GROUP 54A

CHASSIS ELECTRICAL

CONTENTS

Continued on next page

WARNINGS REGARDING SERVICING OF SUPPLEMENTAL RESTRAINT SYSTEM (SRS) EQUIPPED VEHICLES

⚠ WARNING

- ***Improper service or maintenance of any component of the SRS, or any SRS-related component, can lead to personal injury or death to service personnel (from inadvertent firing of the air bag) or to the driver and passenger (from rendering the SRS inoperative).***
- ***Service or maintenance of any SRS component or SRS-related component must be performed only at an authorized MITSUBISHI dealer.***
- ***MITSUBISHI dealer personnel must thoroughly review this manual, and especially its GROUP 52B - Supplemental Restraint System (SRS) before beginning any service or maintenance of any component of the SRS or any SRS-related component.***

NOTE
The SRS includes the following components: SRS air bag control unit, SRS warning light, front impact sensors, driver's and passenger's (front) air bag modules, knee air bag module, side-airbag module, curtain air bag module, side impact sensors, seat belt pre-tensioners, clock spring, and interconnecting wiring. Other SRS-related components (that may have to be removed/installed in connection with SRS service or maintenance) are indicated in the table of contents by an asterisk (*).

Continued on next page

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BATTERY

ON-VEHICLE SERVICE

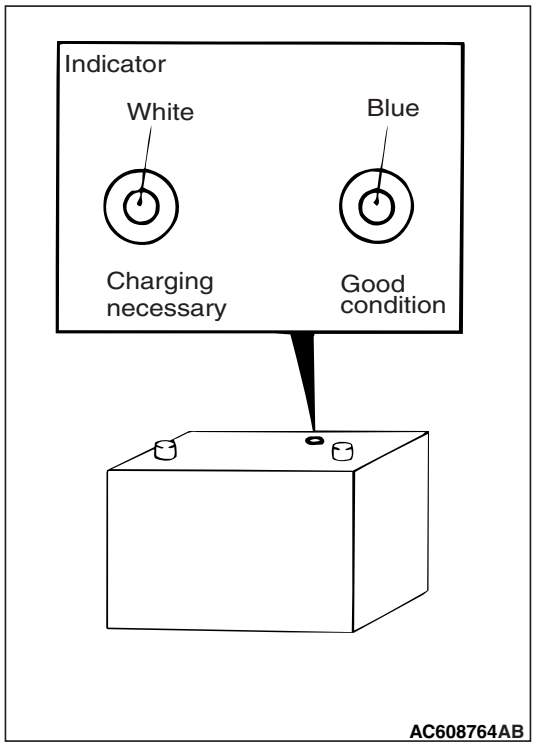
BATTERY CHECK

M1541001000591

⚠ ***WARNING***

Battery posts, terminals and related accessories contain lead and lead compounds. WASH HANDS AFTER HANDLING.

BATTERY VISUAL INSPECTION (1)



The battery contains a visual test indicator which gives a blue signal when an adequate charge level exists, and a white signal when charging is required.

BATTERY VISUAL INSPECTION (2)

Make sure the ignition switch is in "LOCK" (OFF) position and all battery fed accessories are OFF.

1. Disconnect the negative cable from battery before disconnecting the positive cable.

⚠ ***WARNING***

Care should be taken in the event battery case is cracked or leaking to protect hands from the electrolyte. A suitable pair of rubber gloves (not the household type) should be worn when removing battery by hand.

2. Remove the battery from the vehicle.
3. Inspect the battery carrier for damage caused by loss of acid from battery. If acid damage is present, it is necessary to clean area with a solution of clean warm water and baking soda. Scrub area with a stiff bristle brush. Wipe clean with a cloth moistened with ammonia or baking soda in water.
4. Clean the battery, especially the top, with the same solutions as described in step 3.
5. Inspect the battery case and cover for cracks. If cracks are present, battery must be replaced.
6. Clean the battery post with a suitable battery post cleaning tool.
7. Clean the inside surfaces of the terminal clamps with a suitable battery terminal cleaning tool. Replace damaged or frayed cables and broken terminal clamps.
8. Install the battery in the vehicle.
9. Connect the positive and negative cables to the battery in the order of mention.
10. Tighten the clamp nut securely.

BATTERY CHARGING

M1541001101193

⚠ ***WARNING***

When batteries are being charged, an explosive gas forms beneath the cover of each cell. Do not smoke near batteries on charge or which have recently been charged. Do not break live circuits at the terminals of the batteries on charge. A spark will occur where the live circuit is broken. Keep all open flames away from the battery.

Battery electrolyte temperature may temporarily be allowed to rise to 55 °C (131 °F). Increase of electrolyte temperature above 55 °C (131 °F) is harmful to the battery, causing deformation of battery cell, decrease in life of battery, etc.

CHARGE RATE

If the test indicator is white, the battery should be charged as outlined below. When the dot appears or when maximum charge shown below is reached, charging should be stopped.

Charge Rate Chart

Battery	75D23L
Slow charging	5 amps 11 hours
	10 amps 6 hours
Fast charging	20 amps 3 hours
	30 amps 2 hours

BATTERY TEST

M1541001201242

BATTERY TESTING PROCEDURE

STEP 1. Check the battery cables.

Remove the negative cable, then the positive cable. Check for dirty or corroded connections.

Q: Are the battery cables dirty or have corroded connections?
YES : Clean the battery cables. Then go to Step 2.
NO : Go to Step 2.

STEP 2. Check the battery post.

Check for loose battery post.

Q: Are the battery posts faulty?
YES : Replace the battery. Then go to Step 4.
NO : Go to Step 3.

STEP 3. Check the battery case.

(1) Remove the hold-downs.
(2) Check for broken/cracked case.

Q: Is the battery case faulty?
YES : Replace the battery. Then go to Step 4.
NO : Go to Step 4.

STEP 4. Check the open circuit voltage.

(1) Turn headlights on for 15 seconds.
(2) Turn headlights off for two minutes to allow battery positive voltage to stabilize.
(3) Disconnect the battery cables.
(4) Read open circuit voltage.

Q: Is open circuit voltage 12.4 volts or more?
YES : Go to Step 5.
NO : Charge the battery at 5 amps for 10.4 hours. Then re-test.

STEP 5. Check the load test.

(1) Connect a load tester to the battery.
(2) Load the battery at the recommended discharge rate (See LOAD TEST RATE CHART) for 15 seconds.
(3) Read voltage after 15 seconds, then remove load.
(4) Compare the measured value with the minimum voltage (See LOAD TEST CHART).

Q: Is the voltage higher than minimum voltage?
YES : The battery is normal.
NO : Replace the battery. Then go to Step 4.

LOAD TEST CHART

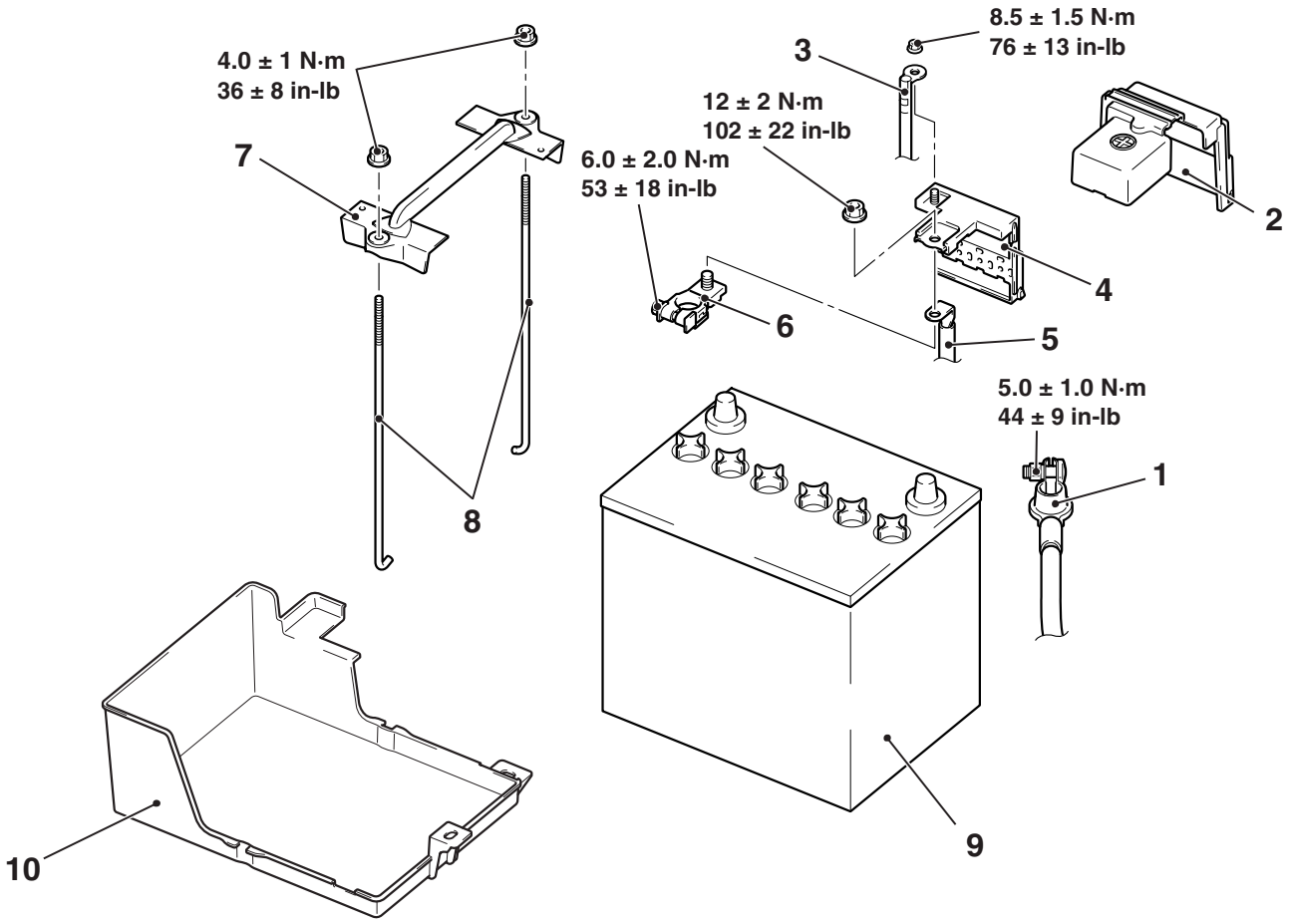
Temperature °C (°F)	**21 (70) and above**	**16 (60)**	**10 (50)**	**4 (40)**	**−1 (30)**	**−7 (20)**	**−12 (10)**	**−18 (0)**
Minimum voltage	9.6	9.5	9.4	9.3	9.1	8.9	8.7	8.5

LOAD TEST RATE CHART

Load test	**260 amps**
Cranking ratio [−18° C (0° F)]	520 amps
Reserve capacity	118 minutes
Application	75D23L

BATTERY REMOVAL AND INSTALLATION

M1541001300376



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Removal steps

1. Connection of the battery harness [negative battery terminal]
- Air cleaner intake duct (Refer to GROUP 15 –Air Cleaner P.15-4).
2. Fusible link box cover
3. Connection of the battery harness [positive battery terminal]
4. Connection of the fusible link block

Removal steps (Continued)

5. Connection of the battery harness [positive battery terminal]
6. Battery terminal assembly
7. Battery holder
8. Battery bolt
9. Battery
10. Battery tray

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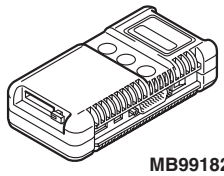
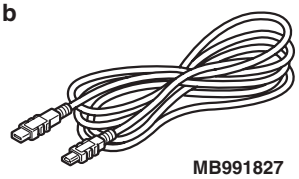
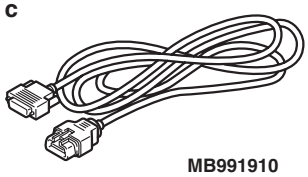
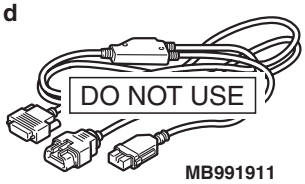
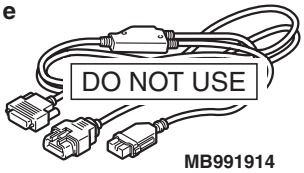
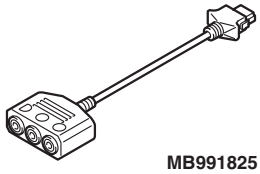
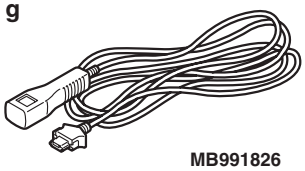
IGNITION SWITCH

SPECIAL TOOLS

M1543000603432

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

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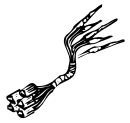
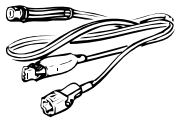
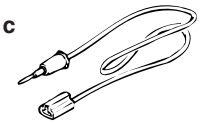
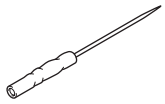
Tool	Tool number and name	Supersession	Application
a  b  c  d  MB991223	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222 Harness set a. Test harness b. LED harness c. LED harness adaptor d. Probe	General service tools	Continuity check and voltage measurement at harness wire or connector for loose, 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	–	Making voltage and resistance measurement during troubleshooting

TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC TROUBLE SHOOTING

M1543006900937

Refer to Group 00 –Contents of troubleshooting P.00-6.

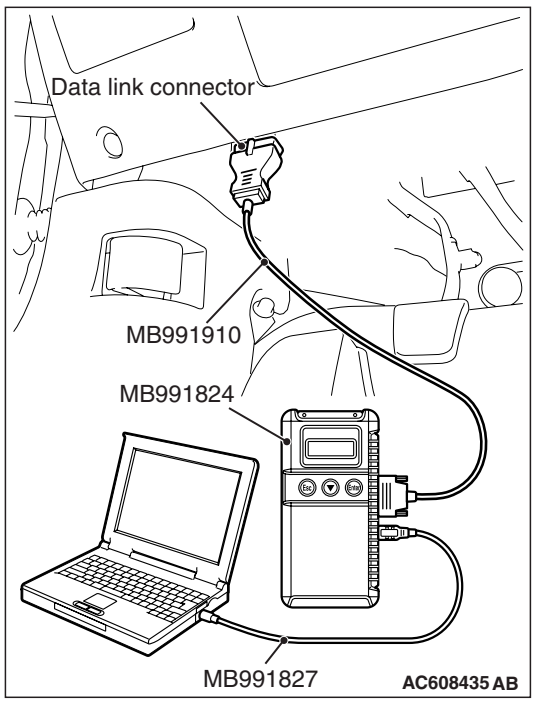
DIAGNOSIS FUNCTION

M1543007001093

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

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)



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: 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)

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

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

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

TROUBLE SYMPTOM CHART

M1543007202454

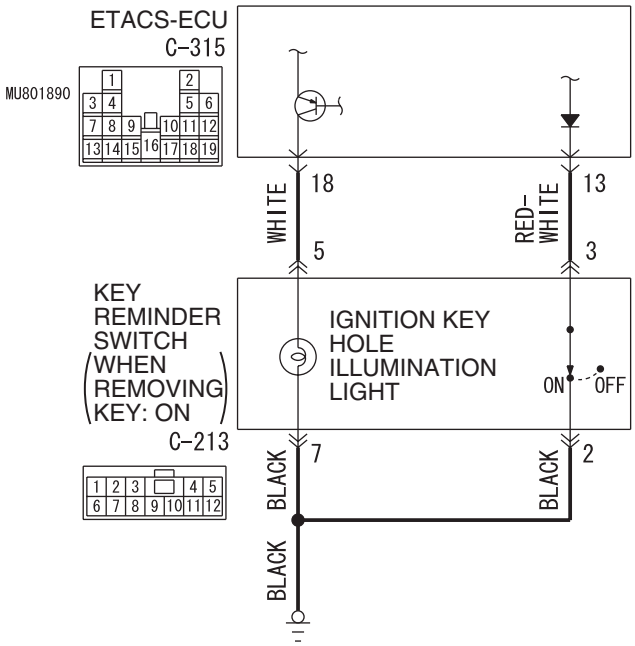
Trouble symptom		Reference page
Ignition key cylinder illumination light does not illuminate/extinguish normally.	vehicles with WCM	P.54A-12

SYMPTOM PROCEDURES

Ignition key cylinder illumination light does not illuminate/extinguish normally. <vehicles with WCM>

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Ignition Key Cylinder Illumination Light Circuit <Vehicles with WCM>



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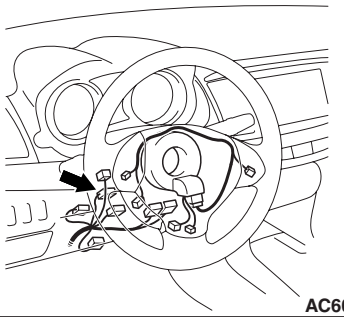
Connector: C-213



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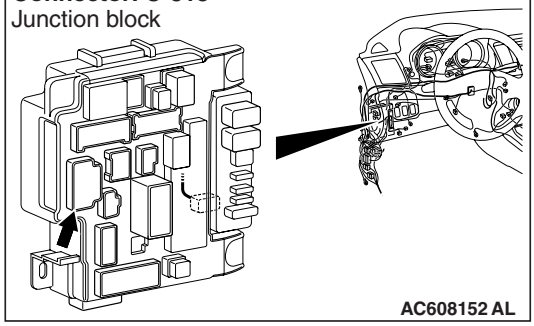
Connector: C-315
Junction block



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OPERATION

The ETACS-ECU operates this function in accordance with the input signals below.

- Ignition switch (IG1)
- Key reminder switch
- Driver's door switch
- Driver's door lock actuator

TECHNICAL DESCRIPTION (COMMENT)

If this function does not work normally, these input signal circuit(s), the ignition key cylinder illumination light or the ETACS-ECU may be defective.

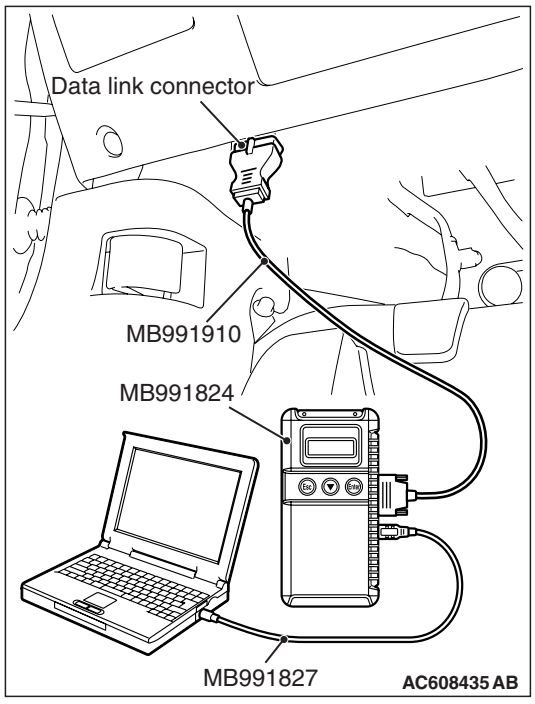
TROUBLESHOOTING HINTS

- The key reminder switch may be defective
- The driver's door switch may be defective
- The driver's door lock actuator may be defective
- The ignition key cylinder illumination light bulb may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-10."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to P.54A-564.
NO : Go to Step 2.

STEP 2. Using scan tool MB991958, check data list.

Use the ETACS-ECU data list to check the signals related to the ignition key cylinder illumination light function.

- Turn the ignition switch to the "LOCK" (OFF) position.
- Remove the ignition key from the ignition key cylinder.
- Open the driver's door.

Item No.	Item name	Normal conditions
Item 228	Dr door unlock	ON
Item 254	IG voltage	0 V
Item 256	Dr door ajar switch	Open
Item 264	Handle lock switch	Key in →Key out
Item 270	Dr door lock switch	Not lock
Item 271	Dr door unlock switch	Unlock

Q: Does scan tool MB991958 display the items "Dr door unlock", "Dr door ajar switch", and "Handle lock switch" as normal condition?

YES <Normal conditions are displayed for all the items.> : Go to Step 3.

NO <Normal condition is not displayed for item No. 228.> : Troubleshoot the ETACS-ECU. Refer to GROUP 54A, Diagnosis - Inspection Procedure 4 "ETACS-ECU does not receive any signal from the front door lock actuator" P.54A-536.

NO <Normal condition is not displayed for item No. 254.> : Troubleshoot the ETACS-ECU. Refer to GROUP 54A, Diagnosis - Inspection Procedure 2 "ETACS-ECU does not receive any signal from the ignition switch (IG1)" P.54A-531.

NO <Normal condition is not displayed for item No. 256.> : Troubleshoot the ETACS-ECU. Refer to GROUP 54A, Diagnosis - Inspection Procedure 6 "ETACS-ECU does not receive any signal from the front the front door switch (RH)" P.54A-545.

NO <Normal condition is not displayed for item No. 264.> : Troubleshoot the ETACS-ECU. Refer to GROUP 54A, Diagnosis - Inspection Procedure 3 "ETACS-ECU does not receive any signal from key reminder switch" P.54A-533.

NO <Normal condition is not displayed for item No. 270, 271.> : Troubleshoot the ETACS-ECU. Refer to GROUP 54A, Diagnosis - Inspection Procedure 4 "ETACS-ECU does not receive any signal from front door lock actuator" P.54A-536.

STEP 3. Check key reminder switch connector C-213, ETACS-ECU connector C-315 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is key reminder switch connector C-213, ETACS-ECU connector C-315 in good condition?

YES : Go to Step 4.
NO : Repair the damaged parts.

STEP 4.Check the Wiring harness between key reminder switch connector C-213 (terminal No. 3,5) and ETACS-ECU connector C-315 (terminal No. 13,18).

- Check the input/output line for open circuit.

Q: Is the check result normal?

YES : Go to Step 5.
NO : Repair the wiring harness between key reminder switch connector C-213 and ETACS-ECU connector C-315.

STEP 5. Check of ignition key cylinder illumination light bulb.

Q: Is the ignition key cylinder illumination light bulb in good condition?

YES : Go to Step 6.
NO : Replace the bulb of the ignition key cylinder illumination light.

STEP 6. Retest the system.

Q: Does the ignition key cylinder illumination light illuminate/extinguish 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.00-13).
NO : Replace the ETACS-ECU.

ON-VEHICLE SERVICE

CHECK OF IGNITION KEY REMINDER WARNING FUNCTION (STEERING LOCK REMINDER BUZZER BY KOS)

M1541200700085

1. Driver's door: Release the closed and steering wheel lock, or turn the ignition key <vehicles with WCM> or emergency key <vehicles with KOS> to the LOCK (OFF) position (key inserted).
2. Change the driver's door state from closed to open.
3. Check that the buzzer sounds normally.
4. If a malfunction is found, carry out the troubleshooting (Refer to P.54A-53).

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REMOVAL AND INSTALLATION

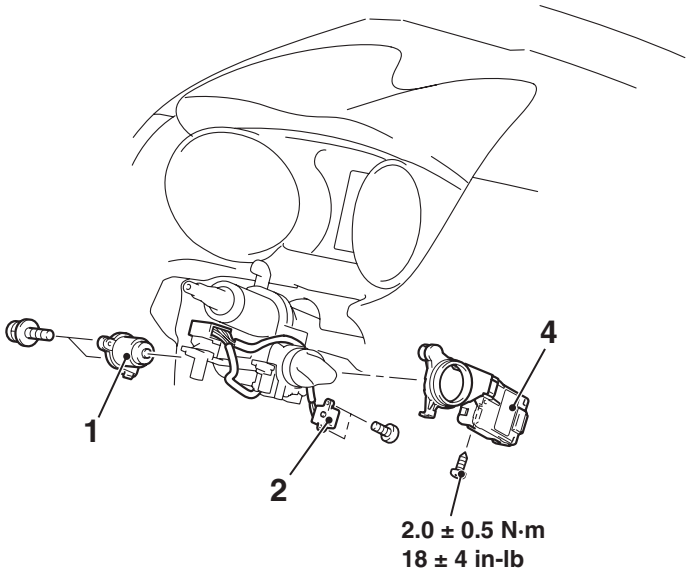
M1541200300128

⚠ CAUTION

To remove the driver airbag module, refer to GROUP 52B –Service Precautions P.52B-24 and Air Bag Module(s) and Clock Spring P.52B-367.

Pre-removal Operation	Post-installation Operation
Removal of clock spring/column switch assembly [Refer to GROUP 37 –Steering Shaft P.37-25 and GROUP 52B –Air bag module(s) and clock spring P.52B-367].	Installation of clock spring/column switch assembly [Refer to GROUP 37 –Steering Shaft P.37-25 and GROUP 52B –Air bag module(s) and clock spring P.52B-367].

<Vehicles with KOS>



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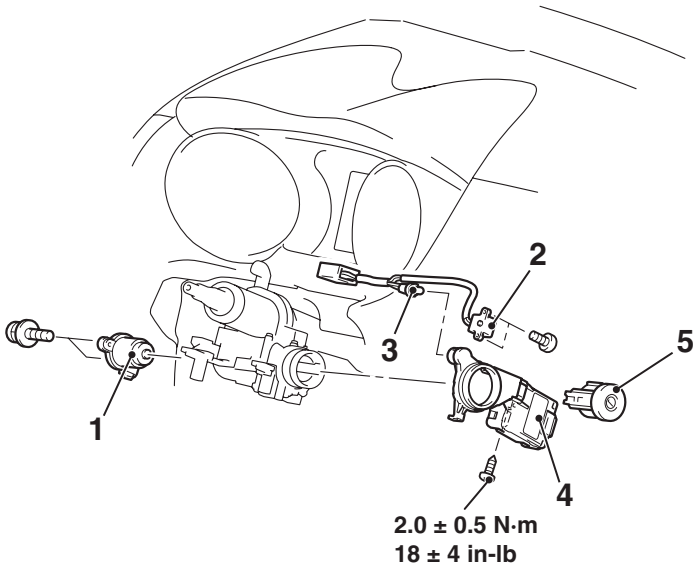
<Vehicles with WCM>



AC506618

AC609970AC

Removal Steps

1. Ignition switch
2. Key reminder switch
3. Key ring illumination light <Vehicles for WCM>

< <A> >

Removal Steps (Continued)

4. WCM <vehicles with WCM>/receiver antenna module <vehicles with KOS>
5. Steering lock cylinder <vehicles with WCM>

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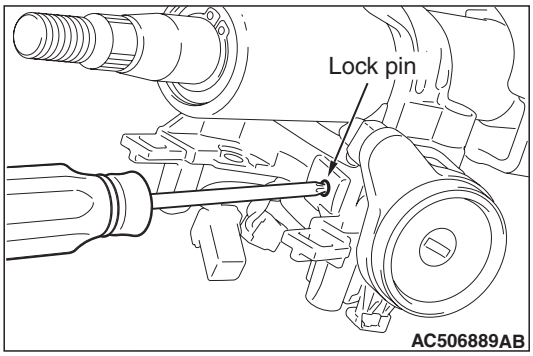
REMOVAL SERVICE POINTS

<<A>> STEERING LOCK CYLINDER REMOVAL <VEHICLES WITH WCM>

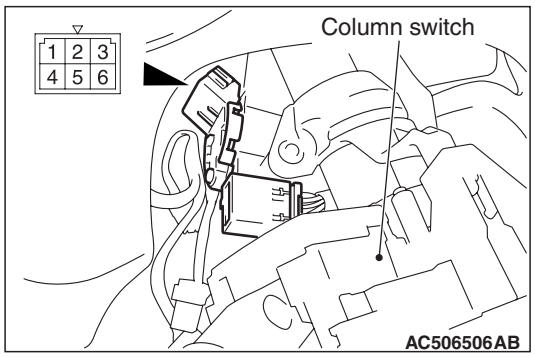


1. Insert the key into the steering lock cylinder, and turn the ignition key to the ACC position.
2. With using a cross-headed screw driver (small) or similar items to press in the lock pin, remove the ignition key, and then remove the steering lock cylinder.

INSPECTION

IGNITION SWITCH CONTINUITY CHECK

M1541200400095

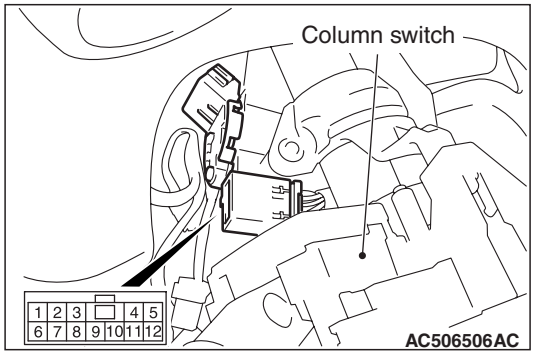


With the ignition switch mounted to the vehicle, disconnect and check the ignition switch connection connector.

Ignition key position	Terminal number	Normal condition
LOCK	1 –2, 1 –4, 1 –5, 1 –6	No continuity
ACC	1 –6	Continuity exists (2 ohms or less)
ON	1 –2 –4 –6	Continuity exists (2 ohms or less)
START	1 –2 –5	Continuity exists (2 ohms or less)

KEY REMINDER SWITCH INSPECTION

M1541200500092



With the key reminder switch mounted to the vehicle, disconnect the key reminder switch connection connector, and then perform the continuity check.

Key status	Terminal number	Normal condition
Key removed	2 –3	Continuity exists (2 ohms or less)
Key inserted	2 –3	No continuity

COMBINATION METER

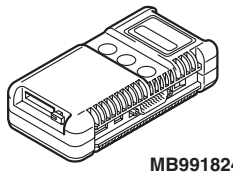
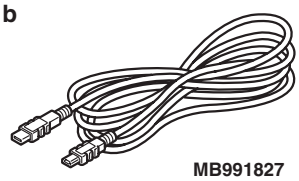
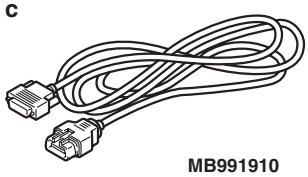
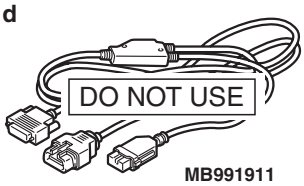
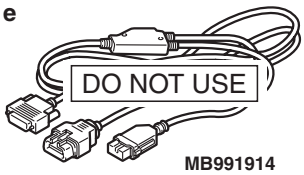
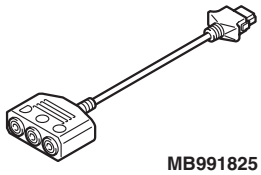
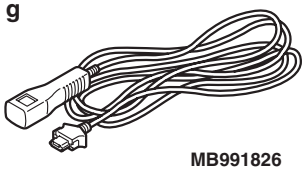
SERVICE SPECIFICATIONS

M1540200200214

Item		Standard Value
Speedometer indication tolerance {mph (km/h)} <Except vehicles for CANADA>	10 (16)	8.5 –11.5 (13.6 –18.4)
	25 (40)	23.5 –26.5 (37.6 –42.4)
	50 (80)	48.5 –51.5 (77.6 –82.4)
	75 (120)	73.5 –76.5 (117.6 –122.4)
	100 (161)	98.5 –102.5 (158.6 –165.0)
	125 (201)	123.5 –127.5 (198.6 –205.0)
Speedometer indication tolerance {km/h (mph)} <Vehicles for CANADA>	20 (12.4)	19 –24 (11.8 –14.9)
	40 (24.8)	40 –44 (24.8 –27.3)
	80 (49.7)	80 –85 (49.7 –52.8)
	120 (74.6)	120.5 –125.5 (74.9 –78.0)
	160 (99.4)	160.5 –165.5 (99.7 –102.8)
	200 (124.3)	200.5 –207.0 (124.6 –128.6)
Tachometer indication tolerance (r/min) (The value in parentheses is a reference value.)	600	550 –650
	(2,000)	(1,950 –2,050)
	3,000	2,950 –3,050
	(4,000)	(3,950 –4,050)
	5,000	4,950 –5,050
	6,000	5,950 –6,050
	(7,000)	(6,950 –7,050)
	(8,000)	(7,950 –8,050)
Fuel level sensor resistance (ohms)	Stopper position "F"	13.0 ±1.0
	Stopper position "E"	120.0 ±1.0
Fuel level sensor float height {mm (in)}	Stopper position "F"	181.5 (7.1)
	Stopper position "E"	26.7 (1.0)

SPECIAL TOOLS

M1540200300147

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

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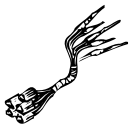
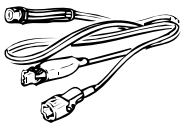
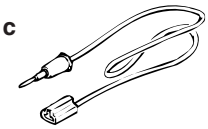
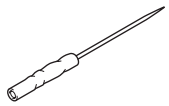
Tool	Tool number and name	Supersession	Application
a  b  c  d  MB991223	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222 Harness set a. Check harness b. LED harness c. LED harness adapter d. Probe	General service tool (jumper)	Continuity check and voltage measurement at harness wire or connector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

TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1540203800152

Refer to GROUP 00, Contents of troubleshooting P.00-6.

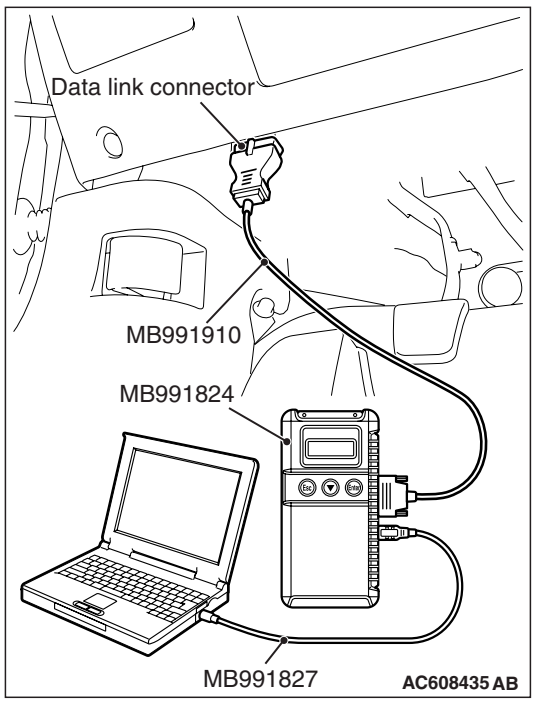
DIAGNOSIS FUNCTION

M1540200500077

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

Required Special Tools:

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



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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

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

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

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

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

HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

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

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

CHECK OF FREEZE FRAME DATA

The freeze frame data can be checked by using the scan tool (GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

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

Display item list

Item No.	Item name	Data item	Unit
01	Odometer	Total driving distance after the diagnosis code is generated	km*
02	Ignition cycle	Number of times the ignition switch is turned "ON" or "LOCK (OFF)" after the past failure transition	Number of counts is displayed.
04	Current trouble accumulative time	Cumulative time for current malfunction of diagnosis code	min

*NOTE: *: If a failure occurs to both the ABS-ECU and ETACS-ECU, 0000 km or FFFF km is displayed on the scan tool MB991958.*

DIAGNOSTIC TROUBLE CODE CHART

M1540200600115

⚠ CAUTION

- **During troubleshooting, a DTC code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, check all systems for DTC code(s). If DTC code(s) are set, erase them all.**
- **When the combination meter is required to be replaced as a result of the troubleshooting, the current driving distance and number of elapsed days to be used for service reminder function must be entered into the meter after the replacement. Therefore, read "Integrated mileage for reminder," "Integrated days for reminder," "Mileage until Extra reminder," "Months until Extra reminder," and "Current Schedule" from the meter before the replacement using the special function of scan tool MB991958, and note them. For the operation method of scan tool MB991958, refer to P.54A-82. If "Integrated mileage for reminder" or "Integrated days for reminder" cannot be read by the scan tool MB991958, follow the method described below.**
  a. **For the driving distance for check warning, use the driving distance displayed on the multi information display.**
  b. **For the elapsed days for check warning, calculate the number of elapsed days from the delivery date to the customer (service remainder function start date) and current date.**

Diagnostic trouble code number	Diagnostic item	Reference page
B1200	Malfunction of odometer	P.54A-24
B1201	Abnormal fuel information	P.54A-25
B1208	Malfunction of LCD heater	P.54A-28
B1209	Test mode	P.54A-29
B2203	VIN not programmed	P.54A-29
B2463	The sticking of rheostat switch	P.54A-31
B2464	The sticking of meter information switch	P.54A-32
B2465	Ignition switch signal error	P.54A-35
U0019	Bus off (CAN-B)	P.54A-36
U0100	Engine control module CAN timeout	P.54A-38
U0141	ETACS CAN timeout	P.54A-39
U0151	SRS-ECU CAN timeout	P.54A-41
U0154	Occupant classification-ECU CAN timeout	P.54A-42
U0164	A/C-ECU CAN timeout	P.54A-44
U0168	KOS-ECU or WCM CAN timeout	P.54A-45
U0184	Audio CAN timeout	P.54A-47
U0197	Hands free module CAN timeout	P.54A-48
U0245	Audio visual navigation unit CAN timeout	P.54A-50
U1415	Coding not completed/Data fail	P.54A-51

TSB Revision

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B1200: Malfunction of odometer

TROUBLE JUDGEMENT

If the odometer information, which is stored in the combination meter, is abnormal when the ignition switch at the ON position and the system voltage is 10 –16 volts (data from ETACS-ECU), DTC B1200 is stored.

TROUBLESHOOTING HINTS

The combination meter may be defective.

DIAGNOSIS

Required Special Tools:

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

STEP 1. Using scan tool MB991958, read the combination meter diagnostic trouble code.

Check if DTC is set to the combination meter.

⚠ CAUTION

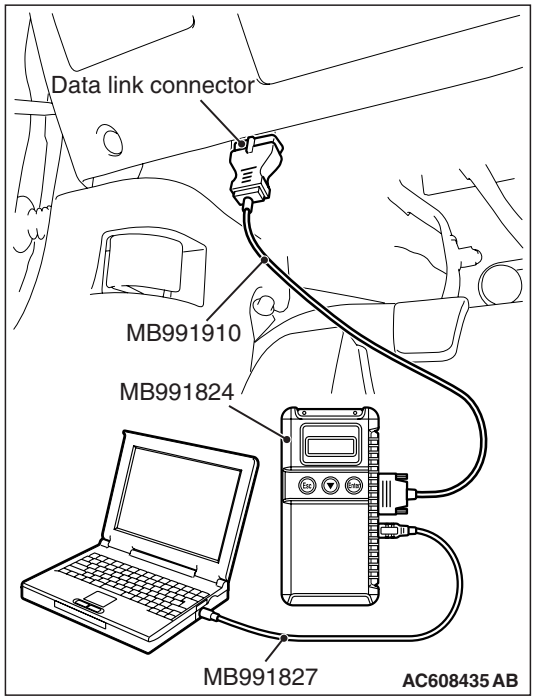
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if diagnosis code is set.

Q: Is the DTC set?

YES : Replace the combination meter, and then go to Step 2.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).



STEP 2. Recheck for diagnostic trouble code.
Check if DTC is set to the combination meter.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if diagnosis code is set.

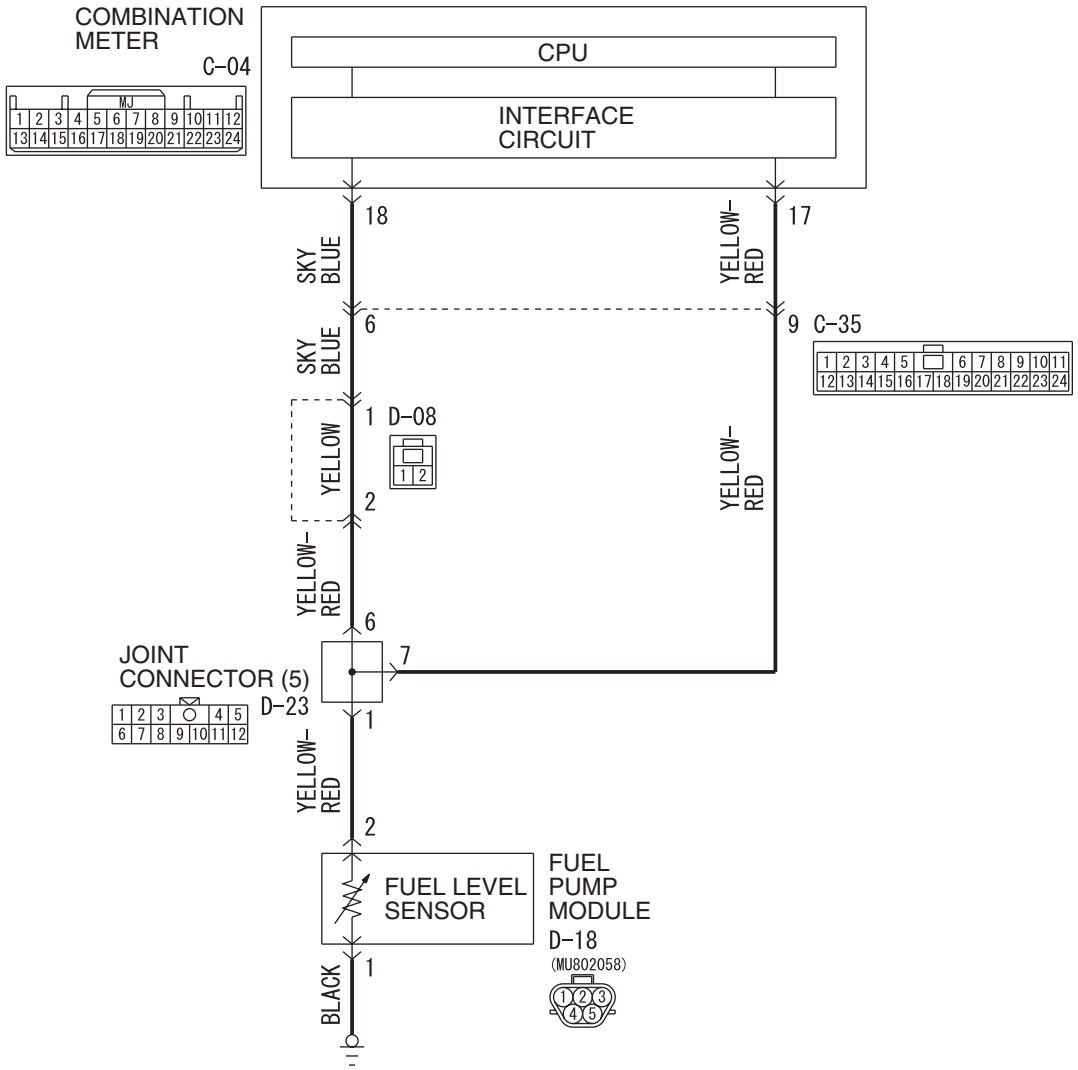
Q: Is the DTC set?

YES : Go to Step 1.
NO : The procedure is complete.

DTC B1201: Abnormal fuel information

⚠ CAUTION
Whenever the ECU is replaced, ensure that the communication circuit is normal.

Fuel Gauge Unit Circuit



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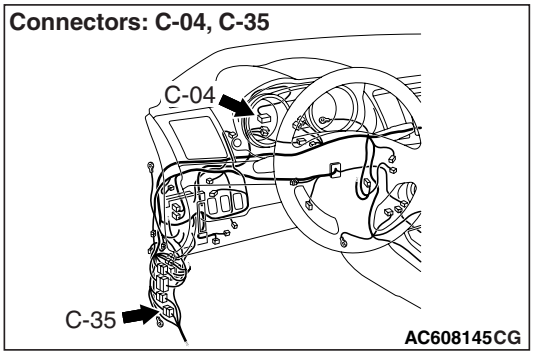
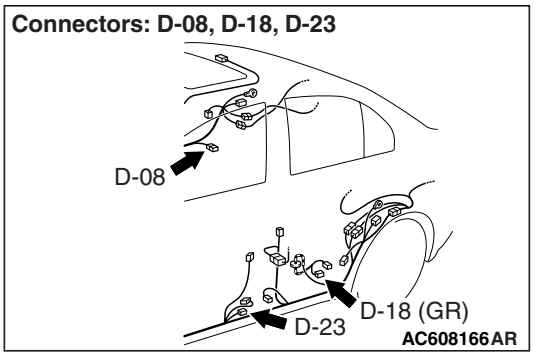




TROUBLE JUDGEMENT

With the ignition switch at the ON position and the system voltage at 10 –16 volts (data from ETACS-ECU), if the combination meter detects the abnormal resistance of fuel level sensor circuit for 64 seconds continuously, DTC B1201 is stored.

TROUBLESHOOTING HINTS

- The fuel pump module [fuel level sensor] may be defective.
- The combination meter may be defective.
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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

STEP 1. Check fuel pump module connector D-18 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fuel pump module connector D-18 in good condition?

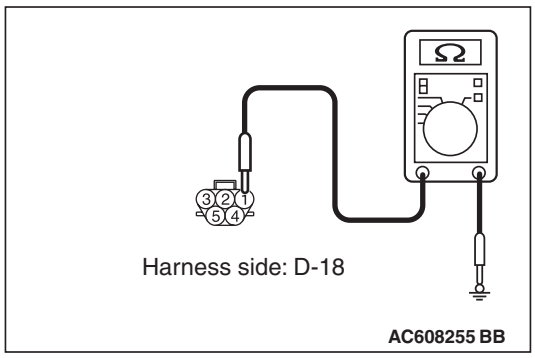
YES : Go to Step 2.
NO : Repair the connector.

STEP 2. Check the fuel level sensor.

Check to see if the fuel level sensor is normal (Refer to P.54A-81).

Q: Is the check result normal?

YES : Go to Step 3.
NO : Replace the fuel level sensor.



STEP 3. Measure the resistance at fuel pump module connector D-18.

(1) Disconnect pump module connector D-18, and measure at the wiring harness side.
(2) Measure the resistance value between terminal 1 and ground.
- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

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

STEP 4. Check the wiring harness between fuel pump module connector D-18 (terminal 1) and ground.

Q: Is the wiring harness between fuel pump module connector D-18 (terminal 1) and ground in good condition?

YES : There is no action to be taken.
NO : Repair the wiring harness.

STEP 5. Check combination meter connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-04 in good condition?

YES : Go to Step 6.
NO : Repair the connector.

STEP 6. Check the wiring harness between fuel pump module connector D-18 (terminal 2) and combination meter connector C-04 (terminal 17 or 18).

NOTE: Also check intermediate connectors C-35, D-08 and joint connector D-23. If intermediate connectors C-35, D-08 and joint connector D-23 are damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the wiring harness between fuel pump module connector D-18 (terminal 2) and combination meter connector C-04 (terminal 17 or 18) in good condition?

YES : Go to Step 7.
NO : Repair the wiring harness. The fuel gauge should work normally.

STEP 7. Using scan tool MB991958, perform actuator test.

- Item 03: Fuel gauge (target value): 0 → 100%
  - Fuel gauge shows 100 %

Q: Is the check result normal?

YES : Go to Step 8.
NO : Replace the combination meter.

STEP 8. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The procedure is complete.

DTC B1208: Malfunction of LCD heater

TROUBLE JUDGEMENT

With the ignition switch at the ON position and the system voltage at 10 – 16 volts (data from ETACS-ECU), if the combination meter detects the LCD heater malfunction, the DTC B1208 is stored.

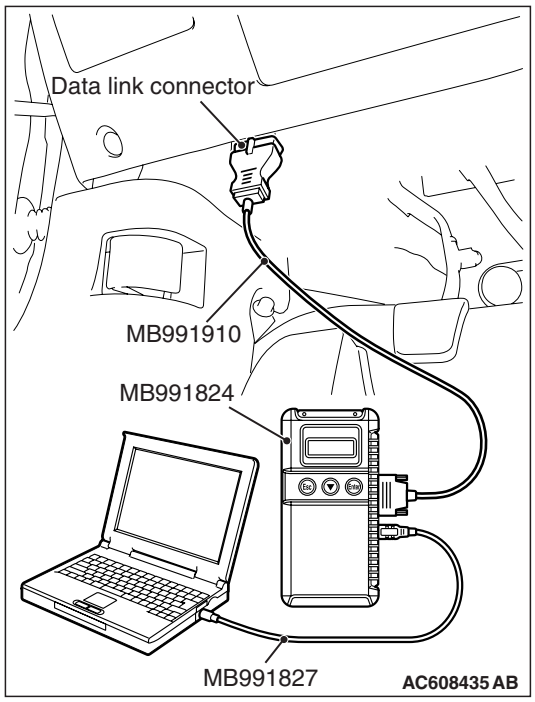
TROUBLESHOOTING HINTS

The combination meter may be defective

DIAGNOSIS

Required Special Tools:

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



Recheck for diagnostic trouble code.
Check again if the DTC is set to the combination meter.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The procedure is complete.

DTC B1209: Test mode

TROUBLE JUDGEMENT
When the mode is changed to the meter test mode (supplier mode), the combination meter stores the DTC B1209.

TROUBLESHOOTING HINTS
The combination meter may be defective

DIAGNOSIS
Replace the combination meter.

DTC B2203: VIN not programmed

TROUBLE JUDGEMENT
With the ignition switch at the ON position, if the VIN code is not written to the combination meter, DTC B2203 is stored.

TROUBLESHOOTING HINTS
- The CAN bus line may be defective.
- The ETACS-ECU may be defective.
- The combination meter may be defective.

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

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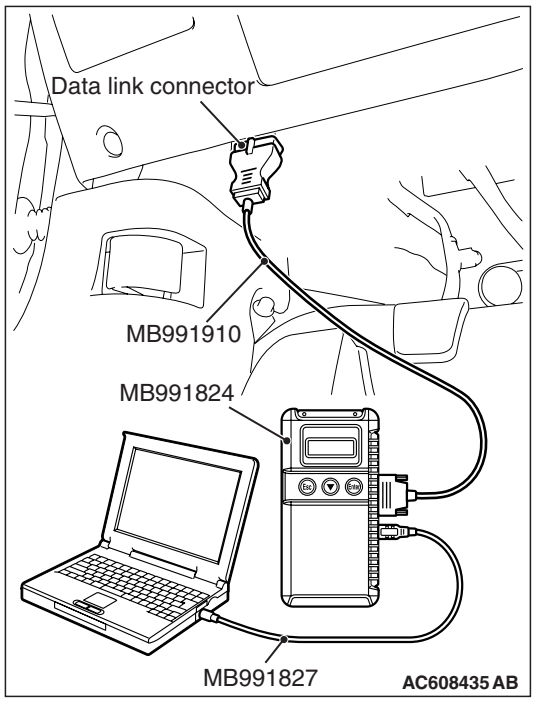


STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to P.54A-482).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC B2463: Sticking of rheostat switch

TROUBLE JUDGEMENT

If the combination meter detects the rheostat switch pressed state for 60 seconds or more continuously, DTC B2463 is stored.

TROUBLESHOOTING HINTS

- The combination meter may be defective.
- The meter hood assembly (rheostat switch knob) may be defective.

DIAGNOSIS PROCEDURE

Required Special Tools:

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

STEP 1. Check the rheostat switch.

Check whether an abnormality is present to the combination meter and the rheostat switch knob attached to the meter hood assembly.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the combination meter or meter hood assembly.

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

Check if DTC is set to the combination meter.

⚠ CAUTION

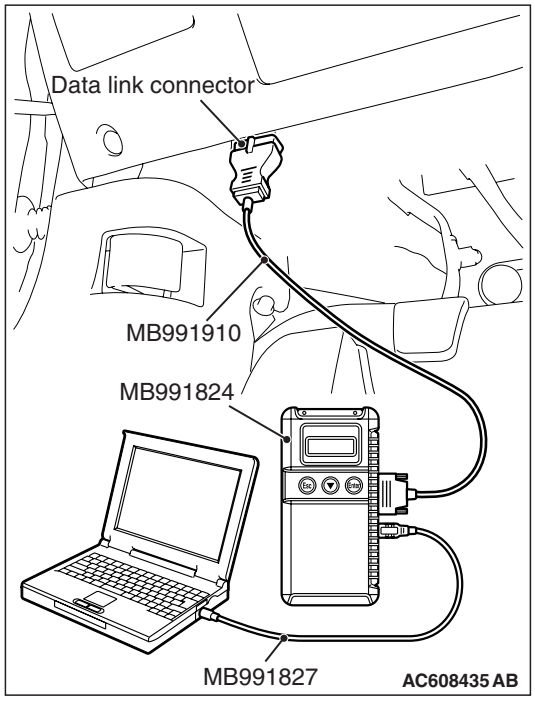
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if diagnosis code is set.

Q: Is the DTC set?

YES : Replace the combination meter, and then go to Step 3.

NO : The procedure is complete.



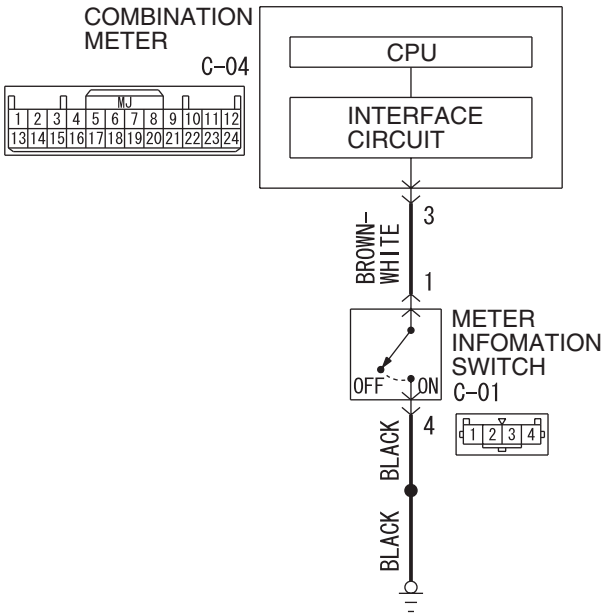
STEP 3. Recheck for diagnostic trouble code.
Check if DTC is set to the combination meter.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if diagnosis code is set.

Q: Is the DTC set?
YES : Go to Step 1.
NO : The procedure is complete.

DTC B2464: The sticking of meter information switch

⚠ CAUTION
Whenever the ECU is replaced, ensure that the communication circuit is normal.

Meter Information Switch Circuit



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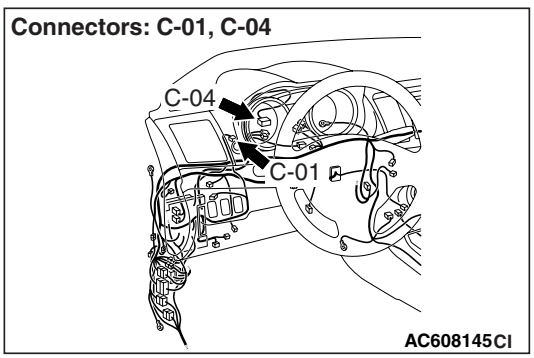

TROUBLE JUDGEMENT

If the combination meter detects the meter information switch pressed state for 60 seconds or more continuously, DTC B2464 is stored.

TROUBLESHOOTING HINTS

- The meter information switch may be defective
- The combination meter may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

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DIAGNOSIS

Required Special Tools:

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

STEP 1. Check meter information switch connector C-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is meter information switch connector C-01 in good condition?

YES : Go to Step 2.
NO : Repair the connector.

STEP 2. Check the meter information switch.

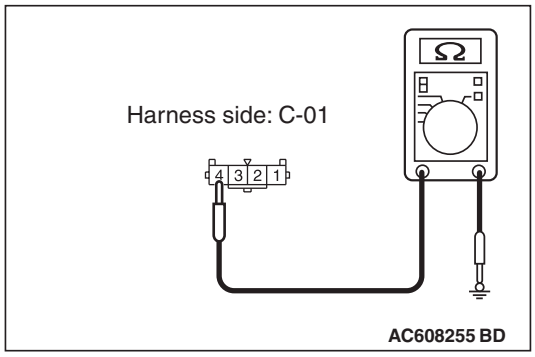
Check the meter information switch (Refer to P.54A-82).

Q: Is the check result normal?

YES : Go to Step 3.
NO : Replace the meter information switch.

STEP 3. Measure at meter information switch connector C-01 in order to the ground circuit to the meter information switch.

(1) Disconnect meter information switch connector C-01, and measure at the wiring harness side.
(2) Measure the resistance value between terminal 4 and ground.
  - The measured value should be 2 ohm or less.



Q: Does the measured resistance value correspond with this range?

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

STEP 4. Check the wiring harness between meter information switch connector C-01 (terminal 4) and ground.

Q: Is the wiring harness between fuel meter information switch connector C-01 (terminal 4) and ground in good condition?

YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 5. Check combination meter connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-04 in good condition?

YES : Go to Step 6.
NO : Repair the connector.

STEP 6. Check the wiring harness between meter information switch connector C-01 (terminal 1) and combination meter connector C-04 (terminal 3).

Q: Are the wiring harness between meter information switch connector C-01 (terminal 1) and combination meter connector C-04 (terminal 3) in good condition?

YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 7. Recheck for diagnostic trouble code.

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

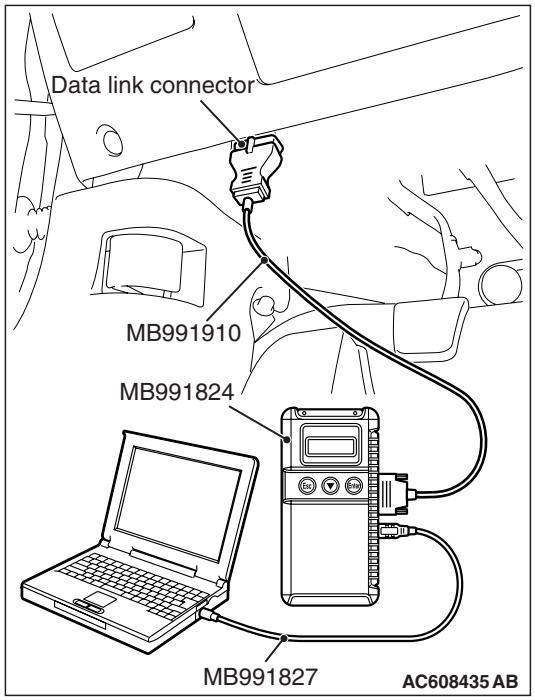
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.

Q: Is the DTC set?

YES : Go to Step 1.
NO : The procedure is complete.



DTC B2465: Ignition switch signal error

TROUBLE JUDGEMENT

If 5 seconds or more elapses with the ignition switch state and the data from the CAN communication contradicted, the combination meter stores the DTC B2465.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The ETACS-ECU may be defective
- The combination meter may be defective

DIAGNOSIS

Required Special Tools:

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

STEP 1. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code

Check if DTC is set to the ETACS-ECU.

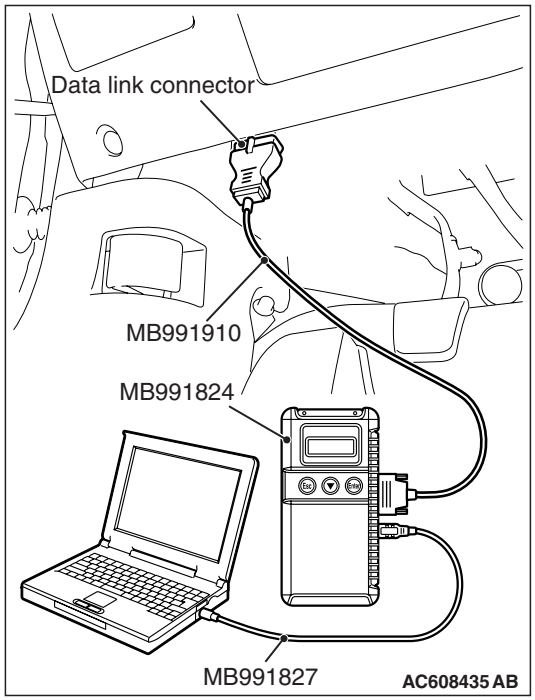
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to P.54A-482).
NO : Go to Step 2.



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

(1) Turn the ignition switch to the "ON" position.
(2) Diagnose the CAN bus line.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 3.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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STEP 3. Combination meter operation check
Check that the combination meter works normally.

Q: Is the check result normal?

YES : Go to Step 4.
NO : Check the power supply circuit of combination meter (Refer to P.54A-54).

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

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0019: Bus off (CAN-B)

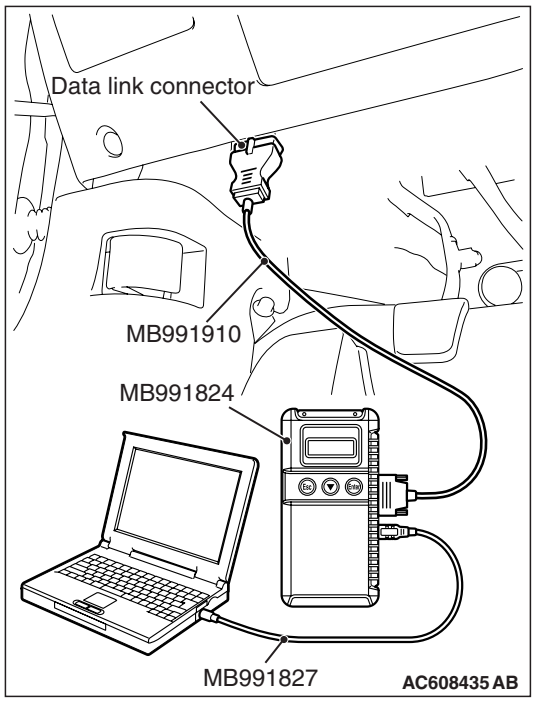
⚠ CAUTION
- **If DTC U0019 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION
If the CAN-B circuit malfunction occurs, the combination meter sets DTC U0019.

JUDGEMENT CRITERIA
With the ignition switch at the ON position and the system voltage at 10 –16 volts (data from ETACS-ECU), if the combination meter becomes unable to transmit data normally due to the CAN-B bus circuit malfunction, the combination meter determines that a problem has occurred.

TROUBLESHOOTING HINTS
The CAN bus line may be defective

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



STEP 1.Recheck for diagnostic trouble code.

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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Go to Step 2.
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.00-13).

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

(1) Turn the ignition switch to the "ON" position.
(2) Diagnose the CAN bus line.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be 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.00-13).
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

DTC U0100: Engine control module CAN timeout

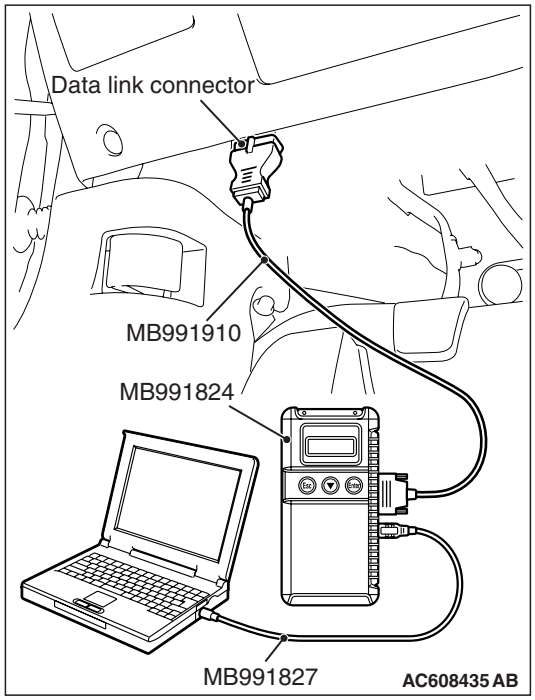
⚠ CAUTION
- **If DTC U0100 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION
The combination meter sets DTC U0100 when it cannot receive "CHECK ENGINE" signals from the engine control module.

JUDGEMENT CRITERIA
With the ignition switch in the ON position, system voltage between 10–16 volts (data from ETACS-ECU), power supply fuse is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with engine control module cannot be established for 600 ms or more, the combination meter determines that a problem has occurred.

PROBABLE CAUSES
- The CAN bus line may be defective.
- The combination meter may be defective.
- The engine control module may be defective.

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 2. Using scan tool MB991958, read the MFI diagnostic trouble code

Check if DTC is set to the engine control module.

Q: Is the DTC set?

YES : Troubleshoot the MFI (Refer to GROUP 13A, Diagnosis Code Chart P.13A-46).

NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

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

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

Q: Is the DTC set?

YES : Replace the combination meter.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0141: ETACS CAN timeout

⚠ CAUTION

- **If DTC U0141 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

If the signal from ETACS-ECU cannot be received, the combination meter sets the DTC U0141.

JUDGEMENT CRITERIA

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

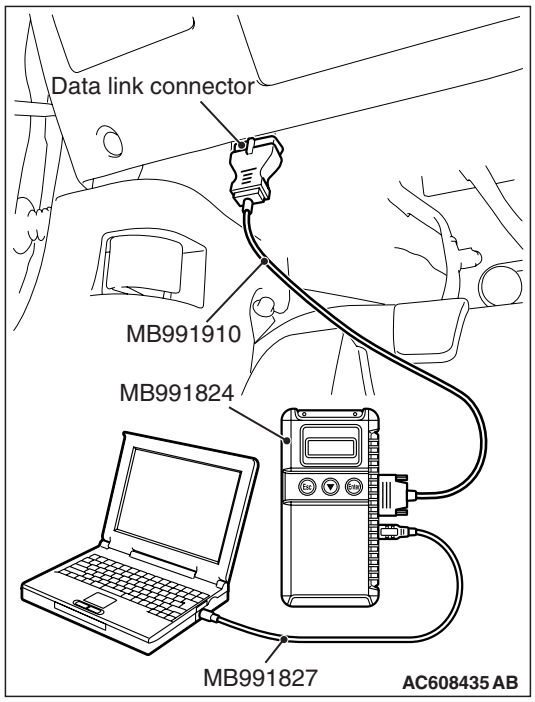
TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The combination meter may be defective
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

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

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to P.54A-482).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0151: SRS-ECU CAN timeout

⚠ CAUTION

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

DIAGNOSTIC FUNCTION

If the signal from SRS-ECU cannot be received, the combination meter sets DTC U0151.

JUDGEMENT CRITERIA

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

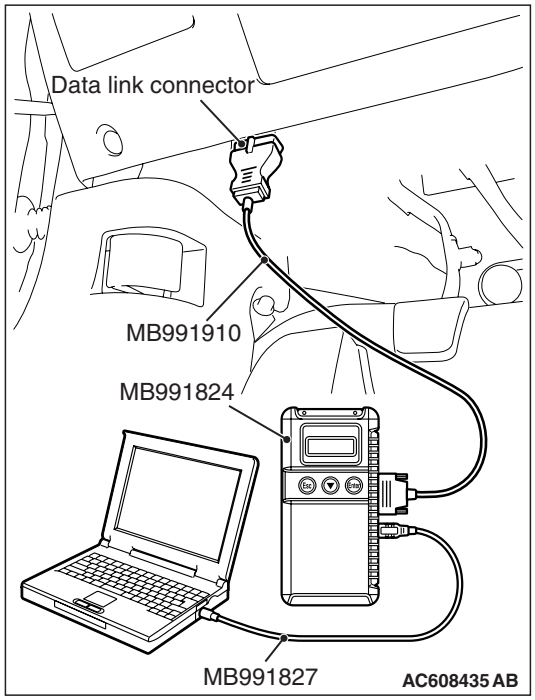
TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The SRS-ECU may be defective
- The combination meter may be defective

DIAGNOSIS

Required Special Tools:

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Troubleshooting P.52B-31).

NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

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

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

Q: Is the DTC set?

YES : Replace the combination meter.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0154: Occupant classification-ECU CAN timeout

⚠ CAUTION

- **If DTC U0154 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

When the signals from occupant classification-ECU cannot be received, the combination meter sets DTC U0154.

JUDGEMENT CRITERIA

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

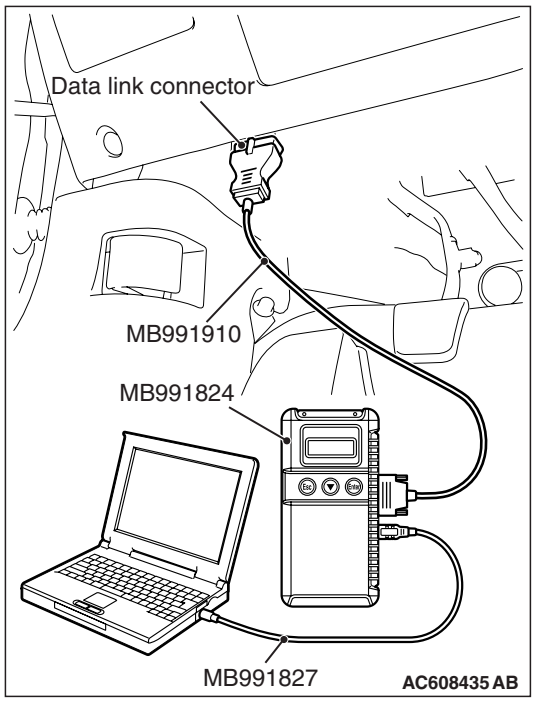
TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The combination meter may be defective.
- The occupant classification-ECU may be defective.

DIAGNOSIS

Required Special Tools:

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Diagnosis P.52B-280).
NO : Go to Step 3.

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

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

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DTC U0164: A/C-ECU CAN timeout

⚠ CAUTION

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

DIAGNOSTIC FUNCTION

If the signal from A/C-ECU cannot be received, the combination meter sets DTC U0164.

JUDGEMENT CRITERIA

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

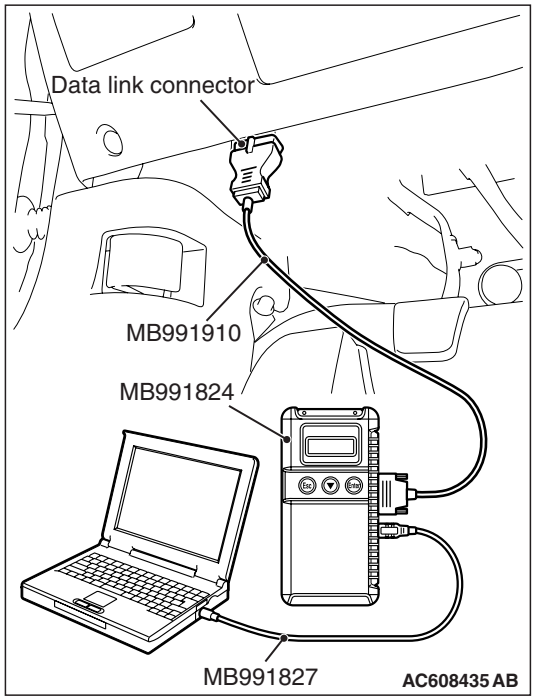
TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The A/C-ECU may be defective.
- The combination meter may be defective.

DIAGNOSIS

Required Special Tools:

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

TSB Revision

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

Q: Is the DTC set?

YES : Troubleshoot the A/C (Refer to GROUP 55A, Manual A/C Diagnosis P.55A-8 or GROUP 55B, Auto A/C Diagnosis P.55B-7).
NO : Go to Step 3.

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

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0168: KOS-ECU or WCM CAN timeout

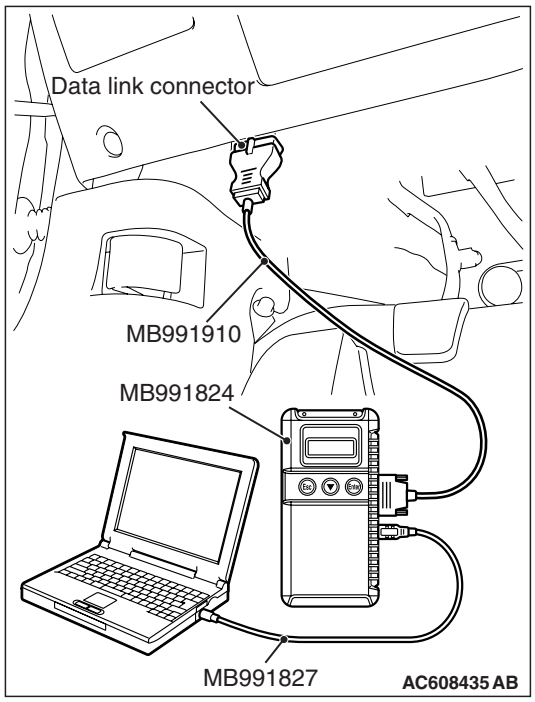
⚠ CAUTION
- **If DTC U0168 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION
If the signal from KOS-ECU or WCM cannot be received, the combination meter sets DTC U0168.

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

TROUBLESHOOTING HINTS
- Malfunction of CAN bus line may be defective.
- Malfunction of the KOS-ECU may be defective.
- Malfunction of the WCM may be defective.
- Malfunction of combination meter may be defective.

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

Check again if the DTC is set to the KOS-ECU or WCM.

Q: Is the DTC set?

YES : Troubleshoot the KOS or WCM (Refer to GROUP 42B, Troubleshooting P.42B-20 <KOS> or 42C, Troubleshooting P.42C-14 <WCM>).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

TSB Revision

DTC U0184: Audio CAN timeout

⚠ CAUTION
- **If DTC U0184 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION
When the signals from radio and CD player or CD changer cannot be received, the combination meter sets the DTC U0184.

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

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

DIAGNOSIS

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

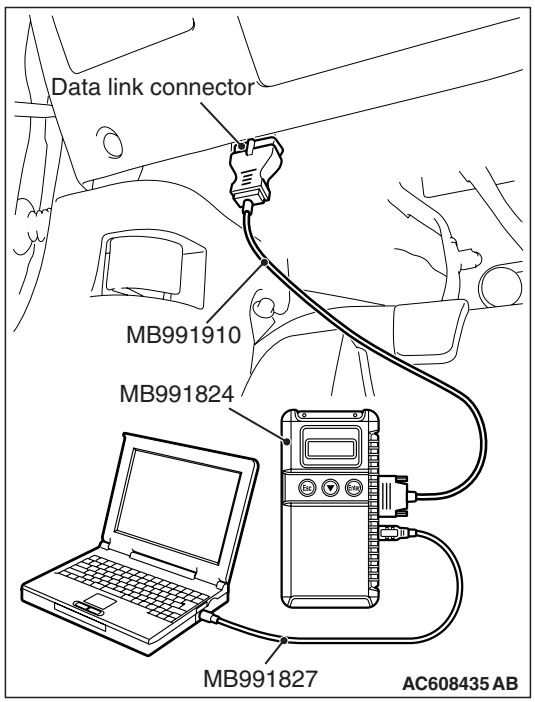
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



STEP 2. Using scan tool MB991958, read the audio diagnostic trouble code.
Check again if the DTC is set to the audio.

Q: Is the DTC set?

YES : Troubleshoot the radio and CD player (Refer to P.54A-239).
NO : Go to Step 3.

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

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0197: Hands free module CAN timeout

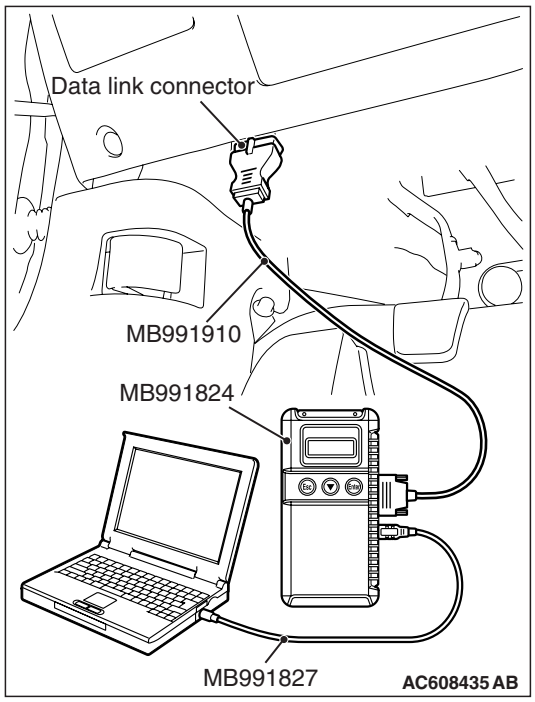
⚠ CAUTION
- **If DTC U0197 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION
When the signals from hands free module cannot be received, the combination meter sets DTC U0197.

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

TROUBLESHOOTING HINTS
- The CAN bus line may be defective.
- The combination meter may be defective.
- The hands free module may be defective.

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

Check again if the DTC is set to the hands free module.

Q: Is the DTC set?

YES : Troubleshoot the hands-free cellular phone system.
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0245: Audio visual navigation unit CAN timeout

⚠ CAUTION

- **If DTC U0245 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

When the signals from audio visual navigation unit cannot be received, the combination meter sets DTC U0245.

JUDGEMENT CRITERIA

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

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The combination meter may be defective.
- The audio visual navigation unit may be defective.

DIAGNOSIS

Required Special Tools:

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

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

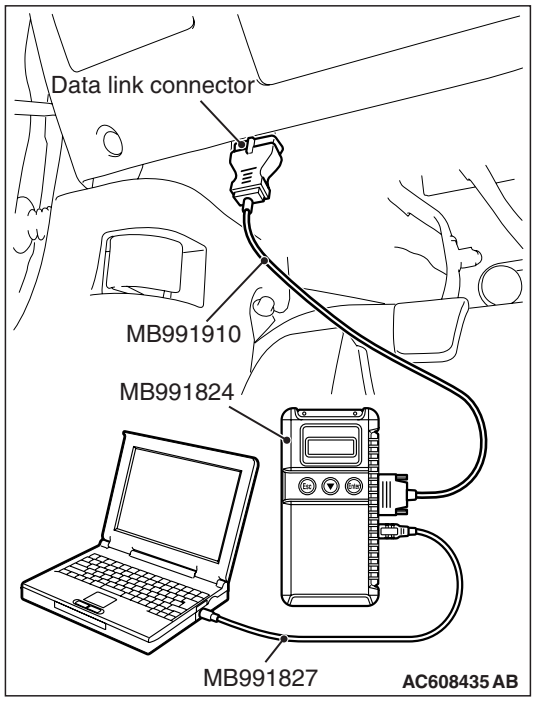
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



STEP 2. Using scan tool MB991958, read the audio visual navigation unit diagnostic trouble code.
Check if DTC is set to the audio visual navigation unit.

Q: Is the DTC set?

YES : Troubleshoot the MMCS (Refer to P.54A-328).
NO : Go to Step 3.

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

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U1415: Coding not completed/Data fail

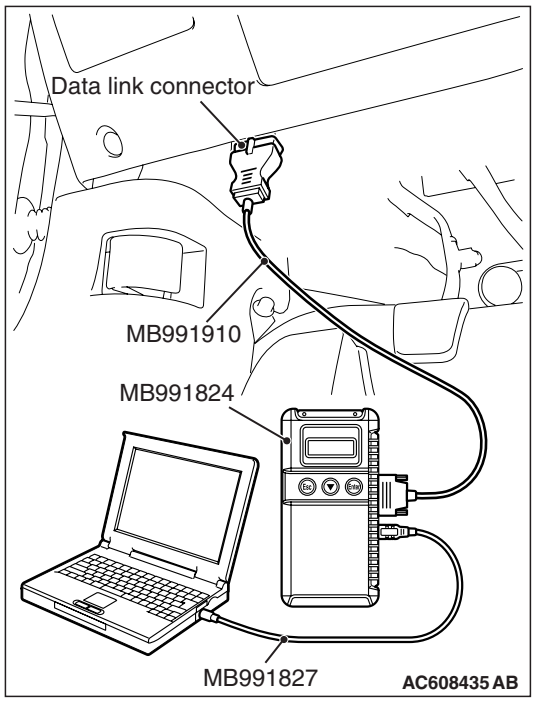
⚠ CAUTION
- **If DTC U1415 is set, diagnose the CAN bus lines.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION
If the vehicle information data is not registered to the combination meter, the combination meter sets DTC U1415.

JUDGEMENT CRITERIA
With the global coding counter value "0," if all the global coding data (vehicle information) are not stored, the combination meter determines that a problem has occurred.

TROUBLESHOOTING HINTS
- The CAN bus line may be defective.
- The combination meter may be defective.
- The ETACS-ECU may be defective.

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

Check if DTC is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to P.54A-482).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

TROUBLE SYMPTOM CHART

M1540200800175

⚠ CAUTION

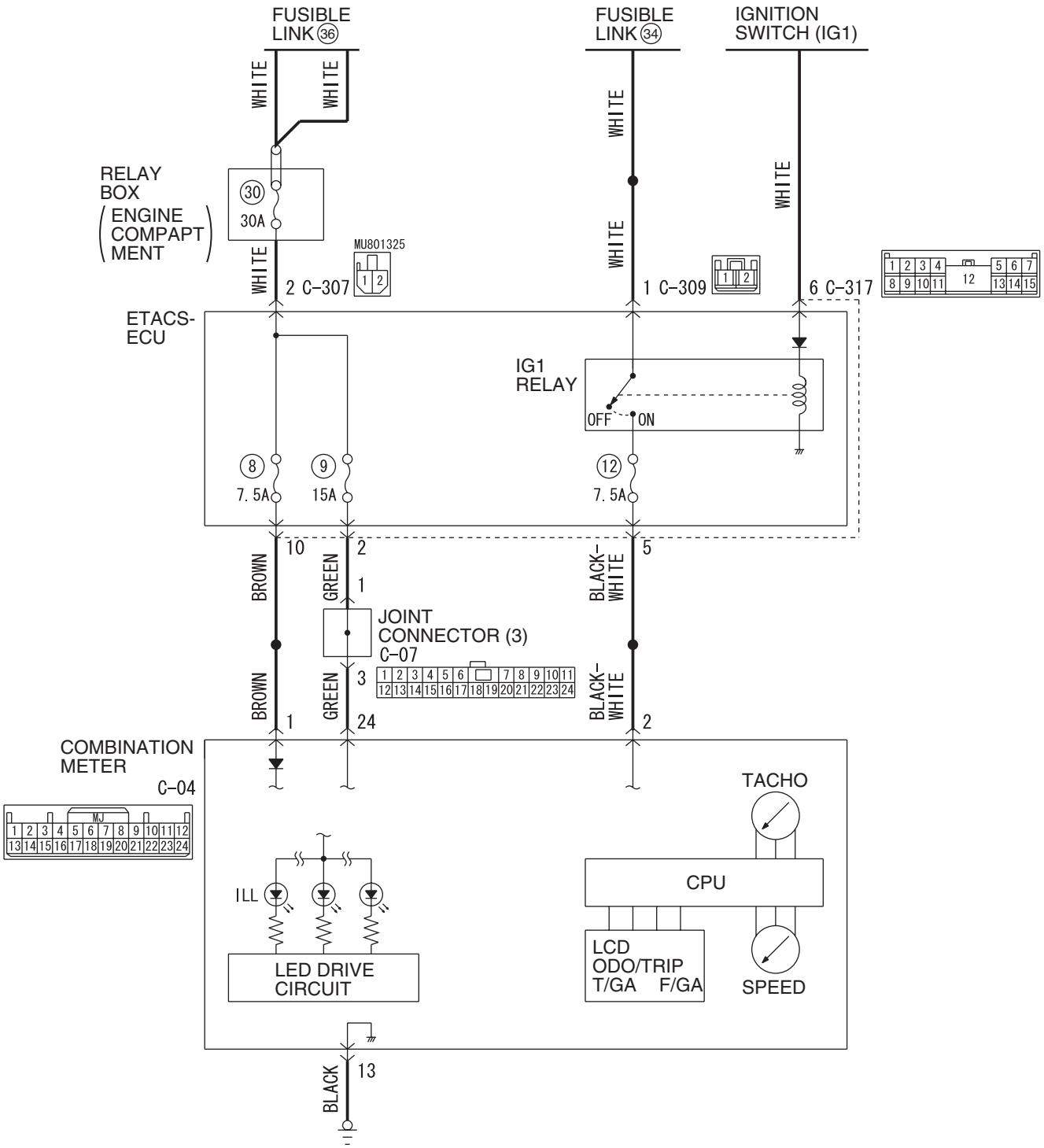
- **During troubleshooting, a DTC code associated with another system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, confirm all systems for DTC code(s). If DTC code(s) are set, erase them all.**
- **When the combination meter is required to be replaced as a result of the troubleshooting, the current driving distance and number of elapsed days to be used for service reminder function must be entered into the meter after the replacement. Therefore, read "Integrated mileage for reminder," "Integrated days for reminder," "Mileage until Extra reminder," "Months until Extra reminder," and "Current Schedule" from the meter before the replacement using the special function of scan tool MB991958, and note them. For the operation method of scan tool MB991958, refer to P.54A-82. If "Integrated mileage for reminder" or "Integrated days for reminder" cannot be read by the scan tool MB991958, follow the method described below.**
  a. **For the driving distance for check warning, use the driving distance displayed on the multi information display.**
  b. **For the elapsed days for check warning, calculate the number of elapsed days from the delivery date to the customer (service remainder function start date) and current date.**

Trouble symptom	Inspection Procedure No.	Reference page
Power supply circuit check.	1	P.54A-54
The speedometer does not work (the other meters work).	2	P.54A-60
The tachometer does not work (the other meters work).	3	P.54A-62
Tone alarm does not sound normally.	4	P.54A-64
The combination meter light does not illuminate normally or the multi information display is not displayed normally.	5	P.54A-66
The multi information display screen cannot be changed with the operation of the meter information switch.	6	P.54A-69

SYMPTOM PROCEDURES

Inspection Procedure 1: Power supply circuit check.

Combination Meter Power Supply Circuit



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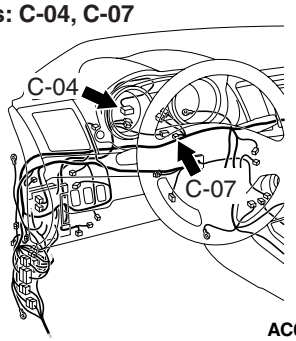
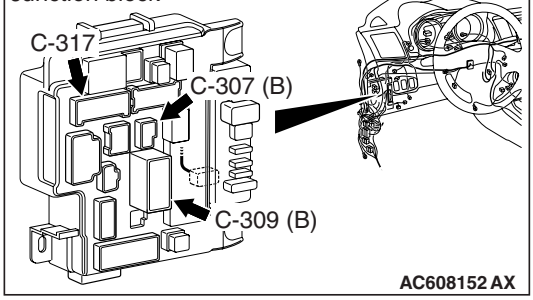
TSB Revision

Connectors: C-04, C-07



AC608145CH

Connectors: C-307, C-309, C-317
Junction block



AC608152 AX

TECHNICAL DESCRIPTION (COMMENT)

If the odometer and tripmeter do not display or all the meter needles do not move, the power supply to the combination meter, or the combination meter itself may have a problem.

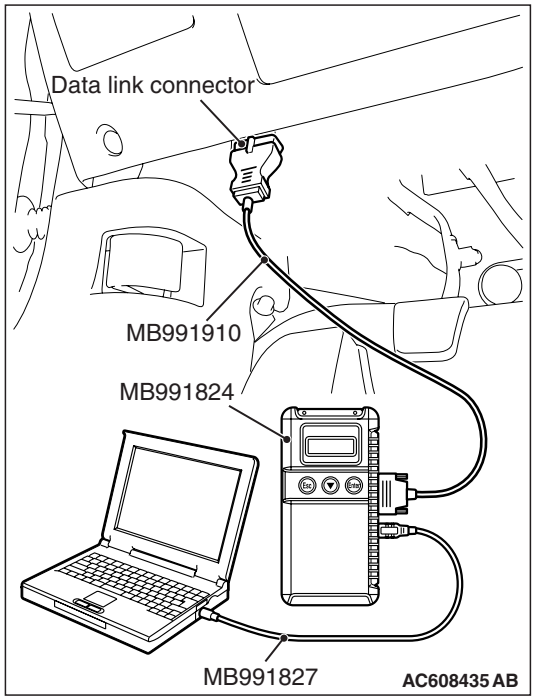
TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The combination meter may be defective

DIAGNOSIS

Required Special Tools:

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



STEP 1. Using scan tool MB991958, read the combination meter diagnostic trouble code.

Check if DTC is set to the combination meter.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Troubleshoot the combination meter (Refer to P.54A-23).
NO : Go to Step 2.

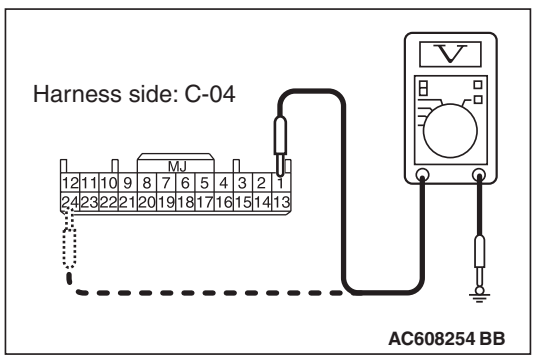
STEP 2. Check combination meter connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-04 in good condition?

YES : Go to Step 3.
NO : Repair the defective connector.

STEP 3. Check the battery power supply circuit to the combination meter. Measure the voltage at combination meter connector C-04.

(1) Disconnect the connector, and measure at the wiring harness side.
(2) Turn the ignition switch to the LOCK (OFF) position.
(3) Measure the voltage between terminals 1, 24 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 5.
NO : Go to Step 4.

TSB Revision

STEP 4. Check the wiring harness between combination meter connector C-04 (terminal 1, 24) and the fusible link (36).

NOTE: Also check ETACS-ECU connectors C-307, C-317 and joint connector C-07 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If ETACS-ECU connector C-307, C-317 or joint connector C-07 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

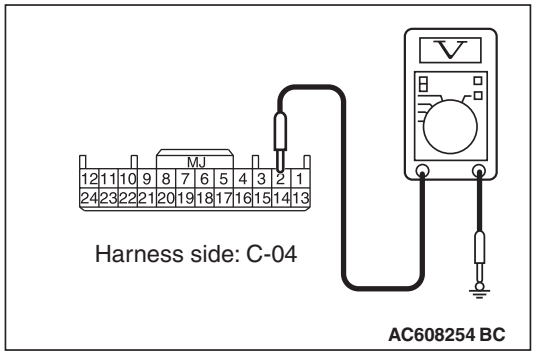
Q: Is the wiring harness between combination meter connector C-04 (terminal 1, 24 and the fusible link (36) in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 5. Check the battery power supply circuit to the combination meter. Measure the voltage at combination meter connector C-04.

(1) Disconnect the connector, and measure at the wiring harness side.
(2) Turn the ignition switch to the ON position.
(3) Measure the voltage between terminals 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 8.

NO : Go to Step 6.

STEP 6. Using scan tool MB991958, check data list.

Check the input signal from the ignition switch (IG1) in the ETACS-ECU.

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

(2) Check the ETACS data list.

- Turn the ignition switch to the "ON" position.

Item No.	Item name	Normal condition
Item 254	IG voltage	Approximately 12 volts (battery positive voltage)

(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Do the scan tool MB991958 display the item "IG voltage" is normal condition?

YES : Go to Step 7.

NO : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 2 "The ignition switch (IG1) signal is not received P.54A-531."

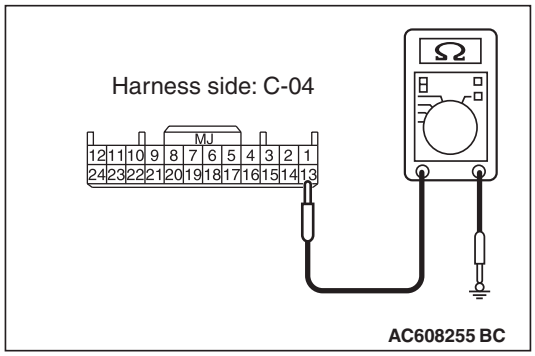
STEP 7. Check the wiring harness between combination meter connector C-04 (terminal 2) and the fusible link (34).

NOTE: Also check ETACS-ECU connectors C-309 and C-317 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If ETACS-ECU connector C-309 or C-317 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector C-04 (terminal 2) and the fusible link (34) 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.00-13).

NO : Repair the wiring harness.



STEP 8. Check the ground circuit to the combination meter. Test at combination meter connector C-04.

(1) Disconnect combination meter connector C-04 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 13 and ground.

- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 10.

NO : Go to Step 9.

STEP 9. Check the wiring harness between combination meter connector C-04 (terminal 13) and ground.

Q: Is the wiring harness between combination meter connector C-04 (terminal 13) 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.00-13).

NO : Repair the wiring harness.

STEP 10. Retest the system.

Check that the combination meter works normally.

Q: Is the check result satisfactory?

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.00-13).

NO : Replace the combination meter.

Inspection Procedure 2: The speedometer does not work (the other meters work).

TECHNICAL DESCRIPTION (COMMENT)

If only the speedometer does not operate, the transaxle control module and combination meter may have a problem.

TROUBLESHOOTING HINTS

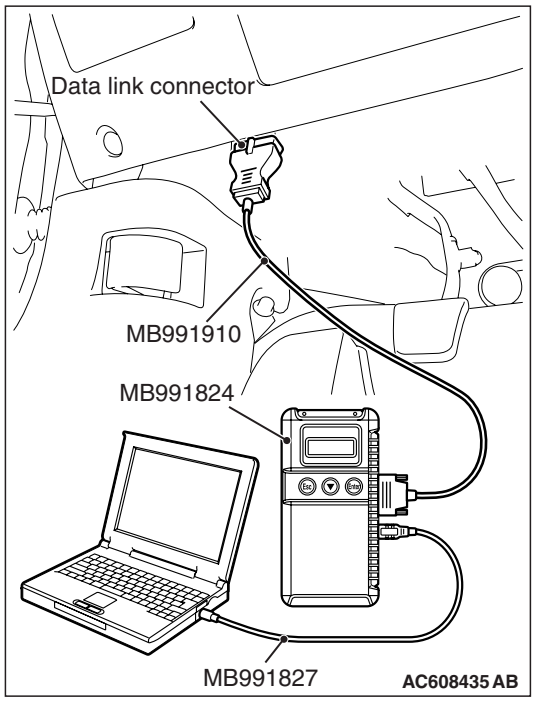
- The transaxle control module may be defective
- The combination meter may be defective

DIAGNOSIS

Required Special Tools:

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

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



⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 2. 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 : Troubleshoot the combination meter (Refer to P.54A-23).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the CVT diagnostic trouble code.
Check if diagnosis code is set to the CVT.

Q: Is the DTC set?

YES : Troubleshoot the CVT (Refer to GROUP 23A, Automatic Transaxle Diagnosis P.23A-29).
NO : Go to Step 4.

STEP 4. Using scan tool MB991958, check data list.
(1) Turn the ignition switch to the "ON" position.
(2) Check the data list on the combination meter.
- Item 80: Speedometer
  - Should read vehicle speed.

(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does it read vehicle speed?

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.00-13).
NO : Go to Step 5.

STEP 5. Check the speedometer
Use scan tool MB991958 to enter simulated vehicle speed.
(1) Turn the ignition switch to the "ON" position.
(2) Select "System select" from the start-up screen.
(3) Select "From 2006 MY" under "Model Year". Check that "Vehicle Information" contents are correct.
(4) Select "Meter" from "System List", and then press "OK" button.

NOTE: If "Loading Option Setup" list is shown, tick appropriate box.

(5) Select "Simulated vehicle Speed Output."

OK: The speedometer shows that simulated vehicle speed.

Q: Is the check result satisfactory?

YES : Go to Step 6.
NO : Replace the combination meter.

STEP 6. Retest the system.
Check that the speedometer works normally.

Q: Is the check result normal?

YES : The procedure is complete.
NO : Go to Step 1.

Inspection Procedure 3: The tachometer does not work (the other meters work).

TECHNICAL DESCRIPTION (COMMENT)

If only the tachometer does not operate, the ignition signal from the engine ECU may not be received or the combination meter may have a problem.

TROUBLESHOOTING HINTS

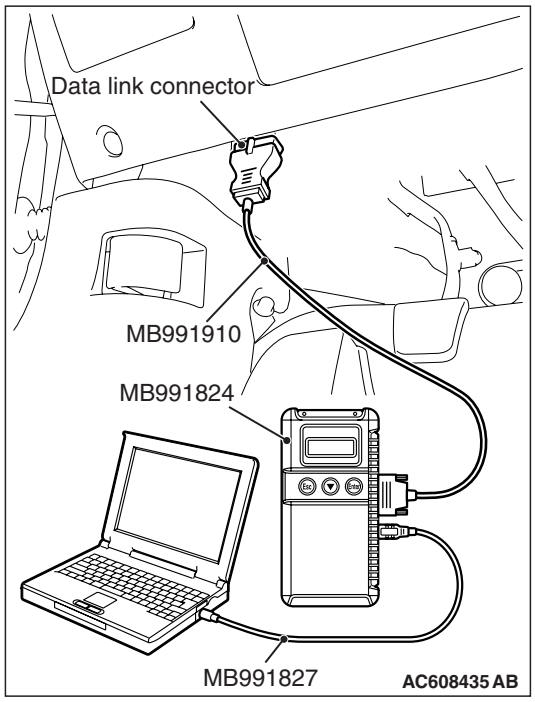
- The combination meter may be defective
- The engine control module may be defective

DIAGNOSIS

Required Special Tools:

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

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



⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 2. 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 : Troubleshoot the combination meter (Refer to P.54A-23).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the MFI diagnostic trouble code.
Check if DTC is set to the engine control module.

Q: Is the DTC set?

YES : Troubleshoot the MFI (Refer to GROUP 13A, Diagnosis P.13A-46).
NO : Go to Step 4.

STEP 4. Using scan tool MB991958, check data list.
(1) Turn the ignition switch to the "ON" position.
(2) Check the data list on the combination meter.
- Item 87: Tachometer
  - Should read engine speed.

(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does it read engine speed?

YES : Go to Step 5.
NO : Troubleshoot the MFI (Refer to GROUP 13A, Diagnosis P.13A-46). Complete the engine troubleshooting, and then go to Step 6.

STEP 5. Using scan tool MB991958, check actuator test.
(1) Turn the ignition switch to the "ON" position.
(2) Conduct the actuator test of the combination meter.
- Item 2: Tachometer
  - The tachometer operates up to the set position.

(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normally?

YES : Go to Step 6.
NO : Replace the combination meter.

STEP 6. Retest the system
Check that the tachometer works normally.

Q: Is the check result normal?

YES : The procedure is complete.
NO : Go to Step 1.

Inspection Procedure 4: Tone alarm does not sound normally.

⚠ CAUTION
Before replacing the combination meter, be sure to check that the power supply circuit, earth circuit, and communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

When the following signals are received via the CAN communication, the combination meter sounds the incorporated tone alarm according to the each pattern.

Seat belt reminder function
- Ignition switch ON signal
- Vehicle speed signal
- Driver's seat belt switch signal
- Front passenger's seat belt switch signal

Keyless operation key reminder tone alarm function (vehicles with KOS)
- Ignition switch OFF signal
- IG knob push switch ON signal
- Driver's door switch ON signal

Ignition key reminder tone alarm function (vehicles without KOS)
- Ignition switch OFF signal
- Key reminder switch OFF signal
- Driver's door switch ON signal

Light reminder tone alarm function
- Ignition switch OFF signal
- Lighting switch ON signal
- Driver's door switch ON signal

Door-ajar warning tone alarm function
- Ignition switch ON signal
- Any door switch or liftgate switch ON signal
- Vehicle speed signal

Freeze warning tone alarm
- Ignition switch ON signal
- Ambient temperature signal

Parking brake reminder tone alarm function
- Ignition switch ON signal
- Parking brake switch ON signal
- Vehicle speed signal
- Engine speed

Multi information display interrupt display tone alarm
- Display condition signal of information display from each warning (When there is a fixed tone alarm sounding pattern for each warning, that pattern has the priority.)

Meter information switch operation tone alarm
- ON signal for combination meter information switch

Turn-signal light tone alarm function
- Turn-signal light switch ON signal

Paddle shift cancel tone alarm, Theft-alarm function, ETACS-ECU function customise tone alarm, A/C operation tone alarm, audio operation tone alarm
- Sounding request signal from the ETACS-ECU

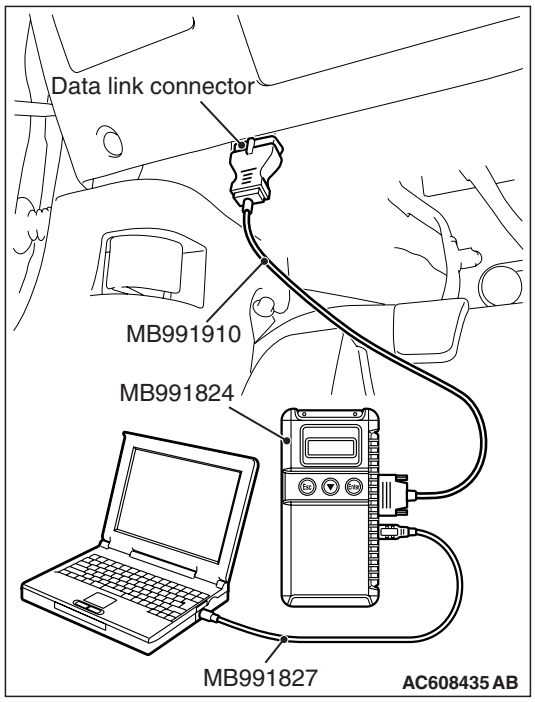
If the tone alarm does not sound normally, the connector(s) and wiring harness in the CAN bus lines, or each ECU or the combination meter may have a problem.

TROUBLESHOOTING HINTS

- The combination meter may be defective
- The each ECU may be defective

DIAGNOSIS

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 2. 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 : Troubleshoot the combination meter (Refer to P.54A-23).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read for any diagnostic trouble code.
Check if diagnosis code is set to the CVT, ETACS-ECU, WCM, KOS-ECU, audio and A/C-ECU.

Q: Is the DTC set to the any of the above?

YES <Set to the CVT.> : Troubleshoot the CVT (Refer to GROUP 23A, Diagnosis P.23A-29).
YES <Set to the ETACS.> : Troubleshoot the ETACS (Refer to P.54A-482).
YES <Set to the WCM.> : Troubleshoot the WCM (Refer to GROUP 42C, diagnosis P.42C-14).
YES <Set to the KOS.> : Troubleshoot the KOS (Refer to GROUP 42B, Diagnosis P.42B-20).
YES <Set to the audio.> : Troubleshoot the audio (Refer to P.54A-239).
YES <Set to the A/C.> : Troubleshoot the A/C (Refer to GROUP 55A, Manual A/C Diagnosis P.55A-8 or GROUP 55B, Automatic A/C Diagnosis P.55B-7).
NO <The diagnosis code is not set.> : Go to Step 4.

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STEP 4. Using scan tool MB991958, check actuator test.
(1) Turn the ignition switch to the "ON" position.
(2) Conduct the actuator test of the combination meter.
- Item 12: Buzzer
  - The tone alarms sound normally.

(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Go to Step 5.
NO : Replace the combination meter.

STEP 5. Retest the system
Check that the tone alarm normally.

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.00-13).
NO : Replace the combination meter.

Inspection Procedure 5: The combination meter light does not illuminate normally or the multi information display is not displayed normally.

⚠ CAUTION
Before replacing the combination meter, be sure to check that the power supply circuit, earth circuit, and communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

When the signal from each ECU is received via the CAN communication, the combination meter illuminates the corresponding display light or warning light, or has the multi information display to display corresponding information.

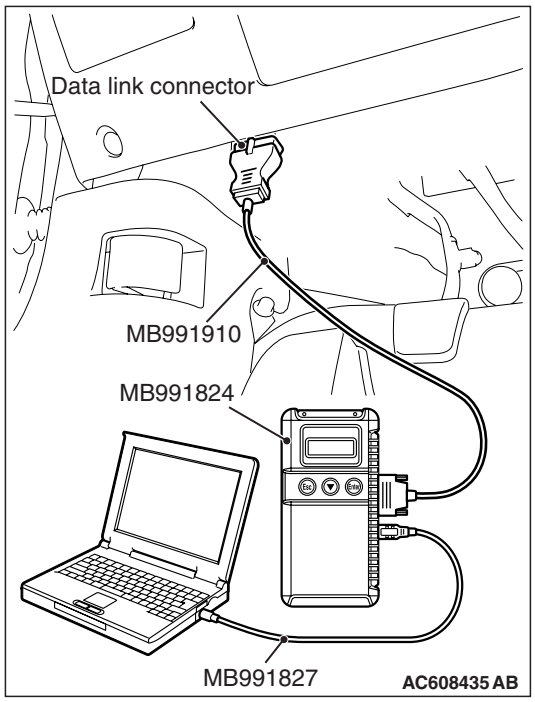
If the lights do not illuminate or the multi information display does not display normally, the wiring harness and connector(s) in the CAN bus lines, or the each ECU or the combination meter may have a problem.

TROUBLESHOOTING HINTS

- The combination meter may be defective
- The each ECU may be defective

DIAGNOSIS

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the combination meter (Refer to P.54A-23).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read for any diagnostic trouble code.

Check again if the DTC is set to the MFI,CVT, WCM, KOS, ABS, SRS, ETACS and A/C.

Q: Is the DTC set to the any of the above?

YES <Set to the MFI.> : Troubleshoot the MFI (Refer to GROUP 13A, Diagnosis P.13A-46).

YES <Set to the CVT.> : Troubleshoot the CVT (Refer to GROUP 23A, Diagnosis P.23A-29).

YES <Set to the ABS.> : Troubleshoot the ABS (Refer to GROUP 35B, Diagnosis P.35B-8).

YES <Set to the WCM.> : Troubleshoot the WCM (Refer to GROUP 42C, diagnosis P.42C-14).

YES <Set to the KOS.> : Troubleshoot the KOS (Refer to GROUP 42B, Diagnosis P.42B-20).

YES <Set to the SRS.> : Troubleshoot the SRS (Refer to GROUP 52B, Diagnosis P.52B-31).

YES <Set to the ETACS.> : Troubleshoot the ETACS (Refer to P.54A-482).

YES <Set to the A/C.> : Troubleshoot the A/C (Refer to GROUP 55A, Manual A/C Diagnosis P.55A-8 or GROUP 55B, Automatic A/C Diagnosis P.55B-7).

NO <The diagnosis code is not set.> : Go to Step 4.

STEP 4. Using scan tool MB991958, check actuator test.

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

(2) Conduct the actuator test of the combination meter.

- Item 7: Indicator1
- Item 8: Indicator2
- Item 9: Indicator3
- Item 10: Indicator4
- Item 11: Shift indicator
  - Perform the actuator test, and check that display lights or warning lights are illuminated normally, or multi information display is displayed normally.

(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the combination meter.

STEP 5. Retest the system.

Check that display lights or warning lights are illuminated normally, or multi information display is displayed normally.

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.00-13).

NO : Replace the combination meter.

Inspection Procedure 6: The multi information display screen cannot be changed with the operation of the meter information switch.

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

TECHNICAL DESCRIPTION (COMMENT)

When the signal from the meter information switch is received, the combination meter switches the multi information display screen. If the multi information display screen does not switch normally, the meter information switch, wiring harness, connector(s), or combination meter may have a problem.

TROUBLESHOOTING HINTS

- The meter information switch may be defective
- The combination meter may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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

STEP 1. Using scan tool MB991958, read the combination meter diagnostic trouble code.

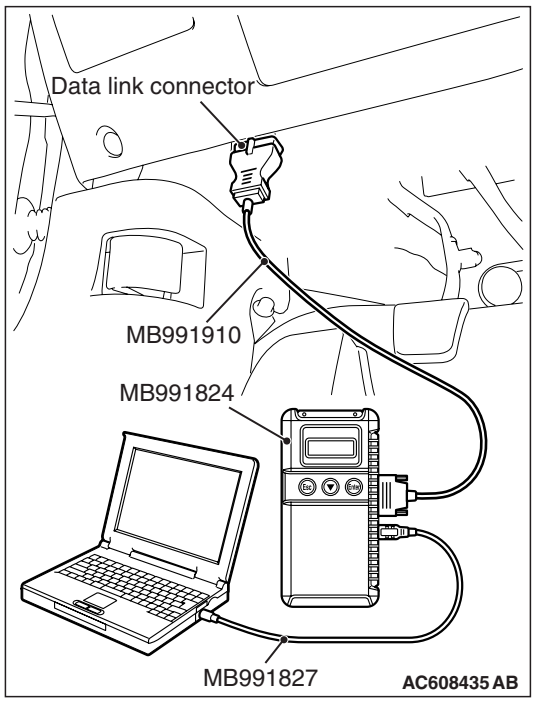
Check if DTC is set to the combination meter.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(4) Check if DTC is set.

Q: Is the DTC set?

YES : Troubleshoot the combination meter (Refer to P.54A-23).
NO : Go to Step 2.



STEP 2. Retest the system.

Check that the multi information display screen switches normally when the meter information switch is operated.

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.00-13).

NO : Replace the combination meter.

