector C-15 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 satellite radio tuner connector C-111 (terminal 6, 7, 14) and audio visual navigation unit connector C-06 (terminal 85, 86, 87) 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.

STEP8. Substitute a known good audio visual navigation unit, and check the trouble symptom.

Check whether satellite radio broadcast can be received.

Q:Can a satellite radio be received?

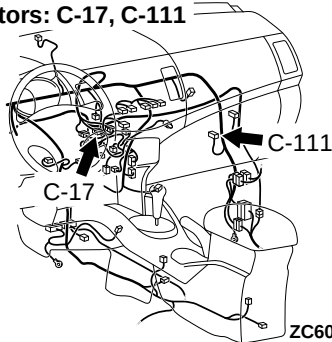
YES: Replace the audio visual navigation unit.

NO: Replace the satellite radio tuner.

Inspection Procedure 2: Check the satellite radio tuner power supply circuit.

M15410800382USA0000010000

Connectors: C-17, C-111



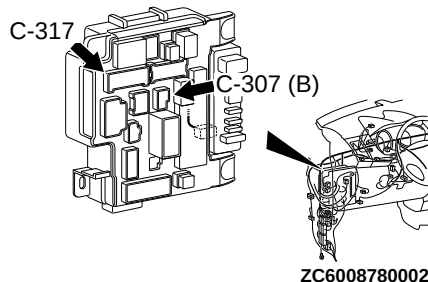
TECHNICAL DESCRIPTION (COMMENT)

If the satellite radio tuner functions do not work at all, the satellite radio tuner power supply system, ground system, or satellite radio tuner 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 satellite radio tuner may be defective

Connector: C-307, C-317



DIAGNOSIS

Required Special Tools:

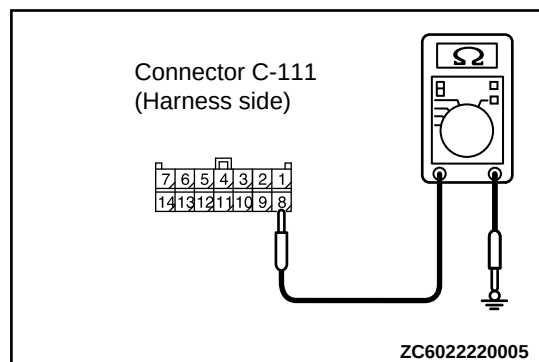
- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check satellite radio tuner connectors C-111 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q:Is satellite radio tuner connectors C-111 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 satellite radio tuner. Measure the resistance at satellite radio tuner connectors C-111.

- (1) Disconnect satellite radio tuner connector C-111 and measure the resistance available at the wiring harness side of the connector.
- (2) Measure the resistance value between satellite radio tuner connector C-111 terminal 8 and ground.
 - 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 satellite radio tuner connector C-111 (terminal 8) and ground.

Q: Is the wiring harness between satellite radio tuner connector C-111 (terminal 8) and ground 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.

STEP 4. Check the wiring harness between satellite radio tuner connector C-111 (terminal 1) and fusible link (36).

NOTE: Also check ETACS-ECU connectors C-307 and C-317 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If 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 satellite radio tuner connector C-111 (terminal 1) and fusible link (36) 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 satellite radio tuner normally.

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 - Troubleshooting contents P. 00-6.

TROUBLE SYMPTOM CHART

M15410800007USA0000010001

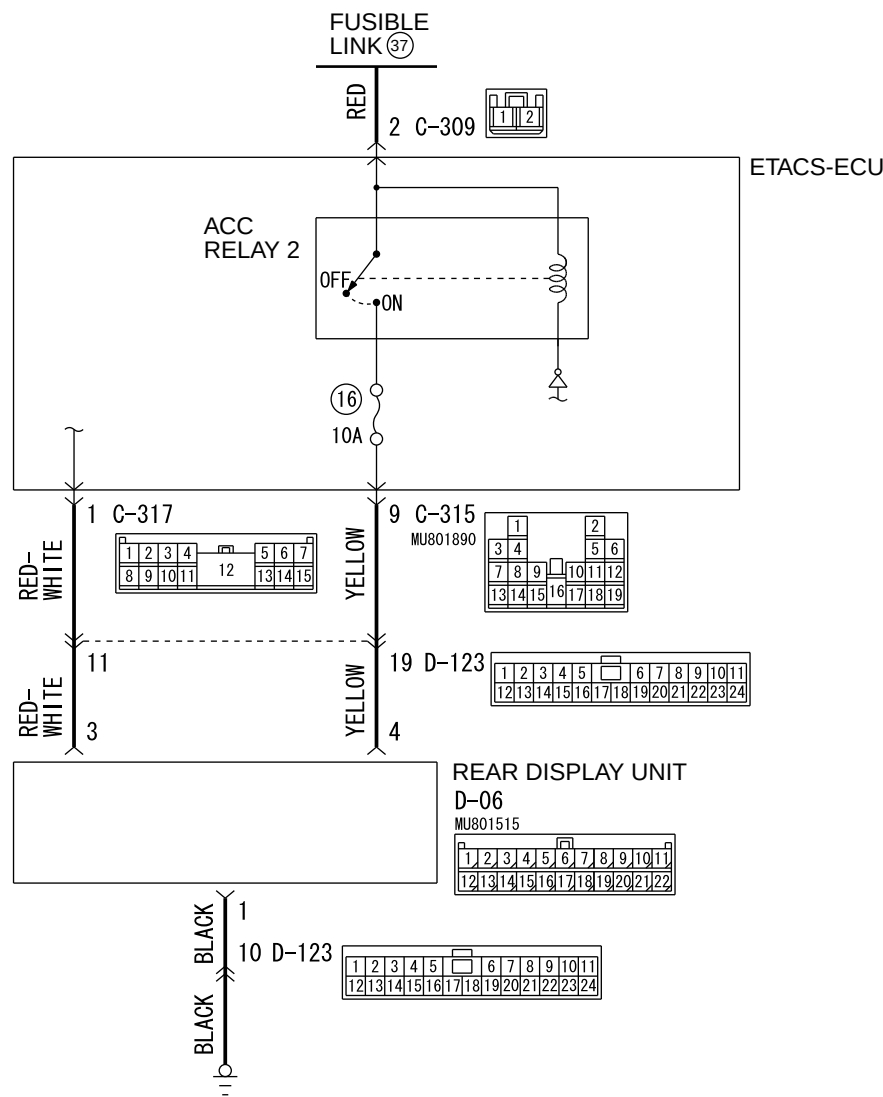
Trouble symptom	Inspection Procedure No.	Reference page
The rear display does not display at all.	1	P.54B-142
The rear display DVD player does not play the inserted DVD video disc.	2	P.54B-147
The rear display displays the DVD video picture, but the sound is not played.	3	P.54B-147
The rear display plays the DVD video sound, but the picture is not displayed.	4	P.54B-148
The rear display not displays the navigation system picture.	5	P.54B-149
The picture and sound of external input are not played.	6	P.54B-152
The rear display sound is not output from the speaker.	7	P.54B-155
No sound is output from the wireless headphone.	8	P.54B-157
The rear display does not change to nighttime brightness when the headlight is illuminated.	9	P.54B-158

SYMPTOM PROCEDURES

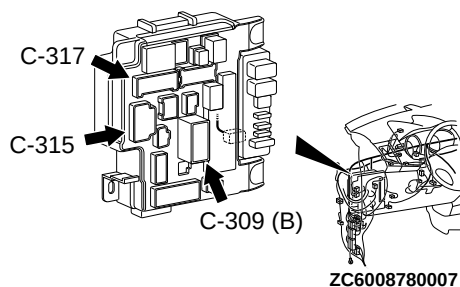
Inspection Procedure 1: The rear display unit does not display at all.

M15410800226USA0000010000

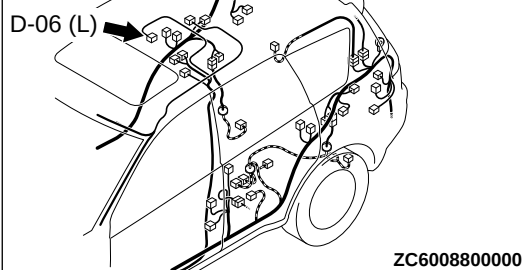
Rear Display Unit Power Supply Circuit



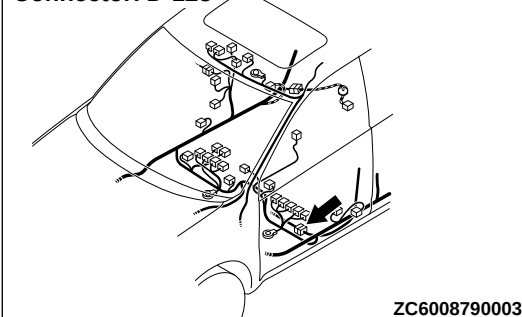
Connectors: C-309, C-315, C-317



Connector: D-06



Connector: D-123



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. Using scan tool MB991958, read the diagnostic trouble code.

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

Q:Is the DTC set?

YES: Diagnose the ETACS-ECU (Refer to GROUP 54Ad, Diagnosis P.54Ad-8).

NO: Go to Step 2.

STEP 2. Check ETACS-ECU connector C-317 and rear display unit connector D-06 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q:Is ETACS-ECU connector C-317 and rear display unit connector D-06 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.

STEP 3. Check the wiring harness between ETACS-ECU connector C-317 (terminal 1) and rear display unit connector D-06 (terminal 3).

NOTE: Also check intermediate connector D-123 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-123 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

• Check the power supply lines (battery power supply) for open circuit.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 1) and rear display unit connector D-06 (terminal 3) 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. Using scan tool MB991958, check data list of ETACS.

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 54Ad, Diagnosis, Inspection Procedure 1 "The ignition switch (ACC) signal is not received" P. 54Ad-61.

STEP 5. Check ETACS-ECU connector C-309 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

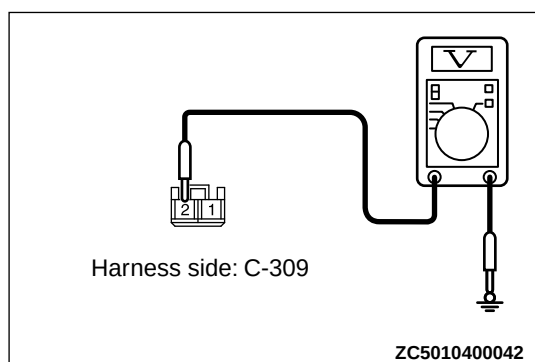
Q: Is ETACS-ECU connector C-309 in good condition?

YES: Go to Step 6.

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

STEP 6. Check the power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-309.

- (1) Disconnect ETACS-ECU connector C-309, and measure the voltage available at the wiring harness-side connector.
- (2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between 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 8.

NO: Go to Step 7.

STEP 7. Check the wiring harness between ETACS-ECU connector C-309 (terminal 2) and fusible link No.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 No.37 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. 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 9.

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

STEP 9. Check the power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-315.

(1) Disconnect the connector, and measure at the ETACS-ECU side connector.

(2) Turn the ignition switch to the "ACC" position.

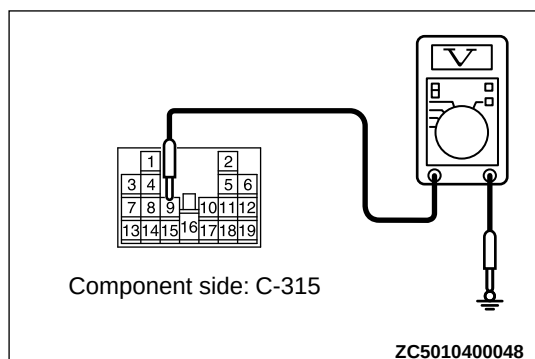
(3) Measure voltage between terminal 9 and ground.

OK: Battery voltage

Q: Is the measured voltage battery voltage?

YES: Go to Step 10.

NO: Replace the ETACS-ECU.



STEP 10. Check the wiring harness between ETACS-ECU connector C-315 (terminal 9) and rear display unit connector D-06 (terminal 4).

NOTE: Also check intermediate connector D-123 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-123 is damaged,

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

• Check the power supply lines (ACC power supply) for open circuit.

Q: Is the wiring harness between ETACS-ECU connector C-315 (terminal 9) and rear display unit connector D-06 (terminal 4) in good condition?

YES: Go to Step 11.

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 11. Check the ground circuit to the rear display unit.

Measure the resistance at rear display unit connector D-06.

(1) Disconnect rear display unit connector D-06, and measure the resistance available at the wiring harness side of the connector.

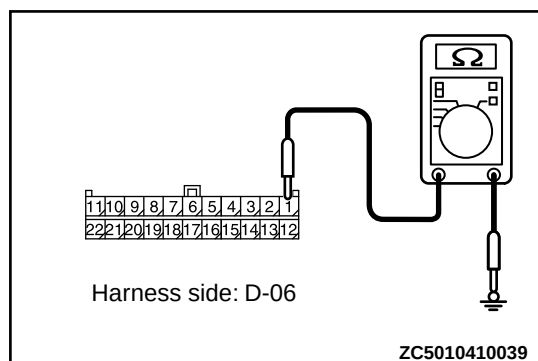
(2) Measure the resistance between terminal 1 and ground.

OK: The resistance should be 2 ohms or less

Q: Is the measured resistance 2 ohms or less?

YES: Go to Step 13.

NO: Go to Step 12.



STEP 12. Check the wiring harness between rear display unit connector D-06 (terminal 1) and ground.

NOTE: Also check intermediate connector D-123 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-123 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

• Check the ground wires for open circuit.

Q: Is the wiring harness between rear display unit connector D-06 (terminal 1) 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. 00-15).

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 13. Check if the rear display unit displays normally.

Q: Do the rear display unit displays normally?

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.00-15).

NO: Replace the rear display unit.

Inspection Procedure 2: The rear display DVD player does not play the inserted DVD video disc.

M15410800362USA0000010000

DIAGNOSIS

STEP 1. Confirm the DVD video disk.

Confirm that the DVD video disk complies with the market specifications.

Q: Is the check result normal?

YES: Go to Step 2.

NO: Use the DVD video disc made for the domestic use.

STEP 2. Confirm that the DVD video disk is inserted with its correct side facing up.

Confirm that the DVD video disk is inserted with its correct side facing up.

Q: Is the check result normal?

YES: Go to Step 3.

NO: Check the correct disc insertion direction, then reinsert the disc (if it is a single-sided disc, insert with the label facing upward).

STEP 3. Confirm the DVD video disk.

Confirm that the DVD video disc is not contaminated or scratched.

Q: Is the check result normal?

YES: Go to Step 4.

NO: Clean the disk or use a clean disk.

STEP 4. Retest the system

Check that the DVD video disc is played normally when it is inserted.

Q: Is the check result normal?

YES: The procedure is complete.

NO: Replace the rear display unit.

Inspection Procedure 3: The rear display displays the DVD video picture, but the sound is not played.

M15410800363USA0000010000

DIAGNOSIS

STEP 1. Confirm the DVD video disk.

Check that the played DVD video disc contains sound.

Q:Is the check result normal?

YES: Go to Step 2.

NO: Use the DVD video disc which contains sound.

STEP 2. Check of played back scene

Check that the played scene contains sound.

Q:Is the check result normal?

YES: Go to Step 3.

NO: Play the scene with sounds, and check.

STEP 3. Check of playing method

Check whether the disc was played normally and not with special playback (fast rewind, fast forward, slow, pause).

Q:Is the check result normal?

YES: Go to Step 4.

NO: Check with the normal playback.

STEP 4. Check of rear display CD sound

Play a CD with the rear display to check if the CD sound is output.

Q:Is the check result normal?

YES: Replace the rear display unit.

NO: Go to Step 5.

STEP 5. Retest the system

Check whether the DVD video disc sound is played.

Q:Is the check result normal?

YES: The procedure is complete.

NO: Replace the rear display unit.

Inspection Procedure 4: The rear display plays the DVD video sound, but the picture is not displayed.

M15410800364USA0000010000

DIAGNOSIS**STEP 1. Confirm the DVD video disk.**

Confirm that the DVD video disc is not contaminated or scratched.

Q:Is the check result normal?

YES: Go to Step 2.

NO: Clean the disk or use a clean disk.

STEP 2. Retest the system

Check whether the picture is displayed when a DVD video disc is played.

Q:Is the check result normal?

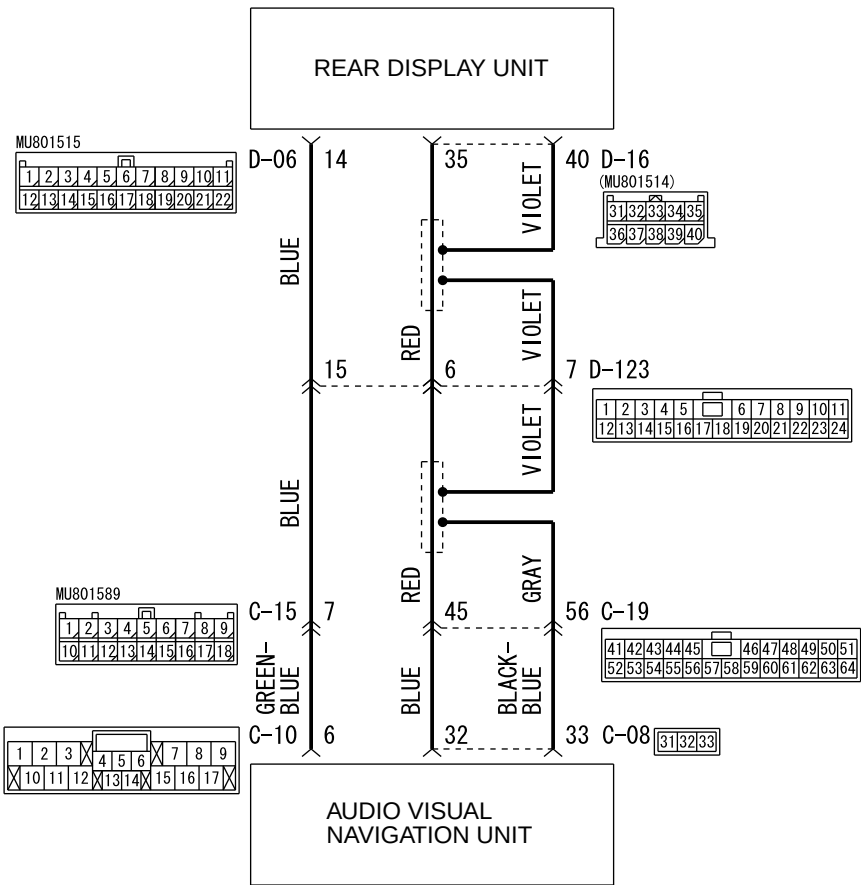
YES: The procedure is complete.

NO: Go to Step 1.

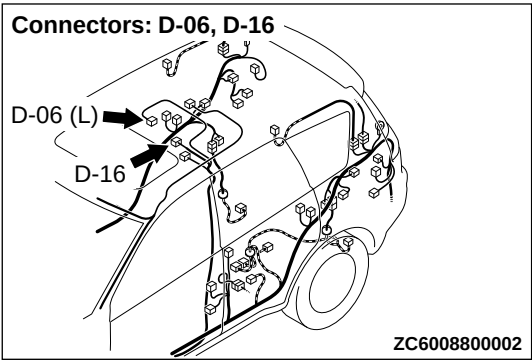
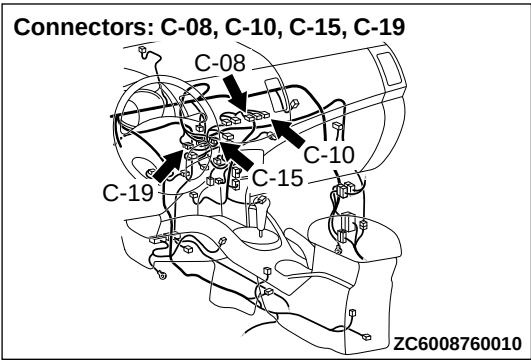
Inspection Procedure 5: The rear display not displays the navigation system picture.

M15410800365USA0000010000

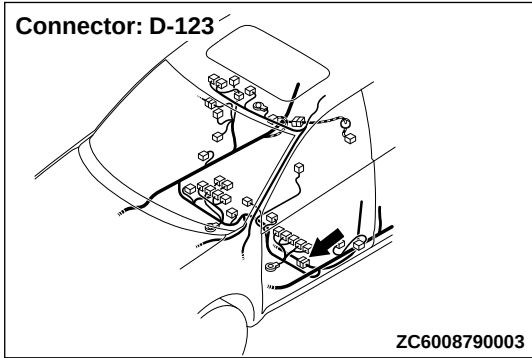
Audio Communication Circuit



D7G54M047A00



Connector: D-123



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 MMCS navigation screen.

Check whether the MMCS navigation screen is displayed normally.

Q:Is the check result normal?

YES: Go to Step 2.

NO: Diagnose the MMCS. Refer to P.54B-74.

STEP 2. Check the communication and wire connection in the MMCS service mode.

Perform "Network/Connect Line Check" in the MMCS service mode to check that the communication and wire connection with the rear display unit* are OK. Refer to P.54B-64.

*NOTE: *: Is displayed as "Rear Seat Display" in the service mode.*

Q:Is the check result normal?

YES: Go to Step 3.

NO: Go to Step 5.

STEP 3. Check rear display unit connector D-16 and audio visual navigation unit connector C-08 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q:Is rear display unit connector D-16 and audio visual navigation unit connector C-08 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 wiring harness between rear display unit connector D-16 (terminal 35, 40) and audio visual navigation unit connector C-08 (terminal 32, 33).

• Check the communication lines for open circuit.

NOTE: Also check intermediate connectors C-19 and D-123 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-19 or D-123 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

Q: Is the wiring harness between rear display unit connector D-16 (terminal 35, 40) and audio visual navigation unit connector C-08 (terminal 32, 33) 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. Check rear display unit connector D-06 and audio visual navigation unit connector C-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear display unit connector D-06 and audio visual navigation unit connector C-10 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 rear display unit connector D-06 (terminal 14) and audio visual navigation unit connector C-10 (terminal 6).