SERVICE DATA

M1540201000097

Item No.	Scan tool display	Check condition	Normal condition
1	Illumination	When the meter illumination is illuminated	ON
2	Outside temperature	Always	−30 –+50 °C
3	Frost warning indicator	When the freeze warning light is illuminated	ON
4	Engine coolant temp. light (HOT)	When the high coolant temperature warning light is illuminated	ON
6	Oil level indicator	When the oil level warning light is illuminated	ON
23	A/T failure indicator (Symbol)	When the A/T malfunction warning light is illuminated	ON
26	Key reminder indicator	When the key reminder warning light is illuminated	ON
27	Headlight reminder indicator	When the headlight reminder warning light is illuminated	ON
28	Brake reminder indicator	When the brake reminder warning light is illuminated	ON
29	F.A.S.T. indicator1 (Low battery)	When the malfunction occurs to keyless operation system	ON
30	F.A.S.T. indicator2 (No key)		ON
31	F.A.S.T. indicator3 (IG knob)		ON
32	F.A.S.T. indicator4 (Take out key)		ON
33	F.A.S.T. indicator5 (Take out key)		ON
34	F.A.S.T. indicator6 (Lock disable)		ON
35	F.A.S.T. indicator7 (Lock disable)		ON
36	F.A.S.T. indicator8 (Lock disable)		ON
37	F.A.S.T. indicator9 (System error)		ON
40	Buzzer (cutting into LCD display)	When the standard LCD interrupt buzzer becomes active	ON
42	ETACS answer back buzzer	When the ETACS setting response buzzer becomes active	ON
44	BEEP(A/C)1	A/C operation	ON
45	BEEP(A/C)2		ON
46	BEEP(A/C)3		ON
47	BEEP(AUDIO)1	Audio operation	ON
48	BEEP(AUDIO)2		ON
49	BEEP(AUDIO)3		ON
51	BEEP (AUDIO)4		ON
52	BEEP (AUDIO)5		ON
50	Seatbelt reminder buzzer	When the seat belt reminder buzzer becomes active	ON
65	Meter SW push buzzer	Meter information switch: ON	ON

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Item No.	Scan tool display	Check condition	Normal condition
66	Turn signal buzzer	When turn-signal buzzer becomes active.	ON
67	Shift cancel buzzer	When the AT shift cancel buzzer becomes active	ON
68	Meter SW long push buzzer	Meter information switch: ON (press and hold)	ON
69	Security alarm buzzer	When the security alarm becomes active	ON
70	Presecurity alarm buzzer		ON
71	Rest reminder buzzer1	When the rest sign buzzer becomes active	ON
72	Rest reminder buzzer2		ON
74	Parking brake reminder buzzer	When the brake reminder buzzer becomes active	ON
75	IG knob reminder buzzer	When the insufficient IG knob return buzzer becomes active	ON
76	Key reminder buzzer	When the key reminder buzzer becomes active	ON
77	Headlight reminder buzzer	When the headlight reminder buzzer becomes active	ON
78	Door ajar warning buzzer	When the door ajar warning buzzer becomes active	ON
79	Frost warning buzzer	When the freeze warning buzzer becomes active	ON
80	Speed meter	Perform a test run of the vehicle.	Speedometer displayed value and scan tool displayed value agree with each other.
87	Tachometer	Start the engine.	Tachometer displayed value and scan tool displayed value agree with each other.
89	Fuel gauge	Ignition switch: ON	Fuel gauge unit resistance value and scan tool displayed value agree with each other.
8A	Fuel gauge (Target)	Ignition switch: ON	Fuel gauge and scan tool displayed values agree with each other.
8C	Engine coolant temperature gauge	Ignition switch: ON	Coolant temperature and scan tool displayed values agree with each other.
90	Odometer	Ignition switch: ON	Odometer displayed value and scan tool displayed value agree with each other.

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Item No.	Scan tool display	Check condition	Normal condition
91	Rheostat	Ignition switch: ON	Lighting change by rheostat switch operation and scan tool displayed change agree with each other.
92	Trip meter A	Ignition switch: ON	Tripmeter displayed value and scan tool displayed value agree with each other.
93	Trip meter B		
94	Power source voltage	Always	0 –20 V
A1	SRS warning light	When the SRS warning light is illuminated	ON
A2	ABS warning light	When the ABS warning light is illuminated	ON
A3	Oil pressure indicator	When the hydraulic pressure warning light is illuminated	ON
A4	Charge indicator	When the charging warning light is illuminated	ON
A5	Engine malfunction indicator	When the engine warning light is illuminated	ON
A6	Fuel Warning (step1)	When the fuel remaining amount warning light (first step) is illuminated	ON
A7	Brake warning light	When the brake warning light is illuminated	ON
A8	Driver seatbelt indicator	When the driver's seat belt warning light is illuminated	ON
B1	Turn signal indicator (Right)	Turn-signal light switch (RH): ON	ON
B2	Turn signal indicator (Left)	Turn-signal light switch (LH): ON	ON
B3	Front fog light indicator	Front fog light switch: ON	ON
B4	High beam indicator	Dimmer switch: ON	ON
B5	Door indicator (Front Left)	When the driver's door is opened	ON
B6	Door indicator (Front Right)	When the front passenger's door is opened	ON
B7	Door indicator (Rear Left)	When the rear left door is opened	ON
B8	Door indicator (Rear Right)	When the rear right door is opened	ON
B9	Door indicator (Tailgate)	When the trunk is opened	ON
D8	Car symbol	When the vehicle mark is illuminated	ON
E2	A/T Oil TEMP.indicator	When the A/T oil temperature indicator is illuminated	ON
E6	Rest reminder indicator	When the rest sign indicator is illuminated	ON

Item No.	Scan tool display	Check condition	Normal condition
E7	Service reminder indicator	When the service reminder indicator is illuminated	ON
F2	FL corner sensor indicator	When each corner sensor responds	ON
F3	FR corner sensor indicator		ON
F4	RL corner sensor indicator		ON
F5	RR corner sensor indicator		ON
F7	Cruise control indicator	When the cruise control indicator is illuminated	ON
100	Distance to empty	Ignition switch: ON	Displayed values and scan tool displayed values agree with each other.
102	Average fuel consumption		
103	Instant fuel consumption		
104	Average speed		
108	Fuel Warning (step2)	When fuel remaining amount warning light (second step) is illuminated.	ON
113	Rest reminder time (Hour)	Ignition switch: ON	Displayed values and scan tool displayed values agree with each other.
114	Rest reminder time (Minute)		

ACTUATOR TEST TABLE

M1540201100094

Item No.	Item name	Test item	Value
1*	Speedometer	Pointer position setting (km/h or mph)	km/h or mph
2	Tachometer	Pointer position setting (r/min)	r/min
3	Fuel gauge(Target)	Status setting (%)	%
4	Water Temperature gauge	Status setting (°F)	°F
5	Meter illumination	Status setting (%)	%
6	Outside temperature	Status setting (°F)	°F
7	Indicator1	By turning ON/OFF the item values, indicators can be illuminated/extinguished and buzzers can be sounded.	OFF/ON
8	Indicator2		OFF/ON
9	Indicator3		OFF/ON
10	Indicator4 for Japan		OFF/ON
11	Shift indicator		OFF/ON
12	Buzzer		OFF/ON
13	Indicator4 for US		OFF/ON

*NOTE: *: Depending on the main scale of the speedometer, the unit that can be tested changes. Unit is displayed as "–" on the scan tool MB991958 screen.*

CHECK PROCEDURE FOR EACH MULTI INFORMATION DISPLAY SCREEN

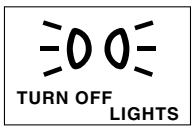
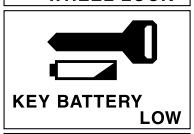
M1540201900078

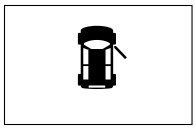
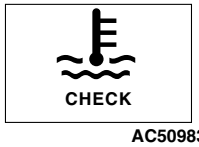
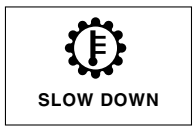
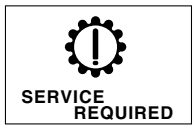
⚠ CAUTION

When there are TV towers, substations, or broadcasting stations which emit strong radio waves in proximity, on rare occasions, a warning is displayed on the multi information screen for a few seconds. This is caused by the reception of strong radio waves, and there is no functional problem.

WARNING SCREEN

When malfunctions occur to the vehicle, the following warning screens are displayed. If these screens are not displayed normally or if they continue to be displayed even after the factor is eliminated, take measures according to the action procedure.

Display content	Factor	Action procedure
 AC509825	Displayed with the sounding of tone alarm when the driver's door is opened with the key inserted in the ignition switch key cylinder.	If the ignition key reminder warning tone alarm is not being sounded, perform the troubleshooting for the ignition key reminder warning tone alarm (Refer to P.54A-64).
 AC509826	Displayed with the sounding of buzzer when the driver's door is opened with the ignition switch at the LOCK (OFF) position and the lighting switch at the tail or head position.	If the lighting monitor warning buzzer is not being sounded, perform the troubleshooting for the lighting monitor warning buzzer (Refer to P.54A-64).
 AC505679	Displayed while the theft alarm is in operation.	If the warning screen is not displayed normally or if the screen continues to be displayed, carry out the troubleshooting for the theft alarm (Refer to P.54A-575).
a  b  c  d  e  f  AC606877AB	Displayed when a malfunction occurs to KOS. Refer to GROUP 42B –Diagnosis . a. Displayed when an IG knob return failure occurs or the door lock does not operate. b. Displayed when the KOS key battery is running low. c. Displayed if carrying a KOS key with different ID code or the KOS key is outside the operative range. d. Displayed when the KOS key removal monitoring function or KOS key confinement prevention function is in operation. e. Displayed when the door ajar prevention function is in operation. f. Displayed when there is a malfunction to KOS.	If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the KOS (Refer to GROUP 42B –Diagnosis code chart P.42B-20).

Display content	Factor	Action procedure
a  AC609827AB b  AC609828AB	a. Displayed when the tire air pressure is an abnormality. b. Displayed when the TPMS is an abnormality.	If the warning screen is not displayed normally or erased, carry out the troubleshooting for the TPMS (Refer to GROUP 42B, Diagnosis P.42B-20).
a  AC509829AB b  AC509830AB	a. Displayed when the brake fluid amount is insufficient or a malfunction occurs to the brake device. b. Displayed if vehicle is driven with the parking brake engaged.	If the warning screen is not displayed normally or if the screen continues to be displayed, take the following measures for each displayed item. a. Check the brake fluid or brake device. b. Check the parking brake.
 AC509831	Displayed when a malfunction occurs to the anti-skid braking system (ABS).	If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the ABS (Refer to GROUP 35B –Trouble symptom chart P.35B-146).
 AC610018	If any of the doors or tailgate is not closed completely, the location of the ajar door is displayed with the sounding of buzzer.	If the door ajar warning buzzer does not sound, perform the troubleshooting for the door ajar warning buzzer (Refer to P.54A-64).
 AC509834	Displayed when overheated.	If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the engine (Refer to GROUP 13A –Trouble symptom chart P.13A-51).
a  AC509835AB b  AC509836AB	a. Displayed when the transmission oil temperature becomes high. b. Displayed when there is a malfunction to the CVT.	If the warning screen is not displayed normally or if the screen continues to be displayed, check the CVT diagnosis code (Refer to GROUP 23A, Diagnosis P.23A-29).

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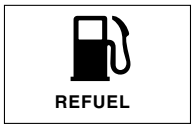
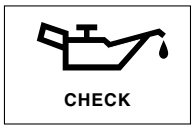
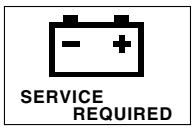
Display content	Factor	Action procedure
 AC509837	Displayed when the ignition switch is turned ON without the driver's seat belt fastened.	If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the seat belt reminder warning lamp (Refer to P.54A-66).
 AC509839	Displayed when the remaining fuel amount is small.	If the warning screen is not displayed normally or if the screen continues to be displayed, check the combination meter diagnosis code (Refer to P.54A-66).
 AC509840	Displayed when there is a malfunction to the engine oil circulation system.	If the warning screen is not displayed normally or if the screen continues to be displayed, check the engine oil amount.
 AC509841	Displayed when there is a malfunction to the charging system.	If the warning screen is not displayed normally or if the screen continues to be displayed, check the battery.
 AC509842	Displayed when there is a malfunction to the SRS air bag or to the pre-tensioner mechanism.	If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the SRS air bag/pre-tensioner mechanism warning lamp (Refer to GROUP 52B – Trouble symptom chart P.52B-339).
 AC509848	Displayed with the sounding of buzzer when the ambient temperature is 0° C or less.	If the freeze warning buzzer does not sound with the ambient temperature of 0° C or less, perform the troubleshooting for the freeze warning buzzer (Refer to P.54A-64).

OTHER SCREENS

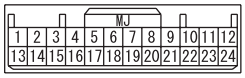
The screen displays the operation state of each system, periodic checkup timing, or timing for taking a rest during driving. If the screen display differs from the actual system operation state or if the screen is not displayed at the set timing, take measures according to the action procedure.

Display content	System operation state	Action procedure
 AC509849	Displayed when the set period elapses.	–
 AC509850	Displayed when the set time elapses.	–

CHECK AT ECU TERMINALS

M1540201200165

Connector: C-04



AC606907AD

Terminal No.	Check item	Check condition	Normal condition
1	ECU power supply (battery)	Always	Battery voltage
2	ECU power supply (Ignition switch: IG1)	Ignition switch: ON	Battery voltage
		Ignition switch: OFF	0 V
3	Meter information switch input	Meter information switch: ON	0 V
		Meter information switch: OFF	Approximately 5 V
4	Parking brake switch input	Parking brake switch: ON	0 V
		Parking brake switch: OFF	Approximately 5 V
5	Seat belt switch (driver's side) input	Seat belt switch (driver's side): ON	0 V
		Seat belt switch (driver's side): OFF	Approximately 5 V
6	Headlamp leveling	During headlamp leveling warning display	0 V
		Without headlamp leveling warning display	Approximately 5 V
7 to 12	–	–	–
13	Earth (sensor)	Always	0 V
14, 15	–	–	–
16	Seat belt switch (passenger's side) input	Seat belt switch (passenger's side): ON	0 V
		Seat belt switch (passenger's side): OFF	Approximately 5 V
17	Fuel level sensor input	Fuel: FULL	Approximately 1 V
		Fuel: EMPTY	Approximately 4 V

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Terminal No.	Check item	Check condition	Normal condition
18	Fuel level sensor input	Fuel: FULL	Approximately 1 V
		Fuel: EMPTY	Approximately 4 V
19	–	–	–
20	Vehicle speed signal output	Vehicle speed: Approximately 40 km/h	Approximately 28 Hz
		Vehicle speed change	In accordance with the vehicle speed, a pulse is generated.
21	Earth (ECU)	Always	0 V
22	Illumination (–) output	With daytime lighting control	0 V
		With nighttime lighting control	In accordance with the rheostat switch operation, a pulse is generated.
23	Illumination (+) output	With lighting control	Battery voltage
24	Illumination (power supply)	Always	Battery voltage

ON-VEHICLE SERVICE

SPEEDOMETER CHECK

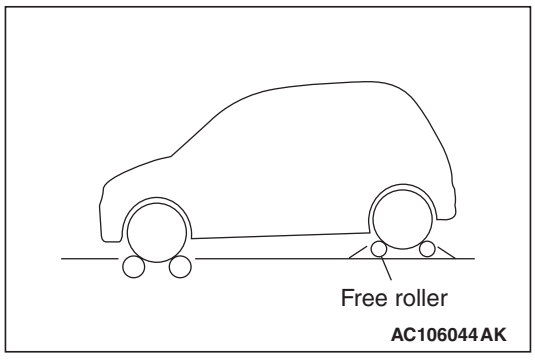
M1540201400181

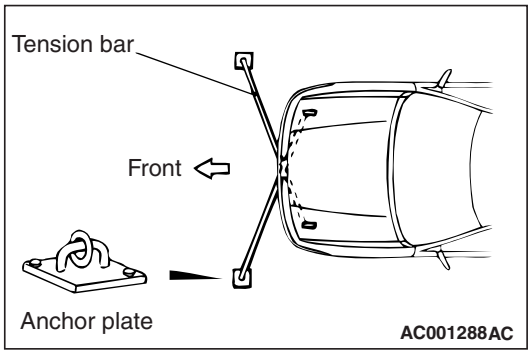
1. Adjust the pressure of tires to the specified level (Refer to GROUP 31, On-vehicle Service P.31-7).
2. Where applicable, ensure that the TPMS warning light is not illuminating or flashing.

⚠ CAUTION

Do not accelerate or decelerate suddenly during servicing work.

3. For FWD vehicles, set the vehicle onto a speedometer tester and use wheel chocks to hold the rear wheels.





4. To prevent the front wheel from moving from side to side, attach tension bars to the tie-down hook, and secure both ends to anchor plates.
5. To prevent the vehicle from moving, attach a chain or wire to the rear retraction hook, and make sure the end of the chain or wire is secured.
6. Check if the speedometer indicator range is within the standard values.

Standard value <Except vehicles for CANADA>:

Standard indication {mph (km/h)}	Allowance range {mph (km/h)}
10 (16)	8.5 –11.5 (13.6 –18.4)
25 (40)	23.5 –26.5 (37.6 –42.4)
50 (80)	48.5 –51.5 (77.6 –82.4)
75 (120)	73.5 –76.5 (117.6 –122.4)
100 (161)	98.5 –102.5 (158.6 –165.0)
125 (201)	123.5 –127.5 (198.6 –205.0)

Standard value <Vehicles for CANADA>:

standard indication {km/h (mph)}	Allowance range {km/h (mph)}
20 (12.4)	19 –24 (11.8 –14.9)
40 (24.8)	40 –44 (24.8 –27.3)
80 (49.7)	80 –85 (49.7 –52.8)
120 (74.6)	120.5 –125.5 (74.9 –78.0)
160 (99.4)	160.5 –165.5 (99.7 –102.8)
200 (124.3)	200.5 –207.0 (124.6 –128.6)

7. If not within the standard value, check the tire size. If an incorrect size of tire is used, replace it and check again. If the tire size is correct, a defect may be present in components and circuit between the output shaft speed sensor and the combination meter. Check the following items.
   - output shaft speed sensor (Refer to GROUP23A, Diagnosis P.23A-29).
   - Combination meter (refer to P.54A-23).

TACHOMETER CHECK

M1540201500177

When the actuator tests (item No.2) are performed using scan tool MB991958, check that the tachometer indication error is within the standard value.

NOTE: Values in ( ) indicates the reference value.

Standard value:

Engine speed (r/min)	Tachometer indicating error (r/min)
600	550 –650
(2,000)	(1,950 –2,050)
3,000	2,950 –3,050
(4,000)	(3,950 –4,050)
5,000	4,950 –5,050
6,000	5,950 –6,050
(7,000)	(6,950 –7,050)
(8,000)	(7,950 –8,050)

FUEL LEVEL SENSOR CHECK

M1540201600185

1. Remove the rear seat (Refer to GROUP 52A –Rear Seat Assembly P.52A-23).
2. Remove the floor inspection lid, and then remove the fuel pump module (Refer to GROUP 13B –Fuel Tank P.13B-9).

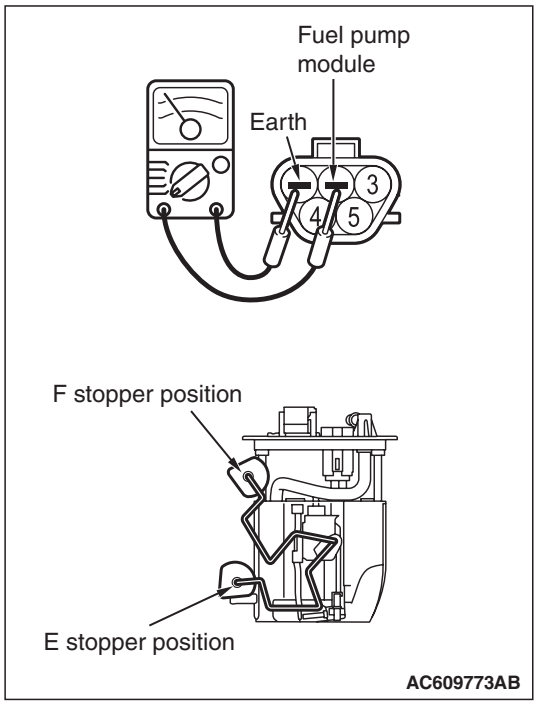
NOMINAL RESISTANCE OF THE FUEL LEVEL SENSOR

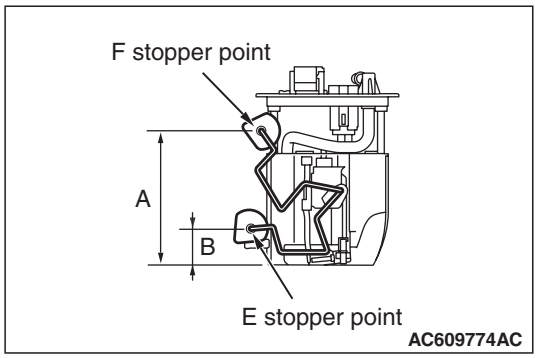
When float of the fuel level sensor is in stopper positions F and E, ensure that resistance between the fuel level sensor terminal and earth terminal is within the standard value.

Standard value:

Float position	Gauge resistance value (ohms)
Stopper position "F"	13.0 ±1.0
Stopper position "E"	120.0 ±1.0

When the float is moved slowly between stopper positions "F" and "E", ensure that the resistance is smoothly changing.



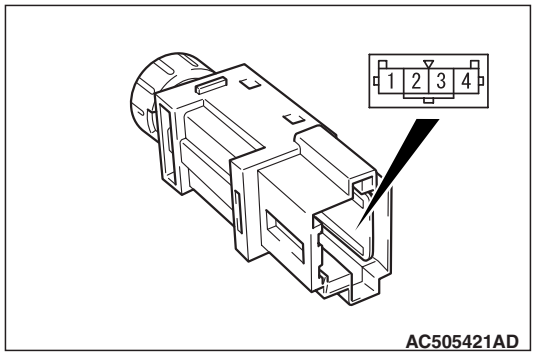


FUEL LEVEL SENSOR FLOAT HEIGHT

When float is moved to contact the float arm on the stopper, ensure that stopper positions "F" (height A) and "E" (height B) are within the standard value.

Standard value:

Float position	Float height {mm (in)}
Stopper position "F" (height A)	181.5 (7.1)
Stopper position "E" (height B)	26.7 (1.0)



METER INFORMATION SWITCH CHECK

M1540202000067

Switch position	Tester connection	Specified condition
Pressed	1-4	Continuity exists (2 ohms or less)
Released	1-4	Open circuit

SERVICE REMINDER FUNCTION SET

M1540208200155

HOW TO SET BY OPERATING THE SCAN TOOL MB991958

⚠ CAUTION

- **If the combination meter needs to be replaced, the current driving distance and elapsed days must be entered into the meter after the replacement in order to be used for service reminder function. Therefore, read "Integrated mileage for reminder," "Integrated days for reminder," "Mileage until Extra reminder," "Months until Extra reminder," and "Current schedule" from the meter before the replacement using the special function of the scan tool MB991958, and note them. If "Integrated mileage for reminder" or "Integrated days for reminder" cannot be read from the meter using the scan tool MB991958, use the following method.**
  a. **As for the driving distance for check warning, use the driving distance displayed on the multi information display.**
  b. **As for the elapsed days for check warning, calculate the number of elapsed days from the delivery date to the customer (service reminder function start date) and current date.**
- **After the service reminder function has started, when the elapsed days for check warning is reset for the vehicle whose battery is removed for a long period (15 days or more), calculate the elapsed days from the delivery date to the customer (service reminder function start date) and the current date, and then input it.**

Using the scan tool MB991958, the following service reminder functions can be set. Before setting, check the current status (schedule, driving distance and elapsed days).

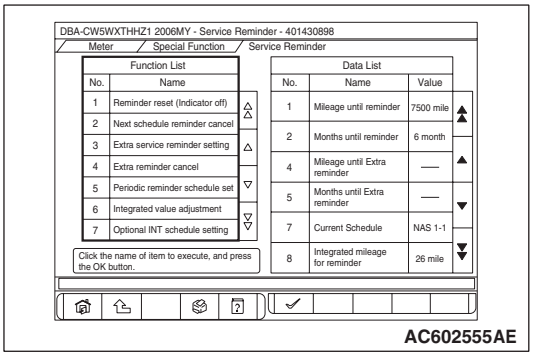
1. Reminder reset (Indicator off)
2. Next schedule reminder cancel
3. Extra reminder setting
4. Extra reminder cancel
5. Periodic reminder schedule set
6. Integrated value adjustment
7. Optional INT schedule setting

HOW TO OPERATE THE SCAN TOOL MB991958

⚠ CAUTION

Before setting, if the combination meter does not start measuring the elapsed time, turn the ignition switch to the ON position while pressing the meter information switch to start a measurement.

1. Connect the scan tool MB991958 to the data link connector.
2. Start the M.U.T.-III system on the PC and turn the ignition switch to the "ON" position.
3. Select "Meter" on the "System Select" screen, and press the "OK" button.
4. Select "Special Function" on the next screen.
5. Select "Service Reminder" on the "Special function" screen.
6. Select the function to be executed from "Function List."
   - 1 Reminder reset (Indicator off) (Refer to P.54A-83).
   - 2 Next schedule reminder cancel (Refer to P.54A-84).
   - 3 Extra reminder setting (Refer to P.54A-84).
   - 4 Extra reminder cancel (Refer to P.54A-85).
   - 5 Periodic reminder schedule set (Refer to P.54A-85).
   - 6 Integrated value adjustment (Refer to P.54A-86).
   - 7 Optional INT schedule setting (Refer to P.54A-87).



AC602555AE

1. REMINDER RESET (INDICATOR OFF)

⚠ CAUTION

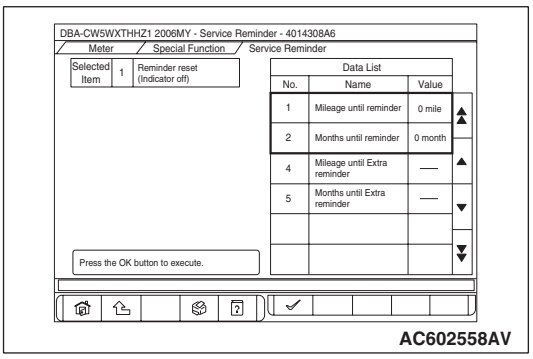
- **Be careful not to execute "1 Reminder reset (Indicator off)" again after erasing the service reminder warning indicator which is currently output, because the next warning period will be cancelled.**
- **If the next warning period is cancelled by mistake, the cancelled warning period can be restored by executing "5 Periodic reminder schedule set" to set a schedule different from the current one once, and then returning it to the previous schedule.**

The service reminder warning indicator which is currently output can be cancelled.

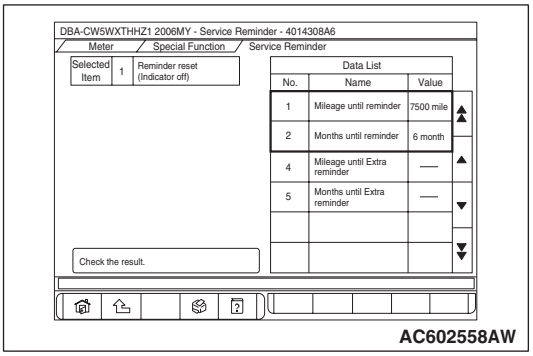
NOTE: In addition to the operation of the scan tool MB991958, the service reminder warning indicator can be cancelled by operating the meter information switch on the combination meter. Refer to P.54A-88.

1. On the "Service Reminder" screen, select "1 Reminder reset (Indicator off)."

   NOTE: The screen indicates that the warning period (Nos. 1 and 2 in the data list) is "0 mile." and "0 month."
2. Press the "OK" button.



AC602558AV



AC602558AW

3. The current warning indicator is cancelled, and the next warning period is displayed.

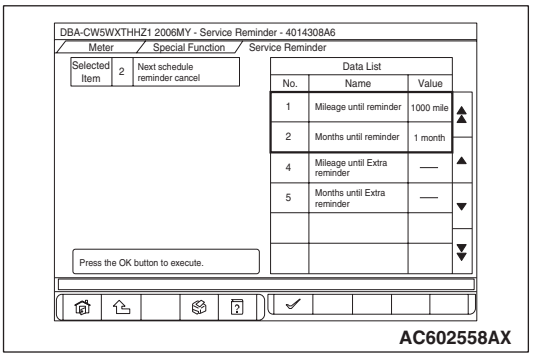
   NOTE: The screen indicates that the warning period (Nos. 1 and 2 in the data list) is "7,500 km" and "6 month."

2. NEXT SCHEDULE REMINDER CANCEL

⚠ CAUTION

If the next warning period is cancelled by mistake, the cancelled warning period can be restored by executing "5 Periodic reminder schedule set" to set a schedule different from the current one once, and then returning it to the previous schedule.

The next warning period is cancelled, and its following warning period can be set.

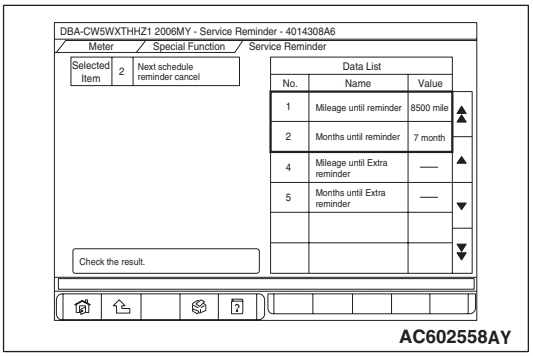


AC602558AX

1. On the "Service Reminder" screen, select "2 Next schedule reminder cancel."

   NOTE: The screen indicates that the warning period (Nos. 1 and 2 in the data list) is "1,000 mile" and "1 month."

2. Press the "OK" button.



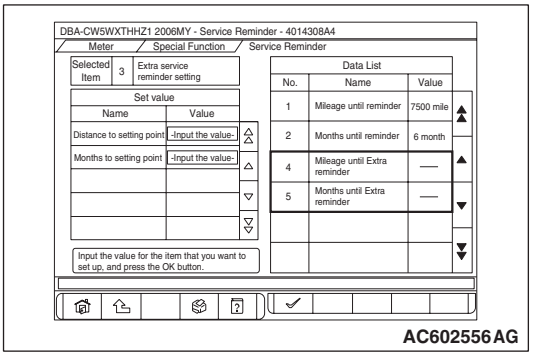
AC602558AY

3. The next warning period is cancelled, and its following warning period is set.

   NOTE: The screen indicates that the warning period (Nos. 1 and 2 in the data list) is changed to "8,500 km" and "7 month."

3. EXTRA REMINDER SETTING

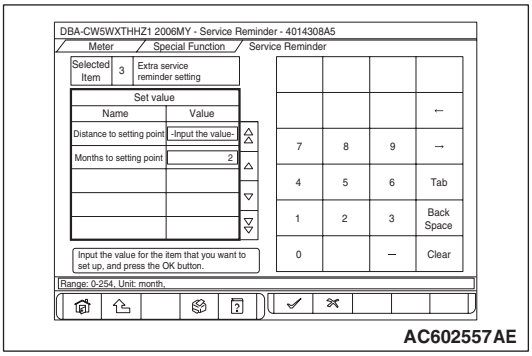
In addition to the current warning period, the temporary service reminder warning period can be set.



AC602556AG

1. On the "Service Reminder" screen, select "3 Extra reminder setting."

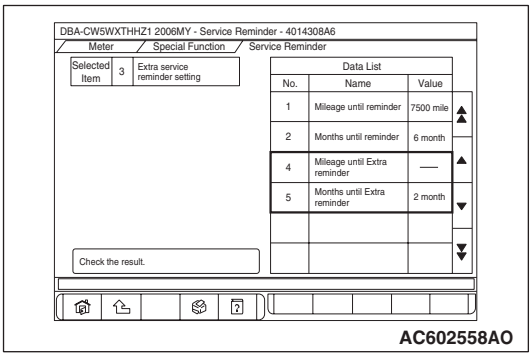
   NOTE: The screen indicates that the temporary warning period (Nos. 4 and 5 in the data list) has not been set.



AC602557AE

2. Set the temporary warning period (distance or month) of the "Set value."

   NOTE: Either input of distance or month can execute the setting.
3. Press the "OK" button.



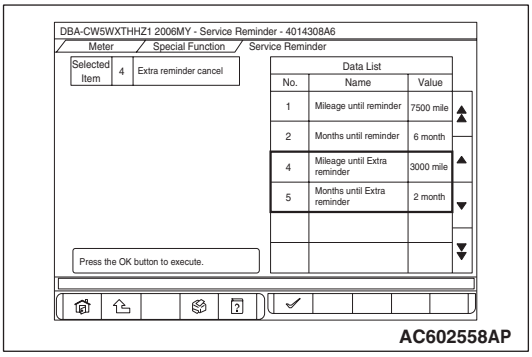
AC602558AO

4. The temporary warning period is set.

   NOTE: The screen indicates that "2 month" has been added to the temporary warning period (No. 5 in the data list). (The distance of No. 4 in the data list has not been set).

4. EXTRA REMINDER CANCEL

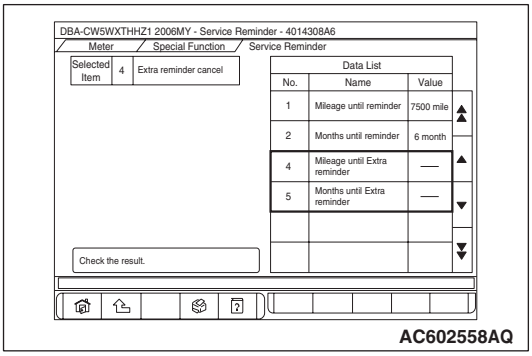
The temporary service reminder warning period which has been set can be cancelled.



AC602558AP

1. On the "Service Reminder" screen, select "4 Extra reminder cancel."

   NOTE: The screen indicates that "3000 mile" and "2 month" have been set to the temporary warning period (Nos. 4 and 5 in the data list).
2. Press the "OK" button.



AC602558AQ

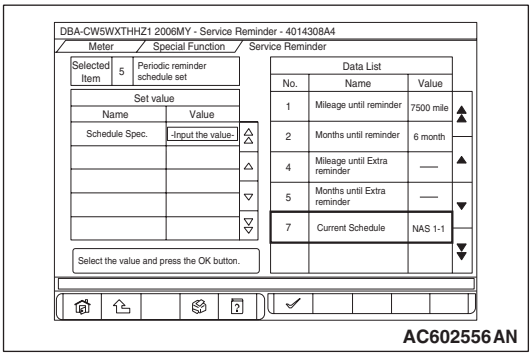
3. The temporary warning period is cancelled.

   NOTE: The screen indicates that the temporary warning period (Nos. 4 and 5 in the data list) has been cancelled.

5. PERIODIC REMINDER SCHEDULE SET

The service reminder schedule can be changed.

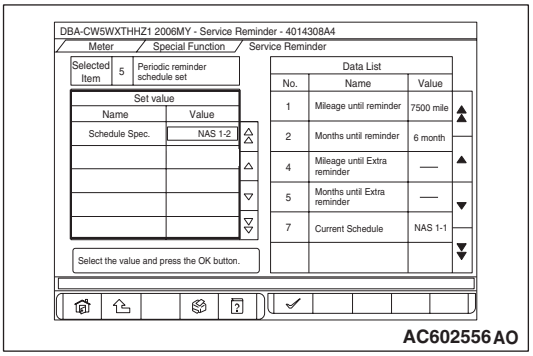
NOTE: In addition to the operation of the scan tool MB991958, the schedule can be changed by operating the meter information switch on the combination meter. Refer to P.54A-88.



AC602556AN

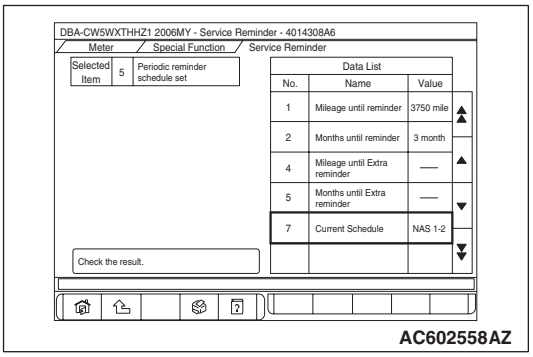
1. On the "Service Reminder" screen, select "5 Periodic reminder schedule set."

   NOTE: The screen indicates that the current schedule (No. 7 in the data list) has been set to "NAS 1-1."



AC602556AO

2. Set the schedule to be changed from "Set value."
3. Press the "OK" button.



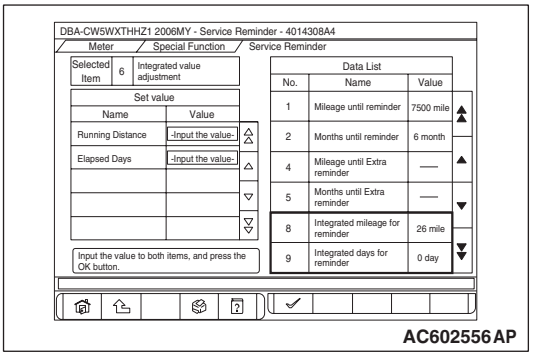
AC602558AZ

4. The schedule is changed.

   NOTE: The screen indicates that the current schedule (No. 7 in the data list) has been changed to "NAS 1-2."

6. INTEGRATED VALUE ADJUSTMENT

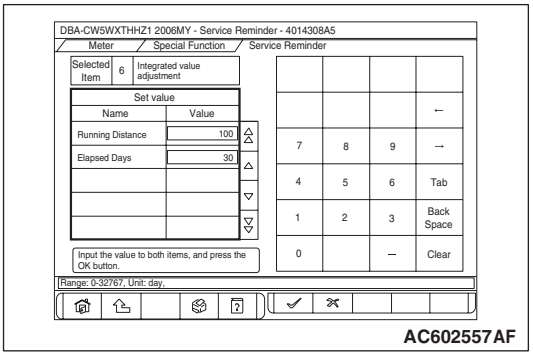
At the combination meter replacement or for the vehicle with its battery being removed for a long period (15 days or more), this adjustment is used to reset the mileage and elapsed days for check warning.



AC602556AP

1. On the "Service Reminder" screen, select "6 Integrated value adjustment."

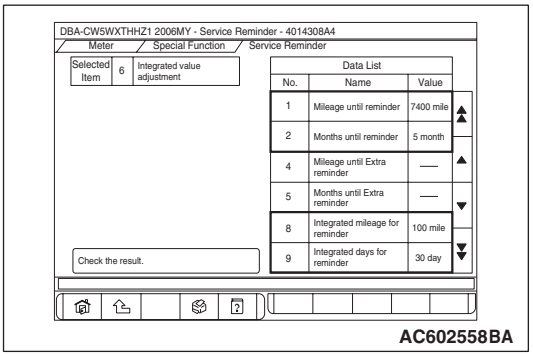
   NOTE: The screen indicates that the current mileage and elapsed days (Nos. 8 and 9 in the data list) are "26 mile" and "0 day."



AC602557AF

2. To "Set value," input the mileage and elapsed days to be reset.

   NOTE: Always input both the mileage and elapsed days.
3. Press the "OK" button.



AC602558BA

4. The mileage and elapsed days are changed. The combination meter automatically recalculates the distance and days to the nearest next check from the settings of mileage and elapsed days for check warning, and then displays them in "Data List."

   NOTE:
   - *The screen indicates that the current mileage and elapsed days (Nos. 8 and 9 in the data list) have been changed to "100 mile" and "30 day."*

- *Set the elapsed days for check warning to "0 day" by the above resetting method, thereby the timer is reset indirectly.*

7. OPTIONAL INT SCHEDULE SETTING

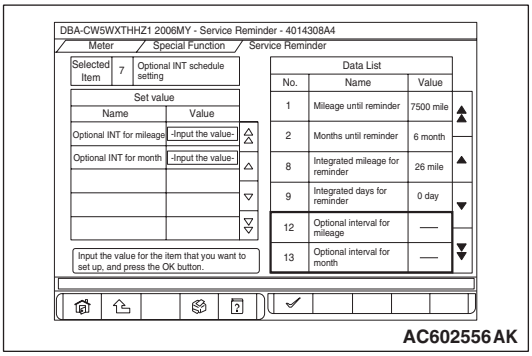
⚠ CAUTION

If the current schedule is set to the "Optional INT" by executing "5. Periodic reminder schedule set," the "set value" cannot be input. Therefore, set it to the schedule other than the "Optional INT" once, and then execute "7. Optional INT schedule setting."

In addition to the existing schedule, the optional service reminder schedule can be set.

1. On the "Service Reminder" screen, select "7 Optional INT schedule setting."

   NOTE: The screen indicates that the optional schedule (Nos. 12 and 13 in the data list) has not been set.

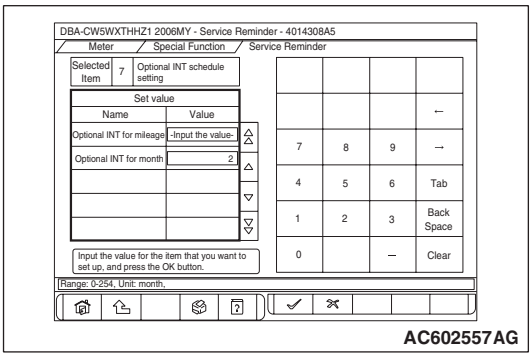


AC602556AK

2. Set the optional schedule (distance or month) of the "Set value."

   NOTE: Either input of distance or month can execute the setting.

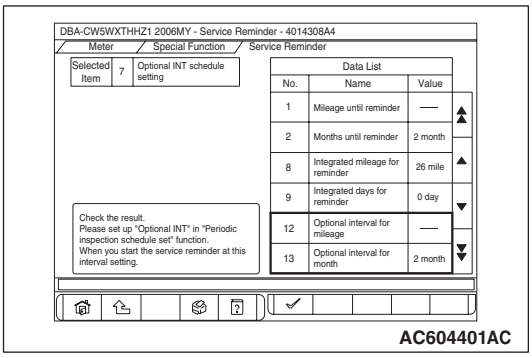
3. Press the "OK" button.



AC602557AG

4. The optional schedule is set. The set schedule becomes effective by executing "5 Periodic reminder schedule set" and setting the schedule to "Optional INT."

   NOTE: The screen indicates that "2 month" has been added to the optional schedule (No. 13 in the data list). (The distance of No. 12 in the data list has not been set).



AC604401AC

Relationship between the elapsed months and the elapsed days which are used by the service reminder function

Number of months	Number of days	Number of months	Number of days	Number of months	Number of days	Number of months	Number of days
1	30 –60	13	396 –425	25	761 –790	37	1,126 –1,156
2	61 –90	14	426 –456	26	791 –821	38	1,157 –1,186
3	91 –121	15	457 –486	27	822 –851	39	1,187 –1,217
4	122 –151	16	487 –516	28	852 –882	40	1,218 –1,247
5	152 –182	17	517 –547	29	883 –912	41	1,248 –1,277
6	183 –212	18	548 –577	30	913 –943	42	1,278 –1,308
7	213 –243	19	578 –608	31	944 –973	43	1,309 –1,338
8	244 –273	20	609 –638	32	974 –1,003	44	1,339 –1,369
9	274 –303	21	639 –669	33	1,004 –1,034	45	1,370 –1,399
10	304 –334	22	670 –699	34	1,035 –1,064	46	1,400 –1,430
11	335 –364	23	700 –730	35	1,065 –1,095	47	1,431 –1,460
12	365 –395	24	731 –760	36	1,096 –1,125	48	1,461 –1,491

NOTE:
- *When the number of elapsed days is 0 to 29, the number of elapsed months is 0.*
- *The combination meter performs calculation using 365.25 days for one year and 30.4375 days for one month.*

HOW TO SET BY SPECIAL OPERATION OF SWITCH

By operating the meter information switch of the combination meter, the service reminder warning cancellation and the schedule setting can be performed.

HOW TO CANCEL THE SERVICE REMINDER WARNING

⚠ CAUTION
- **Be careful not to execute the service reminder warning cancellation by operating the switch again after erasing the service reminder warning indicator which is currently output, because the next warning period will be cancelled.**
- **If the next warning period is cancelled by mistake, the cancelled warning period can be restored by setting a schedule different from the current one once, and then returning it to the previous schedule.**

1. Turn the ignition switch to the "OFF" position.
2. By operating the meter information switch, the warning period is displayed on the multi information display.
3. Press the meter information switch once for 1.2 seconds or longer.
4. The service reminder indicator flashes.
5. While the service reminder indicator flashes, press the meter information switch once for less than 1.2 seconds.
6. The service reminder indicator is turned ON, and "CLEAR" is displayed on the multi information display for 3 seconds.
7. After "CLEAR" is displayed for 3 seconds, the warning period to the next time is displayed.

HOW TO SET THE SCHEDULE

1. Turn the ignition switch to the "OFF" position.
2. By operating the meter information switch, the warning period is displayed on the multi information display.
3. Press the meter information switch once for 1.2 seconds or longer.
4. The service reminder indicator flashes.
5. While the service reminder indicator flashes, press the meter information switch for 1.2 seconds or longer and 3 times consecutively.
6. The service reminder indicator is turned ON, and the current schedule is displayed on the multi information display.
7. While the current schedule is displayed, press the meter information switch for less than 1.2 seconds and 3 times consecutively.

8. The multi information display is shifted to the schedule selection mode.
9. When the meter information switch is pressed for less than 1.2 seconds, the schedule is shifted, and when the meter information switch is pressed for 1.2 seconds or longer, the displayed schedule is set.

NOTE: For schedule, "JPN", "GCC/EXP", "EU" and "AUS" can also be selected. However, the setting shall be for "NAS" only.

10. The schedule set in Step 9 is displayed for 3 seconds, and the warning period to the next time is displayed.

SCHEDULE TABLE

Schedule	Contents of schedule	
NAS 10 (initial setting)	Elapsed time (month)	Every 6 elapsed months
	Driving distance (miles)	Every 7,500 miles of driving distance
	Driving distance (km)	Every 12,000 km of driving distance
NAS 11	Elapsed time (month)	Every 3 elapsed months
	Driving distance (miles)	Every 3,750 miles of driving distance
	Driving distance (km)	Every 6,000 km of driving distance
NAS 20	Elapsed time (month)	Every 5 elapsed months
	Driving distance (miles)	Every 5,000 miles of driving distance
	Driving distance (km)	Every 8,000 km of driving distance
NAS 21	Elapsed time (month)	Every 4 elapsed months
	Driving distance (miles)	Every 3,750 miles of driving distance
	Driving distance (km)	Every 6,000 km of driving distance
Optional INT	The optional schedule can be set. (Only M.U.T.-III can be set.)	
OFF Display	Without function. "OFF" is displayed on the multi information display.	
Function OFF	Without function (Only M.U.T.-III can be set.)	

NOTE: For schedule, "JPN", "GCC/EXP", "EU" and "AUS" can also be selected. However, the setting shall be for "NAS" only.

HOW TO INACTIVATE THE SERVICE REMINDER FUNCTION

By setting to "OFF Display" or "Function OFF" when the schedule is set, the service reminder function can be inactivated.

When "OFF Display" is selected

- Even if the service reminder screen is displayed by operating the meter information switch, "OFF" is displayed.

When "Function OFF" is selected

- Even when the check warning period is reached, the service reminder display is not displayed.
- Even with the meter information switch operation, the service reminder screen is not displayed.

COMBINATION METER

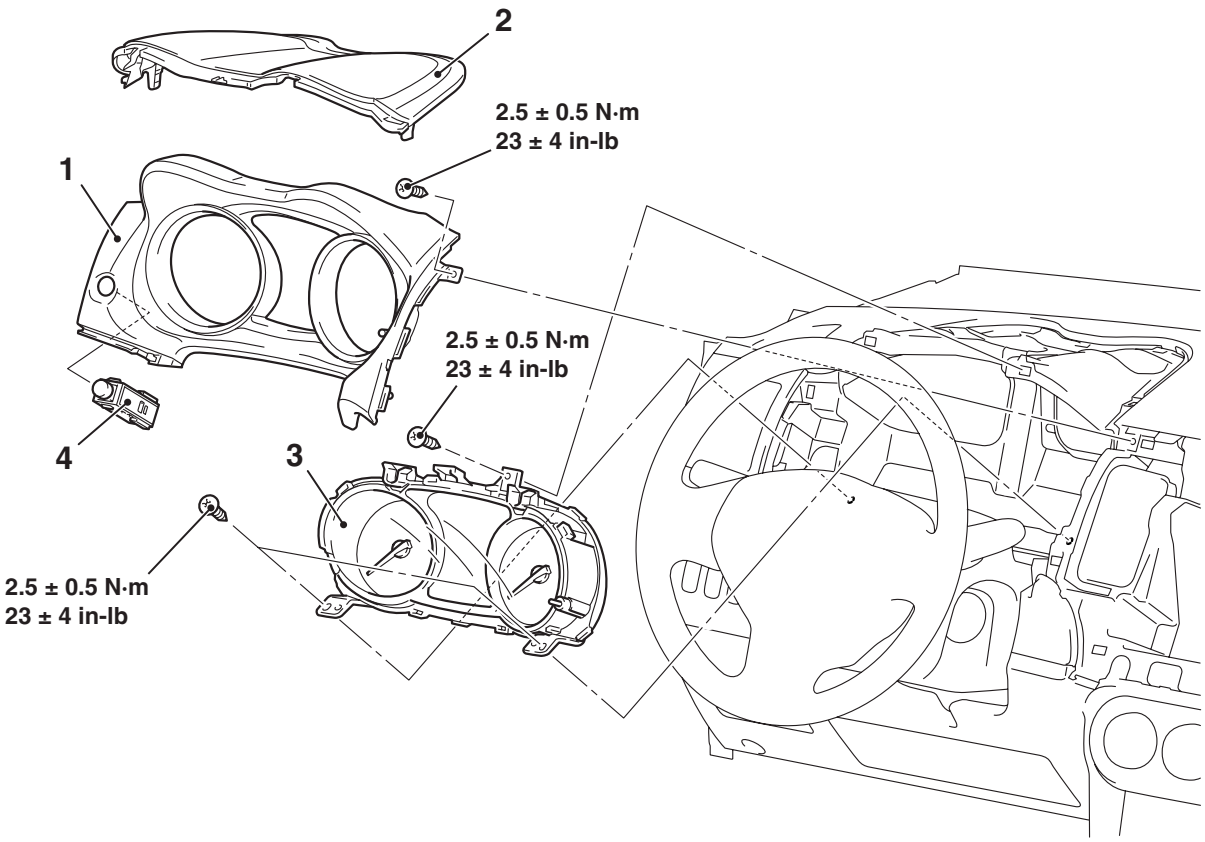
REMOVAL AND INSTALLATION

M1540201700160

⚠ CAUTION

When the combination meter is required to be replaced, the current driving distance and number of elapsed days must be entered into the meter after the replacement in order to be used for service reminder function. Therefore, read "Integrated mileage for reminder," "Integrated days for reminder," "Mileage until Extra reminder," "Months until Extra reminder," and "Current Schedule" from the meter before the replacement using the special function of scan tool MB991958, and note them. For the operation method of scan tool MB991958, refer to P.54A-82. If "Integrated mileage for reminder" or "Integrated days for reminder" cannot be read by the scan tool MB991958, follow the method described below.

- **For the driving distance for check warning, use the driving distance displayed on the multi information display.**
- **For the elapsed days for check warning, calculate the number of elapsed days from the delivery date to the customer (service remainder function start date) and current date.**



AC609711AB

Removal Steps

- Glove box side panel (Refer to GROUP 52A, Glove box P.52A-5).
- Instrument center panel (Refer to GROUP 52A, Instrument Center Panel P.52A-6).

Removal Steps (Continued)

- Instrument panel air outlet garnish lower (Left side) (Refer to GROUP 52A, Instrument lower Panel P.52A-7).
- Connection of meter information switch connector

1. Combination meter bezel
2. Instrument meter cluster panel

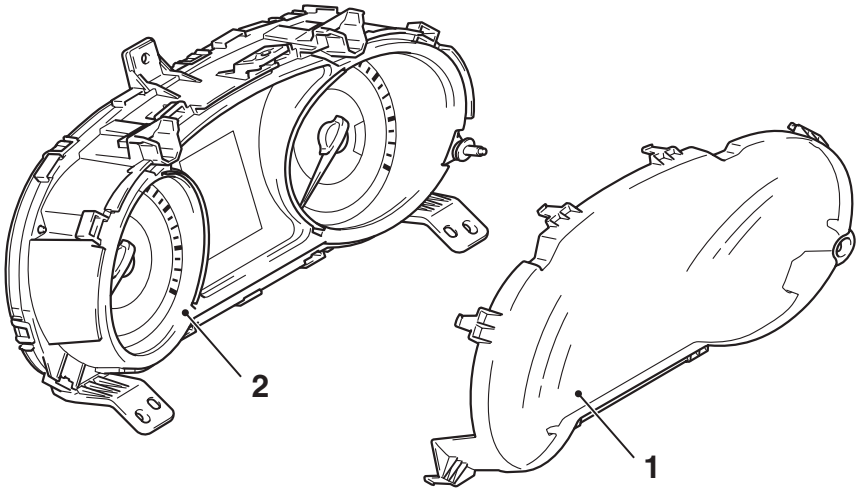
TSB Revision

Removal Steps (Continued)

3. Combination meter assembly
4. Meter information switch

DISASSEMBLY AND ASSEMBLY

M1540201800123



AC506448AB

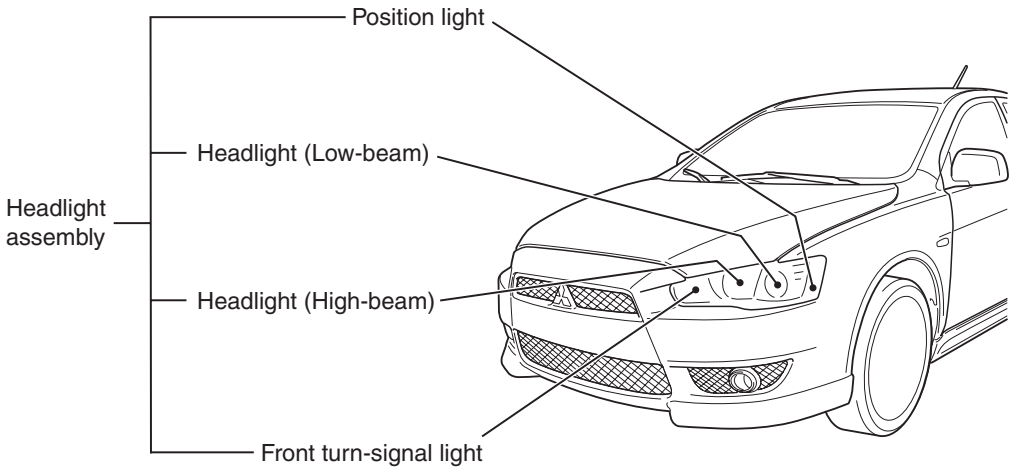
Disassembly steps

1. Combination meter glass
2. Combination meter

HEADLIGHT

GENERAL INFORMATION

M1542000100316



AC608726AC

For the headlight assembly, the four-headlight incorporating the front turn-signal light and the position light has been adopted. Also, the low-beam dimmer daytime running light has been equipped as a standard.

TSB Revision

SERVICE SPECIFICATIONS

M1540100200109

Item			Standard value	Limit
Headlight aiming [at 7.62 m (25.0 ft)]	Low-beam	Vertical direction	Horizontal line (H) ±50.5 mm (±2.0 inches) (±0.38 degrees angle)	–
		Horizontal direction	±126.4 mm (±5.0 inches) (±0.95 degrees angle) from the axis, which is 266.1 mm (10.5 inches) (2 degrees angle) rightward from the vertical line (V)	–
Headlight intensity cd (at high-beam)			–	40,000 or more {when a screen is set 18.3m(60 ft) ahead of the vehicle}

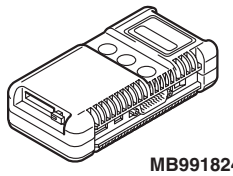
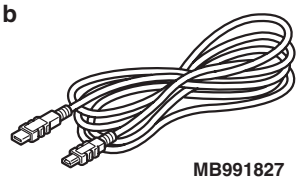
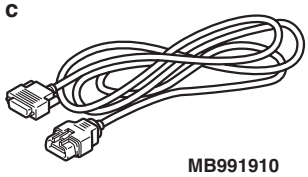
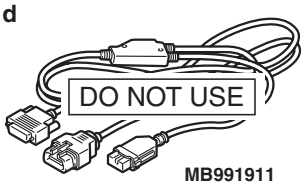
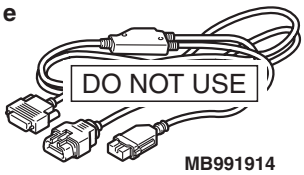
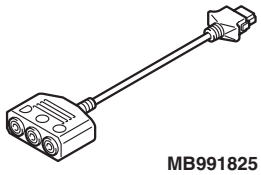
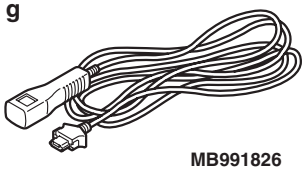
PRECAUTIONS ON HOW TO USE THE HEADLIGHT ASSEMBLY

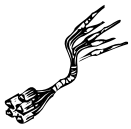
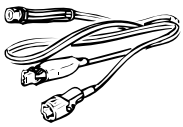
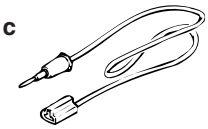
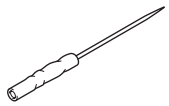
Be careful with the following items as resin lenses are used in the headlight assembly.

- Don't illuminate the headlight for three minutes or more when the headlight is covered with scratch protector.
- Don't tape the outer lens.
- Don't scratch the outer lens surface with a sharp edged special tool.
- Use the specified wax remover and rinse the wax off cleanly.
- Use the specified genuine bulb.

SPECIAL TOOLS

M1540104400116

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

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

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1540104200167

Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, Troubleshooting Contents P.00-6.

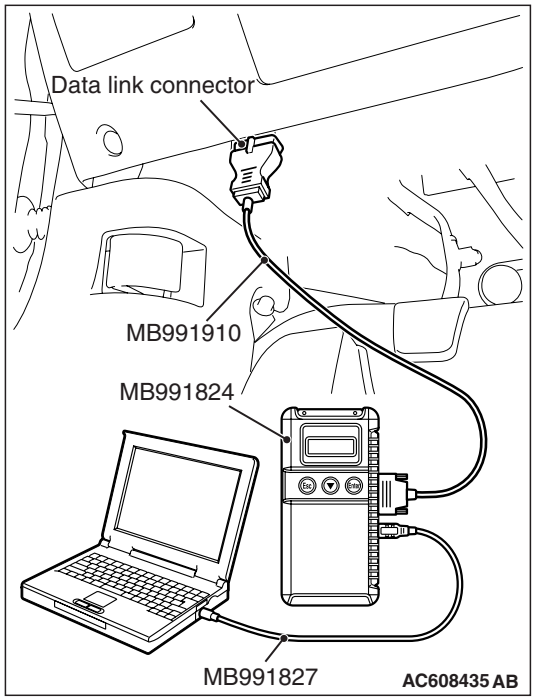
DIAGNOSTIC FUNCTION

M1540104300090

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

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)



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

MB991958: Scan Tool (M.U.T.-III Sub Assembly)
- MB991824: 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)

⚠ 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.

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

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

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

8. Choose "Erase DTCs" to erase the DTC.

DIAGNOSTIC TROUBLE CODE CHART

M1540101400065

⚠ 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.

Diagnostic trouble code No.	Diagnostic item	Reference page
B16A2	Blown turn-signal light (LH) bulb	P.54A-96
B16A3	Turn-signal light (LH) short circuit	P.54A-98
B16A4	Blown turn-signal light (RH) bulb	P.54A-102
B16A5	Turn-signal light (RH) short circuit	P.54A-104

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B16A2: Blown turn-signal light (LH) bulb

TROUBLE JUDGEMENT

When the left bulb of turn-signal light is blown, the ETACS-ECU sets DTC B16A2.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU sets DTC B16A2 under the following conditions.

- If there is a malfunction to the left turn-signal light bulb, the blown left bulb counter counts once when the illumination of hazard or turn-signal light (left side) is attempted.
- After the bulb counter reaches "3," DTC B16A2 is set.

TROUBLESHOOTING HINTS

- Malfunction of turn-signal light bulb (left)
- Malfunction of the ETACS-ECU

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)

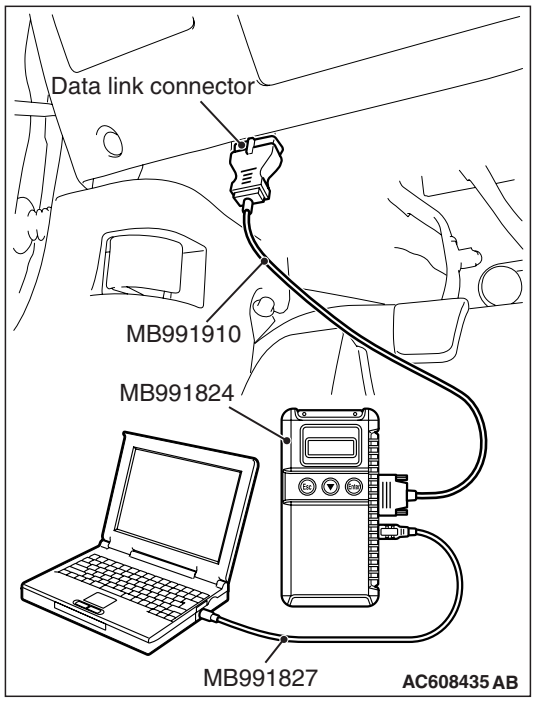
STEP 1. Bulb check.

Check whether the left turn-signal light illuminates normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the bulb of turn-signal light which does not illuminate.



STEP 2. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

⚠ CAUTION

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

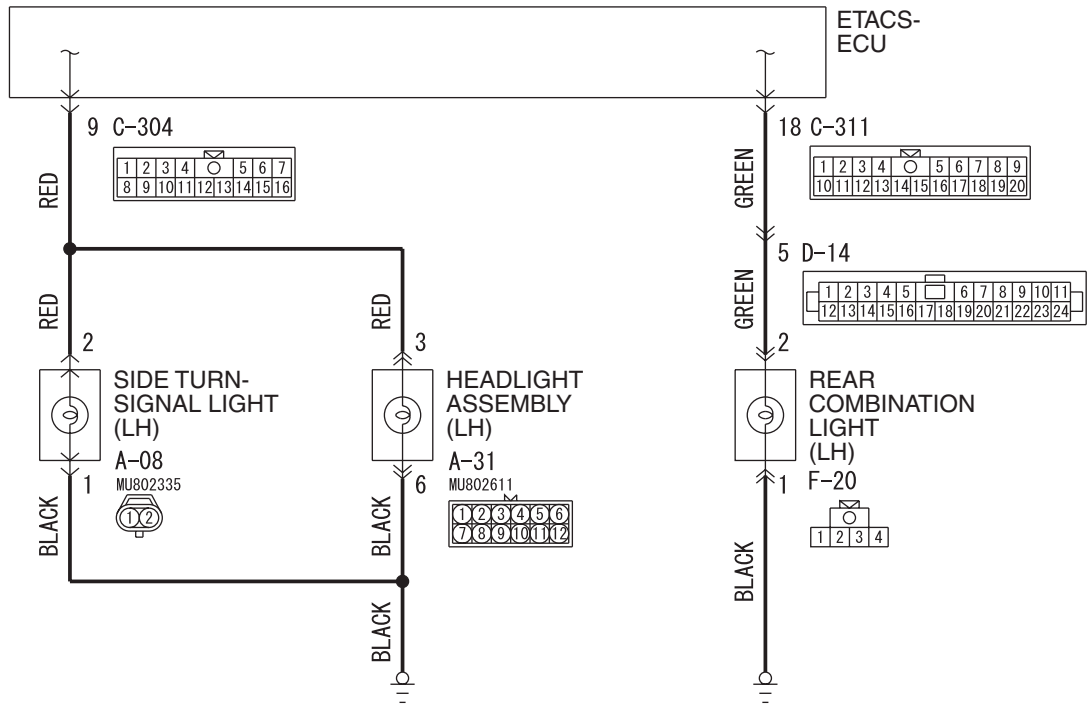
(1) Connect scan tool MB991958. Refer to "How to connect scan tool P.54A-94."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check whether the ETACS-ECU DTC is set.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The procedure is complete.

DTC B16A3: Turn-signal light (LH) short circuit

Turn-Signal Lights (LH) Circuit



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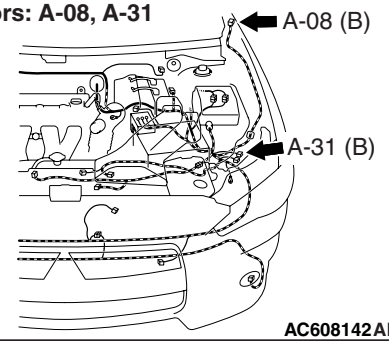
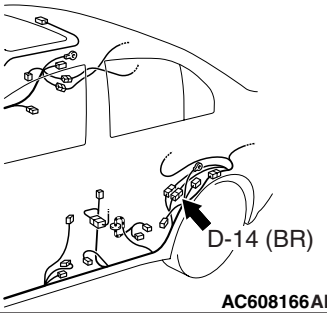
Connectors: A-08, A-31



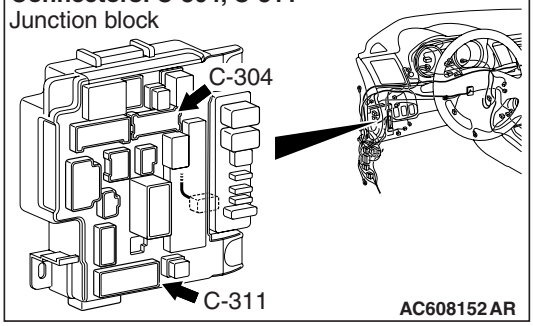
AC608142AK

Connector: D-14



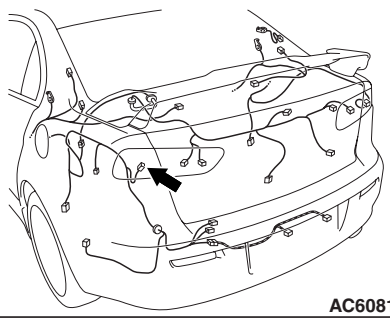
AC608166AH

Connectors: C-304, C-311
Junction block



AC608152AR

Connector: F-20



AC608171AO

TSB Revision

TROUBLE JUDGMENT

When the left wiring harness of turn-signal light is short circuited, the ETACS-ECU sets DTC B16A3.

TECHNICAL DESCRIPTION (COMMENT)

When the short circuit is detected three times consecutively, the ETACS-ECU sets the DTC B16A3.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- Malfunction of the ETACS-ECU

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- 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. Check headlight assembly (LH) connector A-31 <front>, side turn-signal light (LH) connector A-08 <side>, rear combination light (LH) connector F-20 <rear> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are headlight assembly (LH) connector A-31 <front>, side turn-signal light (LH) connector A-08 <side>, rear combination light (LH) connector F-20 <rear> in good condition?

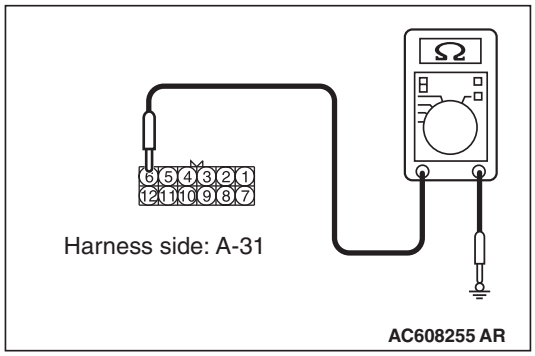
YES : Go to Step 2.

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

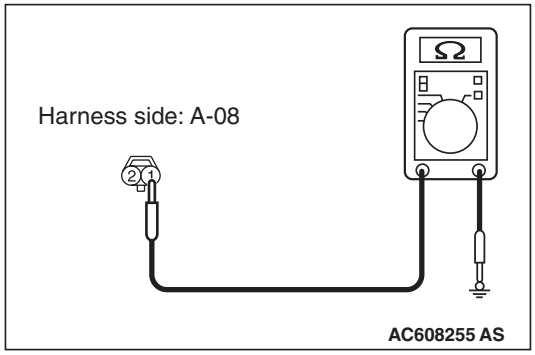
STEP 2. Resistance measurement at headlight assembly (LH) connector A-31 <front>, side turn-signal light (LH) connector A-08 <side>, and rear combination light (LH) connector F-20 <rear>.

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

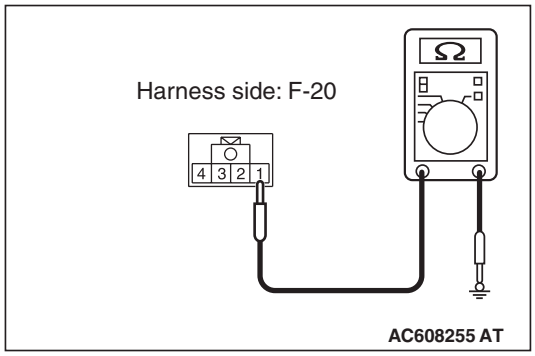
(2) Measure the resistance between the connector terminal of light which does not illuminate and ground.



- Measure the resistance between the headlight assembly (LH) connector A-31 (terminal 6) and body ground. <Front>



- Measure the resistance between side turn-signal light (LH) connector A-08 (terminal 1) and body ground. <Side>



- Measure the resistance between rear combination light (LH) connector F-20 (terminal 1) and body ground. <Rear>

OK: The measured value should be 2 Ω or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 4.

NO : Go to Step 3.

STEP 3. Check the wiring harness between headlight assembly (LH) connector A-31 (terminal 6) <front>, side turn-signal light (LH) connector A-08 (terminal 1) <side>, rear combination light (LH) connector F-20 (terminal 1) <rear> and ground.

- Check the ground wires for open circuit.

Q: Are the wiring harness between headlight assembly (LH) connector A-31 (terminal 6) <front>, side turn-signal light (LH) connector A-08 (terminal 1) <side>, rear combination light (LH) connector F-20 (terminal 1) <rear> and ground in good condition?

YES : Go to Step 6.

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

STEP 4. Check ETACS-ECU connectors C-304 and C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are ETACS-ECU connectors C-304 <front or side> and C-310 <rear> in good condition?

YES : Go to Step 5.

NO : Replace the bulb(s) of the light that does not illuminate.

STEP 5. Check the wiring harness between headlight assembly (LH) connector A-31 (terminal 3) <front>, side turn-signal light (LH) connector A-08 (terminal 2) <side>, rear combination light (LH) connector F-20 (terminal 2) <rear> and ETACS-ECU connector C-304 (terminal 9) <front or side> or C-311 (terminal 18) <rear>.

NOTE: Also check intermediate connector D-14 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- Check the communication line for open circuit.

Q: Are the wiring harness between headlight assembly (LH) connector A-31 (terminal 3) <front>, side turn-signal light (LH) connector A-08 (terminal 2) <side>, rear combination light (LH) connector F-20 (terminal 2) <rear> and ETACS-ECU connector C-304 (terminal 9) <front or side> or C-311 (terminal 18) <rear> in good condition?

YES : Go to Step 6.

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

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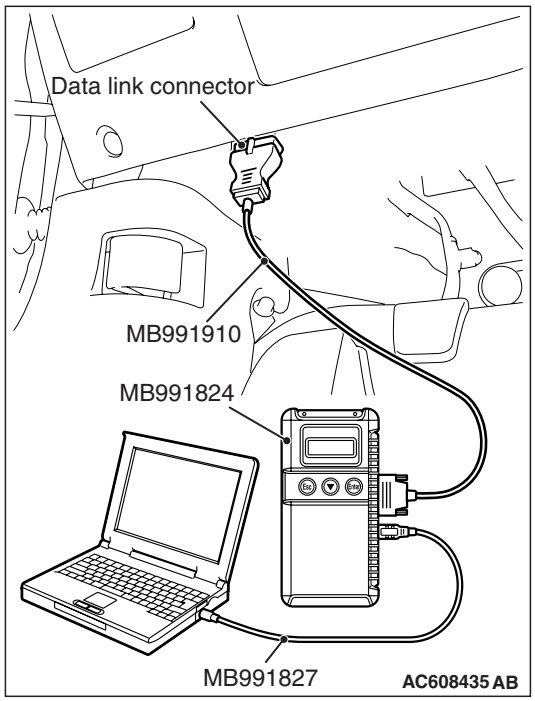


STEP 6. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan tool P.54A-94."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The procedure is complete.

DTC B16A4: Blown turn-signal light (RH) bulb

DIAGNOSTIC FUNCTION

When the right bulb of turn-signal light is blown, the ETACS-ECU sets DTC B16A4.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU sets DTC B16A4 under the following conditions.

- If there is a malfunction to the right turn-signal light bulb, the blown right bulb counter counts once when the illumination of hazard or turn-signal light (right side) is attempted.
- If the blown right bulb counter reaches "3," the DTC B16A4 is set.

TROUBLESHOOTING HINTS

- Malfunction of turn-signal light bulb (right side)
- Malfunction of the ETACS-ECU

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. Bulb check.

Check whether the bulb of turn-signal light which does not illuminate is normal.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the bulb of turn-signal light which does not illuminate.

STEP 2. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

⚠ CAUTION

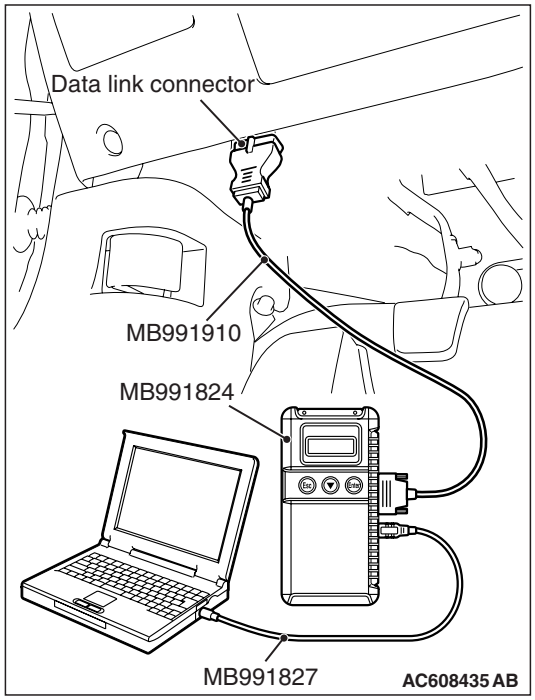
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool P.54A-94."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.

Q: Is the DTC set?

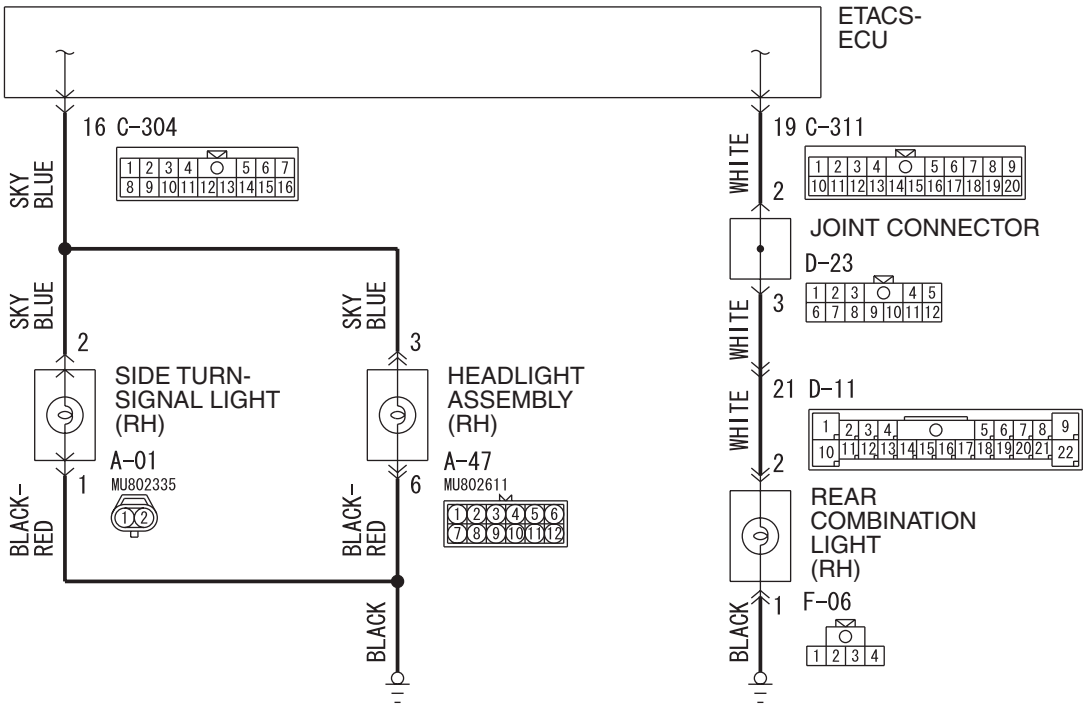
YES : Replace the ETACS-ECU.

NO : The procedure is complete.



DTC B16A5: Turn-signal light (RH) short circuit

Turn-Signal Lights (RH) Circuit



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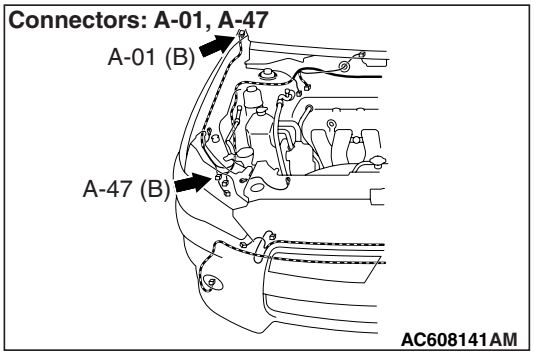
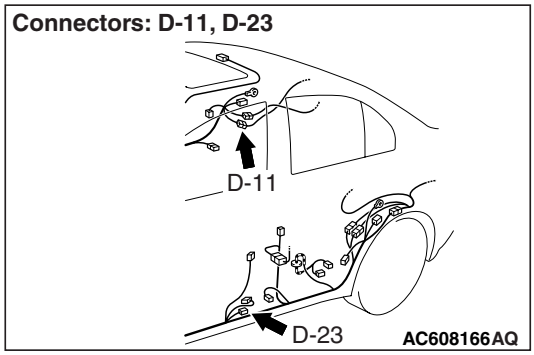
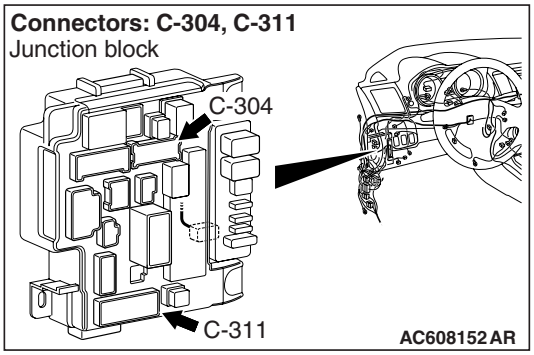
Connectors: A-01, A-47



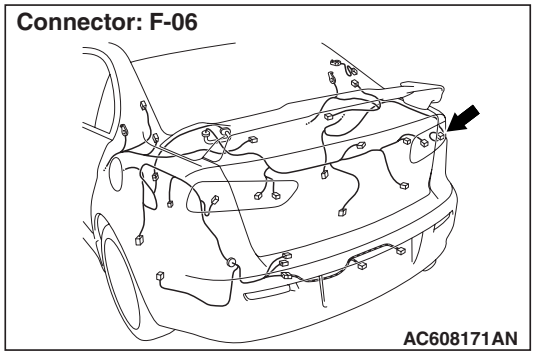
Connectors: D-11, D-23



Connectors: C-304, C-311
Junction block



Connector: F-06



TSB Revision

TROUBLE JUDGEMENT

When the right wiring harness of turn-signal light is short circuited, the ETACS-ECU sets DTC B16A5.

TECHNICAL DESCRIPTION (COMMENT)

When the short circuit is detected three times consecutively, the ETACS-ECU sets the DTC B16A5.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- Malfunction of the ETACS-ECU

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- 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. Check headlight assembly (RH) connector A-47 <front>, side turn-signal light (LH) connector A-01 <side>, rear combination light (LH) connector F-06 <rear> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are headlight assembly (RH) connector A-47 <front>, side turn-signal light (RH) connector A-01 <side>, rear combination light (LH) connector F-06 <rear> in good condition?

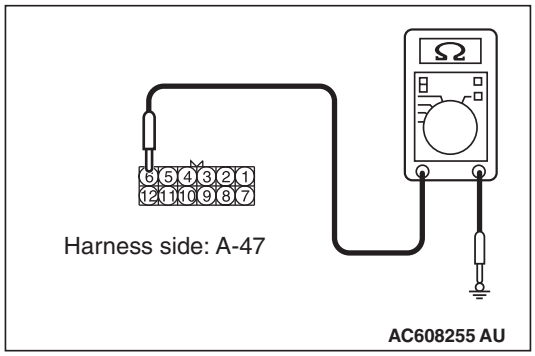
YES : Go to Step 2.

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

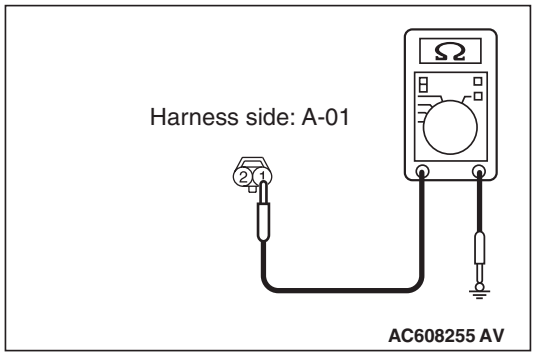
STEP 2. Resistance measurement at headlight assembly (RH) connector A-47 <front>, side turn-signal light (RH) connector A-01 <side>, and rear combination light (RH) connector F-06 <rear>.

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

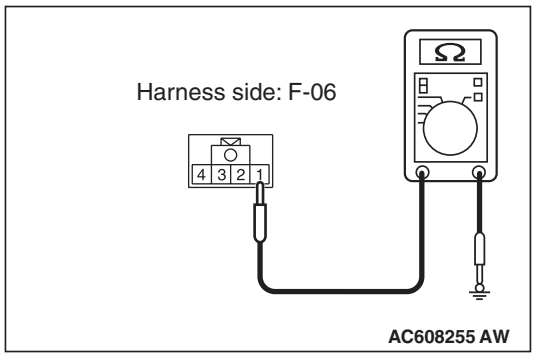
(2) Measure the resistance between the connector terminal of light which does not illuminate and body ground.



- Measure the resistance between the headlight assembly (RH) connector A-47 (terminal 6) and body ground. <Front>



- Measure the resistance between the side turn-signal light (RH) connector A-01 (terminal 1) and body ground. <side>



- Measure the resistance between the rear combination light (RH) connector F-06 (terminal 1) and body ground. <Rear>

  OK: The measured value should be continuity exists (2 ohm or less).

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check the wiring harness between headlight assembly (RH) connector A-47 (terminal 6) <front>, side turn-signal light (RH) connector A-01 (terminal 1) <side>, rear combination light (LH) connector F-06 (terminal 1) <rear> and ground.

- Check the ground wires for open circuit.

Q: Are the wiring harness between headlight assembly (RH) connector A-47 (terminal 6) <front>, side turn-signal light (RH) connector A-01 (terminal 1) <side>, rear combination light (RH) connector F-06 (terminal 1) <rear> and ground in good condition?

YES : Go to Step 6.

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

STEP 4. Check ETACS-ECU connectors C-304 and C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are ETACS-ECU connectors C-304 and C-311 in good condition?

YES : Go to Step 5.

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

STEP 5. Check the wiring harness between headlight assembly (RH) connector A-47 (terminal 3) <front>, side turn-signal light (RH) connector A-01 (terminal 2) <side>, rear combination light (RH) connector F-06 (terminal 2) <rear> and ETACS-ECU connector C-304 (terminal 16) <front or side> or C-311 (terminal 19) <rear>.

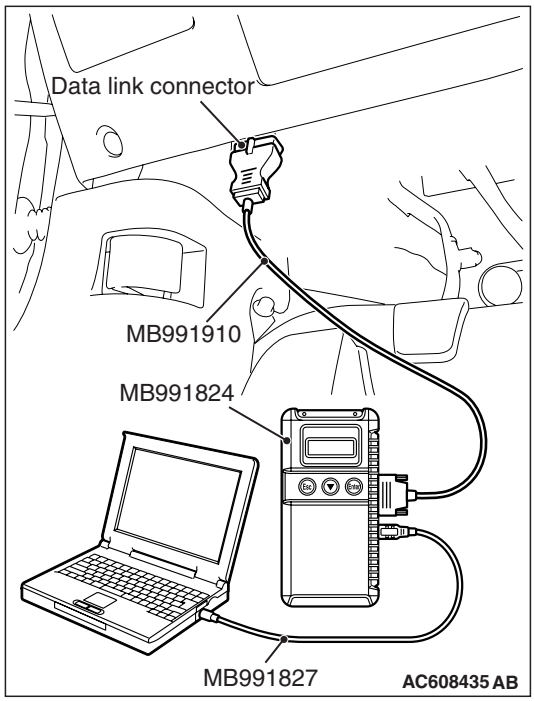
NOTE: Also check intermediate connector D-11 and joint connector D-23 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-11 or joint connector D-23 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- Check the communication line for open circuit.

Q: Are the wiring harness between headlight assembly (RH) connector A-47 (terminal 3) <front>, side turn-signal light (RH) connector A-01 (terminal 2) <side>, rear combination light (RH) connector F-06 (terminal 2) <rear> and ETACS-ECU connector C-304 (terminal 16) <front or side> or C-311 (terminal 19) <rear> in good condition?

YES : Go to Step 6.

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



STEP 6. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan tool P.54A-94."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The procedure is complete.

TROUBLE SYMPTOM CHART

M1540102100090

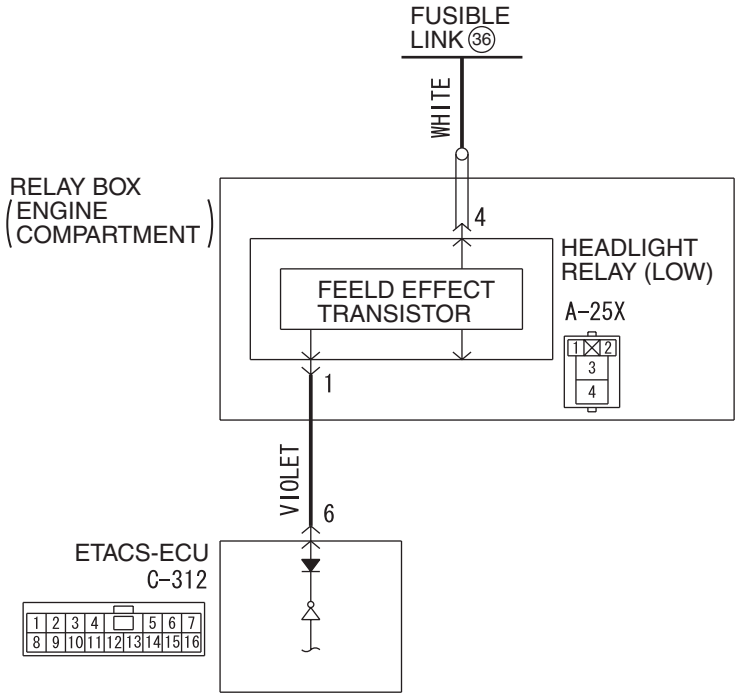
Inspection Procedure No.	Trouble symptom		Reference page
1	Headlight and taillight	Headlights (low-beam) do not illuminate..	P.54A-111
2		Headlights (high-beam) do not illuminate..	P.54A-115
3		The headlights do not illuminate when the lighting switch is at the "PASSING" position, but the low-beam illuminates (high-beam and low-beam cannot be changed) with the switch at the "HEAD" position.	P.54A-118
4		Headlights do not illuminate when the passing switch is operated.	P.54A-120
5		The headlight(s) do not illuminate.	P.54A-122
6		High-beam indicator light does not illuminate normally.	P.54A-125
7		The headlight automatic shutdown function does not work normally.	P.54A-127
8		Daytime running light function does not work normally.	P.54A-130
9		Any of position light, side marker lights or the license plate light do not illuminate.	P.54A-133
10	Turn-signal light	The turn-signal lights do not illuminate.	P.54A-140
11		The comfort flashing function does not work normally.	P.54A-142
12		The turn-signal indicator lights do not illuminate.	P.54A-144

SYMPTOM PROCEDURES

Inspection Procedure 1: Headlights (low-beam) do not illuminate.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Headlight Relay (Low-Beam) Circuit



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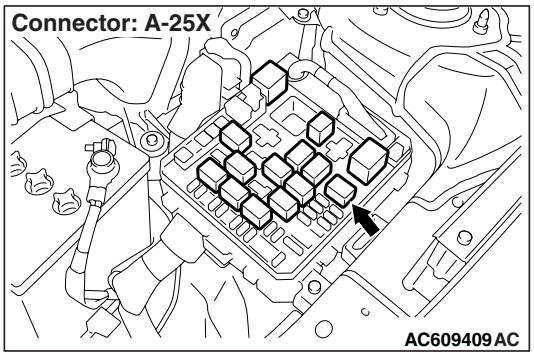
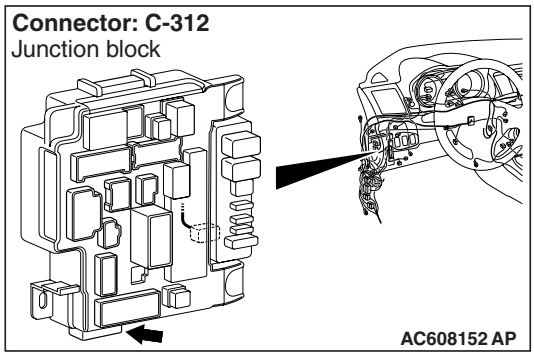




TECHNICAL DESCRIPTION (COMMENT)

If both headlights (low-beam) do not illuminate normally, the headlight switch input circuit, headlight relay (LOW), or ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

- Malfunction of column switch
- Malfunction of headlight relay (LOW)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

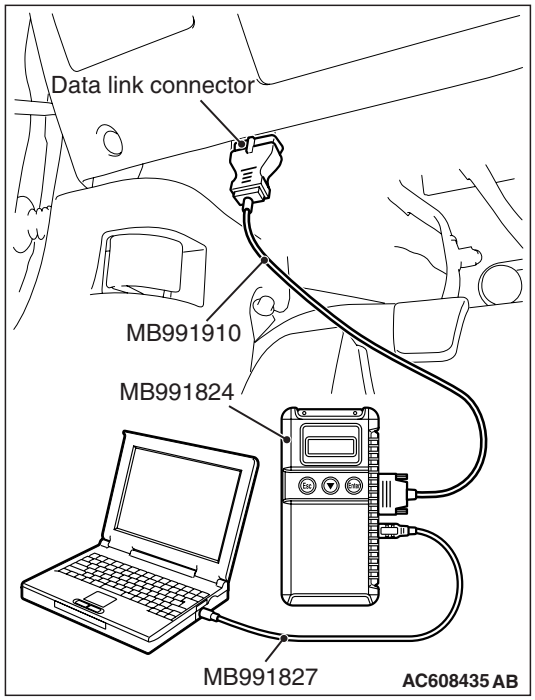
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-94."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-482.
NO : Go to Step 2.



STEP 2. Check headlight relay (LOW) connector A-25X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is headlight relay (LOW) connector A-25X in good condition?

YES : Go to Step 3.
NO : Repair the damaged parts.

STEP 3. Check of headlight relay (LOW).
Refer to P.54A-152.

Q: Is the headlight relay (LOW) in good condition?

YES : Go to Step 4.
NO : Replace the headlight relay (LOW). Verify that the low-beam headlights illuminate normally.

STEP 4. Check the battery power supply circuit to the headlight relay (LOW). Measure the voltage at headlight relay (LOW) connector A-25X.

⚠ CAUTION
The top and bottom of the headlight relay (LOW) are difficult to identify. Prior to inspection, confirm the triangle mark on the relay box.

(1) Disconnect headlight relay (LOW) connector A-25X and measure the voltage available at the relay box side of the connector.
(2) Measure the voltage between terminal 4 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 5.
NO : Go to Step 7.

STEP 5. Check ETACS-ECU connector C-312 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-312 in good condition?

YES : Go to Step 6.
NO : Repair the damaged parts.

STEP 6. Check the wiring harness between headlight relay (LOW) connector A-25X (terminal 1) and ETACS-ECU connector C-312 (terminal 6).

- Check the ground wires for open circuit.

Q: Is the wiring harness between headlight relay (LOW) connector A-25X (terminal 1) and ETACS-ECU connector C-312 (terminal 6) 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. Verify that the low-beam headlights illuminate normally.

STEP 7. Check the wiring harness between headlight relay (LOW) connector A-25X (terminal 4) and the fusible link (36).

- Check the power supply line for open circuit.

Q: Is the wiring harness between headlight relay (LOW) connector A-25X (terminal 4) and fusible link (36) 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. Verify that the low-beam headlights illuminate normally.

STEP 8. Check the column switch (switch body).

Refer to Column switch, Inspection P.54A-231.

Q: Is the column switch (switch body) in good condition?

YES : Go to Step 9.

NO : Replace the column switch. Verify that the low-beam headlights illuminate normally.

STEP 9. Retest the system

Q: Does the headlights (low-beam) do not illuminate in good condition?

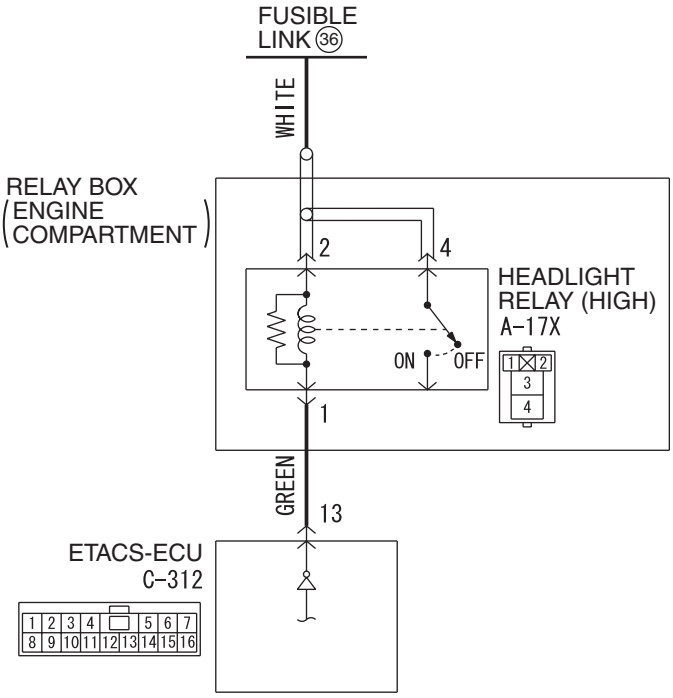
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

Inspection Procedure 2: Headlights (high-beam) do not illuminate.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Headlight Relay (High-Beam) Circuit



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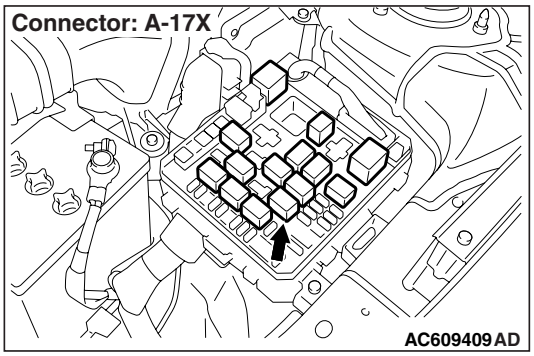
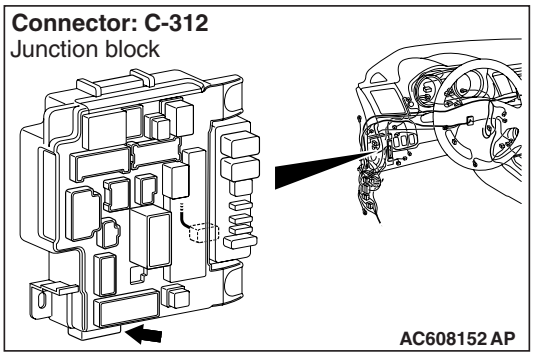




TECHNICAL DESCRIPTION (COMMENT)

If both headlights (high-beam) do not illuminate normally, the headlight switch input circuit, headlight relay (HIGH), or ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

- Malfunction of column switch
- Malfunction of headlight relay (HIGH)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

TSB Revision

DIAGNOSIS

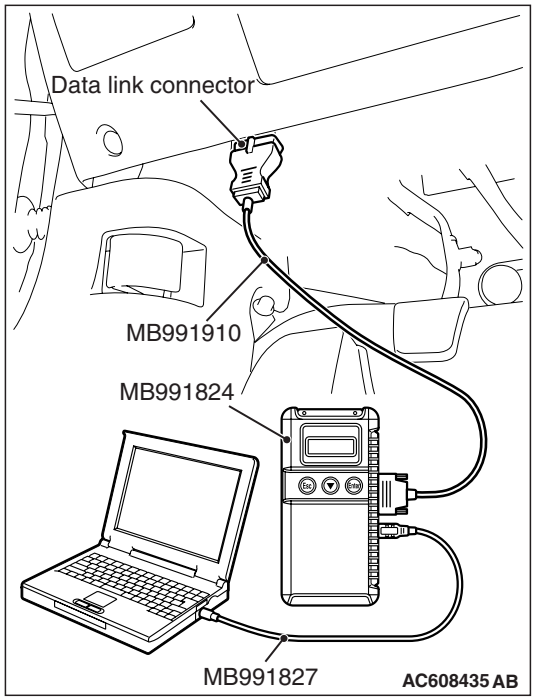
Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-94."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-482.
NO : Go to Step 2.

STEP 2. Check headlight relay (HIGH) connector A-17X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is headlight relay (HIGH) connector A-17X in good condition?

YES : Go to Step 3.
NO : Repair the damaged parts.

STEP 3. Check of headlight relay (HIGH)

Refer toP.54A-152.

Q: Is the headlight relay (HIGH) in good condition?

YES : Go to Step 4.
NO : Replace the headlight relay (HIGH). Verify that the high-beam headlights illuminate normally.

TSB Revision

STEP 4. Check the battery power supply circuit to the headlight relay (HIGH). Measure the voltage at headlight relay (HIGH) connector A-17X

⚠ CAUTION

The top and bottom of the headlight relay (HIGH) are difficult to identify. Prior to inspection, confirm the triangle mark on the relay box.

(1) Disconnect headlight relay (HIGH) connector A-17X and measure the voltage available at the relay box side of the connector.

(2) Measure the voltage between terminal 2 or 4 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 5.

NO : Go to Step 7.

STEP 5. Check ETACS-ECU connector C-312 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-312 in good condition?

YES : Go to Step 6.

NO : Repair the damaged parts.

STEP 6. Check the wiring harness between headlight relay (HIGH) connector A-17X (terminal 1) and ETACS-ECU connector C-312 (terminal 13).

- Check the ground wires for open circuit.

Q: Is the wiring harness between headlight relay (HIGH) connector A-17X (terminal 1) and ETACS-ECU connector C-312 (terminal 13) 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. Verify that the high-beam headlights illuminate normally.

STEP 7. Check the wiring harness between headlight relay (HIGH) connector A-17X (terminal 4) and the fusible link (36).

- Check the power supply line for open circuit.

Q: Is the wiring harness between headlight relay (HIGH) connector A-17X (terminal 4) and fusible link (36) 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. Verify that the high-beam headlights illuminate normally.

STEP 8. Check the column switch (switch body).

Refer to Column switch, Inspection P.54A-231.

Q: Is the column switch (switch body) in good condition?

YES : Go to Step 9.

NO : Replace the column switch. Verify that the high-beam headlights illuminate normally.

STEP 9. Retest the system

Q: Does the headlights (high-beam) do not illuminate 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.00-13).

NO : Replace the ETACS-ECU.

Inspection Procedure 3: The headlights do not illuminate when the lighting switch is at the "PASSING" position, but the low-beam illuminates (high-beam and low-beam cannot be changed) with the switch at the "HEAD" position.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

If the headlights illuminate only at low-beam regardless of the lighting switch position, the headlight fail-safe function may be active.

TROUBLESHOOTING HINTS

- Malfunction of column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

TSB Revision

DIAGNOSIS

Required Special Tools:

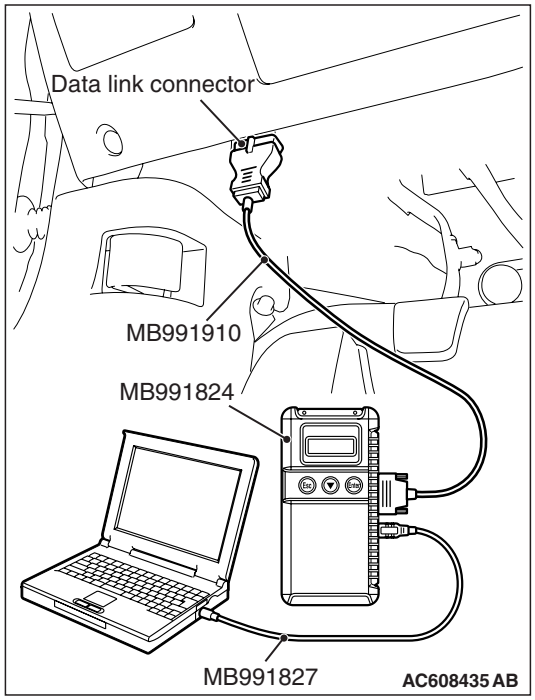
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-94."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.



Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-482.
NO : Go to Step 2.

STEP 2. Retest the system

Q: Do the headlights illuminate 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.00-13).
NO : Replace the ETACS-ECU.

Inspection Procedure 4: Headlights do not illuminate when the passing switch is operated.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

If both headlights (low-beam and high-beam) do not illuminate, the passing switch input circuit or ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

- Malfunction of column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness set
- 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)

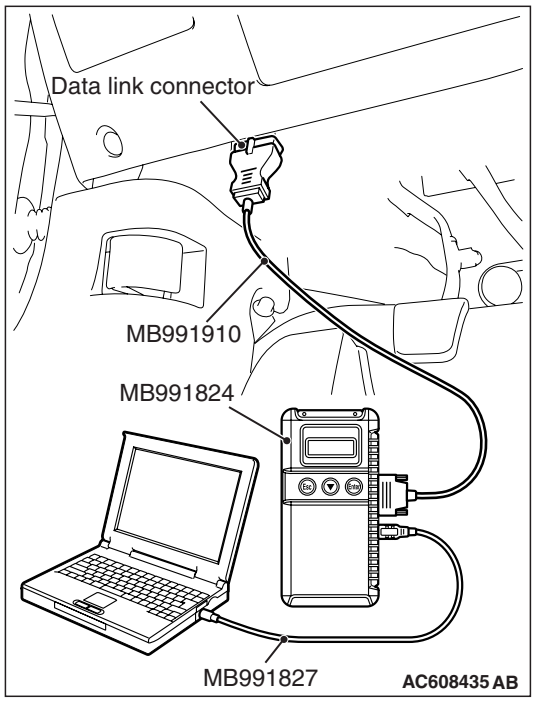
STEP 1. Check that the headlights operate.

Check that the low-beam and high-beam headlights illuminate normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure 1 "Headlights (low-beam) do not illuminate." P.54A-111 and Inspection Procedure 2 "Headlights (high-beam) do not illuminate." P.54A-115.



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-94."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-482.
NO : Go to Step 3.

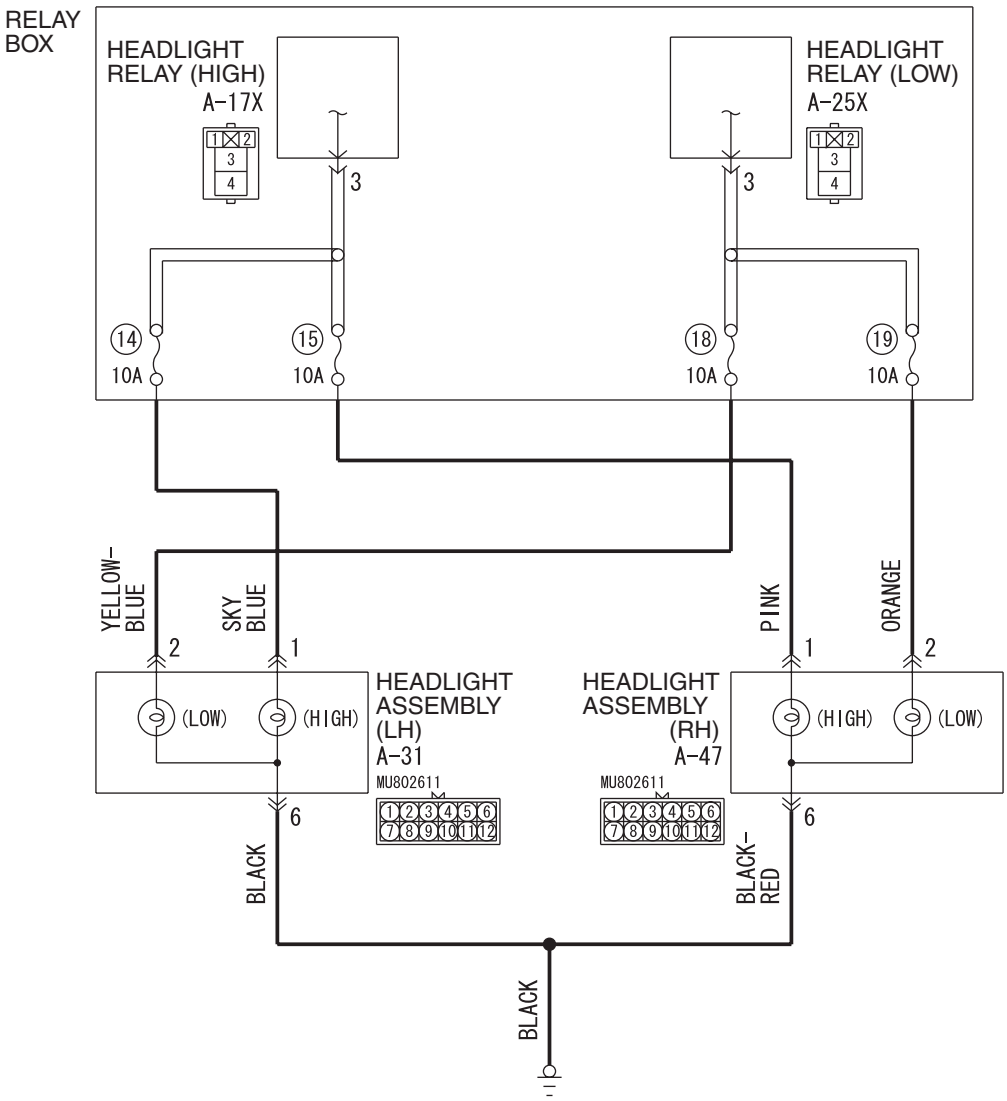
STEP 3. Retest the system

Q: Do the headlights (low-beam and high-beam) illuminate normally when turning ON the passing switch?

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.00-13).
NO : Replace the ETACS-ECU.

Inspection Procedure 5: The headlight(s) do not illuminate.

Headlights Circuit



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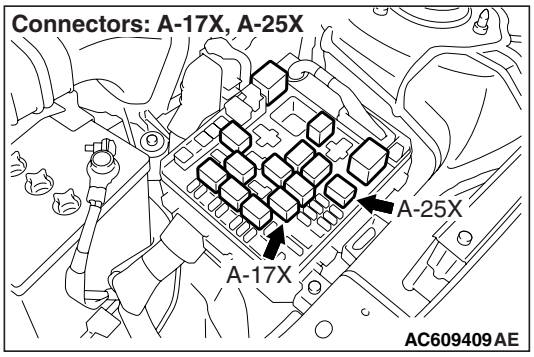

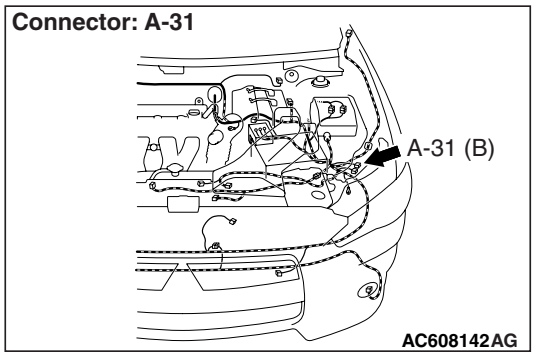

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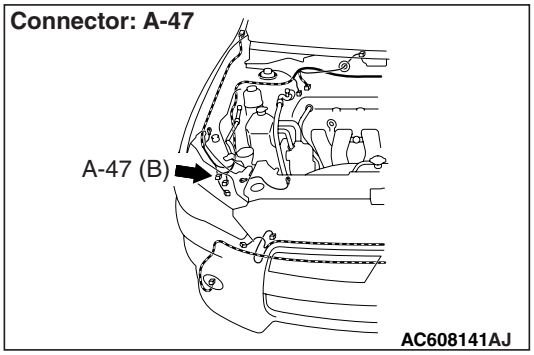


TROUBLESHOOTING HINTS

- Malfunction of the headlight bulbs
- Malfunction of the headlight assembly
- Damaged harness wires and connectors

TECHNICAL DESCRIPTION (COMMENT)

If any of the headlights do not illuminate, the wiring harness, connector(s), or the bulb may have a problem, or the fuse may be burned out.

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set

STEP 1. Check headlight assembly connector A-31 <LH> or A-47 <RH>, for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is headlight assembly connector A-31 <LH> or A-47 <RH> 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 bulb.

Check the bulb(s) of headlight that does not illuminate.

NOTE: If discharge-type lower beam headlights do not illuminate, their bulbs cannot be inspected. In this case, assume the bulbs to be normal and proceed with steps.

Q: Is the bulb in good condition?

YES : Go to Step 3.