• Check the communication lines for open circuit.

NOTE: Also check intermediate connectors C-15 and D-123 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-15 or D-123 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

Q: Is the wiring harness between rear display unit connector D-06 (terminal 14) and audio visual navigation unit connector C-10 (terminal 6) 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 rear display unit, and check the trouble symptom.

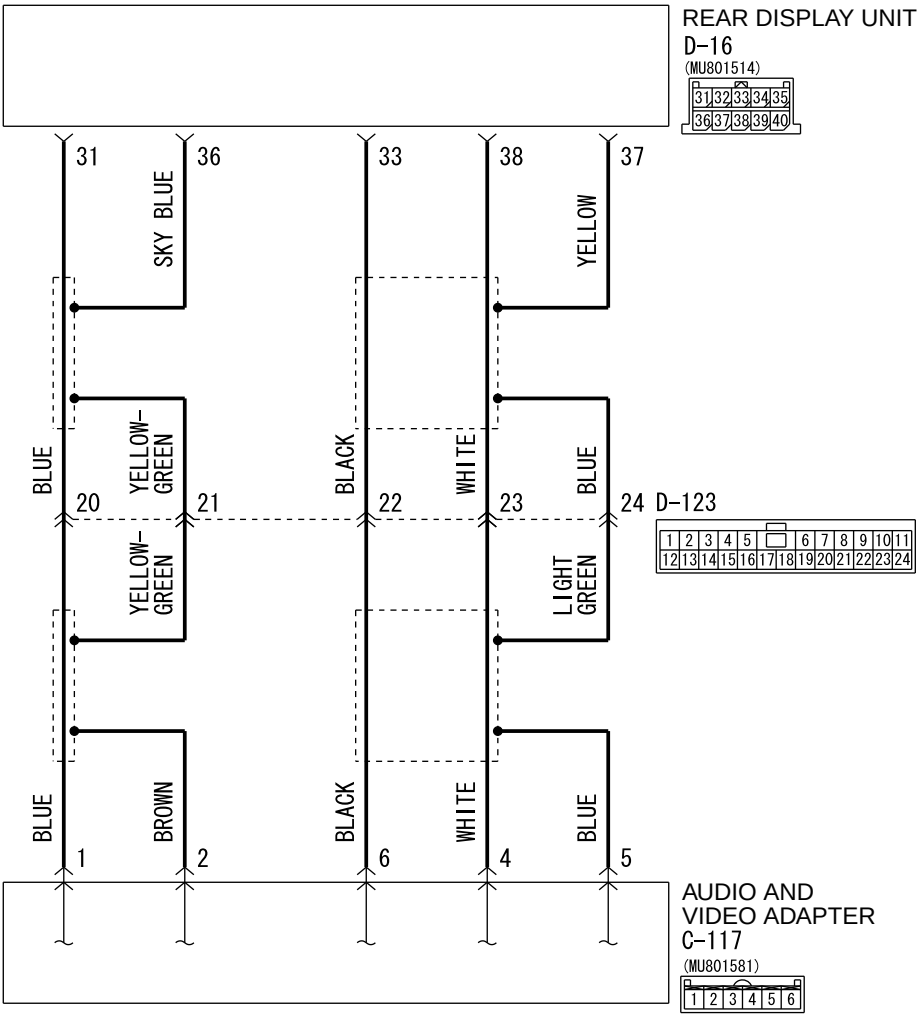
Check whether image sent from the MMCS is displayed on the rear display unit normally.

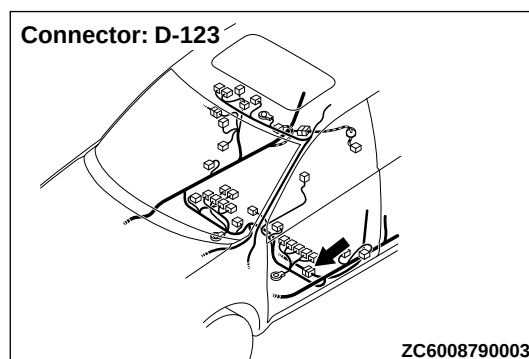
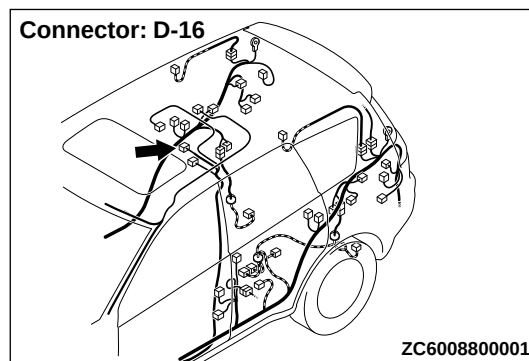
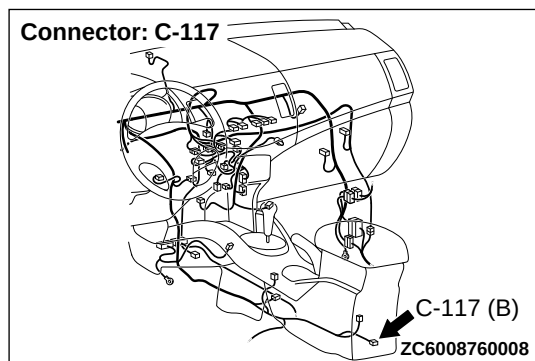
Q: Is the check result normal?
YES: Replace the rear display unit.
NO: Replace the audio visual navigation unit.

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

M15410800242USA0000010000

Audio and Video Adapter Communication Circuit





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 of rear display unit DVD picture.

Check that the DVD picture is displayed normally when the rear display unit DVD player is used.

Q:Is the check result normal?

YES: Go to Step 2.

NO: Perform the troubleshooting related to the rear display unit DVD video. Refer to P.54B-141.

STEP 2. Check rear display unit connector D-16 and audio and video adaptor connector C-117 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q:Is rear display unit connector D-16 and audio and video adaptor connector C-117 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.

STEP 3. Check the wiring harness between rear display unit connector D-16 (terminal 31, 33, 36, 37, 38) and audio and video adaptor connector C-114 (terminal 1, 6, 2, 5, 4).

NOTE: Also check intermediate connector D-123 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-123 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

• Check the communication lines for open circuit.

Q: Is the wiring harness between rear display unit connector D-16 (terminal 31, 33, 36, 37, 38) and audio and video adaptor connector C-114 (terminal 1, 6, 2, 5, 4) in good condition?

YES: Replace the audio and video adapter, then 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. Retest the system

Check that the external input is normal.

Q: Is the check result normal?

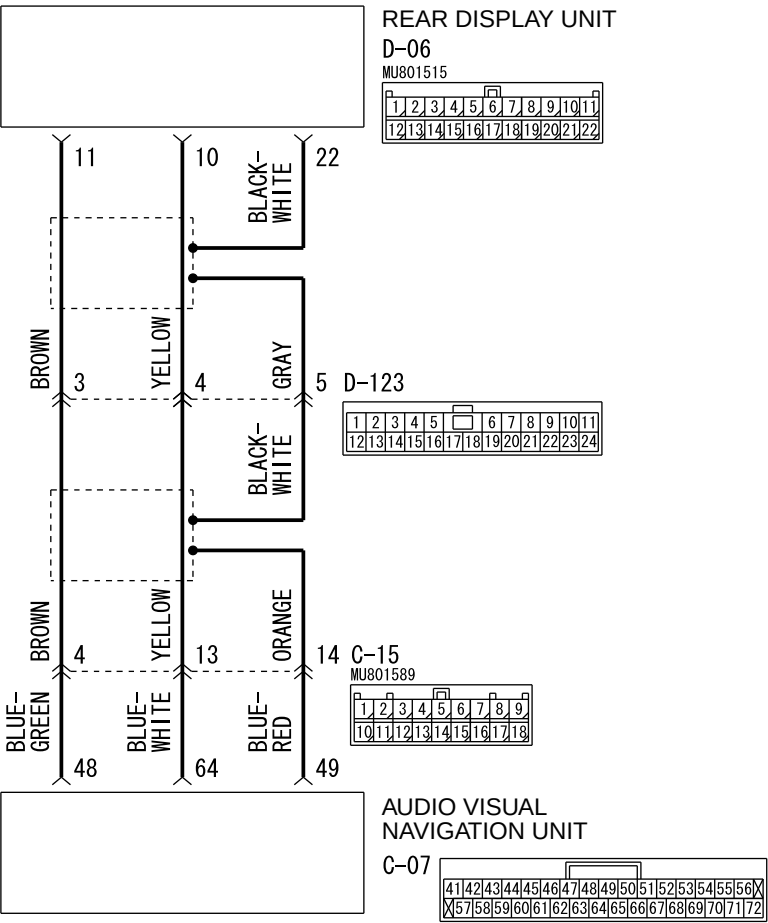
YES: The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P. 00-15).

NO: Replace the rear display unit.

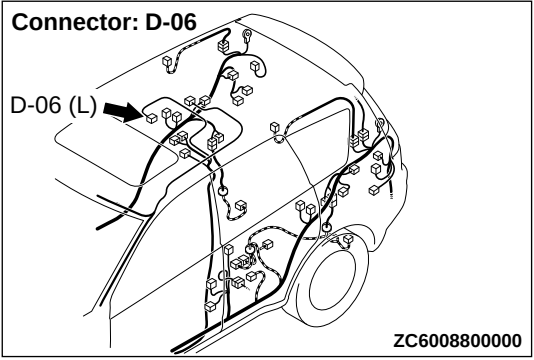
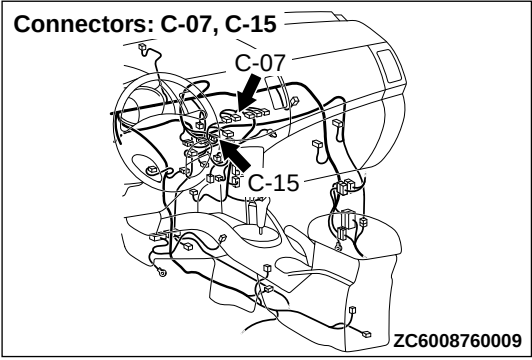
Inspection Procedure 7: The rear display unit sound is not output from the speaker.

M15410800366USA0000010000

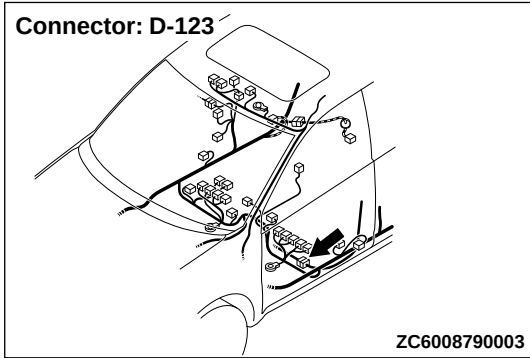
Audio Communication Circuit



D7G54M017A00



Connector: D-123



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 rear display unit connector D-06 and audio visual navigation unit connector C-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear display unit connector D-06 and audio visual navigation unit connector C-07 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 rear display unit connector D-06 (terminal 10, 11, 22) and audio visual navigation unit connector C-07 (terminal 64, 48, 49).

NOTE: Also check intermediate connectors C-15 and D-123 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-15 or D-121 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

- Check the communication lines for open circuit.

Q: Is the wiring harness between rear display unit connector D-06 (terminal 10, 11, 22) and audio visual navigation unit connector C-106 (terminal 64, 48, 49) 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.

STEP 3. Retest the system

Check if the rear display unit sound is output from the speaker.

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. 00-15).

NO: Replace the rear display unit.

Inspection Procedure 8: No sound is output from the wireless headphone.

M15410800367USA0000010000

DIAGNOSIS

STEP 1. Speaker check

When the speaker sound is set to the rear display output, check whether the rear display sound is output from the speakers.

Q: Is the check result normal?

YES: Go to Step 2.

NO: Refer to Inspection Procedure 7 "The rear display sound is not output from the speaker P. 54B-155."

STEP 2. Wireless headphone battery check

Replace the wireless headphone battery, and check the wireless headphone sound.

Q: Is the check result normal?

YES: The procedure is complete.

NO: Go to Step 3.

STEP 3. Replace the wireless headphone temporarily, and check the trouble symptom.

Replace the wireless headphone temporarily, and check if sound is output from the wireless headphone.

Q: Is the check result normal?

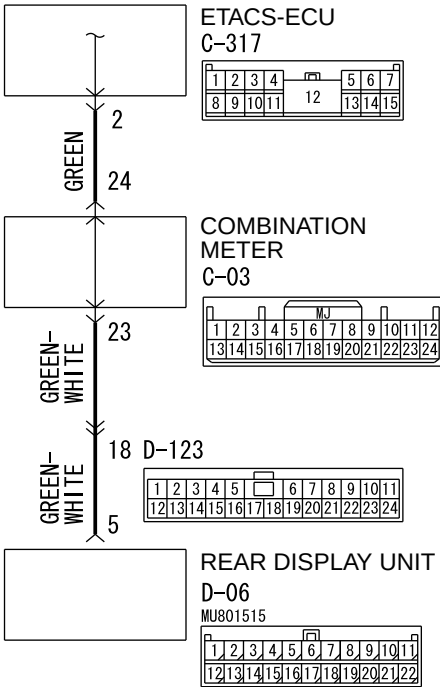
YES: Replace the wireless headphone.

NO: Replace the rear display unit.

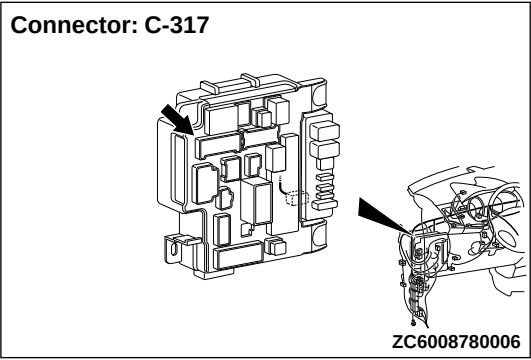
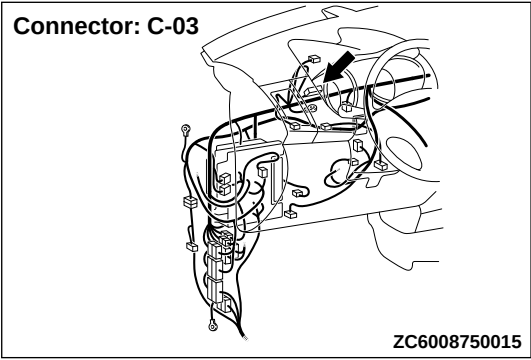
Inspection Procedure 9: The rear display does not change to nighttime brightness when the headlights are illuminated.

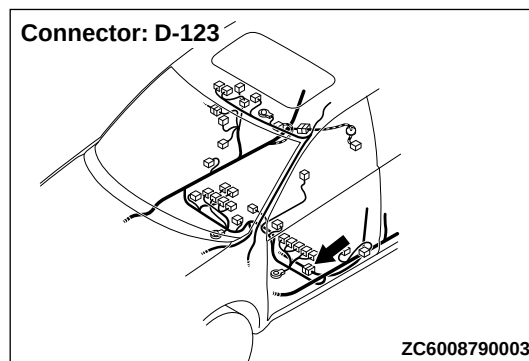
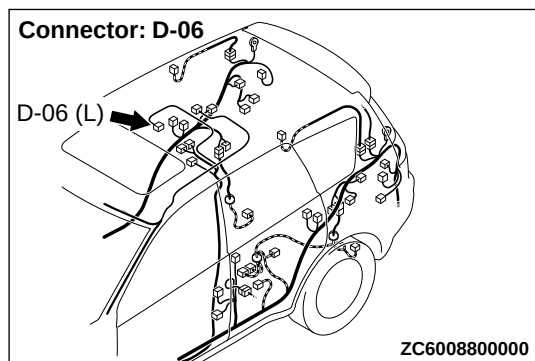
M15410800139USA0000010000

Rear Display Unit Communication Circuit



D7G54M018A00





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

Check if DTC is set to the combination meter.

Q:Is the DTC set?

YES: Diagnose the combination meter (Refer to GROUP 54Ab, Diagnosis P.54Ad-8). On completion, go to Step 2.

NO: Go to Step 2.

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

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

Q:Is the DTC set?

YES: Diagnose the ETACS-ECU (Refer to GROUP 54Ad, Diagnosis P.54Ad-8), and then go to Step 3.

NO: Go to Step 3.

STEP 3. Check combination meter connector C-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

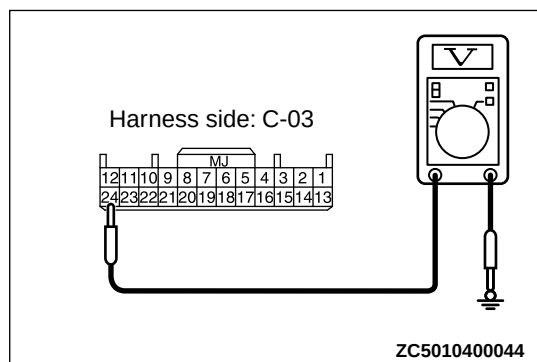
Q:Is combination meter connector C-03 in good condition?

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 power supply circuit to the combination meter. Measure the voltage at combination meter connector C-03.

- (1) Disconnect combination meter connector C-03, and measure the voltage available at the wiring harness-side connector.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.



(3) Measure the voltage terminal No.24 and the body 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 ETACS-ECU connector C-317 (terminal 9) and combination meter connector C-06 (terminal 24).

• Check the power supply line for open circuit.

Q:Is the wiring harness between ETACS-ECU connector C-317 (terminal 2) and combination meter connector C-03 (terminal 24) in good condition?

YES: Replace the ETACS-ECU, then 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. Check the wiring harness between combination meter connector C-03 (terminal 23) and rear display unit connector D-06 (terminal 5).

NOTE: Also check intermediate connector D-123 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-123 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

• Check the power supply line for open circuit.

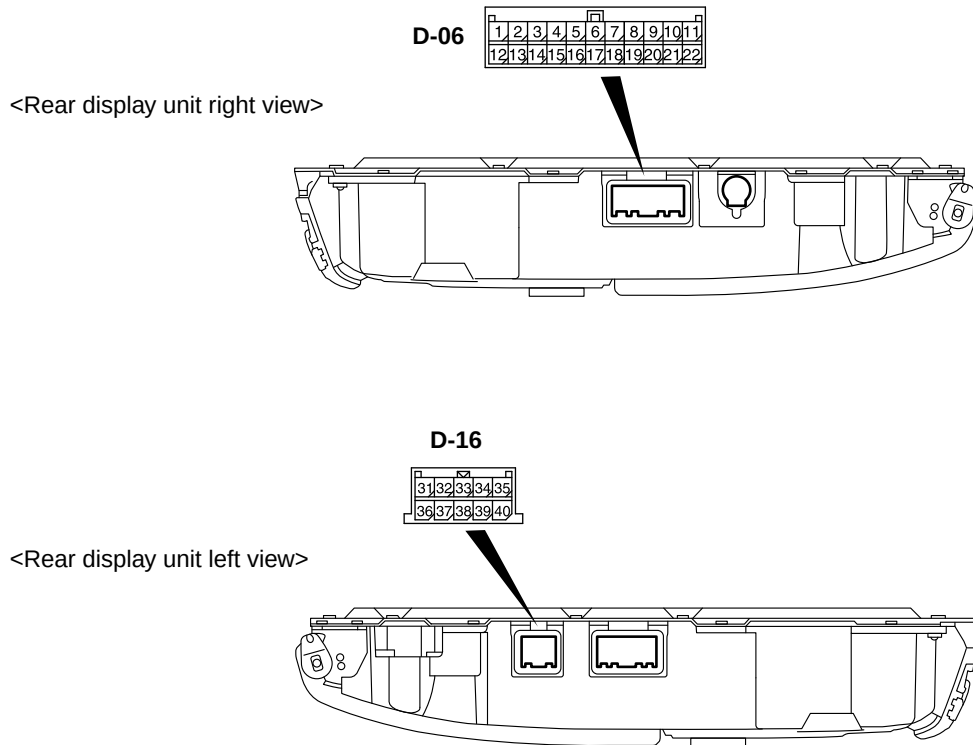
Q:Is the wiring harness between combination meter connector C-03 (terminal 23) and rear display unit connector D-06 (terminal 5) in good condition?

YES: Replace the rear display unit.

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.

MAIN UNIT TERMINAL VOLTAGE

M15410800091USA0000010000



ZC3061390000

D-06

Terminal No.	Input and output	Signal symbol	Terminal voltage (V)	Faulty harness wire (s)		Trouble symptom due to faulty harness wire(s)
				Open circuit	Short circuit	
1	-	GND	-	-	-	-
3	Input	+B	Battery voltage	Applicable	-	The rear monitor does not work.
				-	Applicable	The multi-purpose fuse is burned out.
4	-	ACC+	Battery voltage	Applicable	-	The power cannot be turned ON (eject works).
				-	Applicable	Multi-purpose fuse is blown.
5	Input	ILL+	0-battery voltage	Applicable	Applicable	The image brightness changes to the daytime mode.
8	Output	VIDEO-OUT	0-1 Vp-p (AC)	Applicable	-	No DVD picture is displayed.
				-	Applicable	No DVD picture is displayed.
9	-	VIDEO-GND	-	Applicable	-	No DVD picture is displayed.
10	Output	AUDIO-L-OUT	0-battery voltage (AC)	Applicable	Applicable	DVD sound (left) is not output.

Terminal No.	Input and output	Signal symbol	Terminal voltage (V)	Faulty harness wire (s)		Trouble symptom due to faulty harness wire(s)
				Open circuit	Short circuit	
11	Output	AUDIO-R-OUT	0-battery voltage (AC)	Applicable	Applicable	DVD sound (right) is not output.