NO : Replace the bulb(s) of the light that does not illuminate.

STEP 3. Check the wiring harness between headlight assembly connector and headlight relay connector.

Check the power supply line for open circuit.

- Check the wiring harness between headlight assembly (LH) connector A-31 (terminal 2) and headlight relay (LOW) connector A-25X (terminal 3). <LH-LOW>
- Check the wiring harness between headlight assembly (LH) connector A-31 (terminal 1) and headlight relay (HIGH) connector A-17X (terminal 3). <LH-HIGH>
- Check the wiring harness between headlight assembly (LH) connector A-31 (terminal 6) and ground. <LH-LOW and HIGH>
- Check the wiring harness between headlight assembly (RH) connector A-47 (terminal 2) and headlight relay (LOW) connector A-25X (terminal 3). <RH-LOW>
- Check the wiring harness between headlight assembly (RH) connector A-47 (terminal 1) and headlight relay (HIGH) connector A-17X (terminal 3). <RH-HIGH>
- Check the wiring harness between headlight assembly (RH) connector A-47 (terminal 6) and ground. <RH-LOW and HIGH>

Q: Is the wiring harness between headlight assembly connector and headlight relay connector in good condition?

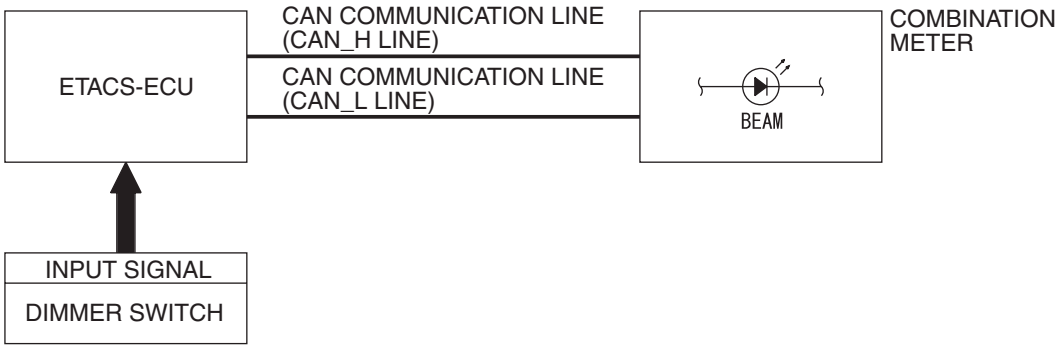
YES : Replace the headlight assembly that does not illuminate.

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. Verify that the headlights illuminate normally.

Inspection Procedure 6: High-beam indicator light does not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

High-Beam Indicator Light Circuit



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TECHNICAL DESCRIPTION (COMMENT)

If the high-beam indicator does not illuminate normally, the harness in the CAN bus lines, connector(s), ETACS-ECU, or combination meter may have a problem.

TROUBLESHOOTING HINTS

- Malfunction of the ETACS-ECU
- Malfunction of combination meter
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

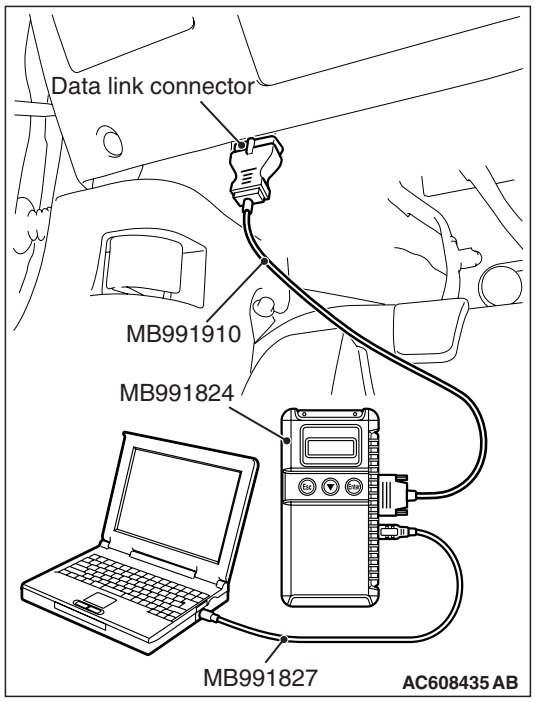
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Check of headlight (high-beam).

Check that the headlights (high-beam) illuminate/extinguish normally when the lighting switch is operated.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Refer to Inspection Procedure 2 "Headlights (high-beam) do not illuminate P.54A-115."



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 "How to connect the Scan Tool (M.U.T.-III) P.54A-94."
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 3.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16).

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-94."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-482.
NO : Go to Step 4.

STEP 4. Using scan tool MB991958, check actuator test.

(1) Turn the ignition switch to the "ON" position.
(2) Perform the actuator test for the combination meter, and check that the high-beam indicator light illuminates (Refer to combination meter P.54A-74).
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Replace the ETACS-ECU.
NO : Replace the combination meter.

Inspection Procedure 7: The headlight automatic shutdown function does not work normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

OPERATION

The ETACS-ECU operates this function in accordance with the input signals from column switch (lighting switch), ignition switch (IG1), and front door switch (LH).

TECHNICAL DESCRIPTION (COMMENT)

If the headlight automatic shutdown function does not work normally, the above described input circuits or ETACS-ECU may have a problem. Also, it may be possible that the headlight automatic shutdown function is set to "Disable" through configuration function.

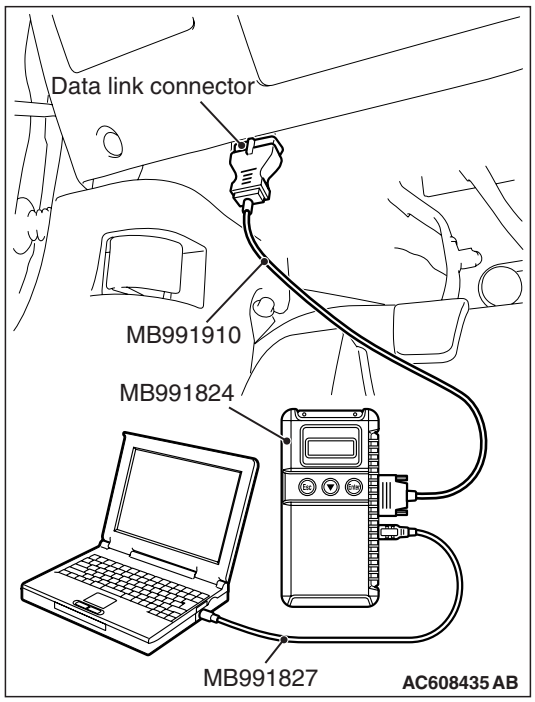
TROUBLESHOOTING HINTS

- Malfunction of front door switch (LH)
- Malfunction of the ETACS-ECU
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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



STEP 1. Using scan tool MB991958, Check the configuration function.

Use the ETACS-ECU configuration function to check that the "Head light auto cut customize" is set to "A-spec." or "D-spec."

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the scan tool (M.U.T.-III) P.54A-94."
(2) Turn the ignition switch to the "ON" position.
(3) Use the ETACS-ECU configuration function to check that the "Headlight auto cut customize" is set to "A-spec." or "D-spec".
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Use the ETACS-ECU configuration function to set the "Headlight auto cut customize" to "A-spec." or "D-spec." (Refer to P.54A-561).

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

(1) Turn the ignition switch to the "ON" position.
(2) Check whether the ETACS-ECU related DTC is set.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to ETACS, Diagnosis P.54A-482).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, check data list.

Use the ETACS-ECU service data to check the signals related to the operation of headlight automatic shutdown function.

- Turn the ignition switch to the LOCK (OFF) position.
- Illuminate the headlights.

Item No.	Item name	Normal condition
Item 206	Head light LO ON duty	100%
Item 254	IG voltage	Battery voltage

- Open the driver's door.

Item No.	Item name	Normal condition
Item 256	Dr door ajar switch	Open

Q: Does scan tool MB991958 display the items "Head light LO ON duty", "IG voltage" and "Dr door ajar switch" as normal condition?

YES : Go to Step 4.

NO : Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-528.

STEP 4. Retest the system

Check that the headlight automatic shutdown function works normally.

Q: Is the check result normal?

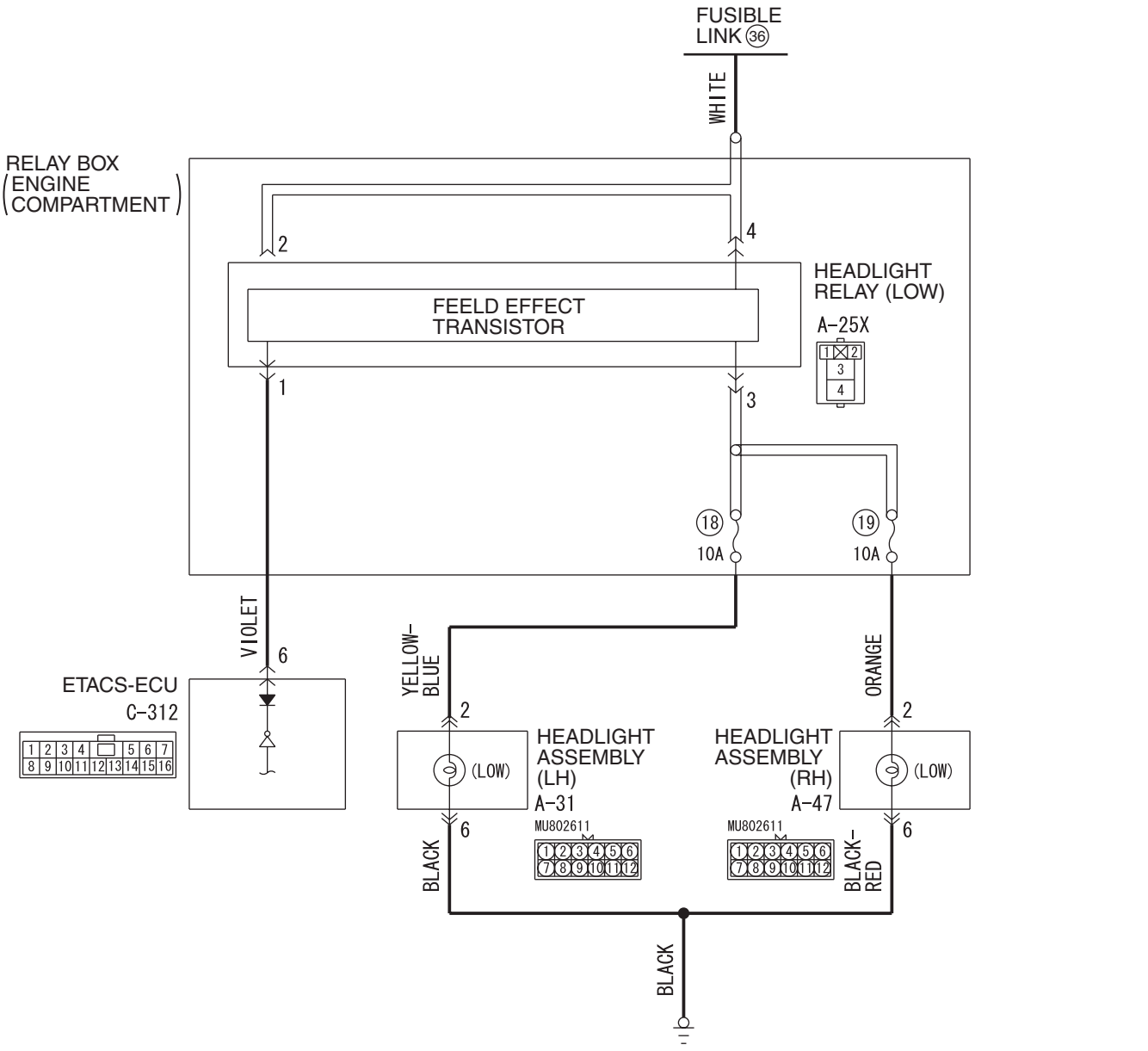
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

Inspection Procedure 8: Daytime running light function does not work normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Daytime Running Light Circuit



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TECHNICAL DESCRIPTION (COMMENT)

If the daytime running light function does not work, connector(s), wiring harness in the CAN bus lines, the engine control module, the combination meter, the ETACS-ECU or the input signal circuit may be defective.

TROUBLESHOOTING HINTS

- Trouble in input signal system
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

TSB Revision

DIAGNOSIS

Required Special Tools:

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

STEP 1. Verify the headlight (low-beam) operation.

Check to see that the headlight (low-beam) lights up properly when operating the dimmer switch while the headlight switch is ON.

Q: Do the headlights (low-beam) illuminate normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure 1 "Headlights (low-beam) do not illuminate normally P.54A-111."

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

⚠ CAUTION

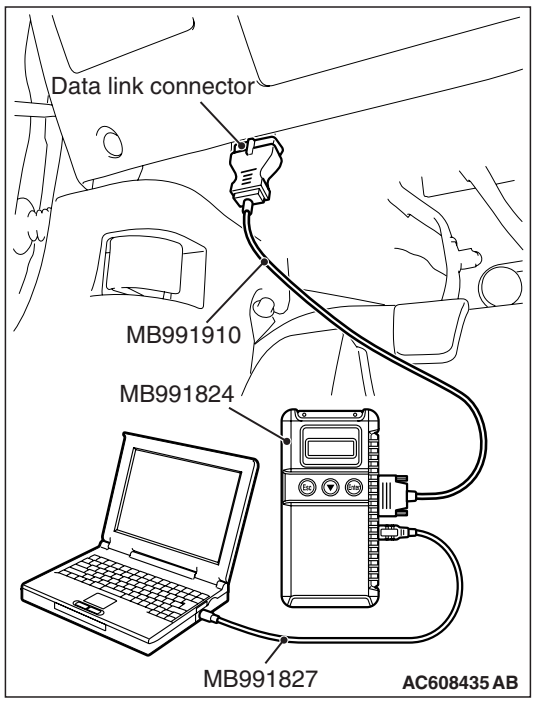
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-94."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



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

Check whether ETACS-ECU DTCs are set.
(1) Turn the ignition switch to the "ON" position.
(2) Check for ETACS-ECU DTCs.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-482.
NO : Go to Step 4.

STEP 4. Using scan tool MB991958, read the MFI system diagnostic trouble code.

Check whether engine control module DTCs are set or not.
(1) Turn the ignition switch to the "ON" position.
(2) Check for engine control module DTCs.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the MFI system. Refer to GROUP 13A, Diagnosis P.13A-46.
NO : Go to Step 5.

STEP 5. Check the parking brake switch.

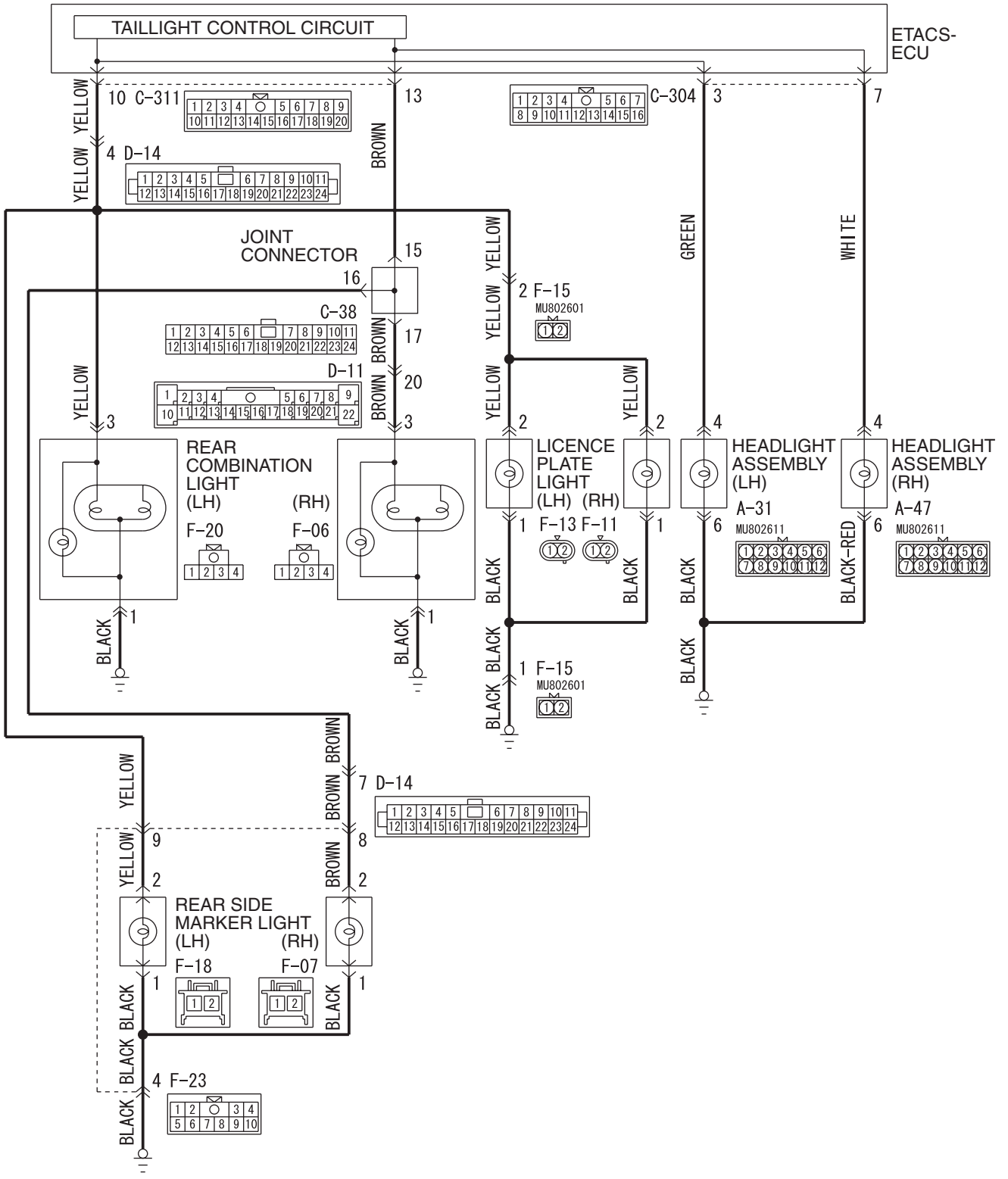
Check the input signals from the parking brake switch.
(1) Turn the ignition switch to the "ON" position.
(2) Check that the brake warning light on the combination meter goes off when the parking brake lever is released.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the brake warning light go off?

YES : Replace the ETACS-ECU. Verify that the daytime running light function does not work normally.
NO : Refer to GROUP 36, Diagnosis, Inspection Procedure 3 P.36-7. Verify that the daytime running light function does not work normally.

Inspection Procedure 9: Any of position light, side marker lights or the license plate light do not illuminate.

Position Lights, License Plate Lights and Rear Side Marker Lights Circuit



W8G54M033A

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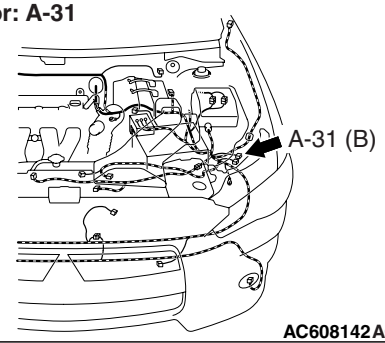
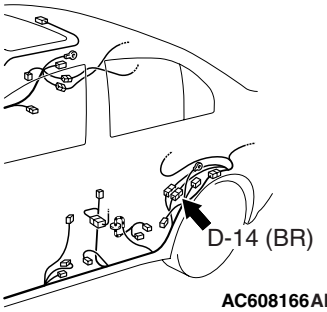
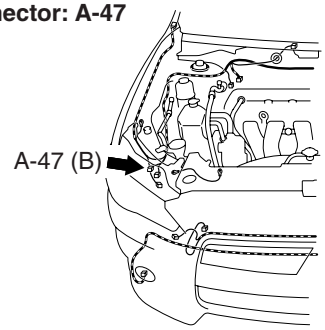
Connector: A-31



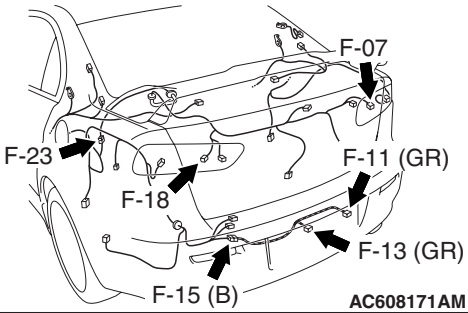
Connector: D-14



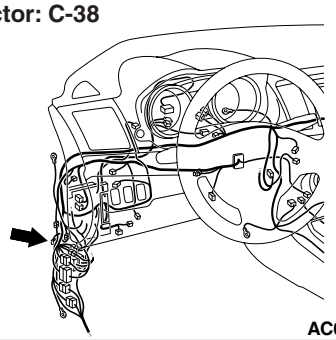
Connector: A-47



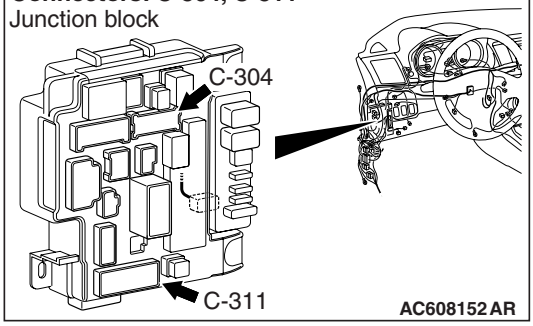
Connectors: F-07, F-11, F-13, F-15, F-18, F-23



Connector: C-38



Connectors: C-304, C-311
Junction block



TECHNICAL DESCRIPTION (COMMENT)

If any position light, side marker light or license plate light do not illuminate normally, the harness, connector(s), or bulb(s) may have a problem, or the fuse may be burned out.

TROUBLESHOOTING HINTS

- Malfunction of bulbs
- Malfunction of rear combination light
- Malfunction of rear combination light harness
- Malfunction of license plate light
- Malfunction of headlight
- Malfunction of rear side maker light
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set

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STEP 1. Rear combination light (taillight) check.

Q: Does the rear combination light (taillight) illuminate normally?

YES : Go to Step 2.
NO : Refer to P.54A-165.

STEP 2. Check headlight assembly connector A-31 (position light-LH) or A-47 (position light-RH), rear side marker light connector F-18 (LH) or F-07 (RH) or license plate light connector F-13 (LH) or F-11 (RH) for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is headlight assembly connector A-31 (position light-LH) or A-47 (position light-RH), rear side marker light connector F-18 (LH) or F-07 (RH) or license plate light connector F-13 (LH) or F-11 (RH) 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. Bulb check.
Check the bulb(s) of the light that does not illuminate.

Q: Is the check result normal?

YES : Go to Step 4.
NO : Replace the bulb(s) of the light that does not illuminate.

STEP 4. Resistance measurement at headlight assembly connector A-31 (position light-LH) or A-47 (position light-RH), rear side marker light connector F-18 (LH) or F-07 (RH) or license plate light connector F-13 (LH) or F-11 (RH) .

(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between the connector of light which does not illuminate and the body ground.
- Measure the resistance between headlight assembly connector A-31 (LH) or A-47 (RH) (terminal 6) and body ground.
- Measure the resistance between rear side marker light connector F-18 (LH) or F-07 (RH) (terminal 1) and body ground.
- Measure the resistance between license plate light connector F-13 (LH) or F-11 (RH) (terminal 1) and body ground.

OK: The measured value should be continuity exists (2 Ω or less).

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 6.
NO : Go to Step 5.

STEP 5. Check the wiring harness between headlight assembly connector, rear side marker light connector or license plate light connector and the body ground.

Check the ground line for open circuit.

- Check the wiring harness between headlight assembly (LH) connector A-31 (terminal 6) and the body ground. <position light-LH>
- Check the wiring harness between headlight assembly (RH) connector A-47 (terminal 6) and the body ground. <position light-RH>
- Check the wiring harness between rear side marker light (LH) connector F-18 (terminal 1) and the body ground. <rear side marker light-LH>

  NOTE: Also check intermediate connector F-23 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-23 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between rear side marker light (RH) connector F-07 (terminal 1) and the body ground. <rear side marker light-RH>

  NOTE: Also check intermediate connector F-23 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-23 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between license plate light (LH) connector F-13 (terminal 1) and the body ground. <license plate light-LH>

  NOTE: Also check intermediate connector F-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between license plate light (RH) connector F-11 (terminal 1) and the body ground. <license plate light-RH>

  NOTE: Also check intermediate connector F-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-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 headlight assembly connector, rear side marker light connector or license plate light connector and the body ground in good condition?

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

STEP 6. Check ETACS-ECU connector C-304 <position light> or C-311 <rear side marker light or license plate light> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-304 <position light> or C-311 <rear side marker light or license plate light> in good condition?

YES : Go to Step 7.
NO : Repair the damaged parts.

STEP 7. Check wiring harness between headlight assembly connector, rear side marker light connector or license plate light connector and ETACS-ECU connector.
Check the ground line for open circuit.

- Check the wiring harness between headlight assembly (LH) connector A-31 (terminal 4) and ETACS-ECU connector C-304 (terminal 3). <position light-LH>
- Check the wiring harness between headlight assembly (RH) connector A-47 (terminal 4) and ETACS-ECU connector C-304 (terminal 7). <position light-RH>
- Check the wiring harness between rear side marker light (LH) connector F-18 (terminal 2) and ETACS-ECU connector C-311 (terminal 10). <rear side marker light-LH>

  NOTE: Also check intermediate connectors D-14 and F-23 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 or F-23 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between rear side marker light (RH) connector F-07 (terminal 2) and ETACS-ECU connector C-311 (terminal 13). <rear side marker light-RH>

  NOTE: Also check intermediate connectors D-14 and F-23 and joint connector C-38 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 or F-23 or joint connector C-38 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between license plate light (LH) connector F-13 (terminal 2) and ETACS-ECU connector C-311 (terminal 10). <license plate light-LH>

  NOTE: Also check intermediate connectors D-14 and F-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 or F-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between license plate light (RH) connector F-11 (terminal 2) and ETACS-ECU connector C-311 (terminal 13). <license plate light-RH>

  NOTE: Also check intermediate connectors D-14 and F-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 or F-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 headlight assembly connector, rear side marker light connector or license plate light connector and ETACS-ECU connector in good condition?

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

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STEP 8. Retest the system.
Check that the position light, rear side marker light, or license plate light illuminate normally.

Q: Do the position light, rear side marker light, or license plate light work normally?

YES (The light illuminate normally at both high and low beams.) : 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.00-13).

NO <When the position light does not illuminate> : Replace the position light socket.

NO <When the license plate light does not illuminate> : Replace the license plate light socket.

NO <When the rear side marker lights do not illuminate> : Replace the rear side maker light socket.

Inspection Procedure 10: The turn-signal lights do not illuminate.

TECHNICAL DESCRIPTION (COMMENT)

If all the turn-signal lights do not illuminate, the ignition switch (IG1), the turn-signal light switch input circuit or the ETACS-ECU may have a problem.

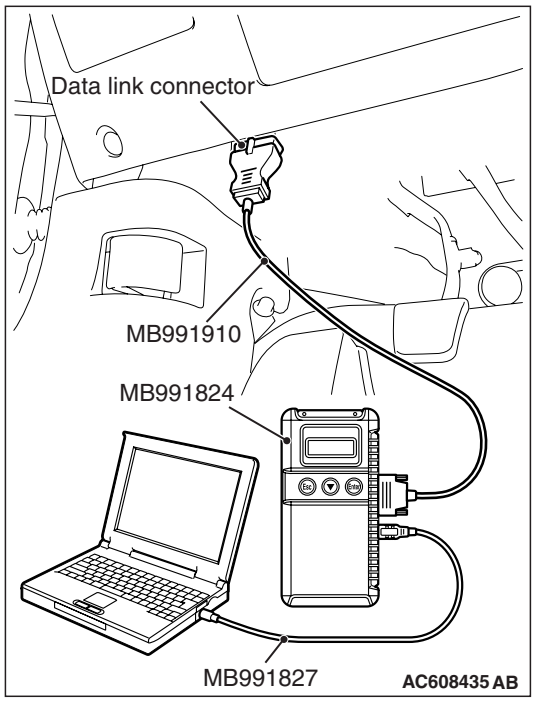
TROUBLESHOOTING HINTS

- Malfunction of column switch
- Malfunction of the ETACS-ECU
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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



STEP 1. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-94."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to ETACS, Diagnosis P.54A-482).
NO : Go to Step 2.

STEP 2. Using scan tool MB991958, check data list.

Using the ETACS-ECU service data, check the signals related to the illumination of turn-signal light.

- Turn the ignition switch to the "ON" position.

Item No.	Item name	Normal conditions
Item 254	IG voltage	Battery voltage

Q: Does scan tool MB991958 display the item "IG voltage" as normal condition?

YES : Go to Step 3.
NO : Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis - Inspection Procedure 2 "ETACS-ECU does not receive any signal from the ignition switch (IG1)" P.54A-528.

STEP 3. Retest the system.
Check that turn-signal lights illuminate.

Q: Do turn-signal lights work 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.00-13).

NO : Replace the ETACS-ECU.

Inspection Procedure 11: The comfort flashing function does not work normally.

TECHNICAL DESCRIPTION (COMMENT)

If the comfort flashing function does not work normally, the turn-signal light switch input circuit(s) and ETACS-ECU may have a problem.

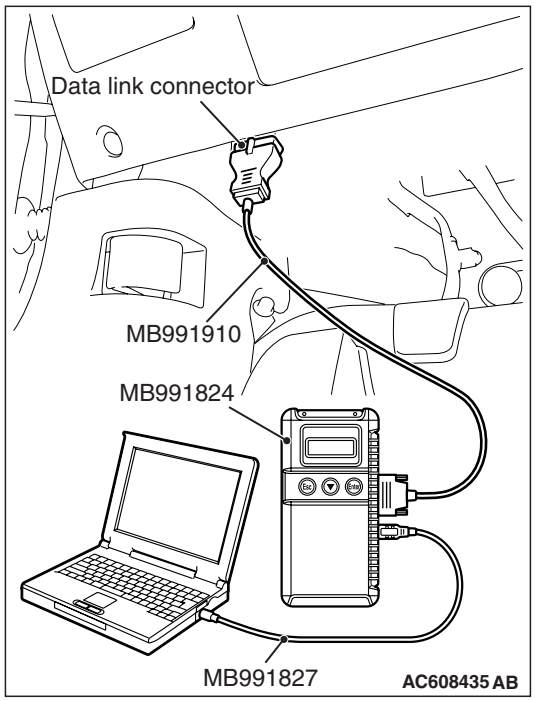
TROUBLESHOOTING HINTS

- Malfunction of column switch
- Malfunction of the ETACS-ECU
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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



STEP 1. Using scan tool MB991958, Check the configuration function.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-94."
(2) Turn the ignition switch to the "ON" position.
(3) Use the ETACS-ECU configuration function to check that the "Comfort flasher" is set to "Enable".
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the "Comfort flasher" set to "Enable"?

YES : Go to Step 2.
NO : Use the ETACS-ECU customize function to set the "Comfort flasher" to "Enable" (Refer to P.54A-561).

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

(1) Turn the ignition switch to the "ON" position.
(2) Check whether the ETACS-ECU DTC is set.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to ETACS, Diagnosis P.54A-482).
NO : Go to Step 3.

STEP 3. Check that the turn-signal light operate.

Check that the turn-signal light work normally when the ignition switch is in the "ON" position.

Q: Do turn-signal lights work normally?

YES : Go to Step 4.
NO : Refer to Inspection Procedure 10 "The turn-signal lights do not illuminate" P.54A-140.

STEP 4. Retest the system
Check that the comfort flashing function works normally.

Q: Does comfort flashing function works 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.00-13).

NO : Replace the ETACS-ECU.

Inspection Procedure 12: The turn-signal indicator light do not illuminate.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

If the turn-signal light indicator does not illuminate normally, the harness in the CAN bus lines, connector(s), ETACS-ECU, or combination meter may have a problem.

TROUBLESHOOTING HINTS

- Malfunction of the ETACS-ECU
- Malfunction of combination meter
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

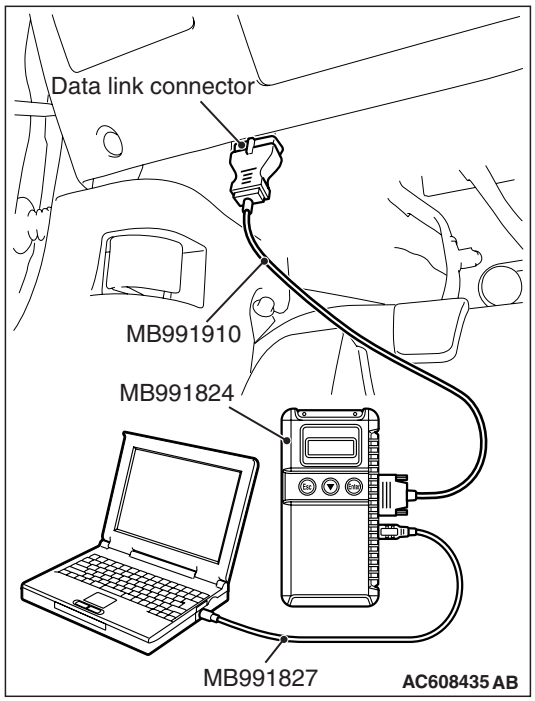
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Check turn-signal light.
Check that the turn-signal light flashes normally when the turn-signal switch is operated.

Q: Do Turn-signal light work normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure 10 "The turn-signal lights do not illuminate" P.54A-140.



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 "How to connect scan tool (M.U.T.-III) P.54A-94."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 3.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

Check if diagnostic trouble code is set to the ETACS-ECU.
(1) Turn the ignition switch to the "ON" position.
(2) Check whether the ETACS-ECU related DTC is set.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-482.
NO : Go to Step 4.

STEP 4. Using scan tool MB991958, check actuator test.

(1) Connect scan tool MB991958 to the data link connector.
(2) Turn the ignition switch to the "ON" position.
(3) Set scan tool MB991958 to the actuator test mode.
- Item 7: Indicator1

(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Replace the ETACS-ECU.
NO : Replace the combination meter.

TSB Revision

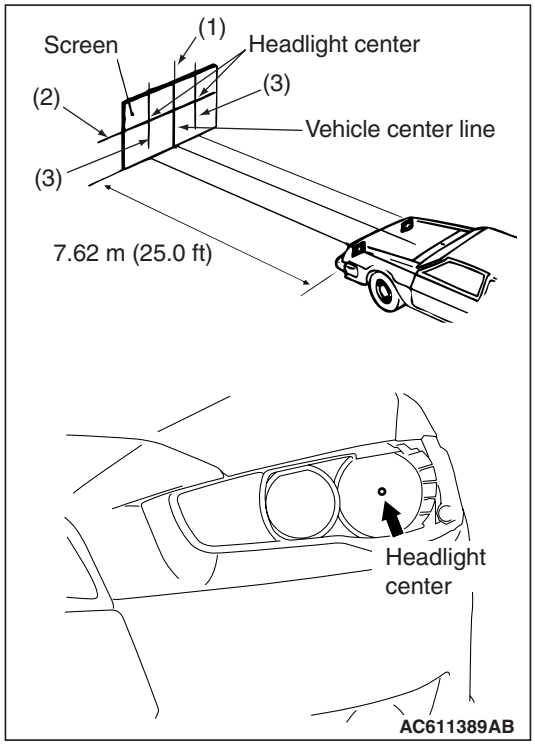
ON-VEHICLE SERVICE

HEADLIGHT AIMING

M1540100500155

PRE-AIMING INSTRUCTIONS (LOW-BEAM)

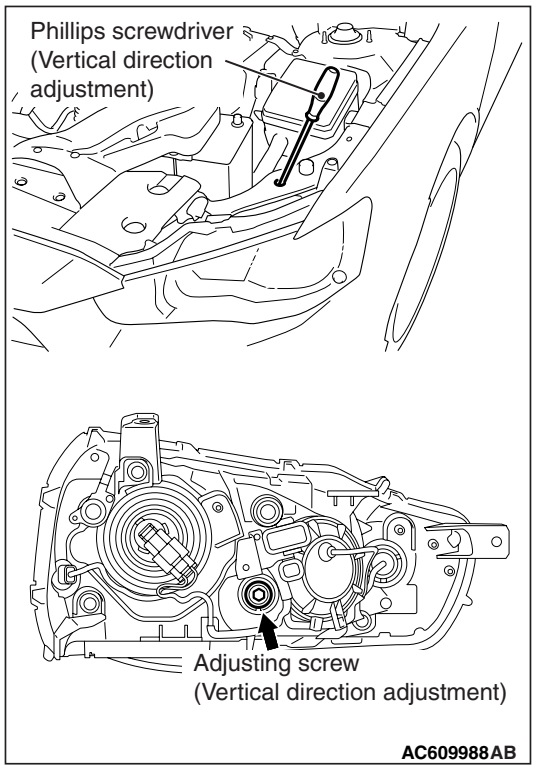
1. Inspect for rusted or faulty headlight assemblies.
2. These conditions must be corrected before a satisfactory adjustment can be made.
3. Inspect tire inflation, and adjust if necessary.
4. If the fuel tank is not full, place a weight in the trunk of the vehicle to simulate weight of a full tank [3 kg (6.6 pounds) per gallon].
5. There should be no other load in the vehicle other than driver or substituted weight of approximately 68 kg (150 pounds) placed in driver's position.
6. Thoroughly clean headlight lenses.
7. Place the vehicle on a level floor, perpendicular to a flat screen 7.62 m (25.0 ft) away from the bulb center-marks on the headlight lens.
8. Rock vehicle sideways to allow vehicle to assume its normal position.
9. Bounce the front suspension through three (3) oscillations by applying the body weight to hood or bumper.
10. Set the distance between the screen and the bulb center marks of the headlight as shown in the illustration.
11. Four lines of adhesive tape (or equivalent markings) are required on screen or wall:
    (1) Position a vertical tape or mark so that it is aligned with the vehicle center line.
    (2) Measure the distance from the center-marks on the headlight lens to the floor [reference value: 679.5 mm (26.75 inches)]. Transfer the measurement to the screen. Horizontal tape or mark on the screen is for reference of vertical adjustment.
    (3) Measure the distance from the center line of the vehicle to the center of each headlight. Transfer the measurement to the screen. Vertical tape or mark on the screen with reference to the center line of each headlight bulb.

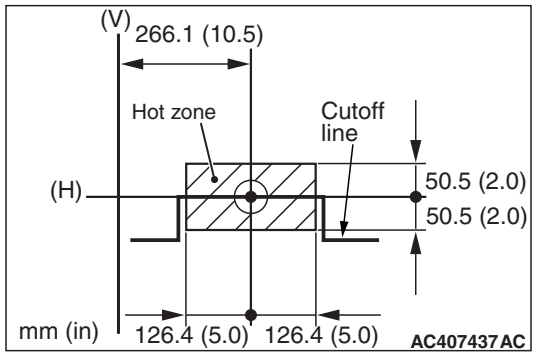


HEADLIGHT ADJUSTMENT (LOW-BEAM)

NOTE: When adjusting headlight, disconnect the other headlight harness.

1. The low-beam headlight will project on the screen upper edge of the beam (cut-off).
2. Turn the adjusting screw to achieve the specified low-beam cut-off location on the aiming screen.





Standard value:

(Vertical direction) Horizontal line (H) ±50.5 mm (±2.0 inches) (±0.38 degrees angle)

(Horizontal direction): ±126.4 mm (±5.0 inches) (± 0.95 degrees angle) from the axis, which is 266.1 mm (10.5 inches) (2 degrees angle) rightward from the vertical line (V)

⚠ CAUTION

Do not cover a headlight for more than three minutes to prevent the plastic headlight lens deformation.

NOTE: High-beam pattern should be correct when the low-beams are adjusted properly.

LUMINOUS INTENSITY MEASUREMENT

M1540100600129

1. Set the headlights to high-beam.
2. Using a photometer, and following its manufacturer's instruction manual, measure the headlight center intensity and check to be sure that the limit value is satisfied.

   Limit: 40,000 cd or more {When a screen is set 18.3m (60 feet) ahead of the vehicle}

NOTE: When measuring the intensity, maintain an engine speed of 2,000 r/min, with the battery fully charged.
There may be special local regulations pertaining to headlight intensity. Be sure to make any adjustments necessary to satisfy such regulations.
If an illuminometer is used to make the measurements, convert its values to photometer values by using the following formula.

$I = E \times r^2$

- I = intensity (cd)
- E = illumination (lux)
- r = distance (m) from headlights to illuminometer

REPLACE THE BULB

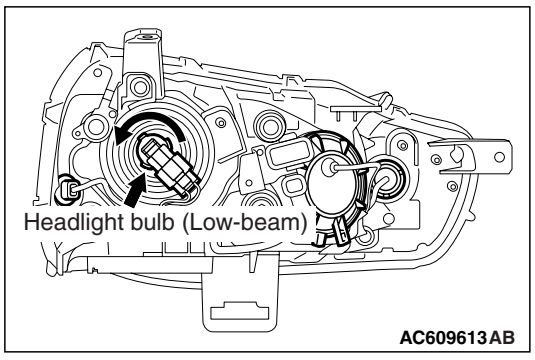
M1540100700159

HEADLIGHT BULB (LOW-BEAM) REPLACEMENT

⚠ CAUTION

Do not touch the bulb surface with bare hands or dirty gloves. If the bulb surface (glass part) gets dirty, immediately clean it with alcohol or thinner. After drying completely, install the bulb.

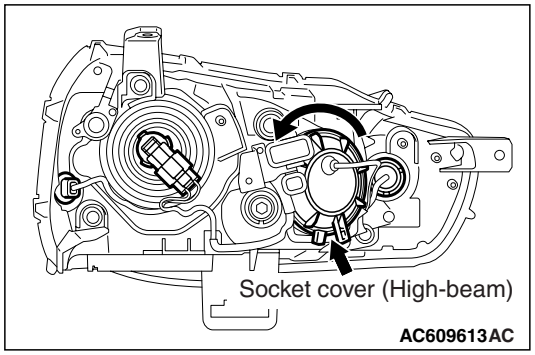
Disconnect the connector, and twist the headlight bulb (low-beam) to remove.



HEADLIGHT BULB (HIGH-BEAM) REPLACEMENT

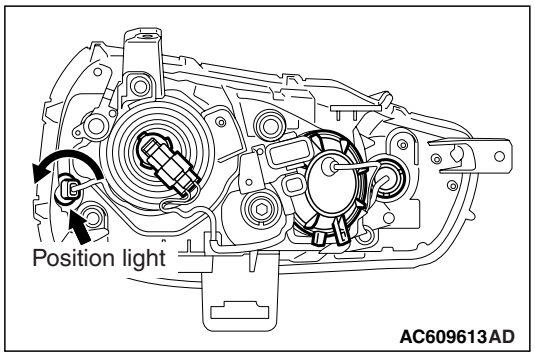
⚠ CAUTION

Do not touch the bulb surface with bare hands or dirty gloves. If the bulb surface (glass part) gets dirty, immediately clean it with alcohol or thinner. After drying completely, install the bulb.



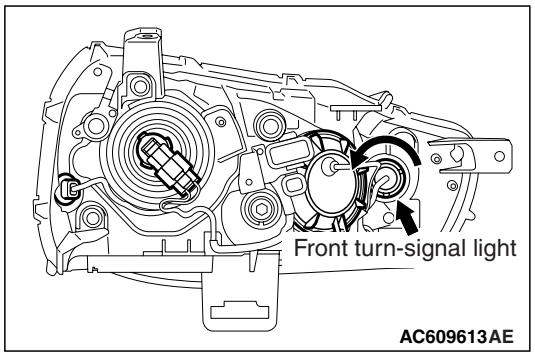
1. Twist the socket cover to remove.
2. Disconnect the connector, and twist the headlight bulb (high-beam) to remove.

POSITION LIGHT BULB REPLACEMENT



Disconnect the connector, and twist the position light socket to remove it.

FRONT TURN-SIGNAL LIGHT BULB REPLACEMENT



Disconnect the connector, and twist the front turn-signal light socket to remove it.

HEADLIGHT AUTOMATIC-SHUTDOWN FUNCTION CHECK

M1540100800101

Confirm that the headlights turn OFF in one second if the driver's door is opened when the ignition switch is OFF and the lighting switch is ON (HEAD position). If there is a malfunction, perform the troubleshooting (Refer to P.54A-150).

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CONFIGURATION FUNCTION

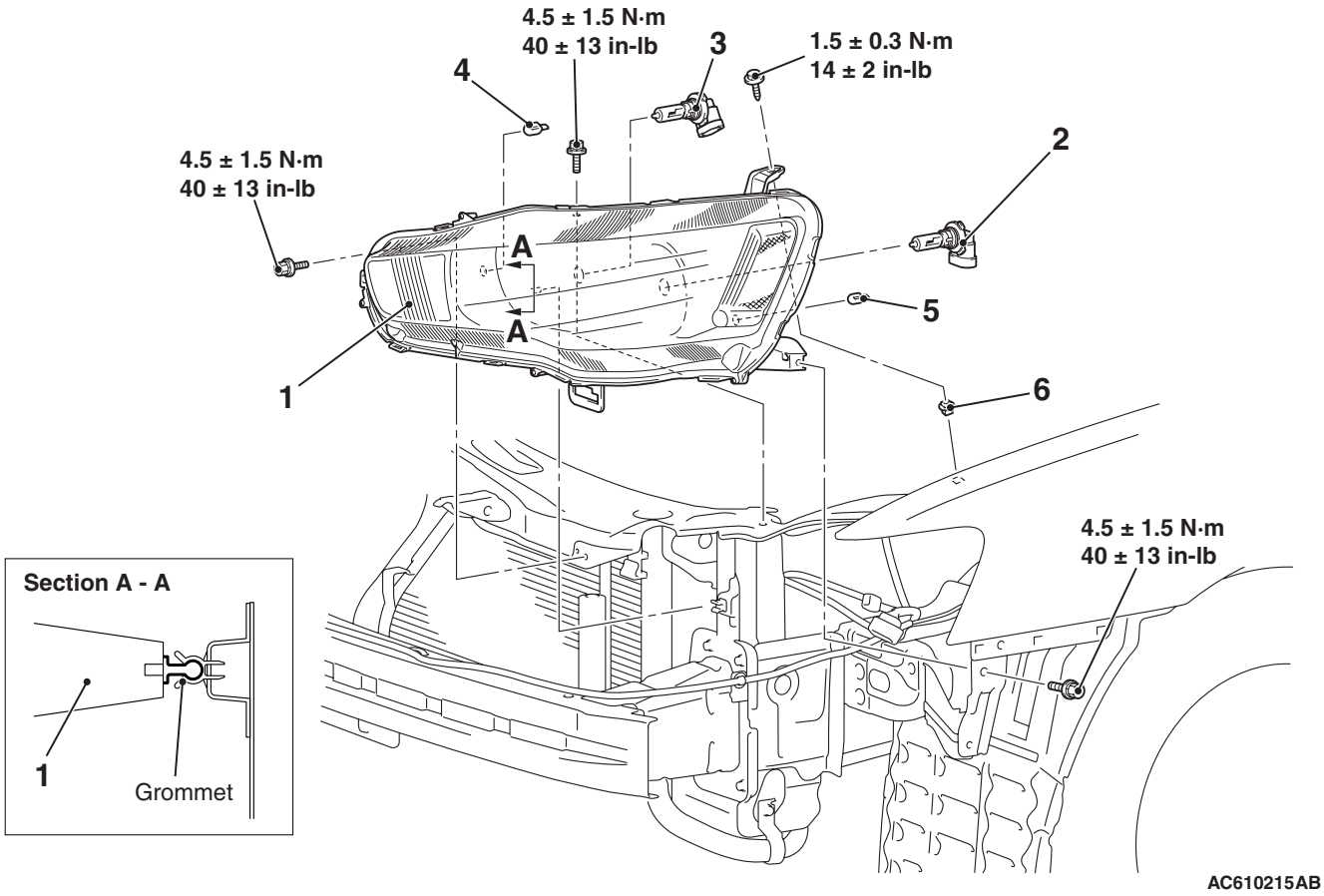
M1540103700158

Use scan tool MB991958 to adjust the following functions. The programmed information is held even when the battery is disconnected.

Adjustment item (scan tool display)	Adjustment item	Adjusting contents (scan tool display)	Adjusting contents
ACC power auto cut	Time to ACC power cut-off when the ignition switch is in the ACC position	Disable	No function (default)
		30 min	30 minutes
		60 min	60 minutes
Turn power source	Adjustment of turn-signal light operation condition	ACC or IG1	Operable with ACC or ON position
		IG1	Operable with ON position (default)
Comfort flasher	With/without comfort flasher function	Disable	No function
		Enable	With function (default)
Comfort flasher switch time	Switch operation time to activate the comfort flasher function	Normal	0.4 seconds (default)
		Long	0.8 seconds
Hazard answer back	Adjustment of the number of keyless hazard warning light answer back flashes	Lock:1, Unlock:2	LOCK: Flashes once, UNLOCK: Flashes twice (default)
		Lock:1, Unlock:0	LOCK: Flashes once, UNLOCK: No flash
		Lock:0, Unlock:2	LOCK: No flash, UNLOCK: Flash twice
		Lock:2, Unlock:1	LOCK: Flash twice, UNLOCK: Flash once
		Lock:2, Unlock:0	LOCK: Flash twice, UNLOCK: No flash
		Lock:0, Unlock:1	LOCK: No flash, UNLOCK: Flash once
		Lock:0, Unlock:0	No function
Headlight auto cut customize	Adjustment of headlight automatic shutdown function	Disable	No function
		Enable (C-spec.)	With function (default)

REMOVAL AND INSTALLATION

M1540101000153



Removal Steps

- Front bumper assembly (Refer to GROUP 51 –Front Bumper Assembly P.51-3).

1. Headlight assembly
2. Headlight bulb (low-beam)

Removal Steps (Continued)

3. Headlight bulb (high-beam)
4. Front turn-signal light bulb
5. Position light bulb
6. Grommet

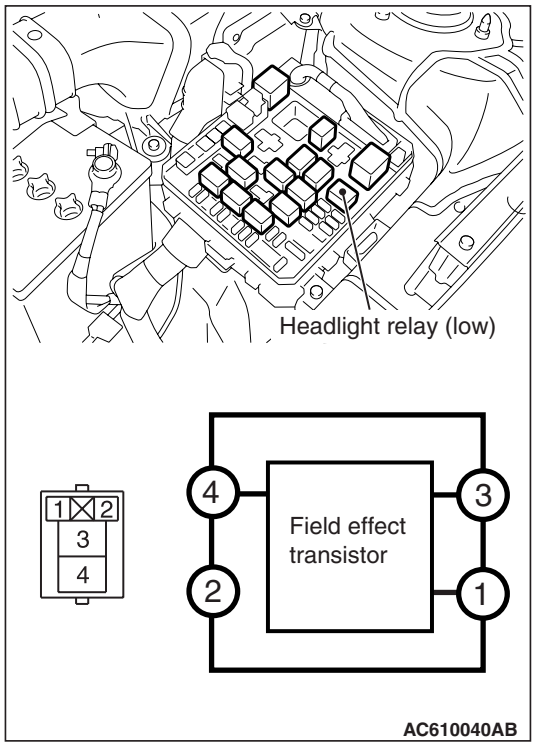
TSB Revision

INSPECTION

HEADLIGHT RELAY CHECK

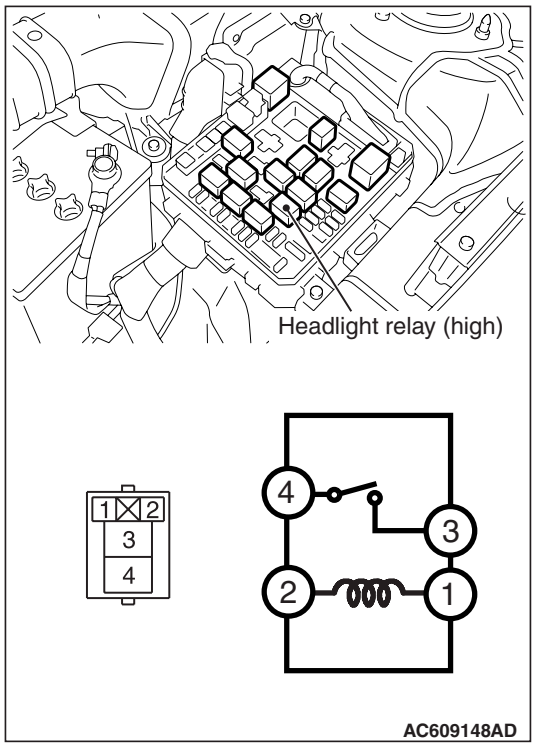
M1540104000141

HEADLIGHT RELAY (LOW) CHECK



Battery voltage	Terminal number	Normal conditions
Not energized	3 –4	No continuity
With current supply [terminal 4 (+), terminal 1 (–)]		Continuity exists (2 ohms or less)

HEADLIGHT RELAY (HIGH) CHECK

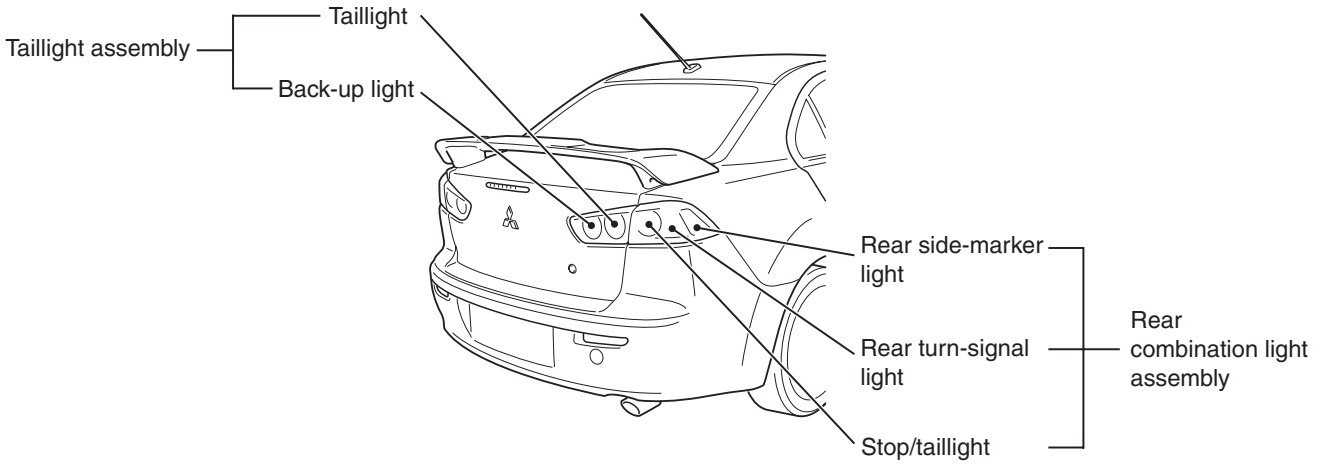


Battery voltage	Terminal number	Normal conditions
Not energized	3 –4	No continuity
With current supply [terminal 1 (+), terminal 2 (–)]		Continuity exists (2 ohms or less)

REAR COMBINATION LIGHT

GENERAL INFORMATION

M1542000100327



AC608727AC

- The rear combination light assembly are integrated with the stop/taillight, rear turn-signal light and rear side-marker light.
- The taillight assembly are integrated with the taillight and back-up light.

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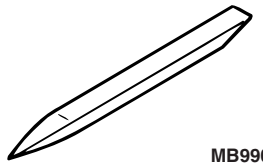
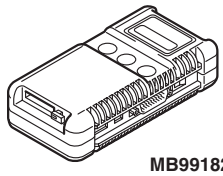
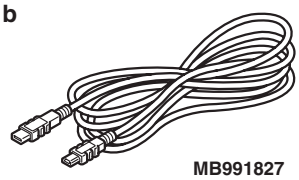
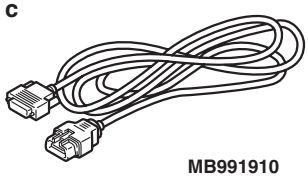
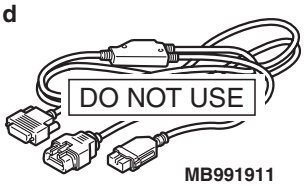
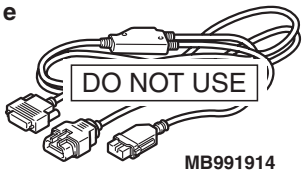
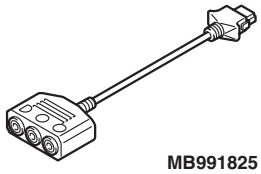
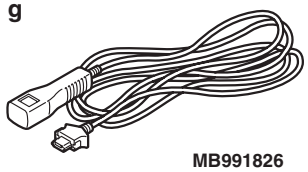
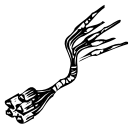
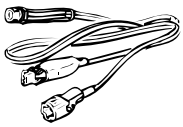
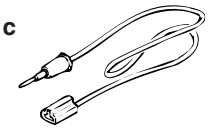
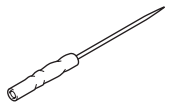
SPECIAL TOOLS

M1541400100087

Tool	Tool number and name	Supersession	Application
 MB990784	MB990784 Ornament remover	General service tool	Removal of trunk lid trim, rear combination light assembly, taillight assembly
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991914 f  MB991825 g  MB991826 MB991958	MB991958 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826 M.U.T.-III sub-assembly a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable c. M.U.T.-III main harness A (Vehicles with CAN communication system) d. M.U.T.-III main harness B (Vehicles without CAN communication system) e. M.U.T.-III main harness C (for Daimler Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness	MB991824-KIT *NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.*	**⚠ CAUTION** **M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.** DTC, data list and actuator test check.

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

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1541402500081

Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, Troubleshooting Contents P.00-6.

DIAGNOSTIC FUNCTION

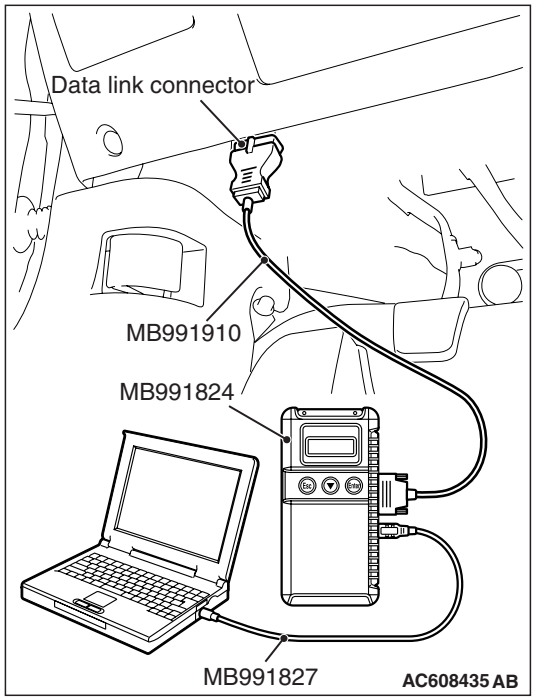
M1541400900038

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

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)



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

MB991958: Scan Tool (M.U.T.-III Sub Assembly)
- MB991824: 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)

⚠ 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.

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

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

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

8. Choose "Erase DTCs" to erase the DTC.

DIAGNOSTIC TROUBLE CODE CHART

M1541400200028

⚠ CAUTION

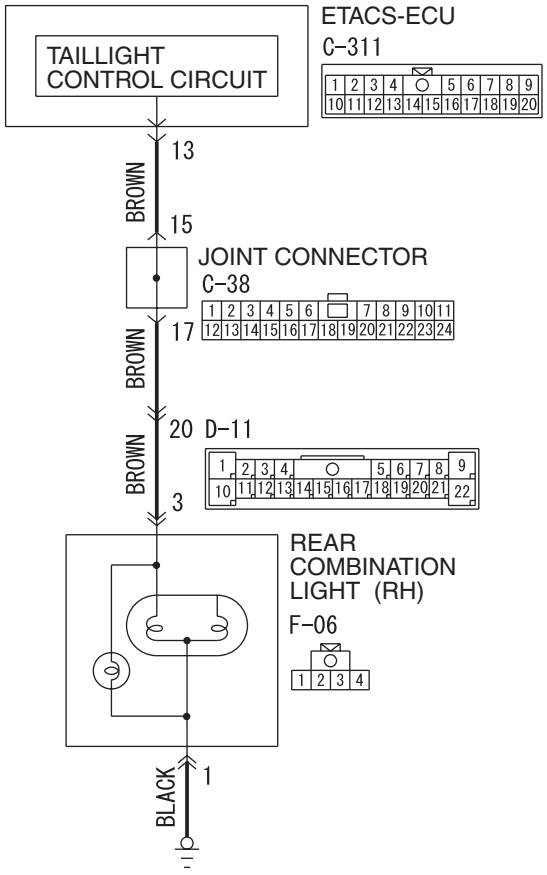
On troubleshooting, if the ignition switch is turned ON while disconnecting connector(s), diagnostic trouble code(s) associated with other system may be set. On completion, confirm all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

Diagnostic trouble code No.	Diagnostic item	Reference page
B16A0	Taillight (RH) circuit open	P.54A-158
B16A7	Taillight (RH) circuit short	
B16A1	Taillight (LH) circuit open	P.54A-162
B16A8	Taillight (LH) circuit short	

DIAGNOSTIC TROUBLE CODE PROCEDURES

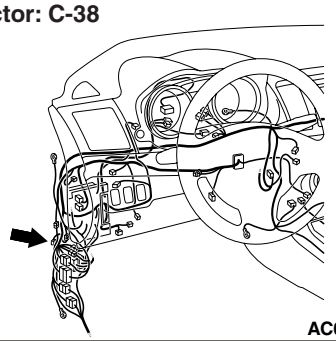
DTC B16A0: Taillight (RH) circuit open
DTC B16A7: Taillight (RH) circuit short

Taillight (RH) Circuit



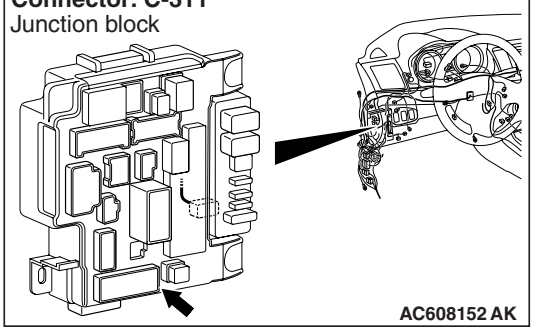
W8G54M034A

Connector: C-38



AC608145BT

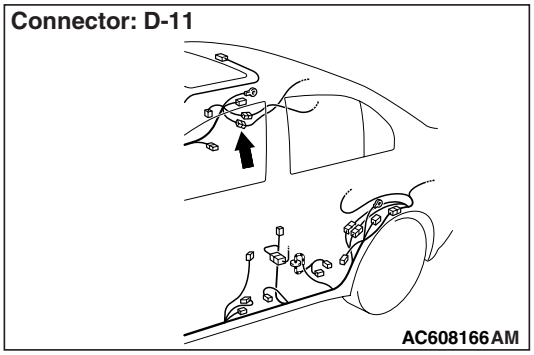
Connector: C-311
Junction block



AC608152 AK

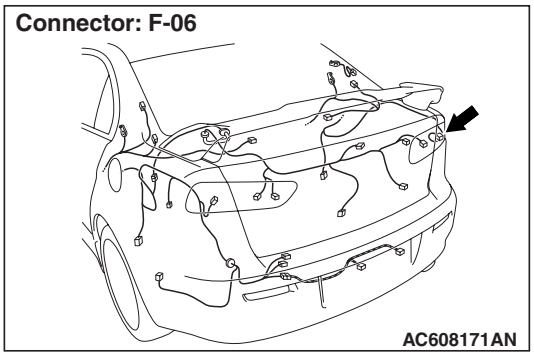
TSB Revision

Connector: D-11



AC608166AM

Connector: F-06



AC608171AN

TROUBLE JUDGEMENT

When an open circuit is detected in the taillight circuit, the ETACS-ECU sets DTC B16A0. If a short circuit is detected, DTC B16A7 is set.

TECHNICAL DESCRIPTION (COMMENT)

The problem detection of taillight is made based on the digital feed back signal (input signal to ETACS-ECU) which operates the taillight. When the ignition switch is "ON", the ETACS-ECU determines the taillight circuit state from the load placed on the line. After 100 ms has elapsed since the start of the check, the ETACS-ECU performs a sampling with each 10 ms. If an abnormality is detected, it increases the counter by 2, and when no abnormality is detected, it decreases the counter by 1. Once the counter reaches "10", the ETACS-ECU sets the DTC B16A0 if the load is detected on the line, and sets the DTC B16A7 if no load is detected.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- Malfunction of the ETACS-ECU

DIAGNOSIS

Required Special Tools:

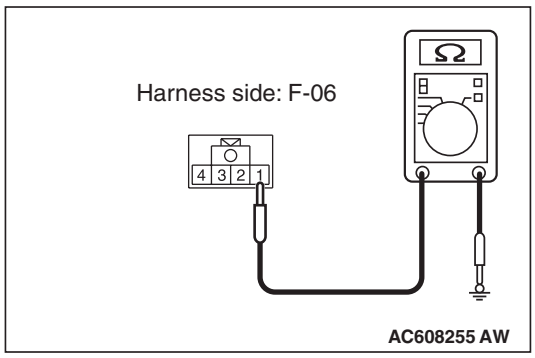
- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Check rear combination light (RH) connector F-06 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination light (RH) connector F-06 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. Resistance measurement at rear combination light (RH) connector F-06.

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

(2) Measure the resistance between rear combination light (RH) connector F-06 (terminal 1) and the body ground.

OK: The measured value should be continuity exists (2 ohms or less).

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 4.

NO : Go to Step 3.

STEP 3. Check the wiring harness between rear combination light (RH) connector F-06 (terminal 1) and ground.

Q: Is the wiring harness between rear combination light (RH) connector F-06 (terminal 1) and ground in good condition?

YES : Go to Step 6.

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

STEP 4. Check ETACS-ECU connectors C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-311 in good condition?

YES : Go to Step 5.

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

STEP 5. Check the wiring harness between rear combination light (RH) F-06 connector (terminal 3) and ETACS-ECU connector C-311 (terminal 13).

NOTE: Also check joint connector C-38 and intermediate connector D-11 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-38 or intermediate connector D-11 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- Check the communication line for open circuit.

Q: Is the wiring harness between rear combination light (RH) F-06 connector (terminal 3) and ETACS-ECU connector C-311 (terminal No. 13) in good condition?

YES : Go to Step 6.

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

STEP 6. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

⚠ CAUTION

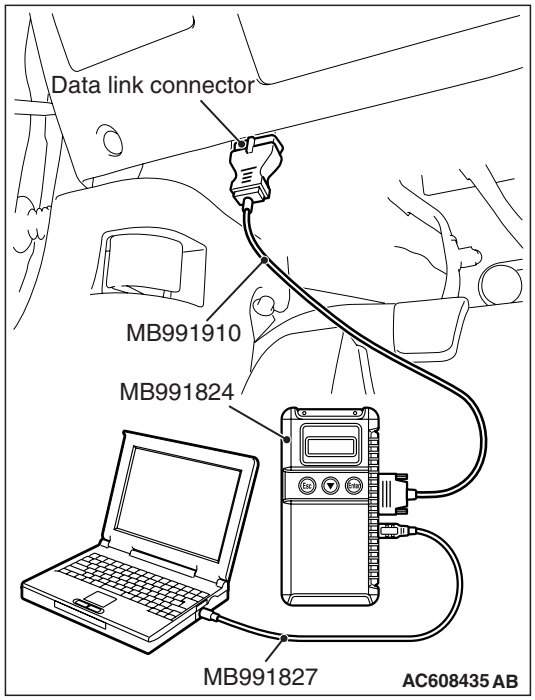
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-196."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.

Q: Is the DTC set?

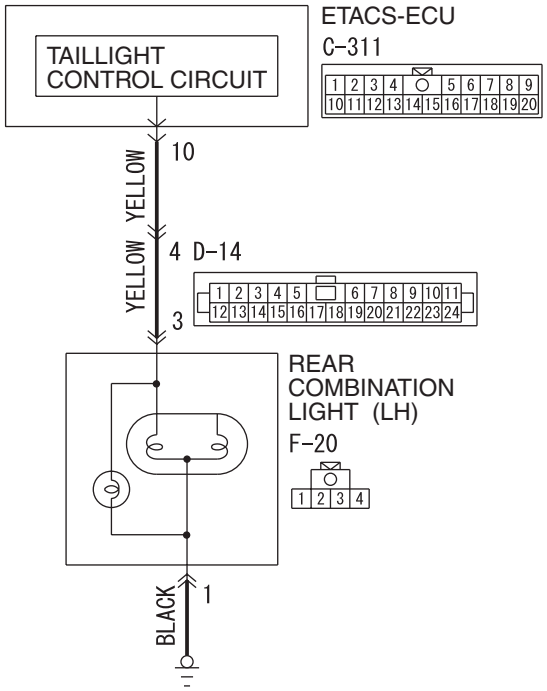
YES : Replace the ETACS-ECU.

NO : The procedure is complete.

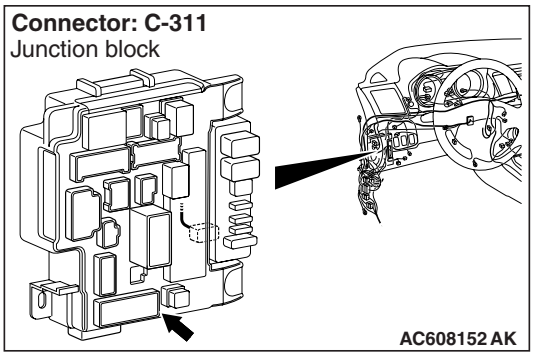


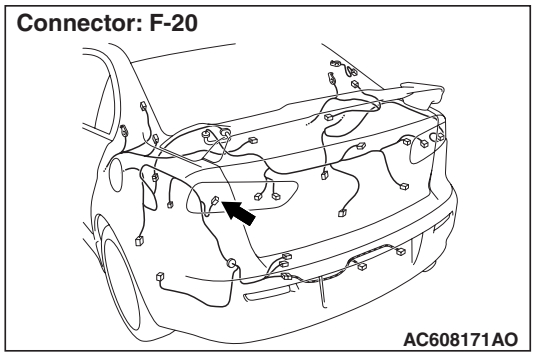
DTC B16A1: Taillight (LH) circuit open
DTC B16A8: Taillight (LH) circuit short

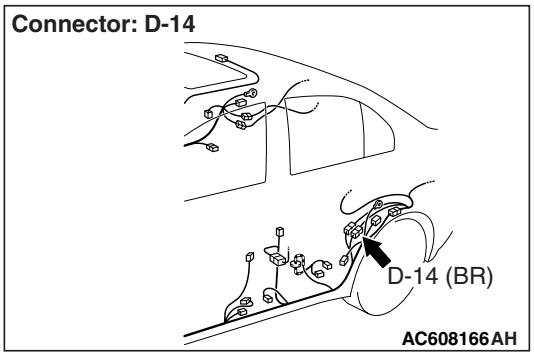
Taillight (LH) Circuit



W8G54M035A







TROUBLE JUDGEMENT

When an open circuit is detected in the taillight circuit, the ETACS-ECU sets DTC B16A1. If a short circuit is detected, DTC B16A8 is set.

TECHNICAL DESCRIPTION (COMMENT)

The problem detection of taillight is made based on the digital feed back signal (input signal to ETACS-ECU) which operates the taillight. When the ignition switch is "ON", the ETACS-ECU determines the taillight circuit state from the load placed on the line. After 100 ms has elapsed since the start of the check, the ETACS-ECU performs a sampling with each 10 ms. If an abnormality is detected, it

increases the counter by 2, and when no abnormality is detected, it decreases the counter by 1. Once the counter reaches "10", the ETACS-ECU sets the DTC B16A1 if the load is detected on the line, and sets the DTC B16A8 if no load is detected.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- Malfunction of the ETACS-ECU

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- 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. Check rear combination light (LH) connector F-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

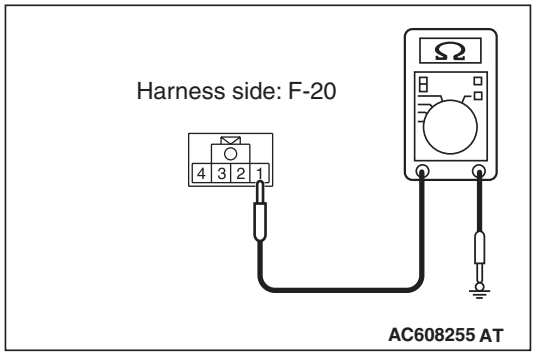
Q: Is combination light (RH) connector F-20 in good condition?

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. Resistance measurement at rear combination light (LH) connector F-20.

(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between the rear combination light (LH) connector F-20 (terminal 1) and the body ground.

OK: The measured value should be continuity exists (2 ohms or less).



Q: Does the measured resistance value correspond with this range?

YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check the wiring harness between rear combination light (LH) connector F-20 (terminal 1) and ground.

Q: Is the wiring harness between rear combination light (LH) connector F-20 (terminal 1) and ground in good condition?

YES : Go to Step 6.

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

STEP 4. Check ETACS-ECU connectors C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-311 in good condition?

YES : Go to Step 5.

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

STEP 5. Check the wiring harness between rear combination light (LH) F-20 connector (terminal 3) and ETACS-ECU connector C-311 (terminal 10).

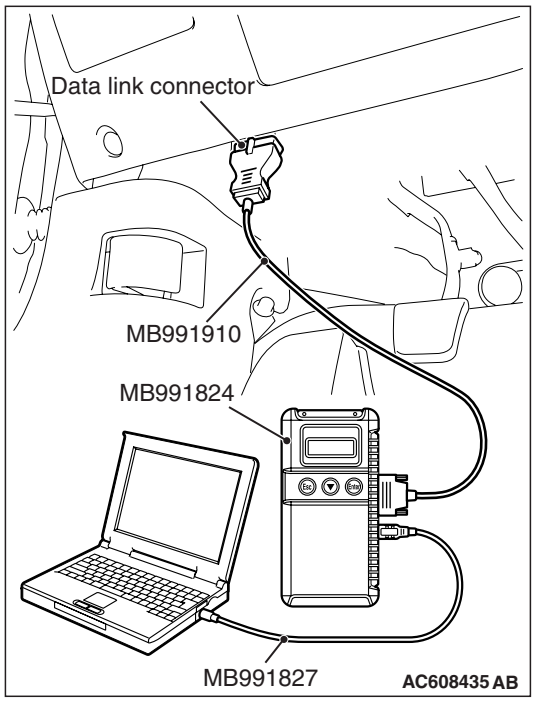
NOTE: Also check intermediate connector D-14 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- Check the communication line for open circuit.

Q: Is the wiring harness between rear combination light (LH) F-20 connector (terminal 3) and ETACS-ECU connector C-311 (terminal 10) in good condition?

YES : Go to Step 6.

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



STEP 6. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-196."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The procedure is complete.

TROUBLE SYMPTOM CHART

M1541401000072

Inspection Procedure No.	Trouble symptom	Reference page
1	The taillights do not illuminate.	P.54A-165
2	Any of the taillights does not illuminate.	P.54A-168

SYMPTOM PROCEDURES

Inspection Procedure 1: The Taillights do not Illuminate.

⚠ CAUTION

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

TECHNICAL DESCRIPTION (COMMENT)

If all the taillights do not illuminate normally, the taillight switch input circuit or ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

- Malfunction of column switch
- Malfunction of the ETACS-ECU
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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

STEP 1. License plate light operation check

Check that the license plate light illuminates normally.

Q: Does license plate light work normally?

YES : Go to Step 2.
NO : Replace the ETACS-ECU.

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

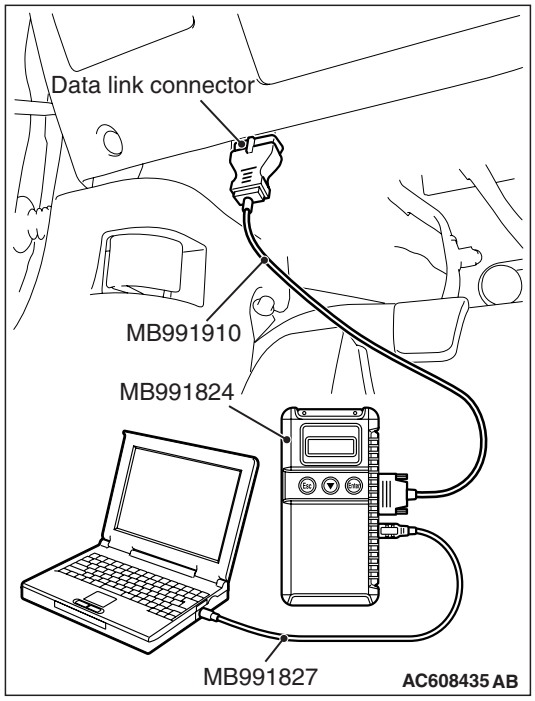
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-196."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-482.
NO : Go to Step 3.



STEP 3. Using scan tool MB991958, check data list.

Use the ETACS-ECU data list to check the signals related to the taillight illumination.

- Turn the ignition switch to the "ACC" position.
- Turn the taillight switch to the "ON" position.

Item No.	Item name	Normal conditions
Item 218	Taillight	ON

Q: Does scan tool MB991958 display the items "Taillight" as normal condition?

YES : Go to Step 4.

NO : Troubleshoot the ETACS-ECU (Refer to P.54A-528).

STEP 4. Retest the system

Check that the taillight illuminates normally.

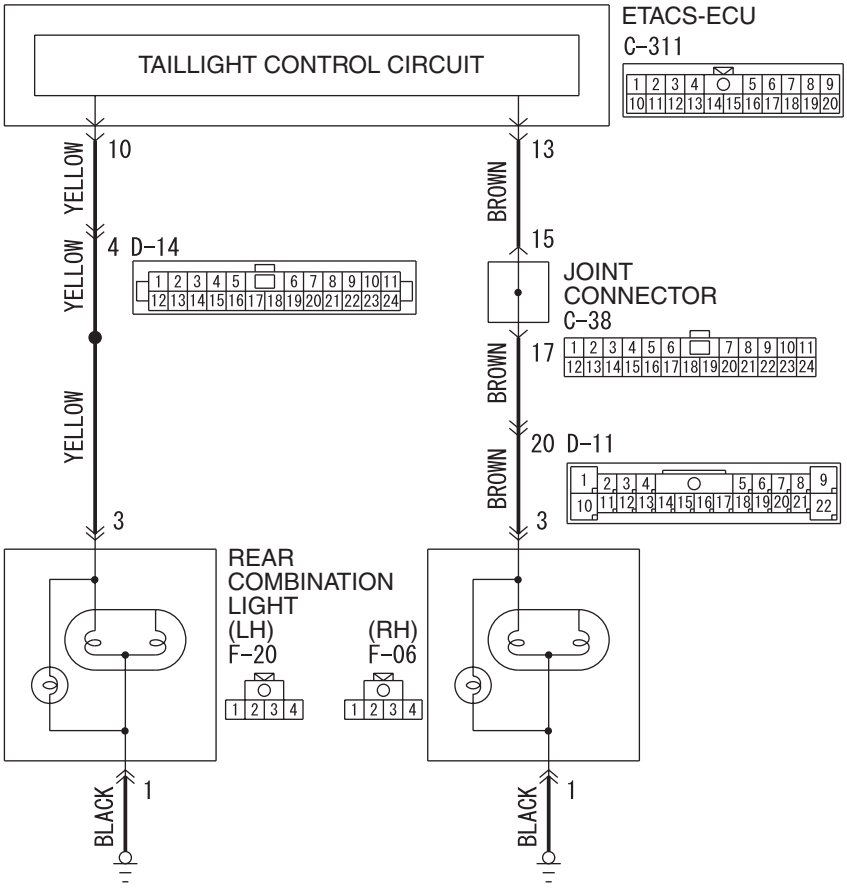
Q: Does the taillight work normally?

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.00-13).

NO : Replace the ETACS-ECU.

Inspection Procedure 2: Any of the Taillights does not Illuminate.

Taillight Circuit



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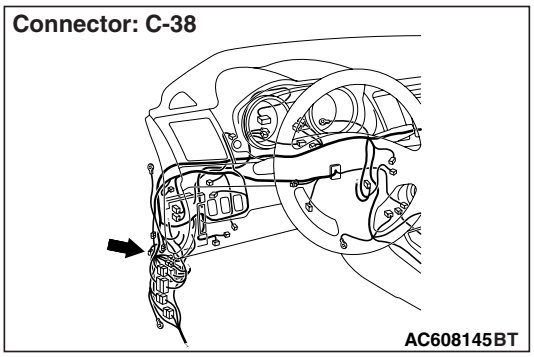
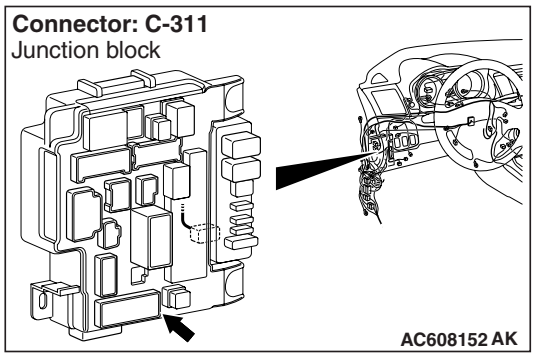
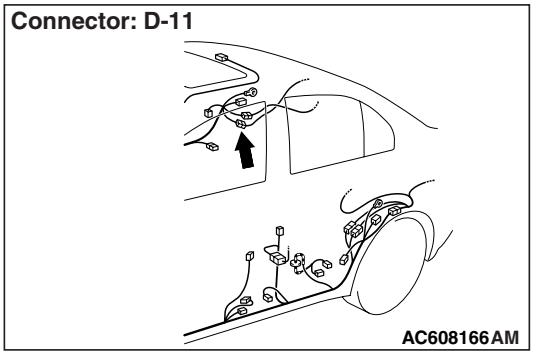


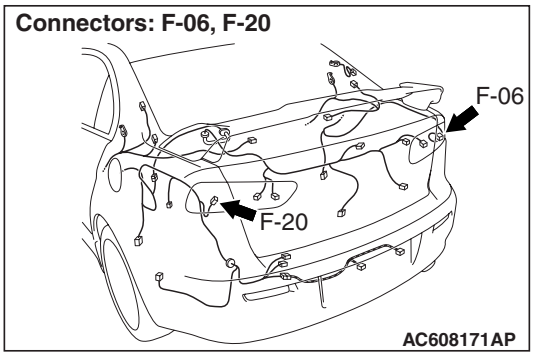


TSB Revision

Connector: D-11



Connectors: F-06, F-20



TECHNICAL DESCRIPTION (COMMENT)

If any of the taillights do not illuminate, the wiring harness, connector(s), or rear combination light unit may have a problem, or the fuse may be burned out.

TROUBLESHOOTING HINTS

- Malfunction of rear combination light unit
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- 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. Check rear combination light connector F-20 (LH) or F-06 (RH) for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear combination light connector F-20 (RH) or F-06 (LH) in good condition?

YES : Go to Step 2.

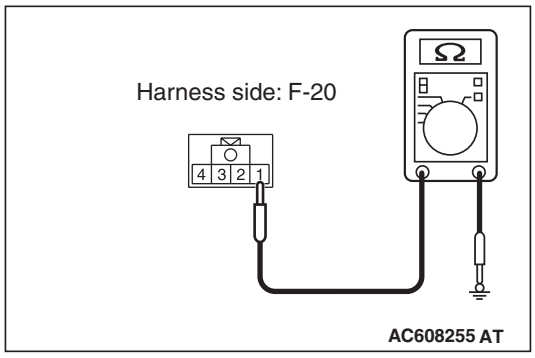
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 2. Resistance measurement at rear combination light connector F-20 (LH) or F-06 (RH).

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

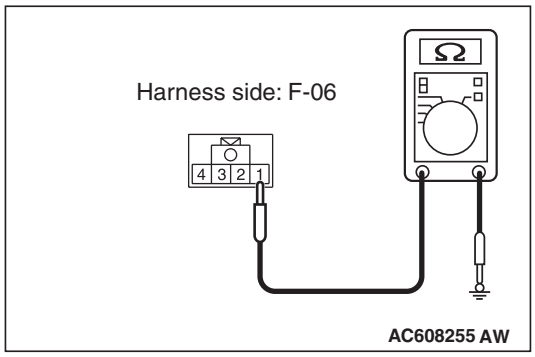
(2) Measure the resistance between the connector of light which does not illuminate and body ground.

- Measure the resistance between rear combination light (LH) connector F-20 (terminal 1) and body ground.



- Measure the resistance between rear combination light (RH) connector F-06 (terminal 1) and body ground.

  OK: The measured value should be continuity exists (2 ohms or less).



Q: Does the measured resistance value correspond with this range?

YES : Go to Step 4.

NO : Go to Step 3.

STEP 3. Check the wiring harness between rear combination light connectors F-20 (LH) or F-06 (RH) (terminal 1) and ground.

Q: Is the wiring harness between rear combination light connectors F-20 (LH) or F-06 (RH) (terminal 1) and ground in good condition?

YES : Go to Step 6.

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

STEP 4. Check ETACS-ECU connectors C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-311 in good condition?

YES : Go to Step 5.

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

STEP 5. Check the wiring harness between rear combination light connector and ETACS-ECU connector.

Check the communication line for open circuit.

- Check the wiring harness between rear combination light (LH) connector F-20 (terminal 3) and ETACS-ECU connector C-311 (terminal 10). <LH>
- Check the wiring harness between rear combination light (RH) connector F-06 (terminal 3) and ETACS-ECU connector C-311 (terminal 13). <RH>

NOTE: Also check joint connector C-38 and intermediate connector D-11 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-38 or intermediate connector D-11 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 combination light connector and ETACS-ECU connector in good condition?

YES : Go to Step 6.

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

STEP 6. Retest the system.

Check that the taillight illuminates normally.

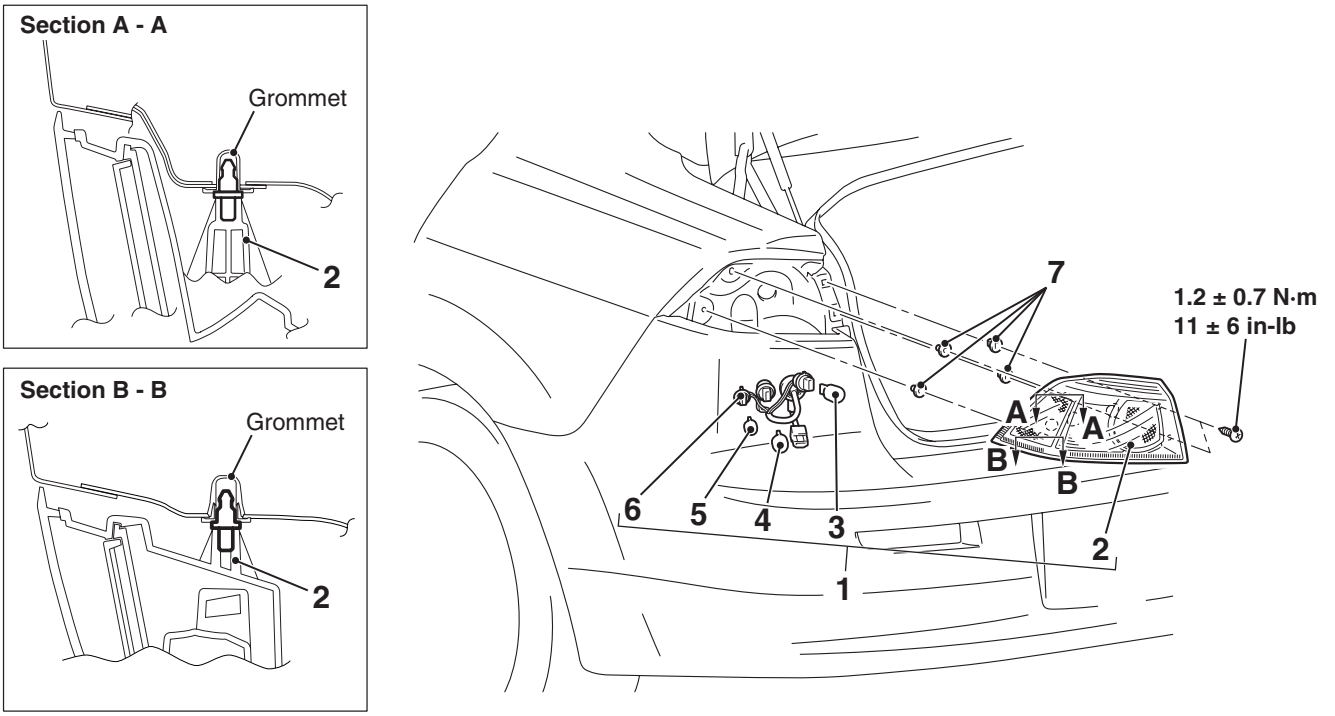
Q: Does the taillight work normally?

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.00-13).

NO : Replace the rear combination light unit.

REAR COMBINATION LIGHT REMOVAL AND INSTALLATION

M1541402200154



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Removal Steps

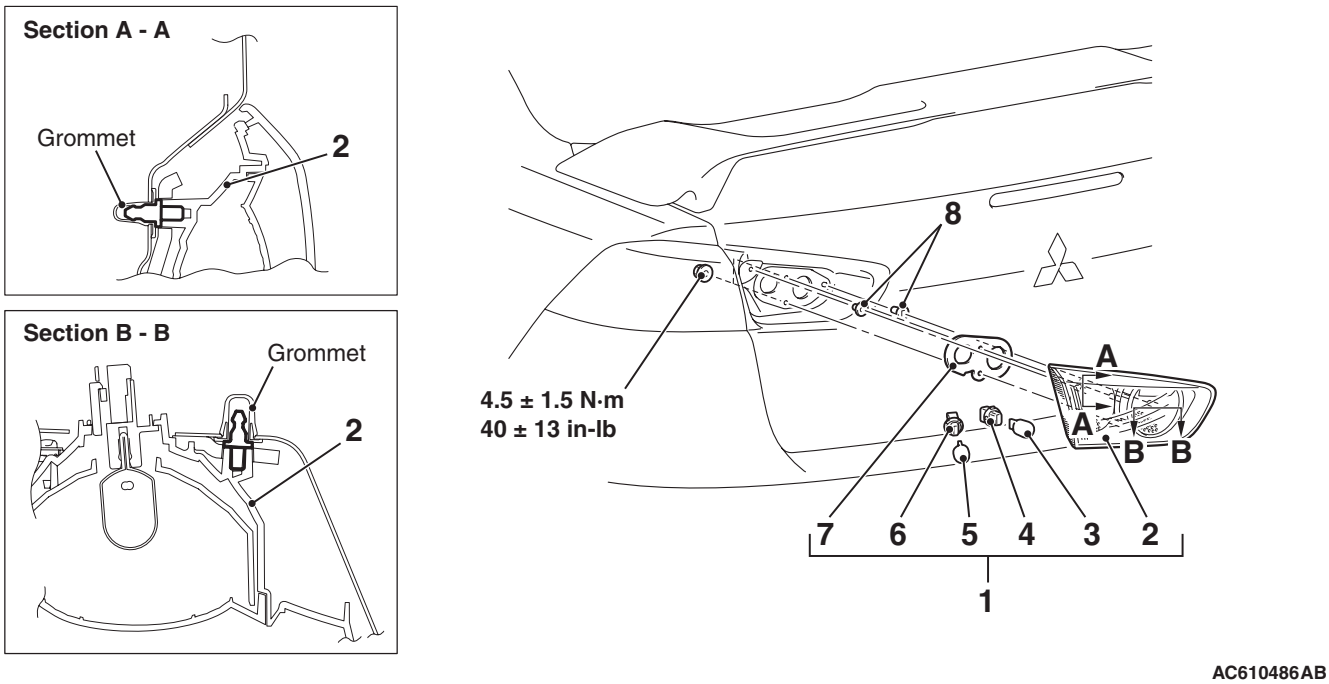
1. Rear combination light assembly
2. Rear combination light unit
3. Stop/taillight bulb
4. Rear turn-signal light bulb

Removal Steps (Continued)

5. Rear side-marker light bulb
6. Socket
7. Grommet

TAILLIGHT REMOVAL AND INSTALLATION

M1541402600022



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Removal Steps
- Trunk lid trim

1. Taillight assembly
2. Taillight unit
3. Back-up light bulb

Removal Steps (Continued)
4. Socket
5. Taillight bulb
6. Socket
7. Gasket
8. Grommet

FOG LIGHT

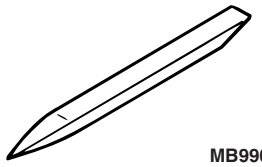
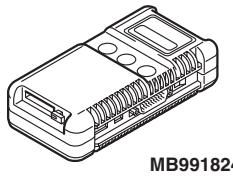
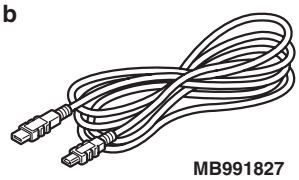
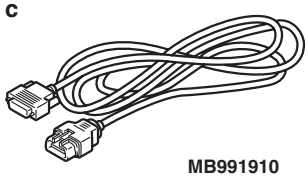
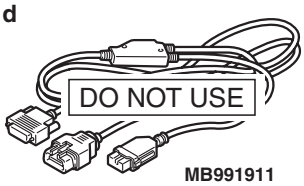
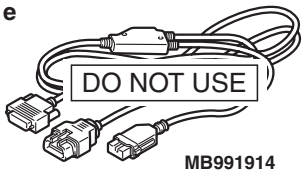
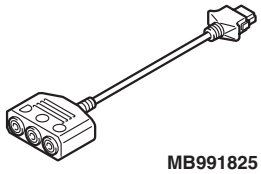
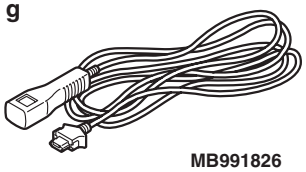
SERVICE SPECIFICATIONS

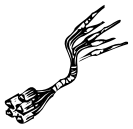
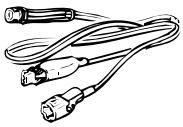
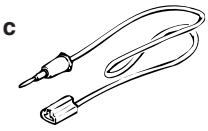
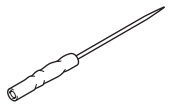
M1540400900091

Item	Standard value	Limit
Fog light aiming (cutoff line direction) [at 7.62 m (25.0 ft)]	The horizontal line 153.0 mm (6.02 inches) (1.15 degrees angle) below the horizontal line (H)	–
Fog light aiming (vertical direction) [at 7.62 m (25.0 ft)]	–	Area from 53.2 mm (2.09 inches) (0.4 degrees angle) above the cutoff line to 99.8 mm (3.93 inches) (0.75 degrees angle) below the cutoff line
Fog light aiming (horizontal direction) [at 7.62 m (25.0 ft)]	–	Vertical line (V) ±599.7 mm (± 23.6 inches) (±4.5 degrees angle).

SPECIAL TOOLS

M1540401800075

Tool	Tool number and name	Supersession	Application
 MB990784	MB990784 Ornament remover	General service tool	Removal of front fog light bezel
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991914 f  MB991825 g  MB991826 MB991958	MB991958 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826 M.U.T.-III sub-assembly a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable c. M.U.T.-III main harness A (Vehicles with CAN communication system) d. M.U.T.-III main harness B (Vehicles without CAN communication system) e. M.U.T.-III main harness C (for Daimler Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness	MB991824-KIT *NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.*	**⚠ CAUTION** **M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.** DTC, data list and actuator test check.

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

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1540401700012

Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, Troubleshooting Contents P.00-6.

TROUBLE SYMPTOM CHART

M1540401000109

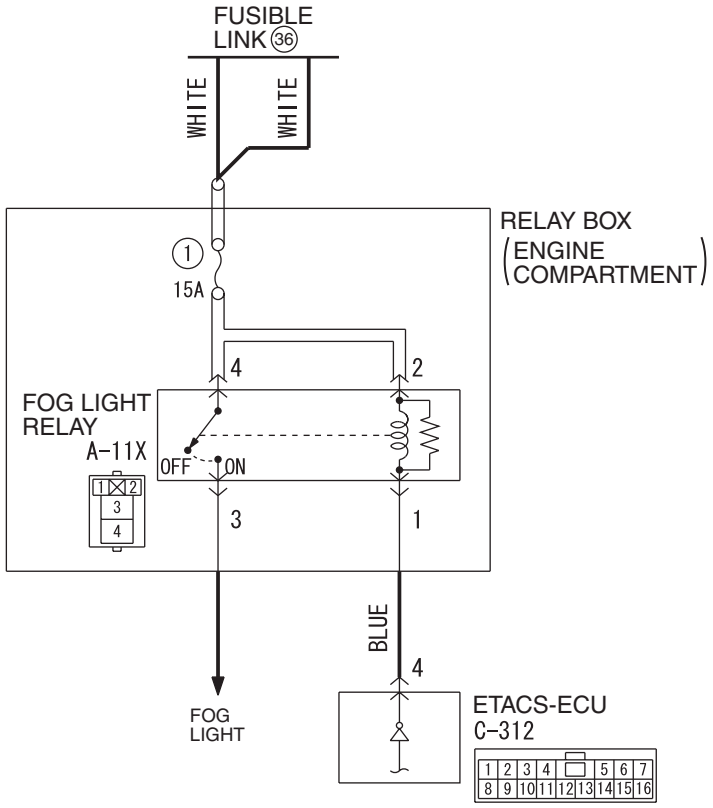
Inspection Procedure No.	Trouble symptom	Reference page
1	Fog lights do not illuminate normally.	P.54A-176
2	The right or left fog light does not illuminate.	P.54A-183
3	Fog light indicator does not illuminate/go out normally.	P.54A-187

SYMPTOM PROCEDURES

Inspection Procedure 1: The front fog lights do not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Fog Light and ETACS-ECU Communication Circuit



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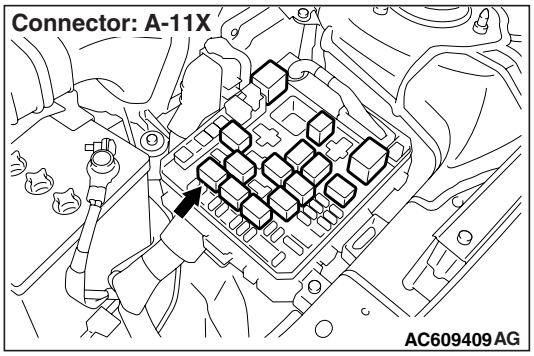

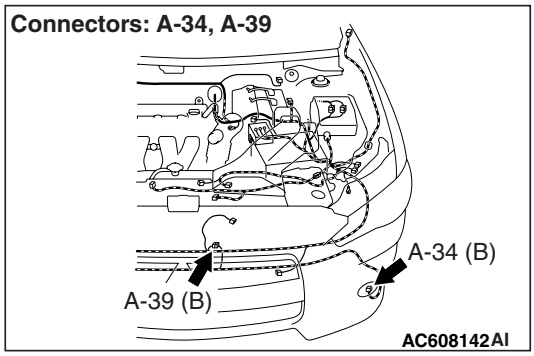

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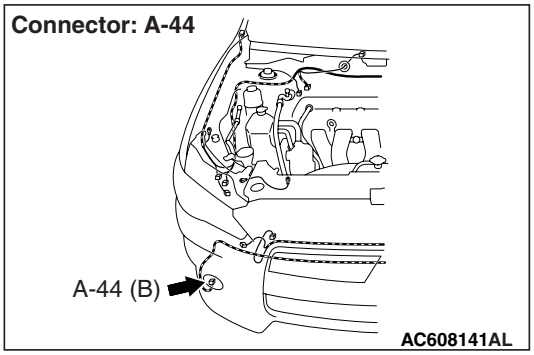
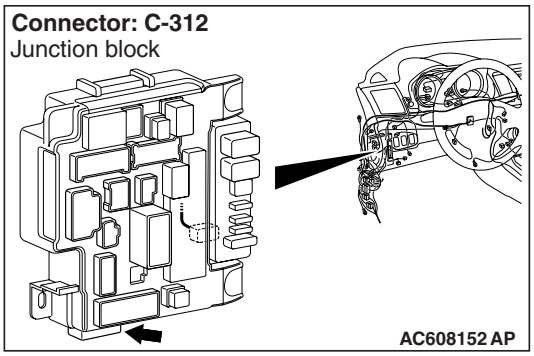




CIRCUIT OPERATION

If the fog lights do not illuminate normally, the input signal circuit(s) below or the ETACS-ECU may be defective.

- Tail light switch
- Headlight switch
- Fog light switch
- Option coding information

TECHNICAL DESCRIPTION (COMMENT)

When the fog lights do not illuminate normally, the mentioned input signal circuit(s) or ETACS-ECU may be defective.

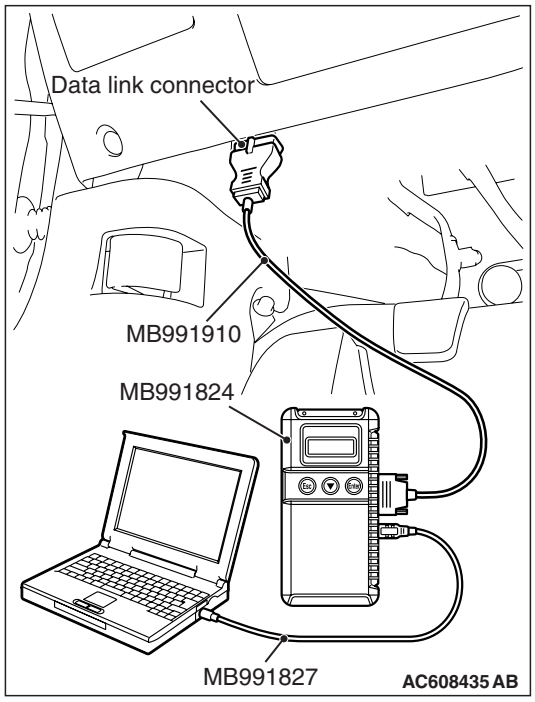
TROUBLESHOOTING HINTS

- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- 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: 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.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-196."
(2) Turn the ignition switch to the "ON" position.
(3) Read out the option coding information in ETACS-ECU (Refer to GROUP 00, Precautions before service, Coding Table P.00-35).
(4) Check that the "Front fog light" is set to "YES."
(5) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the ETACS-ECU coding data normal?

YES : Go to Step 2.
NO : Operate scan tool MB991958 to set the option coding "Front fog light" to "Yes," and check the trouble symptom.

STEP 2. Check that the tail/stop lights and headlights operate.

Check that the tail/stop lights and headlights illuminate normally.

Q: Do the tail/stop lights and headlights operate normally?

YES : Go to Step 3.
NO : Check the tail/stop lights and the headlights (Refer to trouble symptom chart P.54A-110).

STEP 3. Using scan tool MB991958, read the other system diagnostic trouble code.

Check if DTC is set to the ETACS-ECU.
(1) Turn the ignition switch to the "ON" position.
(2) Check whether the ETACS-ECU related DTC is set.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to ETACS, Diagnosis P.54A-482).
NO : Go to Step 4.

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

Use the ETACS-ECU data list to check the signals related to the fog light function.

- Turn the ignition switch to the "ACC" position.
- Turn the fog light switch to ON.

Item No.	Item name	Normal condition
Item 212	Front fog light	ON

Q: Does scan tool MB991958 display the items "Front fog light" as normal condition?

YES : Go to Step 5.

NO : Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis - Inspection Procedure 12 "ETACS-ECU does not receive any signal from the column switch signal." P.54A-528.

STEP 5. Check fog light relay connector A-11X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fog light relay connector A-11X 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.

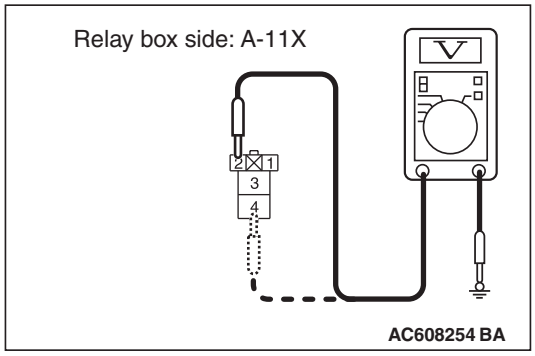
STEP 6. Check the fog light relay.

Refer to P.54A-191.

Q: Is the fog light relay in good condition?

YES : Go to Step 7.

NO : Replace the fog light relay.



STEP 7. Check the battery power supply circuit to the fog light relay. Measure the voltage at fog light relay connector A-11X.

⚠ CAUTION

The top and bottom of the fog light relay are difficult to identify. Prior to inspection, confirm the triangle mark on the relay box.

(1) Disconnect fog light relay connector A-11X and measure the voltage available at the relay box side of the connector.
(2) Measure the voltage between terminal 2 and ground, and between terminal 4 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 9.
NO : Go to Step 8.

STEP 8. Check the wiring harness between fog light relay connector A-11X (terminal 2 and 4) and fusible link (36).

- Check the power supply line for open circuit.

Q: Is the wiring harness between fog light relay connector A-11X (terminal 2 and 4) and fusible link (36) in good condition?

YES : Go to Step 13.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 9. Check ETACS-ECU connector C-312 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-312 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 fog light relay connector A-11X (terminal 1) and ETACS-ECU connector C-312 (terminal 4).

Q: Is the wiring harness between fog light relay connector A-11X (terminal 1) and ETACS-ECU connector C-312 (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 wiring harness between fog light relay connector A-11X (terminal 3) and fog light (LH) connector A-34 or fog light (RH) connector A-44 (terminal 2).

NOTE: Also check intermediate connector A-39 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-39 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 fog light relay connector A-11X (terminal 3) and fog light (LH) connector A-28 (terminal 2) or fog light (RH) connector A-38 in good condition?

YES : Go to Step 12.

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

STEP 12. Check the wiring harness between fog light (LH) connector A-34 or fog light (RH) connector A-44 (terminal 1) and ground.

NOTE: Also check intermediate connector A-39 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-39 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 fog light (LH) connector A-28 or fog light (RH) connector A-38 (terminal 1) and ground 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. Retest the system.

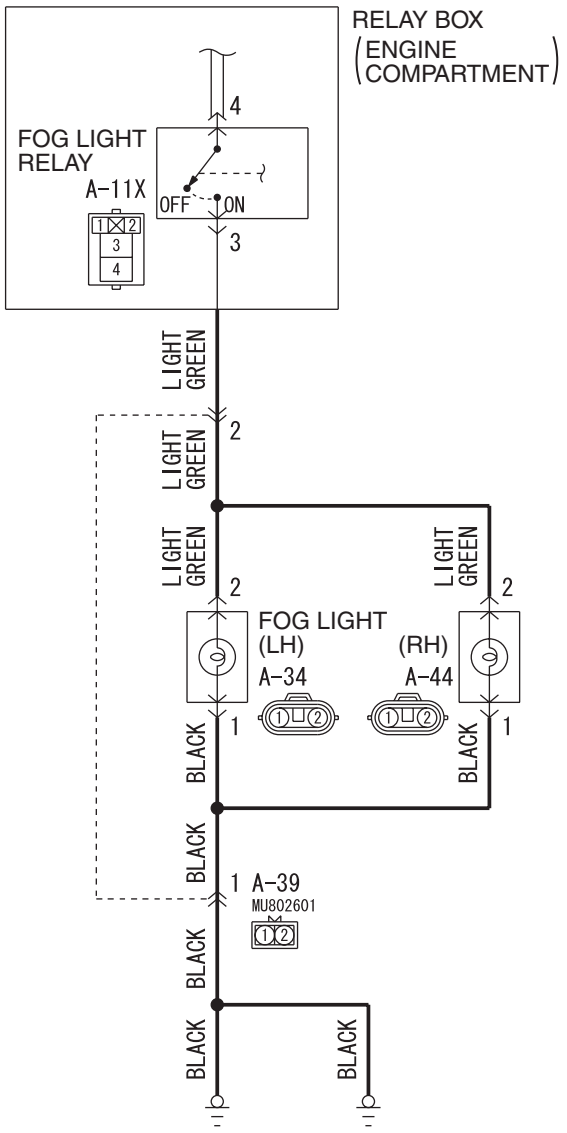
Q: Does the fog lights illuminate in good condition?

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.00-13).

NO : Replace the ETACS-ECU.

Inspection Procedure 2: Any of the front fog lights does not illuminate normally.