D-16

Terminal No.	Input and output	Signal symbol	Terminal voltage (V)	Faulty harness wire (s)		Trouble symptom due to faulty harness wire(s)
				Open circuit	Short circuit	
1	Input and output	VTR-VIDEO-IN	0-1 Vp-p (AC)	Applicable	Applicable	No external input picture is displayed.
3	Output	VTR-AUDIO-R-IN	0-battery voltage (AC)	Applicable	Applicable	External input sound (right) is not output.
6	-	VTR-VIDEO-SHIELD-GND	-	Applicable	Applicable	No external input picture is displayed.
7	-	VTR-AUDIO-SHIELD-GND	-	Applicable	Applicable	No external input picture is displayed.
8	Output	VTR-AUDIO-L-IN	0-battery voltage (AC)	Applicable	Applicable	External input sound (left) is not output.

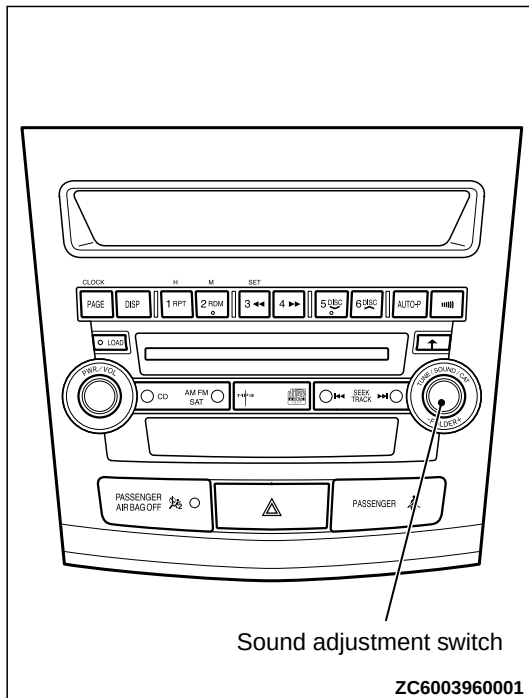
ON-VEHICLE SERVICE

ADJUSTMENT OF VOLUME AND SOUND QUALITY AUTOMATIC CORRECTION FUNCTION

M15410800359USA0000010000

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



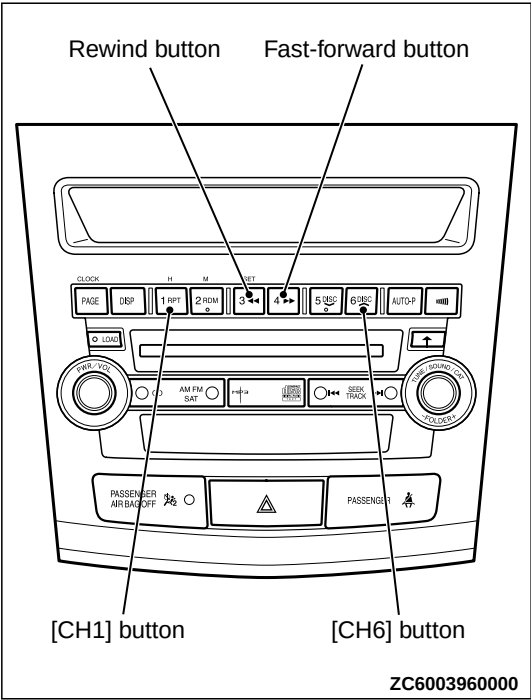
SPEAKER TEST

M15410800360USA0000010000

<VEHICLES WITHOUT MMCS>

HOW TO START SPEAKER CHECK MODE

With the ignition switch at the ACC position and the audio power OFF, press the button in the following order.



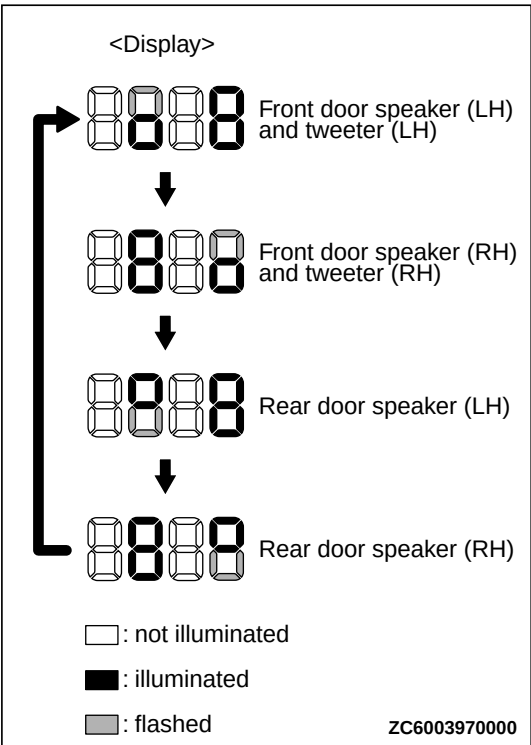
1. Press the [CH1] button.
2. Press the fast rewind button.
3. Press the fast forward button.
4. Press the [CH6] button.

NOTE: To start the speaker check mode, perform the button operations above within 60 seconds since turning OFF the audio power.

SPEAKER CONNECTION CHECK MODE

With the speaker connection check mode, the connection status of each speaker can be checked based on the sound output from each speaker. The procedure is as follows.

1. At the same time with the start of speaker check mode, the sound for speaker connection check is output from the front door speaker (LH). Check the speaker connection of front door speaker (LH) based on this sound output.
2. Press the [CH6] button to switch the sound output for speaker check from the front door speaker (LH) to the front door speaker (RH). Check the speaker connection of front door speaker (RH) based on the output of speaker connection check sound from the front door speaker (RH).
3. Press the [CH6] button again to switch the sound output for speaker check from the front door speaker (RH) to the rear door speaker (LH). Check the speaker connection of rear door speaker (LH) based on the output of speaker connection check sound from the rear door speaker (LH).
4. Press the [CH6] button again to switch the sound output for speaker check from the rear door speaker (LH) to the rear door speaker (RH). Check the speaker connection of rear door speaker (RH) based on the output of speaker connection check sound from the rear door speaker (RH).



CHATTERING CHECK MODE

Inserting a CD during the speaker connection check mode shifts the mode to the chattering check mode, and the chattering sound of each speaker can be checked.

1. As with the speaker connection check mode, press the [CH6] button to switch the output speaker of the chattering check sound.
2. Check that the chattering sound is output from the output speaker of chattering check sound.

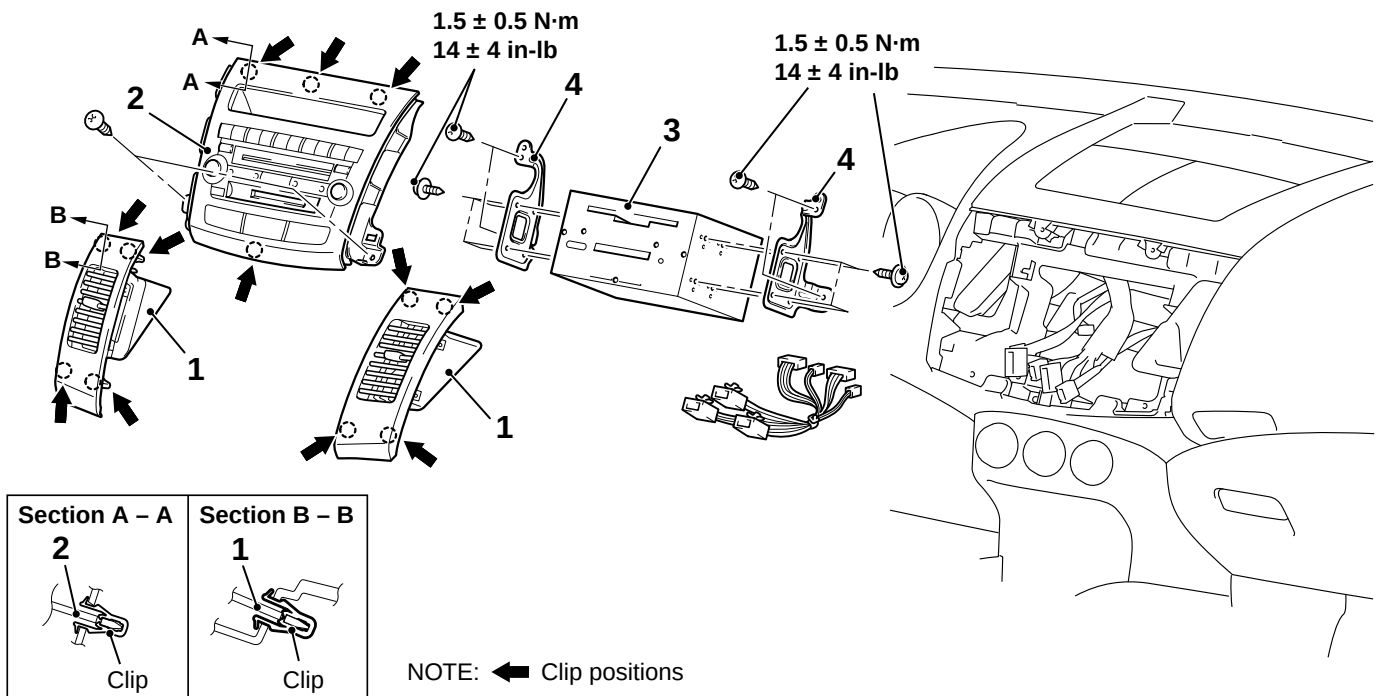
<VEHICLES WITH MMCS>

Refer to P.54B-64.

RADIO AND CD PLAYER

REMOVAL AND INSTALLATION

M15410800047USA0000010000



ZC6006550000

Removal Steps

1. Center outlet
2. Center panel assembly
3. Radio and CD player or CD changer

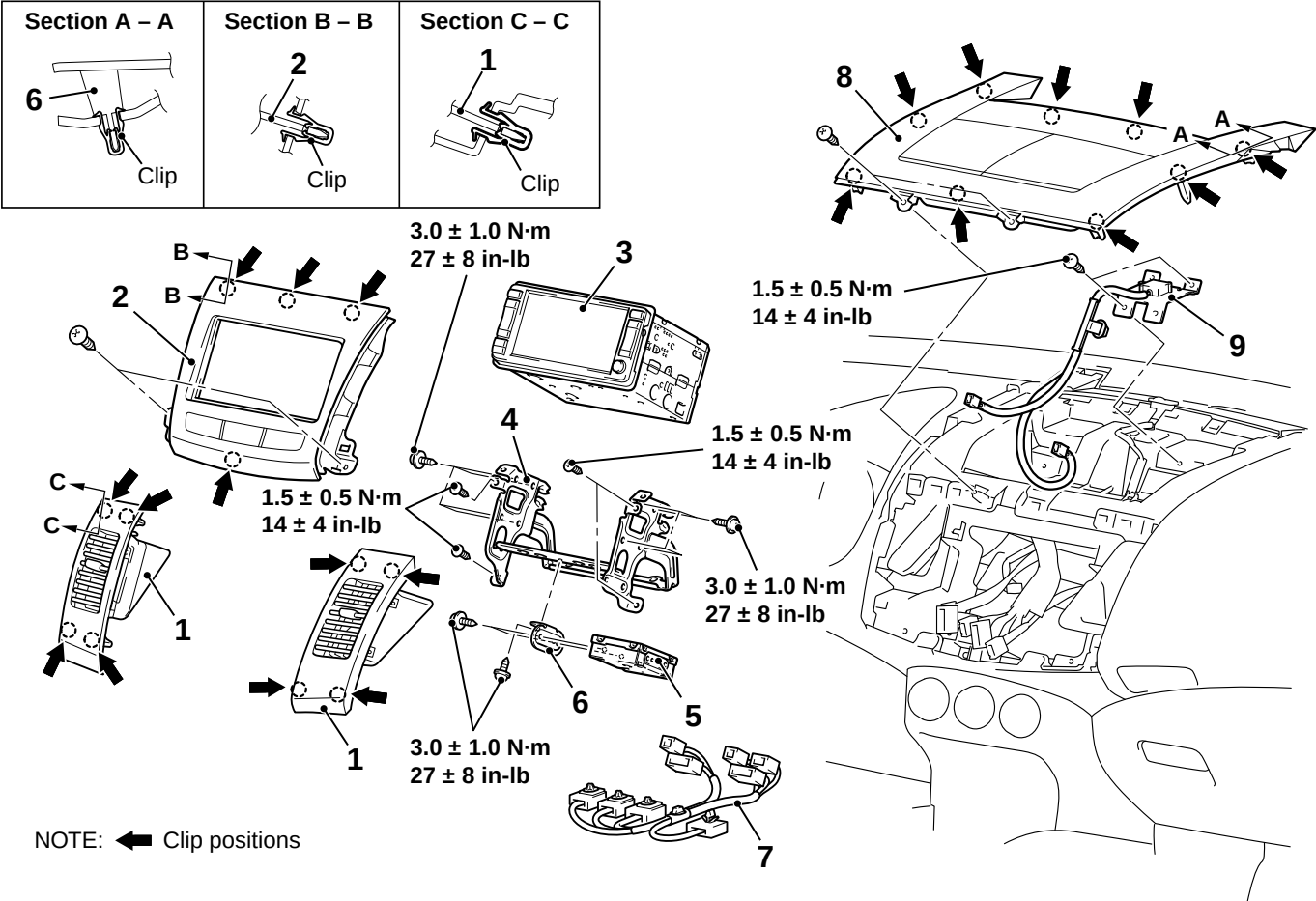
Removal Steps

4. Radio and CD player or CD changer bracket

MITSUBISHI MULTI COMMUNICATION SYSTEM (MMCS)

REMOVAL AND INSTALLATION

M15410800086USA0000010000



ZC600647AA00

Audio Visual Navigation Unit
Removal Steps

1. Center outlet
2. Center panel assembly
3. Audio visual navigation unit
4. Audio visual navigation bracket
5. CAN box unit
6. CAN box unit bracket

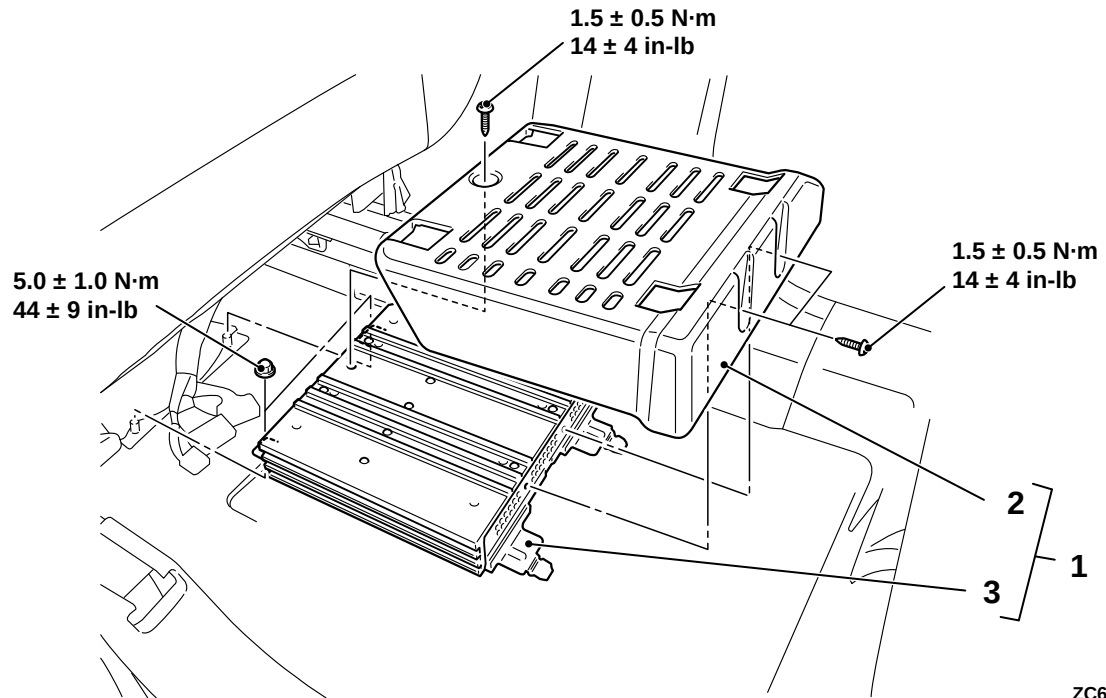
Audio Visual Navigation Unit
Removal Steps

7. Audio visual navigation harness
- GPS Antenna Removal Steps**
1. Center outlet
 2. Center panel assembly
 8. Center upper box
 9. GPS antenna

AUDIO AMPLIFIER

REMOVAL AND INSTALLATION

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ZC6006560000

Removal Steps

1. Audio amplifier assembly
2. Audio amplifier cover

Removal Steps

3. Audio amplifier

REMOTE CONTROLLED AUDIO SWITCH

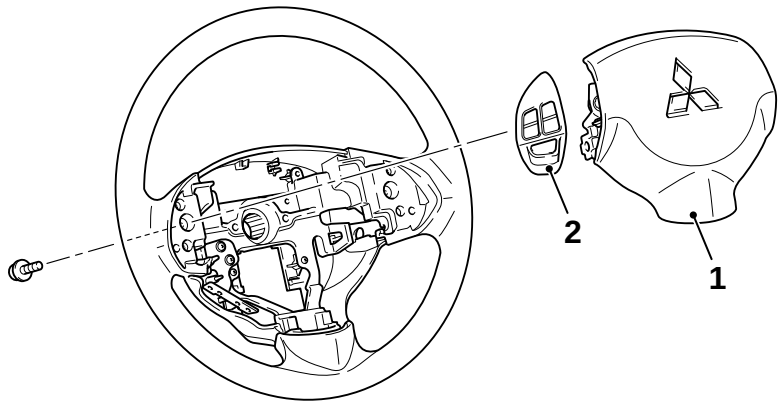
REMOVAL AND INSTALLATION

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WARNING

• Before removing the air bag module, refer to GROUP 52B, Service Precautions (P.52B-28) and Air Bag Module and Clock Spring (P. 52B-329).

• When removing and installing the steering wheel, do not let it bump against the air bag module.



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Removal Steps

1. Air bag module (Refer to GROUP 52B, Air Bag Module and Clock Spring P. 52B-329.)

Removal Steps

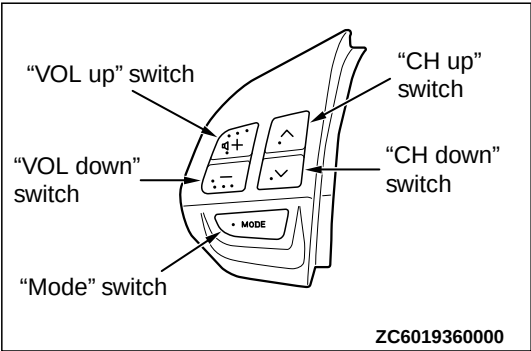
2. Remote controlled radio switch

**REMOTE CONTROLLED RADIO SWITCH
CONTINUITY CHECK**

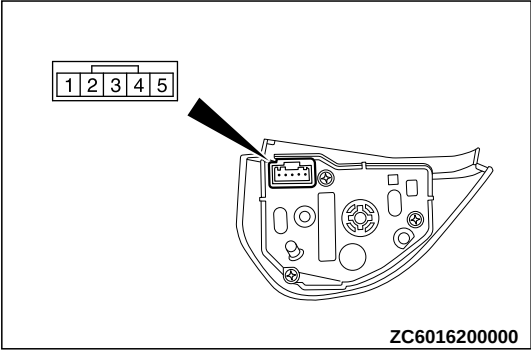
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Use an ohmmeter to measure the resistance value between the terminal.

Switch Position	Tester Connection	Measurement Value
No push	2 - 3	Approximately 3.1 kΩ
	2 - 4	Approximately 71 kΩ
"Mode" switch		Approximately 270 Ω
"CH up" switch		Approximately 740 Ω
"CH down" switch		Approximately 1.3 kΩ
"VOL up" switch		Approximately 2.1 kΩ
"VOL down" switch		Approximately 3.1 kΩ



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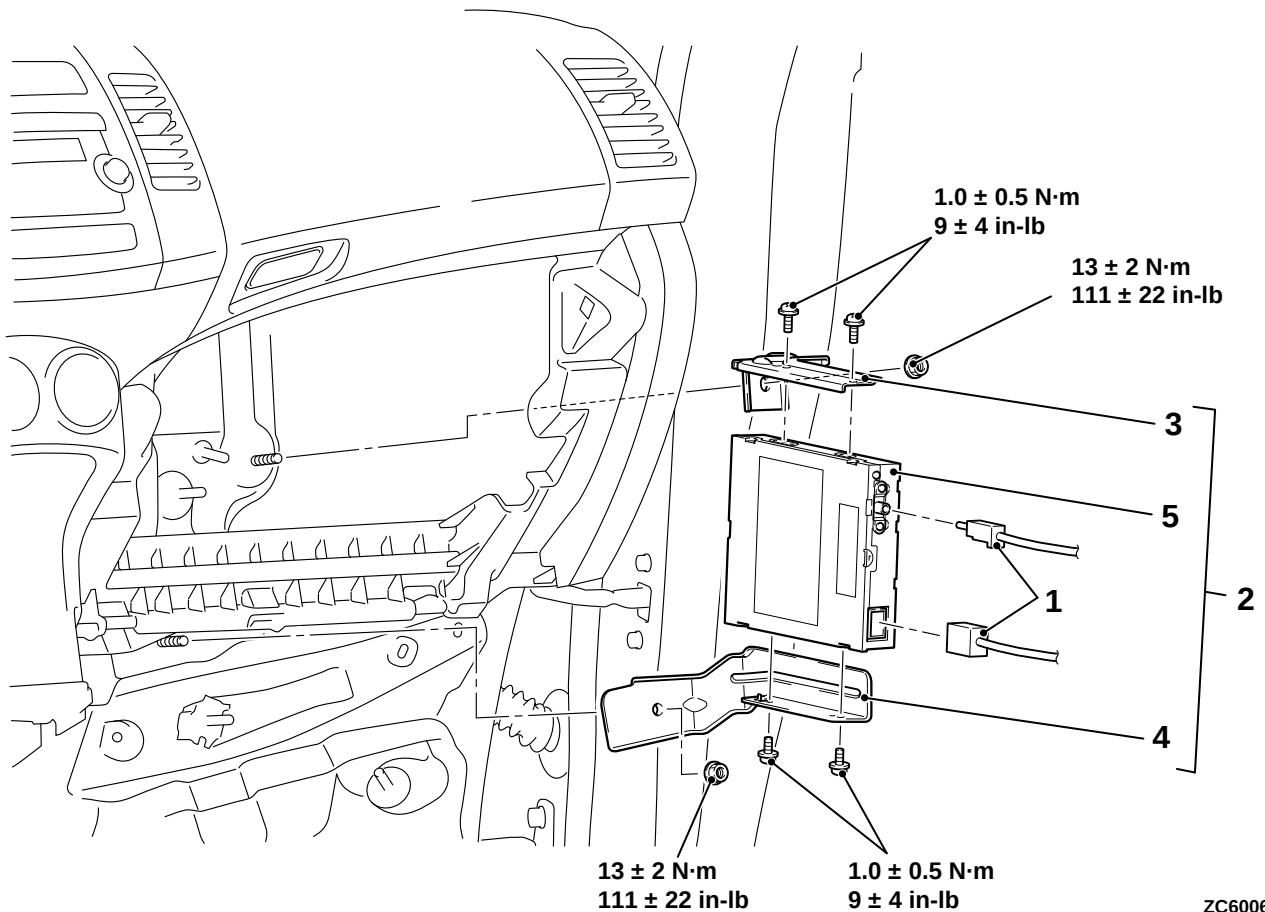