Fog Light Circuit



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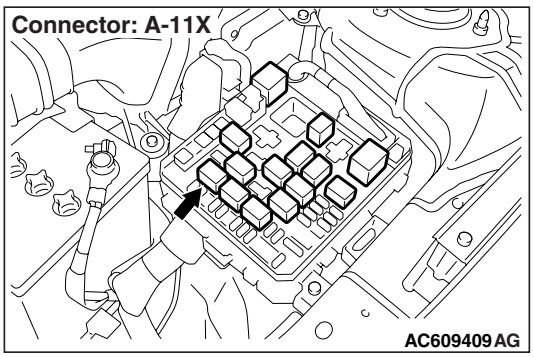

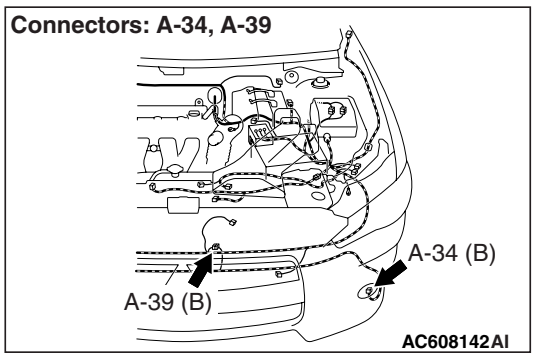

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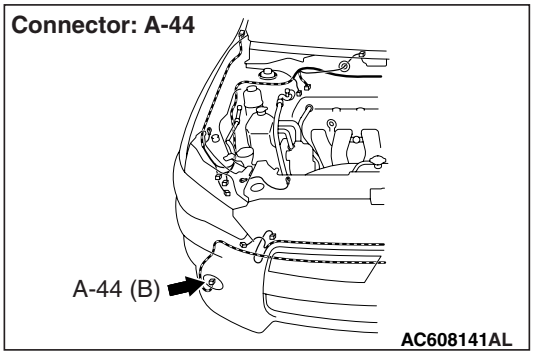


TECHNICAL DESCRIPTION (COMMENT)

If any of the fog lights do not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

TROUBLESHOOTING HINTS

- Burned-out fog light bulb
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set

STEP 1. Check fog light (LH) connector A-34 or fog light (RH) A-44 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fog light (LH) connector A-34 or fog light (RH) A-44 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 fog light bulb.

(1) Remove the fog light bulb.

(2) Verify that the fog light bulb is not damaged or burned out.

Q: Is the fog light bulb in good condition?

YES : Go to Step 3.

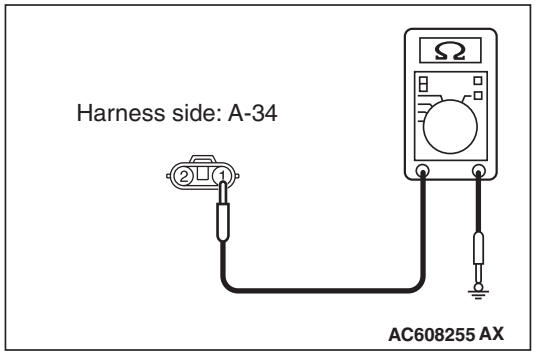
NO : Replace the fog light bulb.

Step 3. Check the ground circuit to the fog light (LH) or fog light (RH). Measure the resistance at fog light (LH) connector A-34 or fog light (RH) connector A-44.

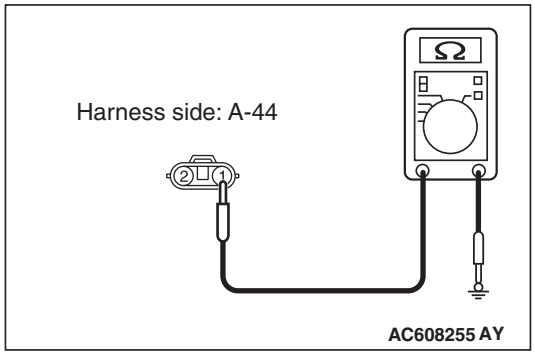
(1) Disconnect the connector, and measure at the wiring harness side.

(2) Check the resistance between the fog light connector and ground.

- Resistance between A-34 fog light (LH) connector terminal No.1 and ground



- Resistance between A-44 front fog light (RH) connector terminal No.1 and ground



OK: The resistance should be 2 ohm or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.

Step 4. Check the wiring harness between fog light (LH) connector A-34 or fog light (RH) connector A-44 (terminal 1) and ground.

NOTE: Also check intermediate connector A-39 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-39 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 fog light (LH) connector A-34 or fog light (RH) connector A-44 (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.00-13).

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 5. Check fog light relay connector A-11X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fog light relay connector A-11X 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 fog light (LH) connector A-34 or fog light (RH) connector A-44 (terminal 2) and fog light relay connector A-11X (terminal 3).

NOTE: Also check intermediate connector A-39 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-39 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 fog light (LH) connector A-34 or fog light (RH) connector A-44 (terminal 2) and fog light relay connector A-11X (terminal 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. Retest the system.

Q: Does the right or left fog light does not illuminate in good condition?

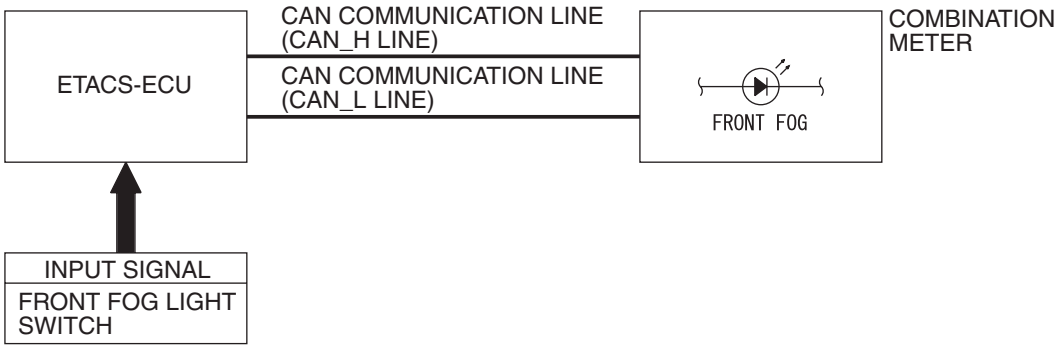
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the fog light(s).

Inspection Procedure 3: The front fog light indicator does not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Front Fog Light Indicator Light Circuit



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TECHNICAL DESCRIPTION (COMMENT)

If the fog light indicator does not illuminate normally, connector(s), wiring harness in the CAN bus lines, the ETACS-ECU or the combination meter may be defective.

TROUBLESHOOTING HINTS

- The ETACS-ECU may be defective
- The combination meter may be defective
- Damaged harness wires and connectors

DIAGNOSIS

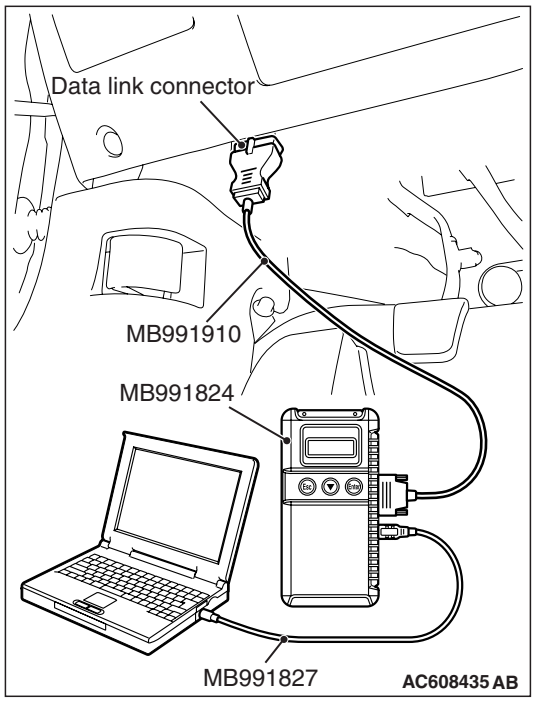
Required Special Tools:

- MB991223: Harness Set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Check the fog lights.
When the fog light switch is operated, check that the fog lights illuminate and go off normally.

Q: Is the fog lights normal?

YES : Go to Step 2.
NO : First, repair the front fog lights. Refer to Inspection Procedure 2 "The right or left fog light does not illuminate P.54A-183."



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 "How to connect scan too (M.U.T.-III) P.54A-196."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 3.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

(1) Check whether a combination meter-related DTC is set.
(2) Turn the ignition switch to the "ON" position.
Check whether the combination meter-related DTC is set.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the combination meter (Refer to combination meter, Diagnosis P.54A-23).
NO : Go to Step 4.

STEP 4. Using scan tool MB991958, check actuator test.

(1) Turn the ignition switch to the "ON" position.
(2) Perform the actuator test for the combination meter, and check that the fog light indicator illuminates (Refer to combination meter, Diagnosis P.54A-53).
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Replace the ETACS-ECU.
NO : Replace the combination meter.

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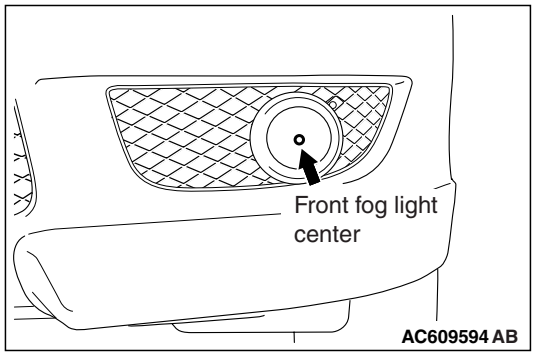
ON-VEHICLE SERVICE

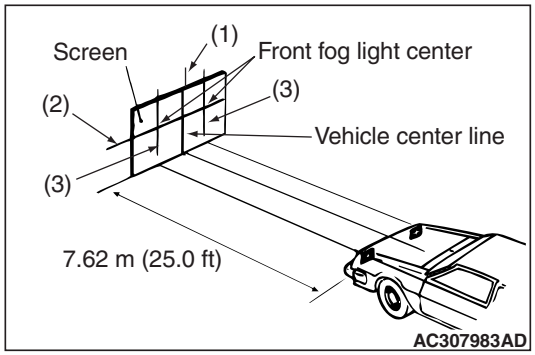
FRONT FOG LIGHT AIMING

M1540400300141

PRE-AIMING INSTRUCTIONS

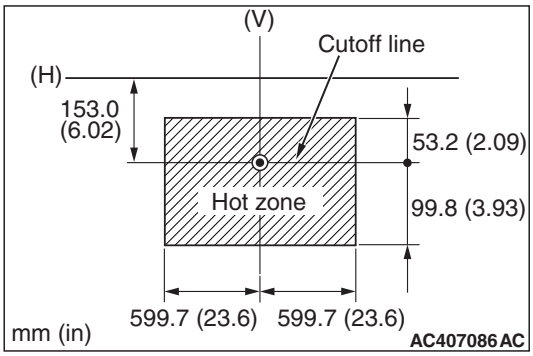
1. Inspect for rusted or faulty front fog light assemblies.
2. These conditions must be corrected before a satisfactory adjustment can be made.
3. Inspect tire inflation, and adjust if necessary.
4. If the fuel tank is not full, place a weight in the trunk of the vehicle to simulate weight of a full tank [3 kg (6.5 pounds) per gallon].
5. There should be no other load in the vehicle other than driver or substituted weight of approximately 68 kg (150 pounds) placed in driver's position.
6. Thoroughly clean the front fog light lenses.
7. Place the vehicle on a level floor, perpendicular to a flat screen 7.62 meters (25.0 ft) away from the bulb center-marks on the fog light lens.
8. Rock the vehicle sideways to allow the vehicle to assume its normal position.
9. Bounce the front suspension through three (3) oscillations by applying the body weight to the hood or bumper.
10. Measure the center of the front fog lights as shown in the illustration.





11. Four lines of adhesive tape (or equivalent markings) are required on screen or wall:
    (1) Position a vertical tape or mark so that it is aligned with the vehicle center line.
    (2) Measure the distance from the center of the front fog light lens to the floor. Transfer the measurement to the screen. Horizontal tape or mark on the screen is for reference of vertical adjustment.
    (3) Measure the distance from the center line of the vehicle to the center of each front fog light. Transfer the measurement to the screen. Vertical tape or mark on the screen is for reference to the center line of each front fog light.

FOG LIGHT ADJUSTMENT



1. Check if the beam shining onto the screen is at the standard value.

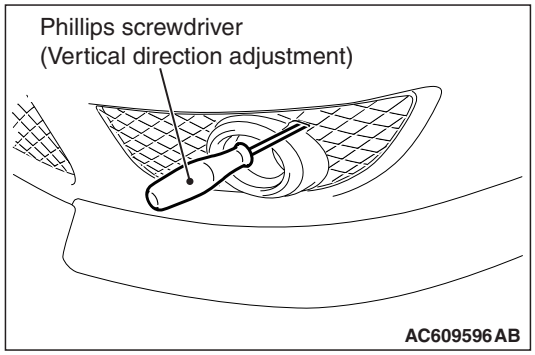
   Standard value:

   (Cutoff line direction): The horizontal line 153.0 mm (6.02 inches) (1.15 degrees angle) below the horizontal line (H)

   Limit:

   (Vertical direction): Area from 53.2 mm (2.09 inches) (0.4 degrees angle) above the cutoff line to 99.8 mm (3.93 inches) (0.75 degrees angle) below the cutoff line

   (Horizontal direction): Vertical line (V) ±599.7 mm (± 23.6 inches) (±4.5 degrees angle)



2. If it is not within the standard value range, adjust by turning the adjusting screw.

NOTE: The horizontal direction is non-adjustable. If deviation of the light beam axis exceeds the standard value, check that the mounting location or some other points are not faulty.

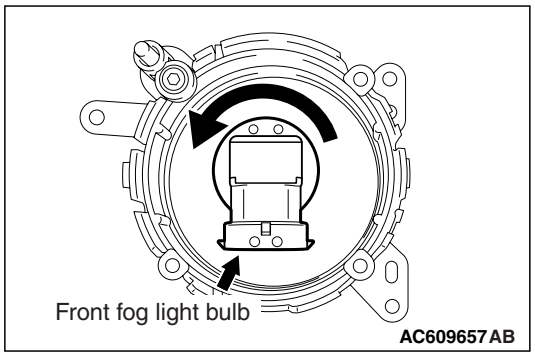
BULB REPLACEMENT

M1540400400148

1. Remove the front fog light bezel and the front fog light assembly. (Refer to P.54A-191.)

⚠ CAUTION

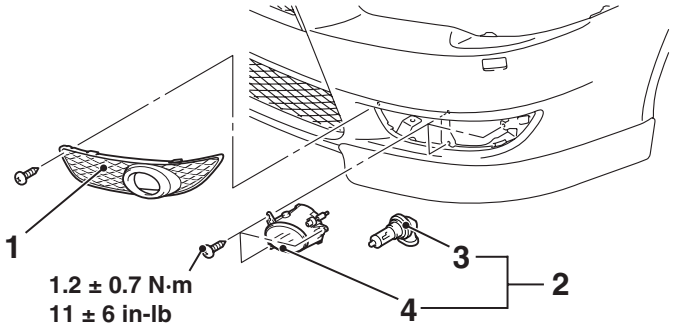
Don't touch the bulb surface with bare hands or dirty gloves. If the bulb surface (glass part) gets dirty, clean it with alcohol or thinner immediately and dry well, and then install it.



2. Disconnect the connector and withdraw the bulb.
3. Replace the bulb, and connect securely the connector.

REMOVAL AND INSTALLATION

M1540400500093



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Removal steps

1. Front fog light bezel
2. Fog light assembly

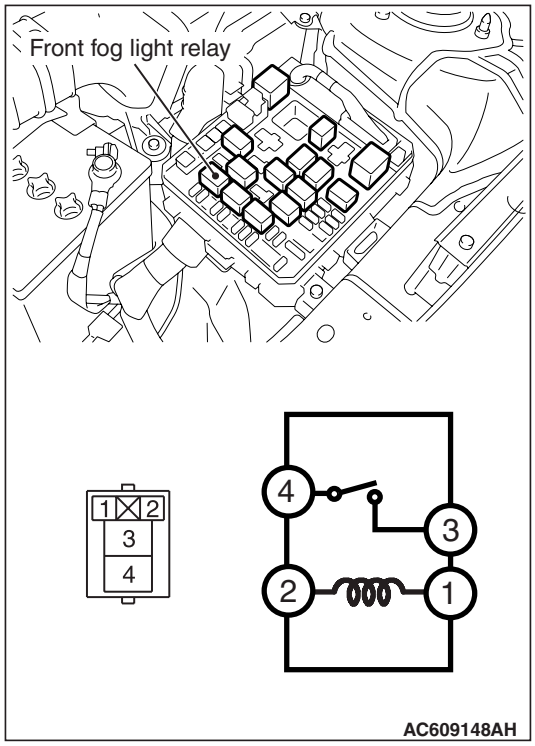
Removal steps (Continued)

3. Front fog light bulb
4. Front fog light unit

INSPECTION

FRONT FOG LIGHT RELAY CHECK

M1540400700075



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Battery voltage	Terminal number	Normal conditions
Not energized	3 –4	No continuity
With current supply [terminal 1 (+), terminal 2 (–)]		Continuity exists (2 ohms or less)

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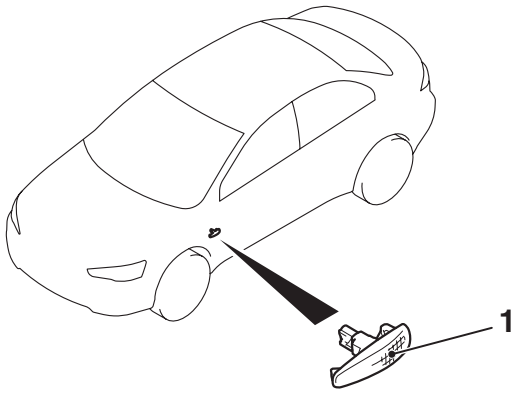
SIDE TURN-SIGNAL LIGHT

REMOVAL AND INSTALLATION

M1541800200145



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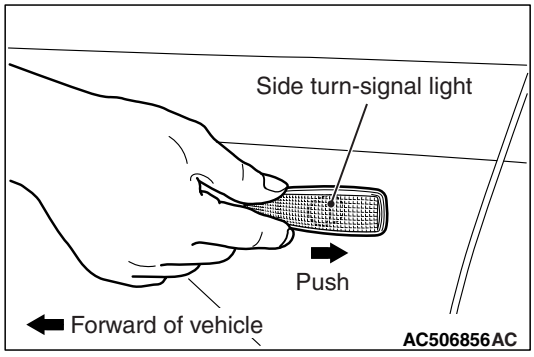
Removal step

<<**A**>> >>**A**<< 1. Side turn-signal light assembly

REMOVAL SERVICE POINT

<<A>> SIDE TURN-SIGNAL LIGHT REMOVAL



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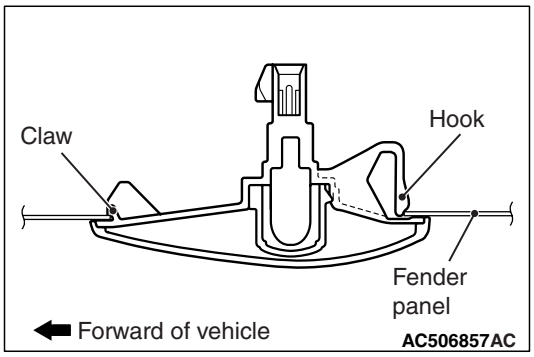
Push the side turn-signal light toward the vehicle rear to bend the hook, and then remove by disengaging the tab from the fender panel.

INSTALLATION SERVICE POINT

>>A<< SIDE TURN-SIGNAL LIGHT INSTALLATION



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Engage the claw to the fender panel to install the side turn signal light.

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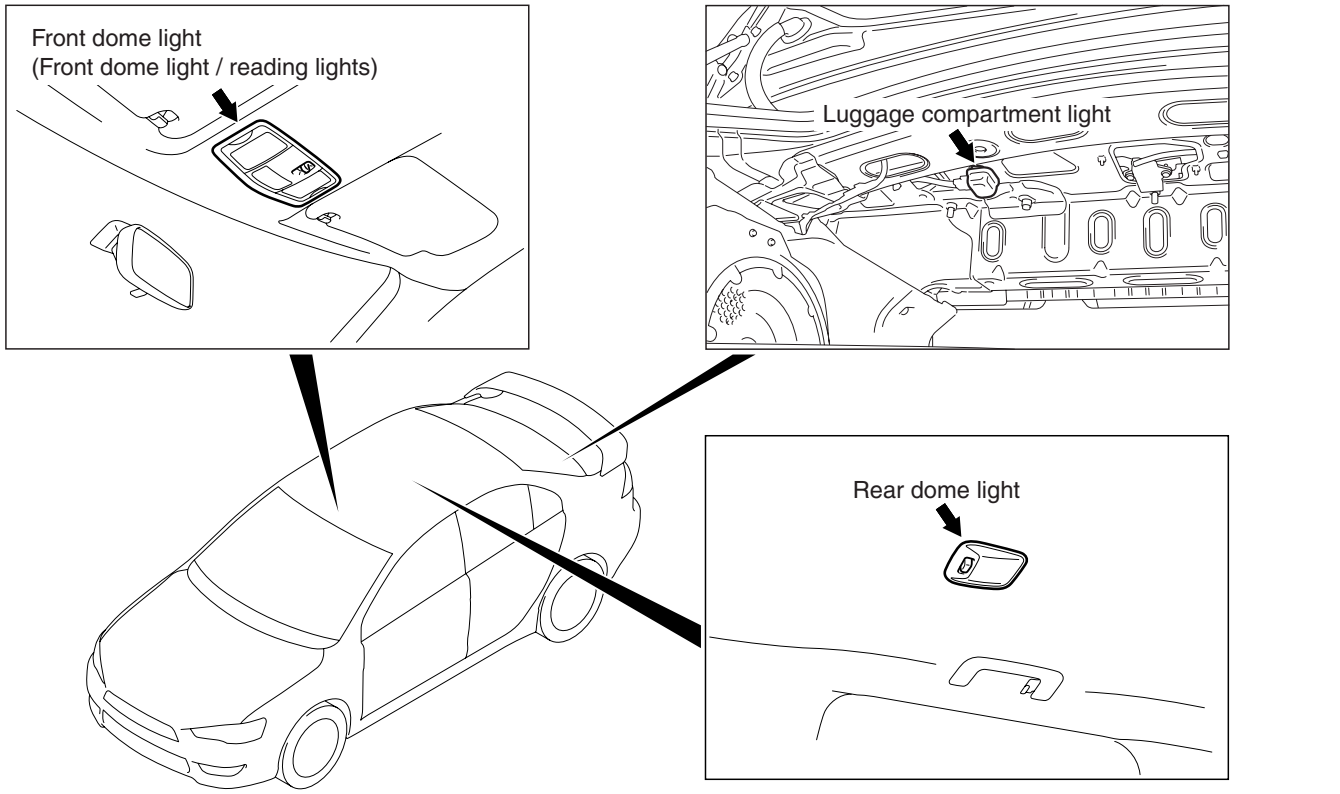
DOME LIGHT

GENERAL INFORMATION

M1542000100338



AC608728AB

- A front dome light, installed to the front part of the roof, has been equipped with the lens-push type map and dome light which can be operated easily from the driver's and front passenger's seat, offering excellent operability for turning on and off the light. <ES, GTS>
- The rear dome light, which illuminates the rear passenger's seat, is installed above the rear seat. <Vehicle without sunroof>
- The luggage compartment light is installed to the upper part of the luggage compartment.

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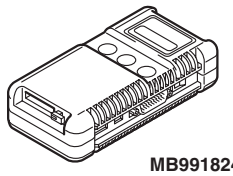
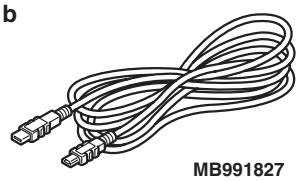
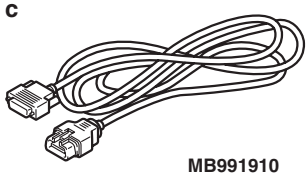
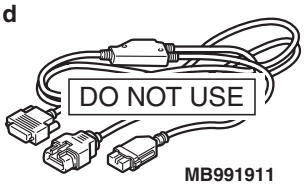
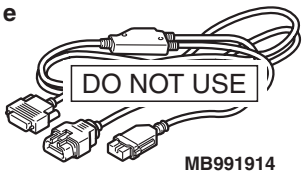
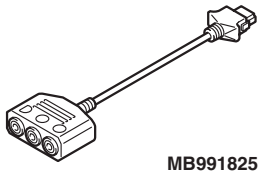
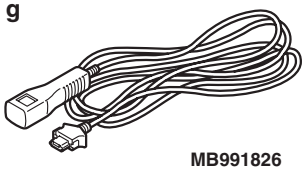
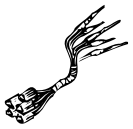
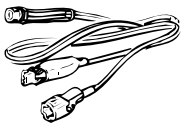
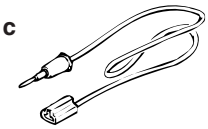
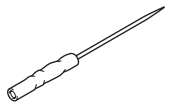
SPECIAL TOOLS

M1541301600088

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

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

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1541301500081

Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, Troubleshooting Contents P.00-6.

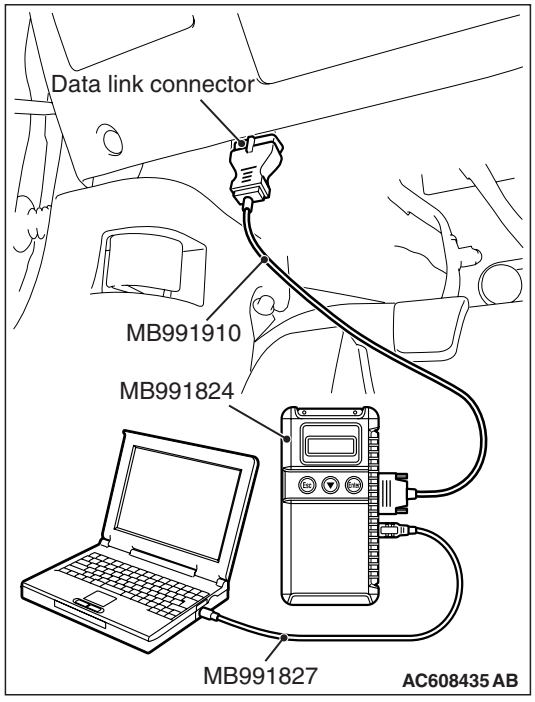
DIAGNOSTIC FUNCTION

M1541302100020

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

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)



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

MB991958: Scan Tool (M.U.T.-III Sub Assembly)
- MB991824: 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)

⚠ 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.

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

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

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

TROUBLE SYMPTOM CHART

M1541300200139

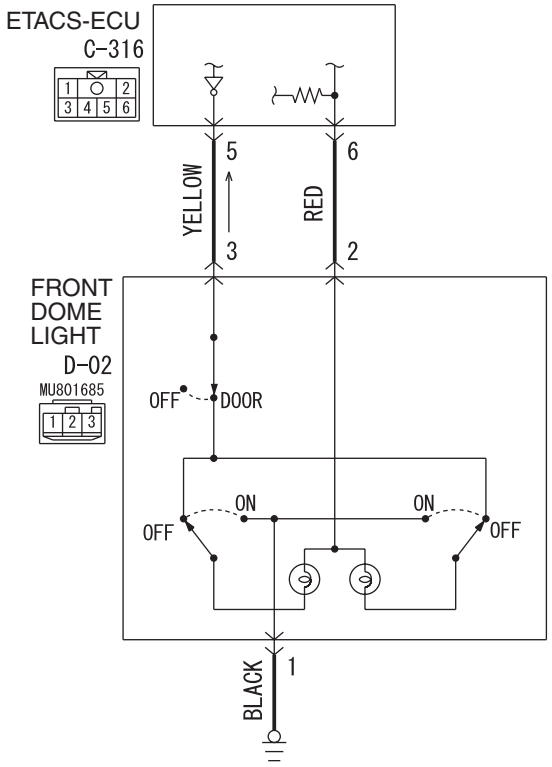
Inspection Procedure No.	Trouble symptom	Reference page
1	The front dome light does not illuminate normally.	P.54A-198
2	The rear dome light does not illuminate normally.	P.54A-202
3	The luggage compartment light does not illuminate normally.	P.54A-206
4	The interior light auto-cut function does not operate correctly.	P.54A-209

SYMPTOM PROCEDURES

Inspection Procedure 1: The front dome light does not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Front Dome Light Circuit



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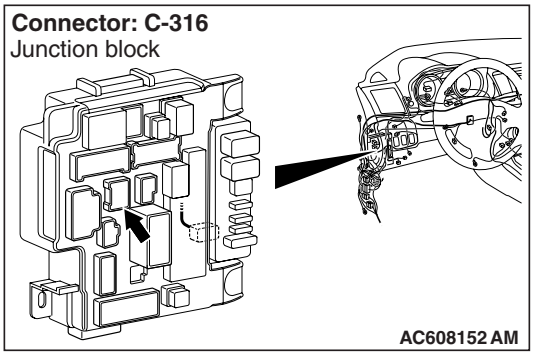

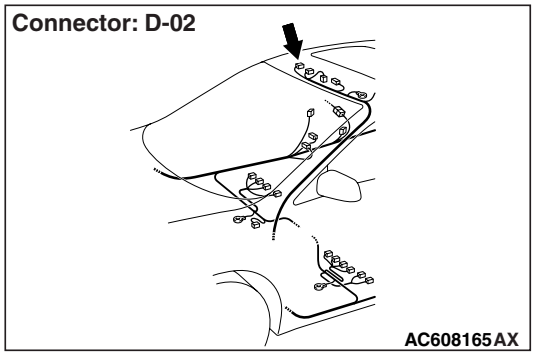

TROUBLE JUDGEMENT

The ETACS-ECU illuminates and extinguishes the front room light in accordance with the input signals below.

- Ignition switch (IG1)
- Key reminder switch

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- Door switches
- Front door lock actuator

TECHNICAL DESCRIPTION (COMMENT)

If this does not work normally, the above switch input circuit(s), front dome light, or ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

- Malfunction of the key reminder switch
- Malfunction of door switch
- Malfunction of the front door lock actuator switch
- Malfunction of front dome light
- Malfunction of the ETACS-ECU
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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

STEP 1. Rear dome light operation check.

Check that the rear dome light illuminates and extinguishes normally.

Q: Does rear dome light work normally?

YES : Go to Step 2.
NO : Replace the ETACS-ECU.

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

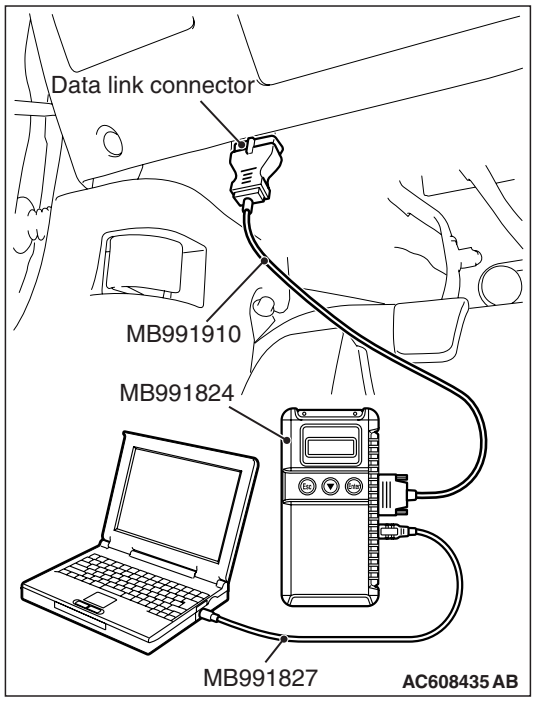
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-196."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-482.
NO : Go to Step 3.



STEP 3. Using scan tool MB991958, check data list.

Use the ETACS-ECU data list to check the signals related to the front dome light.

- Turn the ignition switch to the "LOCK" (OFF) position.
- Remove the ignition key from the ignition key cylinder.
- Open each door.

Item No.	Item name	Normal condition
Item 228	Dr door unlock	ON
Item 254	IG voltage	Battery voltage
Item 256	Dr door ajar switch	Open
Item 257	As door ajar switch	Open
Item 258	RR door ajar switch	Open
Item 259	RL door ajar switch	Open
Item 264	Handle lock switch	Key in →Key out

Q: Does scan tool MB991958 display the items "Dr door unlock", "IG voltage", "Dr door ajar switch", "As door ajar switch", "RR door ajar switch", "RL door ajar switch" and "Handle lock switch" as normal condition?

YES : (Normal conditions are displayed for all items.) Go to Step 4.

NO : (Normal condition is not displayed.) Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis, Input signal chart P.54A-528.

STEP 4. Check front dome light connector D-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front dome light connector D-02 in good condition?

YES : Go to Step 5.

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

STEP 5. Front dome light bulb check

Check that the front dome light bulb is normal.

Q: Is front dome light bulb normal?

YES : Go to Step 6.

NO : Replace the front dome light bulb.

STEP 6. Check ETACS-ECU connector C-316 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-316 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 front dome light connector D-02 (terminal 2, 3) and ETACS-ECU connector C-316 (terminal 6, 5)

Q: Are wiring harness between front dome light connector D-02 (terminal 2, 3) and ETACS-ECU connector C-316 (terminal 6, 5) 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 front dome light connector D-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front dome light connector D-02 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 wiring harness between front dome light connector D-02 (terminal 1) and body ground.

Q: Is wiring harness between front dome light connector D-02 (terminal 1) and body ground in good condition?

YES : Replace the front dome light, and then go to Step 10.

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

STEP 10. Retest the system

Check that the front dome light illuminates and extinguishes normally.

Q: Do the front dome light work normal?

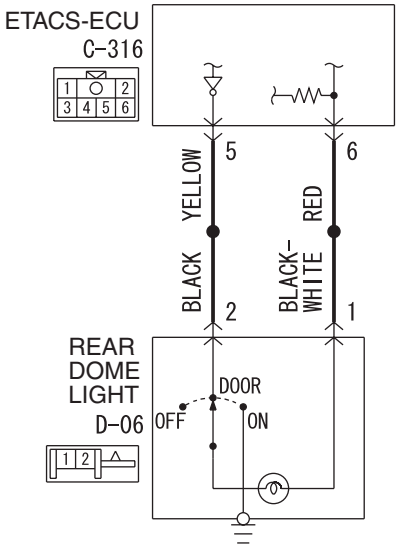
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

Inspection Procedure 2: The rear dome light does not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Rear Dome Light Circuit



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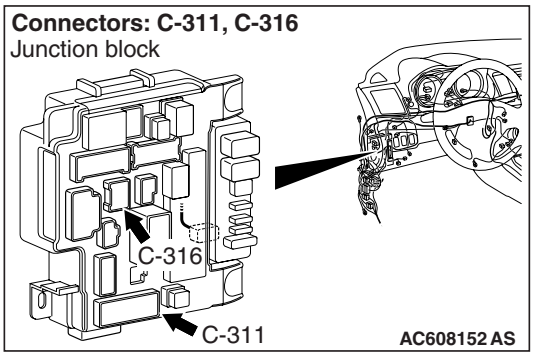

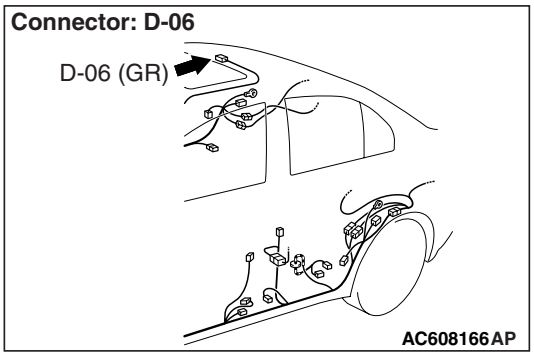

TROUBLE JUDGEMENT

The ETACS-ECU illuminates and extinguishes the rear dome light in accordance with the input signals below.

- Ignition switch (IG1)
- Key reminder switch
- Door switches
- Front door lock actuator

TECHNICAL DESCRIPTION (COMMENT)

If this does not work normally, the above switch input circuit(s), rear dome light, or ETACS-ECU may have a problem.

PROBABLE CAUSES

- Malfunction of the key reminder switch
- Malfunction of door switch
- Malfunction of the front door lock actuator (RH)
- Malfunction of rear dome light
- Malfunction of the ETACS-ECU
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

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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. Front dome light operation check

Check that the front dome light illuminates and extinguishes normally.

Q: Does rear dome light work normally?

YES : Go to Step 2.
NO : Replace the ETACS-ECU.

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

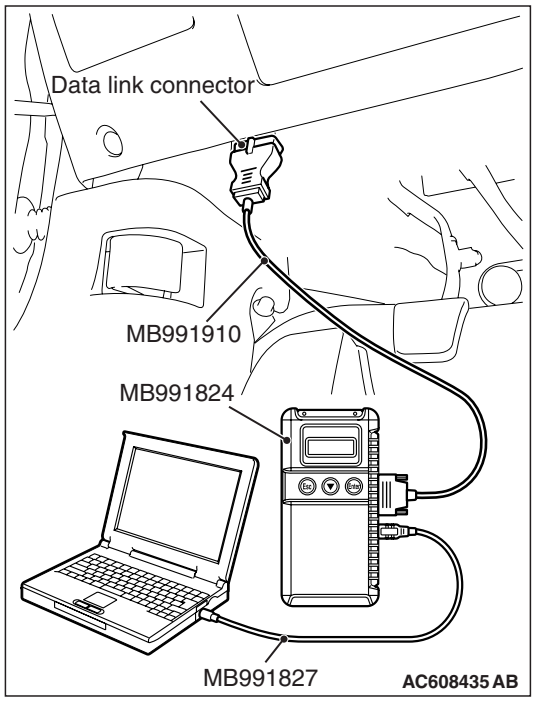
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-196."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-482.
NO : Go to Step 3.



STEP 3. Using scan tool MB991958, check data list.
Use the ETACS-ECU data list to check the signals related to the rear dome light.

- Turn the ignition switch to the "LOCK" (OFF) position.
- Remove the ignition key from the ignition key cylinder.
- Open each door.

Item No.	Item name	Normal condition
Item 228	Dr door unlock	ON
Item 254	IG voltage	Battery voltage
Item 256	Dr door ajar switch	Open
Item 257	As door ajar switch	Open
Item 258	RR door ajar switch	Open
Item 259	RL door ajar switch	Open
Item 264	Handle lock switch	Key in →Key out

Q: Does scan tool MB991958 display the items "Dr door unlock", "IG voltage", "Dr door ajar switch", "As door ajar switch", "RR door ajar switch", "RL door ajar switch" and "Handle lock switch" as normal condition?

YES : (Normal conditions are displayed for all items.) Go to Step 4.

NO : (Normal condition is not displayed.) Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis, Input signal chart P.54A-528.

STEP 4. Check rear dome light connector D-06 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear dome light connector D-06 in good condition?

YES : Go to Step 5.

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

STEP 5. Rear dome light bulb check
Check that the rear dome light bulb is normal.

Q: Is rear dome light bulb normal?

YES : Go to Step 6.

NO : Replace the rear dome light bulb.

STEP 6. Check ETACS-ECU connector C-316 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-311 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 rear dome light D-06 connector (terminal 1, 2) and ETACS-ECU connector C-316 (terminal 6, 5)

Q: Is wiring harness between rear dome light D-06 connector (terminal 1, 2) and ETACS-ECU connector C-316 (terminal 6, 5) 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. Retest the system

Check that the rear dome light illuminates and extinguishes normally.

Q: Does rear dome light work normal?

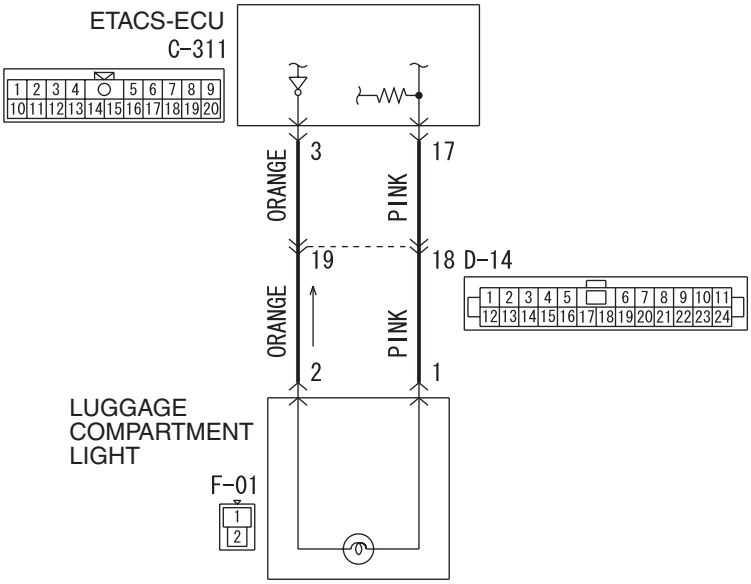
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

Inspection Procedure 3: The luggage compartment light does not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Luggage Compartment Light Circuit



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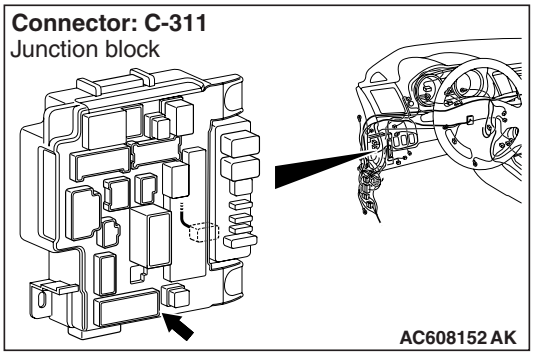

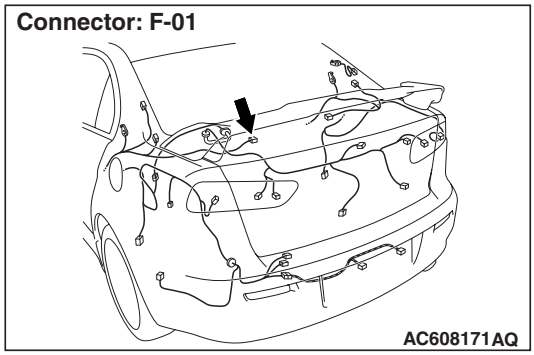

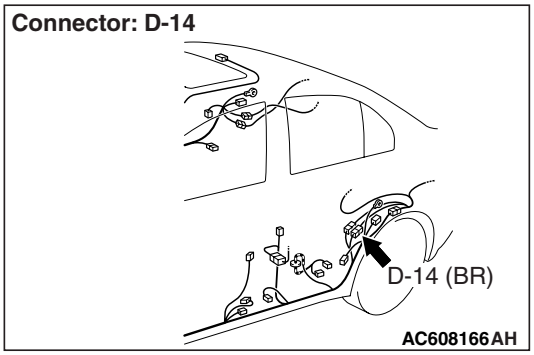

TROUBLE JUDGEMENT

The ETACS-ECU illuminates and extinguishes the luggage compartment light in accordance with the input signals from trunk lid actuator and switch.

TECHNICAL DESCRIPTION (COMMENT)

If this does not work normally, the trunk lid actuator and switch input circuit, luggage compartment light, or ETACS-ECU may have a problem.

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TROUBLESHOOTING HINTS

- Malfunction of trunk lid actuator and switch
- Malfunction of luggage compartment light
- Malfunction of the ETACS-ECU
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

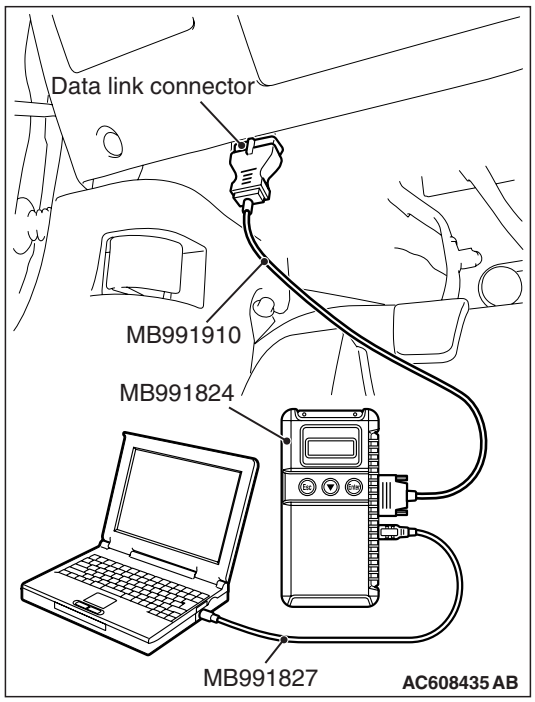
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-196."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-482.
NO : Go to Step 2.



STEP 2. Using scan tool MB991958, check data list.

Use the ETACS-ECU service data to check the signal related to the operation of luggage compartment light.

- Open the trunk lid.

Item No.	Item name	Normal condition
Item 260	Trunk/gate trunk ajar switch	Open

Q: Does scan tool MB991958 display the item "Trunk/gate trunk ajar switch" as normal condition?

YES : (Normal condition is displayed.) Go to Step 3.

NO : (Normal condition is not displayed.) Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis, Input signal chart P.54A-528.

STEP 3. Check luggage compartment light connector F-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is luggage compartment light connector F-01 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. Luggage compartment light bulb check

Check that the luggage compartment light bulb is normal.

Q: Is luggage compartment light bulb normal?

YES : Go to Step 5.

NO : Replace the luggage compartment light bulb.

STEP 5. Check ETACS-ECU connector C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-311 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 luggage compartment light connector F-01 (terminal 1, 2) and ETACS-ECU connector C-311 (terminal 17, 3).

NOTE: Also check intermediate connector D-14 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is wiring harness between luggage compartment light connector F-01 (terminal 1, 2) and ETACS-ECU connector C-311 (terminal 17, 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. Retest the system

Check that the luggage compartment light illuminates and extinguishes normally.

Q: Do the trunk room work 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.00-13).

NO : Replace the ETACS-ECU.

Inspection Procedure 4: The interior light auto-cut function does not operate correctly.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU operates the interior light auto-cut function in accordance with the input signals below.

- Ignition switch (ACC)
- Ignition switch (IG1)
- Door switches

If this function does not work normally, these input signal circuit(s) or the ETACS-ECU may have a problem. Also, "Interior light auto cut timer" may be set to "0min" through customization.

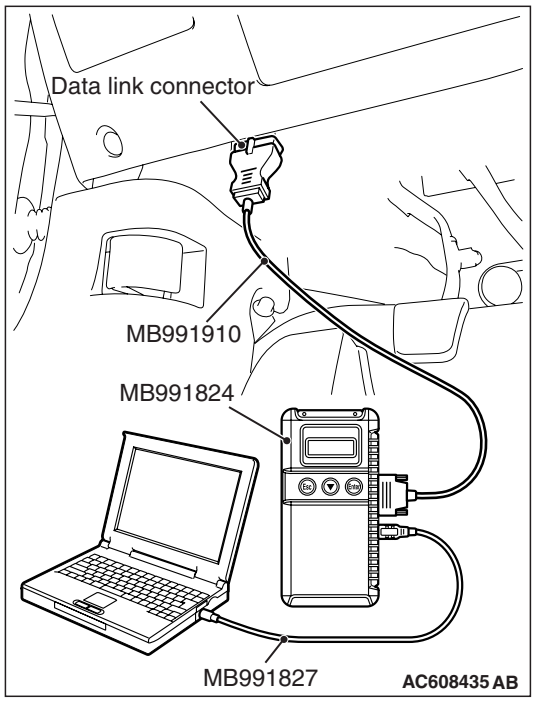
TROUBLESHOOTING HINTS

- Malfunction of door switch
- Malfunction of the dome light
- Malfunction of the ETACS-ECU
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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



STEP 1. Using scan tool MB991958, Check the configuration function.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-196."
(2) Turn the ignition switch to the "ON" position.
(3) Use the ETACS-ECU customize function to check to see which of the followings other than "0min" the "Interior light auto cut timer" is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Use the ETACS-ECU configuration function to set the "Interior light auto cut timer" to other than "0min" (Refer to P.54A-561).

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

Check if DTC is set to the ETACS-ECU.
(1) Turn the ignition switch to the "ON" position.
(2) Check whether the ETACS-ECU DTC is set.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-482.
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, check data list.

Use the ETACS-ECU data list to check the signals related to the interior light auto-cut function.

- Turn the ignition switch to the "ACC" position.
- Turn the ignition switch to the "LOCK" (OFF) position.
- Open each door.

Item No.	Item name	Normal condition
Item 254	IG voltage	Battery voltage
Item 288	ACC switch	OFF
Item 256	Dr door ajar switch	Open
Item 257	As door ajar switch	Open
Item 258	RR door ajar switch	Open
Item 259	RL door ajar switch	Open

Q: Does scan tool MB991958 display the items "IG voltage", "ACC switch", "As door ajar switch", "RR door ajar switch", and "RL door ajar switch" as normal condition?

YES : (Normal conditions are displayed for all items.) Go to Step 4.

NO : (Normal condition is not displayed.) Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis, Input signal chart P.54A-528.

STEP 4. Retest the system.

Check that the interior light automatic shutdown function works normally.

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.00-13).

NO : Replace the ETACS-ECU.

ON-VEHICLE SERVICE

CONFIGURATION FUNCTION

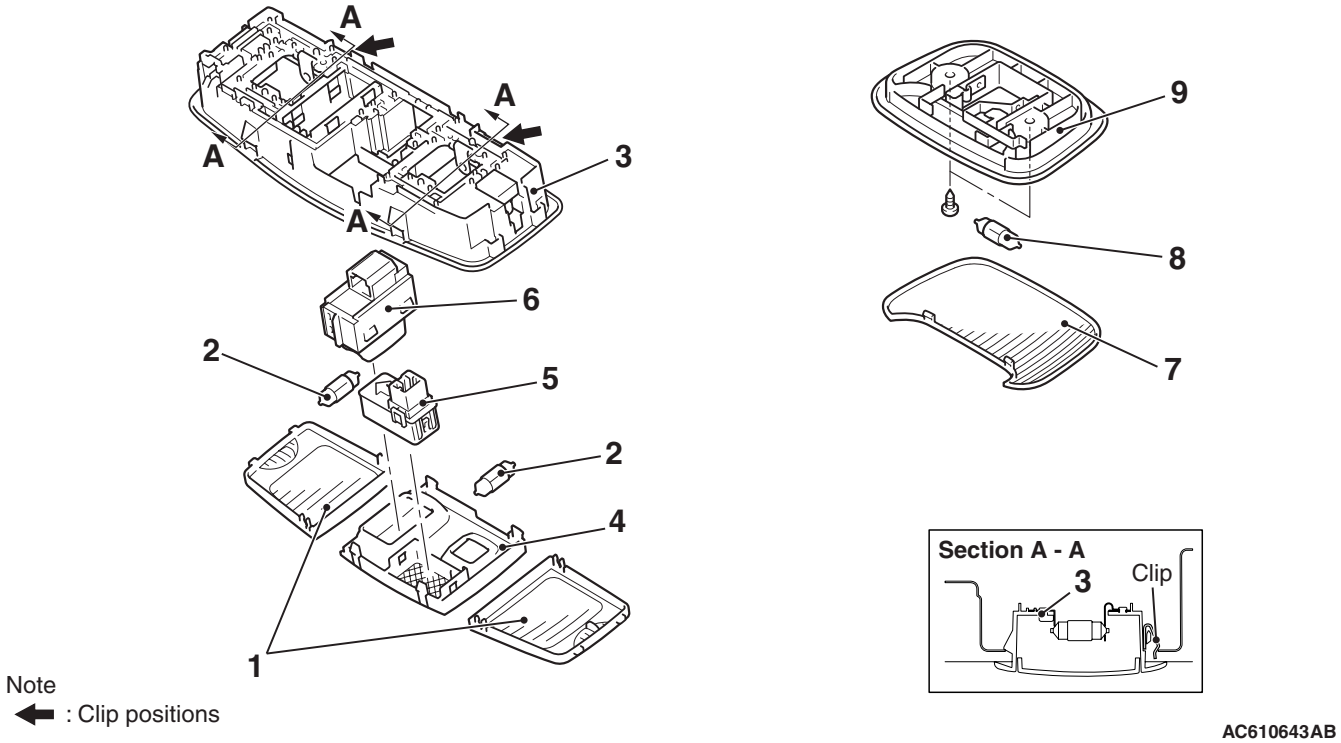
M1541301200132

Use scan tool MB991958 to adjust the following functions. The programmed information is held even when the battery is disconnected.

Adjustment item (scan tool display)	Adjustment item	Adjusting contents (scan tool display)	Adjusting contents
Dome light delay timer with door	Adjustment of interior light delay shutdown time	0 sec	0 second (no delay shutdown time) (default <Vehicles without central door locking system>)
		7.5 sec	7.5 seconds
		15 sec	15 seconds
		30 sec	30 seconds (default <Vehicles with central door locking system>)
		60 sec	60 seconds
		120 sec	120 seconds
		180 sec	180 seconds
Interior light auto cut timer	Adjustment of interior light automatic shutdown function operation time	Disable	No function
		3 min	3 minutes
		30 min	30 minutes (default)
		60 min	60 minutes

DOME LIGHT REMOVAL AND INSTALLATION

M1541302700011



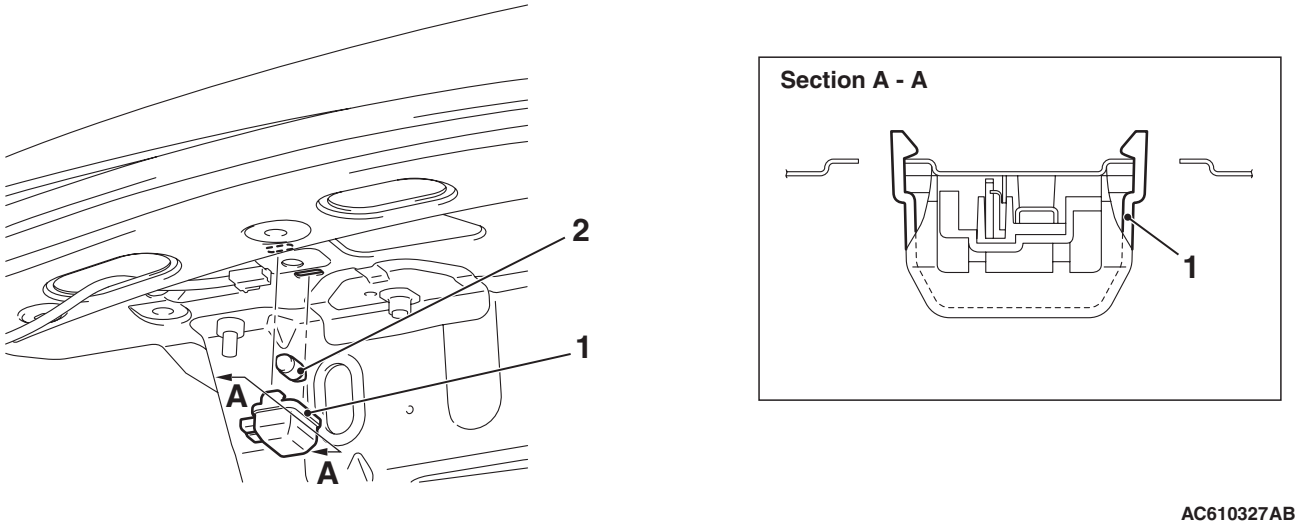
TSB Revision

Removal Steps
1. Front dome light lens
2. Dome light bulb
3. Front dome light
4. Front dome light cover
5. Microphone unit <Vehicles with hands-free cellular phone system>

Removal Steps (Continued)
6. Sunroof switch <Vehicles with sunroof>
7. Rear dome light lens
8. Dome light bulb
9. Rear dome light

LUGGAGE COMPARTMENT LIGHT REMOVAL AND INSTALLATION

M1541302600014



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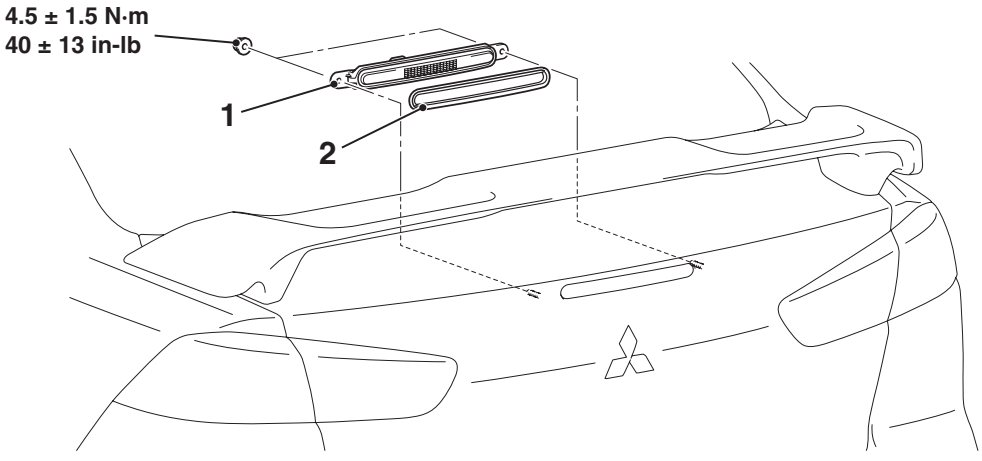
Removal Steps
1. Luggage compartment light lens
2. Luggage compartment light bulb

HIGH-MOUNTED STOPLIGHT

REMOVAL AND INSTALLATION

M1541700200159



AC609978AB

Removal Steps
- Trunk lid trim

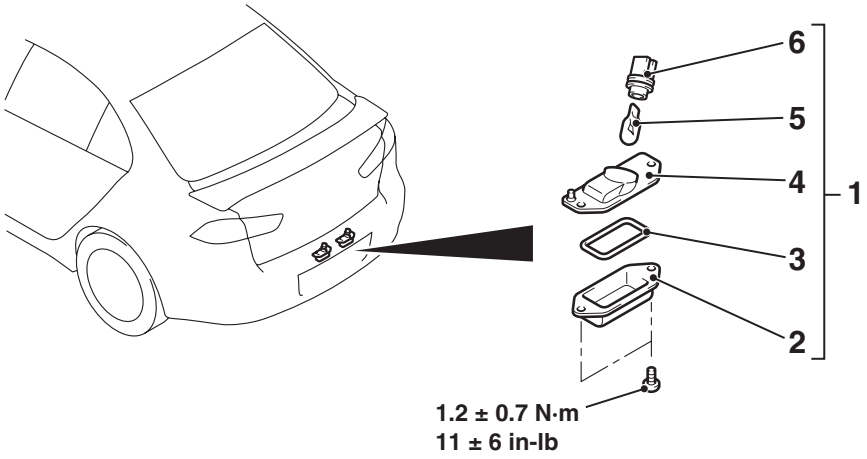
Removal Steps (Continued)
1. High-mounted stoplight assembly
2. Gasket

TSB Revision

LICENSE PLATE LIGHT

REMOVAL AND INSTALLATION

M1541900200175



AC610326AB

Removal Steps

1. License plate light assembly
2. Lens
3. Gasket

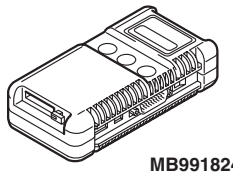
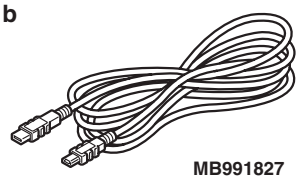
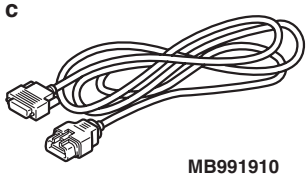
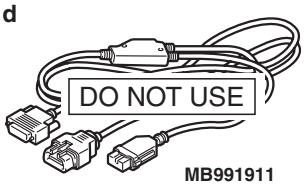
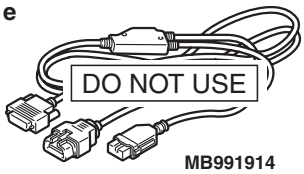
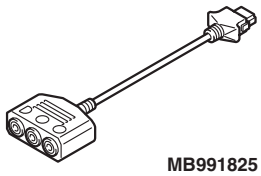
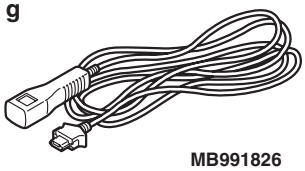
Removal Steps (Continued)

4. Body
5. Bulb
6. Socket

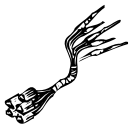
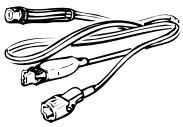
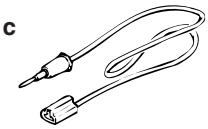
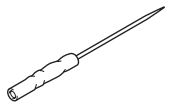
HAZARD WARNING LIGHT SWITCH

SPECIAL TOOLS

M1541500100084

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

TSB Revision

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

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1541501400088

Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, Troubleshooting Contents P.00-6.

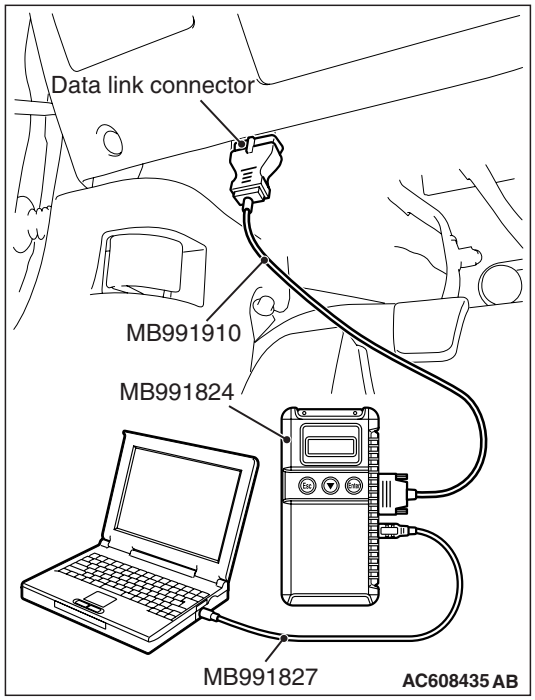
DIAGNOSTIC FUNCTION

M1541500600034

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

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)



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

MB991958: Scan Tool (M.U.T.-III Sub Assembly)
- MB991824: 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)

⚠ 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.

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

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

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

8. Choose "Erase DTCs" to erase the DTC.

DIAGNOSTIC TROUBLE CODE CHART

M1541500200025

⚠ 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.

Diagnostic trouble code No.	Diagnostic item	Reference page
B16A6	Turn-signal fuse blown	P.54A-218

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B16A6: Turn-signal fuse blown

TROUBLE JUDGEMENT
When the hazard warning light fuse is blown, the ETACS-ECU sets the DTC B16A6.

TECHNICAL DESCRIPTION (COMMENT)
With the DTC not set, when the blown fuse of hazard warning light is detected three times consecutively, the ETACS-ECU sets the DTC B16A3.

TROUBLESHOOTING HINTS
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- Malfunction of the ETACS-ECU

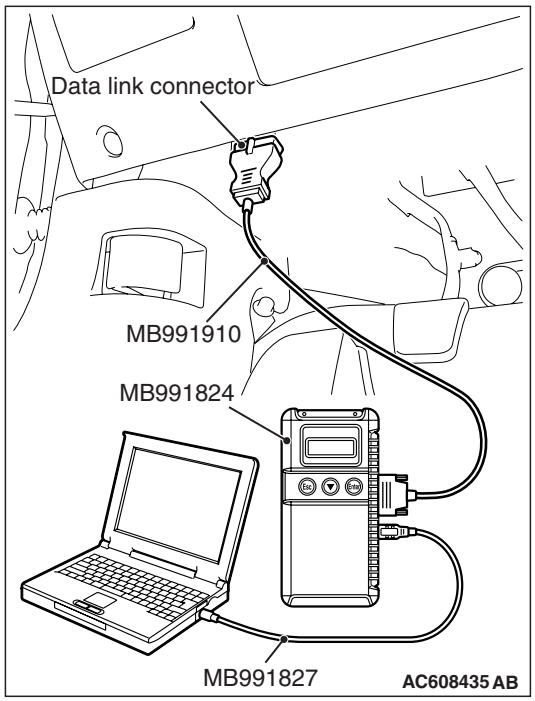
DIAGNOSIS

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. Fuse check
Check if the turn-signal light fuse is normal.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Replace the turn-signal light fuse.



STEP 2. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan tool P.54A-216."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The procedure is complete.

TROUBLE SYMPTOM CHART

M1541500700075

Inspection Procedure No.	Trouble symptom	Reference page
1	The hazard warning lights do not illuminate.	P.54A-219

SYMPTOM PROCEDURES

Inspection Procedure 1: The hazard warning lights do not illuminate.

⚠ CAUTION

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

TECHNICAL DESCRIPTION (COMMENT)

If the hazard warning light does not illuminate, the hazard warning light switch input circuit in center panel unit or the ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

- Malfunction of center panel unit
- Malfunction of the ETACS-ECU
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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

STEP 1. Check that the turn-signal light operate.

Check that the turn-signal lights illuminate normally.

Q: Does turn-signal light work normally?

YES : Go to Step 2.

NO : Diagnose the headlights. Refer to Inspection Procedure 10 "The turn-signal lights do not illuminate" P.54A-140.

STEP 2. Using scan tool MB991958, check data list.

Using the ETACS-ECU service data, check the hazard warning light signal.

⚠ CAUTION

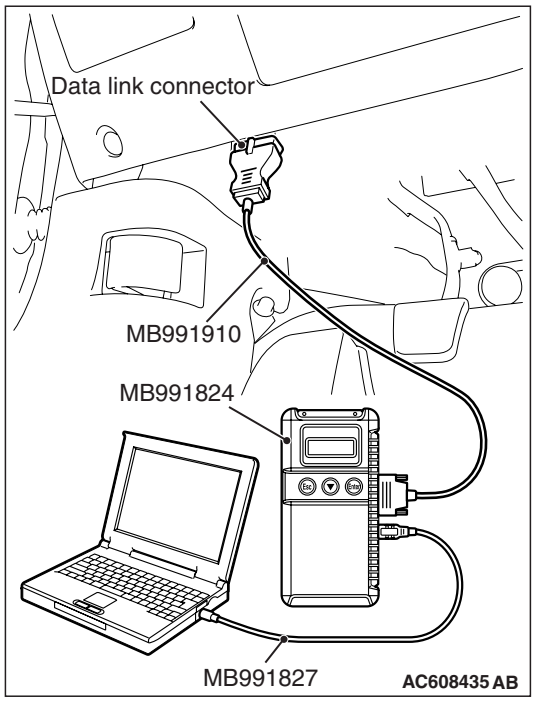
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1.Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-216."

2.Turn the ignition switch to the "ACC" position.

3.Turn "ON" the hazard light switch.

Item No.	Item name	Normal conditions
Item 265	Hazard switch	ON



Q: Does scan tool MB991958 display the items "Hazard switch" as normal condition?

YES : (Normal condition is displayed for item) Go to Step 3.

NO : (Normal condition is not displayed for item No. 265.) Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis - Inspection Procedure 11 "ETACS-ECU does not receive any signal from the hazard warning light switch" P.54A-557.

STEP 3. Retest the system

Check that the hazard warning light illuminate normally.

Q: Does the taillight work 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.00-13).

NO : Replace the ETACS-ECU.

REMOVAL AND INSTALLATION

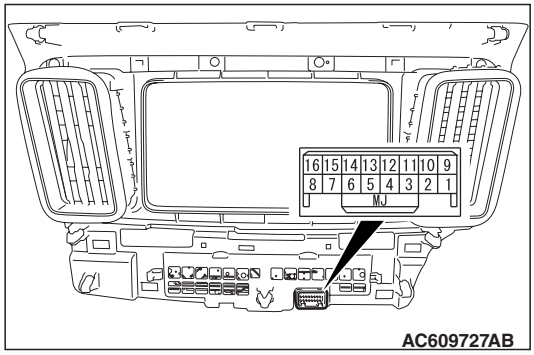
M1541501000154

Refer to GROUP 52A –Instrument Center Panel P.52A-6.

INSPECTION

HAZARD WARNING LIGHT SWITCH CHECK

M1541501100128

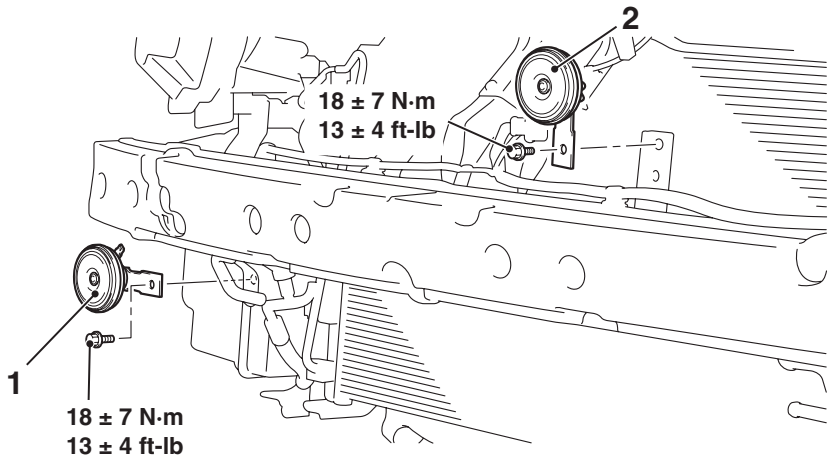


Switch position	Terminal number	Normal conditions
OFF	5 –9	No continuity
ON		Continuity exists (2 ohms or less)

HORN

REMOVAL AND INSTALLATION

M1542100200172



AC608781AB

Removal Steps

- Front bumper assembly (Refer to GROUP 51 –Front Bumper Assembly P.51-3).

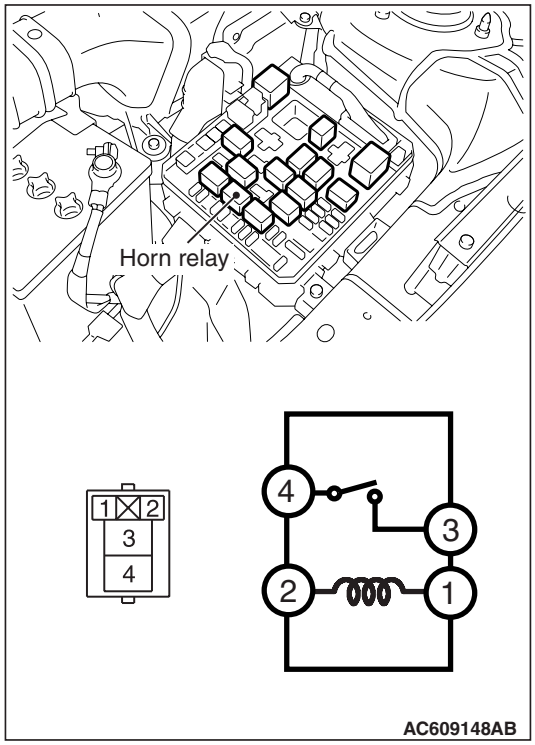
Removal Steps (Continued)

1. Horn (HIGH)
2. Horn (LOW)

INSPECTION

HORN RELAY CHECK

M1542100400143



AC609148AB

Battery voltage	Terminal number	Normal condition
At no energization	3 –4	No continuity
With current supply [terminal 1 (+), terminal 2 (–)]		Continuity exists (2 ohms or less)

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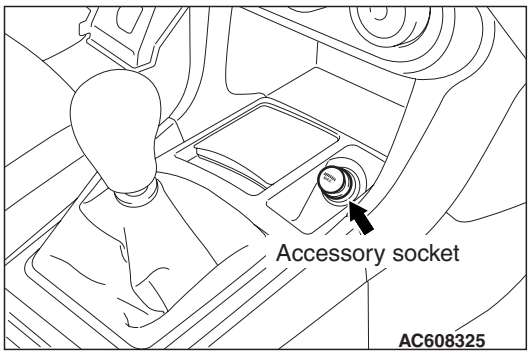
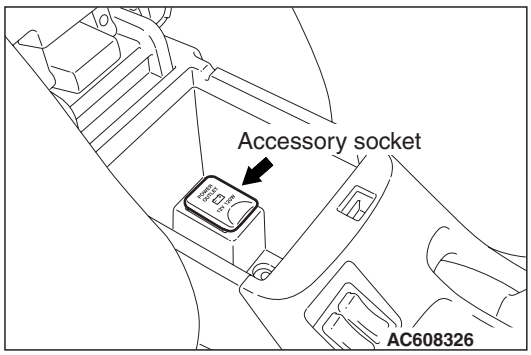
ACCESSORY SOCKET

GENERAL INFORMATION

M1542300500047

The plug-in type accessory socket has been installed for the convenient use of accessories.



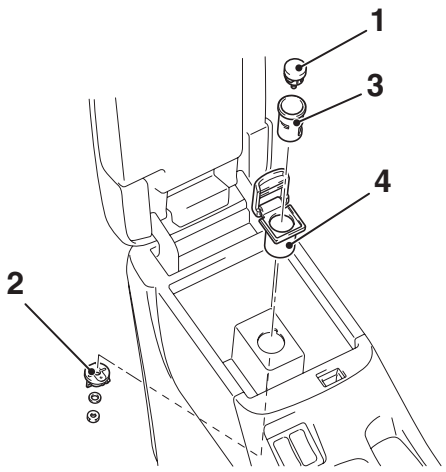


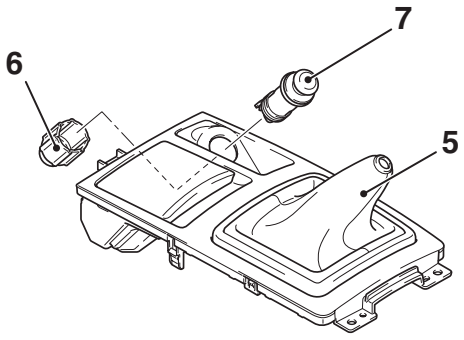
AC608567

- Accessory socket has been added to the front floor console. This accessory socket can be replaced to the cigar lighter as an option.
- Accessory sockets have been added to the rear floor console. <Standard equipment: ES,GTS>
- The maximum load is 120 W when a single accessory socket is used. When two accessory sockets are used simultaneously, the combined maximum load for two sockets is 120 W.

REMOVAL AND INSTALLATION

M1542300200176





AC609358AB

Removal Steps <Rear Floor Console>

- Floor console panel assembly (Refer to GROUP 52A –Floor Console Assembly P.52A-8).

1. Positive terminal assembly
2. Negative terminal assembly

<<A>> 3. Accessory socket

4. Accessory socket cover

Removal Steps <Front Floor Console>

5. Floor console box cup holder (Refer to GROUP 52A –Front Floor Console Assembly P.52A-8).
6. Accessory socket case
7. Accessory socket and cap

REMOVAL SERVICE POINT

<<A>> REMOVAL OF ACCESSORY SOCKET <REAR FLOOR CONSOLE>

Disassemble, and remove.

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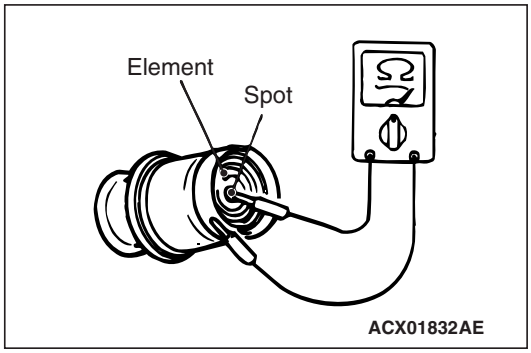
CIGARETTE LIGHTER

INSPECTION

M1543019502979

CIGARETTE LIGHTER CHECK



- Take out the plug, and check for a worn edge on the element spot connection, and for shreds of tobacco or other material on the element.
- Using an ohmmeter, check that the element resistance value is 1.7 ohms.

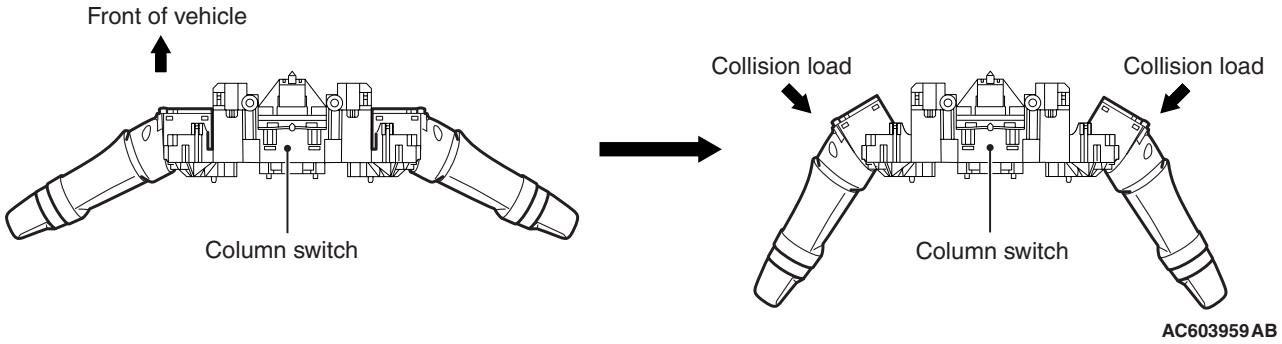
COLUMN SWITCH

GENERAL INFORMATION

M1543101800017

Column switch has a function to ensure the driver's safety during frontal collision of vehicle.

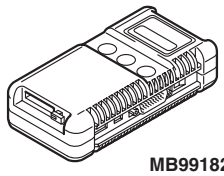
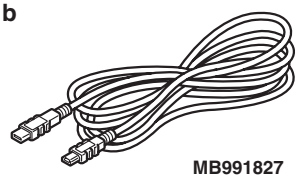
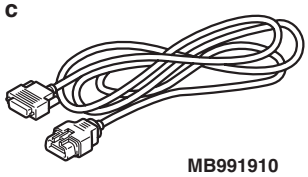
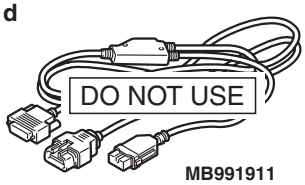
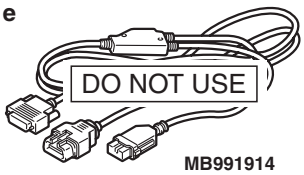
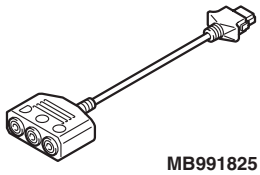
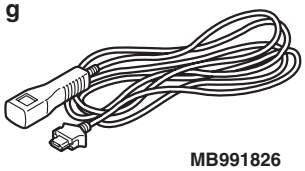
Function

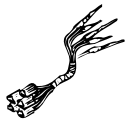
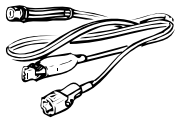
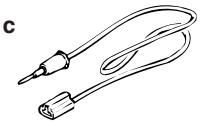
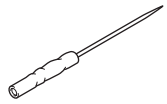


If the column switch is moved to the front of the vehicle and hit on the instrument panel or meter bezel by the frontal collision of vehicle, the steering wheel is moved to the front of the vehicle because the right and left levers fall down, ensuring the driver's safety. In addition, the column switch secures the rigidity that the levers do not fall down by the normal operation, however, it cannot be reused after the deformation.

SPECIAL TOOLS

M1543100200175

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

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

TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1543101200112

Refer to GROUP 00 –Contents of troubleshooting
P.00-6.

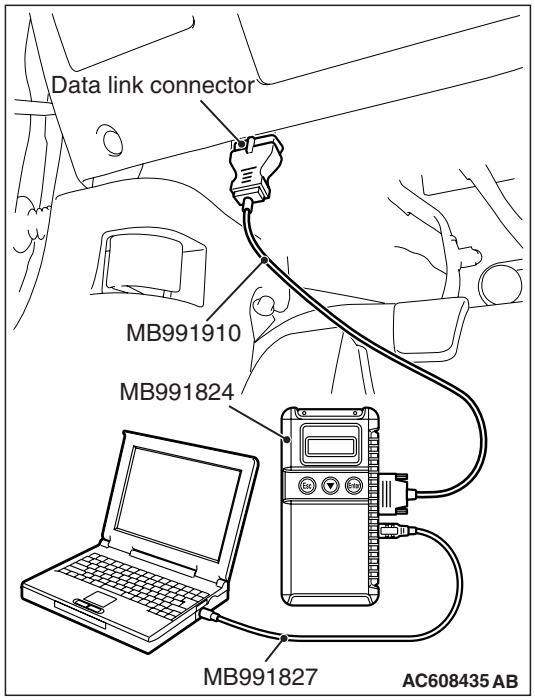
DIAGNOSTIC FUNCTION

M1543101300090

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

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)



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: 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)

⚠ 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.

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

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

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

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DIAGNOSTIC TROUBLE CODE TABLE

M1543100300105

Diagnostic trouble code No.	Diagnostic item	Reference page
B2350	Malfunction of lighting switch	P.54A-228
B2351	Malfunction of wiper/washer switch	

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B2350: Malfunction of lighting switch,
DTC B2351: Malfunction of wiper/washer switch

TROUBLE JUDGEMENT

The ETACS-ECU receives the signals related to lighting and wiper/washer from the column switch. If the fail information data is included in the signal from column switch, DTC B2350 (malfunction of lighting switch) or B2351 (malfunction of wiper/washer switch) is stored.

TECHNICAL DESCRIPTION (COMMENT)

The column switch or the ETACS-ECU may have a problem.

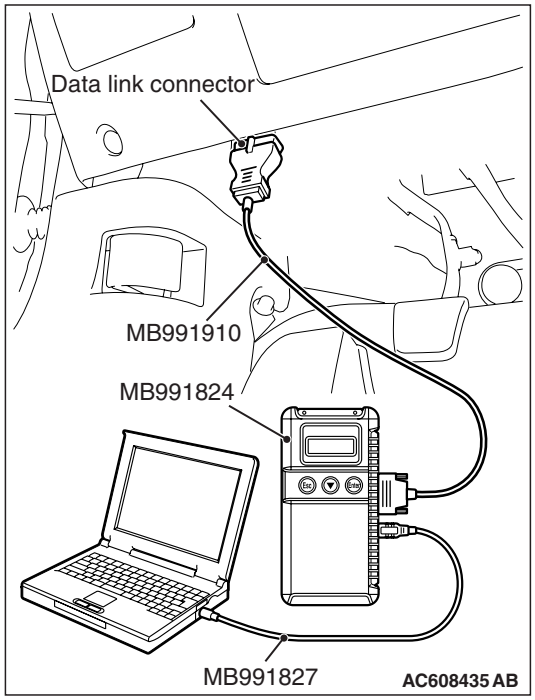
TROUBLESHOOTING HINTS

- Column switch may be defective
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

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



STEP 1. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan tool P.54A-226".
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if the DTC B2350 or B2351 is set.
(6) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

DTC B2351 is set. : Go to Step 2.
DTC B2350 is set. : Go to Step 3.
No DTC is set. : The trouble can be an intermittent malfunction (GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

STEP 2. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

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

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

Q: Is the DTC set?

YES : Go to Step 3.
NO : The procedure is complete.

STEP 3. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

Check again if the DTC is set to the ETACS-ECU.
(1) Replace the lighting switch.
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.
(6) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

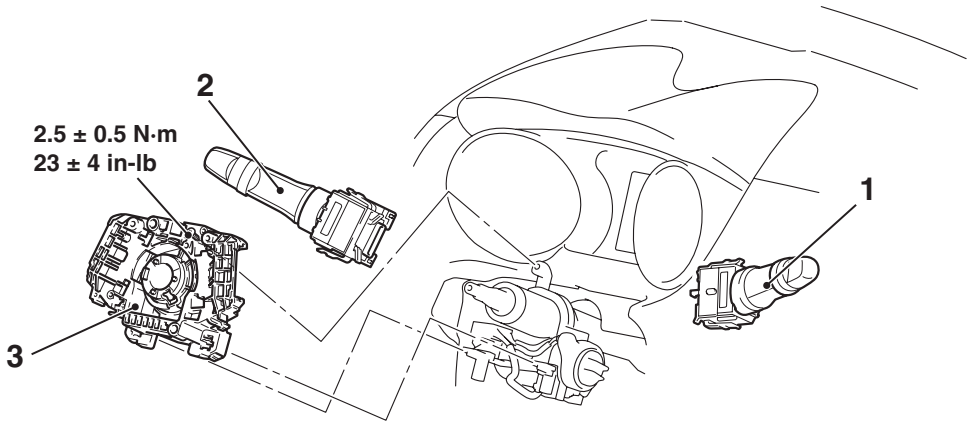
YES : Replace the ETACS-ECU.
NO : The procedure is complete.

REMOVAL AND INSTALLATION

M1543100700158

⚠ CAUTION

- **To remove the driver airbag module, refer to GROUP 52B –Service Precautions P.52B-24 and Driver/Front Passenger's Air Bag Module and Clock Spring P.52B-367.**



AC609141AB

Removal Steps

- Lower, upper Steering column cover (Refer to GROUP 37 Steering Column shaft assembly P.37-25).

1. Wiper/washer switch
2. Lighting switch

Removal Steps (Continued)

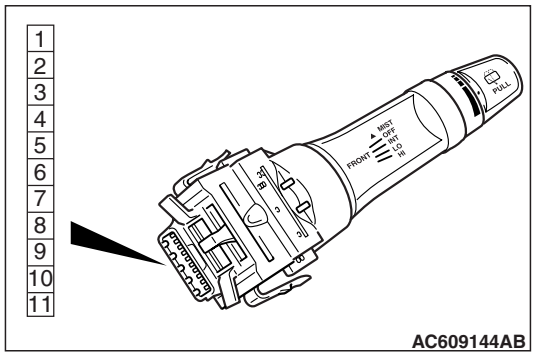
- Steering wheel assembly (Refer to GROUP 52B - Driver's Front Passenger's Air Bag Module and Clock Spring P.52B-367).
- Clock spring (Refer to GROUP 52B - Driver's Front Passenger's Air Bag Module and Clock Spring P.52B-367).

3. Column switch body

INSPECTION

WIPER/WASHER SWITCH CONTINUITY CHECK

M1543101700043

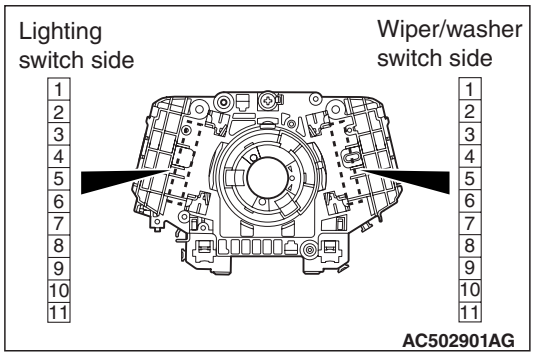


Switch position		Tester connection	Specified condition
OFF		–	Open circuit
Windshield intermittent wiper interval adjusting knob		6 –3	Operating the adjusting knob changes the resistance.
Windshield washer switch		6 –7	Continuity exists (2 ohms or less)
Windshield wiper switch	Hi	6 –8	Continuity exists (2 ohms or less)
	Lo	6 –9	Continuity exists (2 ohms or less)
	Int	6 –10	Continuity exists (2 ohms or less)
	Mist	6 –11	Continuity exists (2 ohms or less)

COLUMN SWITCH (SWITCH BODY PART) CONTINUITY CHECK

M1543100800058

1. Remove the lighting switch and wiper/washer switch.
2. Check that the continuity is present for the same terminal numbers of the column switch body connectors that remain on the steering column.

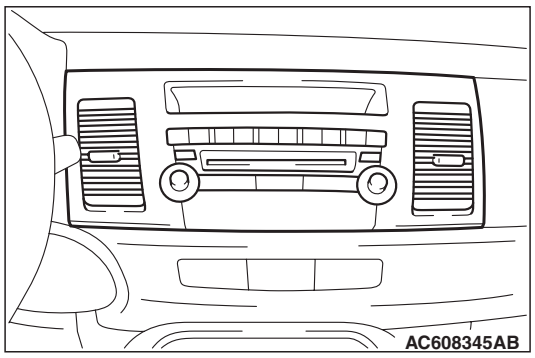


Column switch body	Terminal number	Normal condition
Lighting switch side connector Wiper/washer switch side connector	3 –3 6 –6 7 –7 8 –8 9 –9 10 –10 11 –11	Continuity exists (2 ohms or less)

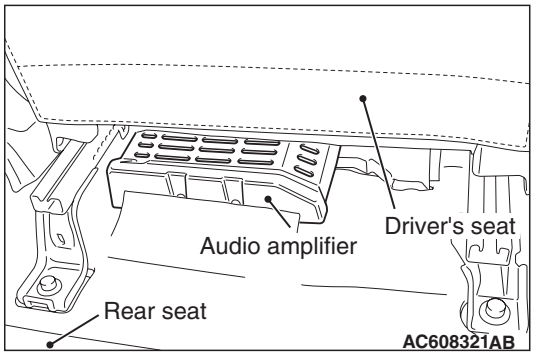
RADIO AND CD PLAYER

GENERAL INFORMATION

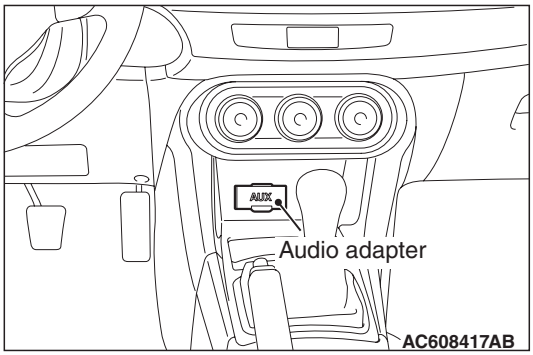
M1544000100237



- Two types of audio, CD player with radio or 6-disk CD changer with radio, have been established. The audio has designed to fit uniformally into the instrument panel. Also, a new function automatically corrects the sound quality and volume during driving.



- For the vehicles with Rockford Fosgate ® premium sound system, the 8-ch high-power audio amplifier with integrated DSP (total maximum output of 650 W) has been established under the driver's seat. The clear treble without distortion is available.



- For the vehicles with Rockford Fosgate ® premium sound system, the audio adapter has been established onto the center tray. With this modification, portable music player can be connected. <Vehicles without MMCS>

Item	CD player with radio	6-disk CD changer with radio <Option>
Electronic tuning radio	Equipped	Equipped
SIRIUS satellite radio <Option: ES, GTS>	–	Equipped (Only the vehicles with the satellite radio tuner)
CD player*1 (compatible with MP3*2)	Equipped	Equipped
6-disk CD autochanger*1 (compatible with MP3*2)	–	Equipped
Audio integrated 4-ch power amplifier <vehicles with 4 speakers, 6 speakers>	General 140 W	General 140 W
Audio amplifier-integrated 8-ch power amplifier and digital signal processor (DSP) <Rockford Fosgate® premium sound system>	–	General 650 W (maximum)

NOTE:

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

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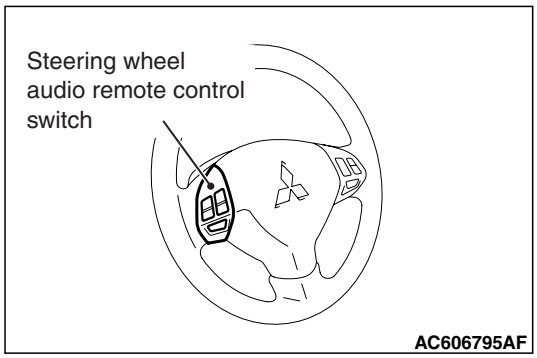
STEERING WHEEL AUDIO REMOTE CONTROL SWITCH



The concentrated switch has been established onto the steering wheel spoke for allowing the remote control of audio. <ES, GTS>

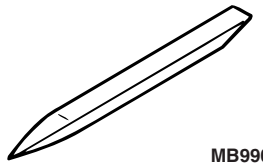
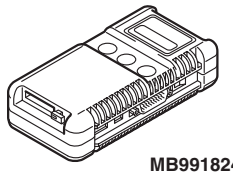
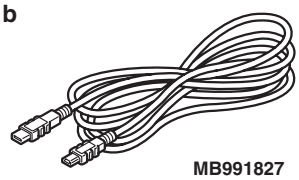
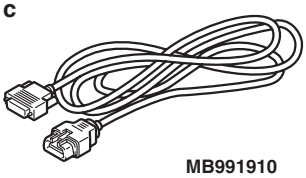
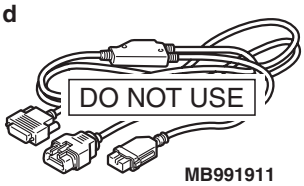
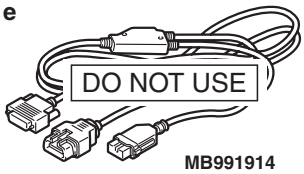
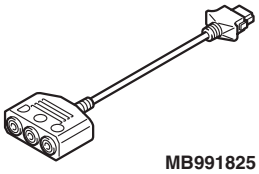
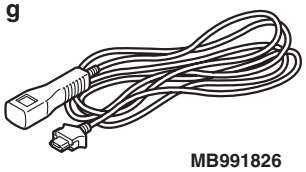
AUDIO OPERATION TONE ALARM

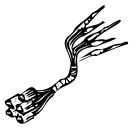
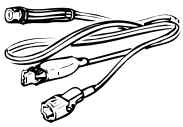
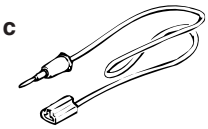
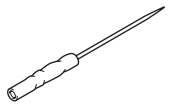
To prevent an audio operational error, the audio operation tone alarm confirms the audio operation which sounds a tone alarm in the combination meter when the audio is operated. The details are as described in the following table:

Usage category	**Confirmation tone alarm sounding condition (with conditions below, tone alarm sounds for 0.08 seconds)**
Radio use	Press and hold "1", "2", "3", "4", "5" or "6" button.
	Press and hold "SCAN" button.
CD use	Press and hold the "LOAD" button.
	Press and hold the "DISC" button.
	Press and hold the "RPT" button.
	Press and hold the "RDM" button.
	Press and hold the CD eject button
Audio adjustment	With "BASS", "MID", "TREBLE", "BALANCE", or "FADER" selected, adjust the adjustment level to zero.
	Select "NORMAL" of "SOUND FIELD".
	Select "NORMAL" of "MUSIC TYPE".
Others	Press and hold the "TUNE" knob.
	Press and hold the "MODE" switch of steering remote control switch.

SPECIAL TOOLS

M1542000602146

Tool	Tool number and name	Supersession	Application
 MB990784	MB990784 Ornament remover	General service tool	Removal of center air outlet, center panel and center cover
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991914 f  MB991825 g  MB991826 MB991958	MB991958 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826 M.U.T.-III sub-assembly a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable c. M.U.T.-III main harness A (Vehicles with CAN communication system) d. M.U.T.-III main harness B (Vehicles without CAN communication system) e. M.U.T.-III main harness C (for Daimler Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness	MB991824-KIT *NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.*	**⚠ CAUTION** **M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.** DTC and data list.

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

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1544004800409

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

TROUBLESHOOTING FOR NOISE

M1544009800181

RADIO AND CD PLAYER OR CD CHANGER

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 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.

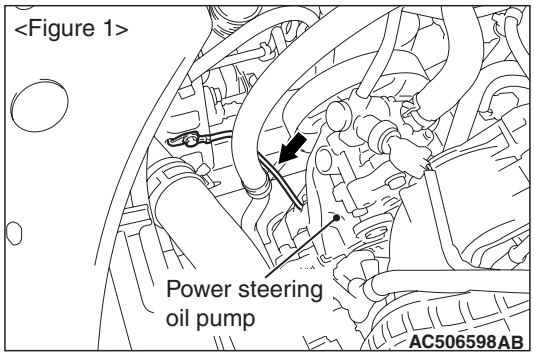
⚠ CAUTION
Check that the audio main body and others are securely grounded.

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 types ( ) indicates the sound type.	Situation	Cause	Countermeasure
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.54A-267.

<Figure 1>



DATA LIST REFERENCE TABLE

M1544014100047

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

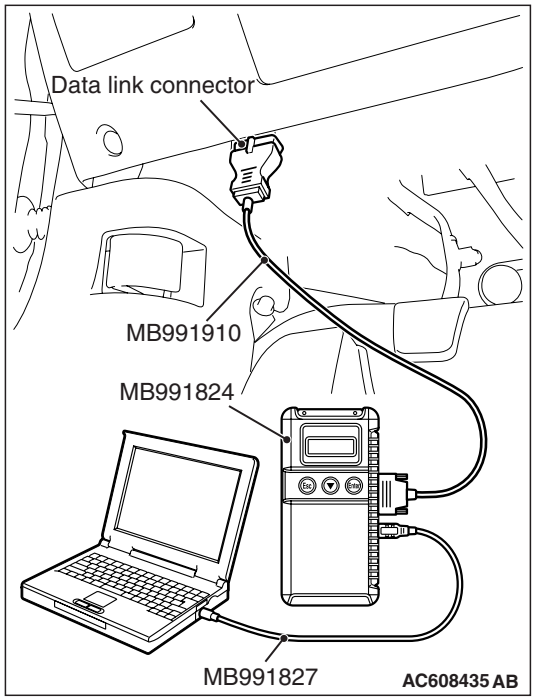
DIAGNOSIS FUNCTION

M1544013200018

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

Required Special Tools:

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



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

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

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

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

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

DIAGNOSIS CODE CHART

M1544012900047

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

DTC No.	Description	Reference page
U0019	Bus off (CAN-B)	P.54A-239
U0141	ETACS CAN timeout	P.54A-242
U0151	SRS-ECU CAN timeout	P.54A-243
U0154	Occupant classification-ECU CAN timeout	P.54A-245
U0155	Combination meter CAN timeout	P.54A-246
U0164	A/C-ECU CAN timeout	P.54A-248
U0168	WCM or KOS-ECU CAN timeout	P.54A-249
U0195	Satellite radio tuner CAN timeout	P.54A-251
U0197	Hands free module CAN timeout	P.54A-253
U1415	Coding not completed/Data fail	P.54A-254
B2420	Power integrated circuit	P.54A-256
B2421	Radio tuner	P.54A-258
B2423	6-disc CD player error	P.54A-260
B2424	CD player error	P.54A-261
B2450	Switch panel communication	P.54A-263
B2451	Audio panel type error	P.54A-265

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC U0019: Bus off (CAN-B)

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

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

TROUBLE JUDGEMENT

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.

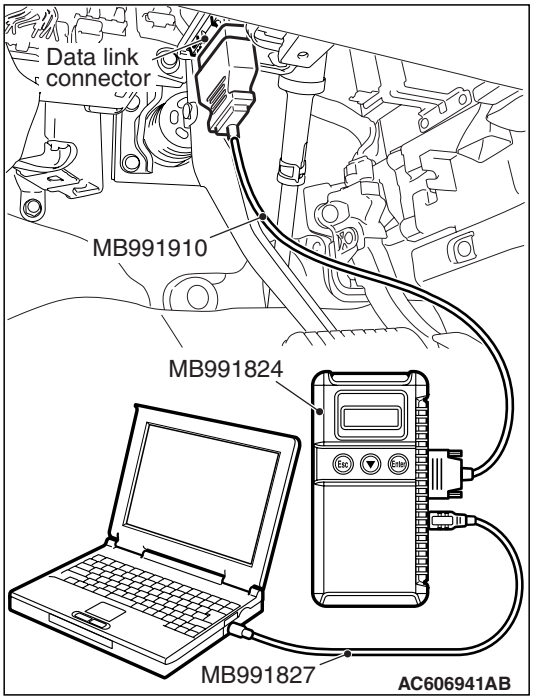
⚠ CAUTION

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

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

Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16.) 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.00-13).

DTC U0141: ETACS CAN timeout

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

⚠ CAUTION
When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

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

JUDGMENT CRITERIA

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

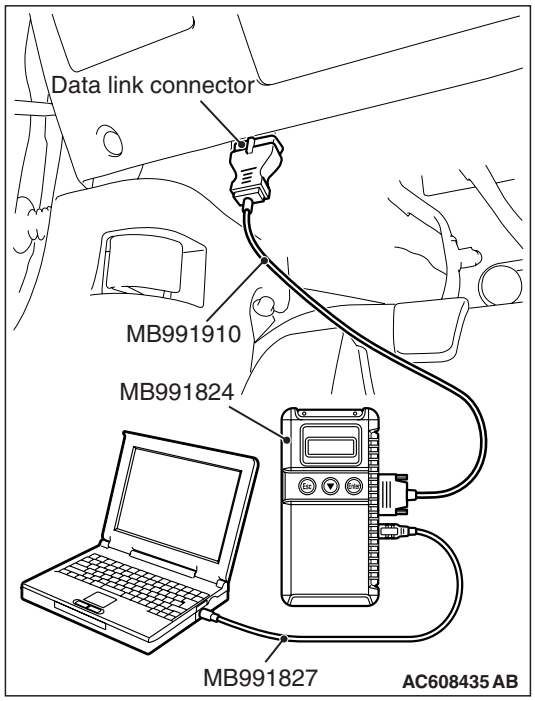
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



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

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to P.54A-482).
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 DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player 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.00-13).

DTC U0151: SRS-ECU CAN timeout

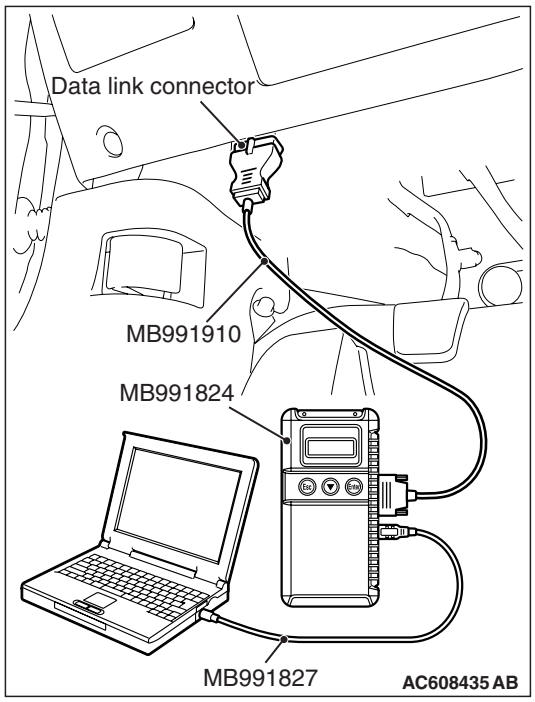
⚠ CAUTION
- **If DTC U0151 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

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

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

TROUBLESHOOTING HINTS
- The CAN bus line may be defective
- The radio and CD player or CD changer may be defective
- The SRS-ECU may be defective

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Troubleshooting P.52B-31).
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 DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player 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.00-13).

TSB Revision

DTC U0154: Occupant classification-ECU CAN timeout

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

⚠ CAUTION
When replacing the ECU, always check that the communication circuit is normal.

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

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

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

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

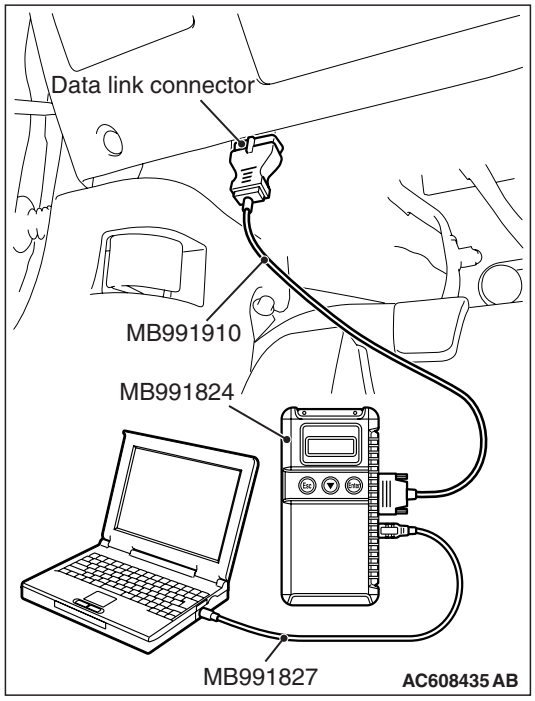
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



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

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Diagnosis P.52B-280).
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 DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player 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.00-13).

DTC U0155: Combination meter CAN timeout

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

⚠ CAUTION
Whenever the ECU is replaced, ensure that the communication circuit is normal.

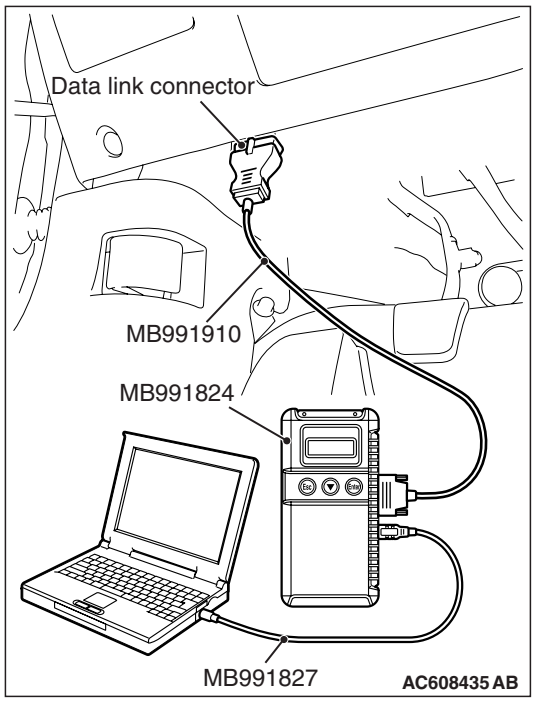
DIAGNOSTIC FUNCTION
When the signals from combination meter cannot be received, the radio and CD player or CD changer sets DTC U0155.

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

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

DIAGNOSIS

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16).

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

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

Q: Is the check result satisfactory?

YES : Go to Step 3.
NO : Diagnose the combination meter (Refer to combination meter, Diagnosis P.54A-23).

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 DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player 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.00-13).

TSB Revision

DTC U0164: A/C-ECU CAN timeout

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

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

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

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

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

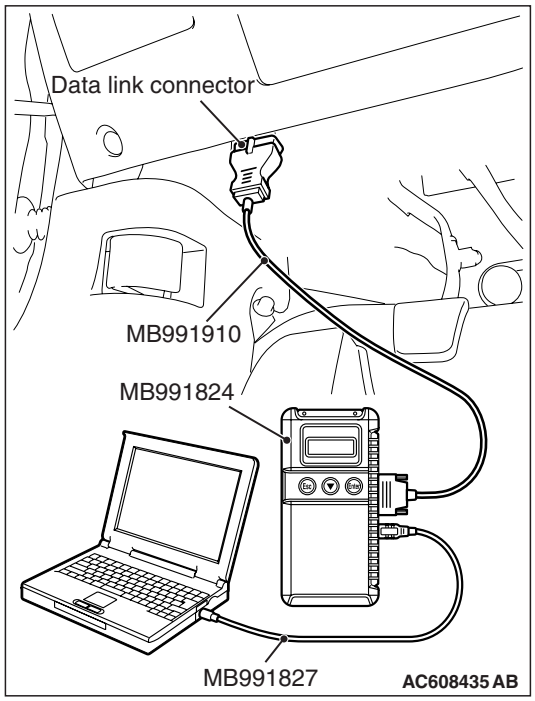
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-328."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



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

Q: Is the DTC set?

YES : Troubleshoot the A/C (Refer to GROUP 55A, Manual A/C Diagnosis P.55A-8 <vehicles with manual A/C> or GROUP 55B, Automatic A/C Diagnosis P.55B-7 <vehicles with automatic A/C>).

NO : Go to Step 3.

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

Q: Is the DTC set?

YES : Replace the radio and CD player 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.00-13).

DTC U0168: WCM or KOS-ECU CAN timeout

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

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

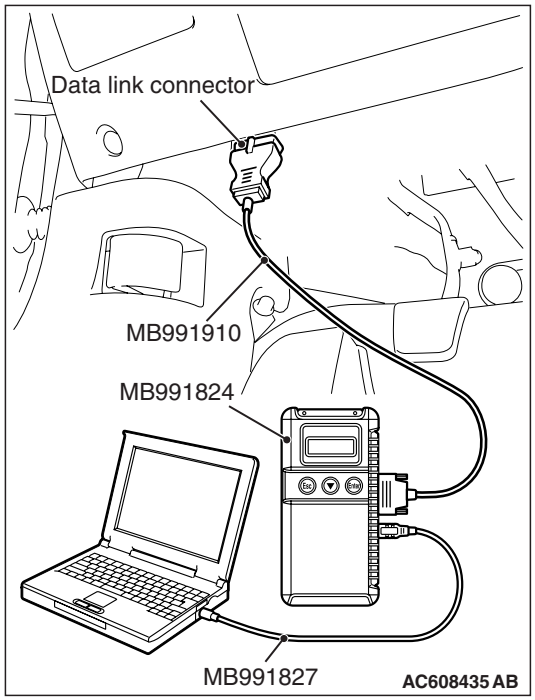
JUDGMENT CRITERIA
With the ignition switch in the ON position, system voltage between 10 –16 V (data from ETACS-ECU), power supply fuse is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> cannot be established for 2,500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

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

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)

- MB991827: M.U.T.-III USB Cable
- MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

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



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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the KOS or WCM (Refer to GROUP 42B, Diagnosis P.42B-20 <KOS> or GROUP 42C, Diagnosis P.42C-14 <WCM>).
NO : Go to Step 3.

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

Q: Is the DTC set?

YES : Replace the radio and CD player 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.00-13).

DTC U0195: Satellite radio tuner CAN timeout

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

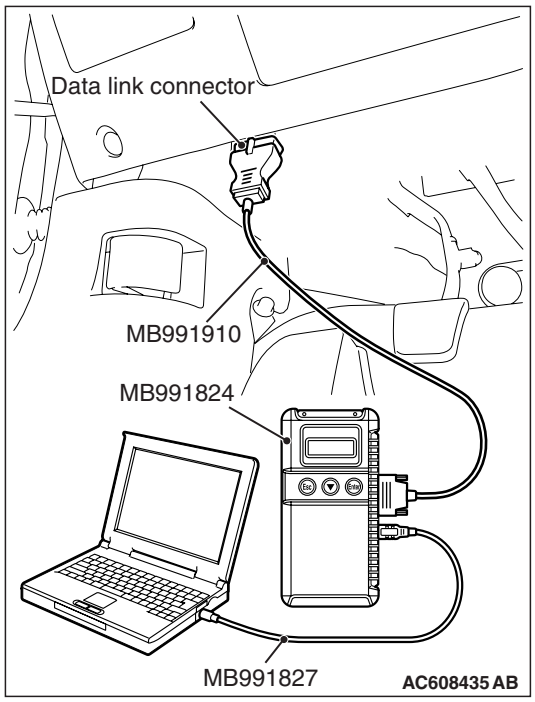
⚠ CAUTION
Whenever the ECU is replaced, ensure that the communication circuit is normal.