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SATELLITE RADIO

REMOVAL AND INSTALLATION

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Removal Steps

- Glove box assembly (Refer to GROUP 52A, Instrumental Panel Assembly P. 52A-2.)
1. Satellite radio tuner connector
2. Satellite radio tuner assembly

Removal Steps

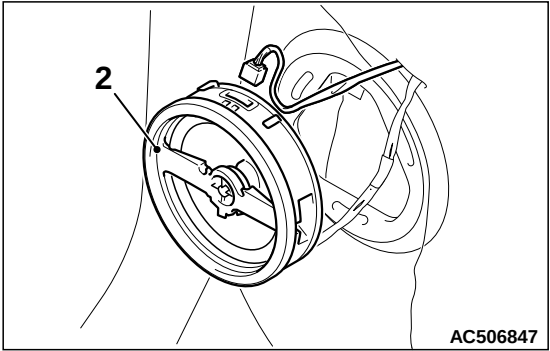
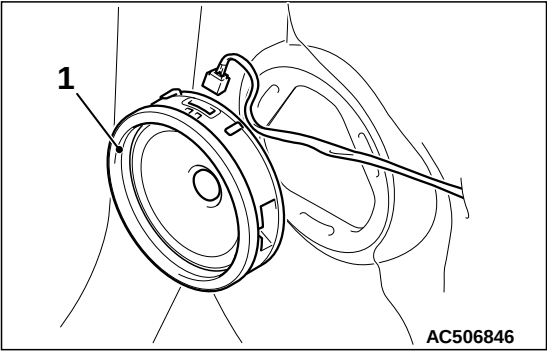
3. Satellite radio tuner bracket (upper)
4. Satellite radio tuner bracket (lower)
5. Satellite radio tuner

SPEAKER

REMOVAL AND INSTALLATION

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Front or rear door speaker



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Front Door Speaker Removal Steps

- Front door trim (Refer to GROUP 52A, Door Trims P.52A-11.)
1. Front door speaker

<<A>>

Rear Dooraspeaker Removal Steps

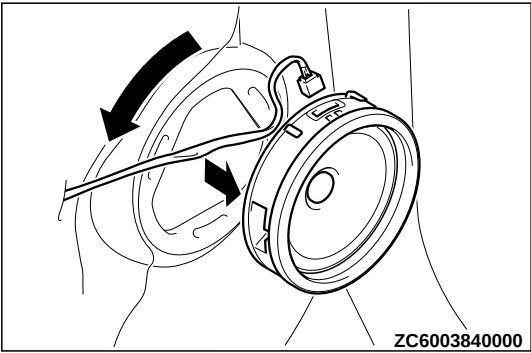
- Rear door trim (Refer to GROUP 52A, Door Trims P.52A-11.)
2. Rear door speaker

<<A>>

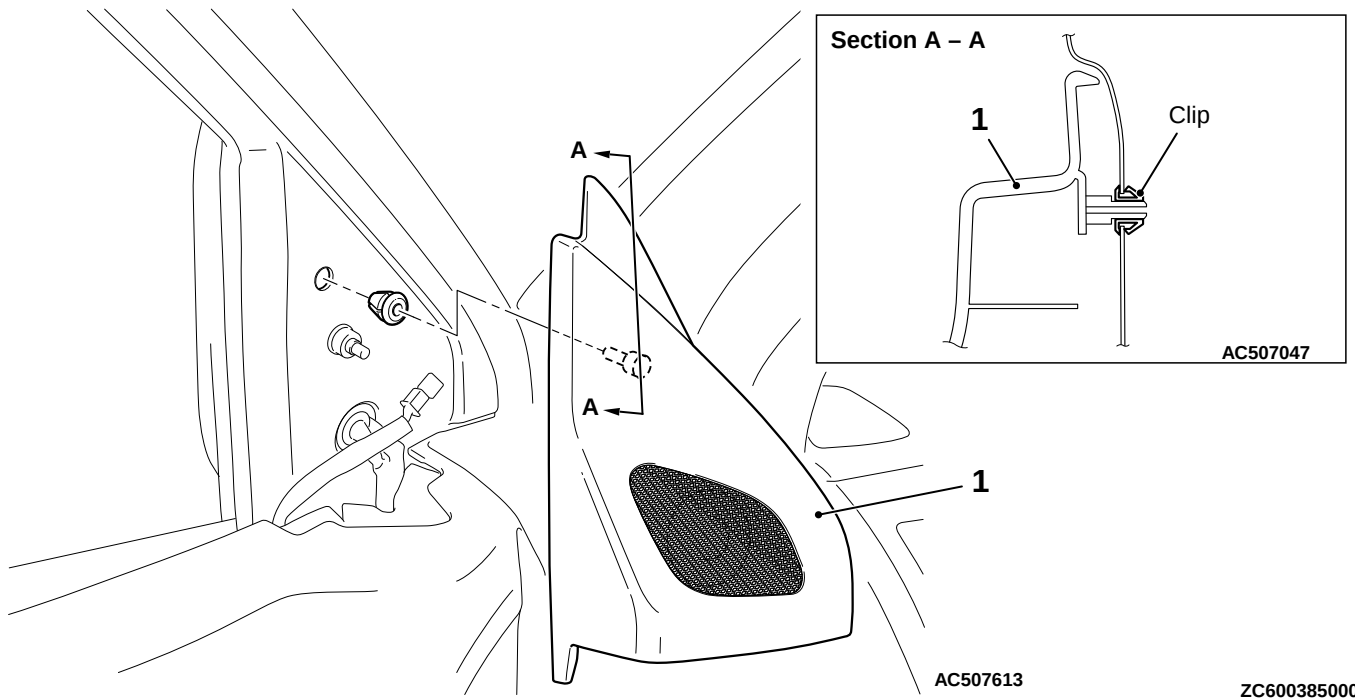
REMOVAL SERVICE POINT

<<A>> FRONT DOOR SPEAKER OR REAR DOOR SPEAKER
REMOVAL

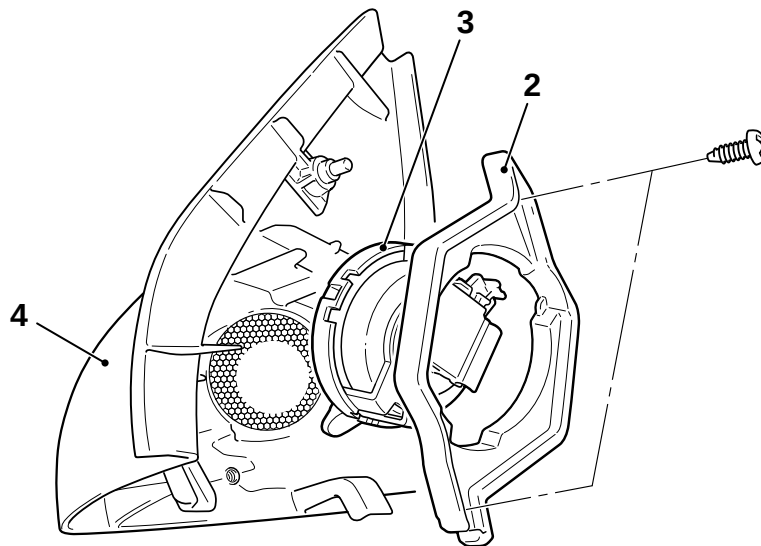
Disconnect the connector, and remove by twisting as shown in the figure.



Tweeter



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Removal Steps

- >>A<<
1. Front door sash trim assembly
 2. Tweeter bracket
 3. Tweeter

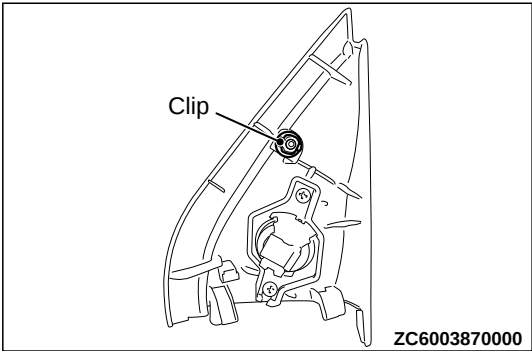
Removal Steps

4. Front door sash trim

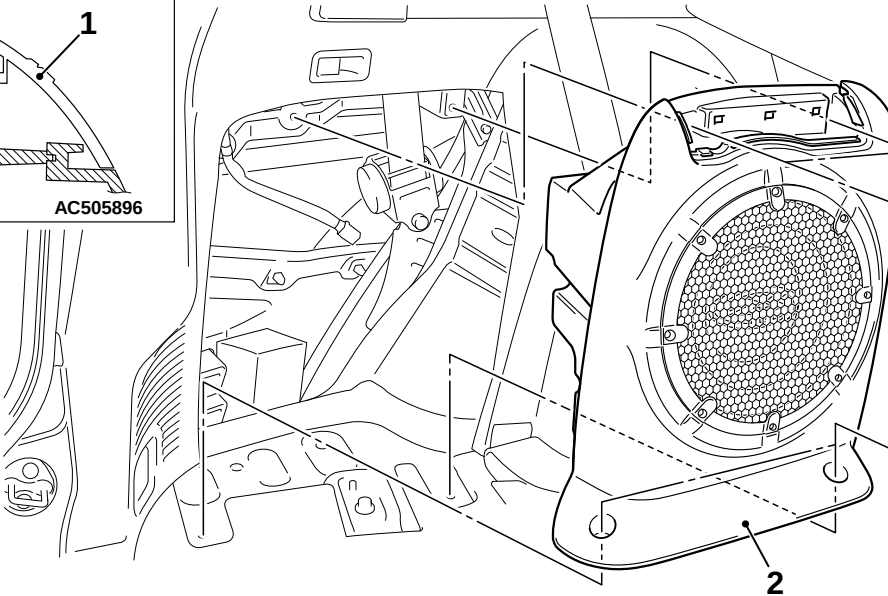
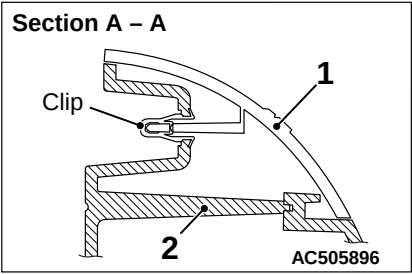
INSTALLATION SERVICE POINT

>>A<< FRONT DOOR SASH TRIM ASSEMBLY
INSTALLATION

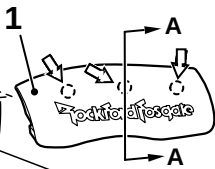
Mount with the clip attached.