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

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

TROUBLESHOOTING HINTS
- The CAN bus line may be defective.
- The radio and CD player or CD changer may be defective.
- The satellite radio tuner may be defective.

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16).

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

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

Q: Is the check result satisfactory?

YES : Go to Step 3.
NO : Diagnose the satellite radio tuner.

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 DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player 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.00-13).

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DTC U0197: Hands free module CAN timeout

⚠ CAUTION

- **If DTC U0197 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

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

JUDGMENT CRITERIA

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

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

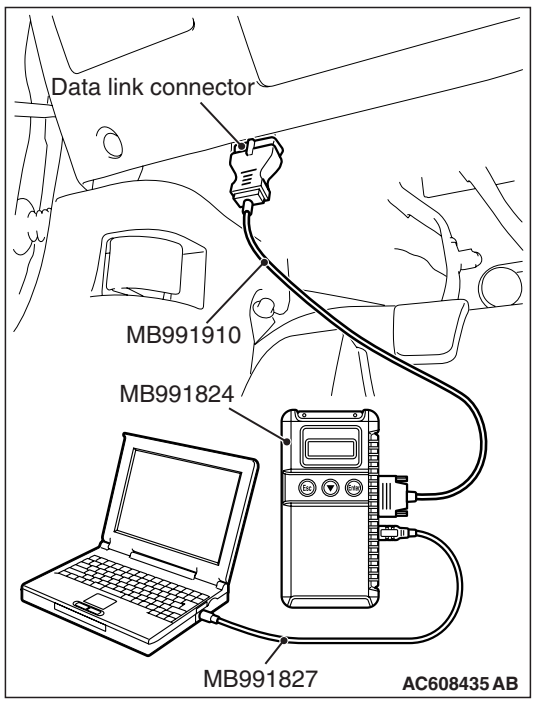
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



STEP 2. Using scan tool MB991958, read the hands free module diagnostic trouble code.
Check again if the DTC is set to the hands free module.

Q: Is the DTC set?

YES : Troubleshoot the hands-free cellular phone system.
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 DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player 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.00-13).

DTC U1415: Coding not completed/Data fail

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

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

TROUBLE JUDGEMENT
When the vehicle information data is not registered to the audio unit, the radio and CD player or CD changer sets the diagnosis code No.U1415.

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

PROBABLE CAUSES
- Malfunctions of audio unit
- Malfunction of the ETACS-ECU
- Malfunction of CAN bus line wiring harness and connector

DIAGNOSIS

Required Special Tools:

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

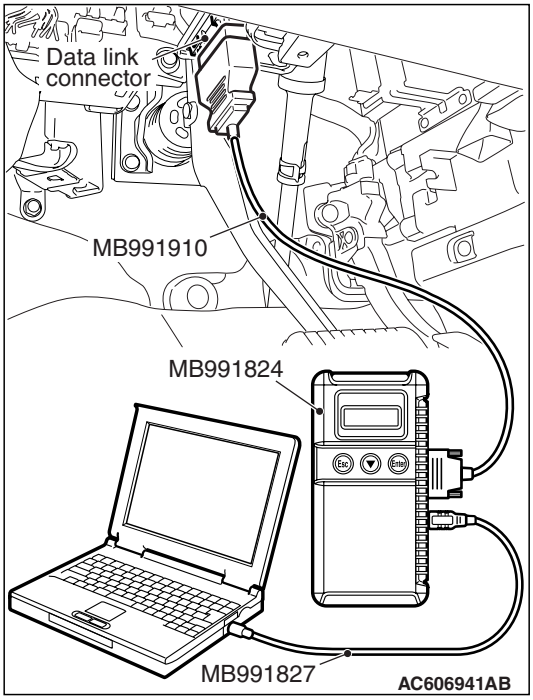
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

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

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



Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16.) 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 54A, ETACS-ECU, Diagnosis P.54A-482).
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.00-13).

DTC B2420: Power integrated circuit

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

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

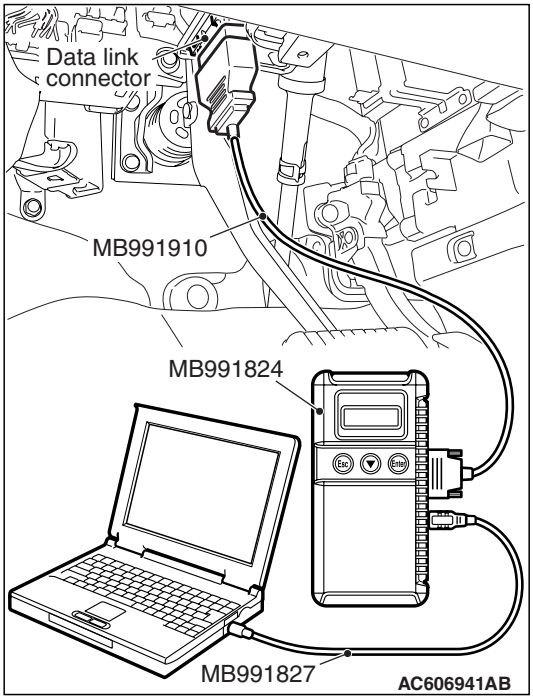
TROUBLE JUDGEMENT
If the radio and CD player or CD changer continuously apply the voltage of two volts or more to the speakers for one minute or more, it is determined that the offset voltage is exceeded, and then the diagnostic trouble code is set.

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

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



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

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

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

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

Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16.) 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.00-13).

DTC B2421: Radio tuner

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

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

TROUBLE JUDGEMENT

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.

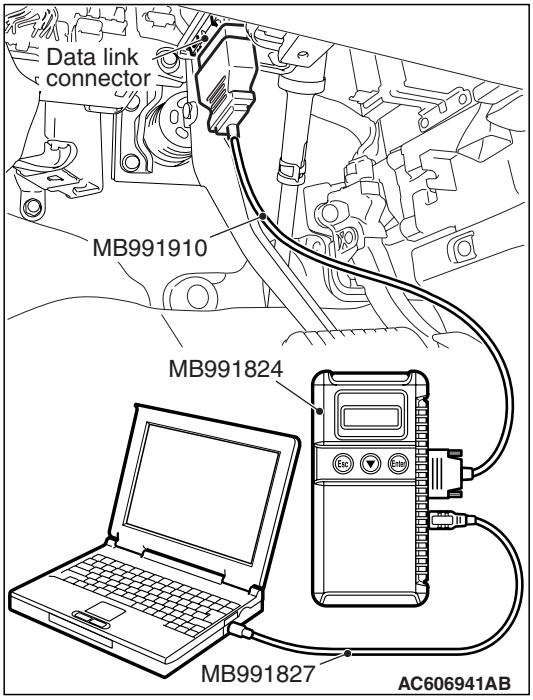
PROBABLE CAUSES

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

DIAGNOSIS

Required Special Tools:

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



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

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

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

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

Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16.) 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.00-13).

DTC B2423: 6-disc CD player error

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

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

TROUBLE JUDGEMENT

During the use of the CD changer of radio and CD changer, 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 radio and CD changer or CAN bus line may have a problem.

PROBABLE CAUSES

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

DIAGNOSIS

Required Special Tools:

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

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

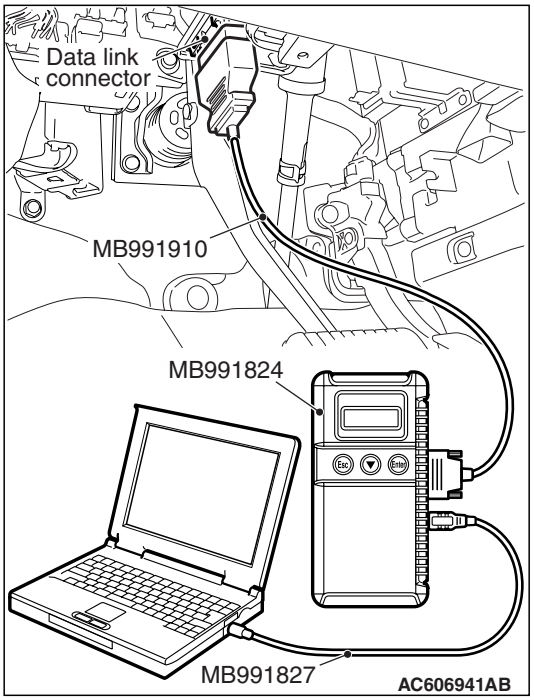
Use scan tool MB991958 to diagnose the CAN bus lines.

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

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

Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



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STEP 2. CD check

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

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

Q: Is the diagnostic trouble code set?

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

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the radio and CD 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 changer.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC B2424: CD player error

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

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

TROUBLE JUDGMENT

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

COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

DIAGNOSIS

Required Special Tools:

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

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

Use scan tool MB991958 to diagnose the CAN bus lines.

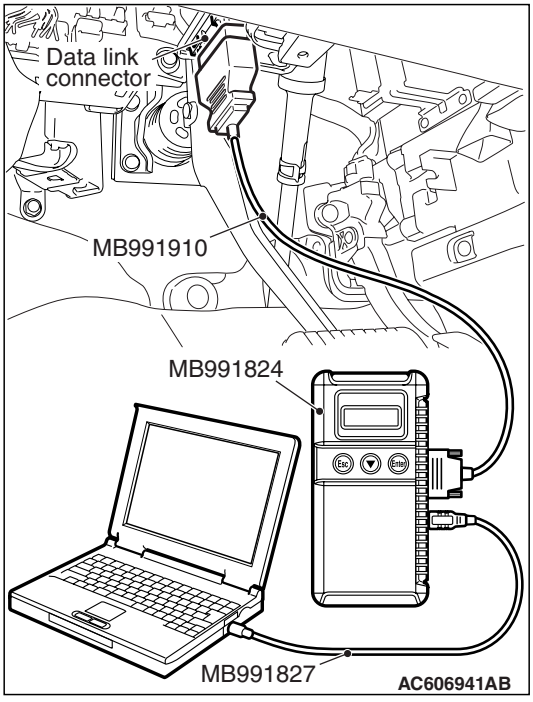
⚠ CAUTION

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

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

Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



STEP 2. CD check

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

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

Q: Is the diagnostic trouble code set?

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

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

Q: Is the DTC set?

YES : Replace the radio and CD player.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC B2450: Switch panel communication

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

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

TROUBLE JUDGEMENT
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.

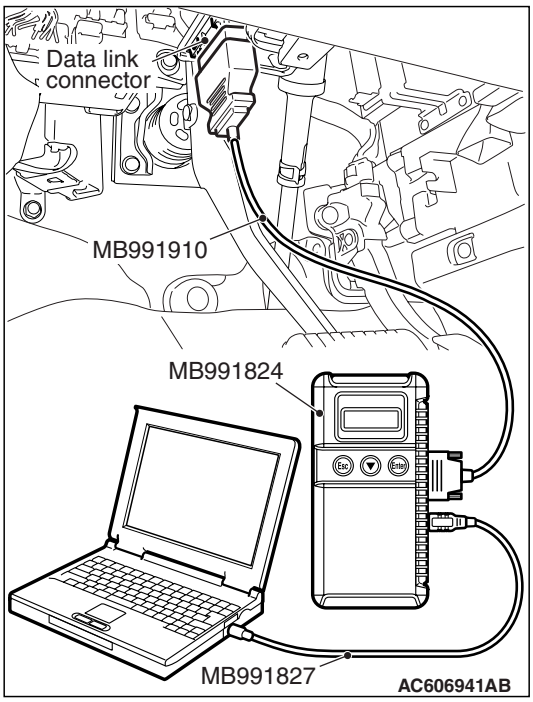
⚠ CAUTION

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

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

Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



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.00-13).

TSB Revision

DTC B2451: Audio panel type error

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

TROUBLE JUDGEMENT

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.

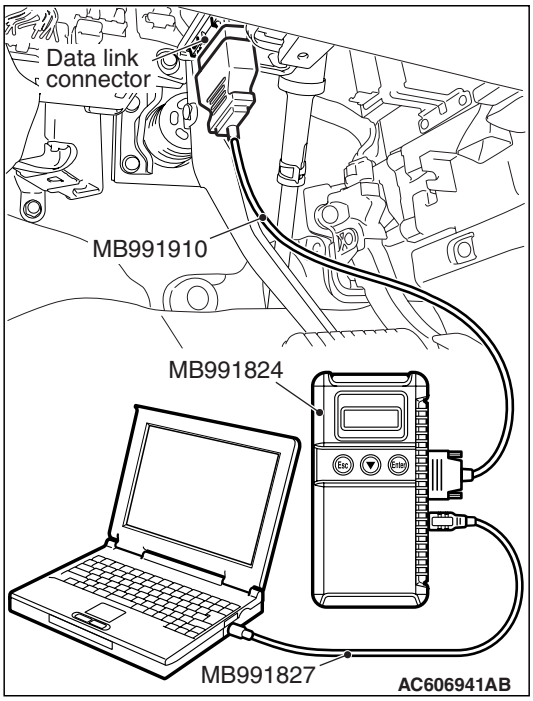
Use scan tool MB991958 to diagnose the CAN bus lines.

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

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

Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



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.00-13).

TROUBLE SYMPTOM CHART

M1544004900815

Inspection Procedure No.	Trouble symptom		Reference page
1	Power is not turned ON when the power switch is turned ON.		P.54A-268
2	No sound is heard. <Vehicles with audio amplifier>		P.54A-274
3	No sound is heard from one of the speakers.	<Vehicles without audio amplifier>	P.54A-279
		<Vehicles with audio amplifier>	P.54A-285
4	Noise	Noise is present while moving (AM).	P.54A-292
5		Noise is present while moving (FM).	P.54A-293
6		Sound mixed with noise, only at night (AM).	P.54A-294
7		Noise is overpowering both AM and FM.	P.54A-294
8		Excessive noise on AM and FM.	P.54A-295
9		Noise is detected with engine running.	P.54A-296
10		Noise appears during vibration or shocks.	P.54A-297
11		Noise is present while moving (FM).	P.54A-299
12		Constant noise.	P.54A-300
13	Radio	No reception (AM).	P.54A-300
14		Poor reception.	P.54A-301
15		Distortion on AM and/or FM.	P.54A-302
16		Distortion on FM only.	P.54A-302
17		Auto select function inoperative, too few automatic stations are selected.	P.54A-303
18		Preset stations are erased.	P.54A-304
19	CD player, CD changer	CD cannot be Inserted.	P.54A-304
20		No sound. (CD only).	P.54A-305
21		CD sound skips.	P.54A-305
22		Sound quality is poor.	P.54A-306
23		CD cannot be ejected.	P.54A-306

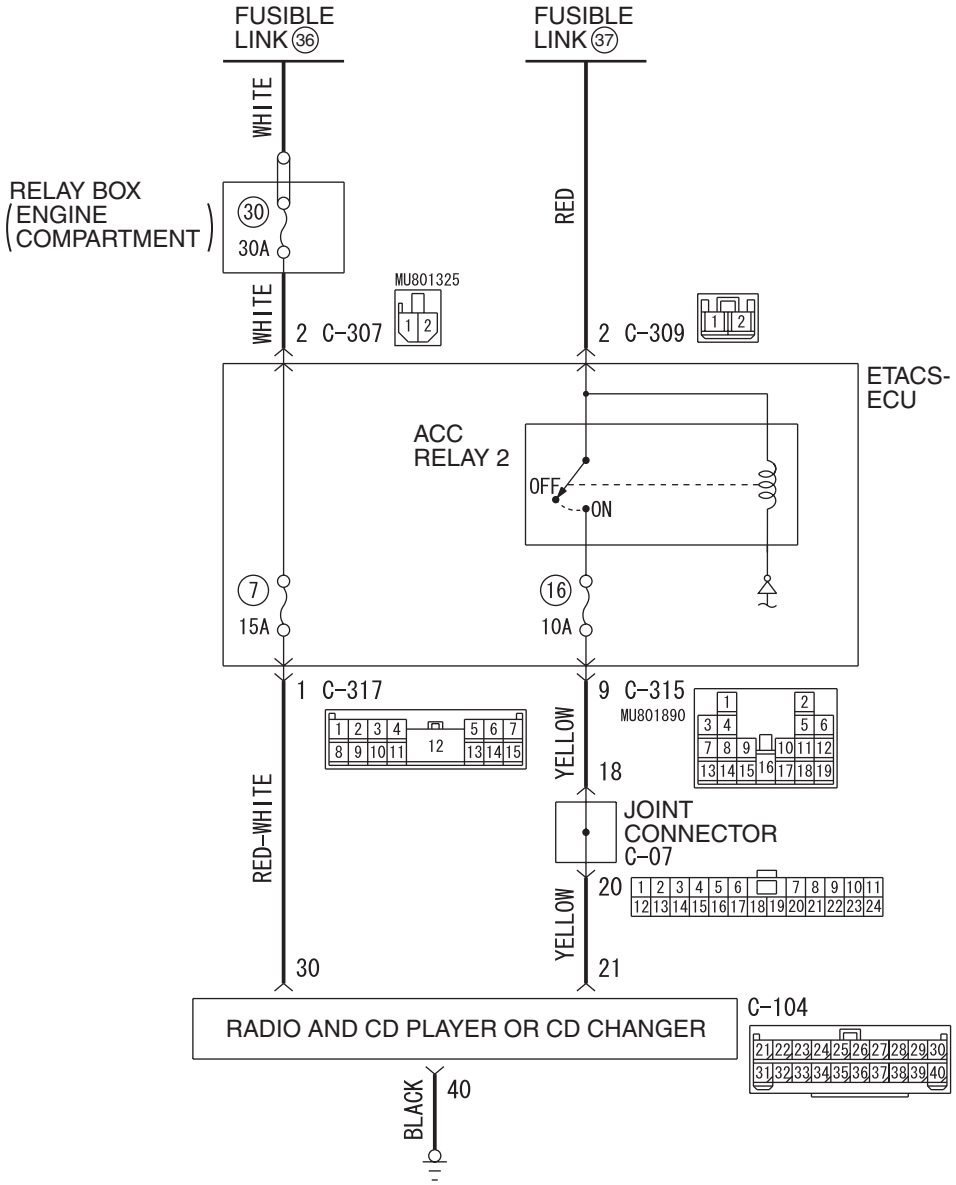
SYMPTOM PROCEDURES

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

⚠ CAUTION

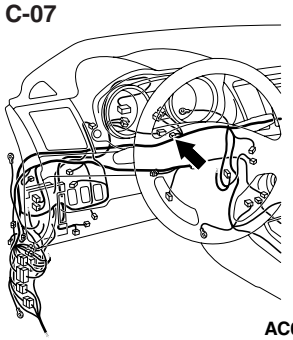
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Radio and CD Player or CD Changer Power Supply Circuit



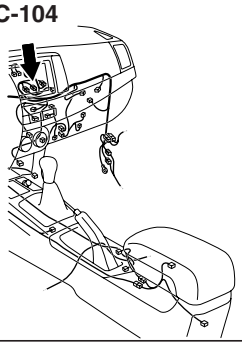
W8G54M005A

Connector: C-07



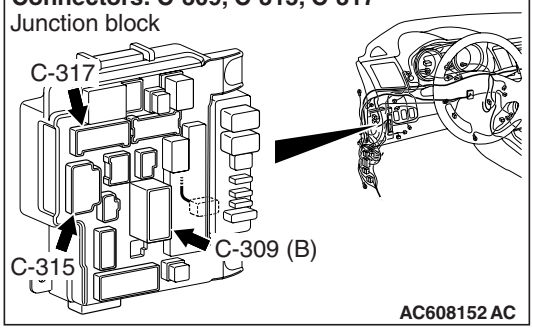
AC608145AP

Connector: C-104



AC608146AC

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



AC608152AC

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.00-35).
(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 54A, ETACS, Diagnosis P.54A-482).

NO : Go to Step 3.

STEP 3. Check ETACS-ECU connector C-317 and radio and CD player or CD changer connector C-104 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are ETACS-ECU connector C-317 and radio and CD player or CD changer connector C-104 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-104 (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-104 (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

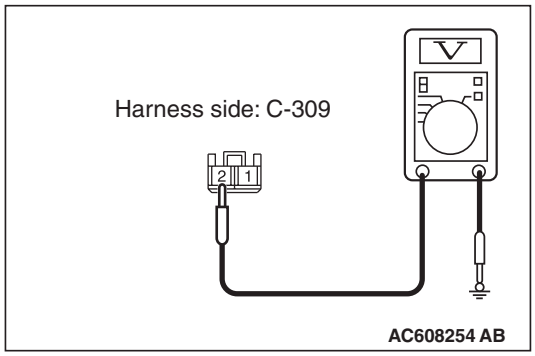
OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Refer to GROUP 54A, ETACS, Diagnosis –Inspection Procedure 1 "The ignition switch (ACC) signal is not received" P.54A-529.

TSB Revision



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 (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). The steering remote control switch should work normally.

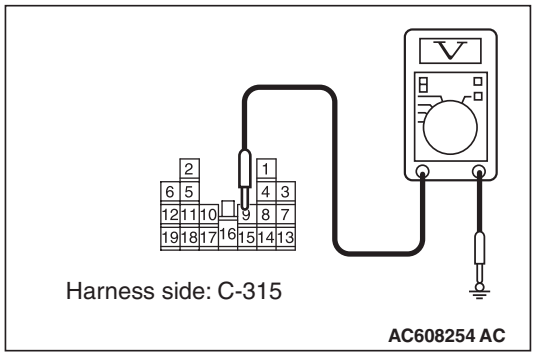
STEP 9. Check the power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-315.

(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-104 (terminal 21) and ETACS-ECU connector C-315 (terminal 9).

- Check the power supply line for open circuit.

NOTE: Also check joint connector C-07 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-07 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between radio and CD player or CD changer connector C-104 (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.

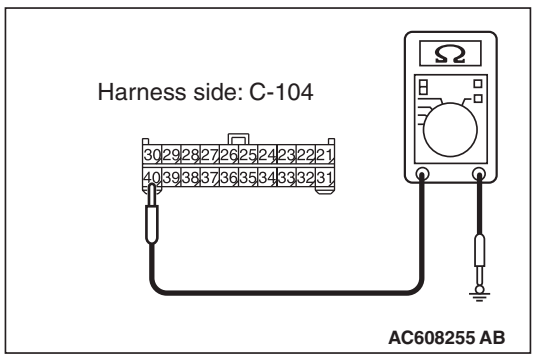
STEP 11. Check the ground circuit to the radio and CD player or CD changer. Measure the resistance at radio and CD player or CD changer connector C-104.

(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-104 (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-104 (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?

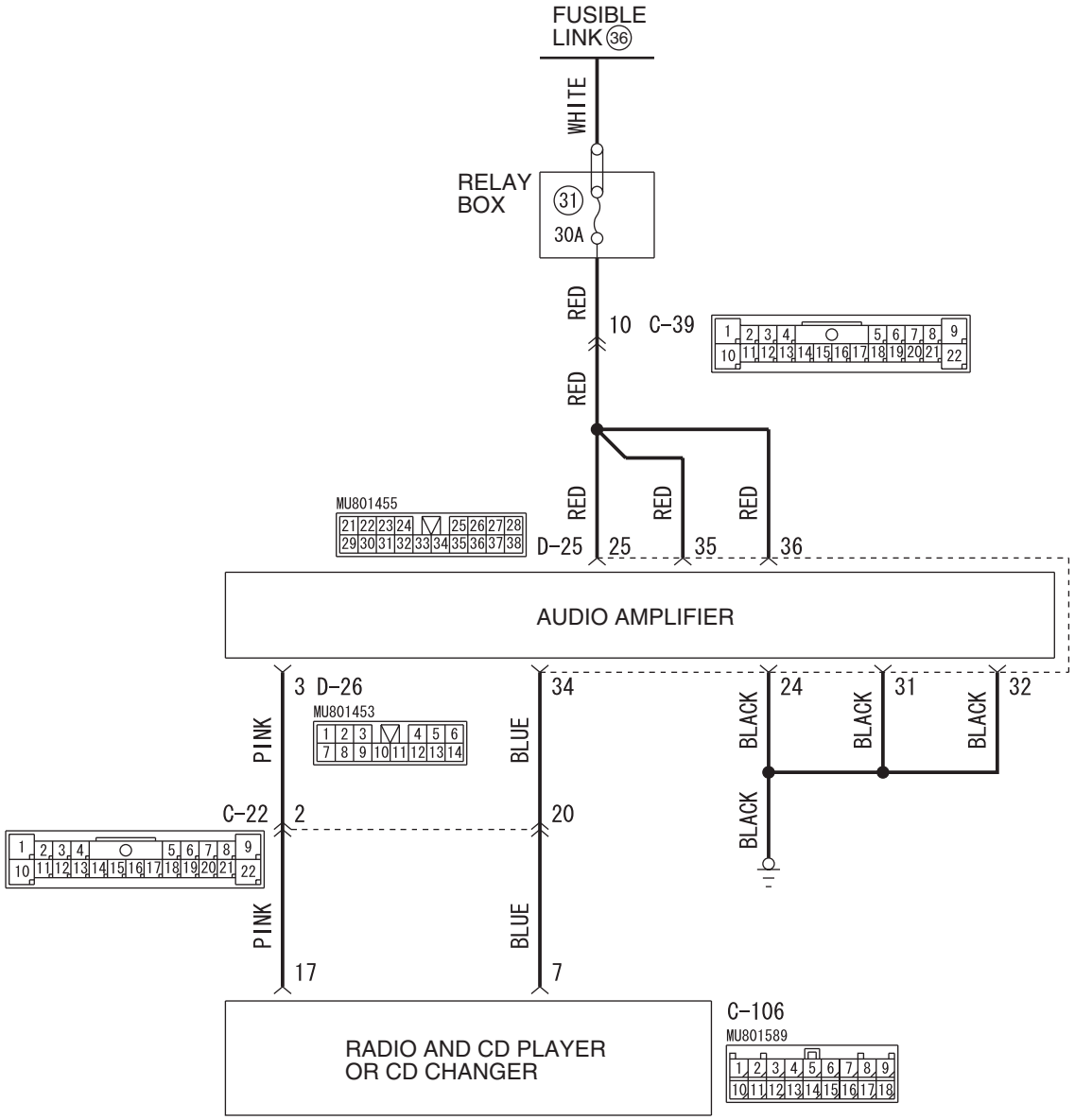
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

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

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

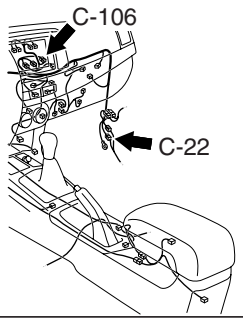
⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Audio System Circuit



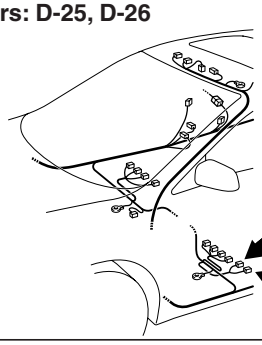
W8G54M006A

Connectors: C-22, C-106



AC608146AH

Connectors: D-25, D-26



AC608165AD

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.00-35).

(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-25 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 3.

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

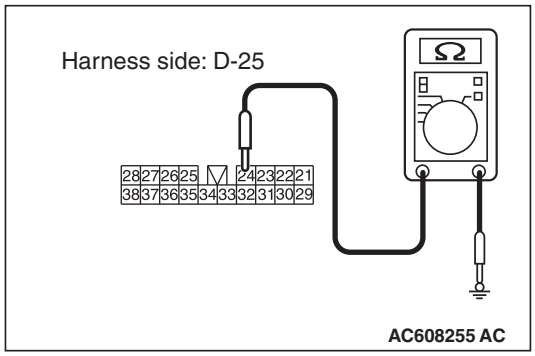
TSB Revision

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

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

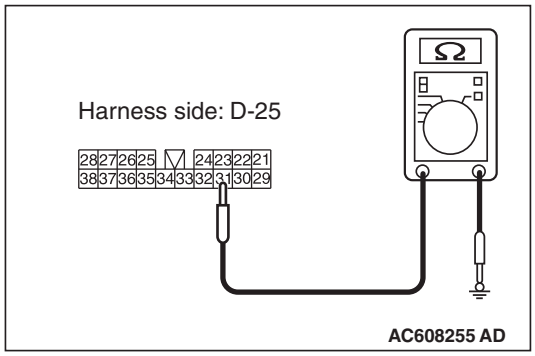
(2) Measure the resistance between terminal 24 and ground.

OK: The resistance should be 2 ohms or less



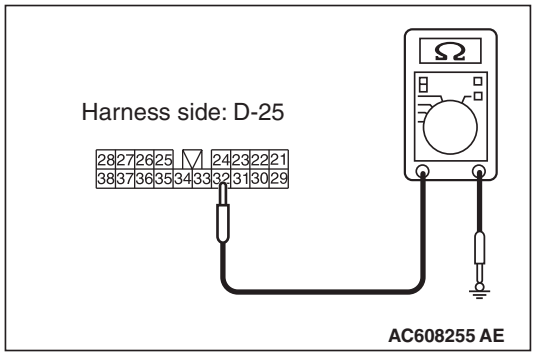
(3) Measure the resistance between terminal 31 and ground.

OK: The resistance should be 2 ohms or less



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

OK: The resistance should be 2 ohms or less



Q: Is the measured resistance 2 ohms or less?

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

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

- Check the ground wires for open circuit.

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

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).
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.

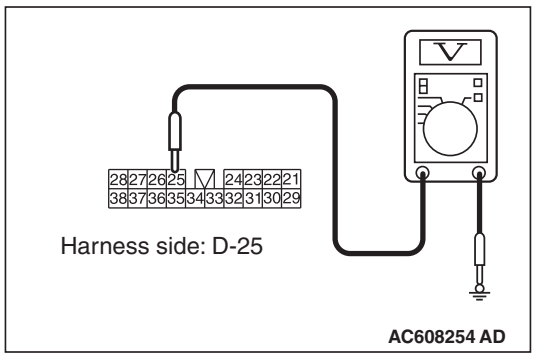
TSB Revision

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

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

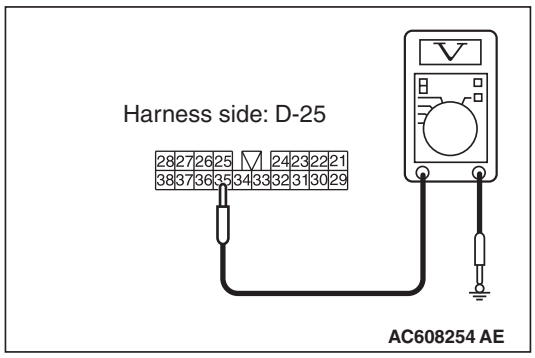
(2) Measure the voltage between terminal 25 and ground.

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



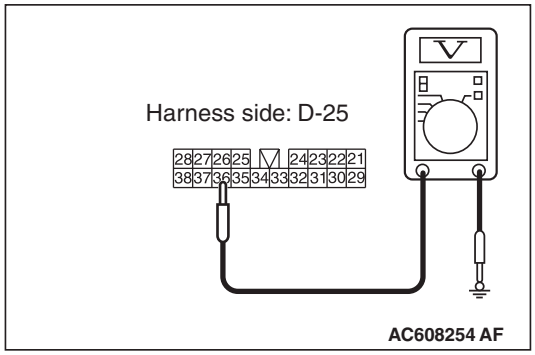
(3) Measure the voltage between terminal 35 and ground.

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



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

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



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

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

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

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

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

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

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

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

YES : Go to Step 8.

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

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

- 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-106 (terminal 17) and audio amplifier connector D-26 (terminal 3) in good condition?

YES : Go to Step 9.

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

STEP 9. Retest the system

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

Q: Is the check result normal?

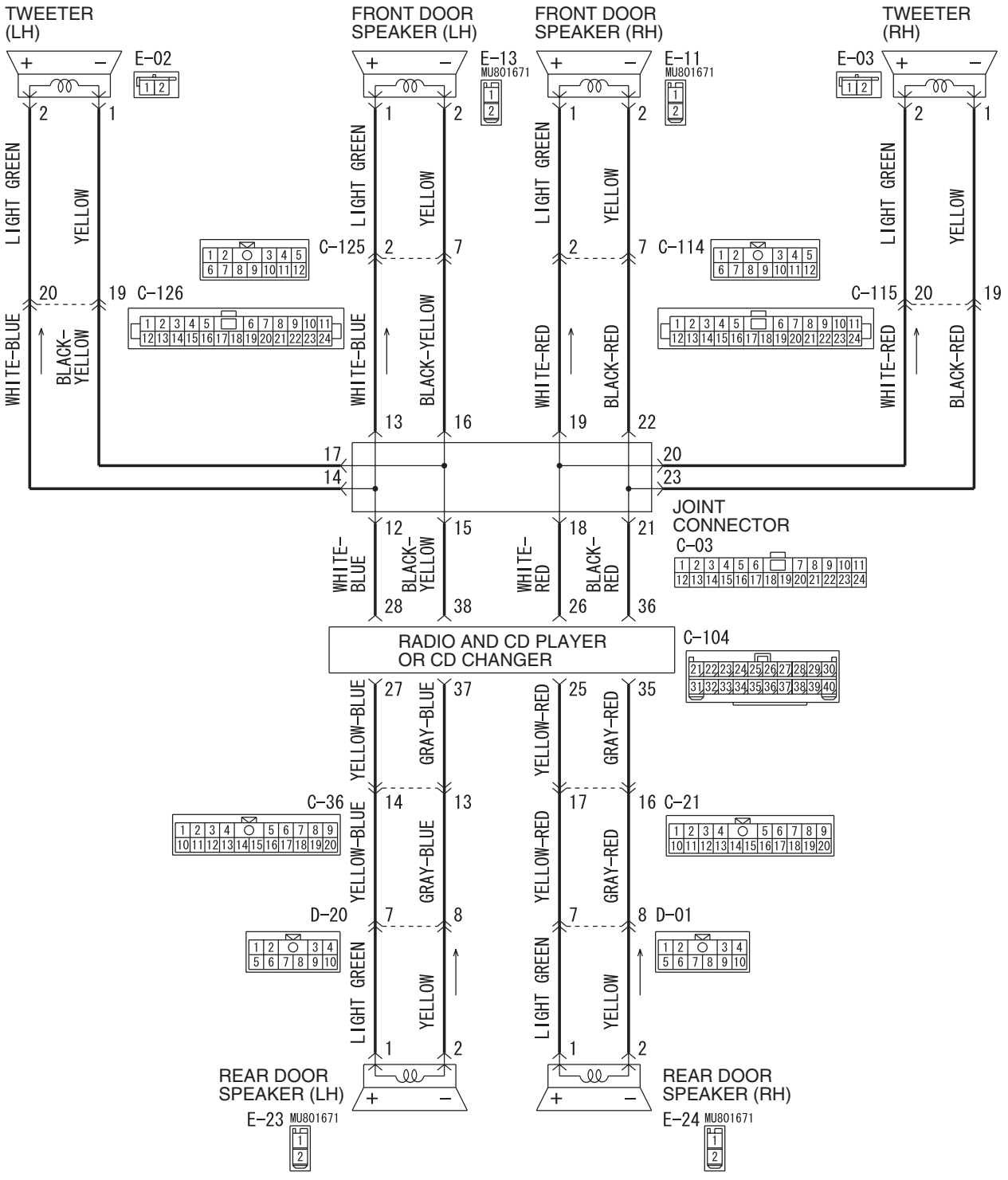
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the radio and CD changer.

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

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

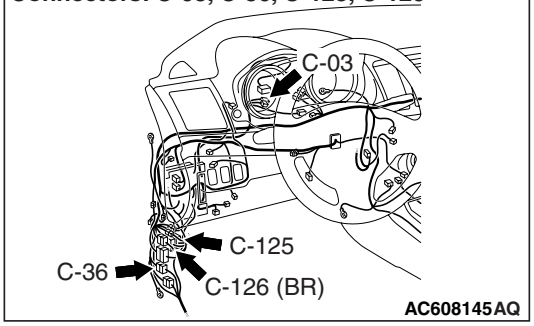
Speaker System Circuit



W8G54M007A

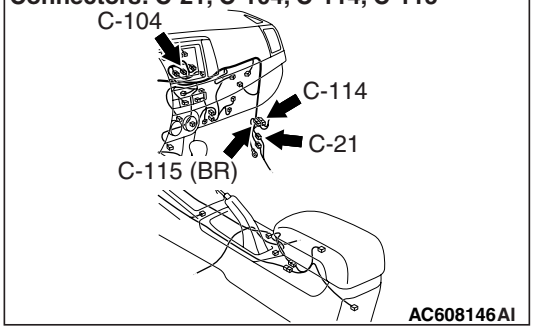
TSB Revision

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



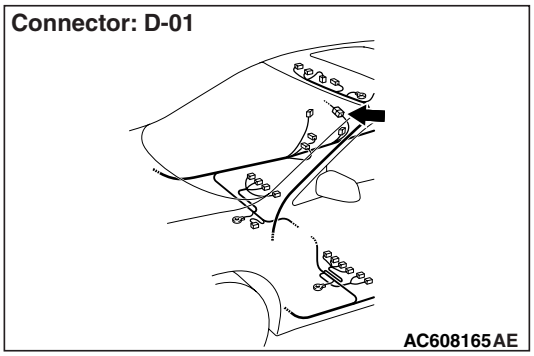
AC608145AQ

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



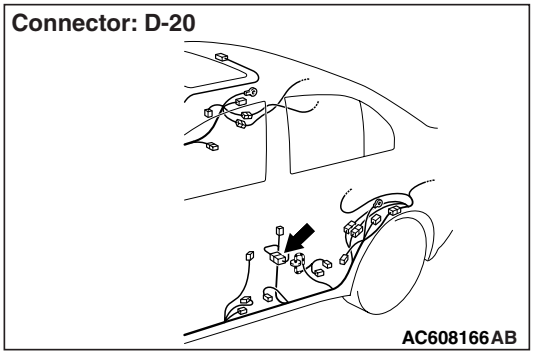
AC608146AI

Connector: D-01



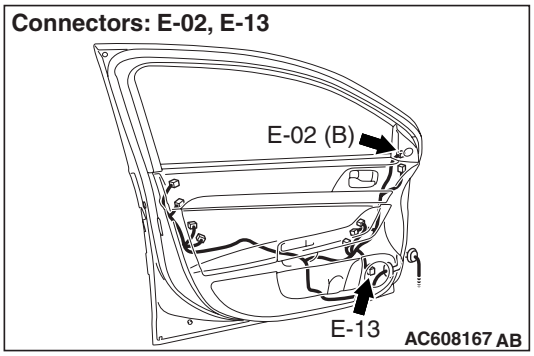
AC608165AE

Connector: D-20



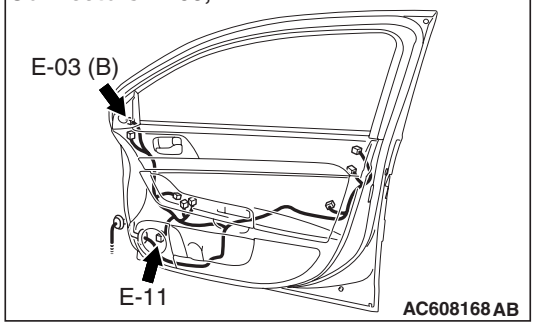
AC608166AB

Connectors: E-02, E-13



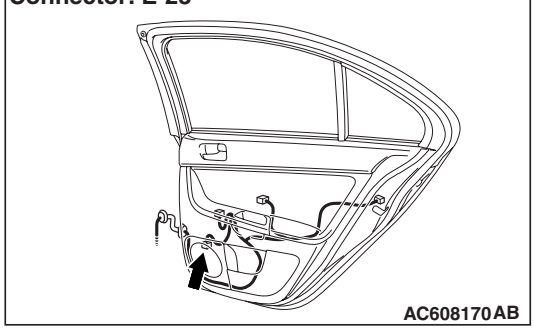
AC608167AB

Connectors: E-03, E-11



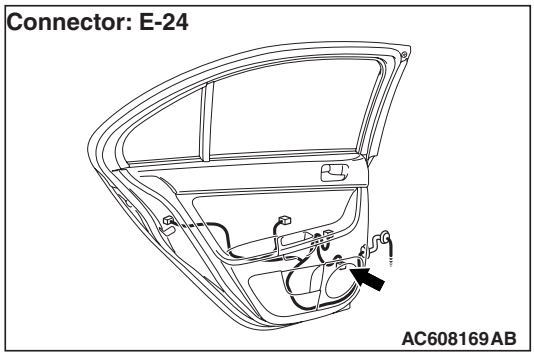
AC608168AB

Connector: E-23



AC608170AB

Connector: E-24



AC608169AB

COMMENTS ON TROUBLE SYMPTOM

If the sound is not output from one of the speakers, the speaker, 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

TSB Revision

DIAGNOSIS

Required Special Tools:

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

STEP 1. ETACS-ECU coding data check.

(1) Operate the scan tool to read the ETACS-ECU option coding information (Refer to GROUP 00, Coding Table P.00-35).

(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.54A-441).

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

Q: Is the check result normal?

YES (normal for all) : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

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

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

STEP 3. Check door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-23 <rear-LH> or E-24 <rear-RH>, or tweeter connector E-02 <LH> or E-03 <RH> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-23 <rear-LH> or E-24 <rear-RH>, or tweeter connector E-02 <LH> or E-03 <RH> in good condition?

YES : Go to Step 4.

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

TSB Revision

STEP 4. Check the speaker or tweeter.

(1) Remove the speaker or tweeter (Refer to P.54A-443).
(2) Check that the speaker or tweeter outputs the noise when the voltage of 5 V is applied to the speaker or tweeter connector terminal.

Q: Does the speaker or tweeter output the noise?

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

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

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

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

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

Check the communication lines for open circuit.

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

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

  NOTE: Also check joint connector C-03 and intermediate connector C-114 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 or intermediate connector C-114 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (LH)> Check the wiring harness between rear door speaker (LH) connector E-23 (terminal 1, 2) and radio and CD player or CD changer connector C-104 (terminal 27, 37).

  NOTE: Also check intermediate connectors C-36 and D-20 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-36 or D-20 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (RH)> Check the wiring harness between rear door speaker (RH) connector E-24 (terminal 1, 2) and radio and CD player or CD changer connector C-104 (terminal 25, 35).

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

  NOTE: Also check joint connector C-03 and intermediate connector C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 or intermediate connector C-126 is damaged, repair or replace the connector as described in GROUP 00E, Har-

ness Connector Inspection P.00E-2.

- <Tweeter (RH)> Check the wiring harness between tweeter (RH) connector E-03 (terminal 1, 2) and radio and CD player or CD changer connector C-104 (terminal 36, 26).

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

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

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

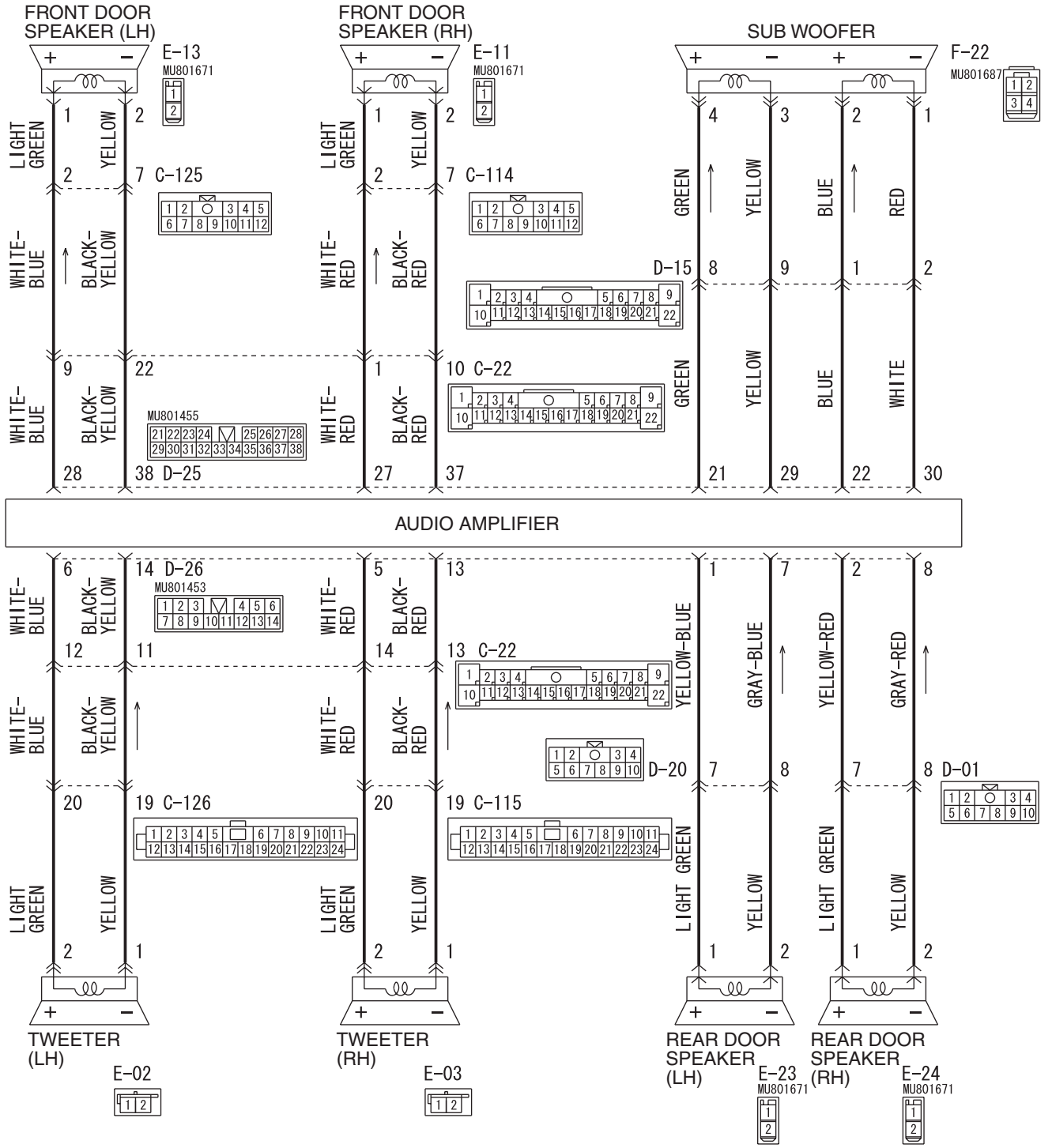
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

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

⚠ CAUTION

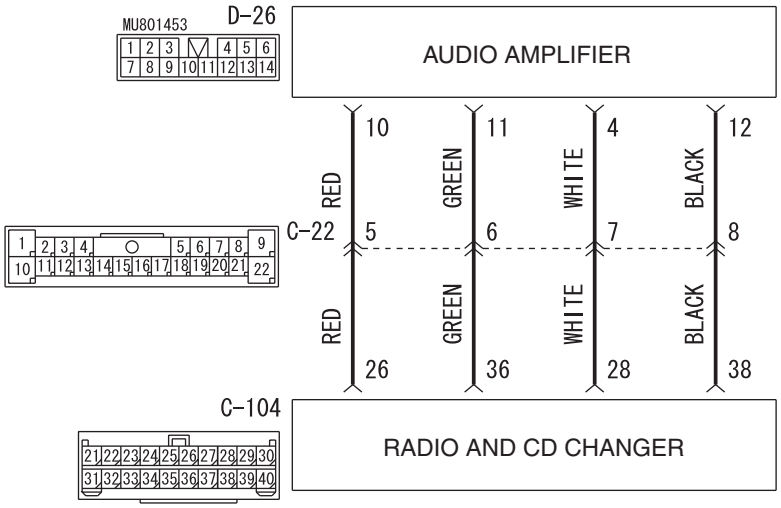
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Speaker System Circuit



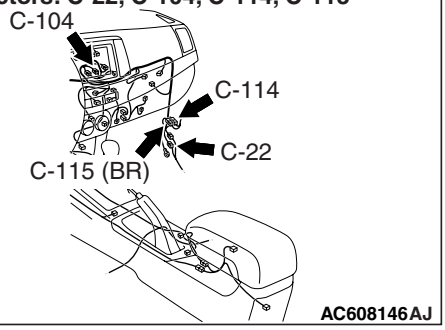
W8G54M008A

TSB Revision



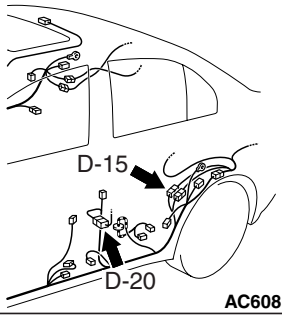
W8G54M009A

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



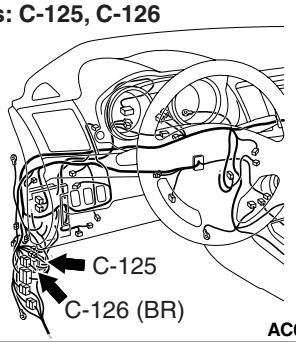
AC608146AJ

Connectors: D-15, D-20



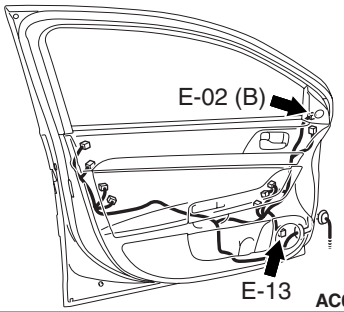
AC608166AC

Connectors: C-125, C-126



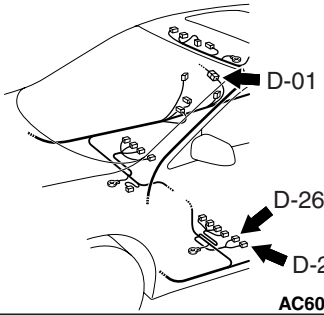
AC608145AR

Connectors: E-02, E-13



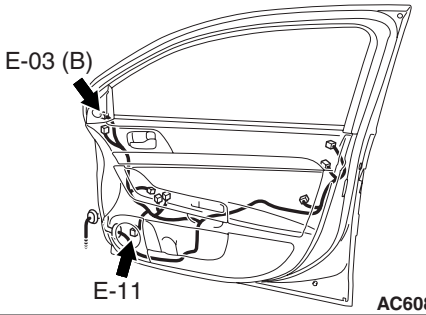
AC608167AB

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



AC608165AF

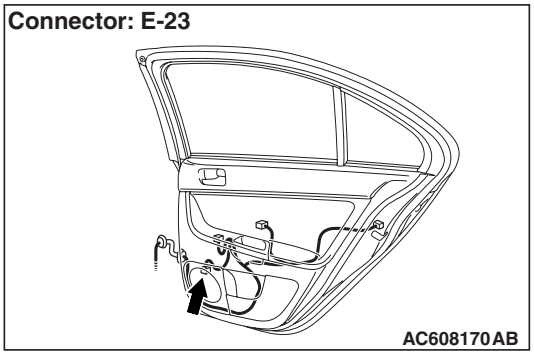
Connectors: E-03, E-11



AC608168AB

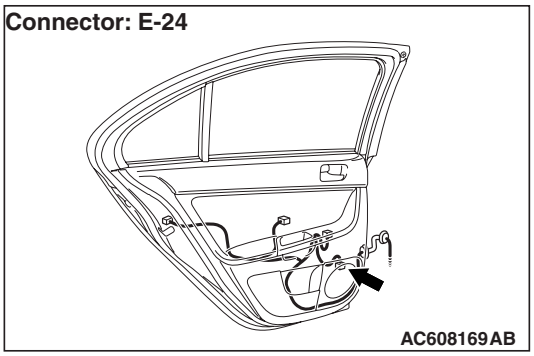
TSB Revision

Connector: E-23



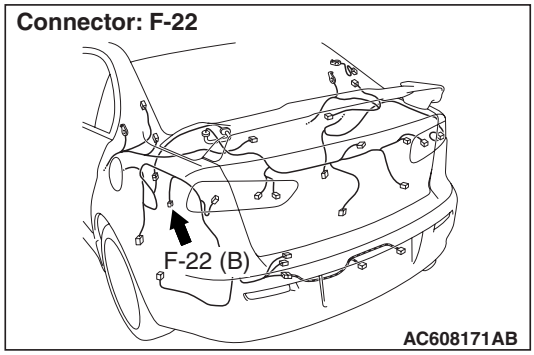
AC608170AB

Connector: E-24



AC608169AB

Connector: F-22



AC608171AB

COMMENTS ON TROUBLE SYMPTOM

If the sound is not heard from one of the speakers, the speaker, radio and CD 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.00-35).

(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.54A-441).

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

Q: Is the check result normal?

YES (normal for all) : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

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

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

STEP 3. Check door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-23 <rear-LH> or E-24 <rear-RH>, or tweeter connector E-02 <LH> or E-03 <RH>, or sub woofer connector F-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-23 <rear-LH> or E-24 <rear-RH>, or tweeter connector E-02 <LH> or E-03 <RH>, or sub woofer connector F-22 in good condition?

YES : Go to Step 4.

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

STEP 4. Check the speaker, tweeter or subwoofer.

(1) Remove the speaker, tweeter or subwoofer (Refer to P.54A-443).

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

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

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the speaker, tweeter or subwoofer.

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

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

YES : Go to Step 6.

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

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

Check the communication lines for open circuit.

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

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

  NOTE: Also check intermediate connectors C-22 and C-114 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-114 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (LH)> Check the wiring harness between rear door speaker (LH) connector E-23 (terminal 1, 2) and audio amplifier connector D-26 (terminal 1, 7).

  NOTE: Also check intermediate connector D-20 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-20 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (RH)> Check the wiring harness between rear door speaker (RH) connector E-24 (terminal 1, 2) and audio amplifier connector D-26 (terminal 2, 8).

  NOTE: Also check intermediate connector D-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Tweeter (LH)> Check the wiring harness between tweeter (LH) connector E-02 (terminal 1, 2) and audio amplifier connector D-26 (terminal 14, 6).

  NOTE: Also check intermediate connectors C-22 and C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-126 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Tweeter (RH)> Check the wiring harness between tweeter (RH) connector E-02 (terminal 1, 2) and audio amplifier connector D-26 (terminal 13, 5).

  NOTE: Also check intermediate connectors C-22 and C-115 for loose, corroded, or damaged terminals, or terminals

pushed back in the connector. If intermediate connector C-22 or C-115 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- <Subwoofer> Check the wiring harness between subwoofer connector F-22 (terminal 1, 2, 3, 4) and audio amplifier connector D-25 (terminal No.30, 22, 29, 21).

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

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

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

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

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

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

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

- Check the communication lines for open circuit.

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-104 (terminal 26, 28, 36, 38) and audio amplifier connector D-26 (terminal 10, 4, 11, 12) in good condition?

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

STEP 9. Replace the audio amplifier temporarily, and check the trouble symptom.
Replace the audio amplifier temporarily, and check that the sound is output from the speaker.

Q: Is the check result normal?
YES : Replace the audio amplifier.
NO : Replace the radio and CD changer.

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

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: What type of noise is detected, vehicle noise or external noise?
Vehicle noise : It may not be possible to prevent noise if the signal is weak. Go to step 2.
External noise : 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.

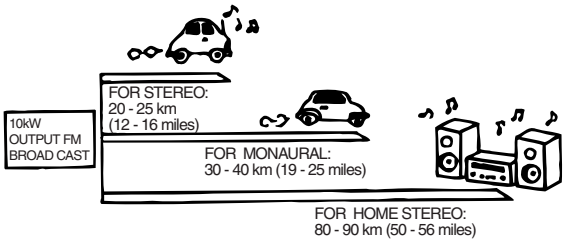
STEP 3. Check if the noise can be eliminated by adjusting the radio.
(1) Adjust the radio as follows.
(2) Change to a different station with a stronger signal. This will boost the systems resistance to outside interference.
(3) Suppress high tones to reduce noise.

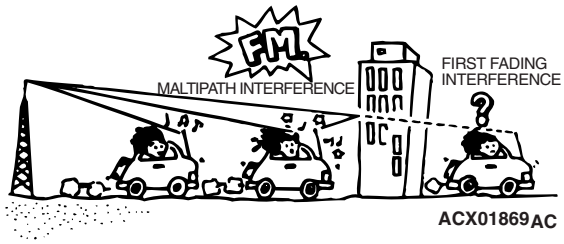
Q: Has the noise been eliminated?
YES : The noise has now been eliminated. Inform the customer that it is normal to hear noise while receiving a weak station.
NO : Go to Step 4.

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 9: Noise is Present while Moving (FM).





DIAGNOSIS

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

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 becomes 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 extends? 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 10: Sound mixed with Noise, Only at Night (AM).

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 over power 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 over look the possibility of a problem with the vehicles generator.

DIAGNOSIS

STEP 1. Check the vehicles lighting system.

Q: Does the noise disappear when the vehicles 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 11: Noise is Overpowering both AM and FM.

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 or the engine is running?
When the engine is stopped : Go to Step 3.
When the engine is running : Check the vehicle's noise suppressor. (Refer to Inspection Procedure 11 P.54A-296).

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.

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 12: Excessive Noise on AM and FM.

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 customers 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 customers 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 13: Noise is Detected with Engine Running.

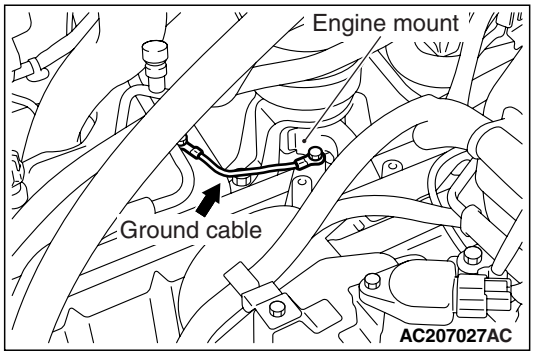
DIAGNOSIS

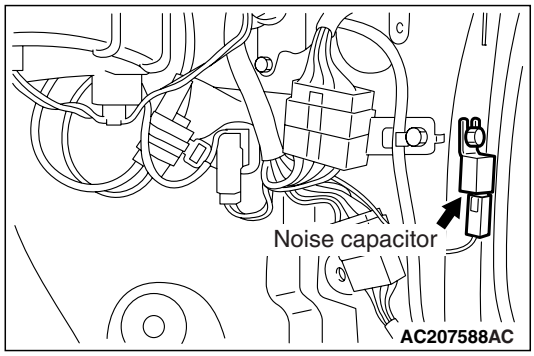
⚠ CAUTION

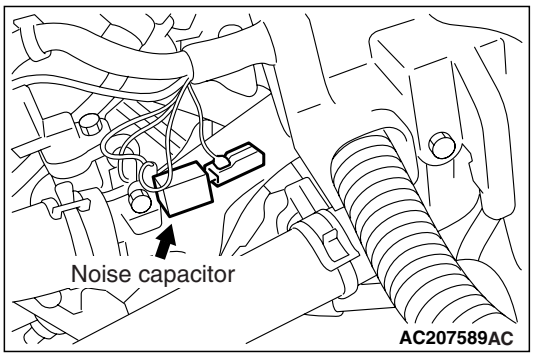
- **Never connect a noise filter to the high tension cable (spark plug wire). Spark plug wires incorporate resistors which have the effect of suppressing noise. If a spark plug wire is found to be causing noise, it must be replaced.**
- **Confirm that the noise is not from an external source.**
- **Noise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

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.

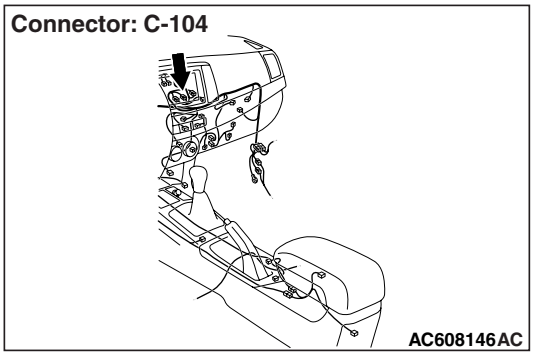
Description of noise	Condition	Cause	Solution
AM, FM: ignition noise (popping, snapping, cracking, buzzing)	• Increasing the engine speed causes the generator whine to speed up and the volume to decrease. • Disappears when the ignition switch turned to "ACC", and engine is off.	• Electrical interference from the spark plugs. • Engine noise.	• Check or replace the ground cable. • Check or replace spark plug wires. • Check or replace the noise capacitor.
Other electrical components	-	• Noise may intensify due to aging electrical components.	• Repair or replace the electrical components.
Static electricity (cracking, crinkling)	Noise disappears when the vehicle is completely stopped.	• Noise occurs when parts or wiring move and contact vehicle body.	• Return parts or wiring to their proper position.
Static electricity (cracking, crinkling)	• Various noises are produced depending on the body part of the vehicle.	• This may be due to the recent removal of the front hood, bumpers, exhaust pipe and muffler, suspension, etc.	• Properly ground parts. • Properly ground all body parts.

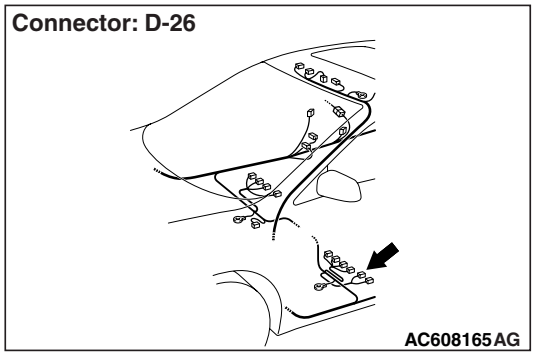






INSPECTION PROCEDURE 14: Noise Appears During Vibration or Shocks.





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.54A-447). 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 are fitted securely. Check that there is no noise.

TSB Revision

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

Q: Are radio and CD player or CD changer connector C-104 and amplifier connector D-26 in good condition?

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

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

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

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

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

STEP 5. Verify that the radio is correctly grounded.
The radio is connected to the ground with an assembling screw.

Q: Is the radio correctly grounded?

YES : Go to Step 6.
NO : Tighten the screw securely. Check that there is no noise.

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

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

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

INSPECTION PROCEDURE 15: Noise is Present While Moving (FM).

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 in extremely high, it is highly susceptible to effects from geological formations and buildings. These effects disrupt the broadcast signal and obstruct reception in several ways.

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

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

INSPECTION PROCEDURE 16: Constant Noise.

DIAGNOSIS

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

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

If there are still problems with noise, even after performing inspection procedures 8 to 15, obtain information on the factors listed above. Determine whether the problem occurs on AM or FM, the station names, frequencies, etc. and contact the radio manufacturer's service center.

INSPECTION PROCEDURE 17: No Reception (AM).

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 is an area exposed to special electric fields.

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

STEP 3. 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 radio, CD player and CD changer.

Q: Is the antenna plug thoroughly connected to the radio and CD player or radio, CD player and CD changer?
YES : Go to Step 6.
NO : Thoroughly connect the antenna plug and the radio and CD player or radio, CD player and CD changer. The radio should sound normally.

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

Q: Do the other radio and CD player or radio, CD player and CD changer work normally?
YES : Either repair or replace the original radio and CD player or radio, CD player and CD changer. The radio should sound normally.
NO : Either repair or replace the antenna assembly. The radio should sound normally.

INSPECTION PROCEDURE 18: Poor Reception.

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 is an area exposed to special electric fields.

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

STEP 3. 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 radio, CD player and CD changer.

Q: Is the antenna plug thoroughly connected to the radio and CD player or radio, CD player and CD changer?
YES : Go to Step 7.
NO : Thoroughly connect the antenna plug and the radio and CD player or radio, CD player and CD changer. Check that a poor reception is resolved.

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

Q: Do the other radio and CD player or radio, CD player and CD changer work normally?
YES : Either repair or replace the original radio and CD player or radio, CD player and 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 19: Distortion on AM and/or FM.

DIAGNOSIS

STEP 1. Check the level of distortion.

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

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. The speaker should now be free of distortion.

INSPECTION PROCEDURE 20: Distortion on FM Only.

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 21: Auto Select Function Inoperative, too Few Automatic Stations are Selected.

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 is an area exposed to special electric fields.

Q: Are inspections taking place under special electric field conditions (underground garage, inside a building, etc.)?
YES : Go to Step 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 radio, CD player and CD changer.

Q: Is the antenna feeder cable thoroughly connected to the radio and CD player or radio, CD player and CD changer?
YES : Repair or replace the radio and CD player or radio, CD player and CD changer. The auto-select function should operate normally.
NO : Thoroughly connect the antenna feeder cable and the radio and CD player or radio, CD player and CD changer. The auto-select function should operate normally.

INSPECTION PROCEDURE 22: Preset Stations are Erased.

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 1P.54A-268.

INSPECTION PROCEDURE 23: CD can not be Inserted.

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 can not be ejected, refer to INSPECTION PROCEDURE 27 P.54A-306). 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'.

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

Q: If you try to load the CD, does the CD stops halfway and then rejected?
YES : Refer to INSPECTION PROCEDURE 27 P.54A-306.
NO : Go to Step 3.

STEP 3. Check after the CD is loaded.

NOTE: Even though the CD is loaded, 'E01' (vehicles with center display low type) or 'ERROR 01' (vehicles with center display middle type) 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 'E01' (vehicles with center display low type) or 'ERROR 01' (vehicles with center display middle type) 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 24: No Sound. (CD Only)

DIAGNOSIS

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

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

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

Q: Is the radio and CD player energized when the ignition switch is turned to the "ACC" or "ON" position?
YES : Replace the audio. The CD player should sound normally.
NO : Check the memory backup power supply circuit. Refer to Inspection Procedure 1 P.54A-268.

INSPECTION PROCEDURE 25: CD Sound Skips.

DIAGNOSIS

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

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

STEP 2. Check the surface of the CD.

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

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

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

STEP 4. Check by tapping the radio and CD player or radio, CD player and 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 or radio, CD player and CD changer?
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 26: 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.

INSPECTION PROCEDURE 27: CD can not be Ejected.

DIAGNOSIS

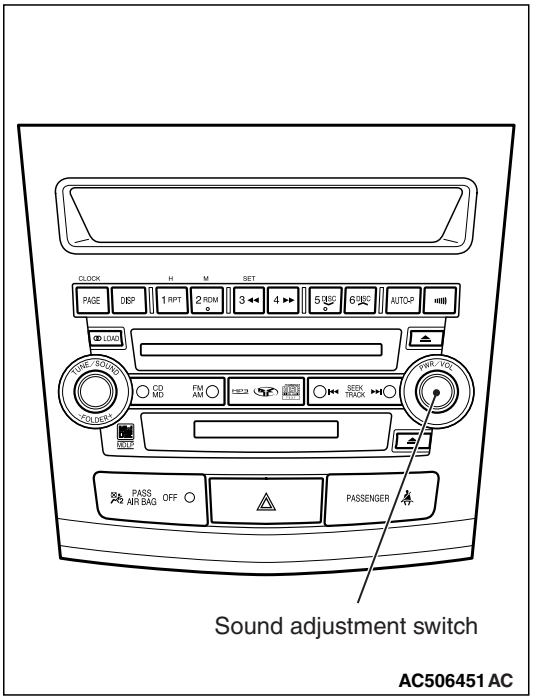
Check the power of ignition switch "ACC".

Q: Does the radio and CD player or radio, CD player and 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.54A-268.

ON-VEHICLE SERVICE

ADJUSTMENT OF VOLUME AND SOUND QUALITY AUTOMATIC CORRECTION FUNCTION

M1544014200055

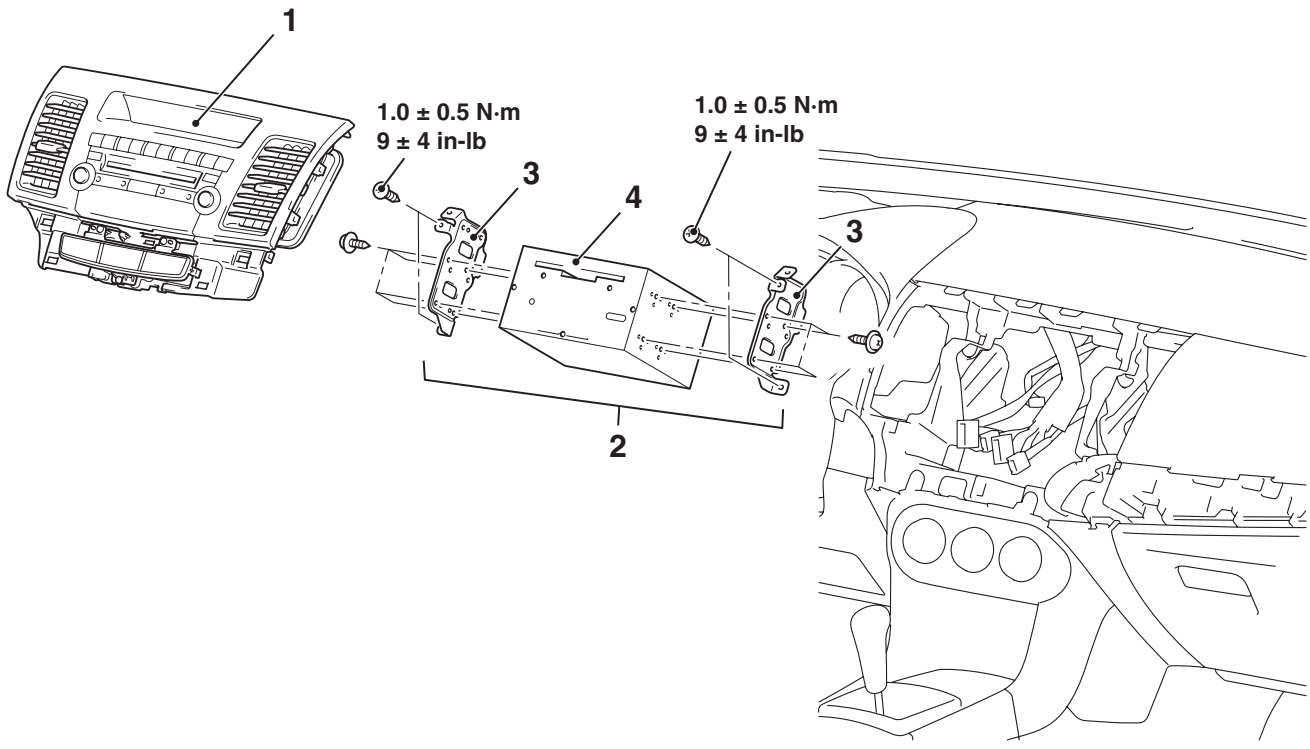


When the following operations are performed with the audio power ON, the sound volume during driving and the ON/OFF of sound quality automatic correction function are switched.

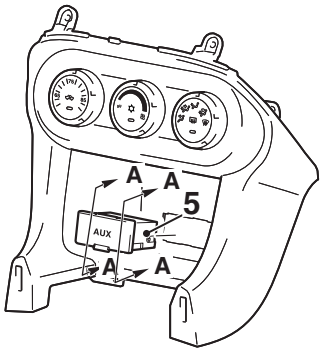
1. Press and hold (approximately 2 seconds) the sound adjustment switch.
2. "SCV" ON (when the automatic correction function is ON) or "SCV" OFF (when the automatic correction function is OFF) is displayed.
3. Turn the sound adjustment switch knob to switch between "SCV" ON and OFF.
4. Press the sound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

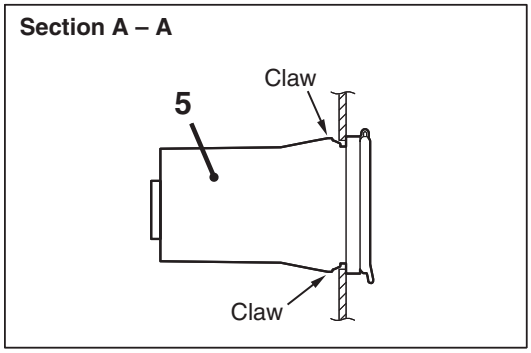
REMOVAL AND INSTALLATION

M1544010900126



TSB Revision





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Audio Unit Removal Steps

1. Instrument center panel (Refer to GROUP 52A –Instrument Center Panel assembly P.52A-6).
2. Audio unit assembly
3. Audio unit bracket
4. Audio unit

Audio Adaptor Removal Steps

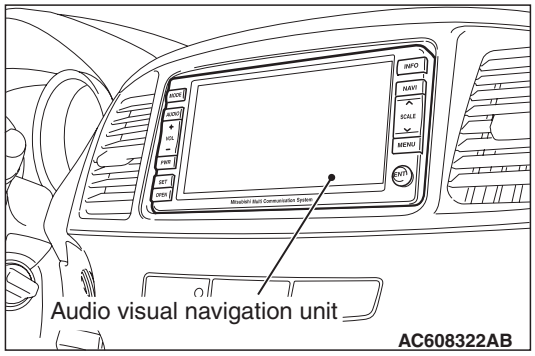
- Instrument console box (Refer to GROUP 52A –Instrument Center Panel assembly P.52A-6).

5. Audio adaptor <Vehicles with audio amplifier>

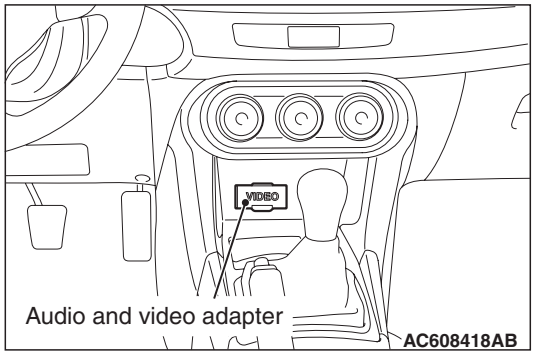
MMCS

GENERAL INFORMATION

M1546000100062

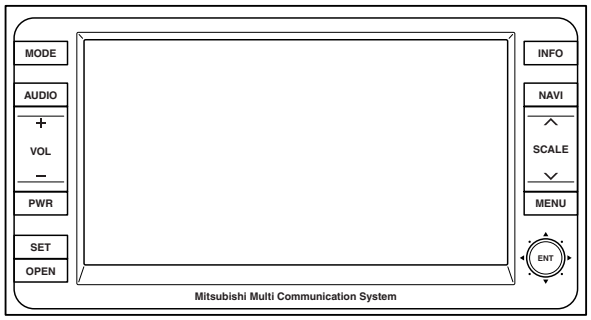


Mitsubishi multi-communication system (7-inch wide display HDD navigation) with built-in hard disk drive (30 gigabyte) has been installed. <Option> Also, a 7-inch liquid crystal display of wide 2 DIN size has been adopted.



The audio and video adapter has been established to the center lower tray in order to connect visual equipment such as game machine and video player. <Vehicles with MMCS>

Operation part



Display (function)	Contents
Navigation screen	Displays the navigation functions including the map display, search, guidance, information search.
Vehicle position information screen	Displays the position information of current location. (Longitude and latitude, altitude, GPS reception status)
CD screen	Plays back the disc inserted to the CD drive (CD-R/CD-RW).
MP3/WMA screen	Plays back the MP3/WMA.
DVD screen	Plays back the disc inserted to the DVD drive.
Music server function	Plays back the music data on hard disk drive, and records the music CD.
Radio screen	Displays the receiving station information. Also, the operation of receiving channel can be performed.

TSB Revision

Navigation function

The storage of very large map data is now possible, and the following contents have been adopted.

- Map type navigation
- NAVTEQ map database
- Map data stored in hard disc drive
- U.S. English, French, and Spanish are available to select.

Audio and visual function

There are the following functions in addition to the navigation function.

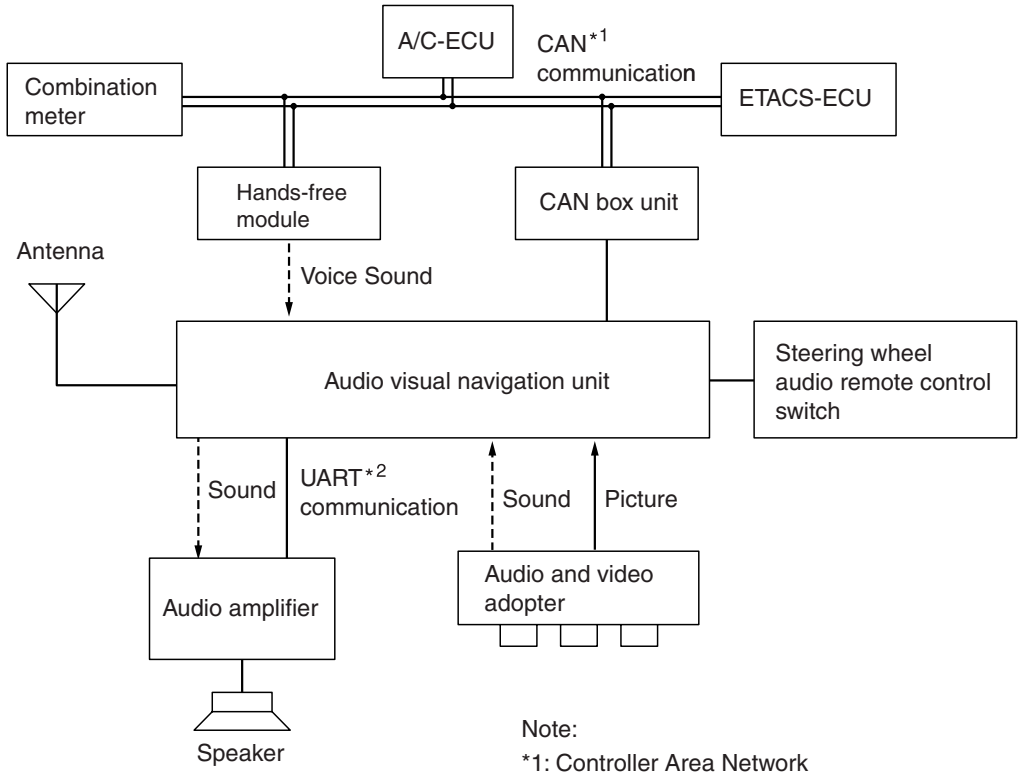
- Music server function
- DVD drive unit
- FM/AM radio
- MP3/WMA playback function
- Control by steering wheel audio remote control switch
- Integrated 4-ch power amplifier (MAX: 180 W)
- Correspond to Rockford Fosgate® premium sound system
- Output of DVD video 5.1 channel data
- Connect with satellite radio tuner

Other function

There are the following functions in addition to the navigation, audio and visual function.

- Clock display
- Connect with hands free unit
- A/C information display
- Outside temperature display
- Trip information display (Average fuel consumption etc.)
- Function customize

SYSTEM BLOCK DIAGRAM



Note:
*1: Controller Area Network
*2: Universal Asynchronous Receiver Transmitter

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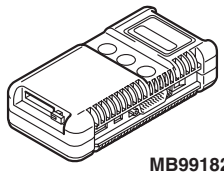
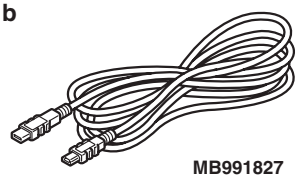
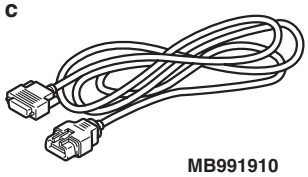
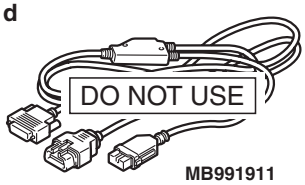
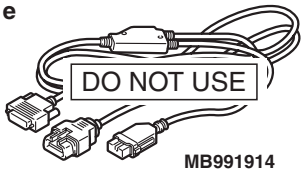
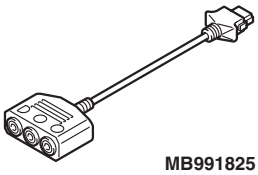
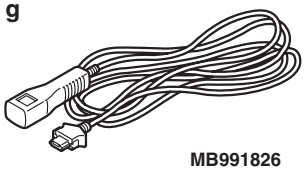
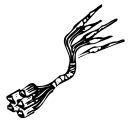
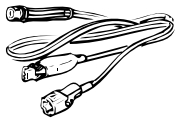
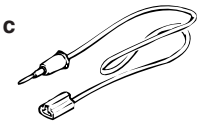
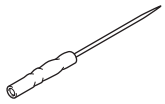
TSB Revision

SPECIAL TOOLS

M1540200300095

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

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

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1546001500085

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

Precautions on servicing MMCS

M1546003000105

Prior to disconnecting the vehicle battery

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

Diagnosis tips concerning the entire system

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

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

Diagnosis tips concerning the navigation function

1. The precision of the GPS positioning is limited due to its operation principles. So, some of customer reports do not mean that the system is defective.

Prior to troubleshooting, question your customer about how the navigation system is used and where he/she drives. If you determine that the system is OK, explain to your customer about how the system works and how the customer should operate it.

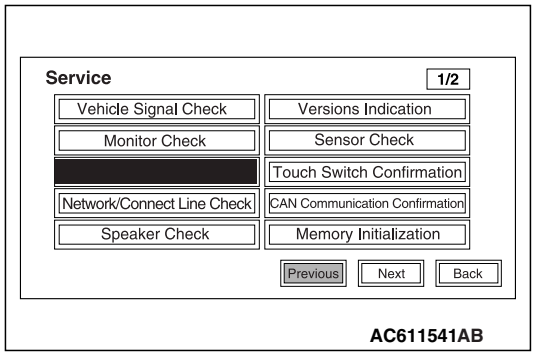
2. If the system is not OK, diagnose the system according to the trouble symptom chart.

Service mode

M1546016600066

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.



AC611541AB

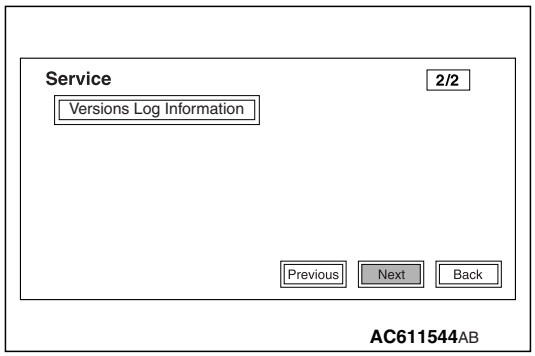
How to terminate the service mode

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

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

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

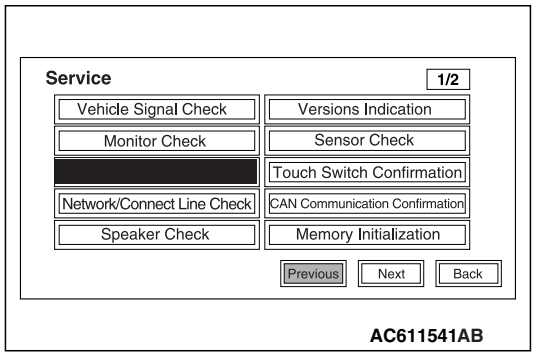
  - *Vehicle Signal Check*
  - *Monitor Check*
  - *Network/Connect Line Check*
  - *Speaker Check*
  - *Versions Indication*
  - *Sensor Check*
  - *Touch Switch Confirmation*
  - *CAN communication Confirmation*
  - *Memory Initialization*
  - *Versions Log Information*



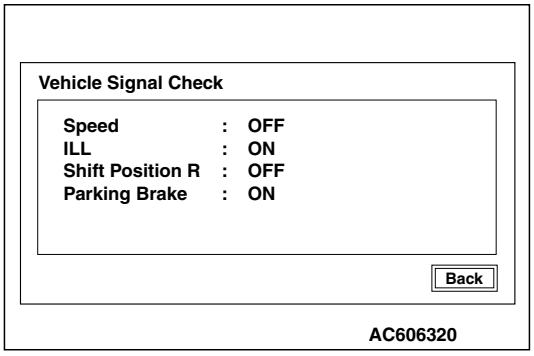
AC611544AB

VEHICLE SIGNAL CHECK

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



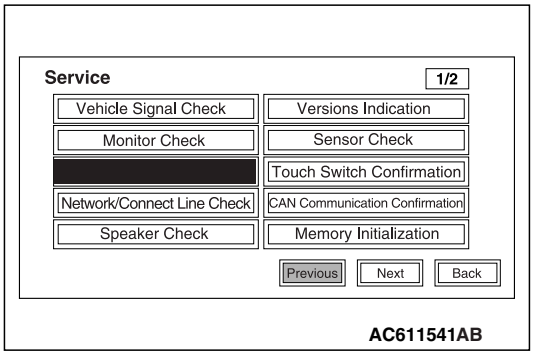
AC611541AB



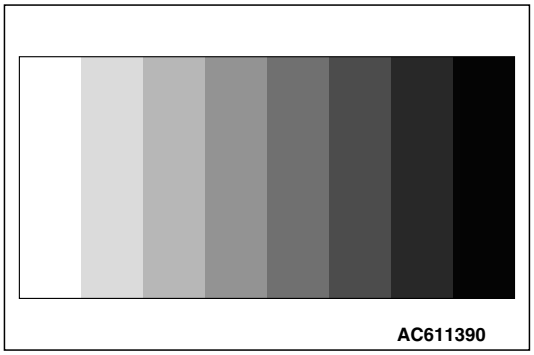
2. The check results will be displayed for the items below.
   - "Speed": "ON" when the vehicle speed is 6 km/h or more, and "OFF" when the vehicle speed is 4 km/h or less.
   - "ILL": "ON" when the lighting switch is on (headlight position), and "OFF" when they are off (except headlight position).
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

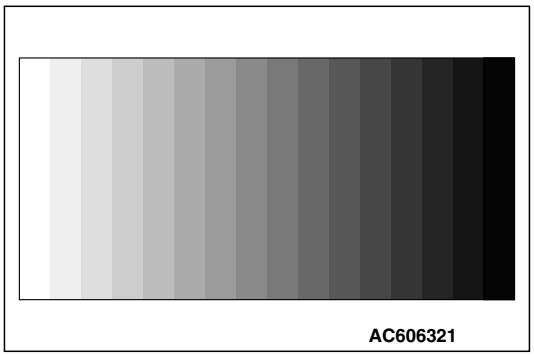
1. Select "Monitor Check" on "Service" screen.

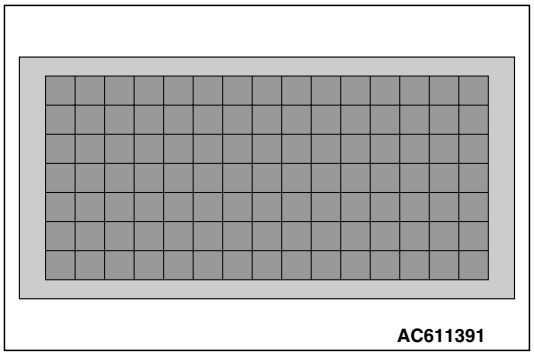


2. Eight color bars will be displayed.

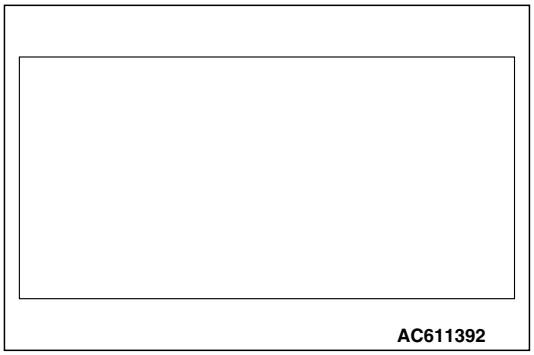


3. When "Enter" is pressed on the navigation unit joystick while the eight color bars are shown, gray scale will be displayed with a 16-step gradation.




AC611391

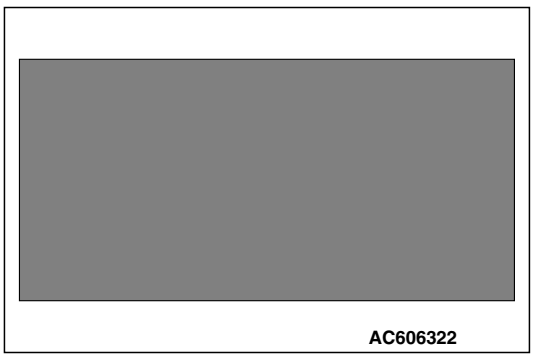
4. When "Enter" is pressed while the gray scale is shown with a 16-step gradation, a crosshatch pattern will be displayed (Each cell should be square).


AC611392

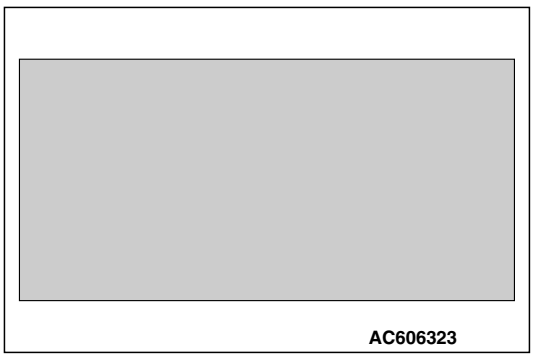
5. When "Enter" is pressed on the navigation unit joystick while the crosshatch pattern is shown, the screen will turn white.


AC611393

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


AC606322

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

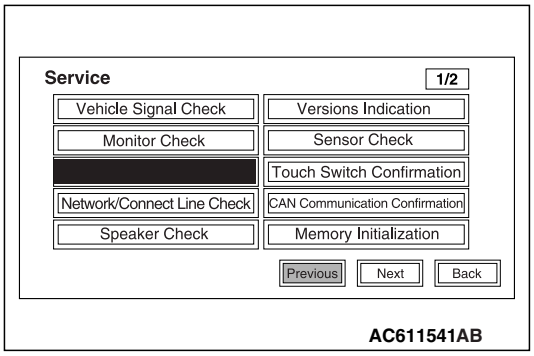

AC606323

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

AC606324

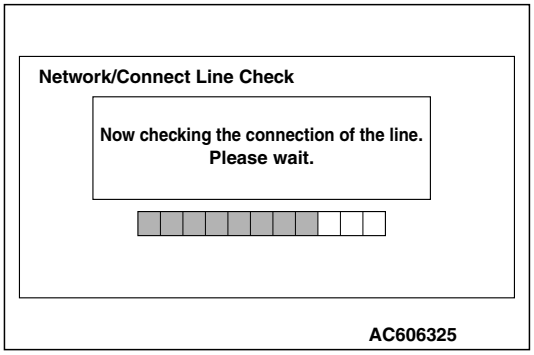
9. When "Enter" is pressed on the navigation unit joystick while the screen is green, it will turn blue.
10. When "Enter" is pressed on the navigation unit joystick while the screen is green, it will return to the "Service" screen.

NETWORK AND CONNECT LINE CHECK



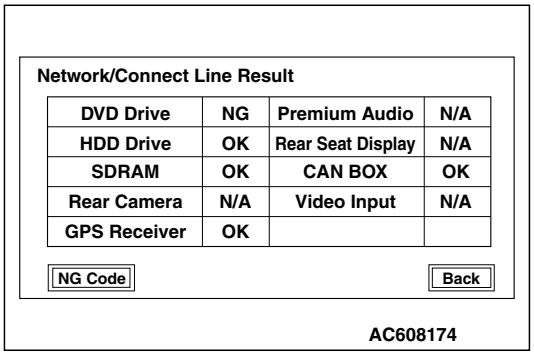
AC611541AB

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



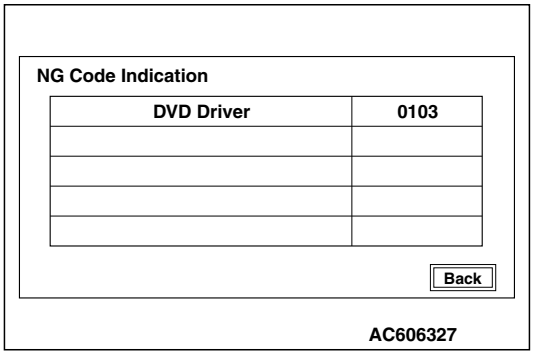
AC606325

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



AC608174

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

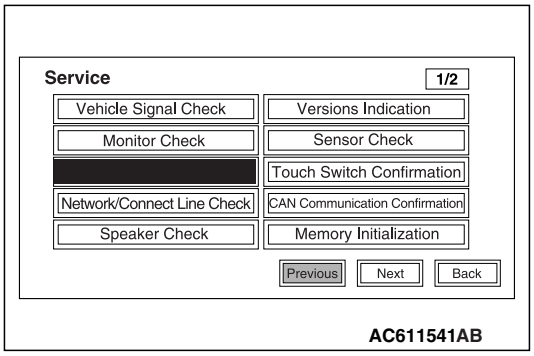


NOTE: If there is "NG" or "N/A" as the check results, select "NG Code" on the "Network/Connect Line Result" screen. Then "NG code Indication" screen will show the NG code.

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

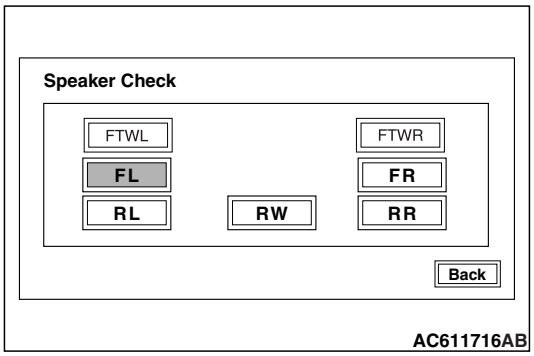
SPEAKER CHECK

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



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

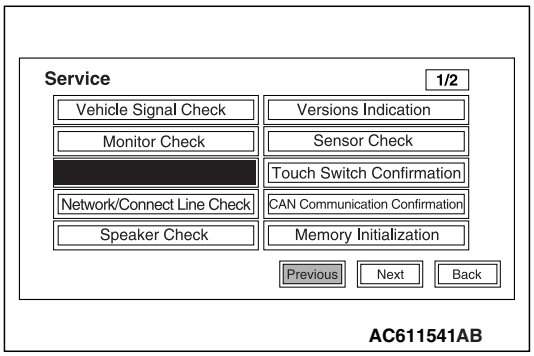
   NOTE:
   - *The number of the speakers being displayed depends on how many speakers are connected.*
   - *Volume cannot be adjusted while test tone is being played.*
   - *During the test, only the selected speaker sounds. If "Back" is selected during the test, the test tone will disappear.*

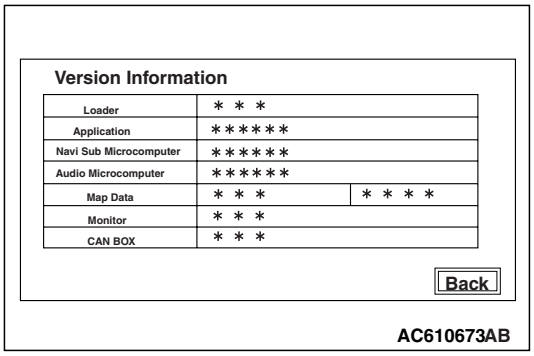


VERSIONS INDICATION

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

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



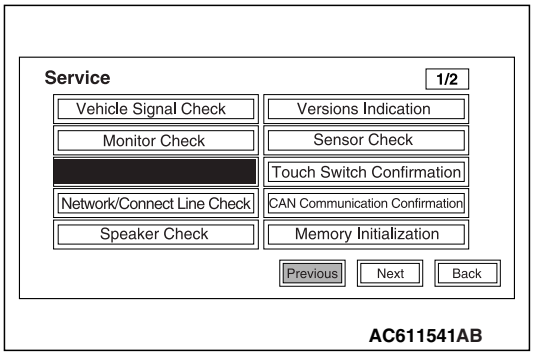


2.3.Versions indication is displayed.

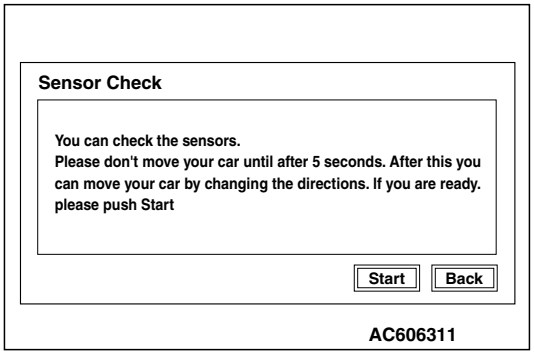
SENSOR CHECK

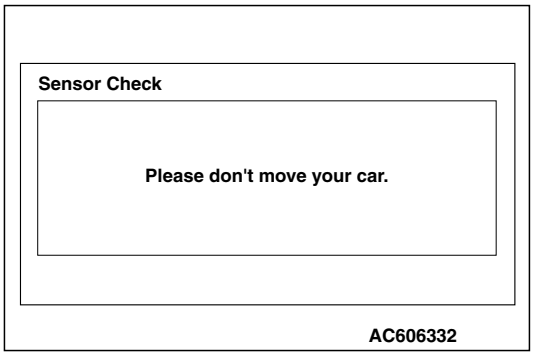
The speed sensor and gyro sensor will be checked, depending on the vehicle conditions such as driving condition, stationary condition and travel direction change.

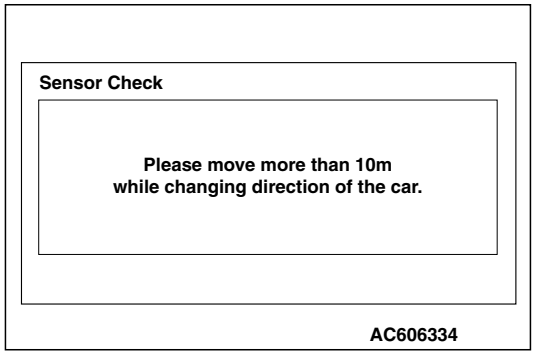
1. Select "Sensor Check" on "Service" screen.



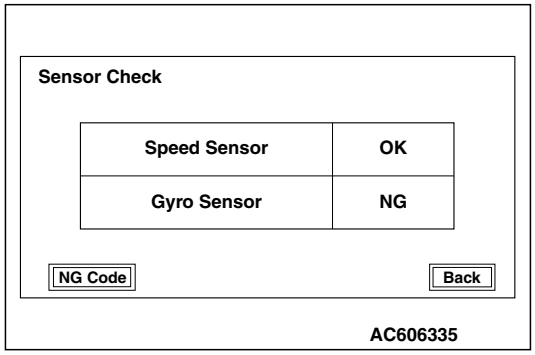
2. The sensor check with the vehicle stationary will be executed in accordance with the screen.





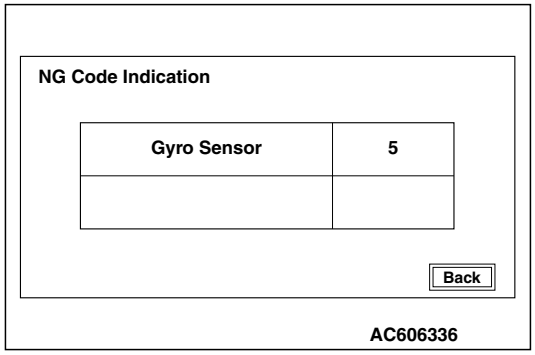


3. The sensor check with the vehicle in motion will be executed in accordance with the screen.



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

NOTE:



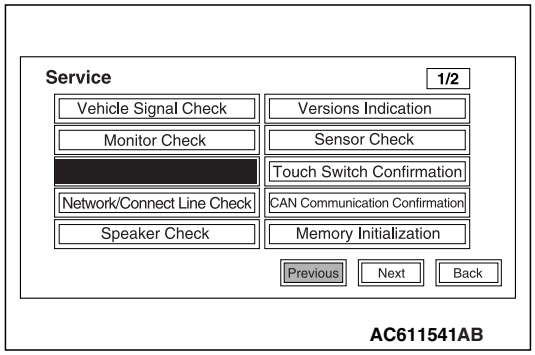
If there is "NG" or "N/A" as the check results, select "NG Code" on the "Sensor Check" screen. Then "NG code Indication" screen will show the NG code.

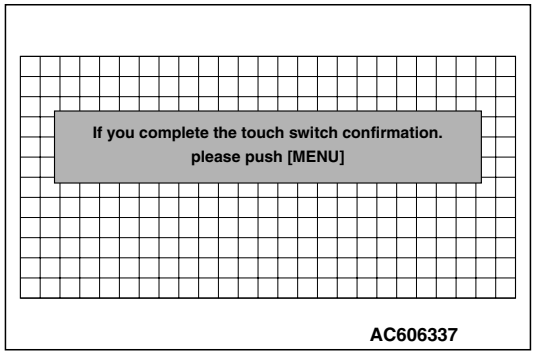
NG code reference table for Sensor Check

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

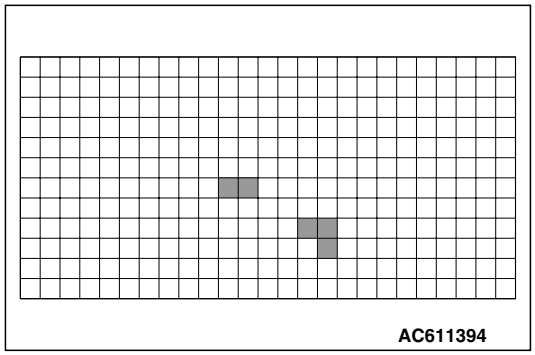
TOUCH SWITCH CONFIRMATION

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



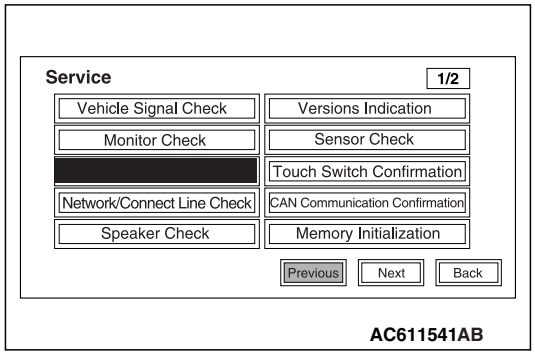


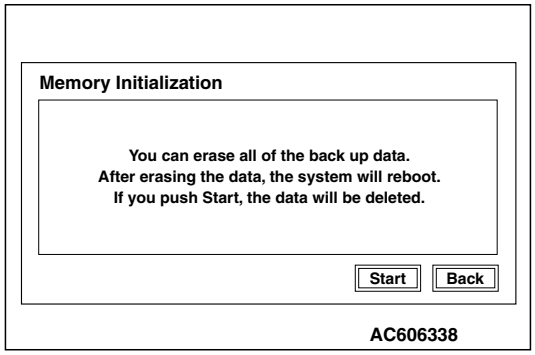
2. If you touch the screen, the color of the dotted coordinate at the touched area will be changed.



MEMORY INITIALIZATION

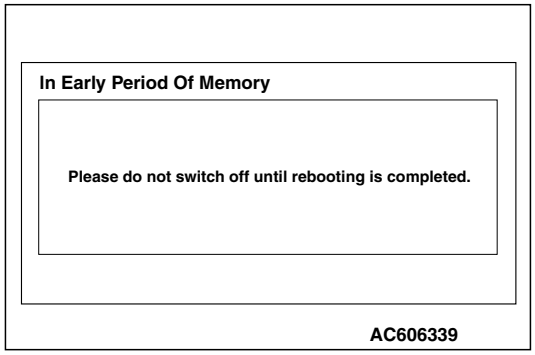
1. Select "Memory Initialization" on "Service" screen.





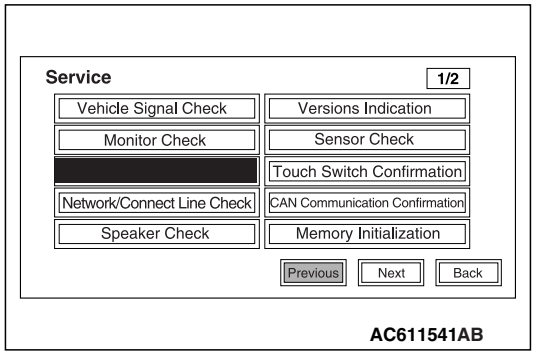
2. If you select "Start" on "Memory Initialization" screen, the settings such as registered locations and music server will be erased (initialized) from the memory.

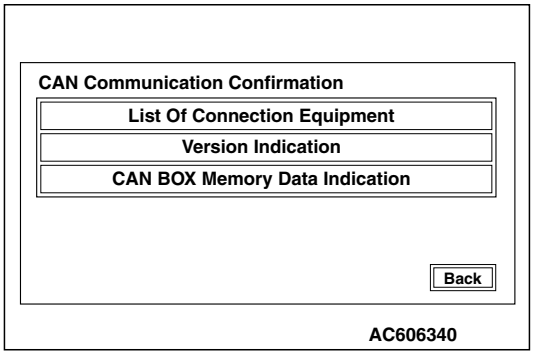
   NOTE: If the ignition switch is turned to "LOCK" (OFF) position during the initialization, the initialization will be suspended. If the ignition switch is turned to "ACC" or "ON" position, the initialization will be resumed.
3. After the memory initialization is complete, the navigation system will restart automatically.



CAN COMMUNICATION CONFIRMATION

1. Select "CAN Communication Confirmation" on "Service" screen.

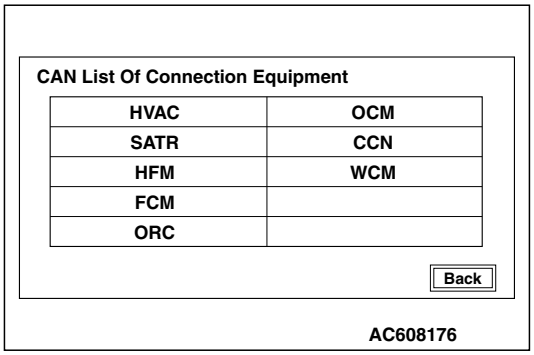




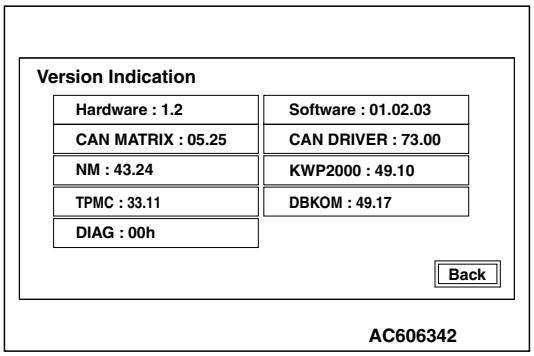
2. If "List Of Connection Equipment" is selected on "CAN Communication Confirmation" screen, the system will determine which equipment is installed according to the connected equipment reference table. Then the equipment which are connected to the CAN box unit will be displayed.

CAN box unit-connected equipment reference table

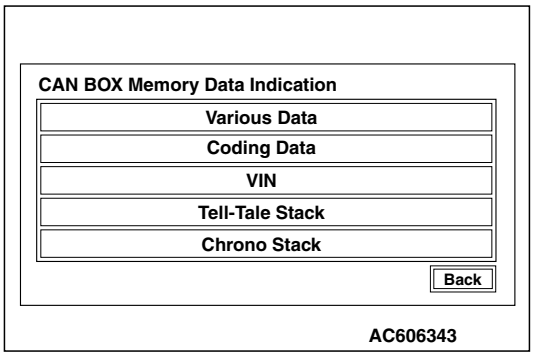
Screen indication	Equipment
HVAC	A/C-ECU
SATR	Satellite radio tuner
HFM	Hands free module
FCM	ETACS-ECU
ORC	SRS-ECU
OCM	Occupant classification-ECU
CNN	Combination meter
WCM	Wireless control module



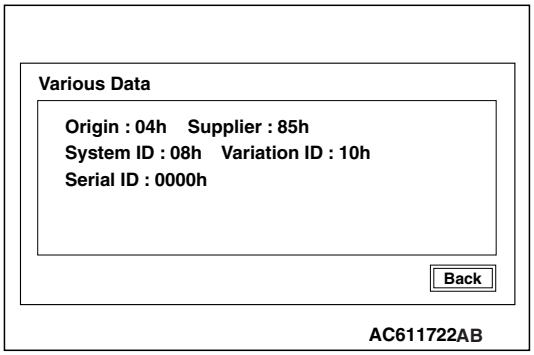
3. If "Version Indication" is selected on "CAN Communication Confirmation" screen, the version for each item is displayed.

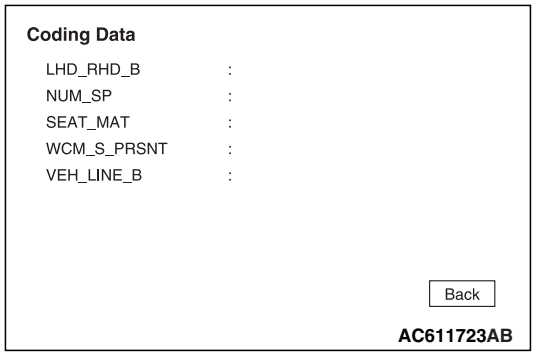


4. If "CAN BOX Memory Data Indication" is selected on "CAN Communication Confirmation" screen, "CAN BOX Memory Data Indication" will be displayed.
5. If any item is selected on "CAN BOX Memory Data Indication" screen, its relevant information is displayed.

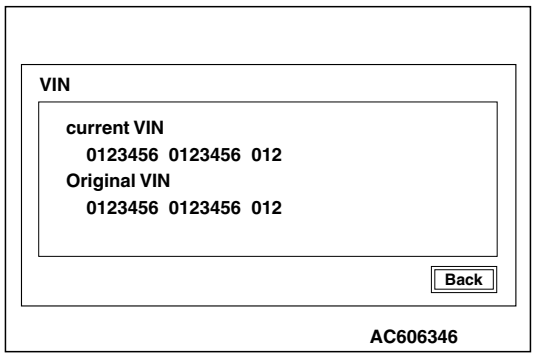


- Various Data

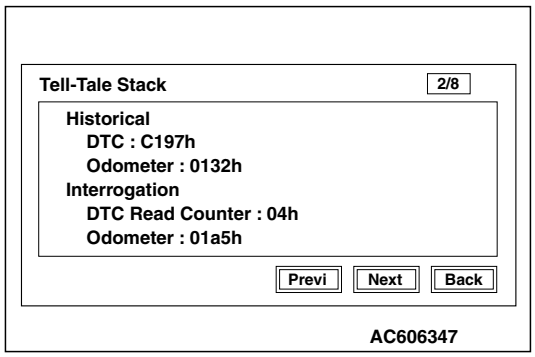




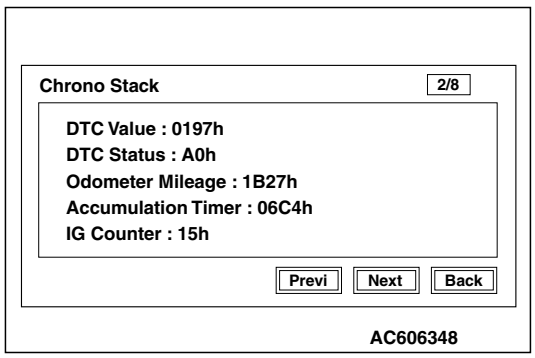
- Coding Data



- VIN



- Tell-Tale Stack

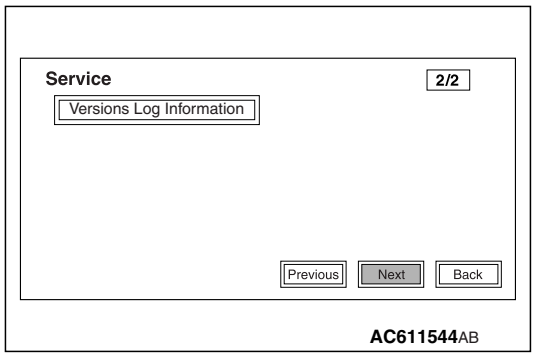


- Chrono Stack

VERSIONS LOG INFORMATION

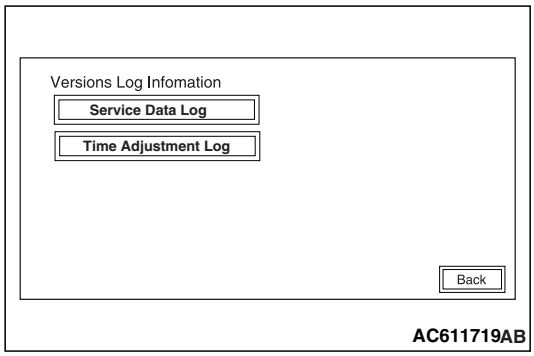
Displays logs for drive and HDD.

Service Data Log



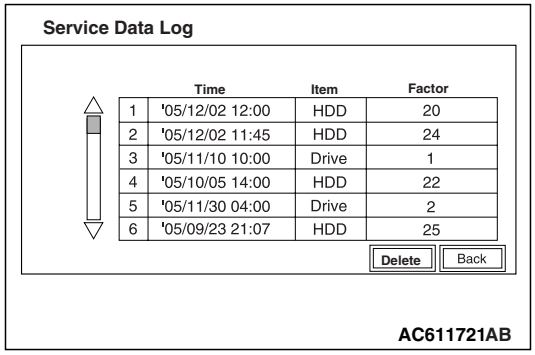
AC611544AB

1. Select "Versions Log Information" on "Service" screen.



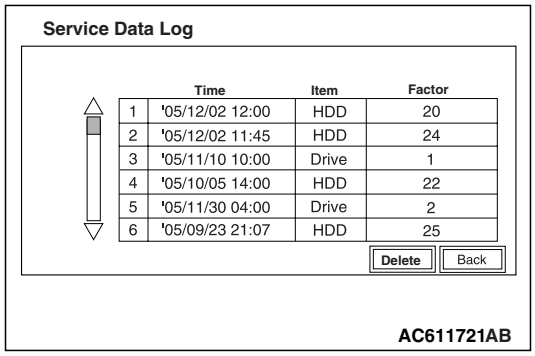
AC611719AB

2. Select "Service Data Log" on the "Versions Log Information" screen.

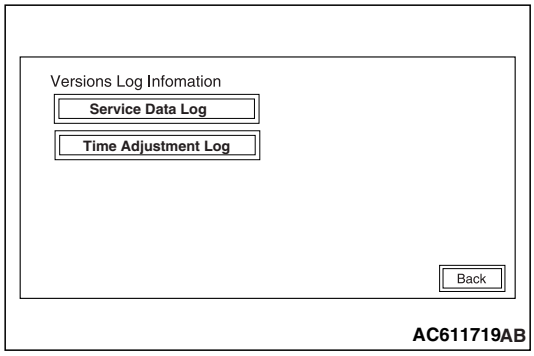


AC611721AB

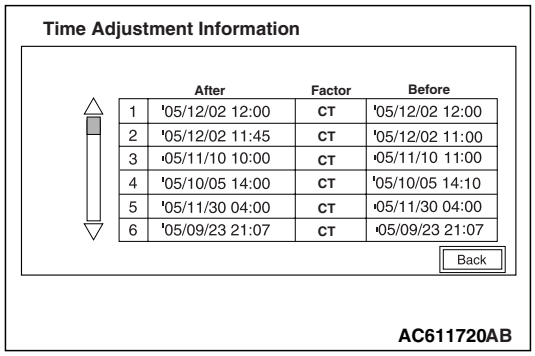
3. The logs are displayed from the latest one.
4. The log data is erased by pressing "Delete."



AC611721AB



1. Select "Time Adjustment Log" on the "Versions Log Information" screen.



2. The time adjustment logs are displayed.
   As for Factor, the following two types are displayed.
   CT: Automatic adjustment
   MAN: Manual adjustment

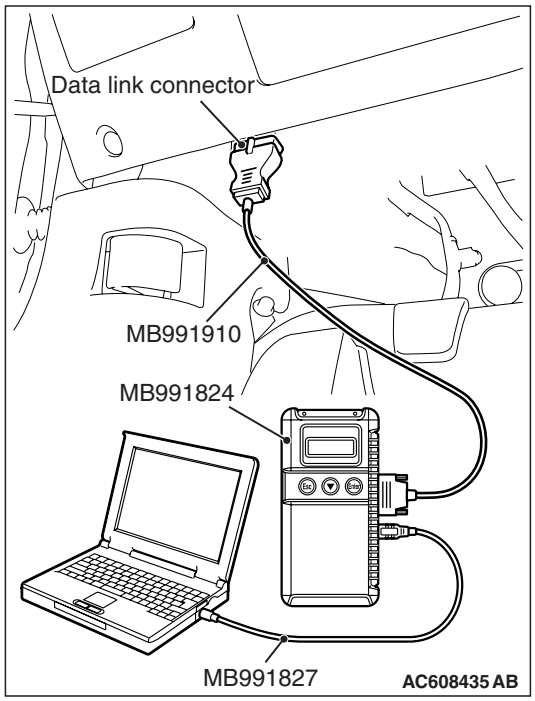
DIAGNOSIS FUNCTION

M1546001600060

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

Required Special Tools:

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



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

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

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

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

NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.

6. Select "Diagnostic Trouble Code."
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

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

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

DIAGNOSTIC TROUBLE CODE CHART

M1546001700089

⚠ CAUTION

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

DTC No.	Description	Reference page
B2226	Navigation unit service data	P.54A-329
B2240	Communication error between CAN box unit and navigation unit	P.54A-329
B2477	VIN writing has never been completed	P.54A-332
U0019	Bus off (CAN-B)	P.54A-333
U0141	ETACS CAN timeout	P.54A-335
U0151	SRS-ECU CAN timeout	P.54A-336
U0154	Occupant classification-ECU CAN timeout	P.54A-338
U0155	Combination meter CAN timeout	P.54A-339
U0164	A/C-ECU CAN timeout	P.54A-341
U0168	KOS-ECU or WCM CAN timeout	P.54A-342
U0195	Satellite radio tuner CAN timeout	P.54A-344
U0197	Hands free module CAN timeout	P.54A-345
U1415	Coding not completed/Data fail	P.54A-347
U1417	Implausible coding data	P.54A-348

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B2226: Navigation unit service data

TROUBLE JUDGEMENT

When the CAN box unit receives the signal from the audio visual navigation unit to indicate an abnormality occurred in the navigation unit, the CAN box unit sets DTC B2226.

TROUBLESHOOTING HINT

The audio visual navigation unit may be defective

DIAGNOSIS

Check that the audio visual navigation unit operate.

Check that the audio visual navigation unit work normally.

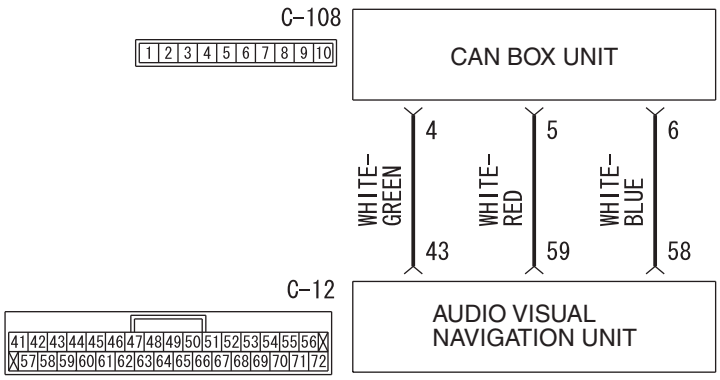
Q: Is audio visual navigation unit work normally?

YES : Intermittent malfunction is suspected. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunction P.00-13.

NO : Diagnose the audio visual navigation unit (Refer to Trouble symptom chart P.54A-350).

DTC B2240: Communication error between CAN box unit and navigation unit

CAN Box Unit Communication Circuit



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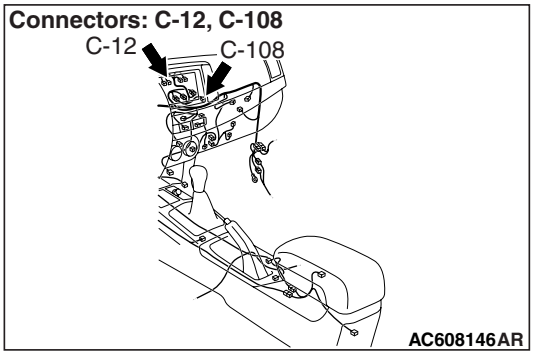
TSB Revision



TROUBLE JUDGMENT

When the abnormality occurs in the transmission/reception data between the CAN box unit and audio visual navigation unit, the CAN box unit sets DTC B2240.

PROBABLE CAUSES

- Audio visual navigation unit malfunction
- CAN box unit malfunction
- Damaged wiring harness and connectors

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)
  - MB991223: Harness Set
  - MB992006: Extra Fine Probe

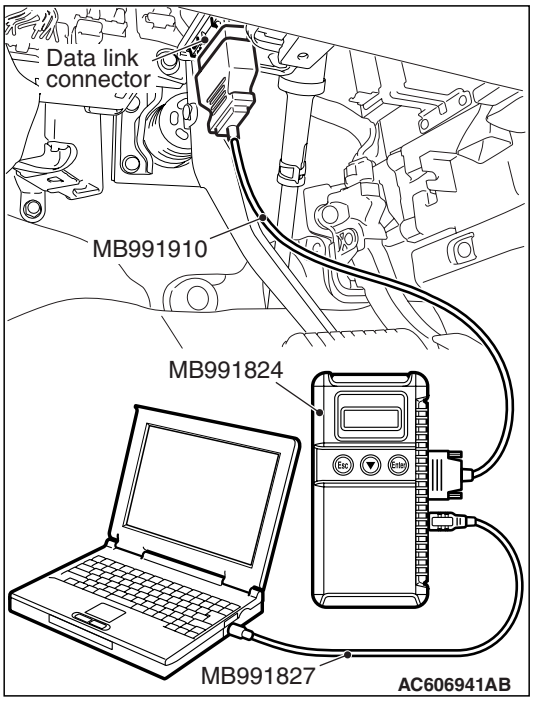
STEP 1. Perform "Network/Connect Line Check" of the MMCS service mode.

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.54A-313.)

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 to the data link connector.
(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.00-13.

NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 3. Check CAN box unit connector C-108 and audio visual navigation unit connector C-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are CAN box unit connector C-108 and audio visual navigation unit connector C-12 in good condition?

YES : Go to Step 4.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The steering remote control switch should work normally.

STEP 4. Check the wiring harness between CAN box unit connector C-108 (terminal 4, 5, 6) and audio visual navigation unit connector C-12 (terminal 43, 59, 58).

Q: Is the wiring harness between CAN box unit connector C-108 (terminal 4, 5, 6) and audio visual navigation unit connector C-12 (terminal 43, 59, 58) in good condition?

YES : Go to Step 5.

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

TSB Revision

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.

DTC B2477: VIN writing has never been completed.

TROUBLE JUDGEMENT

With the ignition switch at the ON position, if the VIN code is not written to the CAN box unit, DTC B2477 is stored.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The ETACS-ECU may be defective.
- The CAN box unit may be defective.

DIAGNOSIS

Required Special Tools:

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

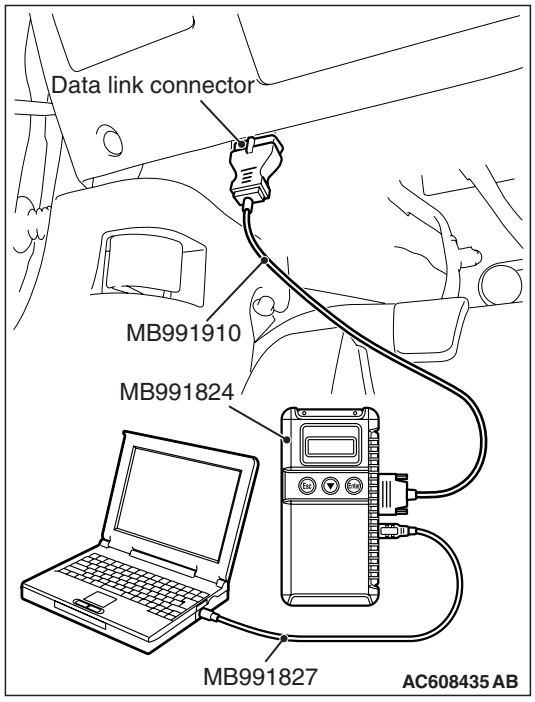
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



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

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

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to P.54A-482).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0019: Bus off (CAN-B)

⚠ CAUTION
If DTC U0019 is set, be sure to diagnose the CAN bus line.

⚠ CAUTION
When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

If the CAN-B circuit malfunction occurs, the CAN box unit sets DTC U0019.

JUDGEMENT CRITERIA

With the ignition switch at the ON position and the system voltage at 10 –16 volts (data from ETACS-ECU), if the CAN box unit becomes unable to transmit data normally due to the CAN-B bus circuit malfunction, the CAN box unit determines that a problem has occurred.

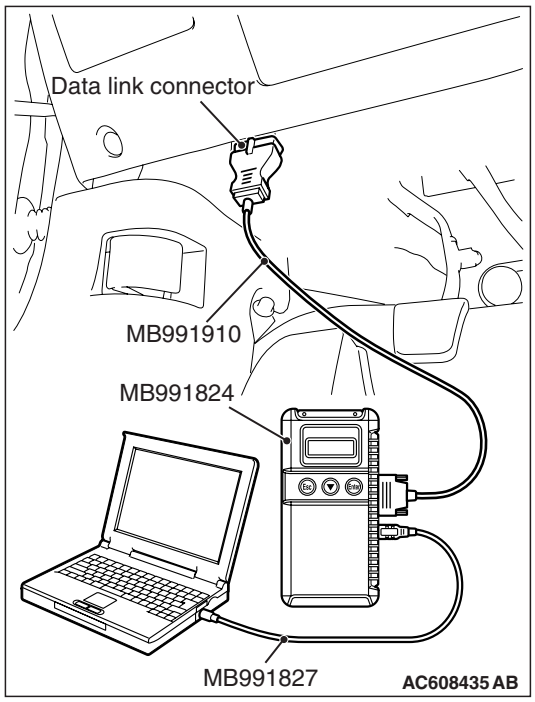
TROUBLESHOOTING HINTS

The CAN bus line may be defective

DIAGNOSIS

Required Special Tools:

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



STEP 1. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Go to Step 2.
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.00-13).

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

(1) Turn the ignition switch to the "ON" position.
(2) Diagnose the CAN bus line.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be 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.00-13).
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

DTC U0141: ETACS CAN timeout

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

⚠ CAUTION
When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

If the signal from ETACS-ECU cannot be received, the CAN box unit sets the DTC U0141.

JUDGEMENT CRITERIA

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

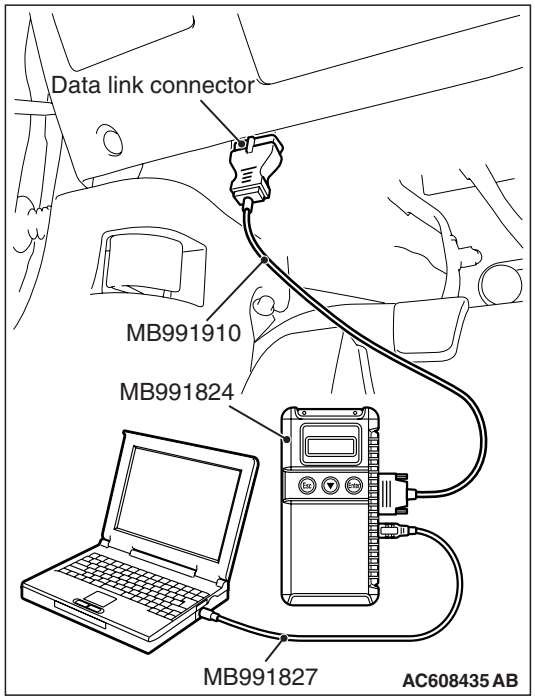
TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The CAN box unit may be defective
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to P.54A-482).
NO : Go to Step 3.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0151: SRS-ECU CAN timeout

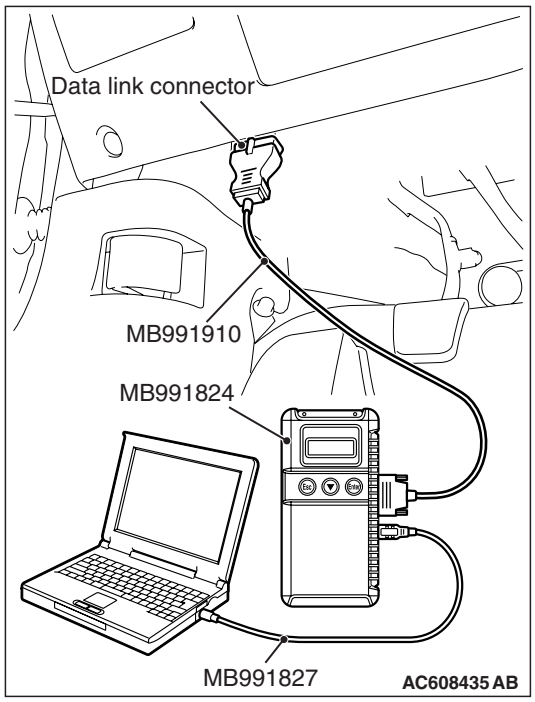
⚠ CAUTION
- **If DTC U0151 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION
If the signal from SRS-ECU cannot be received, the CAN box unit sets DTC U0151.

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

TROUBLESHOOTING HINTS
- The CAN bus line may be defective
- The SRS-ECU may be defective
- The CAN box unit may be defective

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Troubleshooting P.52B-31).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0154: Occupant classification-ECU CAN timeout

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

⚠ CAUTION
When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

When the signals from occupant classification-ECU cannot be received, the CAN box unit sets DTC U0154.

JUDGEMENT CRITERIA

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

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The CAN box unit may be defective.
- The occupant classification-ECU may be defective.

DIAGNOSIS

Required Special Tools:

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

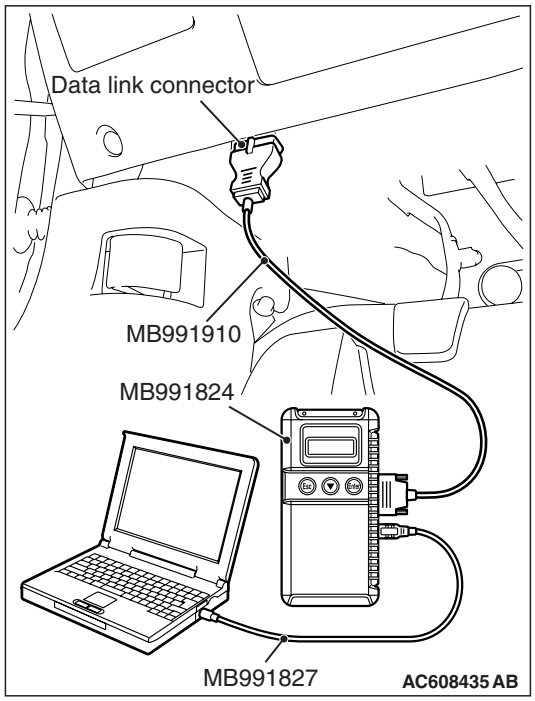
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



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

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Diagnosis P.52B-280).
NO : Go to Step 3.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0155: Combination meter CAN timeout

⚠ CAUTION
If DTC U0155 is set in the CAN box unit, diagnose the CAN main bus line.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the communication circuit is normal.

DIAGNOSTIC FUNCTION

When the signals from combination meter cannot be received, the CAN box unit sets DTC U0155.

JUDGEMENT CRITERIA

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

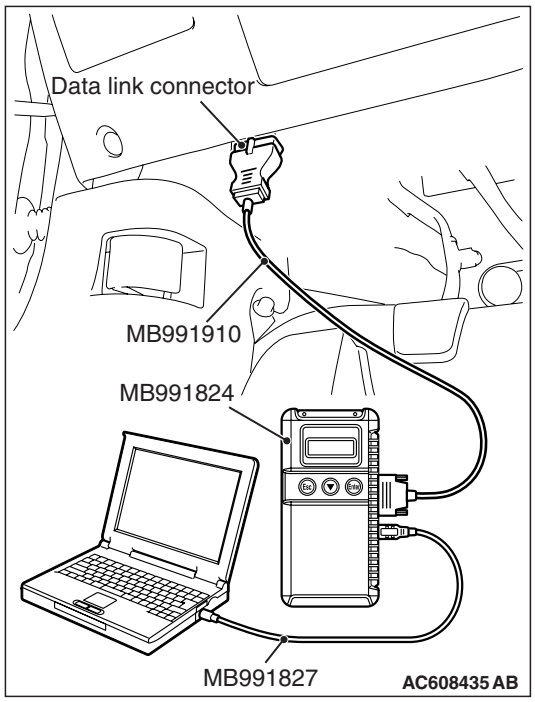
TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The CAN box unit may be defective.
- The combination meter may be defective.

DIAGNOSIS

Required Special Tools:

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16).

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

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

Q: Is the check result satisfactory?

YES : Go to Step 3.
NO : Diagnose the combination meter (Refer to combination meter, Diagnosis P.54A-23).

STEP 3. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

TSB Revision

DTC U0164: A/C-ECU CAN timeout

⚠ CAUTION

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

DIAGNOSTIC FUNCTION

If the signal from A/C-ECU cannot be received, the CAN box unit sets DTC U0164.

JUDGEMENT CRITERIA

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

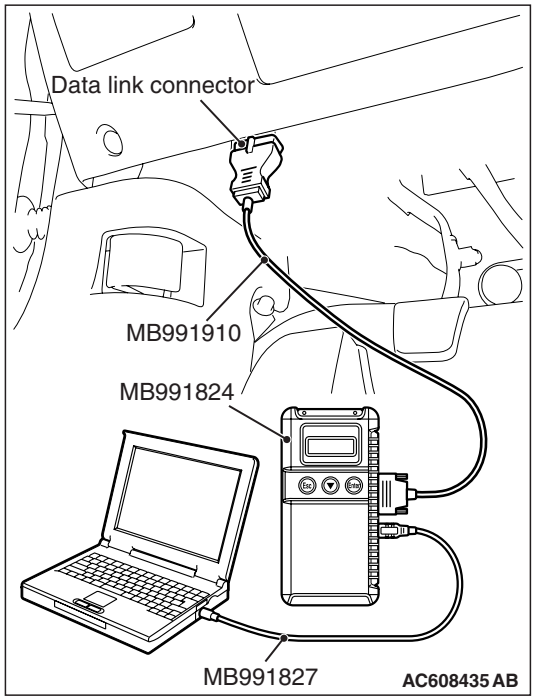
TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The A/C-ECU may be defective.
- The CAN box unit may be defective.

DIAGNOSIS

Required Special Tools:

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-328."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

Q: Is the DTC set?

YES : Troubleshoot the A/C (Refer to GROUP 55A, Manual A/C Diagnosis P.55A-8 <vehicles with manual A/C> or GROUP 55B, Automatic A/C Diagnosis P.55B-7 <vehicles with automatic A/C>).

NO : Go to Step 3.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0168: KOS-ECU or WCM CAN timeout

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

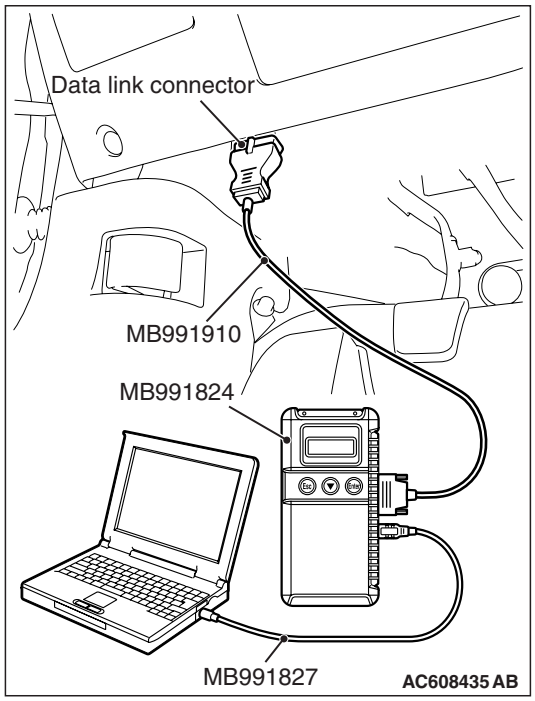
DIAGNOSTIC FUNCTION
If the signal from KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> cannot be received, the CAN box unit sets DTC U0168.

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

TROUBLESHOOTING HINTS
- Malfunction of CAN bus line may be defective.
- Malfunction of the KOS-ECU may be defective. <vehicles with KOS>
- Malfunction of the WCM may be defective. <vehicles with WCM>
- Malfunction of CAN box unit may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable

- MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the KOS or WCM (Refer to GROUP 42B, Diagnosis P.42B-20 <KOS> or GROUP 42C, Diagnosis P.42C-14 <WCM>).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

TSB Revision

DTC U0195: Satellite radio tuner CAN timeout

⚠ CAUTION
If DTC U0195 is set in the CAN box unit, diagnose the CAN main bus line.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the communication circuit is normal.

DIAGNOSTIC FUNCTION

When the signals from satellite radio tuner cannot be received, the CAN box unit sets DTC U0195.

JUDGEMENT CRITERIA

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

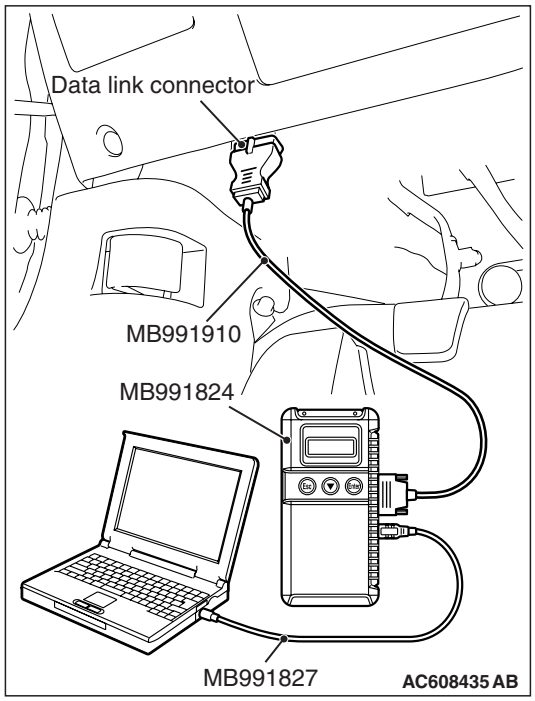
TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The CAN box unit may be defective.
- The satellite radio tuner may be defective.

DIAGNOSIS

Required Special Tools:

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 2. Using scan tool MB991958 read the satellite radio tuner diagnostic trouble code.
Check whether a satellite radio tuner DTCs are set or not.
(1) Turn the ignition switch to the "ON" position.
(2) Check for satellite radio tuner DTCs.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Go to Step 3.
NO : Diagnose the satellite radio tuner.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0197: Hands free module CAN timeout

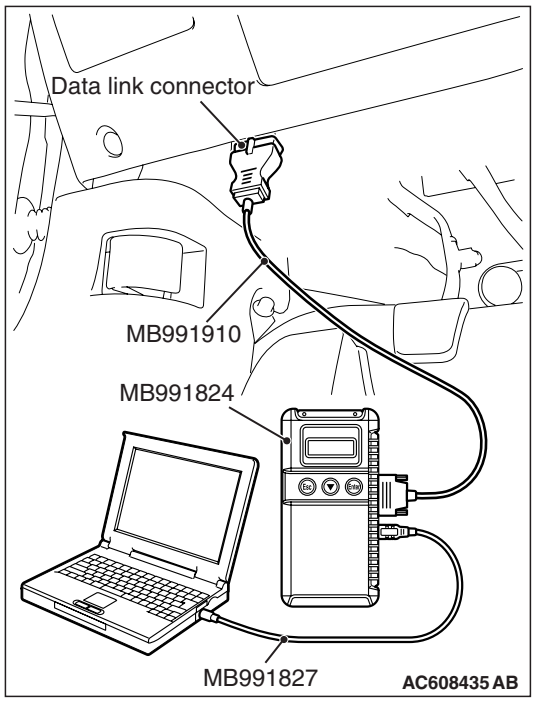
⚠ CAUTION
- **If DTC U0197 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION
When the signals from hands free module cannot be received, the CAN box unit sets DTC U0197.

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

TROUBLESHOOTING HINTS
- The CAN bus line may be defective.
- The CAN box unit may be defective.
- The hands free module may be defective.

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

Check again if the DTC is set to the hands free module.

Q: Is the DTC set?

YES : Troubleshoot the hands-free cellular phone system.
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U1415: Coding not completed/Data fail

⚠ CAUTION
If DTC U1415 is set, diagnose the CAN bus lines.

⚠ CAUTION
When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

If the vehicle information data is not registered to the CAN box unit, the CAN box unit sets DTC U1415.

JUDGEMENT CRITERIA

With the global coding counter value "0," if all the global coding data (vehicle information) are not stored, the CAN box unit determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The CAN box unit may be defective.
- The ETACS-ECU may be defective.

DIAGNOSIS

Required Special Tools:

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

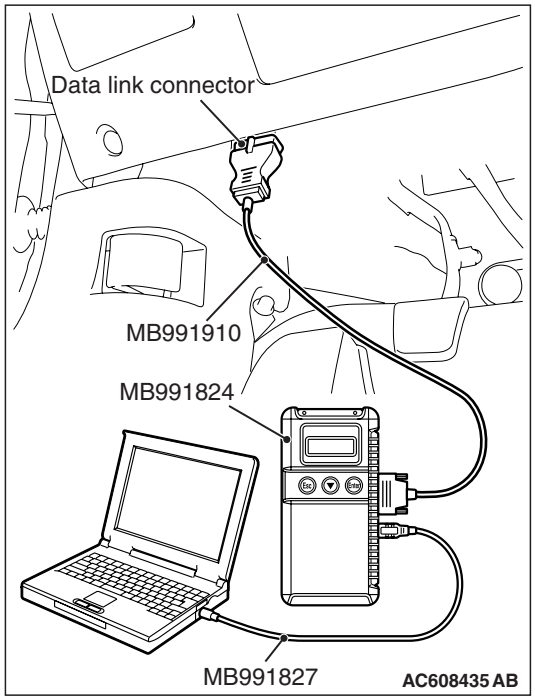
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



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

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to P.54A-482).
NO : Go to Step 3.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

Code No.U1417 Implausible coding data

⚠ CAUTION

- **If diagnostic trouble code U1417 is set in CAN box unit, always diagnose the CAN bus lines. If there is any fault in the CAN bus lines, an incorrect diagnostic trouble code may be set. In this case, the set diagnostic trouble code is not highly reliable.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**
- **When the diagnostic trouble code U1417 is set in CAN box unit, the diagnostic trouble code may also be set in ETACS-ECU. When the diagnostic trouble code is set in ETACS-ECU, carry out the diagnosis of the diagnostic trouble code for ETACS-ECU first.**

CIRCUIT OPERATION

CAN box unit receives the vehicle information stored in the ETACS-ECU via CAN bus lines.

DTC SET CONDITIONS

CAN box unit communicates with ETACS-ECU via CAN bus lines. This diagnostic trouble code is set when the vehicle information received from the ETACS-ECU is invalid.

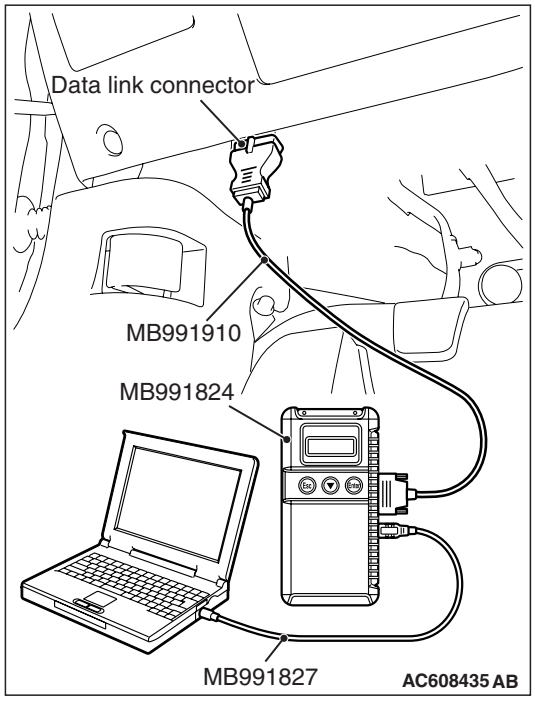
PROBABLE CAUSES

- Malfunction of ETACS-ECU
- Engine control module malfunction
- ETACS-ECUs have been interchanged between two vehicles.
- CAN box unit malfunction
- External noise interference

DIAGNOSIS

Required Special Tools:

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 2. Using scan tool MB991958, read the other system diagnostic trouble code.

Check if DTC is set to the ETACS-ECU or engine control module.

Q: Is the DTC set?

YES (DTC is set to ETACS-ECU.) : Troubleshoot the ETACS (Refer to ETACS, Diagnosis P.54A-482).
YES (DTC is set to the engine control module.) : Troubleshoot the MFI system (Refer to GROUP 13A, Diagnosis P.13A-46).
NO : Go to Step 3.

STEP 3. Check part number of ETACS-ECU.

Check the part number of ETACS-ECU.

OK: 8637A313

Q: Is the check result normal?

YES : Go to Step 4.
NO : Replace ETACS-ECU.

STEP 4. Check part number of CAN box unit.

Check the part number of CAN box unit.

OK: 8750A090

Q: Is the check result normal?

YES : Go to Step 5.
NO : Replace CAN box unit.

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

Q: Is the DTC set?

YES : Replace CAN box unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

TROUBLE SYMPTOM CHART

M1546001800257

Inspection procedure No.	Trouble symptom		Reference page
1	No navigation screen is displayed.		P.54A-351
2	No sound is heard. <Vehicles with audio amplifier>		P.54A-358
3	No sound is heard from one of the speakers.	<vehicles without audio amplifier>	P.54A-363
		<vehicles with audio amplifier>	P.54A-369
4	The navigation system can be operated while the vehicle is driven.		P.54A-376
5	The screen is not normal in the navigation mode.		P.54A-379
6	Poor reception.		P.54A-381
7	GPS signal can not be received.		P.54A-382
8	No DVD (video disk) cannot be played.		P.54A-383
9	Image of a DVD (video disk) is played, but no sound is played.		P.54A-384
10	Sound of a DVD (video disk) can be played, but no image is played.		P.54A-385
11	The picture and sound of external input are not played.		P.54A-386
12	Check the CAN box unit power supply circuit.		P.54A-388

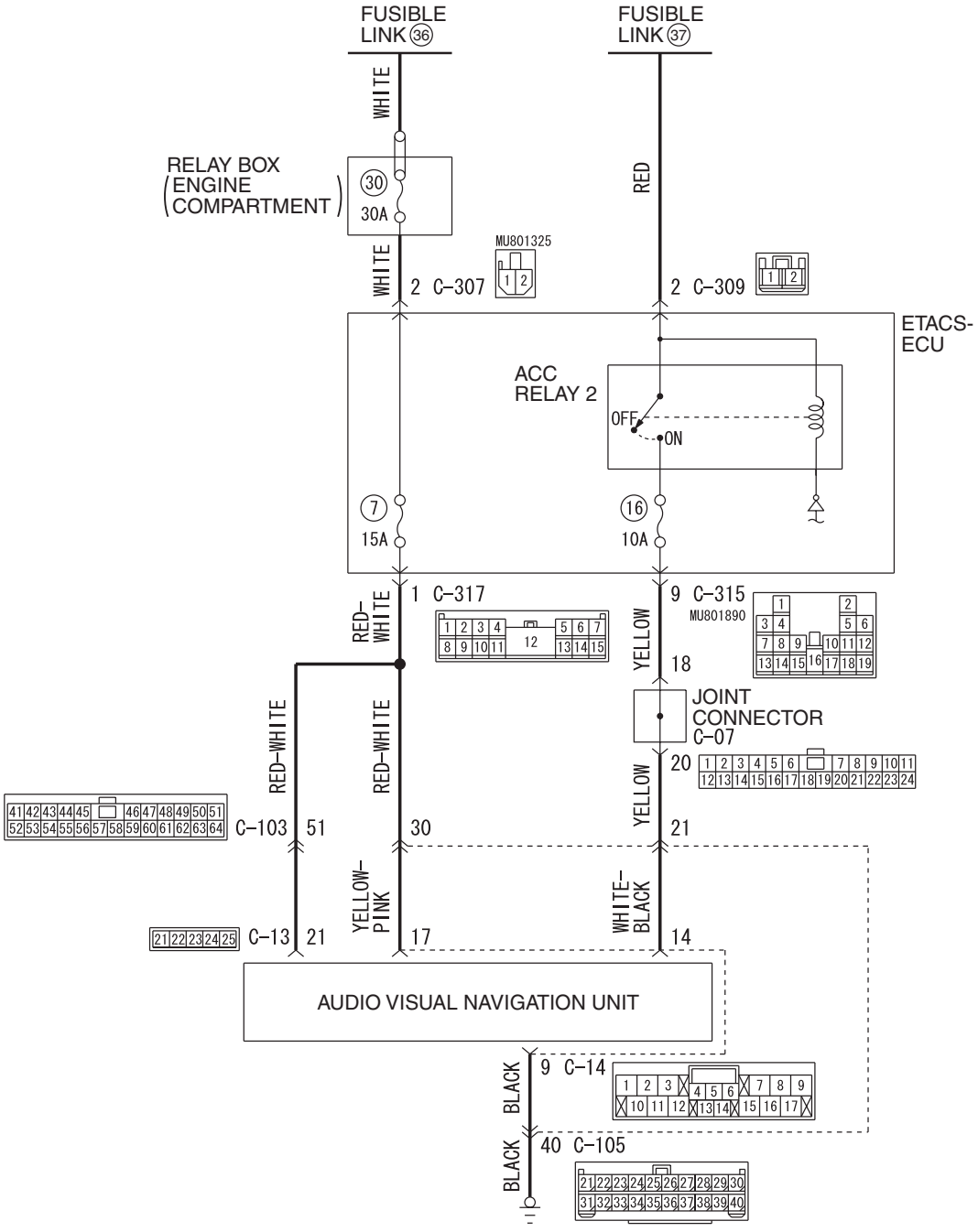
SYMPTOM PROCEDURES

Inspection Procedure 1: No Navigation Screen is Displayed.

⚠ CAUTION

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

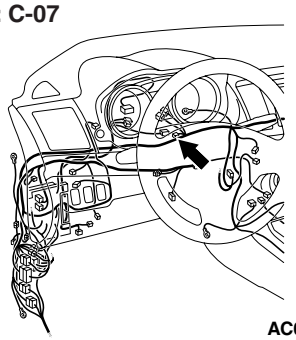
Audio Visual Navigation Unit Power Supply Circuit



W8G54M013A

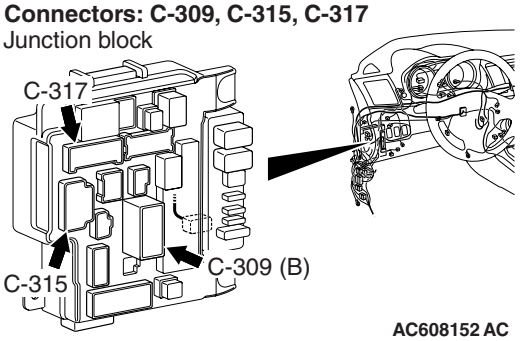
TSB Revision

Connector: C-07



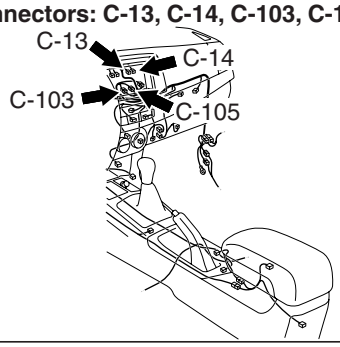
AC608145AP

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



AC608152 AC

Connectors: C-13, C-14, C-103, C-105



AC608146AM

DIAGNOSIS

Required Special Tools:

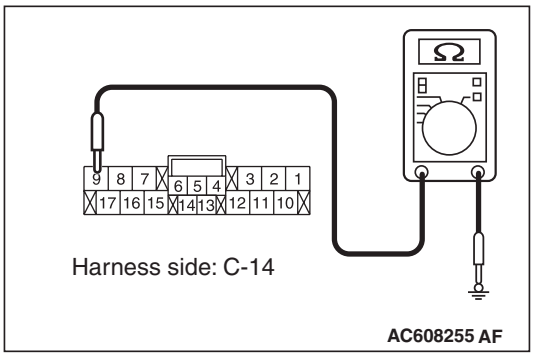
- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Check audio visual navigation unit connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-14 in good condition?

YES : Go to Step 2.

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



STEP 2. Check the ground circuit to the audio visual navigation unit connector. Measure the resistance at audio visual navigation unit connector C-14.

(1) Disconnect audio visual navigation unit connector C-14, 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-14 (terminal 9) and ground.

- Check the ground wires for open circuit.

NOTE: Also check intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between audio visual navigation unit connector C-14 (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.00-13).
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 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 DTC set?

YES : Troubleshoot the ETACS-ECU. Refer to GROUP 54A, Diagnosis P.54A-482.
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-14 (terminal 17).

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

NOTE: Also check intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 1) and audio visual navigation unit connector C-14 (terminal 17) in good condition?

YES : Go to Step 7.

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

STEP 7. Check audio visual navigation unit connector C-13 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-13 in good condition?

YES : Go to Step 8.

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

STEP 8. Check the wiring harness between ETACS-ECU connector C-317 (terminal 1) and audio visual navigation unit connector C-13 (terminal 21).

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

NOTE: Also check intermediate connector C-103 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-103 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 1) and audio visual navigation unit connector C-13 (terminal 21) in good condition?

YES : Go to Step 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.

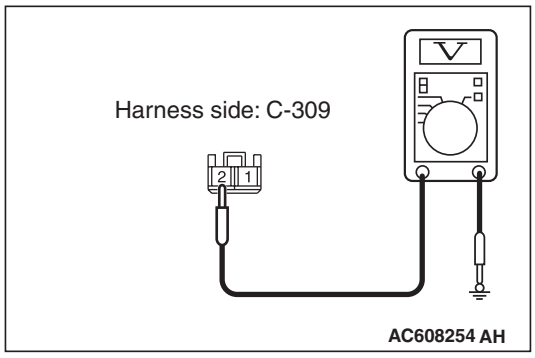
NO : Refer to GROUP 54A, ETACS, Diagnosis –Inspection Procedure 1 "The ignition switch (ACC) signal is not received P.54A-529."

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-14 (terminal 14) and ETACS-ECU connector C-315 (terminal 9).

- Check the power supply line for open circuit.

NOTE: Also check joint connector C-07 and intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-07 or intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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

YES : Go to Step 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.

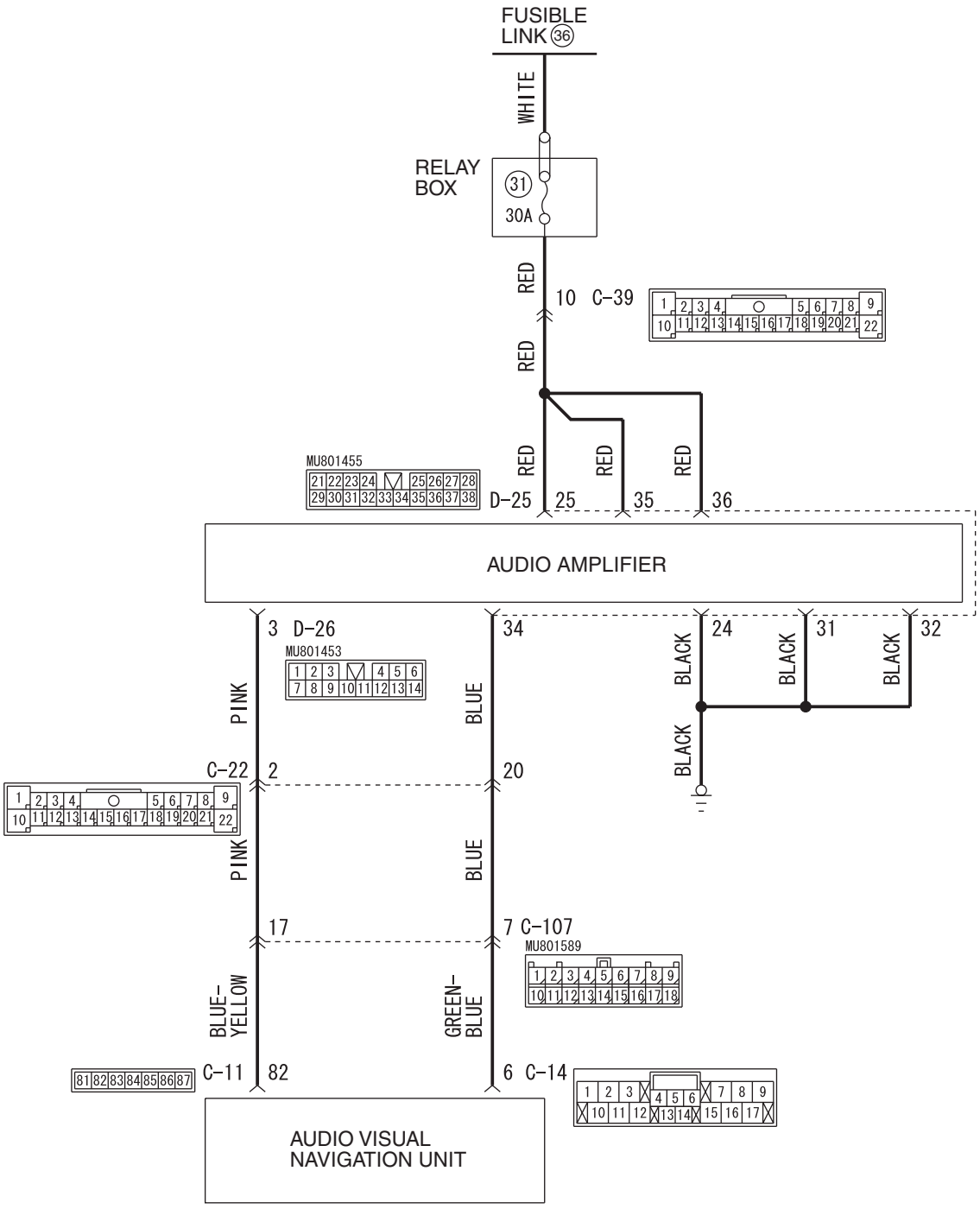
Q: Is the check result normal?

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.00-13).

NO : Replace the audio visual navigation unit.

Inspection Procedure 2: No Sound is Heard. <Vehicles with Audio Amplifier>

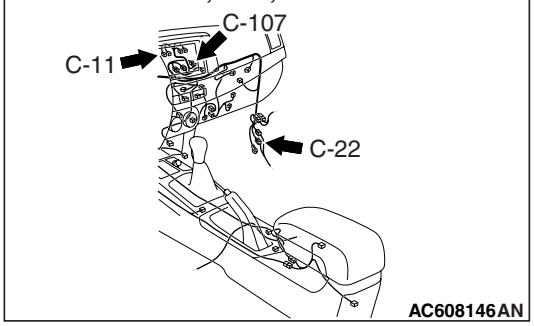
Audio Visual Navigation System Circuit



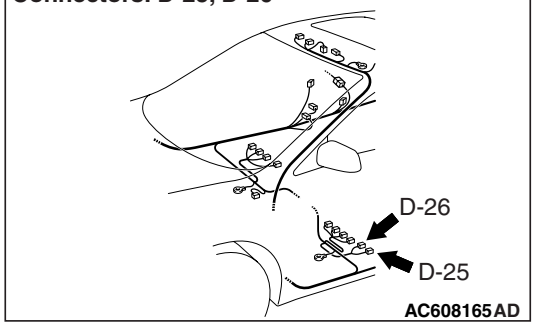
W8G54M014A

TSB Revision

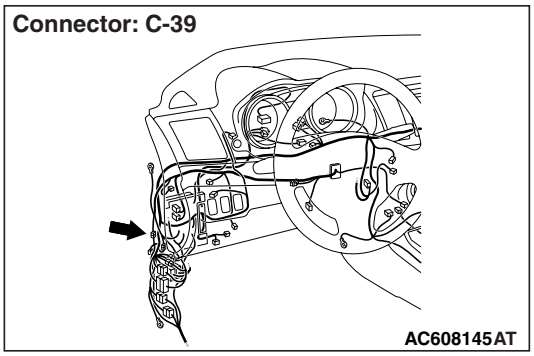
Connectors: C-11, C-22, C-107



Connectors: D-25, D-26



Connector: C-39



COMMENTS ON TROUBLE SYMPTOM

If the audio sound is not output, the audio visual navigation unit, audio amplifier, or power supply circuit of audio amplifier may have a problem, or the option coding information may be inconsistent.

PROBABLE CAUSES

- Malfunctions of audio visual navigation unit
- Malfunction of audio amplifier
- Option coding information inconsistency
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

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

STEP 1. Check the 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.00-35).
(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-25 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

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

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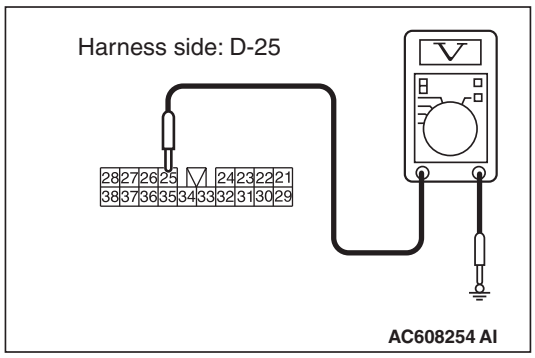
STEP 3. Check the power supply circuit to the ETACS-ECU.
Measure the voltage at audio amplifier connector D-25.

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

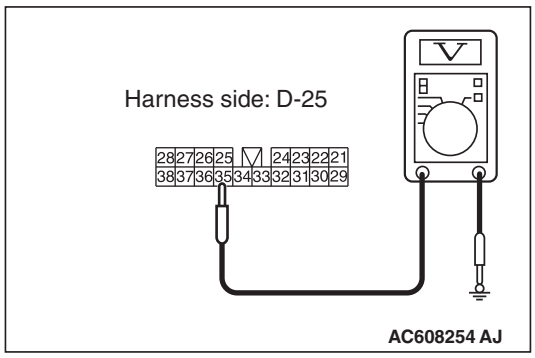
(2) Measure the voltage between terminal 25 and ground.

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



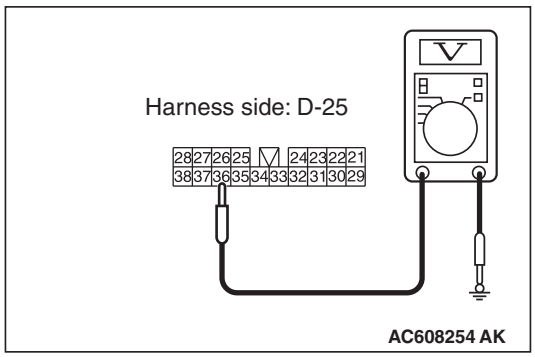
(3) Measure the voltage between terminal 35 and ground.

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



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

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



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

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

STEP 4. Check the wiring harness between audio amplifier connector D-25 (terminal 25, 35, 36) and fusible link (36).

NOTE: Also check intermediate connector C-39 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-39 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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

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

YES : Go to Step 7.

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

STEP 5. Check audio visual navigation unit connector C-11 and audio amplifier connector D-26 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-11 and audio amplifier connector D-26 in good condition?

YES : Go to Step 6.

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

STEP 6. Check the wiring harness between audio visual navigation unit connector C-11 (terminal 82) and audio amplifier connector D-26 (terminal 3)

NOTE: Also check intermediate connectors C-22 and C-107 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-107 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- Check the communication lines for open circuit.

Q: Is the wiring harness between audio visual navigation unit connector C-11 (terminal 82) and audio amplifier connector D-26 (terminal 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. Retest the system

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

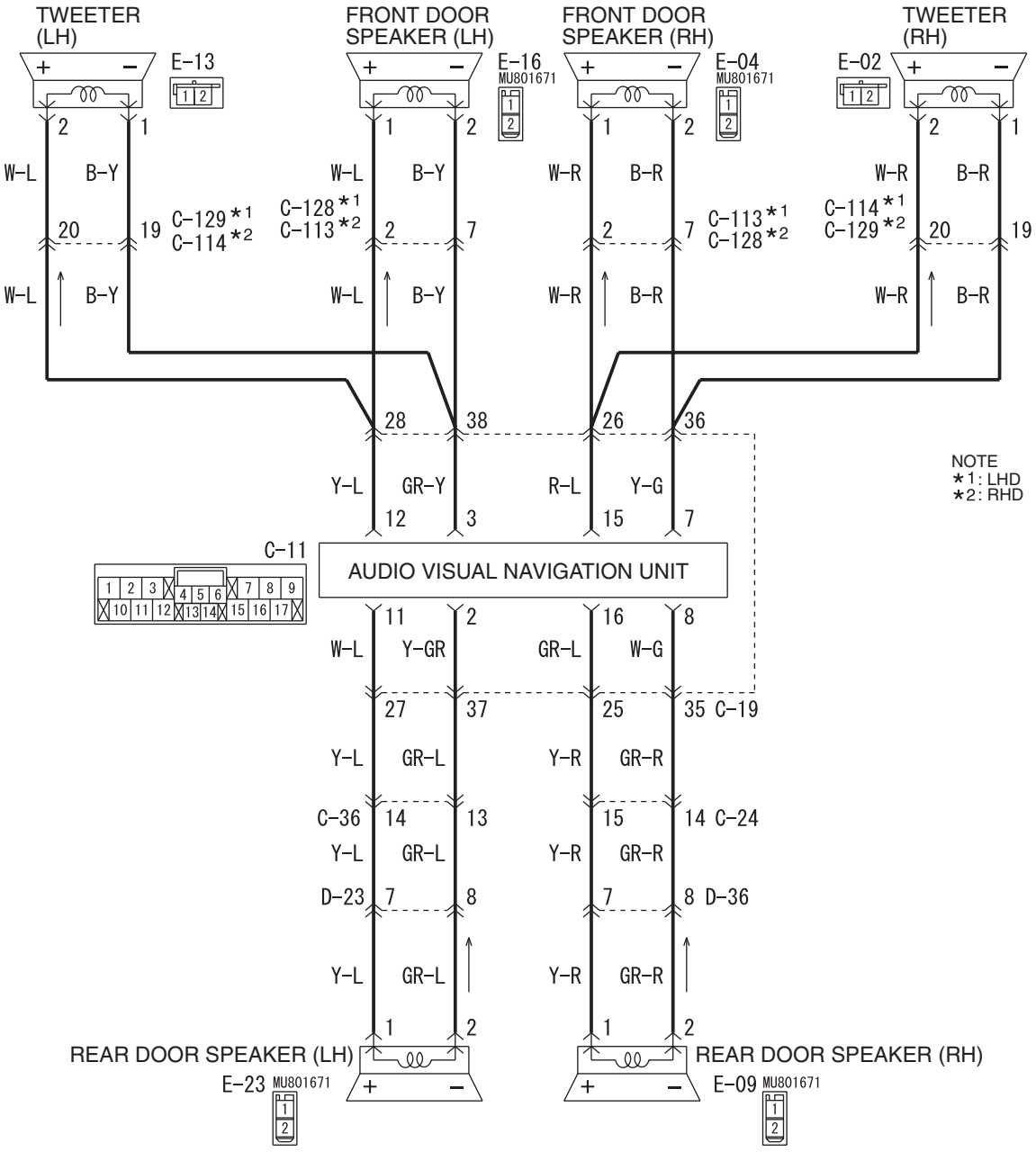
Q: Is the check result normal?

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.00-13).

NO : Replace the audio visual navigation unit.

Inspection Procedure 3: No Sound is Heard from one of the Speakers. <Vehicles without Audio Amplifier>

Speaker System Circuit

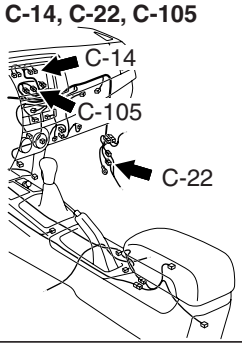


Wire color code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W7G54E017A

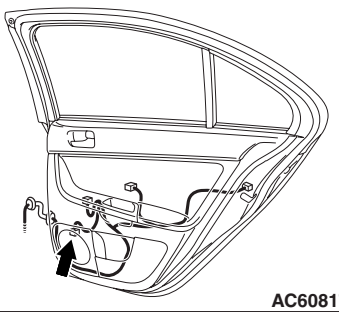
TSB Revision

Connectors: C-14, C-22, C-105



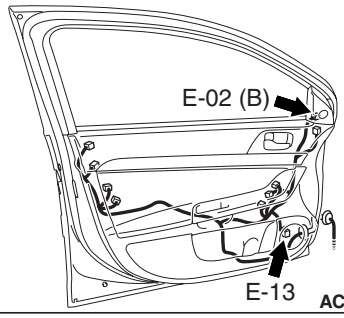
AC608146AO

Connector: E-23



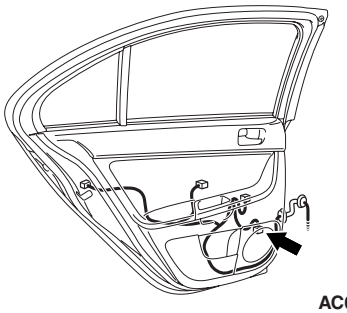
AC608170AB

Connectors: E-02, E-13



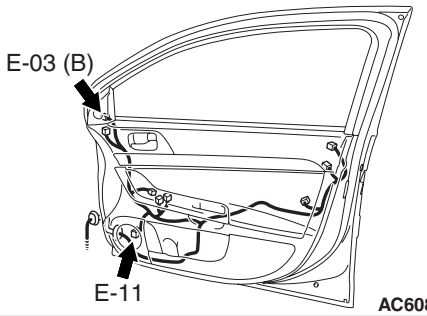
AC608167AB

Connector: E-24



AC608169AB

Connectors: E-03, E-11



AC608168AB

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.00-35.)
(2) Check that the "Speaker" is set to "6 speakers".

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.54A-313).

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

Q: Is the check result normal?

YES (normal for all) : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).
NO (abnormal for all) : Check the audio visual navigation unit power supply and ground circuit, and repair if necessary. If the audio visual navigation unit power supply and ground circuit is normal, replace the audiovisual navigation unit.
NO (Either a speaker is abnormal) : Go to Step 3.

STEP 3. Check door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-23 <rear-LH> or E-24 <rear-RH>, or tweeter connector E-02 <LH> or E-03 <RH> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-23 <rear-LH> or E-24 <rear-RH>, or tweeter connector E-02 <LH> or E-03 <RH> in good condition?

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

STEP 4. Check the speaker or tweeter.

(1) Remove the speaker or tweeter (Refer to P.54A-443).
(2) Check that the speaker or tweeter outputs the noise when the voltage of 5 V is applied to the speaker or tweeter connector terminal.

Q: Does the speaker or tweeter output the noise?

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

STEP 5. Check audio visual navigation unit connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-14 in good condition?

YES : Go to Step 6.

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

STEP 6. Check the wiring harness between the speaker or tweeter connector terminal and the audio visual navigation unit connector terminal.

Check the communication lines for open circuit.

- <Front door speaker (LH)> Check the wiring harness between front door speaker (LH) connector E-13 (terminal 1, 2) and audio visual navigation unit connector C-14 (terminal 12, 3).

  NOTE: Also check intermediate connectors C-22 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Front door speaker (RH)> Check the wiring harness between front door speaker (RH) connector E-11 (terminal 1, 2) and audio visual navigation unit connector C-14 (terminal 15, 7).

  NOTE: Also check intermediate connectors C-22 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (LH)> Check the wiring harness between rear door speaker (LH) connector E-23 (terminal 1, 2) and audio visual navigation unit connector C-14 (terminal 11, 2).

  NOTE: Also check intermediate connectors C-22 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (RH)> Check the wiring harness between rear door speaker (RH) connector E-24 (terminal 1, 2) and audio visual navigation unit connector C-14 (terminal 16, 8).

  NOTE: Also check intermediate connectors C-22 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Tweeter (LH)> Check the wiring harness between tweeter (LH) connector E-02 (terminal 2, 1) and audio visual navigation unit connector C-14 (terminal 12, 3).

  NOTE: Also check intermediate connectors C-22 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connec-

tor Inspection P.00E-2.

- <Tweeter (RH)> Check the wiring harness between tweeter (RH) connector E-03 (terminal 2, 1) and audio visual navigation unit connector C-14 (terminal 15, 7).

  NOTE: Also check intermediate connectors C-22 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

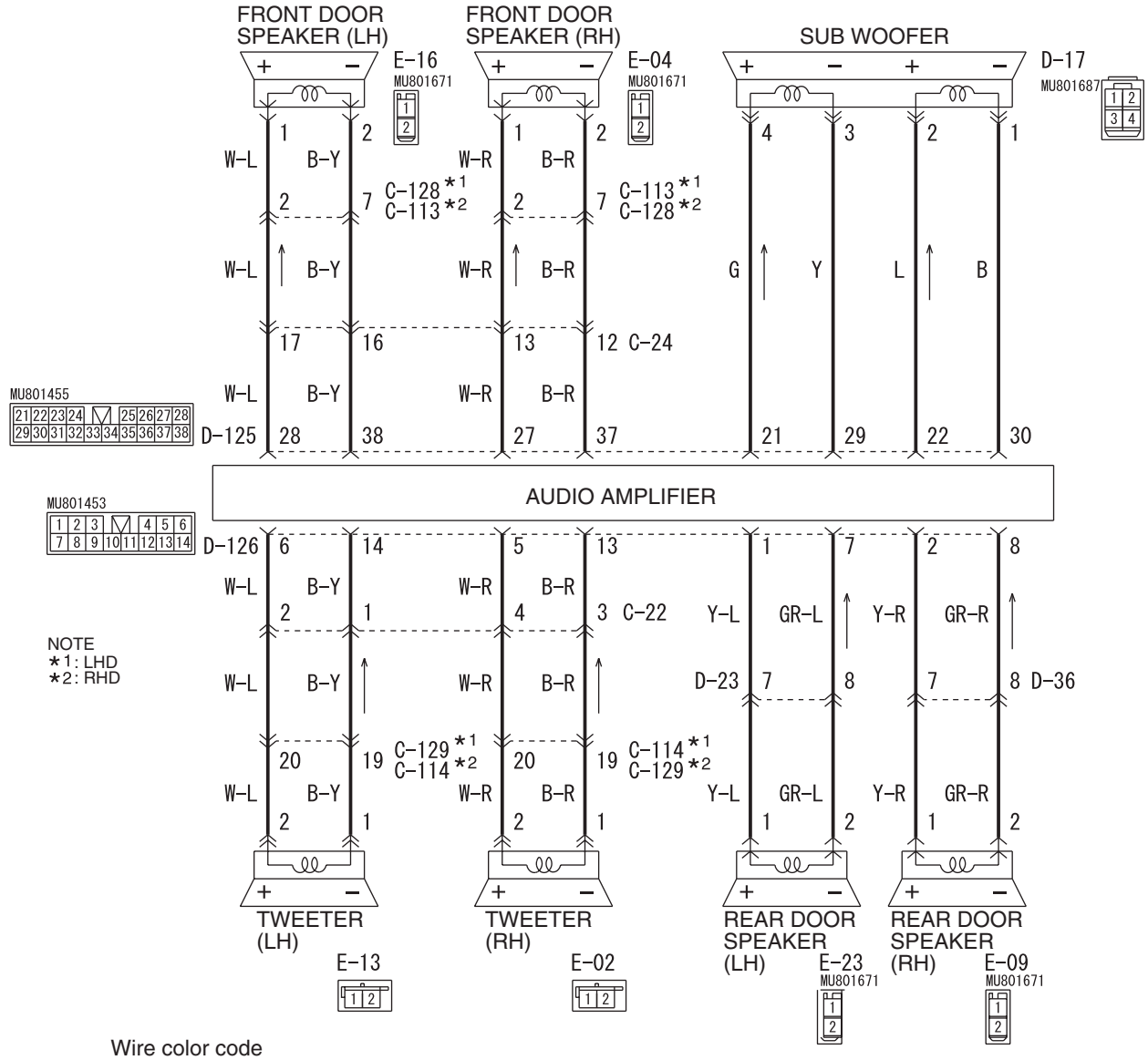
Q: Is the wiring harness between the speaker or tweeter connector terminal and the audio amplifier connector terminal in good condition?

YES : Replace the audio visual navigation 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.

Inspection Procedure 3: No Sound is Heard from one of the Speakers. <Vehicles with Audio Amplifier>

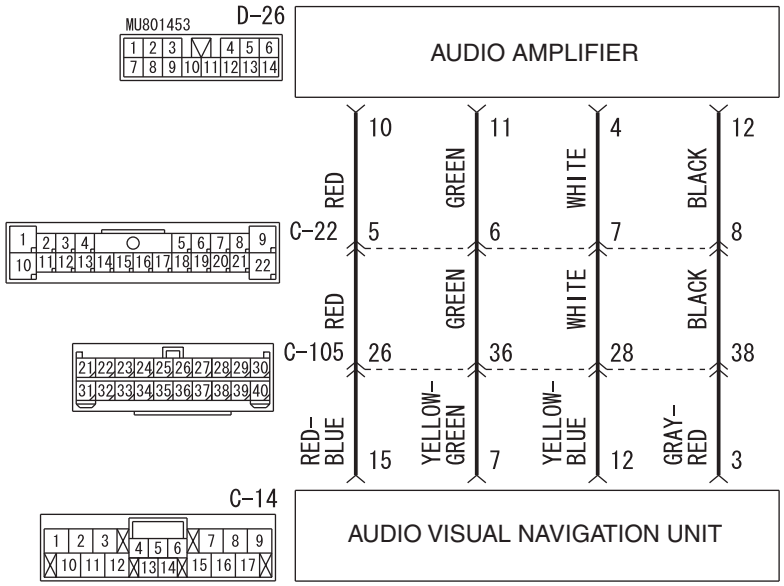
Speaker System Circuit



Wire color code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

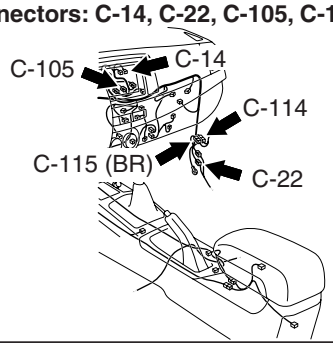
W7G54E013A

TSB Revision



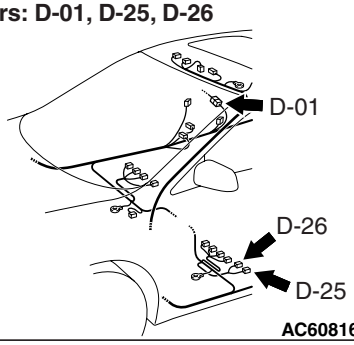
W8G54M015A

Connectors: C-14, C-22, C-105, C-114, C-115



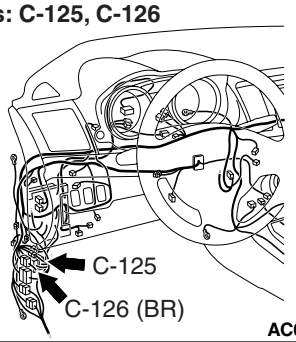
AC608146AP

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



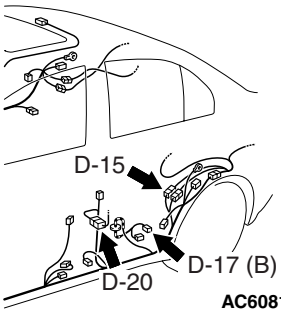
AC608165AF

Connectors: C-125, C-126



AC608145AR

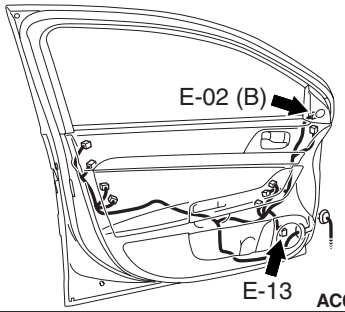
Connectors: D-15, D-17, D-20



AC608166AD

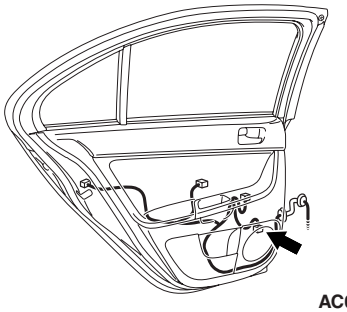
TSB Revision

Connectors: E-02, E-13



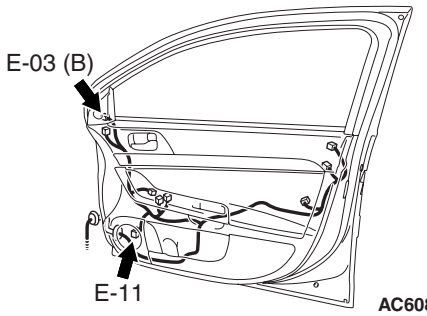
AC608167 AB

Connector: E-24



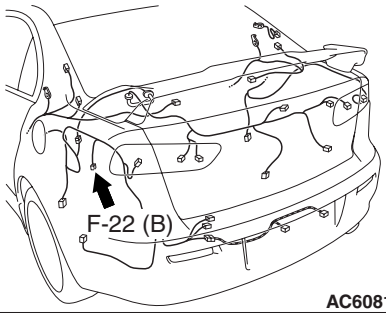
AC608169 AB

Connectors: E-03, E-11



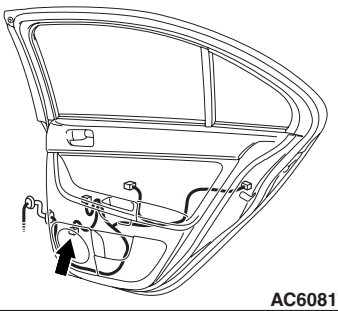
AC608168 AB

Connector: F-22



AC608171 AB

Connector: E-23



AC608170 AB

COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

- Malfunction of speaker
- Malfunctions of audio visual navigation unit
- Malfunction of audio amplifier
- Option coding information inconsistency
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

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

STEP 1. 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.00-35).
(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.54A-313).

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

Q: Is the check result normal?

YES (normal for all) : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).
NO (abnormal for all) : Refer to Inspection Procedure 2 "No sound is heard" P.54A-358.
NO (Either a speaker, a tweeter or a subwoofer is abnormal) : Go to Step 3.

STEP 3. Check door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-23 <rear-LH> or E-24 <rear-RH>, or tweeter connector E-02 <LH> or E-03 <RH>, or subwoofer connector F-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-23 <rear-LH> or E-24 <rear-RH>, or tweeter connector E-02 <LH> or E-03 <RH>, or subwoofer connector F-22 in good condition?

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

STEP 4. Check the speaker, tweeter or subwoofer.

(1) Remove the speaker, tweeter or subwoofer (Refer to P.54A-443).
(2) Check that the speaker or tweeter outputs the noise when the voltage of 5 V is applied to the speaker or tweeter connector terminal. <speaker or tweeter>
(3) Check that the subwoofer outputs the noise when the voltage of 5 V is applied to the subwoofer connector terminal. <subwoofer>

Q: Does the speaker, tweeter or subwoofer output the noise?

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

STEP 5. Check audio amplifier connector D-125 <front door speaker or sub woofer> or D-126 <tweeter or rear door speaker> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-125 <front door speaker or sub woofer> or D-126 <tweeter or rear door speaker> in good condition?

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

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

Check the communication lines for open circuit.

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

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

  NOTE: Also check intermediate connectors C-22 and C-114 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-114 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (LH)> Check the wiring harness between rear door speaker (LH) connector E-23 (terminal 1, 2) and audio amplifier connector D-26 (terminal 1, 7).

  NOTE: Also check intermediate connector D-20 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-20 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (RH)> Check the wiring harness between rear door speaker (RH) connector E-24 (terminal 1, 2) and audio amplifier connector D-26 (terminal 2, 8).

  NOTE: Also check intermediate connector D-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Tweeter (LH)> Check the wiring harness between tweeter (LH) connector E-02 (terminal 1, 2) and audio amplifier connector D-26 (terminal 14, 6).

  NOTE: Also check intermediate connectors C-22 and C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-126 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Tweeter (RH)> Check the wiring harness between tweeter (RH) connector E-03 (terminal 1, 2) and audio amplifier connector D-26 (terminal 13, 5).

  NOTE: Also check intermediate connectors C-22 and C-115 for loose, corroded, or damaged terminals, or terminals

pushed back in the connector. If intermediate connector C-22 or C-115 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- <Subwoofer> Check the wiring harness between subwoofer connector F-22 (terminal 1, 2, 3, 4) and audio amplifier connector D-25 (terminal 30, 22, 29, 21).

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

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

YES <front door speaker> : Go to Step 7.
YES <except front door speaker> : Go to Step 9.
NO (harness wire is abnormal) : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 7. Check audio visual navigation unit connector D-26 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector D-26 in good condition?

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

STEP 8. Check the wiring harness between audio visual navigation unit connector C-14 (terminal 3, 7, 12, 15) and audio amplifier connector D-26 (terminal 12, 11, 4, 15).

- Check the communication lines for open circuit.

NOTE: Also check intermediate connectors C-22 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between audio visual navigation unit connector C-14 (terminal 3, 7, 12, 15) and audio amplifier connector D-26 (terminal 12, 11, 4, 15) in good condition?

YES : Check the trouble symptom, 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. Replace the audio amplifier temporarily, and check the trouble symptom.
Replace the audio amplifier temporarily, and check that the sound is output from the speaker.

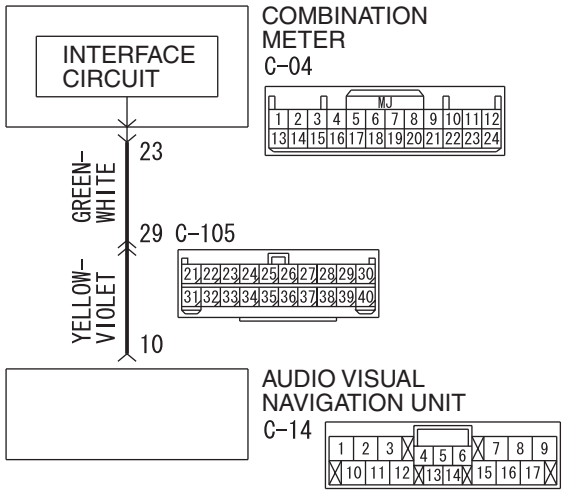
Q: Is the check result normal?

YES : Replace the audio amplifier.
NO : Replace the audio visual navigation unit.

Inspection Procedure 4: The Navigation System can be Operated while the Vehicle is Driven.

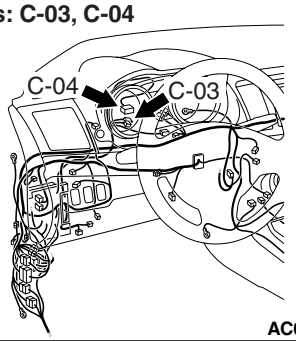
⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Audio Visual Navigation Unit Communication Circuit



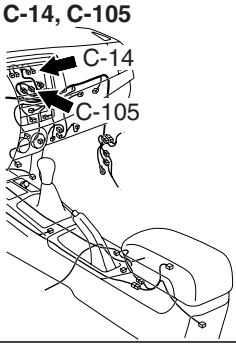
W8G54M016A

Connectors: C-03, C-04



AC608145AV

Connectors: C-14, C-105



AC608146AQ

COMMENTS ON TROUBLE SYMPTOM

There is a failure in the wiring harness between the combination meter and the audio visual navigation unit, the respective connector(s), the combination meter or the audio visual navigation unit.

TSB Revision

PROBABLE CAUSES

- 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.54A-313).

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 Combination meter –Troubleshooting P.54A-53).

STEP 3. Check combination meter connector C-04 and audio visual navigation unit connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-04 and audio visual navigation unit connector C-14 in good condition?

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

STEP 4. Check the wiring harness between combination meter connector C-04 (terminal 20) and audio visual navigation unit connector C-14 (terminal 13).

- Check the communication lines for open circuit.

NOTE: Also check joint connector C-03 and intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 or intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector C-04 (terminal 20) and audio visual navigation unit connector C-14 (terminal 13) in good condition?

YES : Go to Step 5.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 5. Substitute a known good audio visual navigation unit, and check the trouble symptom.

Check that no menus are active during driving.

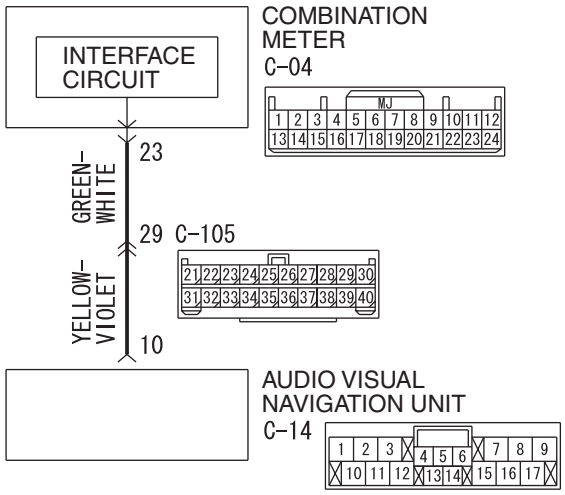
Q: Is the check result normal?

YES : Replace the audio visual navigation unit.
NO : Replace the combination meter.

Inspection Procedure 5: The Screen is not Normal in the Navigation Mode.

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

Audio Visual Navigation Unit Communication Circuit



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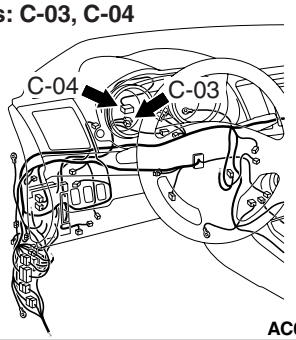
Connectors: C-03, C-04



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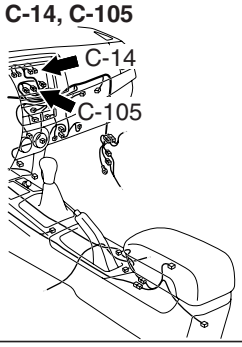
Connectors: C-14, C-105



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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

TSB Revision

STEP 1. Confirmation in MMCS service mode
Check the items below in the MMCS service mode. (Refer to P.54A-313.)
- 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.00-13).
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 Combination meter –Diagnosis P.54A-53).

STEP 5. Check combination meter connector C-04 and audio visual navigation unit connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-04 and audio visual navigation unit connector C-14 in good condition?
YES : Go to Step 6.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

TSB Revision

STEP 6. Check the wiring harness between combination meter connector C-04 (terminal 20) and audio visual navigation unit connector C-14 (terminal 13).

- Check the communication lines for open circuit.

NOTE: Also check joint connector C-03 and intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 or intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector C-04 (terminal 20) and audio visual navigation unit connector C-14 (terminal 13) in good condition?

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

STEP 7. Substitute a known good audio visual navigation unit, and check the trouble symptom.

Check whether the navigation screen is normal.

Q: Is the navigation screen normal?

YES : Replace the audio visual navigation unit.
NO : Replace the combination meter.

Inspection Procedure 6: Poor Reception.

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 is an area exposed to special electric fields.

Q: Are inspections taking place under special electric field conditions (underground garage, inside a building, etc.)?

YES : Go to Step 3.
NO : Go to Step 4.

STEP 3. 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 7: GPS Signal can not be Received.

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.54A-313.)

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.

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.54A-313.)

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.

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 Head P.54A-358."

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.54A-313.)

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.

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.54A-313).

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.

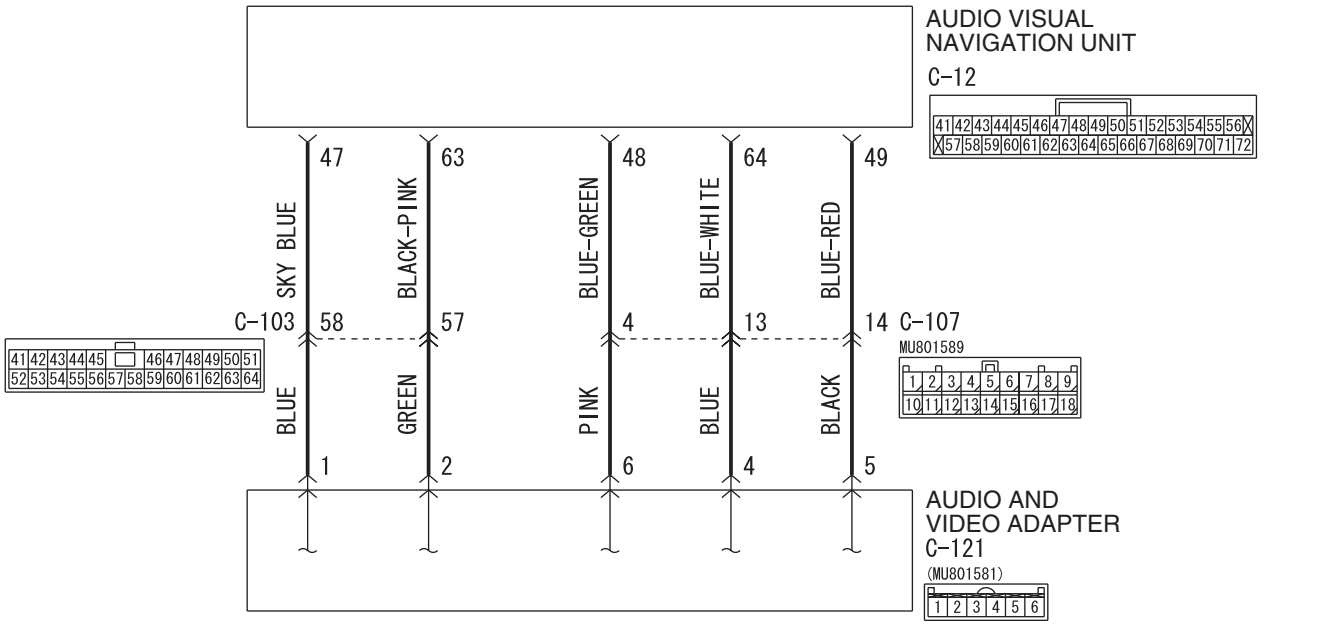
STEP 3. Substitute a known good DVD (video disk), and check the trouble symptom.
When a known good DVD (video disk) is loaded, check whether it is played normally.

Q: Is the check result normal?

YES : Replace the DVD (video disk).
NO : Replace the audio visual navigation unit.

Inspection Procedure 11: The picture and sound of external input are not played.

Audio and Video Adapter Communication Circuit



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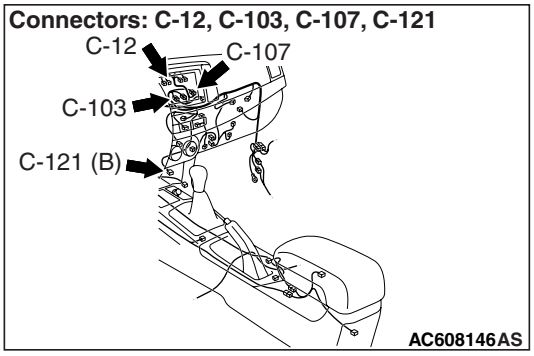


DIAGNOSIS

Required Special Tools:
- MB991223: Harness Set
- MB992006: Extra Fine Probe

TSB Revision

STEP 1. Check of DVD picture
Check that the DVD picture is displayed normally.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Perform the troubleshooting related to the MMCS (Refer to P.54A-350).

STEP 2. Check audio navigation unit connector C-12 and audio and video adaptor connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are audio navigation unit connector C-12 and audio and video adaptor connector C-121 in good condition?

YES : Go to Step 3.
NO : Repair the connector concerned.

STEP 3. Check the wiring harness between audio visual navigation unit connector C-12 (terminal 47, 48, 49, 63, 64) and audio and video adaptor connector C-121 (terminal 1, 6, 5, 4, 2).

- Check the communication lines for open circuit.

NOTE: Also check intermediate connectors C-103 and C-107 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-103 or C-107 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between audio visual navigation unit connector C-12 (terminal 47, 48, 49, 63, 64) and audio and video adaptor connector C-121 (terminal 1, 6, 5, 4, 2) in good condition?

YES : Replace the audio and video adapter.
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 4. Retest the system
Check that the external input is normal.

Q: Is the check result normal?

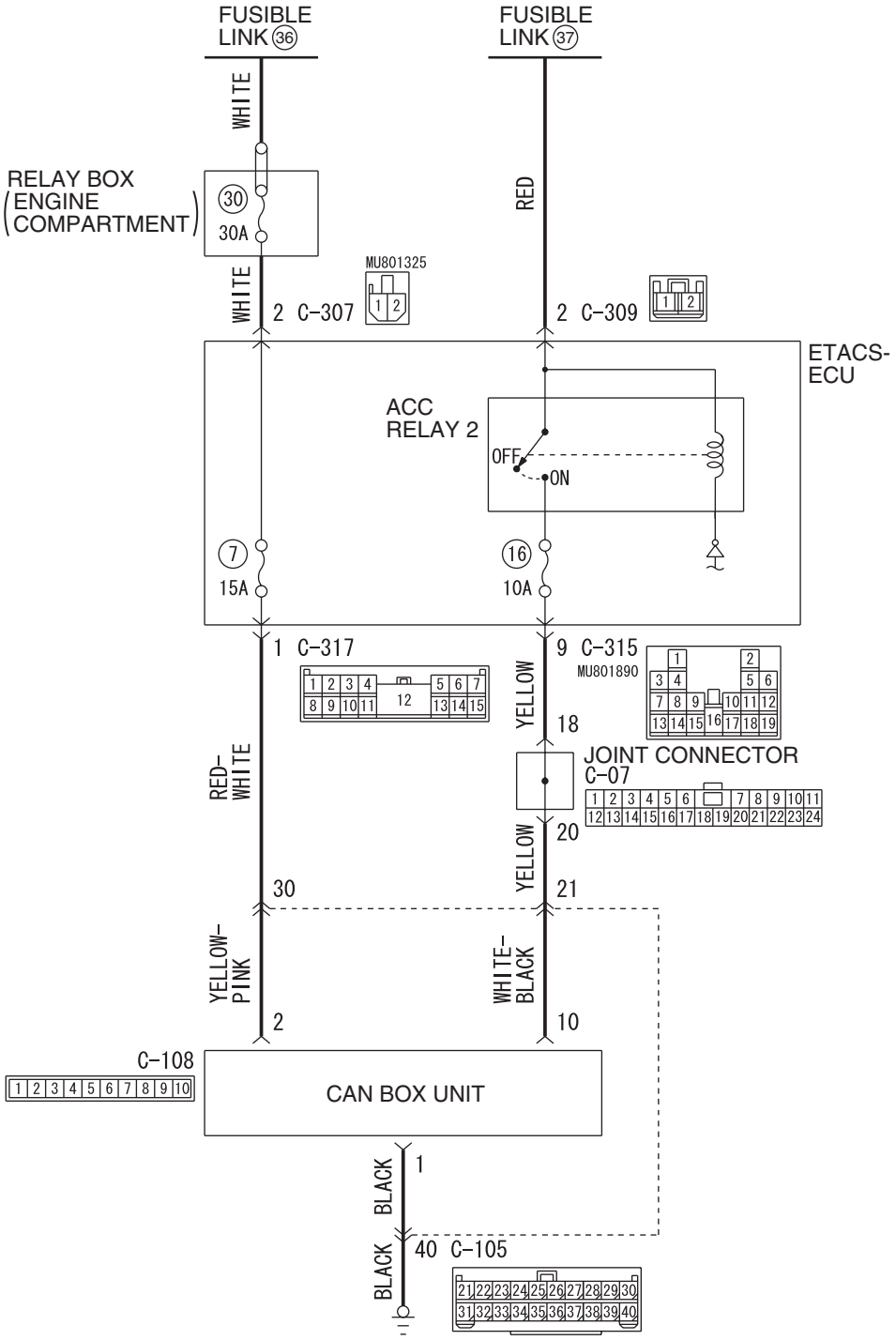
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the rear display unit.

Inspection Procedure 12: Check the CAN box unit power supply circuit.

⚠ CAUTION

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

CAN Box Unit Power Supply Circuit



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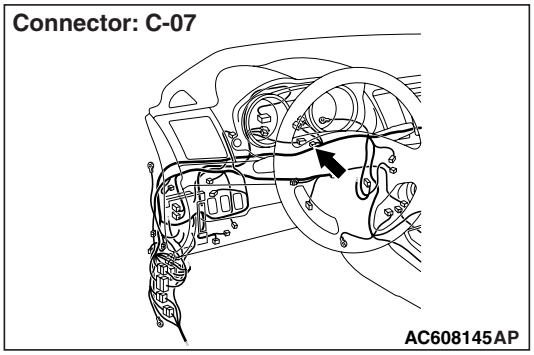
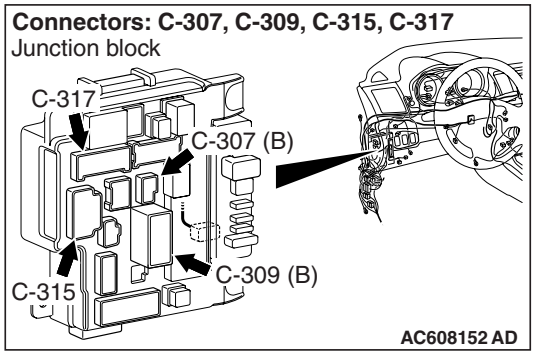
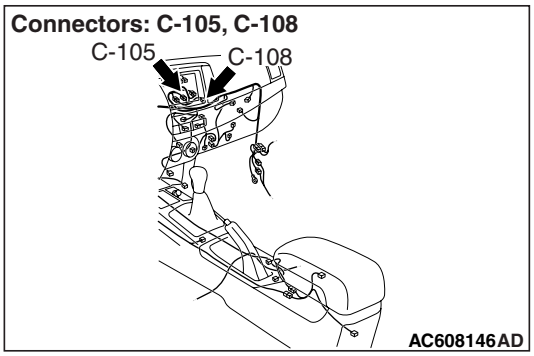
TSB Revision







TECHNICAL DESCRIPTION (COMMENT)

If the CAN box unit functions do not work at all, the CAN box unit power supply system, ground system, or CAN box unit may have a problem.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The CAN box unit may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check CAN box unit connectors C-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is CAN box unit connectors C-108 in good condition?

YES : Go to Step 2.

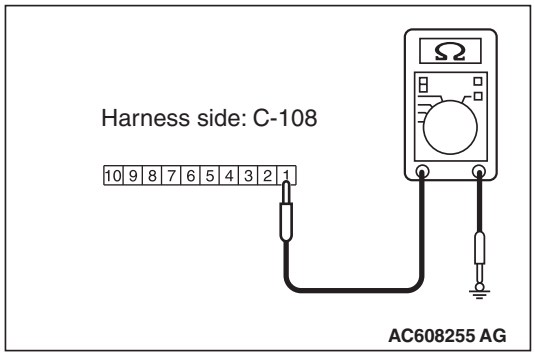
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 2. Check the ground circuit to the CAN box unit. Measure the resistance at CAN box unit connector C-108.

(1) Disconnect CAN box unit connector C-108 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between CAN box unit connector C-108 terminal 1 and ground.

OK: The resistance should be 2 ohms or less.



Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Go to Step 3.

STEP 3. Check the wiring harness between CAN box unit connector C-108 (terminal 1) and the ground.

NOTE: Also check intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

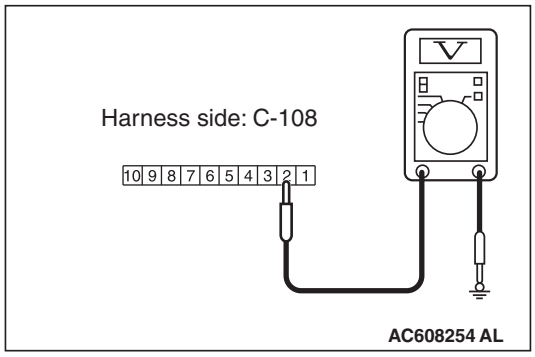
Q: Is the wiring harness between CAN box unit connector C-108 (terminal 1) and the ground in good condition?

YES : 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-108.

(1) Disconnect CAN box unit connectors C-108 measure the voltage available at the wiring harness side of the connector.
(2) Measure the voltage between CAN box unit connector C-108 terminal 2 and ground.

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



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

YES : Go to Step 6.
NO : Go to Step 5.

STEP 5. Check the wiring harness between CAN box unit connector C-108 (terminal 2) and fusible link (36).

NOTE: Also check intermediate connector C-105 and ETACS-ECU connectors C-307 and C-317 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-105 or ETACS-ECU connector C-307 or C-317 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between CAN box unit connector C-108 (terminal 2) and fusible link (36) in good condition?

YES : 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-108 (terminal 10) and fusible link (37).

NOTE: Also check joint connector C-07, intermediate connector C-105 and ETACS-ECU connectors C-309 and C-315 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-07, intermediate connector C-105 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-108 (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.

REMOVAL AND INSTALLATION

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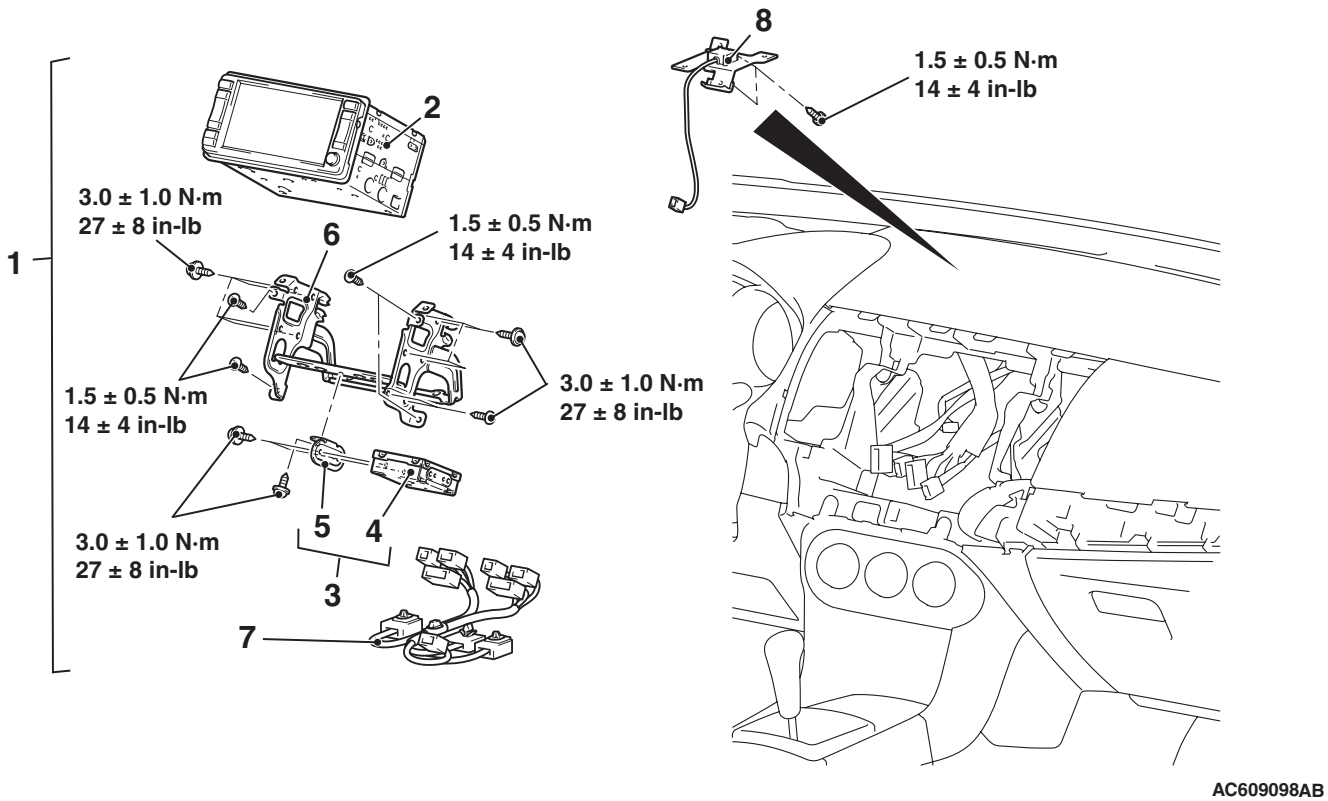

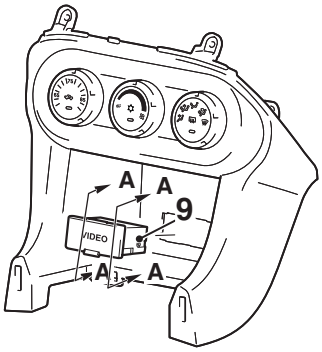

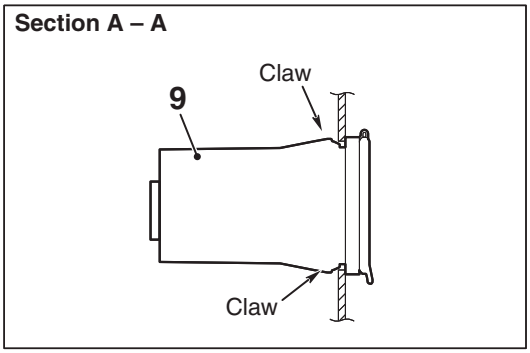

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Audio Visual Navigation Unit Removal Steps

- Instrument center panel (Refer to GROUP 52A –Instrument Center Panel assembly P.52A-6).

1. Audio visual navigation unit assembly
2. Audio visual navigation unit
3. CAN box unit assembly
4. CAN box unit
5. CAN box unit bracket
6. Audio visual navigation unit bracket
7. Navigation harness

GPS Antenna Removal Steps

- Instrument panel assembly (Refer to GROUP 52A –Instrument Panel assembly P.52A-2).

8. GPS antenna

Audio and Video Adaptor Removal Steps

- Instrument console box (Refer to GROUP 52A –Instrument Center Panel assembly P.52A-6).

9. Audio and video adaptor

STEERING WHEEL AUDIO REMOTE CONTROL SWITCH

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1544004800584

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

TROUBLE SYMPTOM CHART

M1544004900826

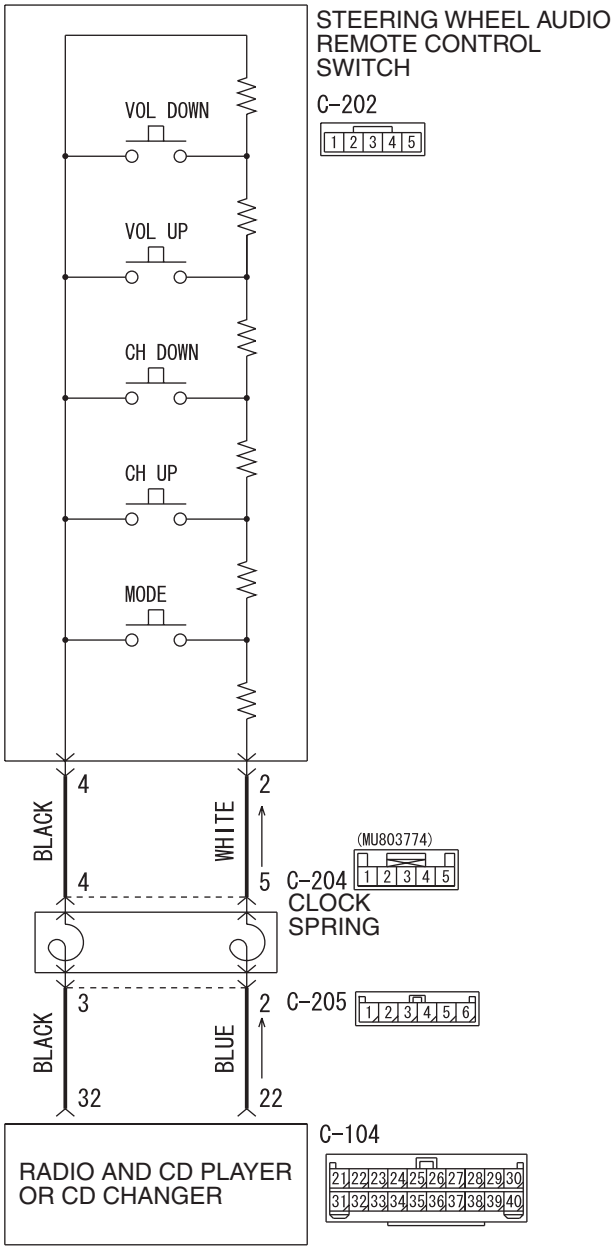
Inspection Procedure No.	Trouble symptom		Reference page
1	Steering wheel audio remote control switch does not function	<vehicles without MMCS>	P.54A-394
2		<vehicles with MMCS>	P.54A-398
3	Steering wheel audio remote control switch illumination does not come on.		P.54A-402

SYMPTOM PROCEDURES

Inspection Procedure 1: Steering Wheel Audo Remote Control Switch does not Function. <Vehicles without MMCS>

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

Steering Wheel Audio Remote Control Switch Circuit



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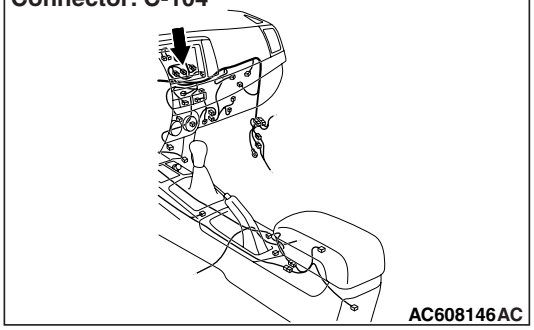
TSB Revision

Connector: C-104



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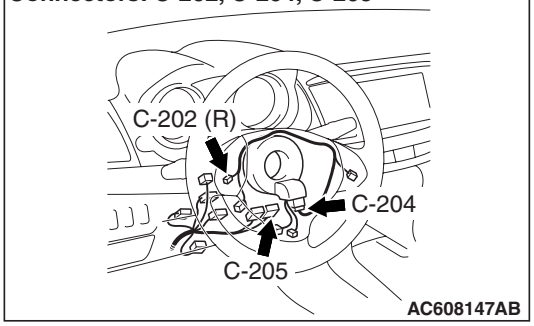
Connectors: C-202, C-204, C-205



AC608147AB

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.

TSB Revision

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-204 and C-205 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are clock spring connector C-204 and C-205 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-375).

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-104 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player or CD changer connector C-104 in good condition?
YES : Go to Step 6.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The steering remote control switch should work normally.

STEP 6. Check the wiring harness between radio and CD player or CD changer connector C-104 (terminal 22, 32) and clock spring connector C-205 (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-104 (terminal 22, 32) and clock spring connector C-205 (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-202 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is steering remote control switch connector C-202 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-202 (terminal 2, 4) and clock spring connector C-204 (terminal 5, 4).

- Check the communication lines for open or short circuit.

Q: Is the wiring harness between steering remote control switch connector C-202 (terminal 2, 4) and clock spring connector C-204 (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?

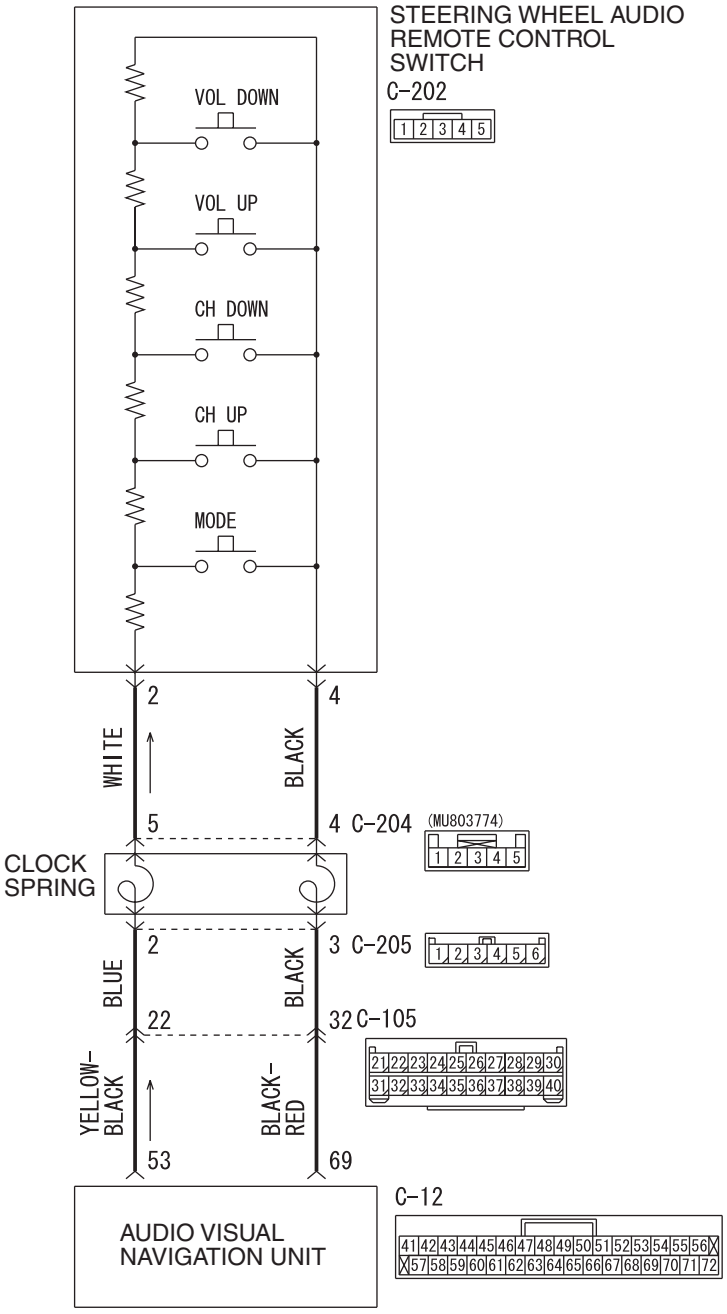
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00E-2).