Woofer



Note
← : Clip positions



4.0 ± 2.0 N·m
36 ± 17 in-lb

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ZC6003880000

Removal Steps

1. Woofer cover

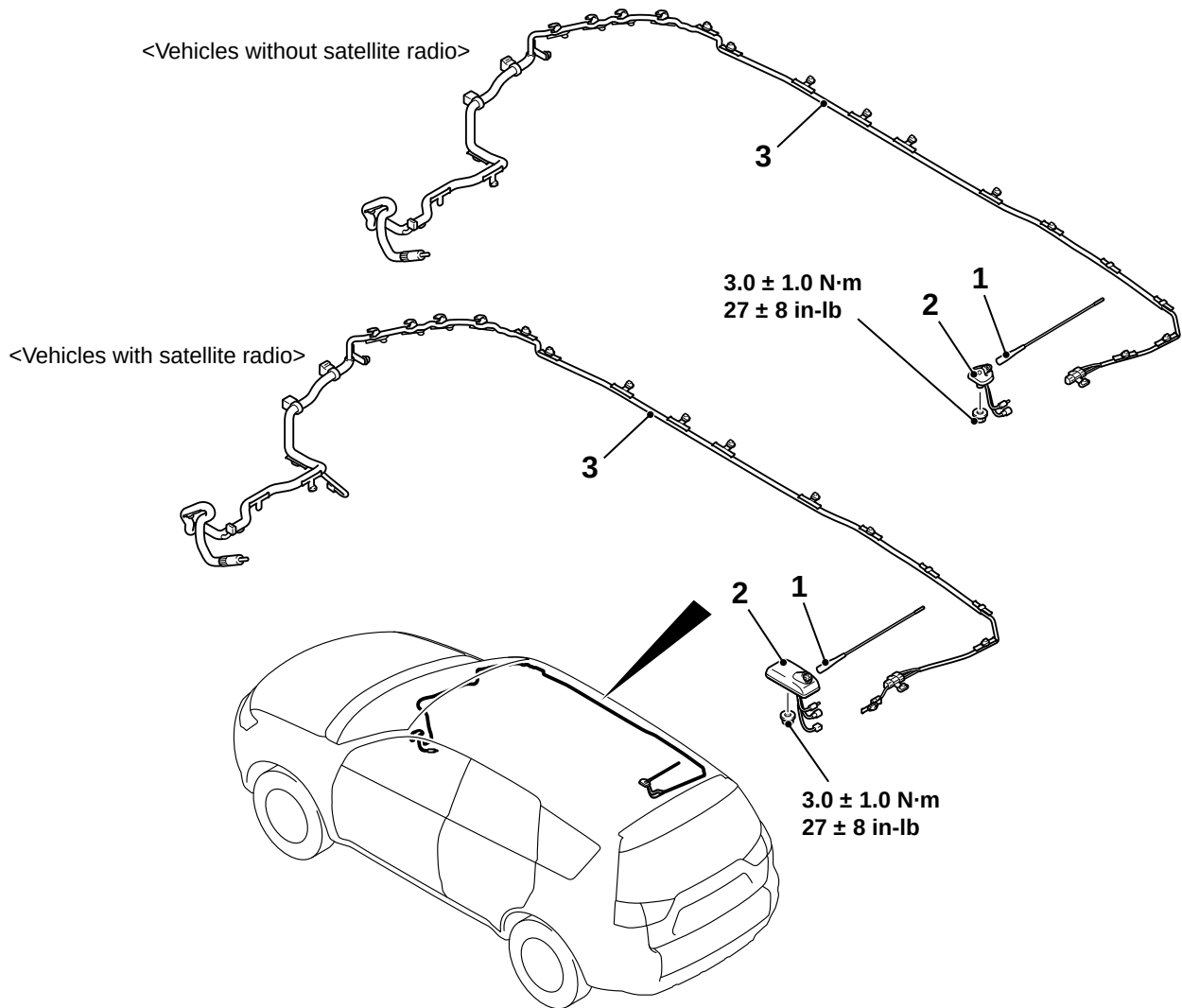
Removal Steps

2. Woofer

ANTENNA

REMOVAL AND INSTALLATION

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Removal Steps

1. Antenna rod
- Headlining (Refer to GROUP 52A, Headlining P.52A-15)
2. Antenna base

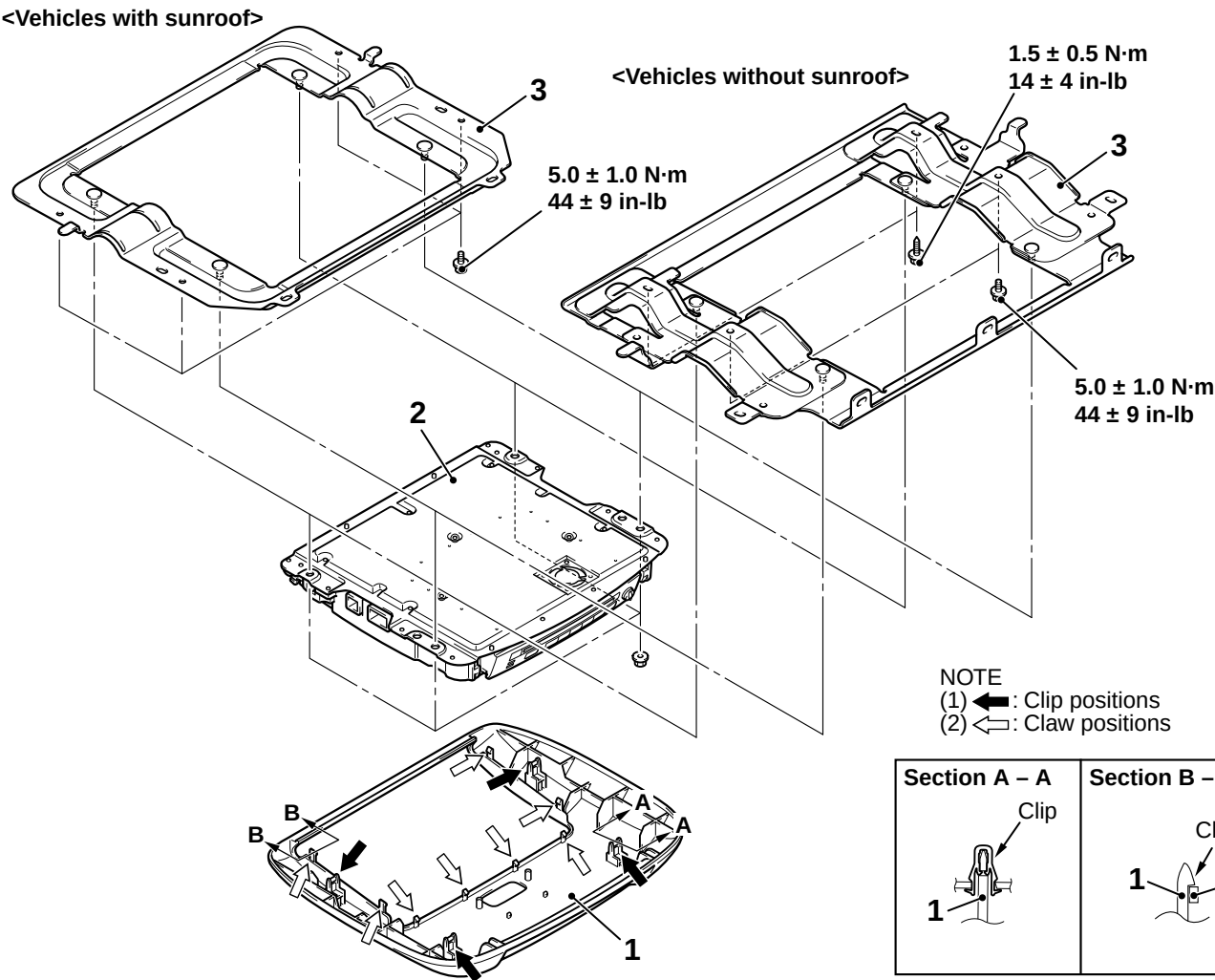
Removal Steps

- Instrument panel assembly (Refer to GROUP 52A P.52A-2).
3. Antenna feeder cable

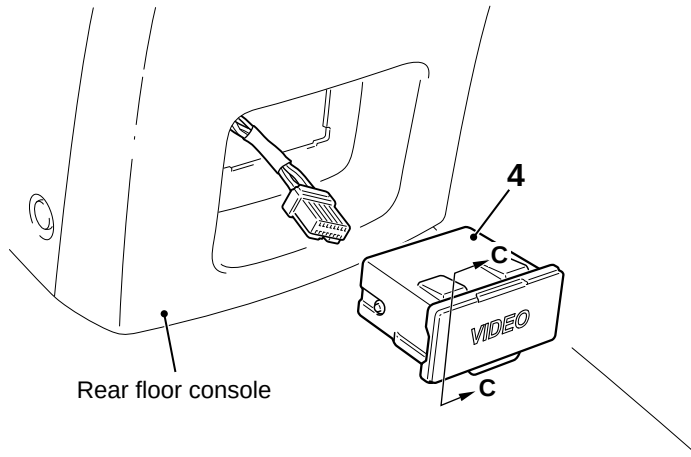
REAR DISPLAY

REMOVAL AND INSTALLATION

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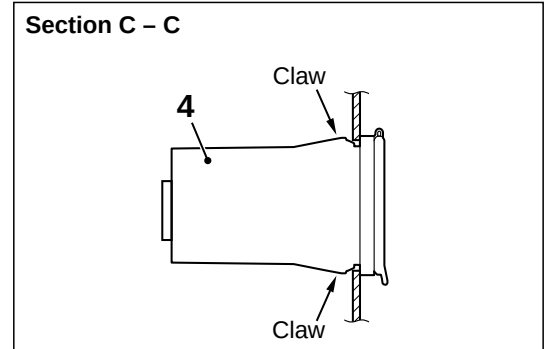


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Rear Monitor Removal Steps

1. Bezel
2. Rear monitor
- Headlining (Refer to GROUP 52A P. 52A-15.)



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Rear Monitor Removal Steps

3. Bracket

Audio And Video Adaptor Removal Steps

4. Audio and video adaptor

MEMO