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

Inspection Procedure 2: Steering Wheel Audio 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 Wheel Audio Remote Control Switch Circuit



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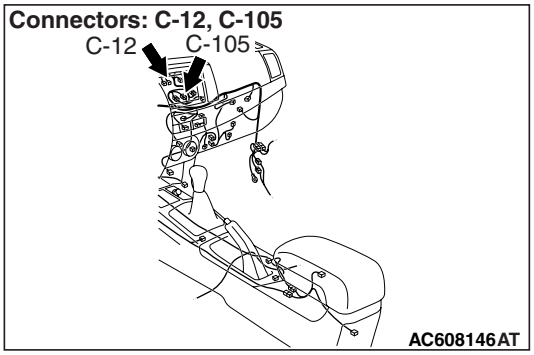
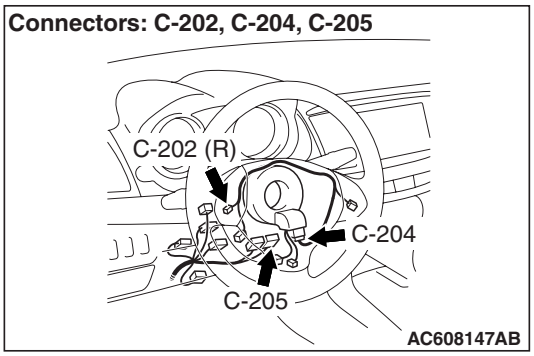
TSB Revision





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

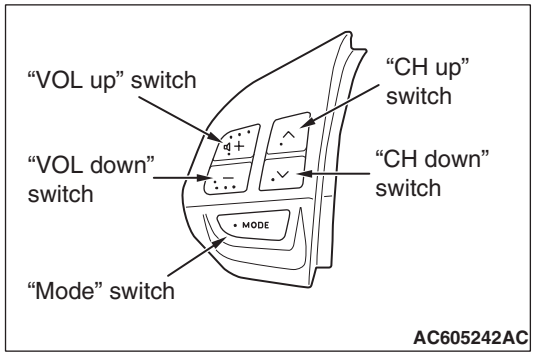
OK: Normal condition is displayed.

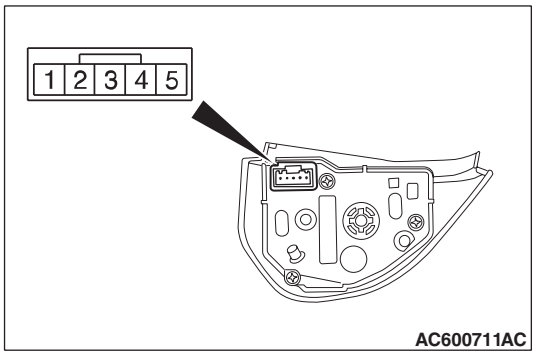
Q: Is the check result normal?

YES : Replace the audio visual navigation unit.

NO : Go to Step 2.

TSB Revision





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-204 and C-205 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are clock spring connector C-204 and C-205 in good condition?

YES : Go to Step 4.

NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). 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-375).

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-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio visual navigation unit connector C-12 in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). The steering remote control switch should work normally.

TSB Revision

STEP 6. Check the wiring harness between audio visual navigation unit connector C-12 (terminal 53, 69) and clock spring connector C-205 (terminal 2, 3).

NOTE: Also check intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- Check the communication lines for open or short circuit.

Q: Is the wiring harness between audio visual navigation unit connector C-12 (terminal 53, 69) and clock spring connector C-205 (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-202 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is steering remote control switch connector C-202 in good condition?

YES : Go to Step 8.

NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). The steering remote control switch should work normally.

STEP 8. Check the wiring harness between steering remote control switch connector C-202 (terminal 2, 4) and clock spring connector C-204 (terminal 5, 4).

- Check the communication lines for open or short circuit.

Q: Is the wiring harness between steering remote control switch connector C-202 (terminal 2, 4) and clock spring connector C-204 (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?

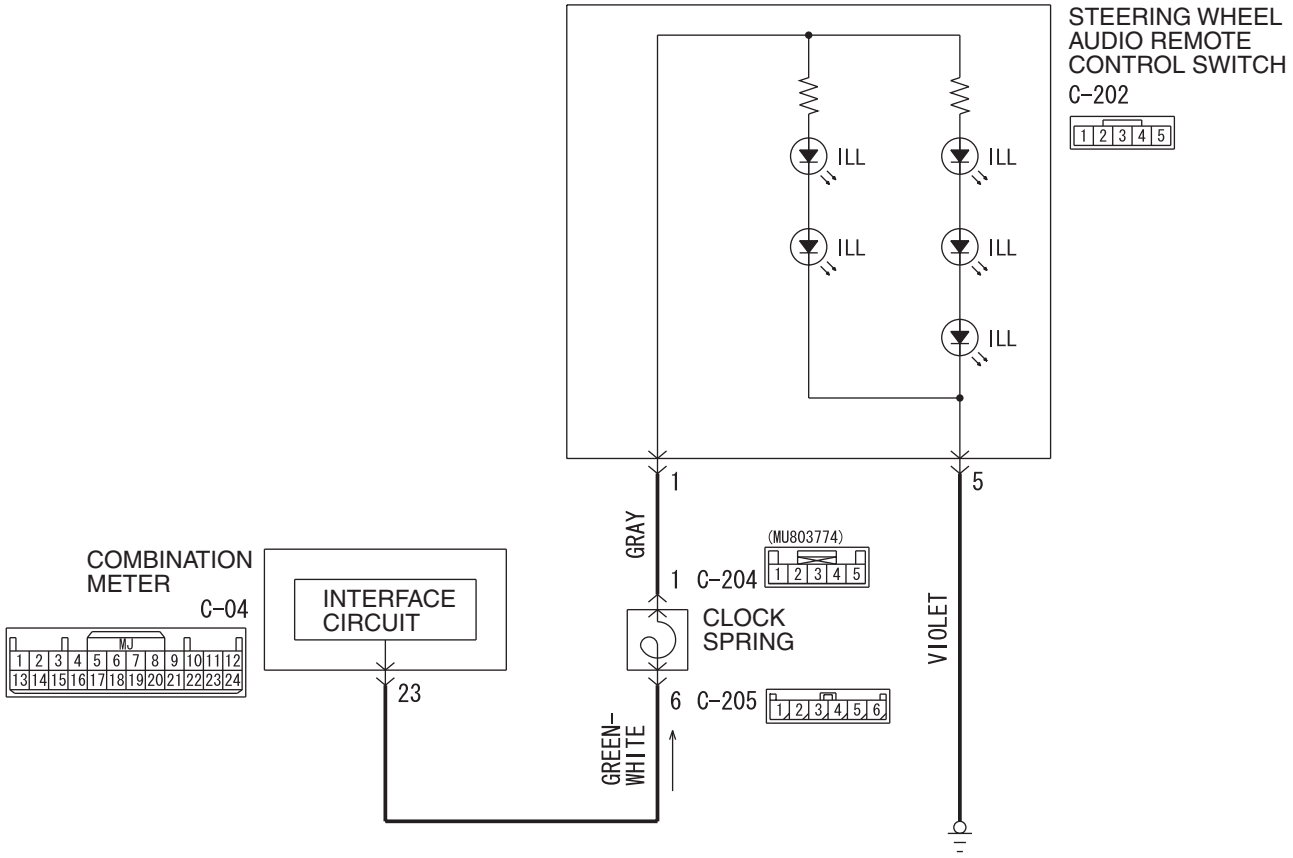
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the audio visual navigation unit.

TSB Revision

Inspection Procedure 3: Steering wheel audio remote control switch illumination does not come on.

Steering Wheel Audio Remote Control Switch Illumination Circuit



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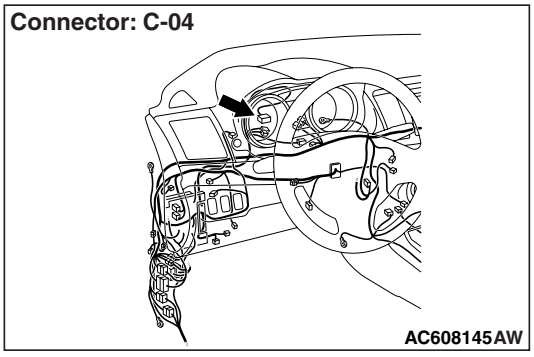
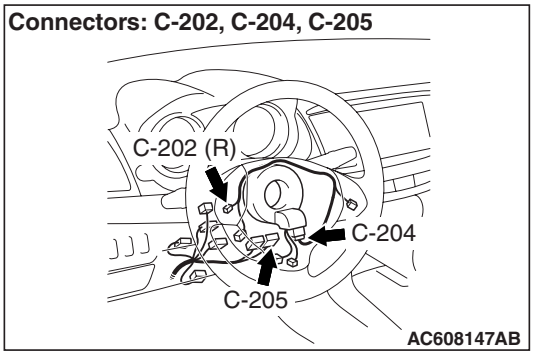




TECHNICAL DESCRIPTION (COMMENT)

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

TSB Revision

DIAGNOSIS

Required Special Tools:

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

STEP 1. 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 P.54A-23).

STEP 2. Check steering remote control switch connector C-202 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is steering remote control switch connector C-202 in good condition?

YES : Go to Step 3.

NO : Repair or replace the damaged component (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-202 (terminal 5) and ground.

- Check the ground wire.

Q: Is the wiring harness between steering remote control switch connector C-202 (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-204 and C-205 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are clock spring connectors C-204 and C-205 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component (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-375).

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-202 (terminal 1) and clock spring connector C-204 (terminal 1).

- Check the power supply lines.

Q: Is the wiring harness between steering remote control switch connector C-202 (terminal 1) and clock spring connector C-204 (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-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-04 in good condition?

YES : Go to Step 8.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). The steering remote control switch should work normally.

STEP 8. Check the wiring harness between combination meter connector C-04 (terminal 23) and clock spring connector C-205 (terminal 6).

- Check the power supply lines.

Q: Is the wiring harness between combination meter connector C-04 (terminal 23) and clock spring connector C-205 (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: Doe the illumination of the steering remote control switch comes 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.00-13).

NO : Replace the steering remote control switch.

REMOVAL AND INSTALLATION

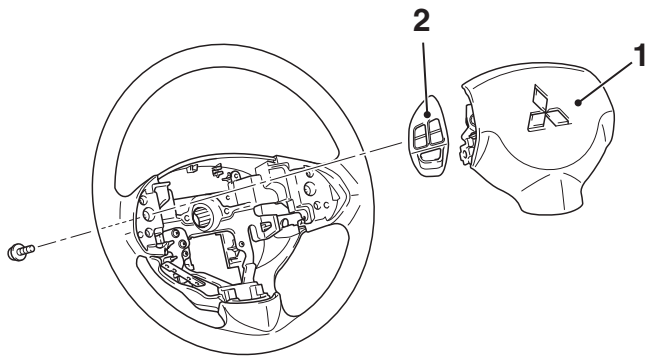
M1544015600023

⚠ ***WARNING***

Before removing the air bag module, refer to GROUP 52B, Service Precautions P.52B-24 and Driver's Front Passenger's Air Bag Module and Clock Spring P.52B-367.

⚠ ***WARNING***

When removing and installing the steering wheel, do not let it bump against the air bag module.



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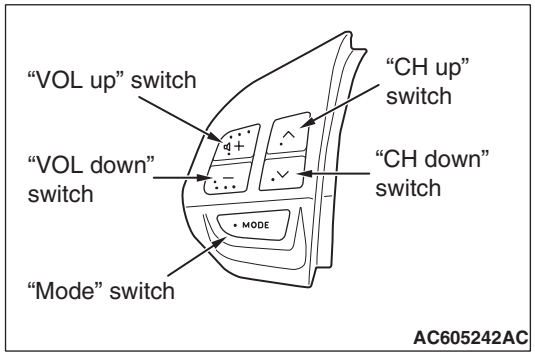
Removal Steps

1. Air bag module (Refer to GROUP 52B, Driver's Front Passenger's Air Bag Module and Clock Spring P.52B-367).
2. Steering wheel audio remote control switch



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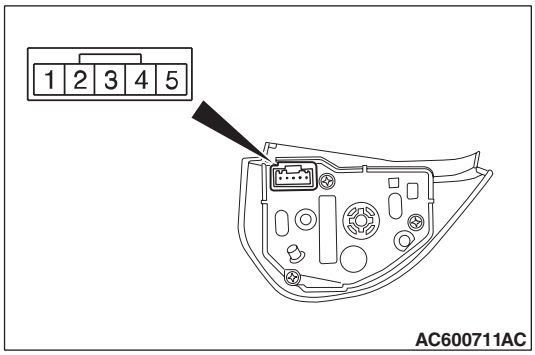

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STREERING WHEEL AUDIO REMOTE CONTROL SWITCH INSPECTION

M1544015700020

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

HANDS-FREE CELLULAR PHONE SYSTEM

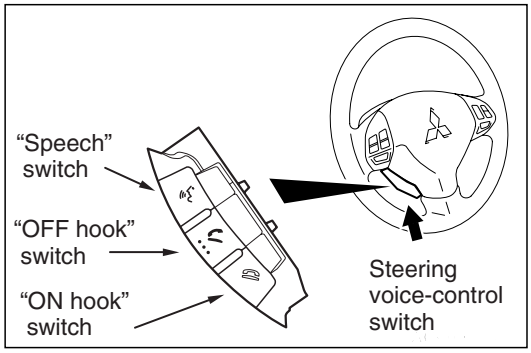
GENERAL INFORMATION

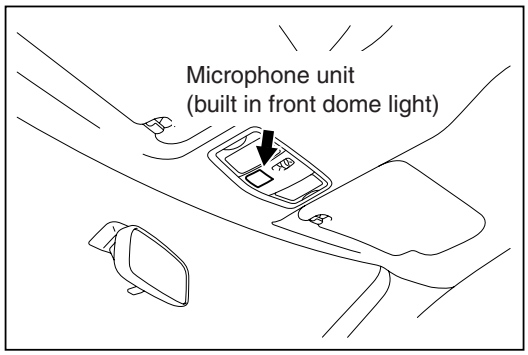
M1544401200019

With the hands-free cellular phone system <GTS: Standard, DE, ES: Option> by registering a cellular phone for Bluetooth™* with voice recognition to the hands free module, the telephone function becomes available without operating the cellular phone directly. The hands-free cellular phone system can be used without connecting the cellular phone to the vehicle via wiring cable.

*NOTE: *: Bluetooth™ is the short-distance digital wireless communication technology using 2.45 GHz frequency band. The communication effective area is within 10 m, and the feature is that the communication can be achieved even when an obstacle is present between the communicating devices.*

Construction diagram





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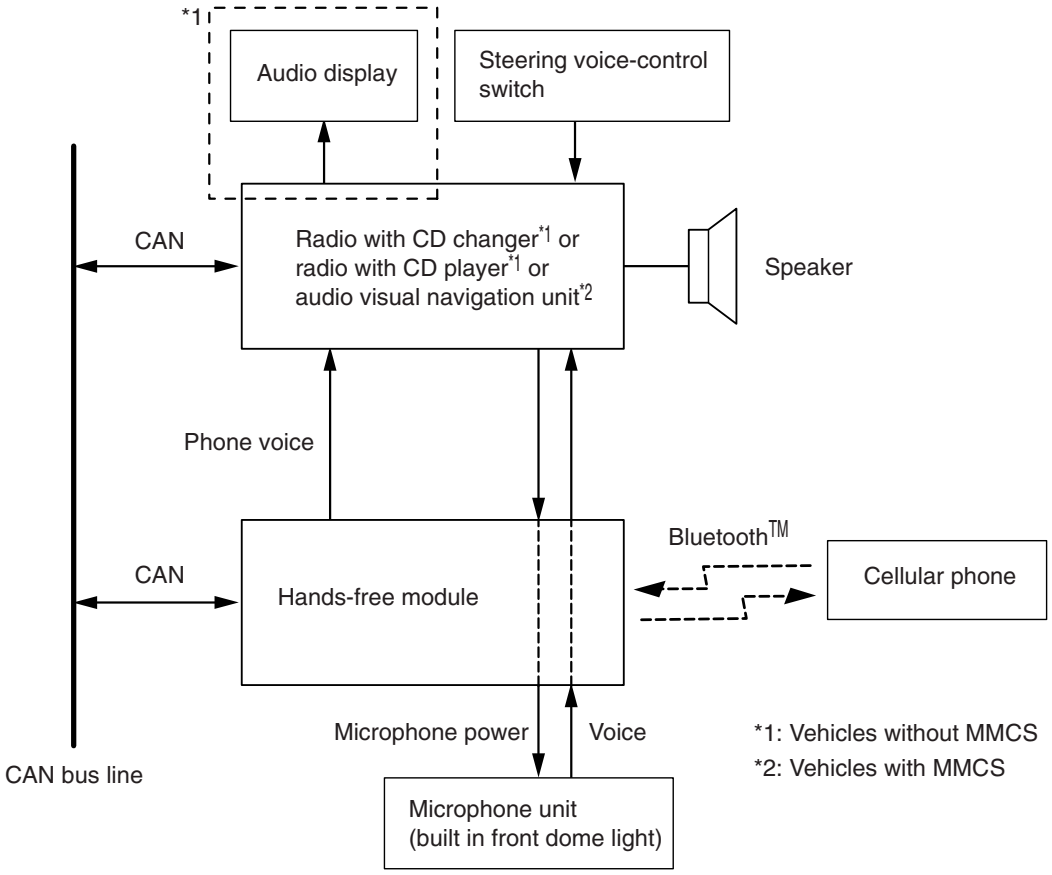
When the registered cellular phone is inside the vehicle, the hands-free cellular phone system operates as follows.

NOTE: The owner's manual contains details on pairing a cellular phone with the Bluetooth system, speaker enrollment, and other functions.

- When the cellular phone receives a call, the occupant can start conversation by pressing "OFF hook" in the steering voice-control switches on the steering wheel. When the conversation ends, the occupant can finish the call by pressing "ON hook" in the steering voice-control switches.
- To make a call, press "Speech" in the steering voice-control switches on the steering wheel, call up the registered receiver's information in the voice input mode, press "OFF hook". Then, the transmission starts to call the receiver. Also, when the conversation ends, the occupant can finish the call by pressing "ON hook" in the steering voice-control switches.
- The communication directly via a cellular phone can be switched to the communication via a handsfree device. Also, the communication via a handsfree device can be switched to the communication directly via a cellular phone.
- The voice input mode corresponds to the following languages: English, American Spanish, Canadian French.
- The voice of occupant is picked up by the microphone unit incorporated in the front dome light, and then transmitted to the cellular phone via hands-free module. Also, the receiver's voice is transmitted from the cellular phone to radio with CD player, radio with CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> via hands-free module, and then output from the vehicle-mounted speaker.
- Using the steering audio remote control switch, the volume can be adjusted.
- The reception state of the cellular phone is indicated on the display section of radio with CD player, radio with CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>.

TSB Revision

System block diagram



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DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1540203800011

Refer to GROUP 00 –Contents of troubleshooting P.00-6.

TROUBLE SYMPTOM CHART

M1546001800202

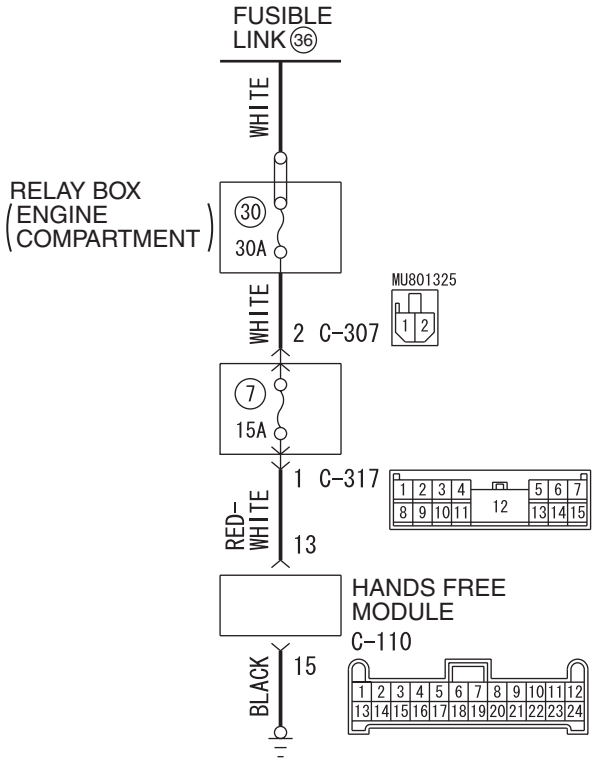
Inspection Procedure No.	Trouble symptom	Reference page
1	Hands-free cellular phone system does not work normally.	P.54A-410
2	During the conversation with the hands-free system, the speaker's voice cannot be heard by the other party.	P.54A-418
3	During the conversation with the hands-free system, the voice of other party cannot be heard.	P.54A-421
4	Even when the steering wheel voice-control switch is operated, the conversation is not possible.	P.54A-422
5	The cellular phone is not recognized or the connection cannot be established.	P.54A-427
6	Steering wheel voice-control switch illumination does not come on.	P.54A-429
7	Check the hands-free-ECU power supply circuit.	P.54A-433

SYMPTOM PROCEDURES

Inspection Procedure 1: Hands-free cellular phone system does not work normally.

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

Hands Free Module Power Supply Circuit



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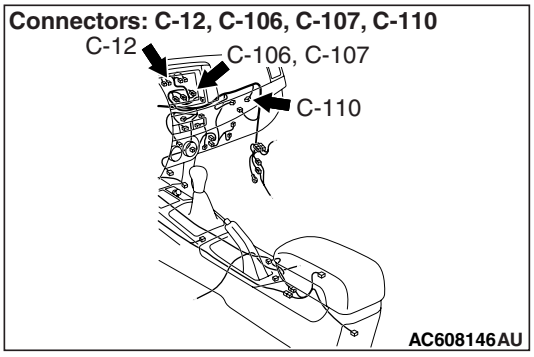
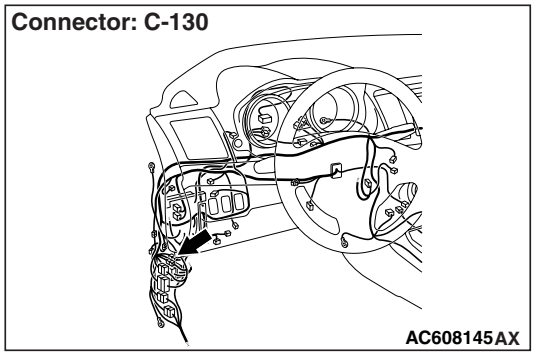
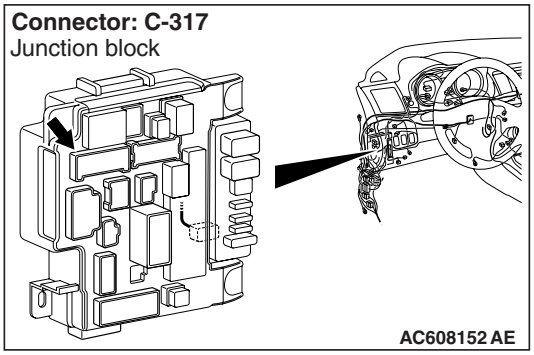
Connectors: C-12, C-106, C-107, C-110

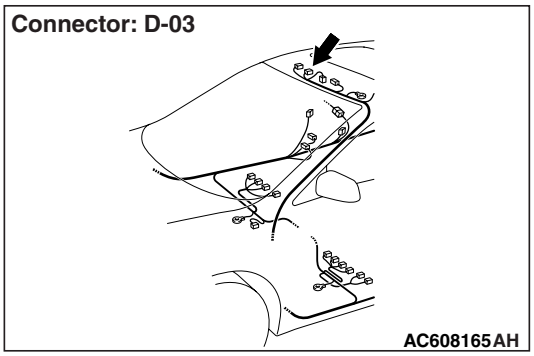


Connector: C-130



TSB Revision





FUNCTION

During the conversation with the hands-free system, the signal of speaker's voice is transmitted from the microphone unit to the hands-free module. Then the signal is transmitted from the hands-free module to the cellular phone. The voice of other party is transmitted from the cellular phone to the hands-free module. Then, the voice is transmitted from the hands-free module to the radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>, and output from the speaker.

TROUBLE JUDGEMENT CONDITIONS

If the hands-free system cannot be used normally, the hands-free module, microphone unit, steering wheel voice-control switch, or radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the hands-free module
- Malfunction of the microphone unit
- Malfunction of the steering wheel voice-control switch
- Malfunction of the radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check the cellular phone.

Check that the cellular phone can be used normally as a unit.

Q: Is it possible to use the cellular phone normally?

YES : Go to Step 2.
NO : Repair or replace the cellular phone.

STEP 2. Temporarily replace the cellular phone, and check the trouble symptom.

Temporarily register a separate Bluetooth™-supported cellular phone, and check that the hands-free cellular phone system operates normally.

Q: Is the normal conversation possible with the hands-free system?

YES : Ask the customer to have the cellular phone repaired or replaced. Then, delete the temporarily registered cellular phone. Once the customer prepares the normally-working cellular phone, register the cellular phone to the hands-free module.

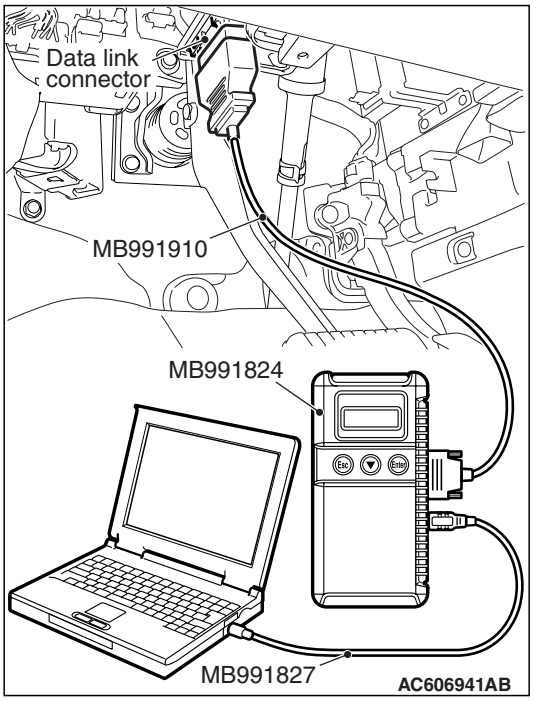
NO : Go to Step 3.

STEP 3. 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 to the data link connector.
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to "LOCK" (OFF) position.



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

YES : Go to Step 4.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

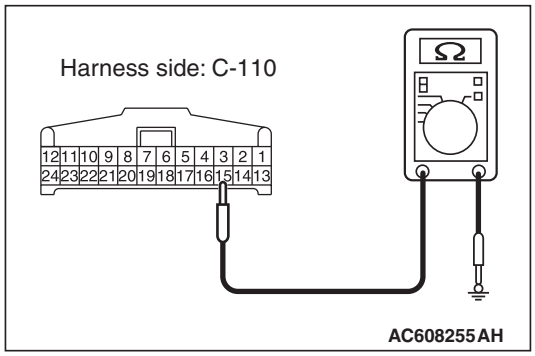
STEP 4. Check hands-free module connector C-110 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are hands-free module connector C-110 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.

TSB Revision



STEP 5. Check the ground circuit to the hands-free module. Measure the resistance at hands-free module connector C-110.

(1) Disconnect hands-free module connector C-110, and measure at the wiring harness side.
(2) Measure resistance between terminal 15 and ground.

OK: The resistance should be 2 ohm or less.

Q: Is the measured resistance 2 ohms or less?

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

STEP 6. Check the wiring harness between hands-free module connector C-110 (terminal 15) and ground.

Q: Is the wiring harness between hands-free module connector C-110 (terminal 15) 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.00-13).
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.

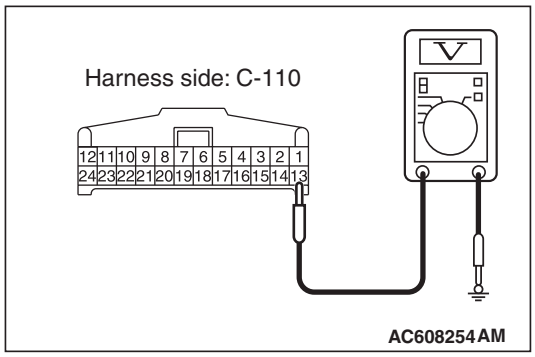
STEP 7. Check the power supply circuit to the hands-free module. Measure the voltage at hands-free module connector C-110.

(1) Disconnect hands-free module connector C-110, and measure the voltage available at the hands-free module side of the connector.
(2) Measure the voltage between terminal 13 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 9.
NO : Go to Step 8.



STEP 8. Check the wiring harness between hands-free module connector C-110 (terminal 13) and ETACS-ECU connector C-317 (terminal 1).

Q: Is the wiring harness between hands-free module connector C-110 (terminal 13) and ETACS-ECU connector C-317 (terminal 1) 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.00-13).

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 9. Check microphone unit connector D-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is microphone unit connector D-03 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 hands-free module connector C-110 and microphone unit connector D-03.

(1) Disconnect hands-free module connector C-110 and microphone unit connector D-03, and check the wiring harness.

NOTE: Also check intermediate connector C-130 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-130 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

(2) Check the wiring harness between hands-free module connector C-110 (terminal 1) and microphone unit connector D-03 (terminal 22)

(3) Check the wiring harness between hands-free module connector C-110 (terminal 1) and microphone unit connector D-03 (terminal 23)

(4) Check the wiring harness between hands-free module connector C-110 (terminal 2) and microphone unit connector D-03 (terminal 24)

Q: Is the wiring harness between hands-free module connector C-110 and microphone unit connector D-03 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 radio and CD player or CD changer connector C-106 <vehicles without MMCS> or audio visual navigation unit connector C-12 <vehicles with MMCS> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player or CD changer connector C-106 <vehicles without MMCS> or audio visual navigation unit connector C-12 <vehicles with MMCS> 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 hands-free module connector C-110 and radio and CD player or CD changer connector C-106 <vehicles without MMCS> or audio visual navigation unit connector C-12 <vehicles with MMCS>.

(1) Disconnect hands-free module connector C-110 and radio and CD player or CD changer connector C-106 <vehicles without MMCS> or audio visual navigation unit connector C-12 <vehicles with MMCS>, and check the wiring harness.

NOTE: Also check intermediate connector C-107 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-107 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2. <vehicles with MMCS>

(2) Check the wiring harness between hands-free module connector C-110 (terminal 9) and radio and CD player or CD changer connector C-106 (terminal 3) <vehicles without MMCS>

(3) Check the wiring harness between hands-free module connector C-110 (terminal 19) and radio and CD player or CD changer connector C-106 (terminal 2) <vehicles without MMCS>

(4) Check the wiring harness between hands-free module connector C-110 (terminal 21) and radio and CD player or CD changer connector C-106 (terminal 2) <vehicles without MMCS>

(5) Check the wiring harness between hands-free module connector C-110 (terminal 9) and audio visual navigation unit connector C-12 (terminal 45) <vehicles without MMCS>

(6) Check the wiring harness between hands-free module connector C-110 (terminal 19) and audio visual navigation unit connector C-12 (terminal 46) <vehicles without MMCS>

(7) Check the wiring harness between hands-free module connector C-110 (terminal 21) and audio visual navigation unit connector C-12 (terminal 46) <vehicles without MMCS>

Q: Is the wiring harness between hands-free module connector C-110 and radio and CD player or CD changer connector C-106 <vehicles without MMCS> or audio visual navigation unit connector C-12 <vehicles with MMCS> 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. Temporarily replace the microphone unit, and check the trouble symptom.
Check that the normal conversation is possible with the hands-free system.

Q: Is the normal conversation possible with the hands-free system?

YES : Replace the microphone unit.
NO : Go to Step 14.

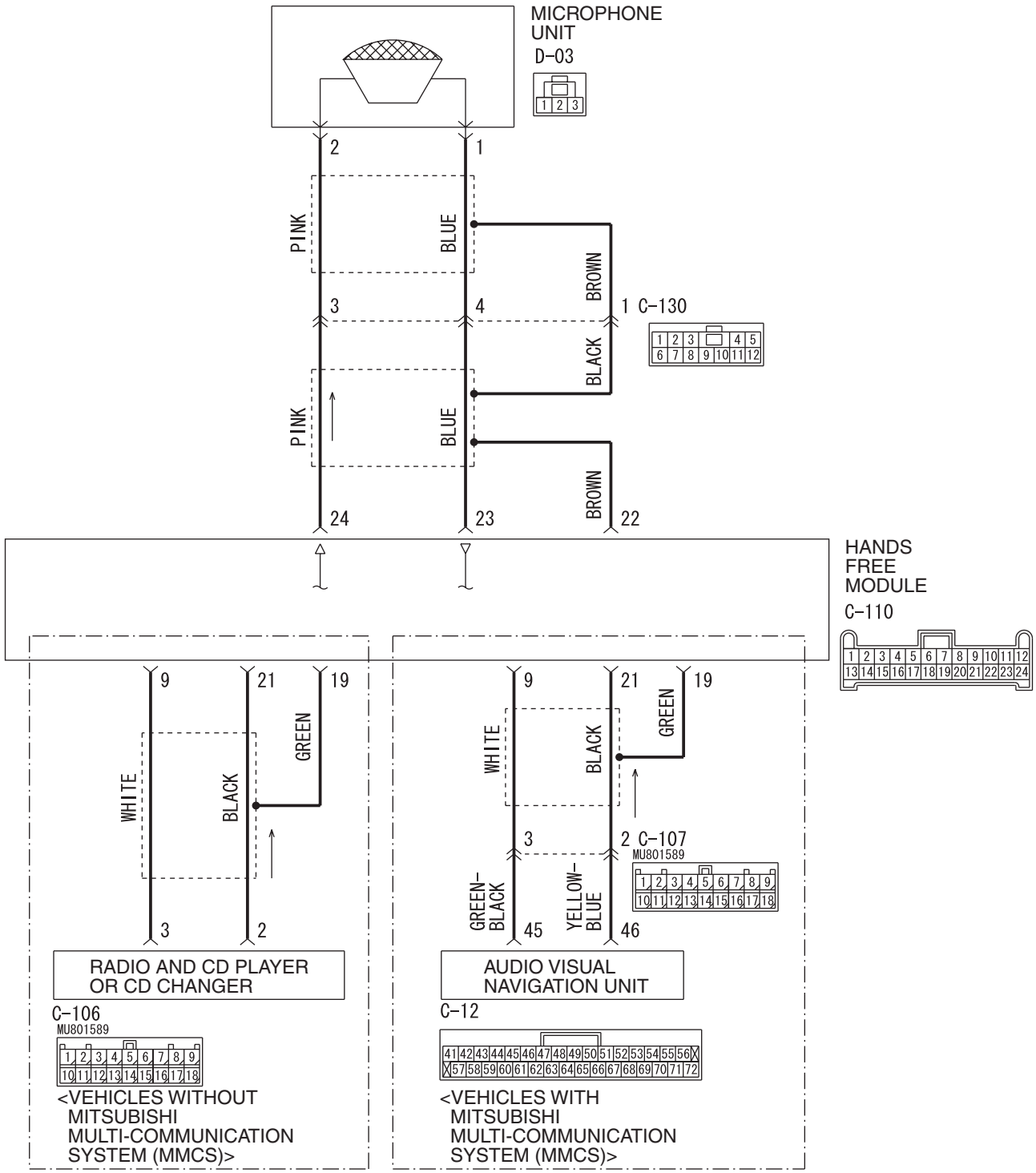
STEP 14. Temporarily replace the hands-free module, and check the trouble symptom.
Check that the normal conversation is possible with the hands-free system.

Q: Is the normal conversation possible with the hands-free system?

YES : Replace the hands-free module.
NO : Replace the radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>.

Inspection Procedure 2: During the conversation with the hands-free system, the speaker's voice cannot be heard by the other party.

Hands Free Cellular Phone System Circuit



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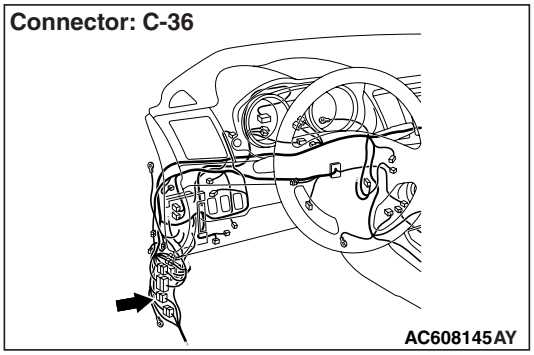
TSB Revision

Connector: C-36



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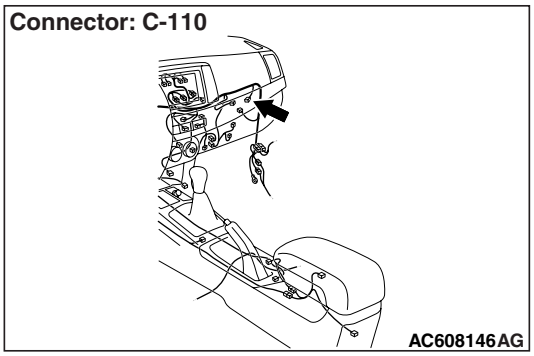
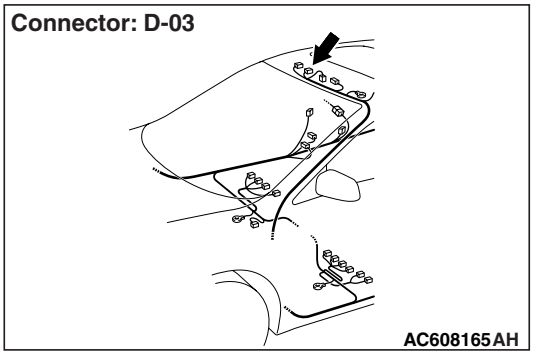
Connector: C-110



AC608146AG

Connector: D-03



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FUNCTION

During the conversation with the hands-free system, the signal of speaker's voice is transmitted from the microphone unit to the hands-free module. Then the signal is transmitted from the hands-free module to the cellular phone.

TROUBLE JUDGEMENT CONDITIONS

During the conversation with the hands-free system, if the speaker's voice cannot be heard by the other party, the hands-free module or microphone unit may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the hands-free module
- Malfunction of the microphone unit
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check the cellular phone.

Check that the cellular phone can be used normally as a unit.

Q: Is it possible to use the cellular phone normally?

YES : Go to Step 2.
NO : Repair or replace the cellular phone.

STEP 2. Check hands-free module connector C-110 and microphone unit connector D-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are hands-free module connector C-110 and microphone unit connector D-03 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 hands-free module connector C-110 and microphone unit connector D-03.

(1) Disconnect hands-free module connector C-110 and microphone unit connector D-03, and check the wiring harness.

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

(2) Check the wiring harness between hands-free module connector C-110 (terminal 1) and microphone unit connector D-03 (terminal 22)

(3) Check the wiring harness between hands-free module connector C-110 (terminal 1) and microphone unit connector D-03 (terminal 23)

(4) Check the wiring harness between hands-free module connector C-110 (terminal 2) and microphone unit connector D-03 (terminal 24)

Q: Is the wiring harness between hands-free module connector C-110 and microphone unit connector D-03 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. Temporarily replace the microphone unit, and check the trouble symptom.

Check that the normal conversation is possible with the hands-free system.

Q: Is the normal conversation possible with the hands-free system?

YES : Replace the microphone unit.

NO : Replace the hands-free module.

Inspection Procedure 3: During the conversation with the hands-free system, the voice of other party cannot be heard.

FUNCTION

During the conversation with the hands-free system, the voice signal of other party is transmitted from the cellular phone to the hands-free module. Then, the signal is transmitted from the hands-free module to the radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>, and then output from the speaker.

TROUBLE JUDGEMENT CONDITIONS

During the conversation with the hands-free system, if the voice of other party cannot be heard, the hands-free module, or the radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the hands-free module
- Malfunction of the radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>

DIAGNOSIS

STEP 1. Check the cellular phone.

Check that the cellular phone can be used normally as a unit.

Q: Is it possible to use the cellular phone normally?

YES : Go to Step 2.

NO : Repair or replace the cellular phone.

STEP 2. Check the radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>.

Check that the sound of radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> is output normally from the speaker.

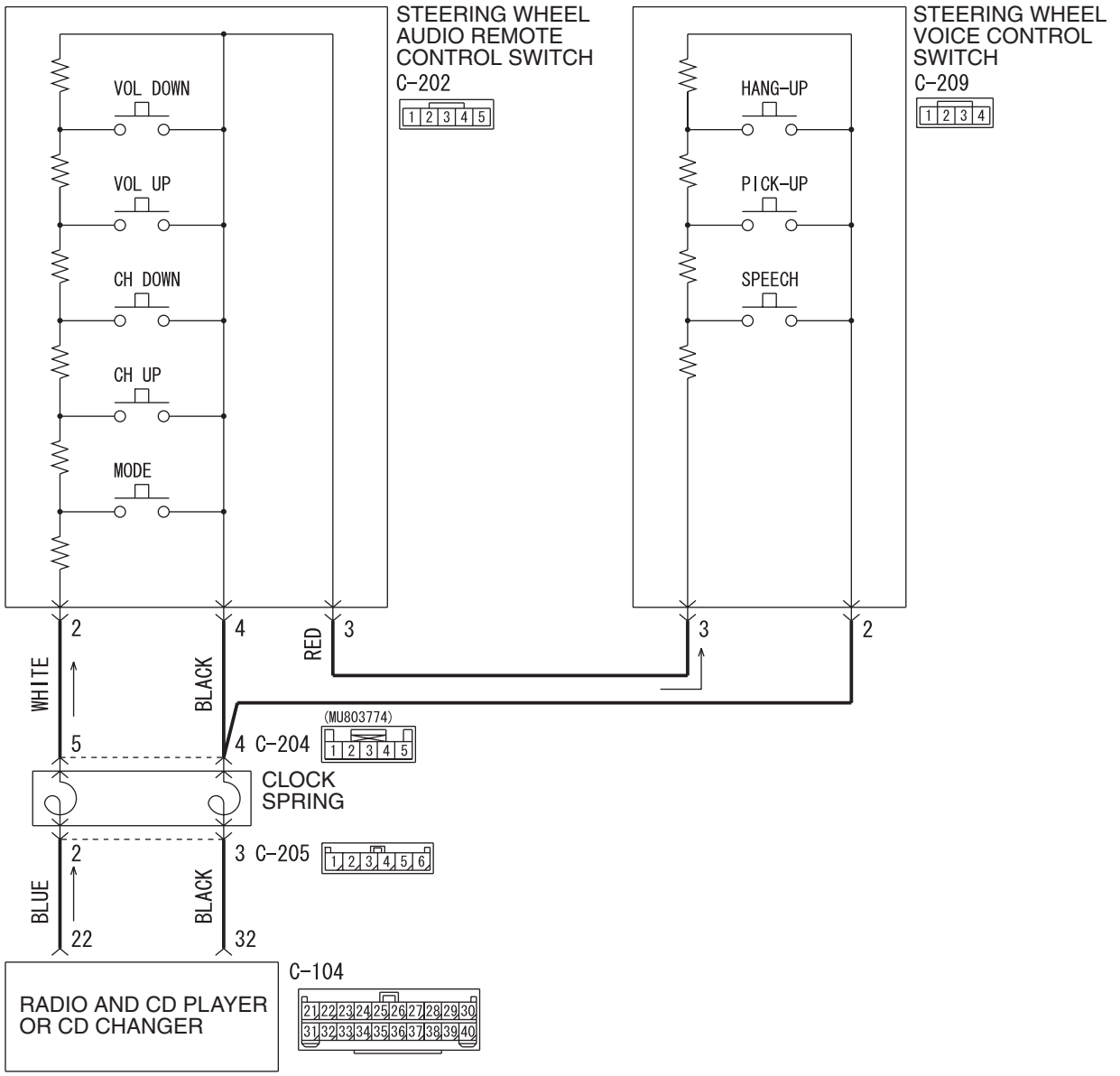
Q: Is the sound of radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> output normally from the speaker?

YES : Replace the hands-free module.

NO : Diagnose the radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> (Refer to P.54A-393 <vehicles without MMCS> or P.54A-393 <vehicles with MMCS>).

Inspection Procedure 4: Even when the steering wheel voice-control switch is operated, the conversation is not possible.

Steering Wheel Voice Control Switch Circuit



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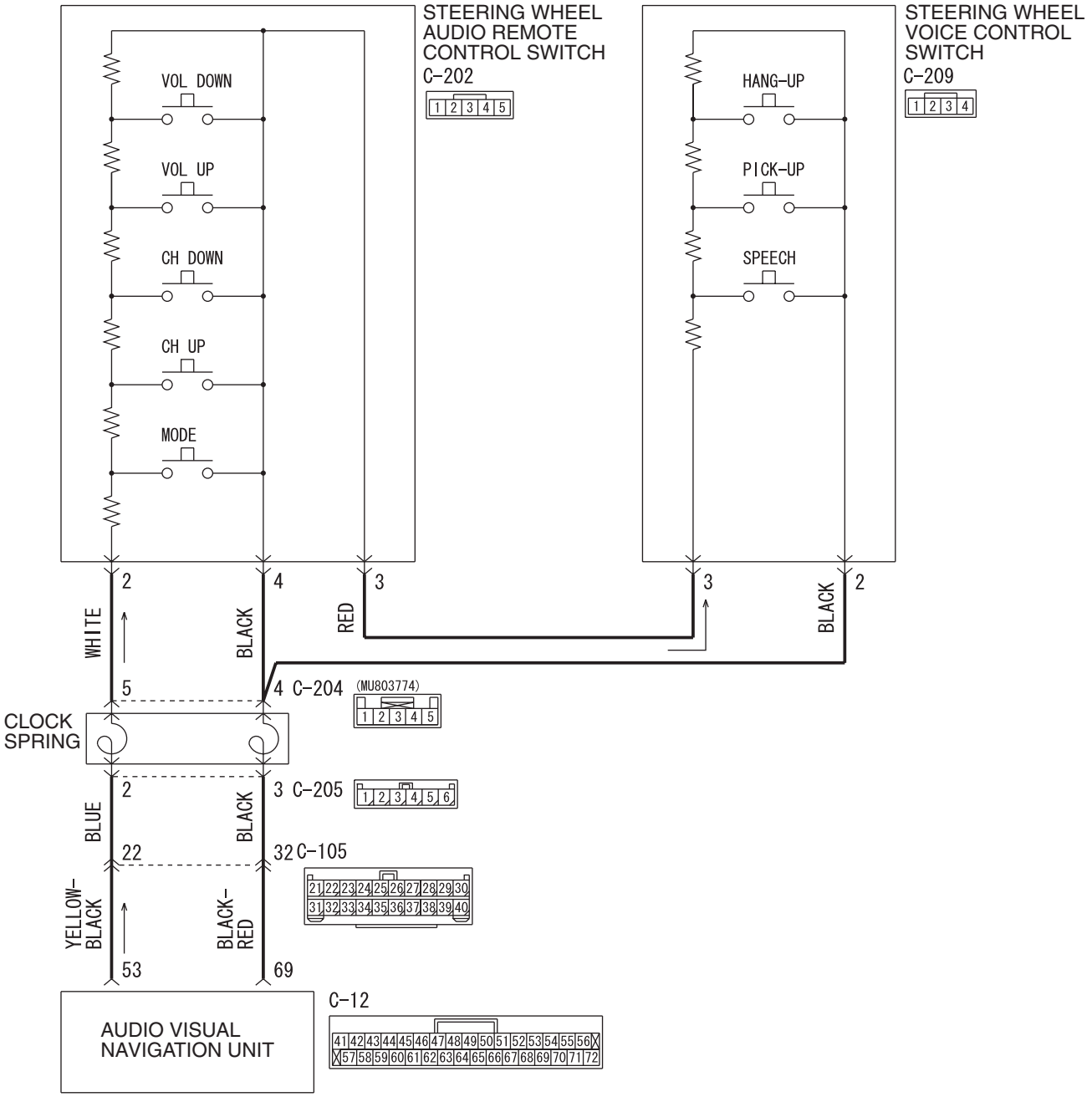
TSB Revision

Steering Wheel Voice Control Switch Circuit



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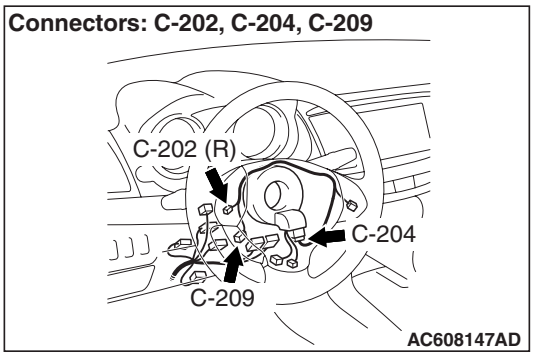


FUNCTION

When the steering wheel voice-control switch is operated, the switch signal is transmitted to the radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>. Then, via the CAN communication, the signal is transmitted from the radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> to the hands-free module.

TSB Revision

TROUBLE JUDGEMENT CONDITIONS

If the conversation is not possible even when the steering wheel voice-control switch is operated, the steering wheel voice-control switch or radio and CD player or CD changer <vehicles without MMCS> or the audio visual navigation unit <vehicles with MMCS> may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the steering wheel voice-control switch
- Malfunction of the hands-free module
- Malfunction of the radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check the steering wheel audio remote control switch.

Check that the radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> can be operated normally using the steering wheel audio remote control switch.

Q: Is it possible to normally operate the radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> using the steering wheel audio remote control switch?

YES : Go to Step 2.

NO : Diagnose the steering wheel audio remote control switch (Refer to P.54A-393 <vehicles without MMCS> or P.54A-393 <vehicles with MMCS>.)

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

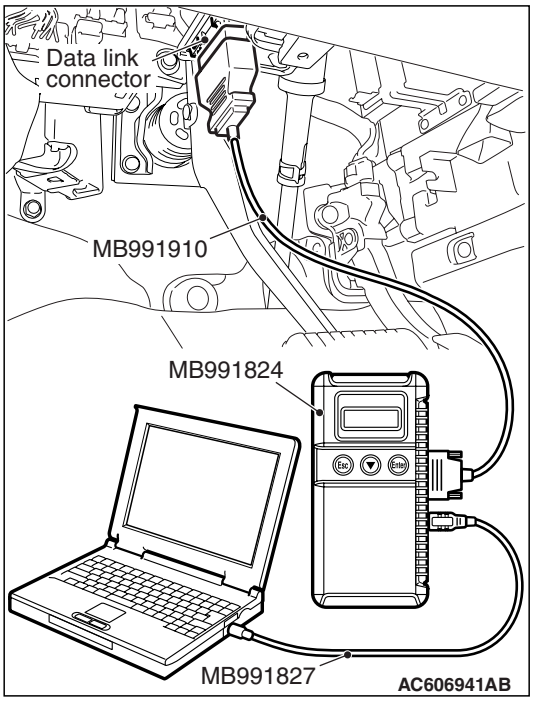
⚠ CAUTION

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 to the data link connector.
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to "LOCK" (OFF) position.

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

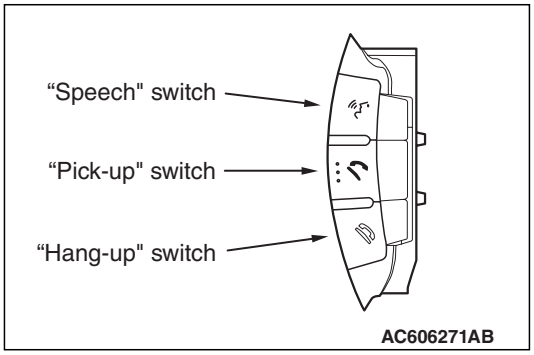
YES : Go to Step 3.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

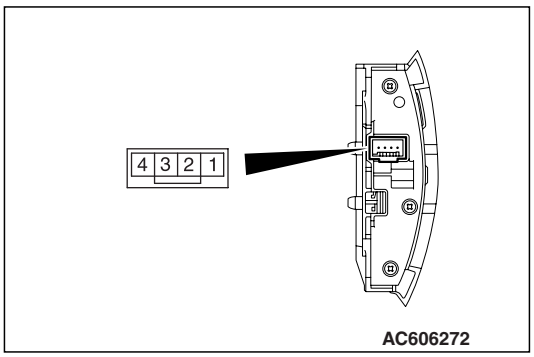


STEP 3. Check the steering wheel voice-control switch.

Remove the steering wheel voice-control switch. Then check continuity between the switch terminals.

Switch Position	Tester Connection	Measurement Value
No push	2 –3	Approximately 74 kΩ
"Speech" switch		Approximately 1.5 kΩ
"Pick-up" switch		Approximately 3.3 kΩ
"Hang-up" switch		Approximately 5.0 kΩ

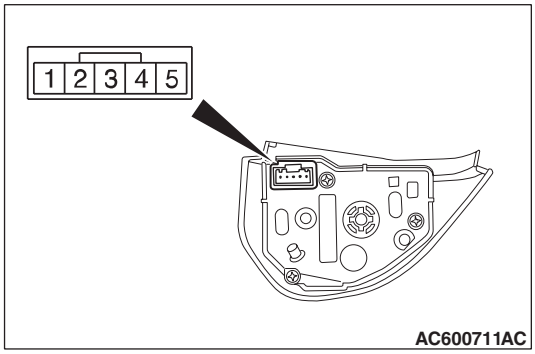




Q: Is the steering wheel voice-control switch in good condition?

YES : Go to Step 4.
NO : Replace the steering wheel voice-control switch.

TSB Revision



STEP 4. Check the steering wheel audio remote control switch.

Remove the steering wheel audio remote control switch. Then check continuity between the switch terminals.

Switch Position	Tester Connection	Measurement Value
No push	2 –3	Approximately 3.1 kΩ

Q: Is the steering wheel audio remote control switch in good condition?

YES : Go to Step 5.

NO : Replace the steering wheel audio remote control switch.

STEP 5. Check steering wheel voice-control switch connector C-209 and steering wheel audio remote control switch connector C-202 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are steering wheel voice-control switch connector C-209 and steering wheel audio remote control switch connector C-202 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 steering wheel voice-control switch connector C-209 (terminal 3) and steering wheel audio remote control switch connector C-202 (terminal 3).

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

Q: Is the wiring harness between steering wheel voice-control switch connector C-209 (terminal 3) and steering wheel audio remote control switch connector C-202 (terminal 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 the wiring harness between steering wheel voice-control switch connector C-209 (terminal 2) and clock spring connector C-204 (terminal 4).

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

Q: Is the wiring harness between steering wheel voice-control switch connector C-209 (terminal 2) and clock spring connector C-204 (terminal 4) 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. Retest the system

Check that the hands-free cellular phone system works normally when the steering wheel voice-control switch is operated.

Q: Check that the hands-free cellular phone system works normally when the steering wheel voice-control switch is operated.

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.00-13).
NO : Replace the radio and CD player or CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>.

Inspection Procedure 5: The cellular phone is not recognized or the connection cannot be established.

FUNCTION

With the hands-free cellular phone system, the cellular phone and hands-free module communicate with each other by using Bluetooth™.

TROUBLE JUDGEMENT CONDITIONS

When the cellular phone cannot be recognized or the communication cannot be established, the cellular phone or hands-free module may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the cellular phone
- Malfunction of the hands-free module

DIAGNOSIS

STEP 1. Check the cellular phone.

Check that the cellular phone can be used normally as a unit.

Q: Is it possible to use the cellular phone normally?

YES : Go to Step 2.
NO : Repair or replace the cellular phone.

STEP 2. Check the position of cellular phone.
Check that the function becomes normal when the cellular phone is moved closer to the hands-free module.

Q: Does the function become normal when the cellular phone is moved closer to the hands-free module?
YES : No action is necessary and testing is complete.
NO : Go to Step 3.

STEP 3. Check the registration method of cellular phone.
By referring to the operation manuals, check that the cellular phone was registered to the hands-free module by following the normal procedure.

Q: Was the cellular phone registered by following the normal procedure?
YES : Check the trouble symptom, and finish when it is normal. When the abnormality is present, go to Step 4.
NO : Register a cellular phone according to a regular procedure.

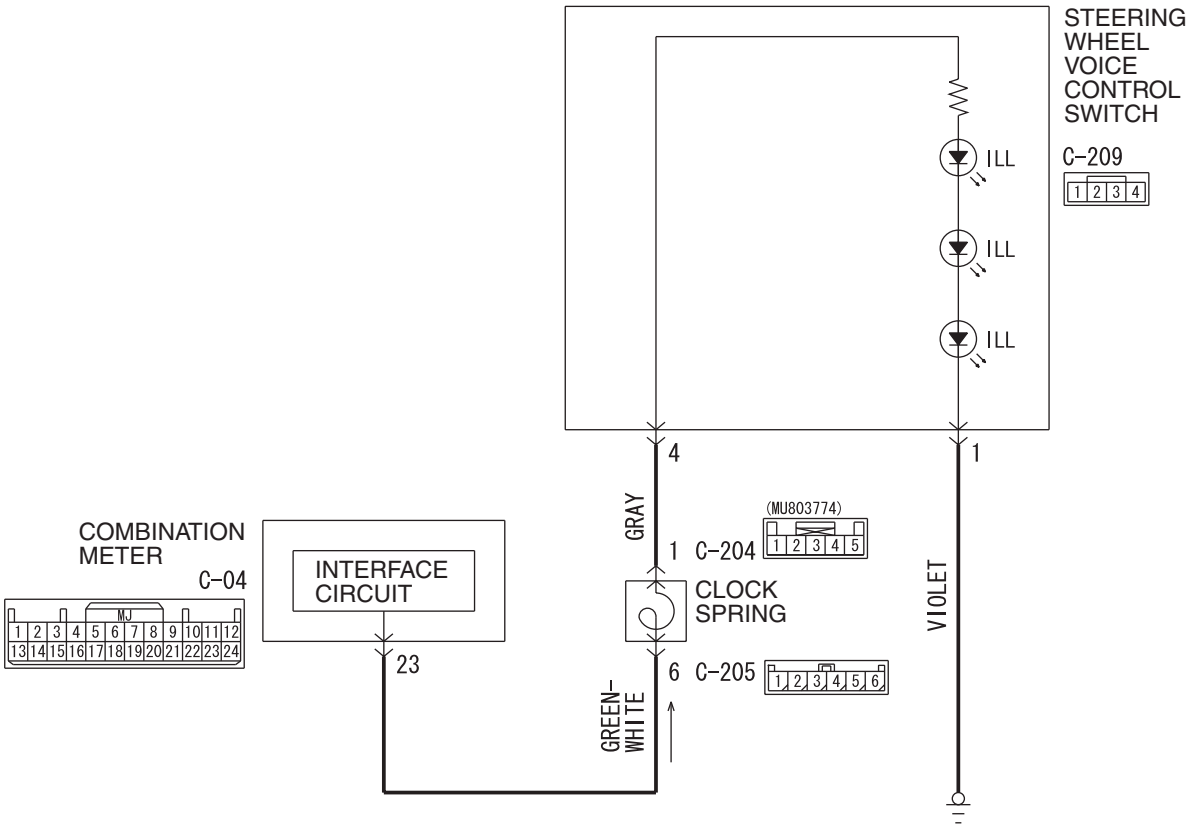
STEP 4. Temporarily replace the cellular phone, and check the trouble symptom.
Temporarily register a separate Bluetooth™-supported cellular phone, and check that the hands-free cellular phone system operates normally.

Q: Is the normal conversation possible with the hands-free system?
YES : Ask the customer to have the cellular phone repaired or replaced. Then, delete the temporarily registered cellular phone. Once the customer prepares the normally-working cellular phone, register the cellular phone to the hands-free module.
NO : Replace the hands-free module.

Inspection Procedure 6: Steering wheel voice-control switch illumination does not come on.

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

Steering Wheel Voice Control Switch Illumination Circuit



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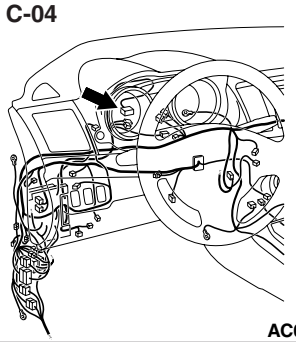
Connector: C-04



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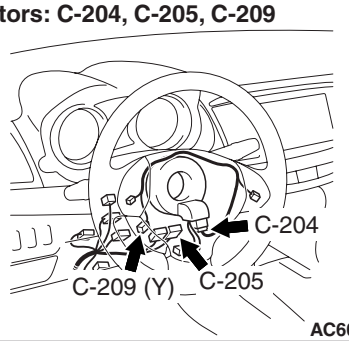
Connectors: C-204, C-205, C-209



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TECHNICAL DESCRIPTION (COMMENT)

The power supply circuit to the steering wheel voice-control switch, the steering wheel voice-control switch, the combination meter, or the clock spring may be defective.

TSB Revision

TROUBLESHOOTING HINTS

- Malfunction of steering wheel voice-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 meter.

Check whether the combination meter works normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Diagnose the combination meter (Refer to P.54A-23).

STEP 2. Check steering wheel voice-control switch connector C-209 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is steering wheel voice-control switch connector C-209 in good condition?

YES : Go to Step 3.

NO : Repair or replace the damaged component (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 wheel voice-control switch connector C-209 (terminal 1) and the ground.

- Check the ground wire.

Q: Is the wiring harness between steering wheel voice-control switch connector C-209 (terminal 1) and the ground in good condition?

YES : Go to Step 4.

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

STEP 4. Check clock spring connectors C-204 and C-205 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are clock spring connectors C-204 and C-205 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component (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-375).

Q: Is the check result normal?

YES : Go to Step 6.

NO : Replace the clock spring.

STEP 6. Check the wiring harness between steering wheel voice-control switch connector C-209 (terminal 4) and clock spring connector C-204 (terminal 1).

- Check the power supply lines.

Q: Is the wiring harness between steering wheel voice-control switch connector C-209 (terminal 4) and clock spring connector C-204 (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-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-04 in good condition?

YES : Go to Step 8.

NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). The steering remote control switch should work normally.

STEP 8. Check the wiring harness between combination meter connector C-04 (terminal 23) and clock spring connector C-205 (terminal 6).

- Check the power supply lines.

Q: Is the wiring harness between combination meter connector C-04 (terminal 23) and clock spring connector C-205 (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: Doe the illumination of the steering remote control switch comes on normally?

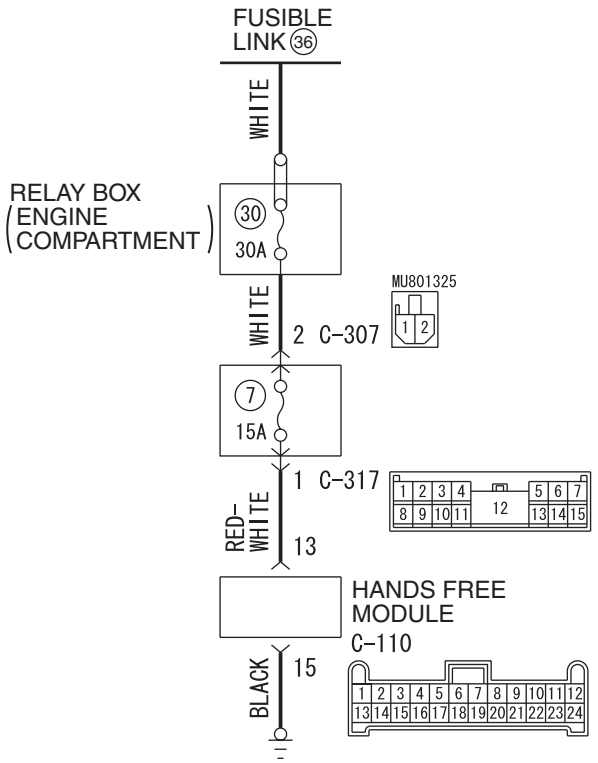
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the steering wheel voice-control switch.

Inspection Procedure 7: Check the hands-free-ECU power supply circuit.

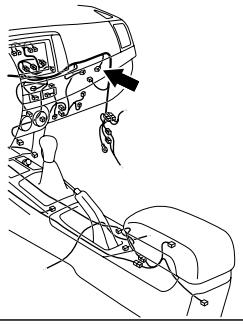
⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Hands Free Module Power Supply Circuit



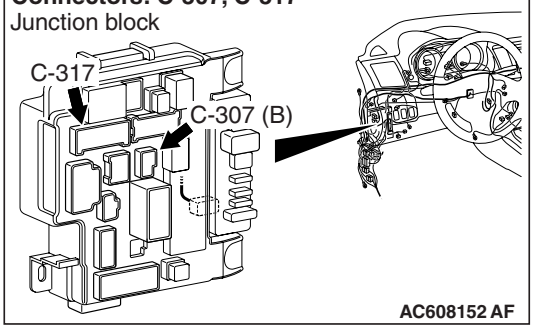
W8G54M020A

Connector: C-110



AC608146AG

Connectors: C-307, C-317
Junction block



AC608152 AF

CIRCUIT OPERATION

- The power supply to the hands-free module is provided by the fusible link (36).
- If the power supply system from the battery is defective, the system operates by the power supply from the ignition switch (IG1).

TSB Revision

TECHNICAL DESCRIPTION (COMMENT)

If the hands-free cellular phone system don't work, power supply and ground system to the hands-free module, or the hands-free module itself may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The hands-free module may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check hands-free module connector C-110 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is hands-free module connector C-110 in good condition?

YES : Go to Step 2.

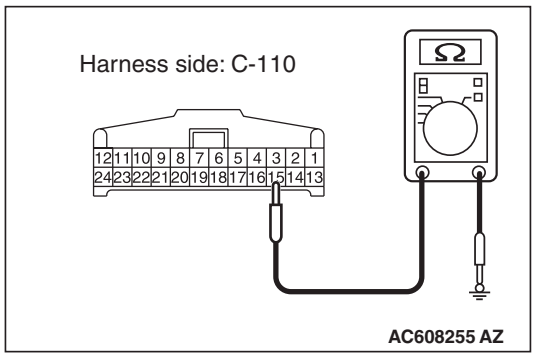
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 2. Check the ground circuit to the hands-free module. Measure the resistance at hands-free module connector C-110.

(1) Disconnect hands-free module connector C-110, and measure at the wiring harness side.

(2) Measure the resistance value between terminal 15 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 hands-free module connector C-110 (terminal 15) and ground.

Q: Is the wiring harness between hands-free module connector C-110 (terminal 15) and ground in good condition?

YES : Replace the hands-free module. The system should communicate with the hands-free module normally.

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.

TSB Revision

STEP 4. Check the wiring harness between hands-free module connector C-110 (terminal 13) 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 damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between hands-free module connector C-110 (terminal 13) and fusible link (36) in good condition?

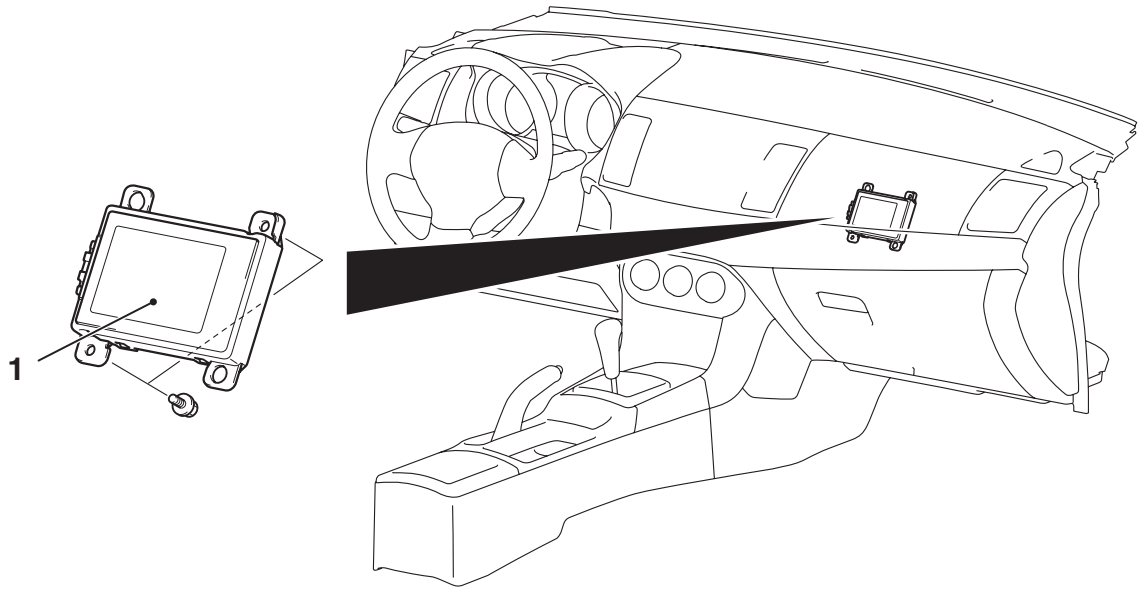
YES : Replace the hands-free module. The system should communicate with the hands-free module normally.

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.

REMOVAL AND INSTALLATION

M1544401000015

HANDS FREE MODULE



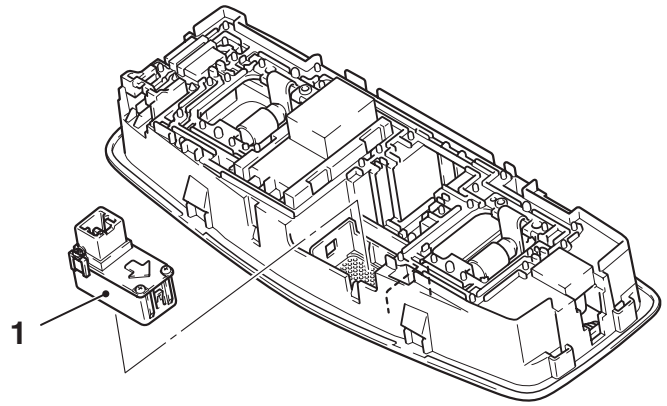
AC608894AB

Hands Free Module Removal Steps

- Grove box cover (Refer to GROUP 52A –Grovebox Assembly P.52A-5).

1. Hands free module

MICROPHONE UNIT



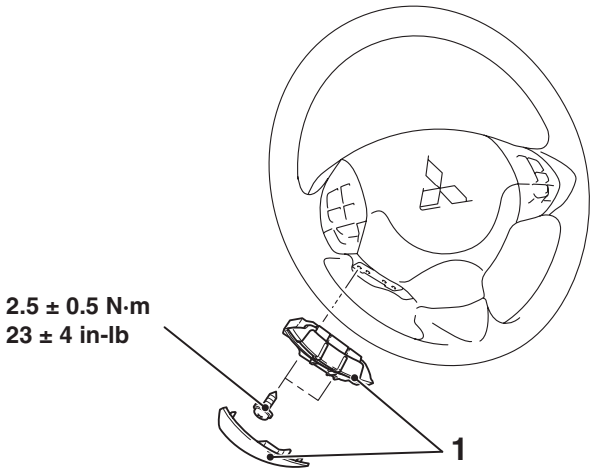
AC606269AB

Microphone Unit Removal Steps

- Front dome light assembly (Refer to GROUP 52A –Headlining P.52A-15).

1. Microphone unit

STEERING VOICE CONTROL SWITCH



AC609419AB

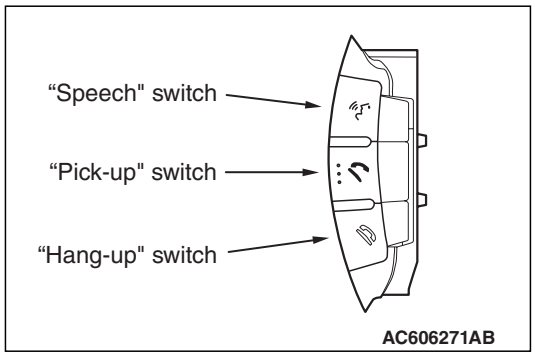
Steering Voice Control Switch Removal Step

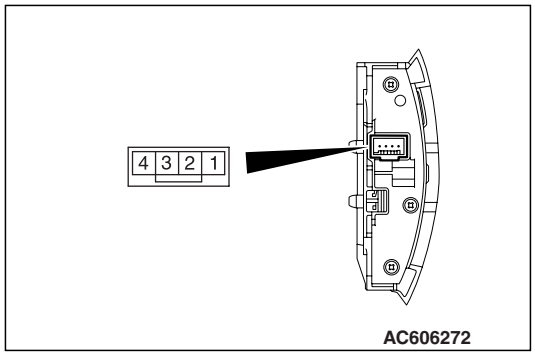
<<A>> 1. Steering voice control switch

REMOVAL SERVICE POINT

<<A>> STEERING VOICE CONTROL SWITCH REMOVAL

Remove the cover first, and then remove the screw that is used to fix the switch body part.





STEERING WHEEL VOICE-CONTROL SWITCH CONTINUITY CHECK

M1544401100012

Use an ohmmeter to measure the resistance value between the terminal.

Switch position	Tester connection	Measurement value
No push	2 –3	Approximately 74 kΩ
"Speech" switch		Approximately 1.5 kΩ
"Pick-up" switch		Approximately 3.3 kΩ
"Hang-up" switch		Approximately 5.0 kΩ

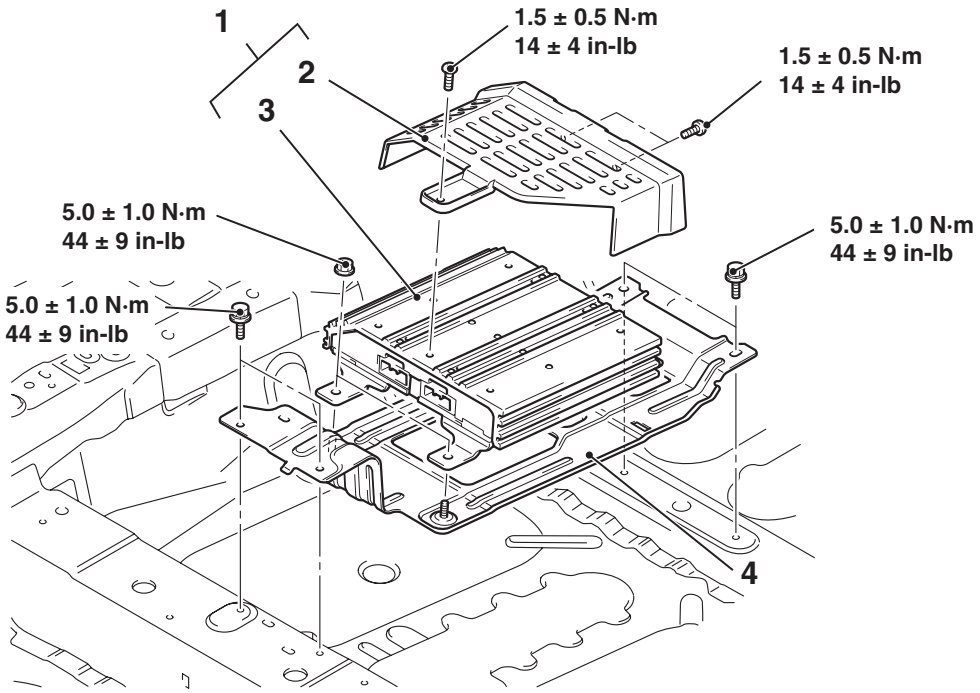
AMPLIFIER

REMOVAL AND INSTALLATION

M1544004100422

⚠ CAUTION

To remove the front seat assembly of vehicle with side air bag, refer to GROUP 52B –Service Precautions P.52B-24 and Air Bag Module(S) And Clock Spring P.52B-367.



AC608802 AB

Removal Steps

- Front (driver's) seat assembly (Refer to GROUP 52A –Front Seat Assembly P.52A-17).

1. Audio amplifier assembly

<<A>>

Removal Steps (Continued)

2. Audio amplifier cover
3. Audio amplifier
4. Audio amplifier box bracket

REMOVAL SERVICE POINT

<<A>> REMOVAL OF AUDIO AMPLIFIER BOX BRACKET

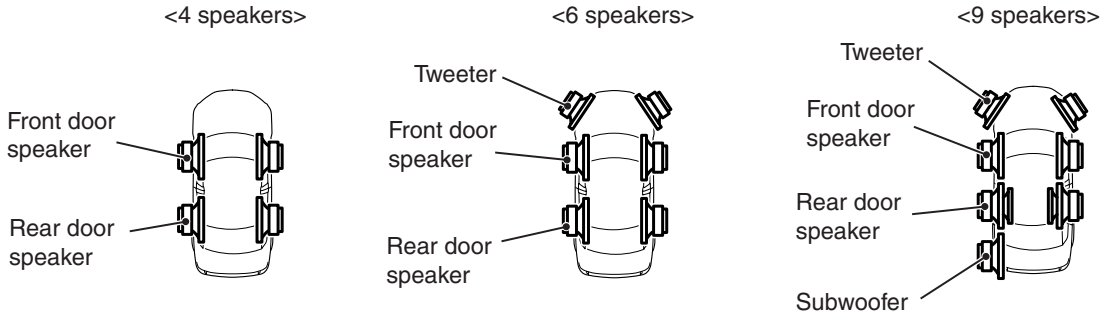
Turn up and remove the carpet.

TSB Revision

SPEAKER

GENERAL INFORMATION

M1544101000014

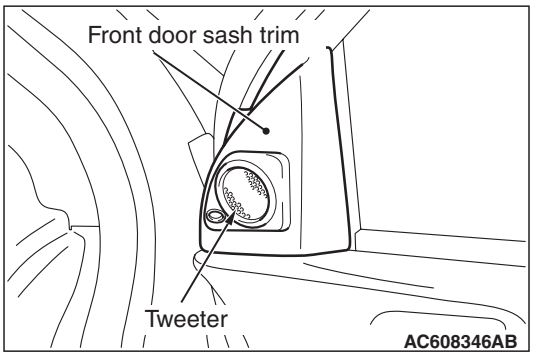


AC608693AB

The following three types of speakers are available.

- 4 speakers (Front door: 16 cm, rear door: 16 cm)
- 6 speakers (tweeter: 3.5 cm, front door: 16 cm, rear door: 16 cm)
- 9 speakers (tweeter: 3.5 cm, front door: 16 cm, rear door: 2-way coaxial 16 cm, subwoofer: 25 cm) <Rockford Fosgate® premium sound system>

TWEETER

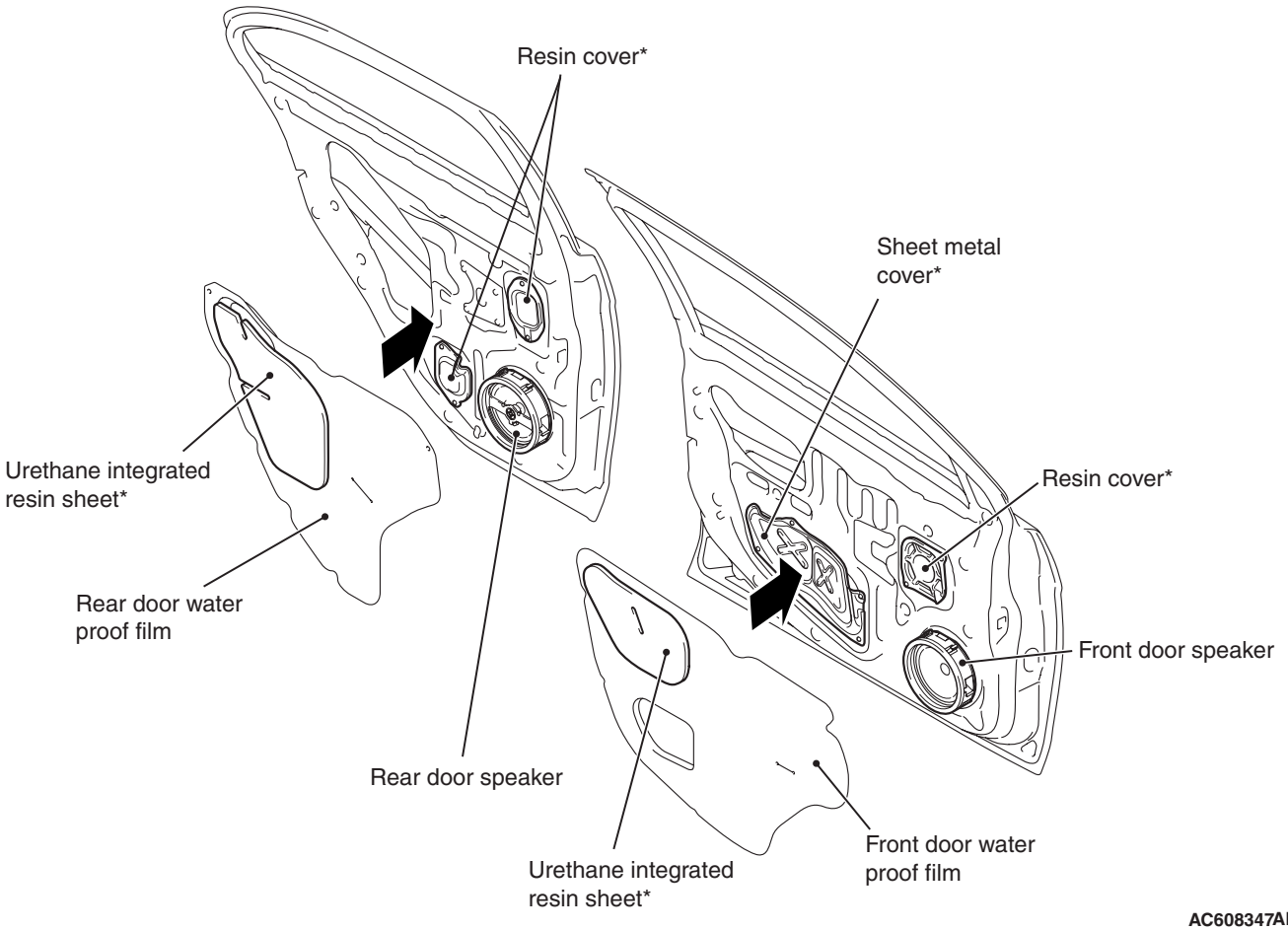


AC608346AB

For the front sash trim, two types of tweeters, the balance dome tweeter <Vehicles with 6 speakers> and soft dome tweeter <Vehicles with 9 speakers (Rockford Fosgate ® premium sound system)>, have been established. The soft dome tweeter can play clearer treble with less distortion compared to the balance dome tweeter. For better treble, two types of front sash garnish, resin type <Vehicles with 6 speakers> and punching metal type <Rockford Fosgate ® premium sound system>, has been established. With the punching metal type, the metal has been adopted for the punching part to enlarge the punching opening, enabling the playback of cleaner treble.

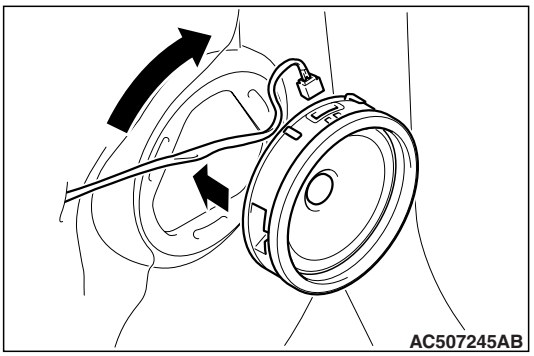
TSB Revision

DOOR SPEAKER



NOTE: The parts with "" are installed exclusively to the vehicles with Rockford Fosgate® premium sound system.*

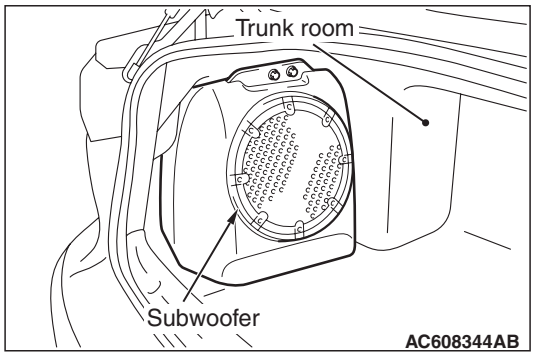
For the front door speaker, two types of speakers, 16 cm paper cone speaker <vehicles with 4 speakers, 6 speakers> and PP (polypropylene) cone speaker <Rockford Fosgate® premium sound system>, are available. For the rear door speaker, two types of speakers, 16 cm paper cone speaker <Vehicles with 4 speakers, 6 speakers> and PP (polypropylene) cone 2-way coaxial speaker <Vehicles with 9 speakers (Rockford Fosgate® premium sound system)>, are available. Compared to the paper cone speakers, the PP (polypropylene) cone speakers can playback crisper bass. The door opening of the vehicles with 9 speaker (Rockford Fosgate® premium sound system) is blocked by using the sheet metal cover and the urethane integrated resin sheet (resin cover and water proof film) to make the door into a speaker box, thus improving the sound quality. As an advantage of the sheet metal cover, the rigidity of the areas around the speaker has been increased, and the higher sound pressure, suppression of high harmonic, and suppression of dumping are achieved to improve sound quality.



The one-touch installable speaker (with 3 tabs, fixed by rotating) has been adopted to improve serviceability.

TSB Revision

SUBWOOFER <VEHICLES WITH Rockford Fosgate® PREMIUM SOUND SYSTEM>



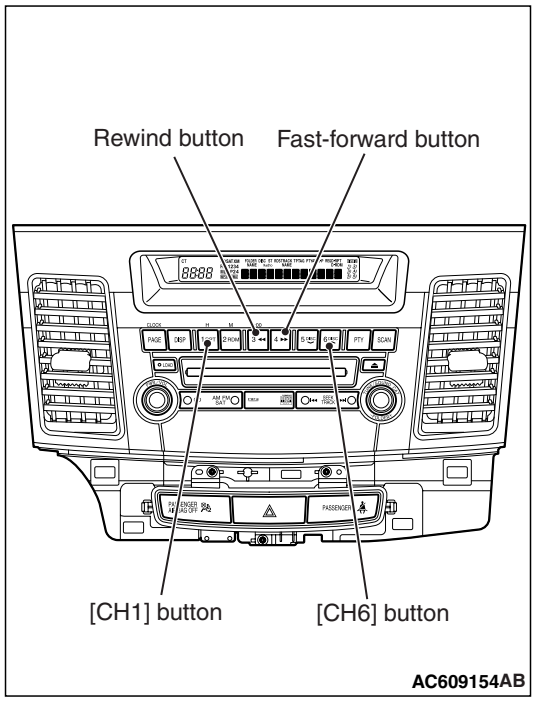
The 25 cm dual voice coil subwoofer has been installed to the trunk room, enabling the playback of dynamic deep bass.

ON-VEHICLE SERVICE

SPEAKER TEST

M1544100500049

HOW TO START SPEAKER CHECK MODE



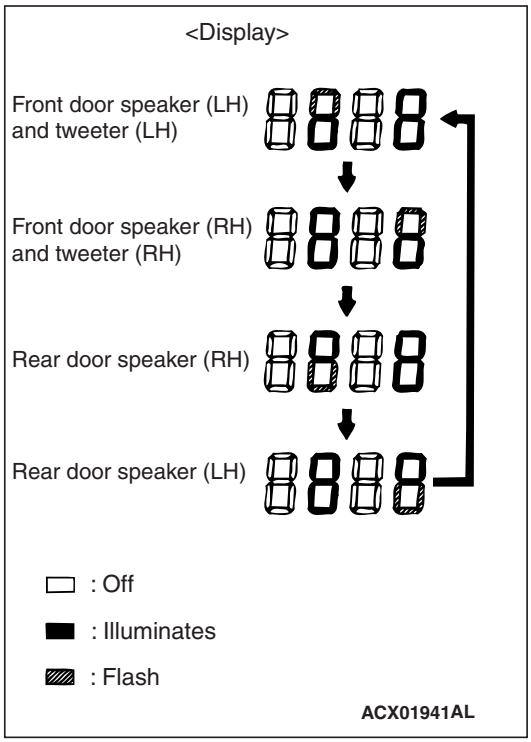
With the ignition switch at the ACC position and the audio power OFF, press the button in the following order.

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

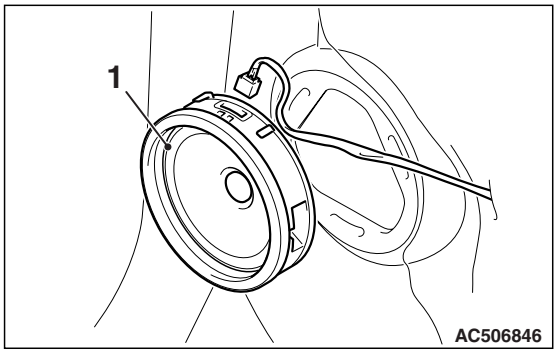
Inserting a CD during the speaker connection check mode shifts the mode to the chattering check mode, and the chattering sound of each speaker can be checked.
As with the speaker connection check mode, press the [CH6] button to switch the output speaker of the chattering check sound.
Check that the chattering sound is output from the output speaker of chattering check sound.

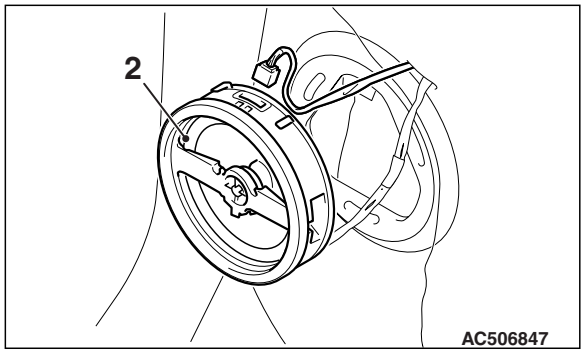
REMOVAL AND INSTALLATION

M1544100300119

DOOR SPEAKER

Pre-removal Operation
Learning of the power window fully closed position (Refer to GROUP 42A –Door, On-vehicle service P.42A-144).





AC507216 AB

Front Door Speaker Removal Steps

- Front door trim (Refer to GROUP 52A –Door Trim P.52A-13).

<<A>> 1. Front door speaker

Rear Door Speaker Removal Steps

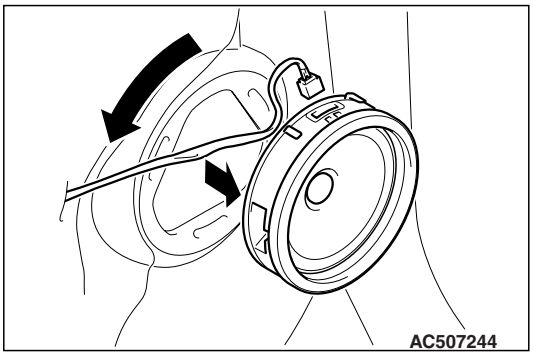
- Rear door trim (Refer to GROUP 52A –Door Trim P.52A-13).

<<A>> 2. Rear door speaker

REMOVAL SERVICE POINT

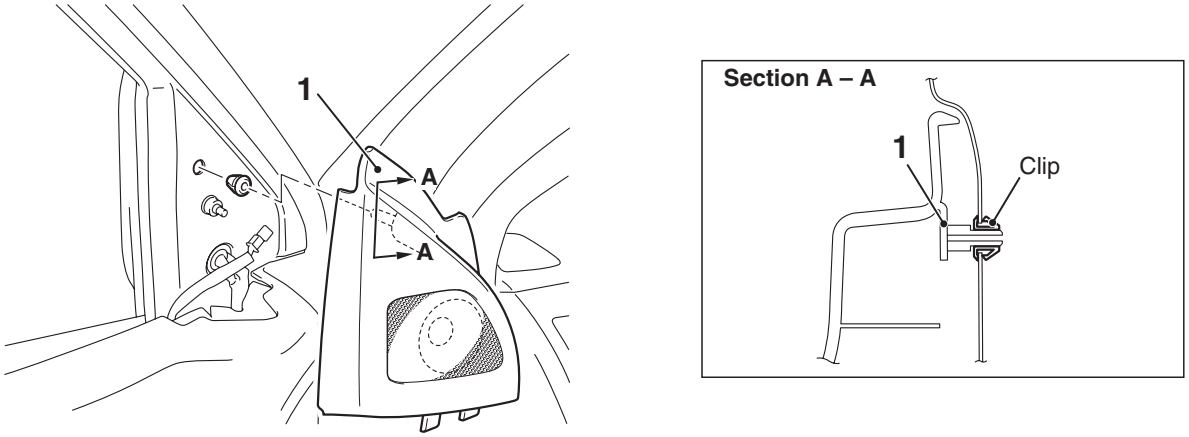
<<A>> REMOVAL OF FRONT DOOR SPEAKER AND REAR DOOR SPEAKER

Disconnect the connector, and remove by twisting as shown in the figure.

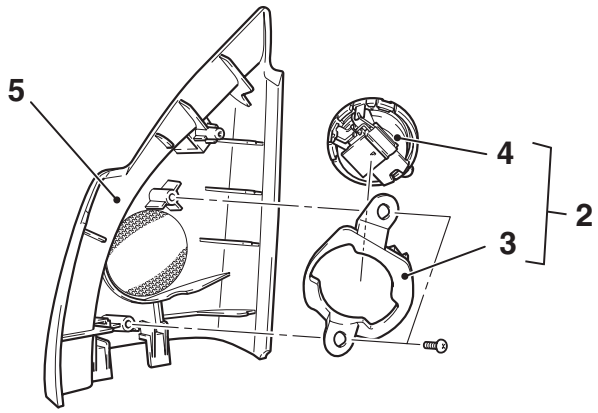


TSB Revision

TWEETER



AC608780AB



AC608782AB

Removal Steps

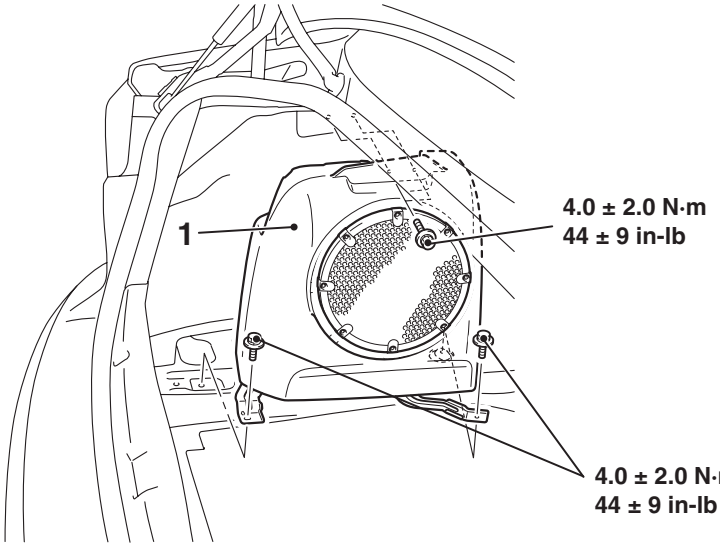
1. Front door sash trim assembly
2. Tweeter bracket and Tweeter
3. Tweeter bracket

Removal Steps (Continued)

4. Tweeter
5. Front door sash trim

TSB Revision

SUBWOOFER



AC608803AB

Removal Steps

1. Rear speaker box assembly
2. Rear speaker garnish

Removal Steps (Continued)

3. Rear speaker
4. Rear speaker box

TSB Revision

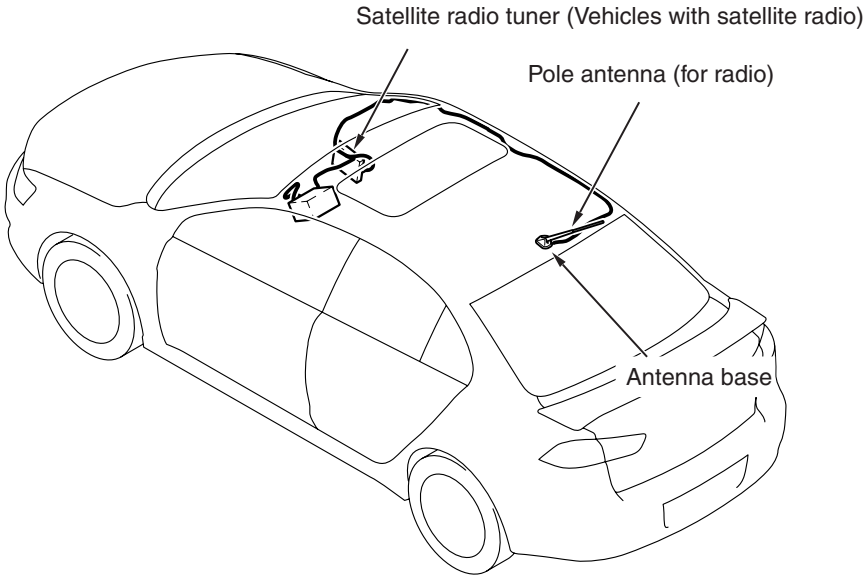
ANTENNA

GENERAL INFORMATION

M1544200500013

The pole antenna has been adopted for the radio. The antenna base incorporates the radio amplifier. When the satellite radio tuner is installed, the antenna base that also corresponds to the satellite radio is installed.

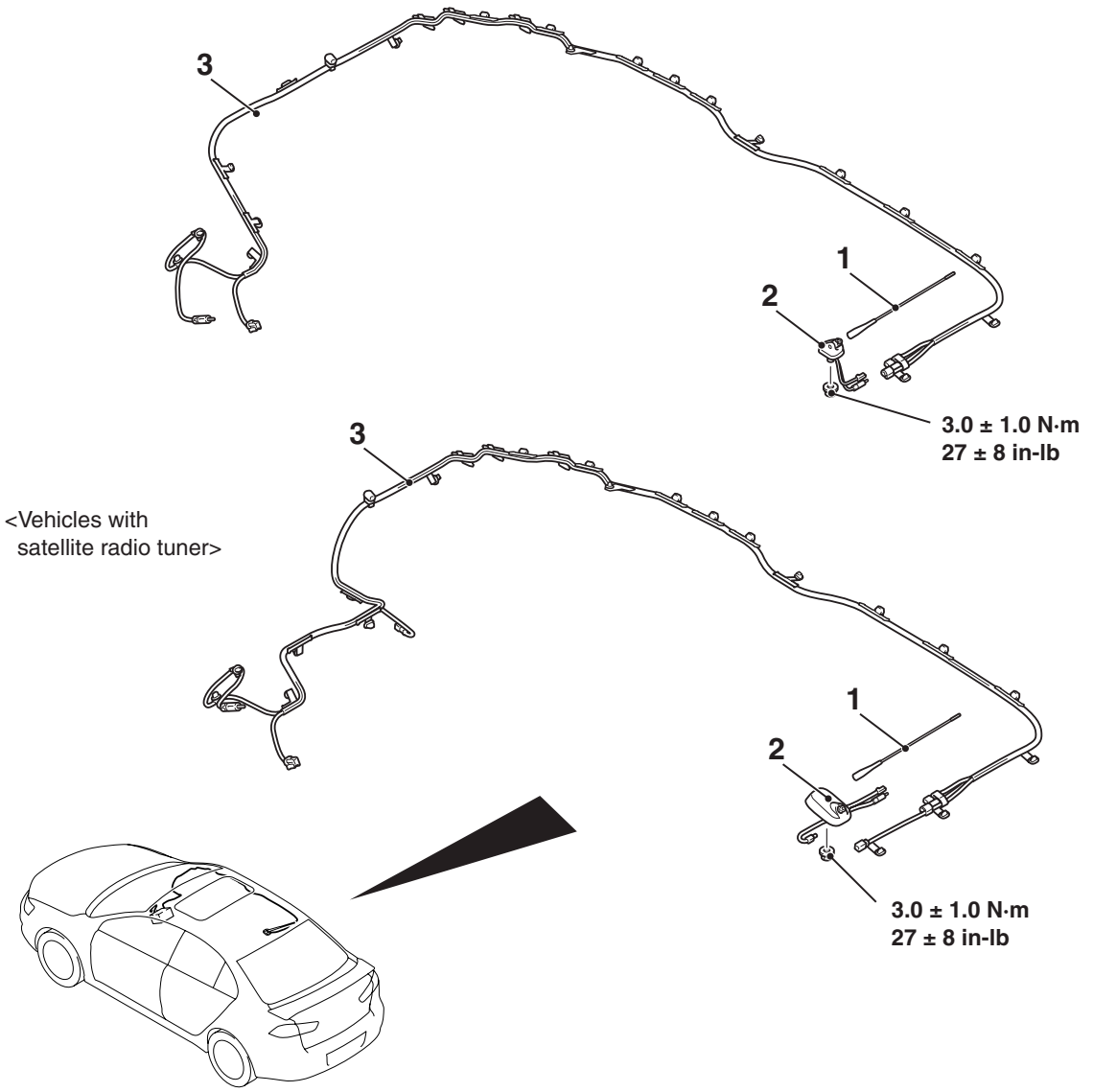
CONSTRUCTION DIAGRAM



AC608360AB

REMOVAL AND INSTALLATION

M1544200200120



AC608844AB

Removal Steps

1. Antenna rod
   - Headlining (Refer to GROUP 52A – Headlining P.52A-15).
2. Antenna base
   - Audio unit (Refer to P.54A-307). <Vehicles with Audio unit>
   - Audio visual navigation unit assembly (Refer to P.54A-307). <Vehicles with MMCS>

<<**A**>>

Removal Steps (Continued)

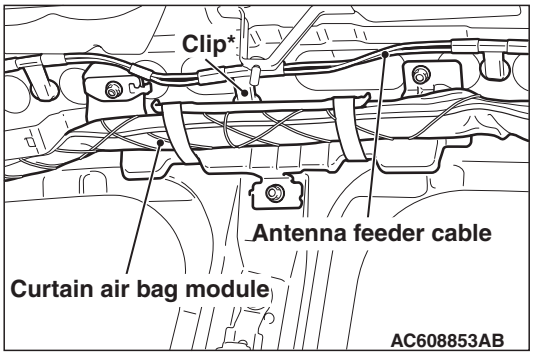
- Grove box cover (Refer to GROUP 52A –Grove box P.52A-5).
- Rear side roof energy absorption box (RH) <Vehicle with sunroof>(Refer to GROUP 52A – Headlining P.52A-15).

3. Antenna feeder

TSB Revision

REMOVAL SERVICE POINT

<<A>> REMOVAL OF ANTENNA FEEDER



Remove a part of the curtain airbag module, and remove the clip* of antenna feeder. <Vehicles with sun roof>

SATELLITE RADIO TUNER

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1544016500018

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

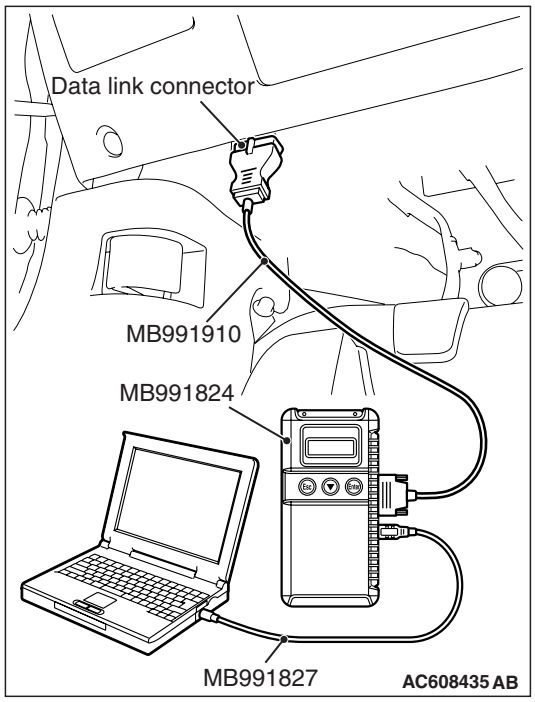
DIAGNOSIS FUNCTION

M1544013200052

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

Required Special Tools:

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



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

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

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

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

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

HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

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

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

DIAGNOSTIC TROUBLE CODE CHART

M1544012900058

Diagnostic trouble code number	Trouble content	Reference page
B2222	Radio receiver internal fail	P.54A-452
U0019	Bus off (CAN-B)	P.54A-454
U0141	ETACS CAN timeout	P.54A-455
U0151	SRS-ECU CAN timeout	P.54A-457
U0154	Occupant classification-ECU CAN timeout	P.54A-458
U0155	Combination meter CAN timeout	P.54A-460
U0164	A/C-ECU CAN timeout	P.54A-461
U0168	WCM or KOS-ECU CAN timeout	P.54A-463
U0184	Audio CAN timeout	P.54A-465
U0197	Hands free module CAN timeout	P.54A-466

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B2222: Radio receiver internal fail

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

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

TROUBLE JUDGMENT

When the ignition switch is ON and the system voltage is from 10 V to 16 V (data from ETACS-ECU), if the satellite radio tuner receives abnormal status by signal conditioning 10 times consecutively, DTC B2222 is stored.

COMMENTS ON TROUBLE SYMPTOM

The satellite radio tuner or CAN bus line may have a problem.

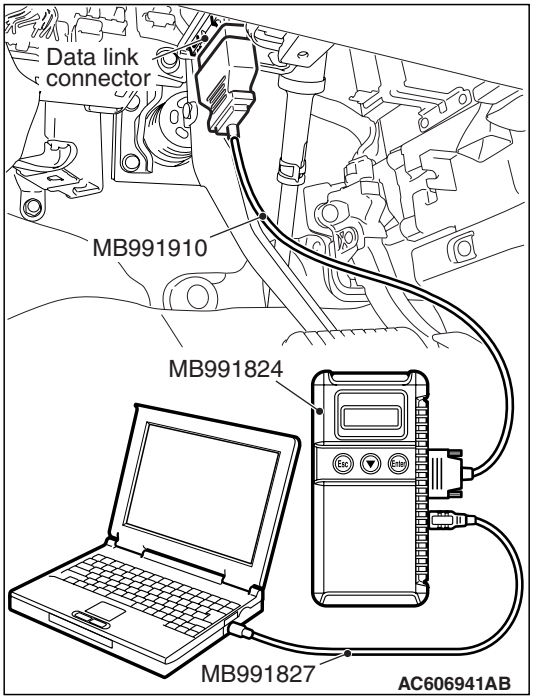
PROBABLE CAUSES

- Malfunctions of satellite radio tuner
- Malfunction of CAN bus line wiring harness and connector

DIAGNOSIS

Required Special Tools:

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



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

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

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

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

Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16.) On completion, go to Step 2.

STEP 2. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.
(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 satellite radio tuner.
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.00-13).

DTC U0019: Bus off (CAN-B)

⚠ CAUTION
If DTC U0019 is set, be sure to diagnose the CAN bus line.

⚠ CAUTION
When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

If the CAN-B circuit malfunction occurs, the satellite radio tuner sets DTC U0019.

JUDGMENT CRITERIA

With the ignition switch at the ON position and the system voltage at 10 –16 volts (data from ETACS-ECU), if the Satellite radio tuner becomes unable to transmit data normally due to the CAN-B bus circuit malfunction, the satellite radio tuner determines that a problem has occurred.

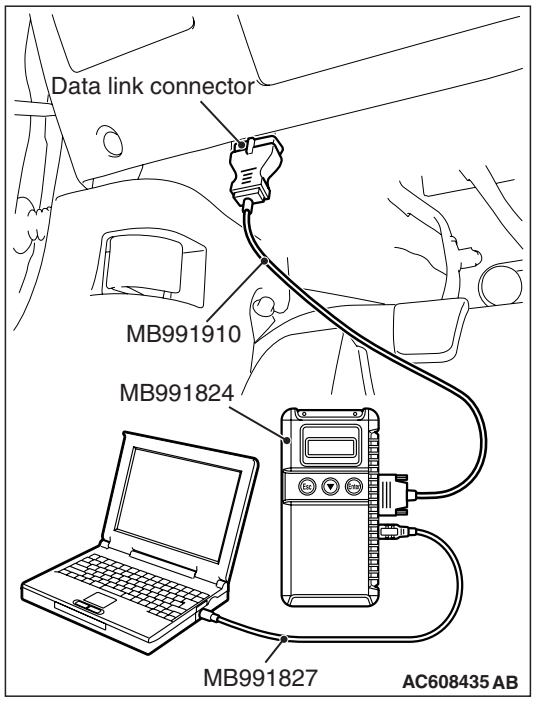
TROUBLESHOOTING HINTS

The satellite radio tuner may be defective

DIAGNOSIS

Required Special Tools:

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



STEP 1. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Go to Step 2.
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.00-13).

STEP 2. Using scan tool MB991958, diagnose the CAN bus line.
(1) Turn the ignition switch to the "ON" position.
(2) Diagnose the CAN bus line.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be 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.00-13).

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

DTC U0141: ETACS CAN timeout

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

⚠ CAUTION
When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

If the signal from ETACS-ECU cannot be received, the satellite radio tuner sets the DTC U0141.

JUDGMENT CRITERIA

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

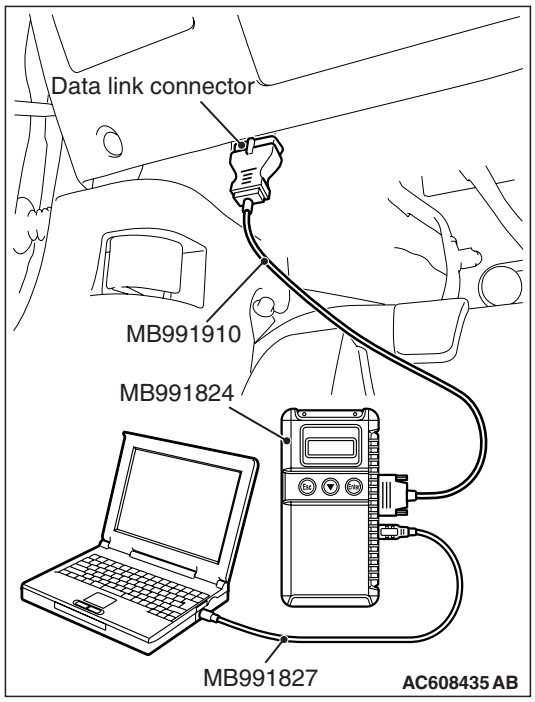
TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The satellite radio tuner may be defective
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

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

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to P.54A-482).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0151: SRS-ECU CAN timeout

⚠ CAUTION

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

DIAGNOSTIC FUNCTION

If the signal from SRS-ECU cannot be received, the satellite radio tuner sets DTC U0151.

JUDGMENT CRITERIA

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

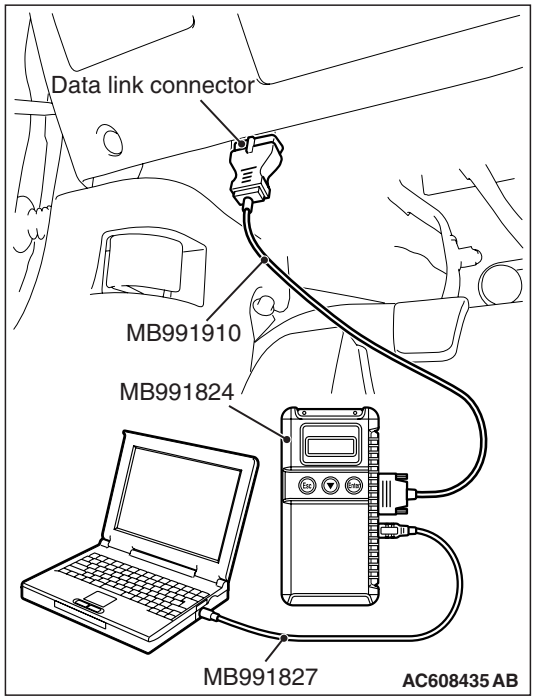
TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The satellite radio tuner may be defective
- The SRS-ECU may be defective

DIAGNOSIS

Required Special Tools:

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Troubleshooting P.52B-31).

NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

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

Q: Is the DTC set?

YES : Replace the satellite radio tuner.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0154: Occupant classification-ECU CAN timeout

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

⚠ CAUTION
When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

When the signals from occupant classification-ECU cannot be received, the satellite radio tuner sets DTC U0154.

JUDGMENT CRITERIA

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

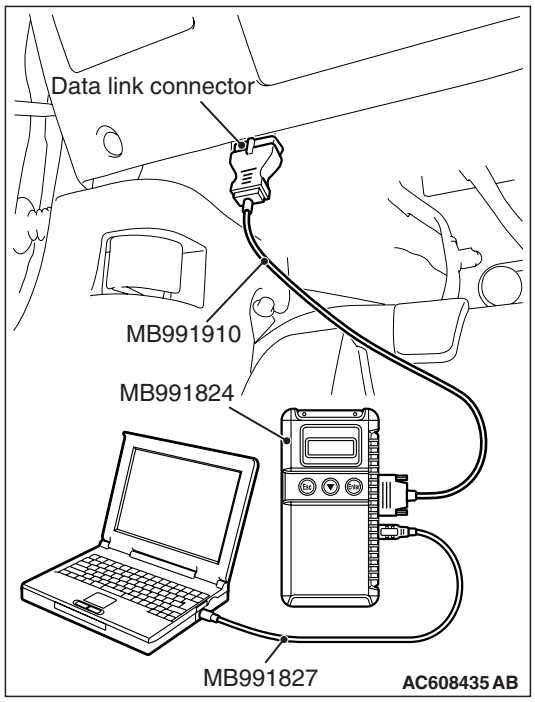
TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The satellite radio tuner may be defective.
- The occupant classification-ECU may be defective.

DIAGNOSIS

Required Special Tools:

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

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

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Diagnosis P.52B-280).
NO : Go to Step 3.

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

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

TSB Revision

DTC U0155: Combination meter CAN timeout

⚠ CAUTION
If DTC U0155 is set in the satellite radio tuner, diagnose the CAN main bus line.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the communication circuit is normal.

DIAGNOSTIC FUNCTION
When the signals from combination meter cannot be received, the satellite radio tuner sets DTC U0155.

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

TROUBLESHOOTING HINTS
- The CAN bus line may be defective.
- The satellite radio tuner may be defective.
- The combination meter may be defective.

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

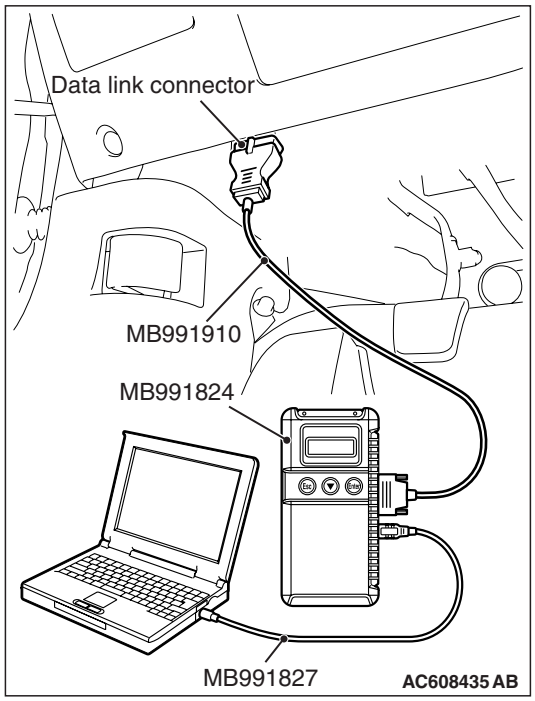
STEP 1. Using scan tool MB991958, diagnose the CAN bus line

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16).



STEP 2. Using scan tool MB991958 read the combination meter diagnostic trouble code.

Check whether a combination meter DTCs are set or not.
(1) Turn the ignition switch to the "ON" position.
(2) Check for combination meter DTCs.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Go to Step 3.
NO : Diagnose the combination meter (Refer to combination meter, Diagnosis P.54A-23).

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0164: A/C-ECU CAN timeout

⚠ CAUTION

- **If DTC U0164 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

If the signal from A/C-ECU cannot be received, the satellite radio tuner sets DTC U0164.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10–16 volts (data from ETACS-ECU), power supply fuse is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with A/C-ECU cannot be established for 2,500 ms or more, the satellite radio tuner determines that a problem has occurred.

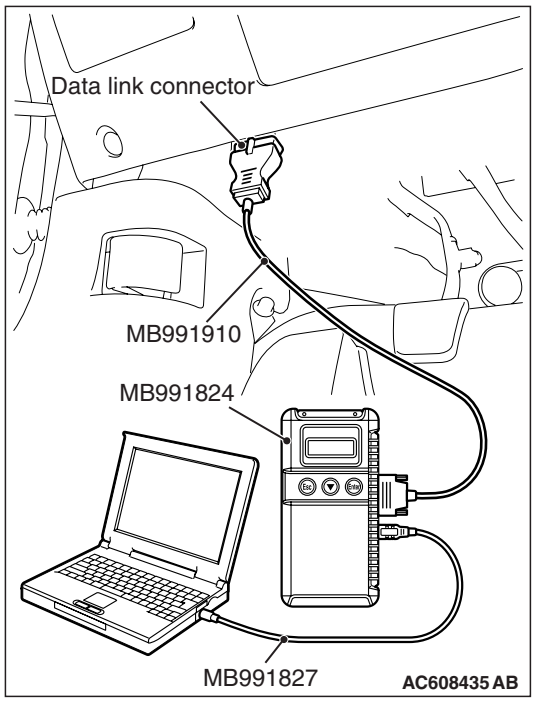
TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The A/C-ECU may be defective.
- The satellite radio tuner may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-328."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 2. Using scan tool MB991958, read the A/C diagnostic trouble code.
Check if DTC is set to the A/C-ECU.

Q: Is the DTC set?

YES : Troubleshoot the A/C (Refer to GROUP 55A, Manual A/C Diagnosis P.55A-8 <vehicles with manual A/C> or GROUP 55B, Automatic A/C Diagnosis P.55B-7 <vehicles with automatic A/C>).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0168: KOS-ECU or WCM CAN timeout

⚠ CAUTION

- **If DTC U0168 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

If the signal from KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> cannot be received, the satellite radio tuner sets DTC U0168.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10 –16 V (data from ETACS-ECU), power supply fuse is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> cannot be established for 2,500 ms or more, the satellite radio tuner determines that a problem has occurred.

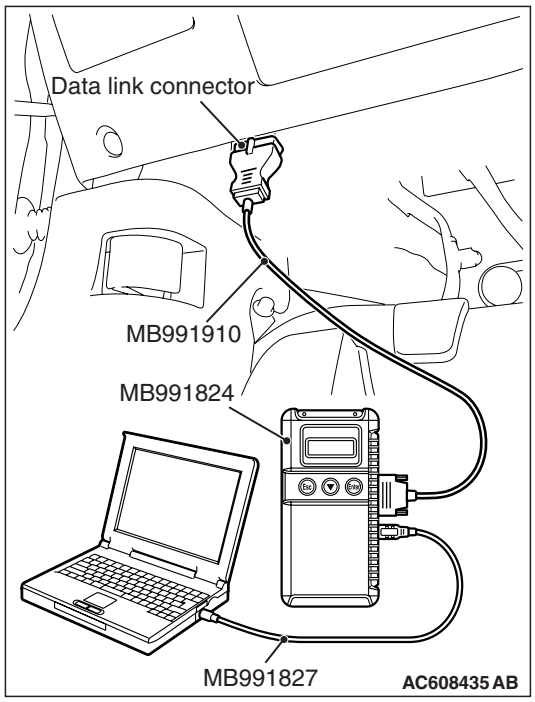
TROUBLESHOOTING HINTS

- Malfunction of CAN bus line may be defective.
- Malfunction of the KOS-ECU may be defective. <vehicles with KOS>
- Malfunction of the WCM may be defective. <vehicles with WCM>
- Malfunction of satellite radio tuner may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-20."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 2. Using scan tool MB991958, read the KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> diagnostic trouble code.

Check again if the DTC is set to the KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM>.

Q: Is the DTC set?

YES : Troubleshoot the KOS or WCM (Refer to GROUP 42B, Diagnosis P.42B-20 <KOS> or GROUP 42C, Diagnosis P.42C-14 <WCM>).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

TSB Revision

DTC U0184: Audio CAN timeout

⚠ CAUTION
- **If DTC U0184 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT
If the signal from radio and CD player or CD changer cannot be received, the satellite radio tuner sets DTC U0184.

JUDGMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the radio and CD player or CD changer cannot be established for 0.6 second or more, the satellite radio tuner determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse, or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The radio and CD player or CD changer may be defective.
- The satellite radio tuner may be defective.
- The CAN bus may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

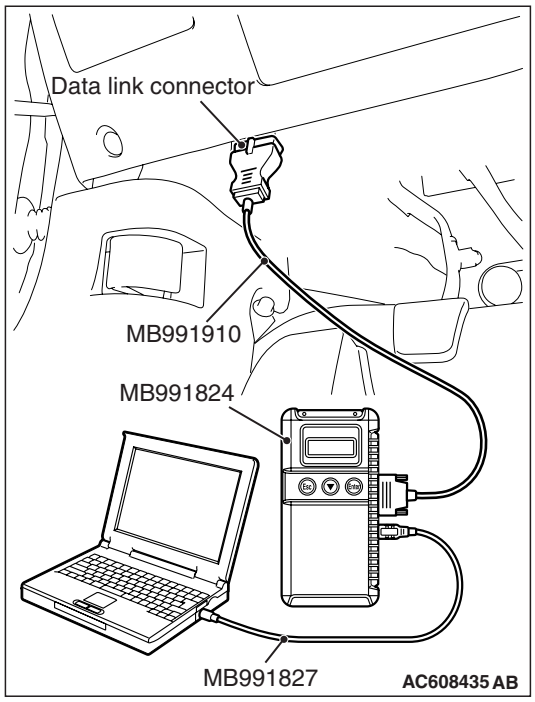
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



TSB Revision

STEP 2. Using scan tool MB991958, read the audio diagnostic trouble code.
Check if DTC is set to the audio.

Q: Is the DTC set?

YES : Troubleshoot the audio (Refer to P.54A-239).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0197: Hands free module CAN timeout

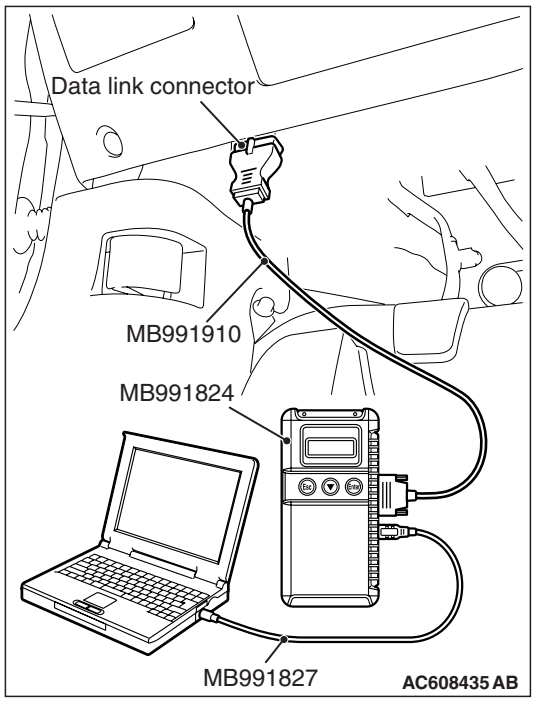
⚠ CAUTION
- **If DTC U0197 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION
When the signals from hands free module cannot be received, the satellite radio tuner sets DTC U0197.

JUDGMENT CRITERIA
With the ignition switch in the ON position, system voltage between 10 –16 volts (data from ETACS-ECU), power supply fuse is OK, or odometer value is 80.5 km (50 miles) or more, and the communications with hands free module cannot be established for 2,500 ms or more, the satellite radio tuner determines that a problem has occurred.

TROUBLESHOOTING HINTS
- The CAN bus line may be defective.
- The satellite radio tuner may be defective.
- The hands free module may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 2. Using scan tool MB991958, read the hands free module diagnostic trouble code.

Check again if the DTC is set to the hands free module.

Q: Is the DTC set?

YES : Troubleshoot the hands-free cellular phone system.
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

TROUBLE SYMPTOM CHART

M1544016400011

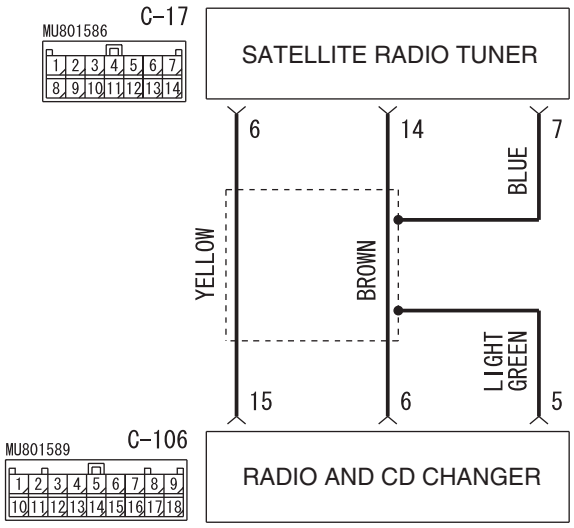
Inspection Procedure No.	Trouble symptom	Reference page
1	A satellite radio cannot be received.	P.54A-468
2	Check the satellite radio tuner power supply circuit.	P.54A-472

SYMPTOM PROCEDURES

Inspection Procedure 1: A satellite radio cannot be received.

⚠ CAUTION
Before replacing the satellite radio tuner, antenna feeder cable, 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.

Satellite Radio Tuner Communication Circuit <Vehicles with Radio and CD Changer>



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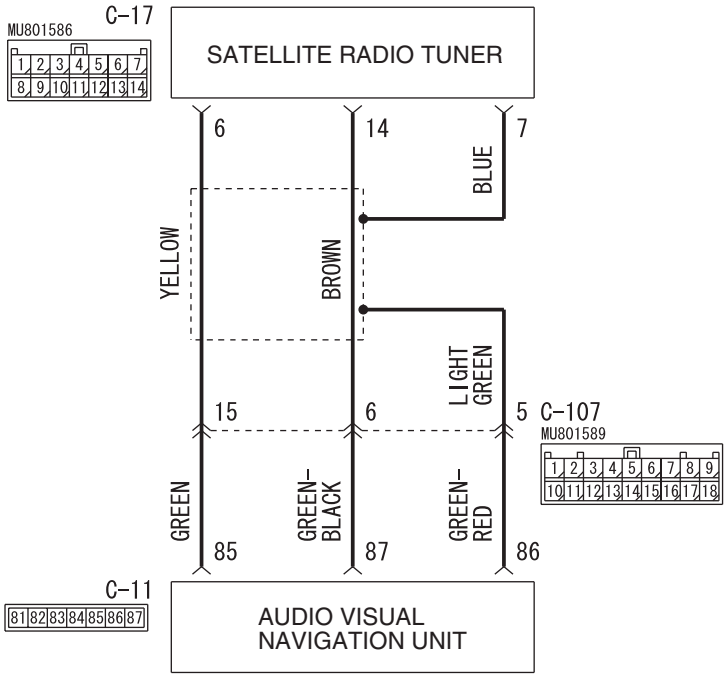
TSB Revision

Satellite Radio Tuner Communication Circuit <Vehicles with MMCS>



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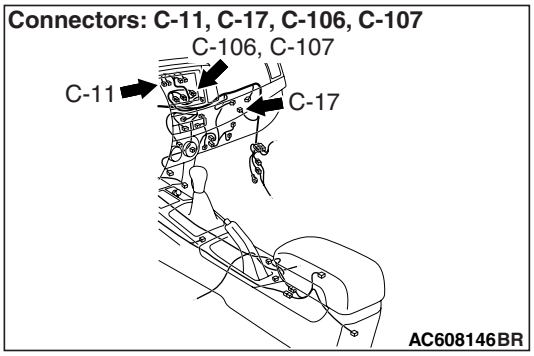
Connectors: C-11, C-17, C-106, C-107



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

TSB Revision

STEP 1. 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.

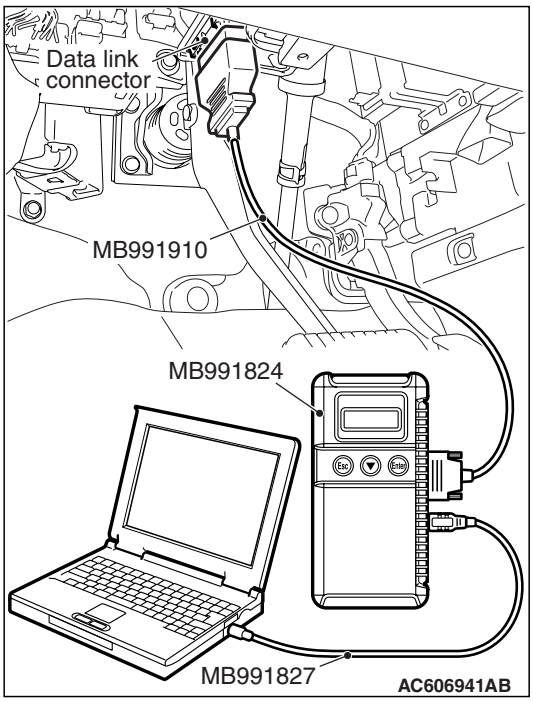
NO : Diagnose the radio <vehicles with radio and CD changer> or the audio visual navigation unit <vehicles with MMCS> (Refer to P.54A-267 <vehicles with radio and CD changer> or P.54A-350 <vehicles with MMCS>).

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 to the data link connector.
(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 54C, Diagnosis P.54C-16).

STEP 3. Check satellite radio tuner connector C-17 and radio and CD changer connector C-106 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is satellite radio tuner connector C-17 or radio and CD changer connector C-106 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.

TSB Revision

STEP 4. Check the wiring harness between satellite radio tuner connector C-17 (terminal 6, 7, 14) and radio and CD changer connector C-106 (terminal 15, 5, 16).

- Check the communication lines for open circuit.

Q: Is the wiring harness between satellite radio tuner connector C-17 (terminal 6, 7, 14) and radio and CD changer connector C-106 (terminal 15, 5, 16) 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-17 and audio visual navigation unit connector C-11 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is satellite radio tuner connector C-17 or audio visual navigation unit connector C-11 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-17 (terminal 6, 7, 14) and audio visual navigation unit connector C-11 (terminal 85, 86, 87).

- Check the communication lines for open circuit.

NOTE: Also check intermediate connector C-107 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-107 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between satellite radio tuner connector C-17 (terminal 6, 7, 14) and audio visual navigation unit connector C-11 (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.

STEP 8. Substitute a known good audio visual navigation unit, and check the trouble symptom.

Check whether satellite radio broadcast can be received.

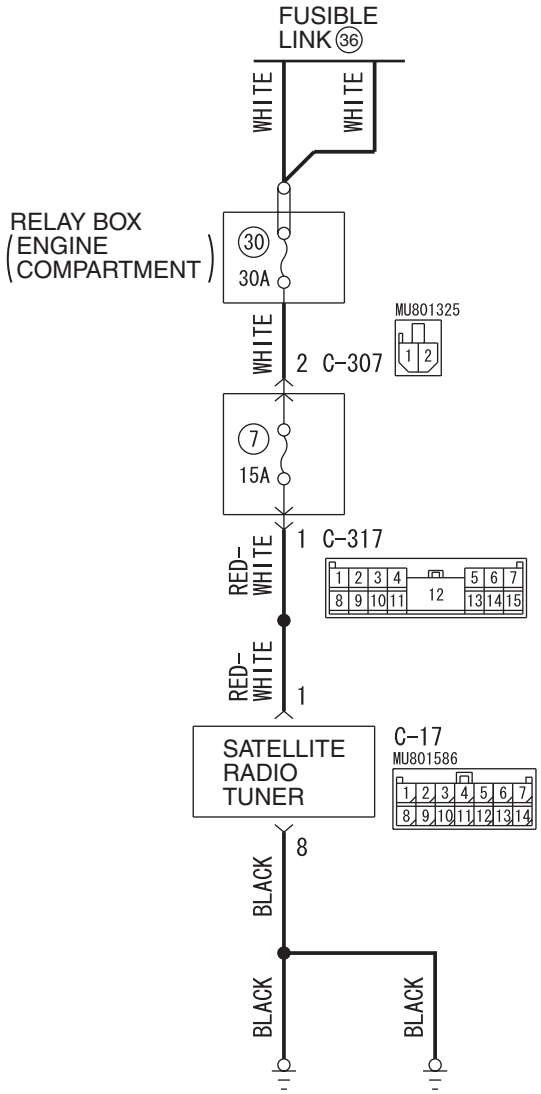
Q: Can a satellite radio be received?

YES : Replace the audio visual navigation unit.

NO : Replace the satellite radio tuner.

Inspection Procedure 2: Check the satellite radio tuner power supply circuit.

Satellite Radio Tuner Power Supply Circuit



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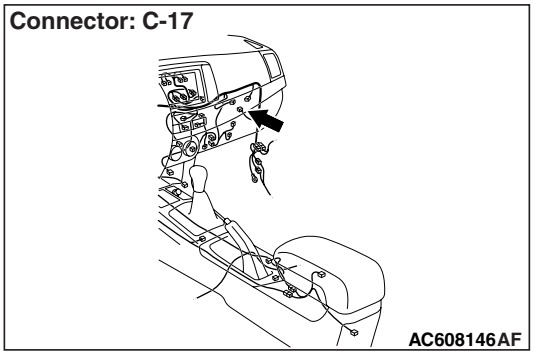
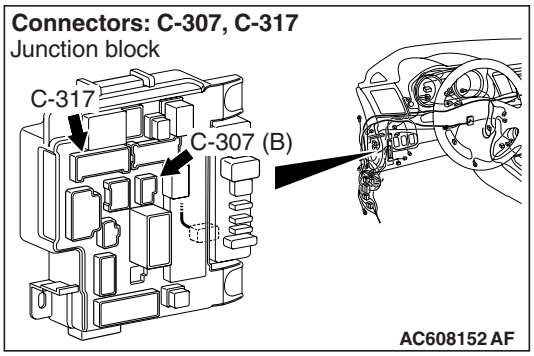
TSB Revision





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

DIAGNOSIS

Required Special Tools:

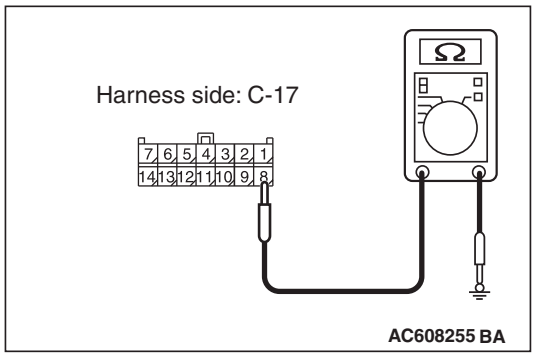
- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check satellite radio tuner connectors C-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is satellite radio tuner connectors C-17 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-17.

(1) Disconnect satellite radio tuner connector C-17 and measure the resistance available at the wiring harness side of the connector.
(2) Measure the resistance value between satellite radio tuner connector C-17 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-17 (terminal 8) and ground.

Q: Is the wiring harness between satellite radio tuner connector C-17 (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-17 (terminal 1) and fusible link (36).

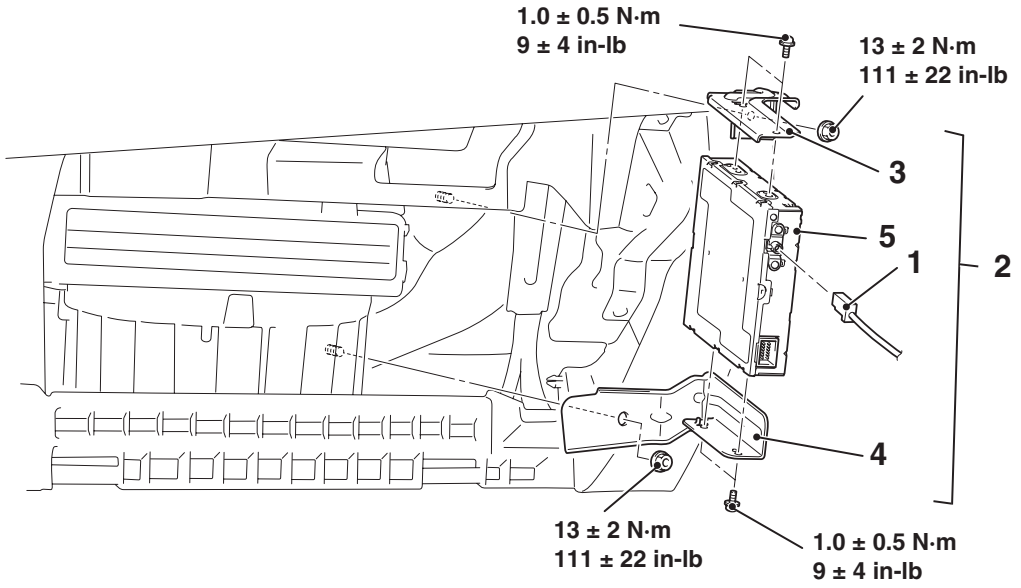
NOTE: Also check ETACS-ECU connectors C-307 and C-317 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If ETACS-ECU connector C-307 or C-317 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection *P.00E-2.*

Q: Is the wiring harness between satellite radio tuner connector C-17 (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.

REMOVAL AND INSTALLATION

M1544016100010



Removal Steps

- Bottom cover (passenger side) (Refer to GROUP 52A –Grove box P.52A-5).
- Grove box (Refer to GROUP 52A – Grove box P.52A-5).

Removal Steps (Continued)

1. Satellite radio tuner connector
2. Satellite radio tuner assembly
3. Satellite radio tuner bracket (upper)
4. Satellite radio tuner bracket (lower)
5. Satellite radio tuner

TSB Revision

DEFOGGER

TROUBLESHOOTING

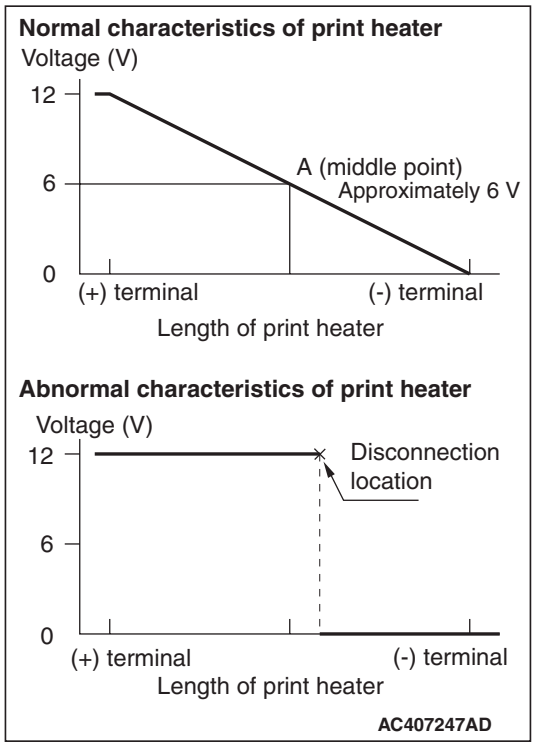
M1540500200152

Refer to GROUP 55 –Troubleshooting P.55B-12.

ON-VEHICLE SERVICE

PRINTED HEATER CHECK

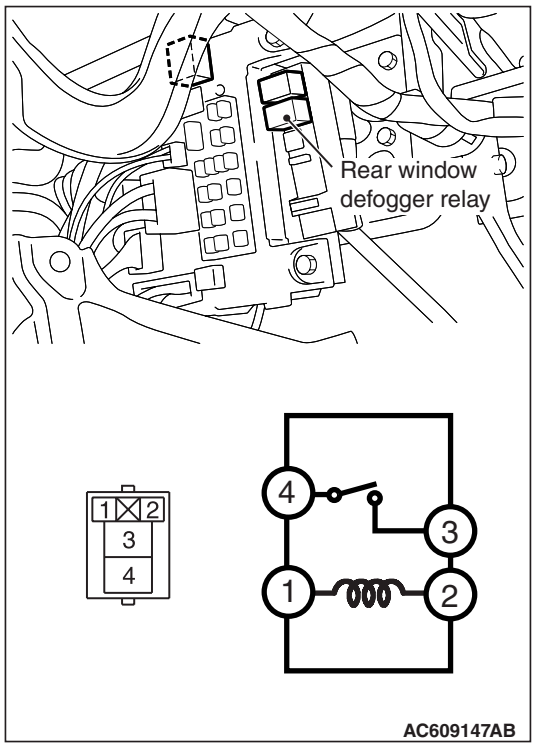
M1540500500131



1. Let the engine run (2,000 r/min), and check the printed heater with the battery fully charged.
2. With the rear window defogger switch "ON," use the circuit tester to measure the voltage of each printed heater at the rear window glass center A point. If approximately 6 V is indicated, it is judged good.
3. If the voltage of 12 V is indicated at the A point, there is an open circuit between the A point and negative terminal. Therefore, by moving the test bar slowly to the negative side, search and determine the location where the voltage changes suddenly (0 V). The location of voltage change indicates the open circuit position.
4. Also, if the voltage indicates 0 V at the A point, there is an open circuit between the A point and positive terminal. Therefore, search and determine the location of voltage change (12 V) using the above mentioned method.

REAR WINDOW DEFOGGER RELAY CHECK

M1540500600149



Battery voltage	Terminal number	Normal condition
At no energization	3 –4	No continuity
With current supply [terminal 1 (+), terminal 2 (–)]		Continuity exists (2 ohms or less)

DEFOGGER SWITCH

REMOVAL AND INSTALLATION

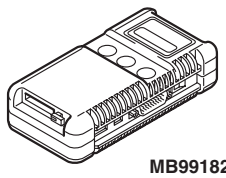
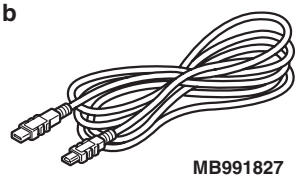
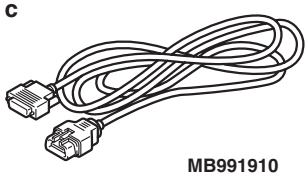
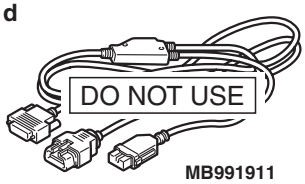
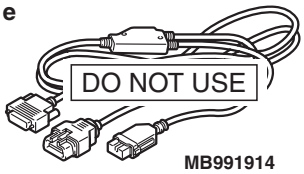
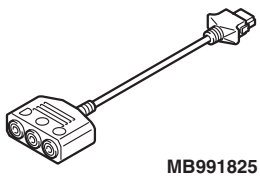
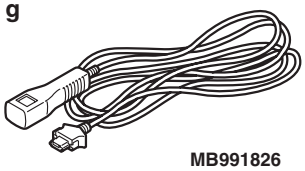
M1540600200148

Refer to GROUP 55 –Heater control unit P.55A-118.

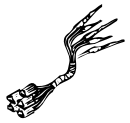
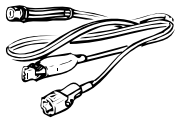
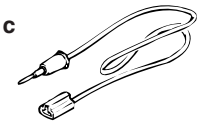
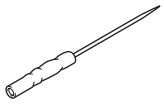
ETACS

SPECIAL TOOL

M1545000600105

Tool	Tool number and name	Supersession	Application
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991914 f  MB991825 g  MB991826 MB991958	MB991958 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826 M.U.T.-III sub-assembly a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable c. M.U.T.-III main harness A (Vehicles with CAN communication system) d. M.U.T.-III main harness B (Vehicles without CAN communication system) e. M.U.T.-III main harness C (for Daimler Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness	MB991824-KIT *NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.*	**⚠ CAUTION** **M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.** ETACS-ECU check (Diagnostic trouble code, service data)

TSB Revision

Tool	Tool number and name	Supersession	Application
a  b  c  d  MB991223	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	–	Making voltage and resistance measurement during troubleshooting

TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1545000900076

Refer to GROUP 00, Contents of troubleshooting P.00-6.

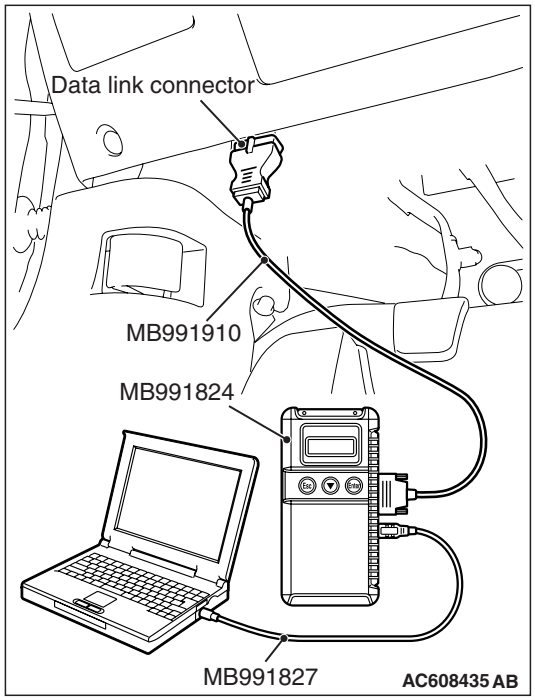
DIAGNOSTIC FUNCTION

M1545001000087

HOW TO CONNECT THE SCAN TOOL (M.U.T.-III)

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)



⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to special tool MB991824.
5. Connect special tool MB991910 to the data link connector.
6. Turn the power switch of special tool MB991824 to the "ON" position.

   NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.
7. Start the M.U.T.-III system on the personal computer.

NOTE: Disconnecting scan tool MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: 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)

NOTE: If the battery voltage is low, diagnostic trouble codes will not be set. Check the battery if scan tool MB991958 does not display.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "System select" from the start-up screen.
4. Select "From 2006 MY" of "Model Year." When the "Vehicle Information" is displayed, check the contents.
5. Select "ETACS" from "System List", and press the "OK" button.

   NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.
6. Select "Diagnostic Trouble Code."
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)

- MB991824: 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)

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "CAN bus diagnosis" from the start-up screen.
4. When the vehicle information is displayed, confirm that it matches the vehicle being diagnosed.
   - If they match, go to step 8.
   - If not, go to step 5.
5. Select the "view vehicle information" button.
6. Enter the vehicle information and select the "OK" button.
7. When the vehicle information is displayed, confirm again that it matches the vehicle being diagnosed.
   - If they match, go to step 8.
   - If not, go to step 5.
8. Select the "OK" button.
9. When the optional equipment screen is displayed, choose the one which the vehicle is fitted with, and then select the "OK" button.

CHECK OF FREEZE FRAME DATA

The freeze frame data can be checked by using the scan tool (GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

When detecting fault and storing the DTC, the ECU connected to CAN bus line obtains the data before the determination of the DTC and the data when the DTC is determined, and then stores the ECU status of that time. By analyzing the data from scan tool, the troubleshooting can be performed more efficiently. The displayed items are as shown in the table below.

Display item list

Item No.	Item name	Data item	Unit
01	Odometer	Total driving distance after the diagnostic trouble code is generated	km*1
02	Ignition cycle	Number of times the ignition switch is turned "ON" or "LOCK (OFF)" after the past failure transition	Number of counts is displayed.
03	Elapsed time after failure	Total elapsed time after a diagnostic trouble code is generated	min*2
04	Current trouble accumulative time	Cumulative time for current malfunction of diagnostic trouble code	min

NOTE:

- **1: If a failure occurs to both the ABS-ECU and ETACS-ECU, 0000 km or FFFF km is displayed to the scan tool MB991958.*
- **2: Total elapsed time can be stored up to 65,534 minutes (45.5 days). The display of scan tool is fixed to 65,534 minutes after 65,534 minutes have elapsed. Or, if the battery is disconnected, the total elapsed time cannot be measured properly. Thus, 65,535 minutes (null value) is displayed. Because it is calculated based on the ETACS-ECU information, the correct display may not be shown if the ETACS-ECU has had a time-out.*

DIAGNOSTIC TROUBLE CODE CHART

M1545001100211

Diagnostic trouble code number	Trouble content	Reference page
U0001	Bus off (CAN-C)	P.54A-483
U0019	Bus off (CAN-B)	
U0100	Engine control module CAN timeout	P.54A-485
U0101	CVT-ECU CAN timeout	P.54A-487
U0121	ABS-ECU CAN timeout	P.54A-489
U0151	SRS-ECU CAN timeout	P.54A-491
U0154	Occupant classification-ECU CAN timeout	P.54A-493
U0155	Combination meter CAN timeout	P.54A-495
U0164	A/C-ECU CAN timeout	P.54A-497
U0168	WCM or KOS-ECU CAN timeout	P.54A-499
U0184	Audio CAN timeout	P.54A-501
U0195	Satellite radio tuner CAN timeout	P.54A-503
U0197	Hands free module CAN timeout	P.54A-505
U0245	Audio visual navigation unit CAN timeout	P.54A-507
U1108	Excess CAN-B ECU detection	P.54A-509
U1120	Bus line (CAN-C) low input	P.54A-510
U1121	Bus line (CAN-C) high input	
U0169	Sunroof-ECU timeout	Refer to GROUP 54B, Diagnosis P.54B-5.
U0215	Power window main switch timeout	
U1109	Column switch timeout	
U150B	Column switch checksum error	
U150C	Power window main switch checksum error	
U1511	Sunroof-ECU checksum error	
U1514	Bit error (LIN)	
U1515	Bus error (LIN)	
U0331*	ECU internal error	P.54A-512
B1034	Temperature sensor (low input)	Refer to GROUP 55A, Manual A/C Diagnosis P.55A-8.
B1035	Temperature sensor (high input)	
B16A0	Taillight (right) open circuit	P.54A-157
B16A1	Taillight (left) open circuit	
B16A2	Blown turn-signal light (left) bulb	P.54A-96
B16A3	Turn-signal light (left) short circuit	
B16A4	Blown turn-signal light (right) bulb	
B16A5	Turn-signal light (right) short circuit	
B16A6	Blown turn-signal light fuse	P.54A-218

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Diagnostic trouble code number	Trouble content	Reference page
B16A7	Taillight (right) short circuit	P.54A-157
B16A8	Taillight (left) short circuit	
B1761*	VIN not recorded	P.54A-513
B210A	+B power supply (low input)	P.54A-514
B210B	+B power supply (high input)	
B222C*	Coding incomplete	P.54A-517
B2206*	Chassis number does not match	P.54A-518
B2215*	ECU internal error	P.54A-519
B2350	Malfunction of lighting switch	P.54A-228
B2351	Malfunction of the wiper switch	
B2353	Ignition power supply (low input)	P.54A-519
B2354	Ignition power supply (high input)	

*NOTE: *: If diagnostic trouble codes No. U0331, B1761, B222C, B2206, or B2215 is set, there may be an error with the coding data stored in the ETACS-ECU.*

DIAGNOSIS TROUBLE CODE PROCEDURES

DTC U0001: Bus off (CAN-C)
DTC U0019: Bus off (CAN-B)

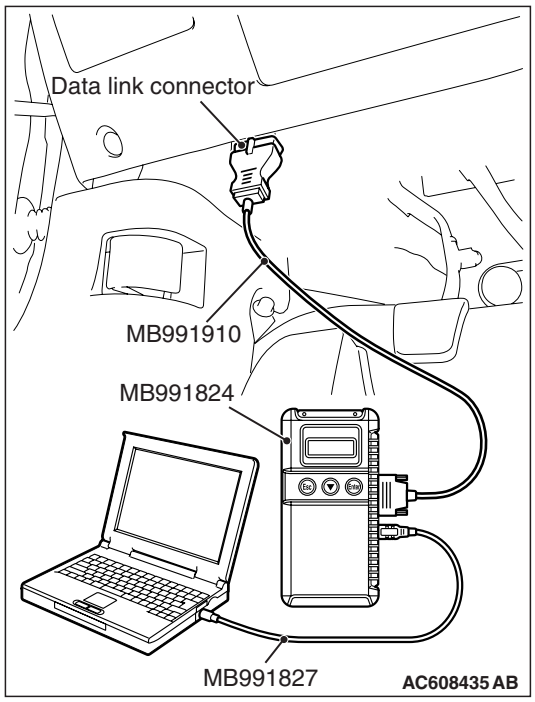
⚠ CAUTION
- **If DTC U0001 or U0019 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGEMENT
When the ETACS-ECU is returned from the bus off state, or when the bus off error is indicated to the ETACS-ECU state, the DTC U0001 (CAN-C) or U0019 (CAN-B) is stored.

TECHNICAL DESCRIPTION (COMMENT)
The ETACS-ECU may have a malfunction, or the ETACS-ECU power supply or earth circuit may have a problem.

TROUBLESHOOTING HINTS
- The ETACS-ECU may be defective.
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 2. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0100: Engine control module CAN timeout

⚠ CAUTION
- **If DTC U0100 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGEMENT
If the signal from engine control module cannot be received, the ETACS-ECU sets DTC U0100.

JUDGMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the engine control module cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse, or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The Engine control module may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

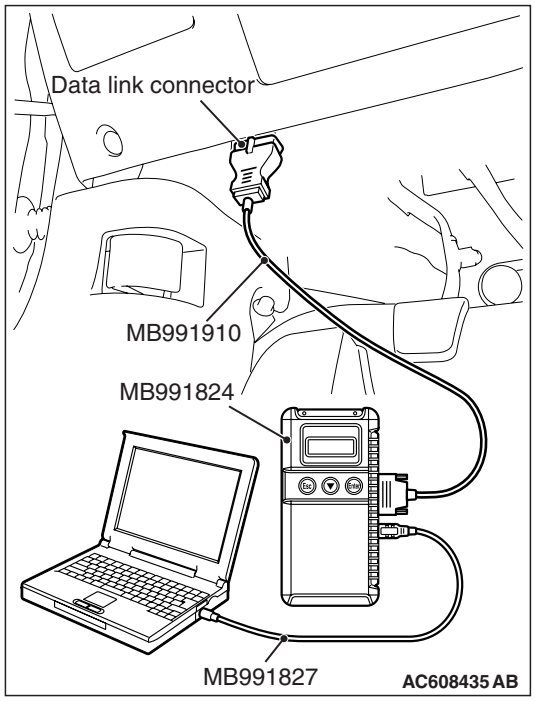
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



STEP 2. Using scan tool MB991958, read the engine control module diagnostic trouble code.
Check if DTC is set to the engine control module.

Q: Is the DTC set?

YES : Troubleshoot the engine (Refer to GROUP 13A, Diagnostic Trouble Code Chart P.13A-46).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the CVT diagnostic trouble code.
Check if DTC U0100 is set to the CVT-ECU.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the engine control module.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the engine control module and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the engine control module and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0101: CVT-ECU CAN timeout

⚠ CAUTION
- **If DTC U0101 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT
If the signal from CVT-ECU cannot be received, the ETACS-ECU sets the DTC U0101.

JUDGEMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the CVT-ECU cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse, or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The CVT-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

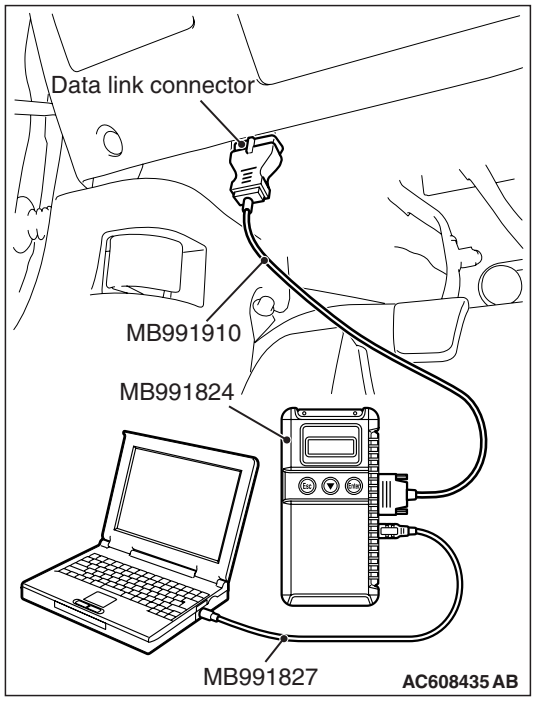
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



STEP 2. Using scan tool MB991958, read the CVT diagnostic trouble code.
Check if DTC is set to the CVT.

Q: Is the DTC set?

YES : Troubleshoot the CVT (Refer to GROUP 23A, Diagnosis P.23A-29).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the engine control module diagnostic trouble code.
Check if the DTC U0101 is set to the engine control module.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CVT-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the CVT-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the CVT-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0121: ABS-ECU CAN timeout

⚠ CAUTION
- **If DTC U0121 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT
If the signal from ABS-ECU cannot be received, the ETACS-ECU sets DTC U0121.

JUDGEMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the ABS-ECU cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse, or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The ABS-ECU may be defective.
- The ASC-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

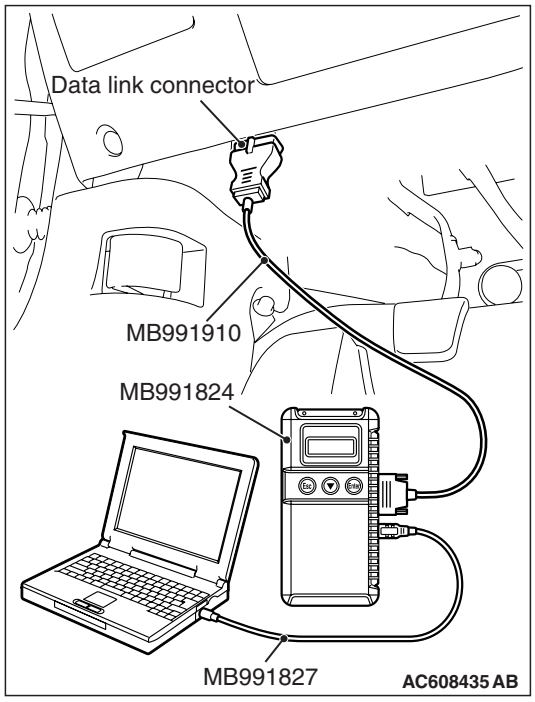
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



STEP 2. Using scan tool MB991958, read the ABS diagnostic trouble code.
Check if DTC is set to the ABS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the ABS (Refer to GROUP 35B, Diagnosis P.35B-8).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the CVT diagnostic trouble code.
Check if the DTC U0121 is set to the CVT-ECU.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ABS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ABS-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ABS-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0151: SRS-ECU CAN timeout

⚠ CAUTION
- **If DTC U0151 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGEMENT
If the signal from SRS-ECU cannot be received, the ETACS-ECU sets DTC U0151.

JUDGEMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the SRS-ECU cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse, or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The SRS-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

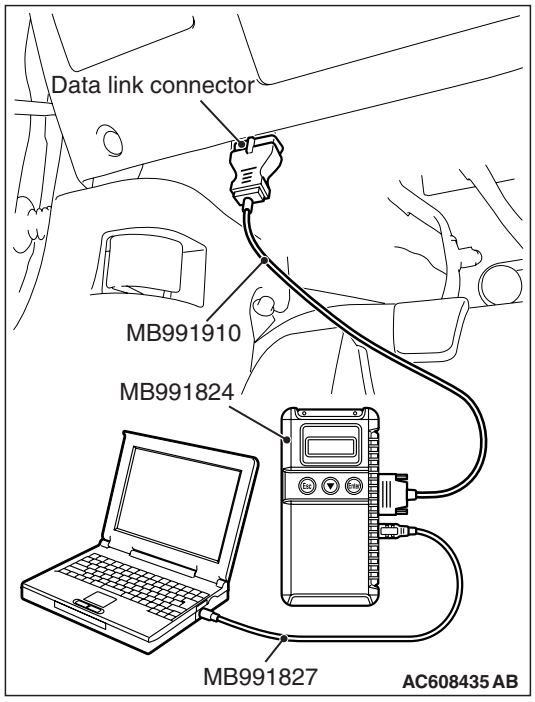
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



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STEP 2. Using scan tool MB991958, read the SRS-ECU diagnostic trouble code

Check if DTC is set to the SRS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Diagnosis P.52B-31).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0151 is set to the A/C-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the SRS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0154: Occupant classification-ECU CAN timeout

⚠ CAUTION
- **If DTC U0154 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGEMENT
If the signal from occupant classification-ECU cannot be received, the ETACS-ECU sets DTC U0154.

JUDGEMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the occupant classification-ECU cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse, or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The occupant classification-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

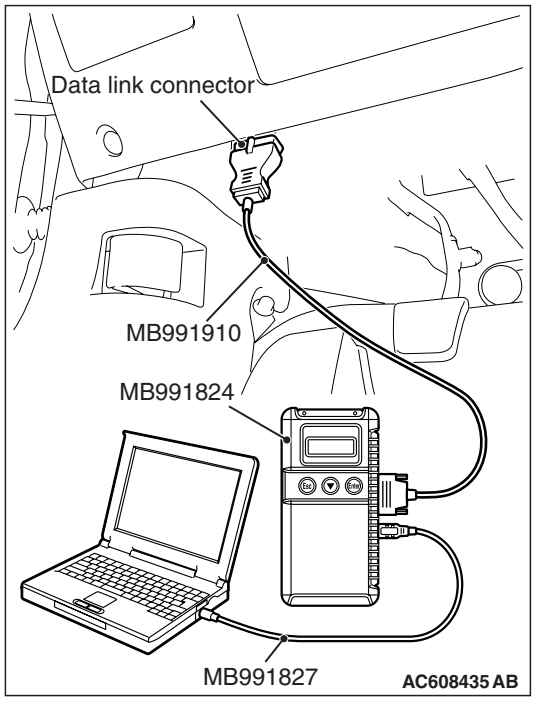
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



STEP 2. Using scan tool MB991958, read the occupant classification-ECU diagnostic trouble code.
Check if DTC is set to the occupant classification-ECU.

Q: Is the DTC set?

YES : Troubleshoot the occupant classification-ECU (Refer to GROUP 52B, Diagnosis P.52B-280).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the occupant classification-ECU, then go to Step 4.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0155: Combination meter CAN timeout

⚠ CAUTION

- **If DTC U0155 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGEMENT

If the signal from combination meter cannot be received, the ETACS-ECU sets DTC U0155.

JUDGEMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the combination meter cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse, or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS

- The combination meter may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

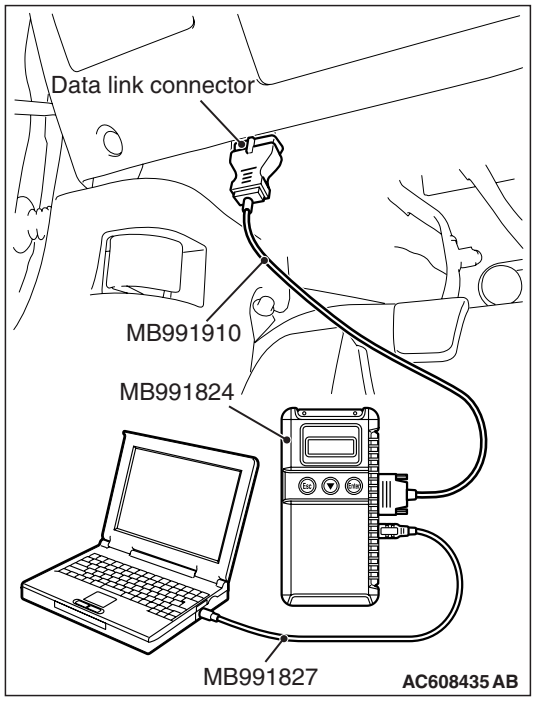
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



STEP 2. 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 : Troubleshoot the combination meter (Refer to P.54A-23).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.
Check if the DTC U0155 is set to the A/C-ECU.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0164: A/C-ECU CAN timeout

⚠ CAUTION
- **If DTC U0164 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGEMENT
If the signal from A/C-ECU cannot be received, the ETACS-ECU sets DTC U0164.

JUDGEMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the A/C-ECU cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse, or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The A/C-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

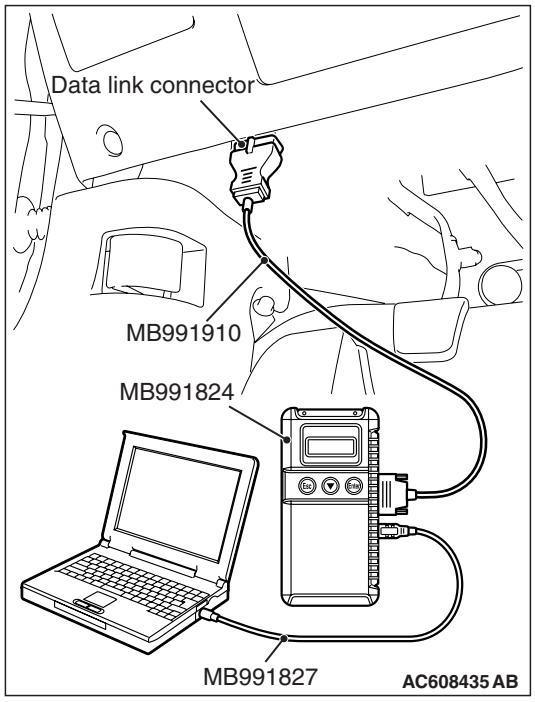
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



TSB Revision

STEP 2. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.
Check if DTC is set to the A/C-ECU.

Q: Is the DTC set?

YES : Troubleshoot the A/C (Refer to GROUP 55A, Manual A/C Diagnosis P.55A-8 or GROUP 55B, Auto A/C Diagnosis P.55B-7).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the combination meter diagnostic trouble code.
Check if the DTC U0164 is set to the combination meter.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the A/C-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0168: WCM or KOS-ECU CAN timeout

⚠ CAUTION
- **If DTC U0168 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT
If the signal from WCM or KOS-ECU cannot be received, the ETACS-ECU sets DTC U0168.

JUDGEMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the WCM or KOS-ECU cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse, or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The WCM may be defective.
- The KOS-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

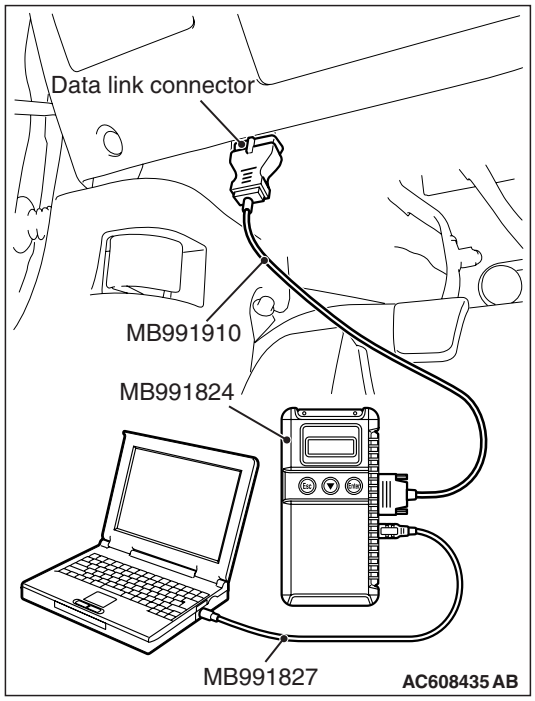
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



STEP 2. Using scan tool MB991958, read the WCM or KOS-ECU diagnostic trouble code.
Check if DTC is set to the WCM or KOS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the WCM or KOS (Refer to GROUP 42B, Diagnosis P.42B-20 <KOS> or GROUP 42C, Diagnosis P.42C-14 <WCM>).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the diagnostic trouble code.
Check if the DTC U0168 is set to the combination meter.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the WCM or KOS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0184: Audio CAN timeout

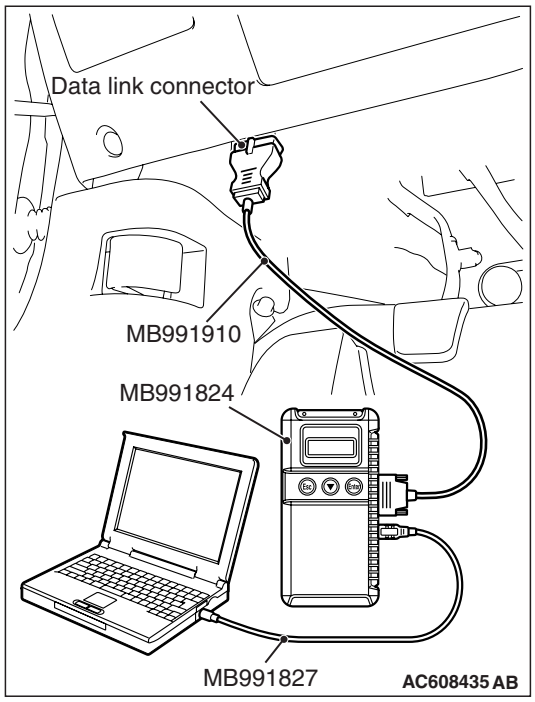
⚠ CAUTION
- **If DTC U0184 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGEMENT
If the signal from radio and CD player or CD changer cannot be received, the ETACS-ECU sets DTC U0184.

JUDGEMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the radio and CD player or CD changer cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse, or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The radio and CD player or CD changer may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 2. Using scan tool MB991958, read the audio diagnostic trouble code.
Check if DTC is set to the audio.

Q: Is the DTC set?

YES : Troubleshoot the audio (Refer to P.54A-239).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the combination meter diagnostic trouble code.
Check if the DTC U0184 is set to the combination meter.

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player or CD changer.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the radio and CD player or CD changer and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the radio and CD player or CD changer and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0195: Satellite radio tuner CAN timeout

⚠ CAUTION
- **If DTC U0195 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGEMENT
If the signal from satellite radio tuner cannot be received, the ETACS-ECU sets DTC U0195.

JUDGEMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the satellite radio tuner cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse, or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The satellite radio tuner may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

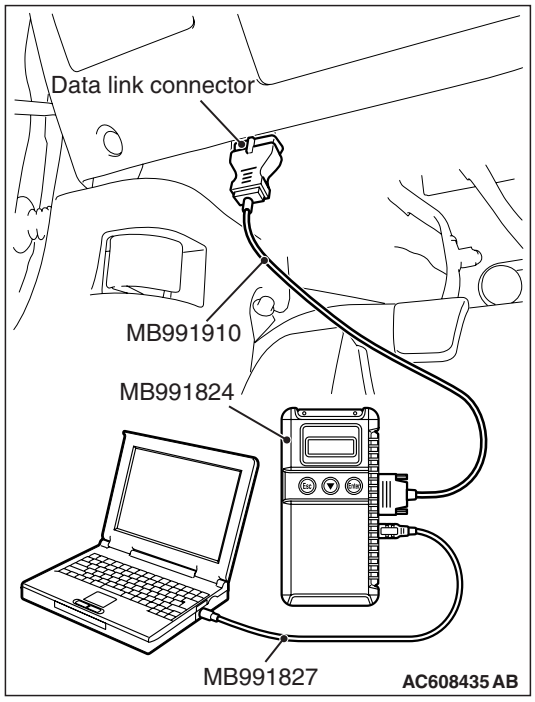
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



STEP 2. Using scan tool MB991958, read the satellite radio tuner diagnostic trouble code.
Check if DTC is set to the satellite radio tuner.

Q: Is the DTC set?

YES : Troubleshoot the satellite radio (Refer to P.54A-468).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner, then go to Step 4.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0197: Hands free module CAN timeout

⚠ CAUTION
- **If DTC U0197 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGEMENT
If the signal from hands free module cannot be received, the ETACS-ECU sets DTC U0197.

JUDGEMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the hands free module cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse, or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The hands free module may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

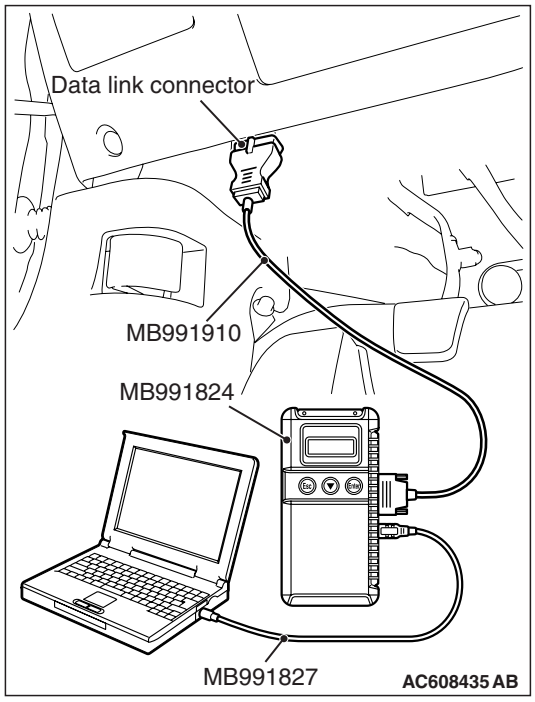
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



STEP 2. Using scan tool MB991958, read the hands free module diagnostic trouble code.
Check if DTC is set to the hands free module.

Q: Is the DTC set?

YES : Troubleshoot the hands free telephone system (Refer to P.54A-409).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the hands free module, then go to Step 4.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0245: Audio visual navigation unit CAN timeout

⚠ CAUTION
- **If DTC U0245 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGEMENT
If the signal from CAN box unit (audio visual navigation unit) cannot be received, the ETACS-ECU sets DTC U0245.

JUDGEMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the CAN box unit (audio visual navigation unit) cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse, or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The CAN box unit may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

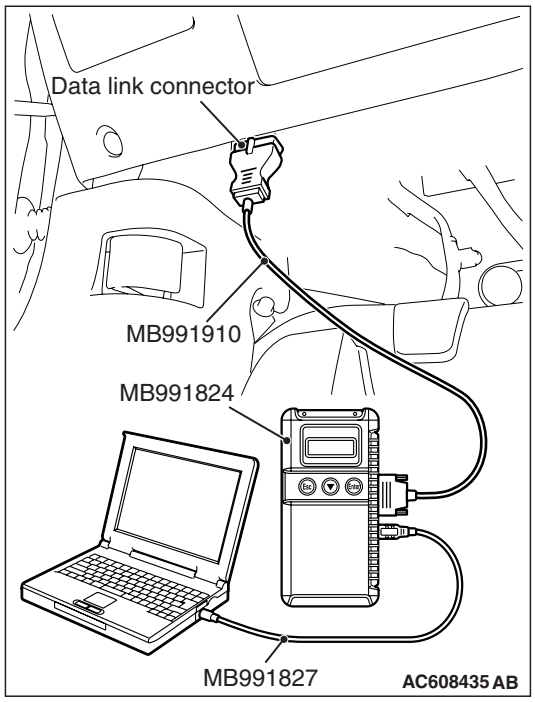
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



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STEP 2. Using scan tool MB991958, read the audio visual navigation unit diagnostic trouble code.
Check if DTC is set to the audio visual navigation unit.

Q: Is the DTC set?

YES : Troubleshoot the MMCS (Refer to P.54A-328).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit (audio visual navigation unit), then go to Step 4.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the CAN box unit (audio visual navigation unit) and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the CAN box unit (audio visual navigation unit) and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U1108: Excess CAN-B ECU Detection

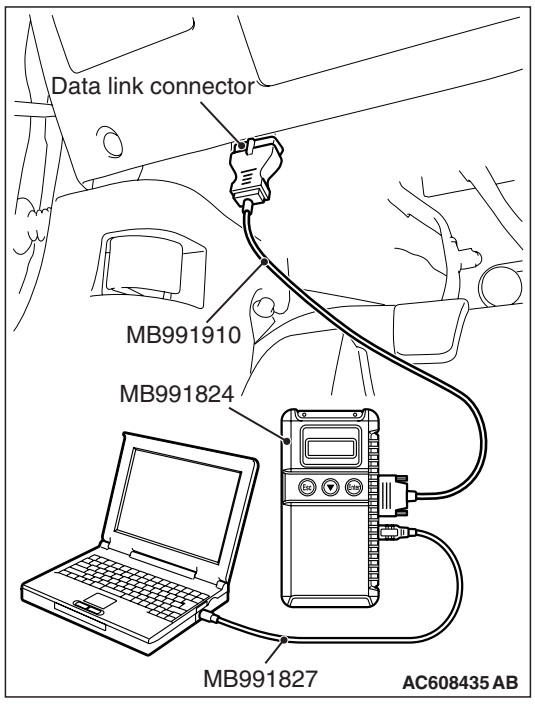
⚠ CAUTION
If the DTC U1108 is set to the ETACS-ECU, always diagnose the CAN bus line.

TROUBLE JUDGEMENT
If the ETACS-ECU receives the signal from the CAN-B line ECU which does not exist in the written variant code information, the ETACS-ECU sets DTC U1108.

TROUBLESHOOTING HINTS
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 2. Variant code check.
Check the variant code written to the ETACS-ECU, and check whether it matches the ECU connected to the CAN-B line.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Make a correction so that the ECU connected to the CAN-B line matches with the variant code information, and then go to Step 3.

STEP 3. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : This diagnosis is complete.

DTC U1120: Bus line (CAN-C) low input
DTC U1121: Bus line (CAN-C) high input

TROUBLE JUDGEMENT

When the CAN bus line voltage is in the following states, the ETACS-ECU set the DTC.

- If the CAN bus line voltage is 0.3 volt or less, DTC U1120 is set.
- If the CAN bus line voltage is 4.7 volts or more, DTC U1121 is set.

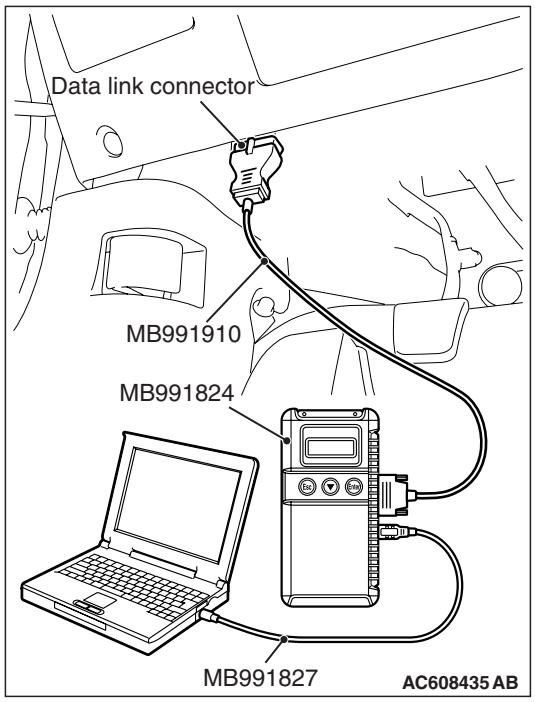
TROUBLESHOOTING HINTS

- The CAN bus line may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 2. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The diagnosis is complete.

DTC U0331: ECU internal error

TROUBLE JUDGEMENT

If the ETACS-ECU error counter value is detected to be "255," DTC U0331 is set, and the ETACS-ECU is reset. The DTC U0331 exists only as past trouble.

TROUBLESHOOTING HINTS

- The ETACS-ECU may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

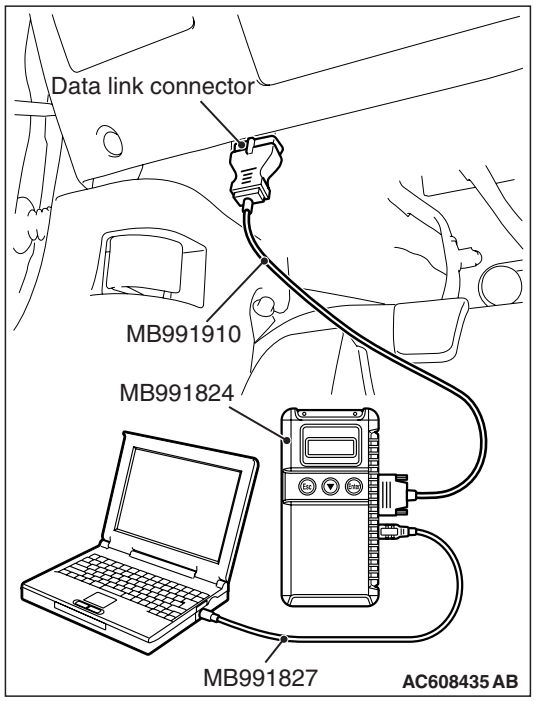
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.
(6) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The diagnosis is complete.



DTC B1761: VIN not recorded

TROUBLE JUDGEMENT

If the VIN is not written to the ETACS-ECU, the ETACS-ECU sets DTC B1761.

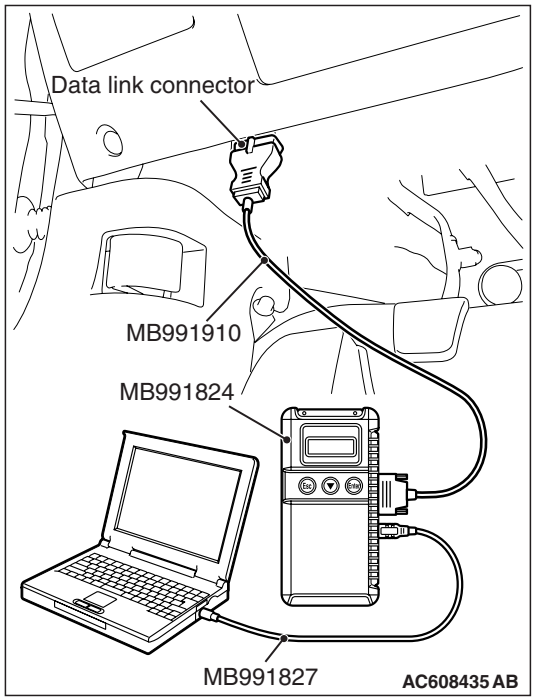
TROUBLESHOOTING HINTS

- Chassis number not recorded
- The ETACS-ECU may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.
(6) Turn the ignition switch to the "LOCK" (OFF) position.

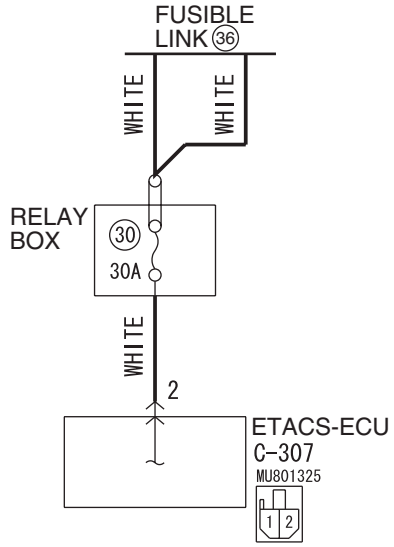
Q: Is the DTC set?

YES : Replace with the coded ETACS-ECU.
NO : The diagnosis is complete.

DTC B210A: +B power supply (low input)
DTC B210B: +B power supply (high input)

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

ETACS-ECU Power Supply Circuit



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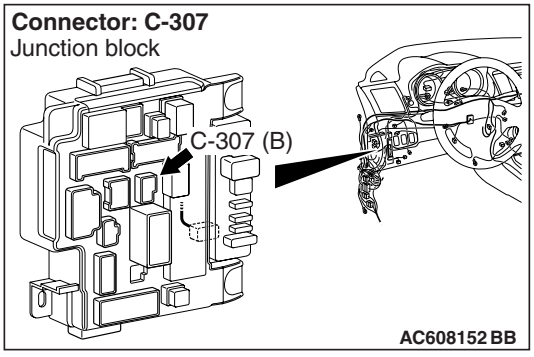


TROUBLE JUDGEMENT

The ETACS-ECU sets DTC B210A if the power supply fuse voltage decreases to the specified value or less, and sets DTC B210B if the power supply fuse voltage increases to the specified value or more. However, when the status returns to normal, the ETACS-ECU automatically erases DTCs B210A and B210B.

TECHNICAL DESCRIPTION (COMMENT)

The power supply fuse or the ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

- The power supply fuse may be defective.
- The ETACS-ECU may be defective.
- The battery may be defective.
- The alternator may be defective.
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the 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 (Vehicles with CAN communication system)

STEP 1. Power supply fuse check.

Q: Is the fuse in good condition?

YES : Go to Step 2.
NO : Replace the power supply fuse, and then go to Step 2.

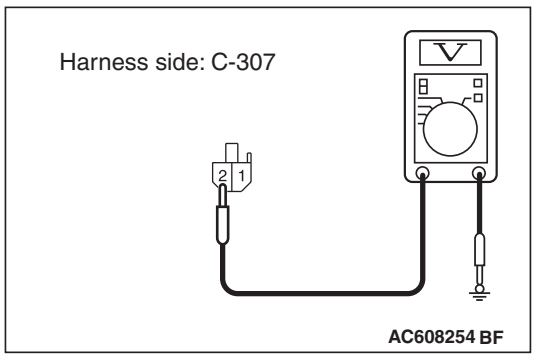
STEP 2. Check ETACS-ECU connector C-307 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-307 in good condition?

YES : Go to Step 3.
NO : Repair or replace the component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 3. Check the battery power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-307.

(1) Disconnect ETACS-ECU connector C-307 and measure the voltage available at the wiring harness side of the connector.
(2) Measure the voltage between 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 5.
NO : Go to Step 4.

STEP 4. Check the wiring harness between ETACS-ECU connector C-307 (terminal 2) and the fusible link (36).

Q: Is the wiring harness between ETACS-ECU connector C-307 (terminal 2) and the 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.

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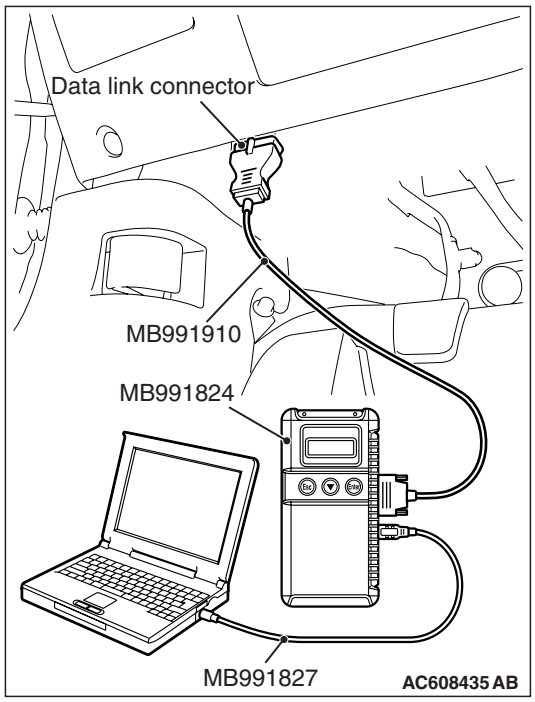


STEP 5. Using scan tool MB991958, check data list.

Check the power supply fuse voltage.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."

(2) Turn the ignition switch to the "ON" position.

(3) Check the ETACS data list.

- Turn the ignition switch to the "ACC" position.

Item No.	Item name	Normal condition
Item 253	Voltage sensing of IOD Line	Approximately 12 volts (battery positive voltage)

(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Do the scan tool MB991958 display the item "voltage sensing of IOD Line" is normal condition?

YES : Go to Step 6.

NO : Replace the ETACS-ECU.

STEP 6. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC B222C: Coding incomplete

TROUBLE JUDGEMENT

If the ETACS-ECU is in the initial state or the variant coding is incomplete, the ETACS-ECU sets DTC B222C.

TROUBLESHOOTING HINTS

- Variant code not written
- The ETACS-ECU may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

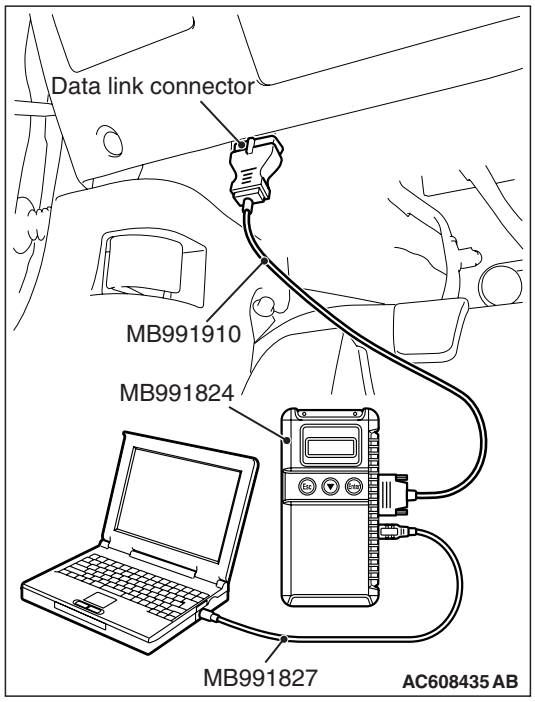
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Perform the variant coding to the ETACS-ECU.
(4) Erase the DTC.
(5) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(6) Check if DTC is set.
(7) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace with the coded ETACS-ECU.
NO : The diagnosis is complete.



DTC B2206: Chassis number does not match

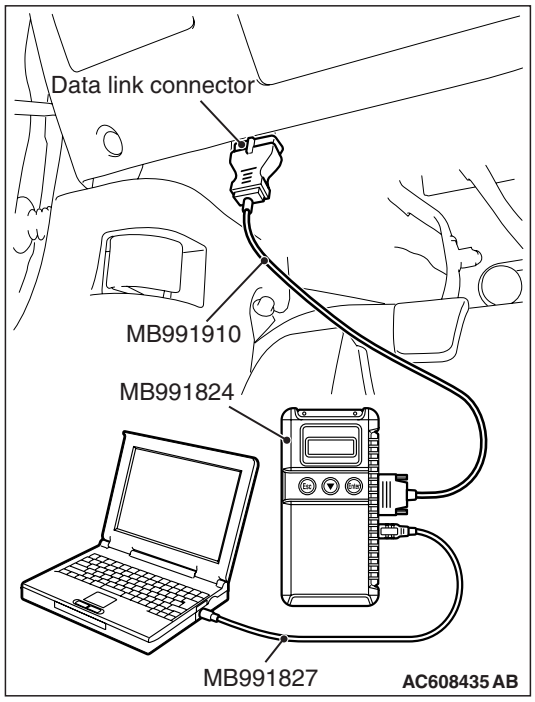
⚠ CAUTION
If DTC B2206 is set, always diagnose the CAN bus line.

TROUBLE JUDGEMENT
If the registered chassis number is different from the chassis number transmitted on the CAN bus lines, the ETACS-ECU sets DTC B2206.

JUDGEMENT CRITERIA
If the chassis number registered to ETACS-ECU and the chassis number on CAN bus lines do not match, the ETACS-ECU determines that a problem has occurred.

TROUBLESHOOTING HINTS
- Chassis number not written
- The ETACS-ECU may be defective.
- The engine control module may be defective.
- The CAN bus line may be defective.

DIAGNOSIS
Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 2. Using scan tool MB991958, read the engine control module diagnostic trouble code.
Check if DTC is set to the engine control module.

Q: Is the DTC set?

YES : Troubleshoot the engine (Refer to GROUP 13A, Diagnostic Trouble Code Chart P.13A-46).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace with the coded ETACS-ECU.
NO : The diagnosis is complete.

DTC B2215: ECU internal error

TROUBLE JUDGEMENT
When the ETACS-ECU internal error count reaches "255," DTC B2215 is set.

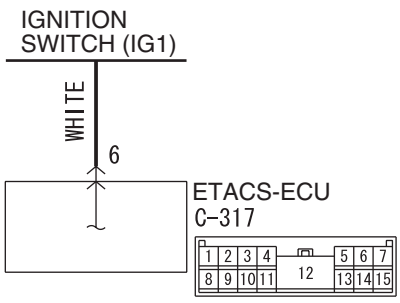
TROUBLESHOOTING HINTS
- The ETACS-ECU may be defective.

DIAGNOSIS
Replace the ETACS-ECU.

DTC B2353: Ignition power supply (low input)
DTC B2354: Ignition power supply (high input)

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

Ignition Switch (IG1) Input Circuit



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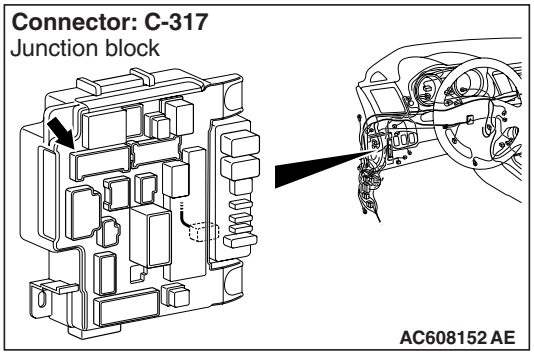


TROUBLE JUDGMENT

These DTCs are set when the ignition power supply voltage decreases to the specified value or less (DTC B2353) or increases to the specified value or more (DTC B2354). However, when the status returns to normal, the DTCs B2353 and B2354 are automatically erased.

TECHNICAL DESCRIPTION (COMMENT)

The power supply circuit or the ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

- The power supply circuit may be defective.
- The battery may be defective.
- The alternator may be defective.
- The ETACS-ECU may be defective.
- The ignition switch may be defective.
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.

DIAGNOSIS

Required Special Tools:

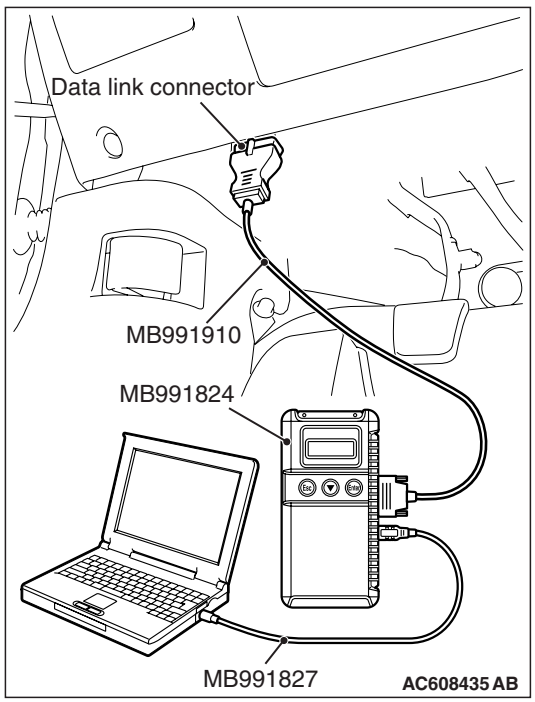
- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, check data list.

Check the ignition power supply voltage.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."

(2) Turn the ignition switch to the "ON" position.

(3) Check the ETACS data list.

- Turn the ignition switch to the "ON" position.

Item No.	Item name	Normal condition
Item 254	IG voltage	Approximately 12 volts (battery positive voltage)

(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Do the scan tool MB991958 display the item "IG voltage" is normal condition?

YES : Go to Step 2.

NO : Replace the ETACS-ECU.

TSB Revision

STEP 2. Check ETACS-ECU connector C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

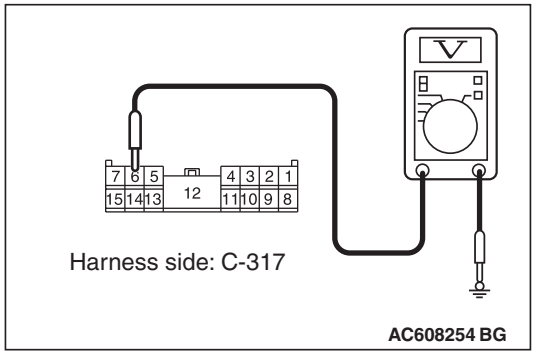
Q: Is ETACS-ECU connector C-317 in good condition?

YES : Go to Step 3.

NO : Repair or replace the component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 3. Check the ignition switch (IG1) circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-317.

(1) Disconnect ETACS-ECU connector C-317 and measure the voltage available at the wiring harness side of the connector.
(2) Turn the ignition switch to the "ON" position.
(3) Measure the voltage between terminal 6 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 5.

NO : Go to Step 4.

STEP 4. Check the wiring harness between ETACS-ECU connector C-317 (terminal 6) and the ignition switch (IG1).

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 6) and the ignition switch (IG1) 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 5. Recheck for diagnostic trouble .

Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DATA LIST REFERENCE TABLE

M1545001300118

NOTE: Some items are not displayed on scan tool MB991958 according to the information in the ECU.

Item No.	Scan tool display	Condition
1	CAN-H voltage	0–4 V
2	CAN-L voltage	1–5 V
200	Original VIN writing status	Comp/Unperformed or ECU internal Err or Comp and locked
201	Current VIN writing status	Comp/Unperformed or ECU internal Err or Comp and locked
202	Internal error	No error or EEPROM error or Boot loader Err or EEPROM/Boot or ADC Error or ADC/EEPROM error or ADC/Boot error or ADC/Boot/EEPROM or PLL Error or PLL/EEPROM error or PLL/EEPROM error or PLL/Boot/EEPROM or PLL/ADC error or PLL/ADC/EEPROM or PLL/ADC/Boot or PLL/ADC/Boot/ROM
203	Process error	No error or Interrupt error or Switch error or Sequence error or Stck pointer Err or Dispatch call Er or Other error
204	Coding counter	times
205	Coding counter Option	times
206	Headlight LO ON duty	0–100%
207	Fan control relay ON duty	0–100%
208	Dome light ON duty	0–100%
209	Gate light ON duty	0–100%
210	IG key illumination	0–100%
211	Headlight Hi	ON or OFF
212	Front fog light	ON or OFF
213	Horn theft horn	ON or OFF
214	Headlight washer	ON or OFF
215	Security indicator	ON or OFF
216	IG1-2 fuel pump	ON or OFF
218	Taillight	ON or OFF
219	Turn RH/LH light	ON or OFF
220	Blower fan	ON or OFF
221	Defogger	ON or OFF
222	Interior light cut	ON or OFF
224	Door lock	ON or OFF
227	Door unlock	ON or OFF
228	Dr door unlock	ON or OFF
230	Trunk/gate opener	ON or OFF
231	Rear fog light	ON or OFF

Item No.	Scan tool display	Condition
232	ACC Relay	ON or OFF
233	Fan Lo	ON or OFF
234	Fan Hi	ON or OFF
235	Front wiper ACT	ON or OFF
236	Front wiper Lo/Hi	ON or OFF
237	Front washer	ON or OFF
238	Rear washer	ON or OFF
239	Rear wiper	ON or OFF
240	Power window	ON or OFF
241	Hold mirror open	ON or OFF
242	Hold mirror close	ON or OFF
243	Dead lock	ON or OFF
244	Independent DRL	ON or OFF
251	Auto light sensor	Voltage
252	Ambient temperature sensor	Voltage
253	Voltage sensing of IOD Line	Voltage
254	IG voltage	Voltage
255	Theft sensor	ON or OFF
256	Dr door ajar switch	Open or Close
257	As door ajar switch	Open or Close
258	RR door ajar switch	Open or Close
259	RL door ajar switch	Open or Close
260	Trunk/gate trunk ajar switch	Open or Close
262	dome light center ON switch	ON or OFF
263	dome light center OFF switch	ON or OFF
264	Handle lock switch	Key out or Key in
265	Hazard switch	ON or OFF
266	Hood switch	ON or OFF
267	Mirror switch	ON or OFF
268	Trunk/gate opener switch	ON or OFF
270	Dr door lock switch	Lock or Not lock
271	Dr door unlock switch	Unlock or Not Unlock
272	As door unlock switch	Unlock or Not Unlock
273	Except Dr/As door unlock switch	Unlock or Not Unlock
274	Door key lock switch	ON or OFF
275	Dr door key unlock switch	ON or OFF
276	Door key unlock switch	ON or OFF
277	Power lock switch	ON or OFF
278	Power unlock switch	ON or OFF
279	Brake fluid switch	ON or OFF

Item No.	Scan tool display	Condition
280	Washer fluid switch	ON or OFF
281	ASC/TCL OFF switch	ON or OFF
287	Starter switch	ON or OFF
288	ACC switch	ON or OFF
289	Backup light or shift reveres SW	ON or OFF
290	Brake switch	ON or OFF
291	Front wiper auto stop switch	ON or OFF
292	Rear wiper auto stop switch	ON or OFF
293	Process error information	–
294	Process error	times
295	Rear sunroof unlock	ON or OFF
340	Headlight switch(tail)	ON or OFF
341	Headlight switch	ON or OFF
342	Headlight switch(Dimmer)	ON or OFF
343	Turn switch left	ON or OFF
344	Turn switch right	ON or OFF
345	Fog light ON	ON or OFF
346	Fog light OFF	ON or OFF
347	Switch type	LHD or RHD
348	Headlight switch(auto)	ON or OFF
349	Headlight cleaner	ON or OFF
350	Headlight switch(flasher)	ON or OFF
351	Column ECU sleep	OK or NG
352	Front wiper(INT)	ON or OFF
353	Front wiper(LO)	ON or OFF
354	Front wiper(HI)	ON or OFF
355	Front wiper(washer)	ON or OFF
356	Rear wiper	ON or OFF
357	Rear wiper(washer)	ON or OFF
358	Front wiper(MIST)	ON or OFF
359	Front wiper(interval volume)	–
360	Wiper switch lever fail	No fail or Fail
361	Turn/Light switch lever fail	No fail or Fail

TROUBLE SYMPTOM CHART

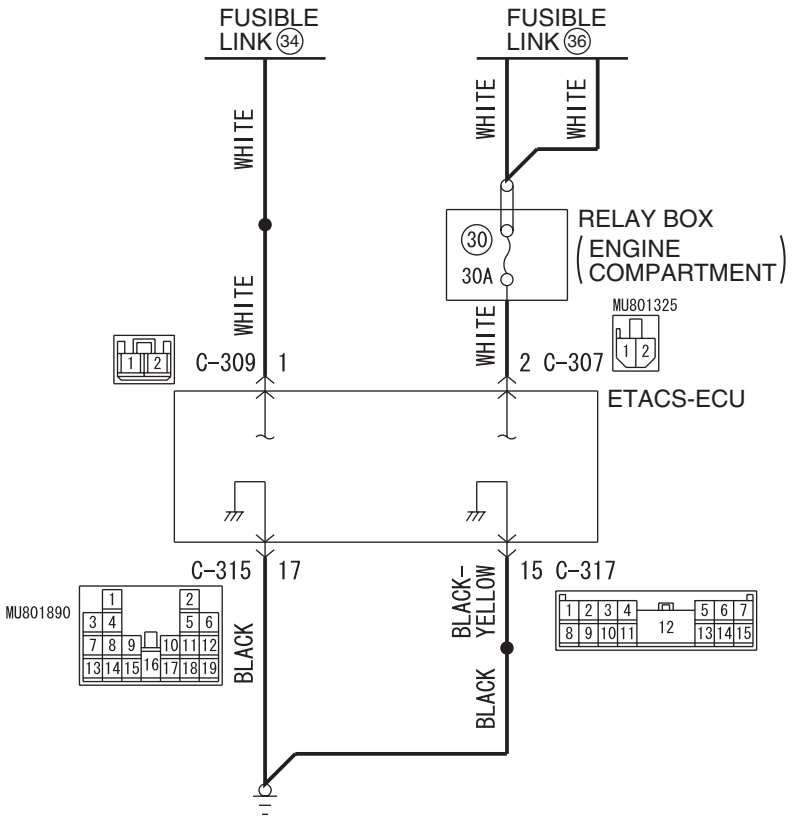
M1545001200111

Trouble symptom	Reference page
Malfunction of ETACS-ECU power supply circuit	P.54A-525

SYMPTOM PROCEDURES

Malfunction of ETACS-ECU power supply circuit

ETACS-ECU Power Supply Circuit



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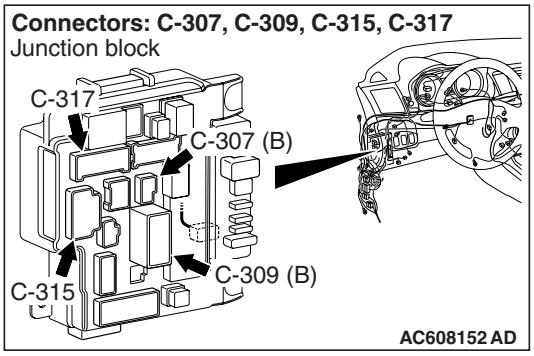


TECHNICAL DESCRIPTION (COMMENT)

If the ETACS-ECU functions do not work at all, the ETACS-ECU power supply system, earth system, or ETACS-ECU 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 ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

TSB Revision

STEP 1. Check ETACS-ECU connectors C-315 and C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-315 and C-317 in good condition?

YES : Go to Step 2.

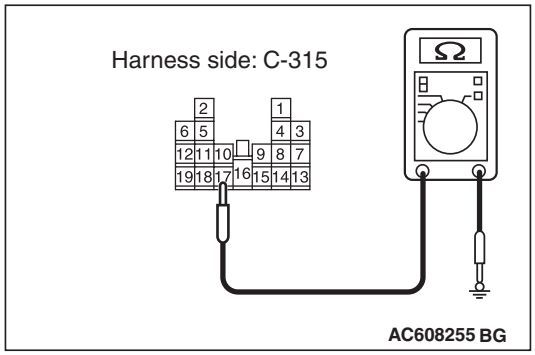
NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 2. Check the ground circuit to the ETACS-ECU. Measure the resistance at ETACS-ECU connectors C-315 and C-317.

(1) Disconnect ETACS-ECU connector C-315 and C-317 and measure the resistance available at the wiring harness side of the connector.

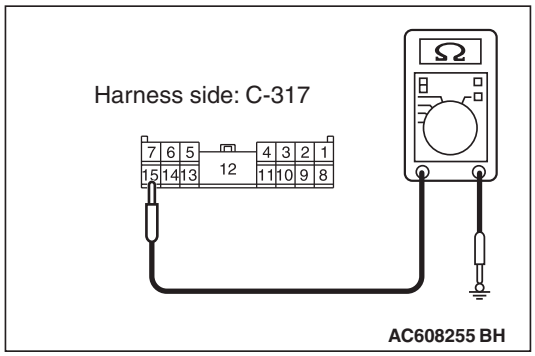
(2) Measure the resistance value between ETACS-ECU connector C-315 terminal 17 and ground.

- The resistance should be 2 ohms or less.



(3) Measure the resistance value between ETACS-ECU connector C-317 terminal 15 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 ETACS-ECU connector C-315 (terminal 17) or C-317 (terminal 15) and the ground.

Q: Is the wiring harness between ETACS-ECU connector C-315 (terminal 17) or C-317 (terminal 15) 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.

TSB Revision

STEP 4. Check ETACS-ECU connectors C-307 and C-309 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-307 and C-309 in good condition?

YES : Go to Step 5.

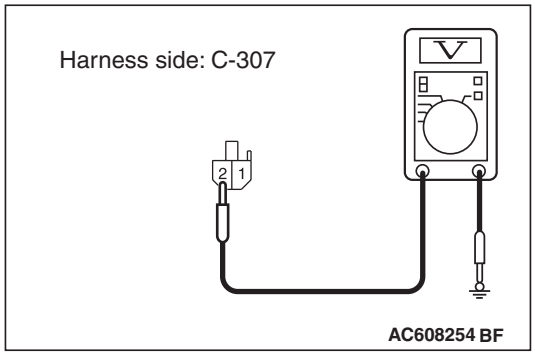
NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 5. Check the battery power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connectors C-307 and C-309.

(1) Disconnect ETACS-ECU connectors C-307 and C-309 measure the voltage available at the wiring harness side of the connector.

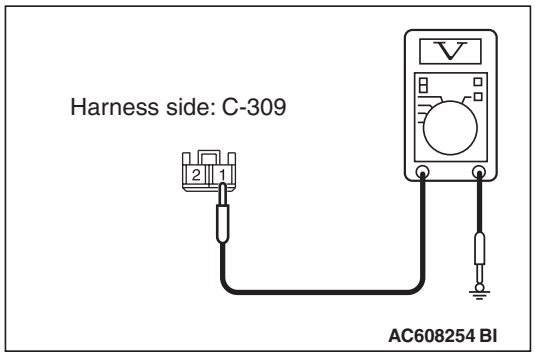
(2) Measure the voltage between ETACS-ECU connector C-307 terminal 2 and ground.

- The voltage should measure approximately 12 volts (battery positive voltage).



(3) Measure the voltage between ETACS-ECU connector C-309 terminal 1 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 7.

NO : Go to Step 6.

STEP 6. Check the wiring harness between ETACS-ECU connectors C-307 (terminal 2) or C-309 (terminal 1) and the fusible link (36) or (34).

Q: Is the wiring harness between ETACS-ECU connectors C-307 (terminal 2) or C-309 (terminal 1) and the fusible link (36) or (34) 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 ETACS-ECU normally.

STEP 7. Retest the system

Check that the ETACS-ECU functions work normally.

Q: Is the check result satisfactory?

YES : The procedure is complete (If no malfunctions are found in all steps, an intermittent malfunction is suspected. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

TROUBLE SYMPTOM CHART FOR INPUT SIGNAL

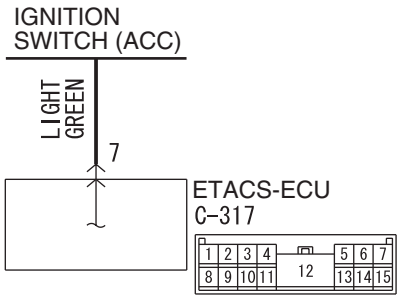
M1545004900090

Trouble symptom	Inspection Procedure No.	Reference page
ETACS-ECU does not receive any signal from the ignition switch (ACC).	1	P.54A-529
ETACS-ECU does not receive any signal from the ignition switch (IG1).	2	P.54A-531
ETACS-ECU does not receive any signal from the key reminder switch.	3	P.54A-533
ETACS-ECU does not receive any signal from the front door lock actuator.	4	P.54A-536
ETACS-ECU does not receive any signal from the front door switch (LH).	5	P.54A-543
ETACS-ECU does not receive any signal from the front door switch (RH).	6	P.54A-545
ETACS-ECU does not receive any signal from the rear door switch (LH).	7	P.54A-548
ETACS-ECU does not receive any signal from the rear door switch (RH).	8	P.54A-550
ETACS-ECU does not receive any signal from the trunk lid actuator and switch.	9	P.54A-553
ETACS-ECU does not receive any signal from the hazard warning light switch.	10	P.54A-557
ETACS-ECU does not receive any signal from the column switch signal.	11	P.54A-559

INPUT SIGNAL PROCEDURES

Inspection Procedure 1: ETACS-ECU does not receive any signal from the ignition switch (ACC).

Ignition Switch (ACC) Input Circuit



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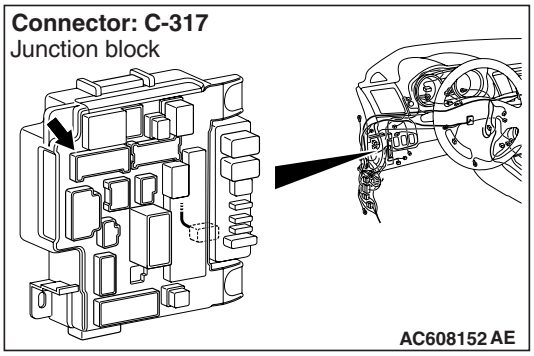


TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the ignition switch (ACC) input signal, or the ACC relay inside the ETACS-ECU does not operate, the ignition switch (ACC) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The ETACS-ECU may be defective
- The ignition switch may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

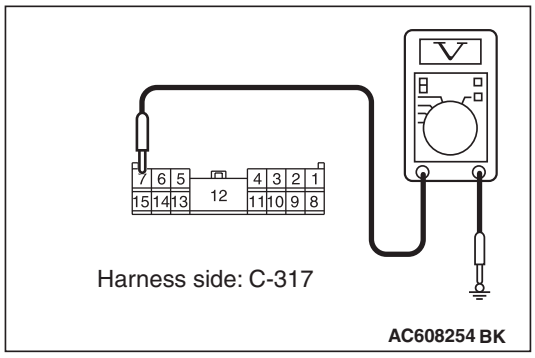
- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. 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 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of ignition switch (ACC) is normal.



STEP 2. Check the ignition switch (ACC) line of the power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-317.

(1) Disconnect ETACS-ECU connector C-317 and measure the voltage available at the junction block side of the connector.
(2) Turn the ignition switch to the "ACC" position.
(3) Measure the voltage between terminal 7 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Replace the ETACS-ECU. Check that the input signal of ignition switch (ACC) is normal.
NO : Go to Step 3.

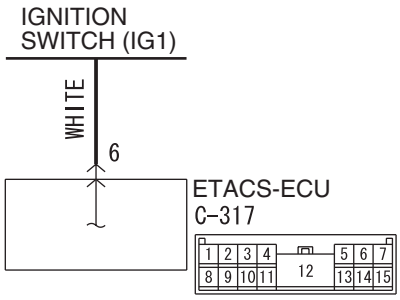
STEP 3. Check the wiring harness between ETACS-ECU connector C-317 (terminal 7) and the ignition switch (ACC).

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 7) and ignition switch (ACC) 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. Check that the input signal of ignition switch (ACC) is normal.

Inspection Procedure 2: ETACS-ECU does not receive any signal from the ignition switch (IG1).

Ignition Switch (IG1) Input Circuit



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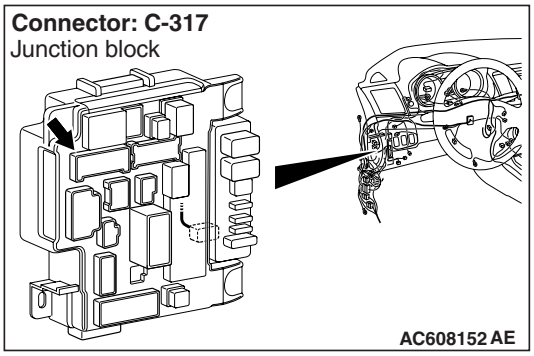


TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the ignition switch (IG1) input signal, or the IG1 relay inside the ETACS-ECU does not operate, the ignition switch (IG1) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The ignition switch may be defective
- The ETACS-ECU may be defective
- The fuse may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

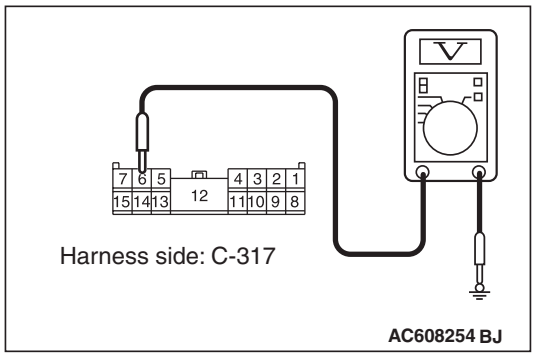
- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. 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 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of ignition switch (IG1) is normal.



STEP 2. Check the ignition switch (IG1) line of the power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-317.

(1) Disconnect ETACS-ECU connector C-317 and measure the voltage available at the junction block side of the connector.
(2) Turn the ignition switch to the "ON" position.
(3) Measure the voltage between terminal 6 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Replace the ETACS-ECU. Check that the input signal of ignition switch (IG1) is normal.
NO : Go to Step 3.

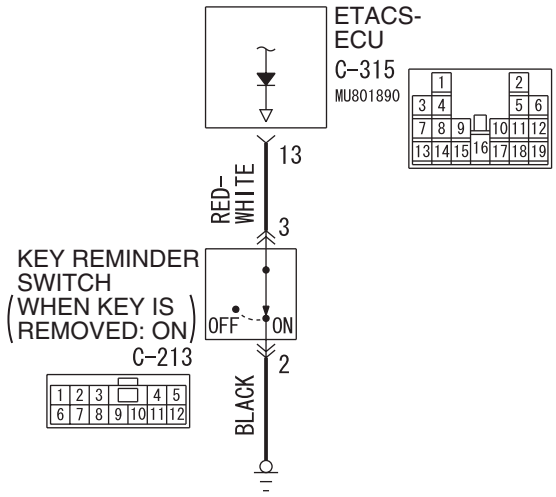
STEP 3. Check the wiring harness between ETACS-ECU connector C-317 (terminal 6) and the ignition switch (IG1).

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 6) and ignition switch (IG1) 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. Check that the input signal of ignition switch (IG1) is normal.

Inspection Procedure 3: ETACS-ECU does not receive any signal from the key reminder switch.

Key Reminder Switch Input Circuit



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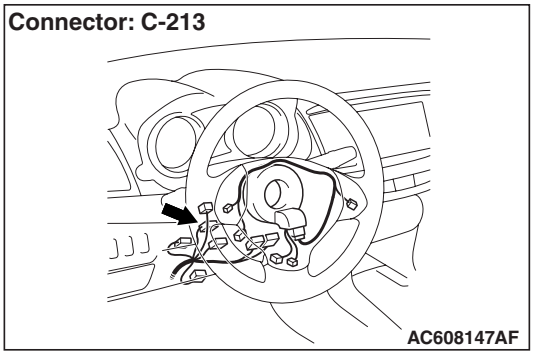
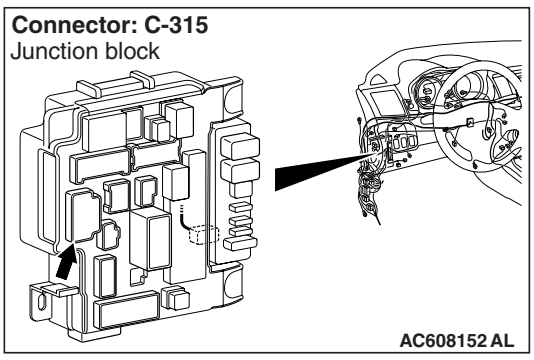




COMMENTS ON TROUBLE SYMPTOM

The key reminder switch input signal is used for the operation judgement of the functions below. If the signal is abnormal, these functions will not work.

- Ignition key reminder function
- Central door locking
- Keyless entry system
- KOS
- Ignition key cylinder illumination light
- Interior light

TROUBLESHOOTING HINTS

- The key reminder switch may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

TSB Revision

STEP 1. Check key reminder switch connector C-213 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is key reminder switch connector C-213 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). Check that the input signal of key reminder switch is normal.

STEP 2. Check the key reminder switch.

Disconnect key reminder switch connector C-213. Then check continuity between terminals.

Ignition key	Tester connection	Specified condition
Removed	2 –3	Open circuit
Inserted	2 –3	Continuity exists (2 ohms or less)

Q: Is the key reminder switch in good condition?

YES : Go to Step 3.

NO : Replace the key reminder switch. Check that the input signal of key reminder switch is normal.

STEP 3. Check the ground circuit to the key reminder switch. Measure the resistance at key reminder switch connector C-213.

(1) Disconnect key reminder switch connector C-213 and measure the resistance available at the wiring harness side of the connector.

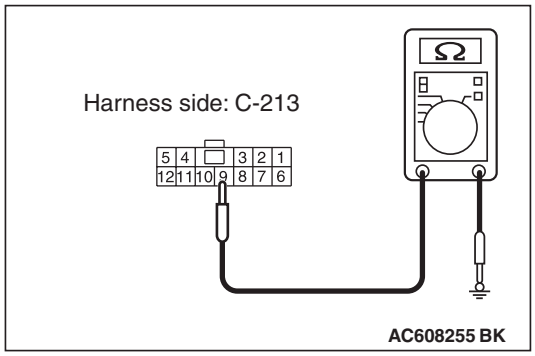
(2) Measure the resistance value between terminal 2 and ground.

- 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 key reminder switch connector C-213 (terminal 2) and ground.

Q: Is the wiring harness between key reminder switch connector C-213 (terminal 2) 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. Check that the input signal of key reminder switch is normal.

STEP 5. 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 6.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of key reminder switch is normal.

STEP 6. Check the wiring harness between key reminder switch connector C-213 (terminal 3) and ETACS-ECU connector C-315 (terminal 13).

Q: Is the wiring harness between key reminder switch connector C-213 (terminal 3) and ETACS-ECU connector C-315 (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. Check that the input signal of key reminder switch is normal.

STEP 7. Check for continuity between key reminder switch connector C-213 terminal 2 and each of the other terminals as well as terminal 3 and each of the other terminals.

(1) Disconnect key reminder switch connector C-213 and measure the resistance available at the equipment side of the connector.

(2) Check for continuity between key reminder switch connector C-213 terminal 2 and each of the other terminals as well as terminal 3 and each of the other terminals.

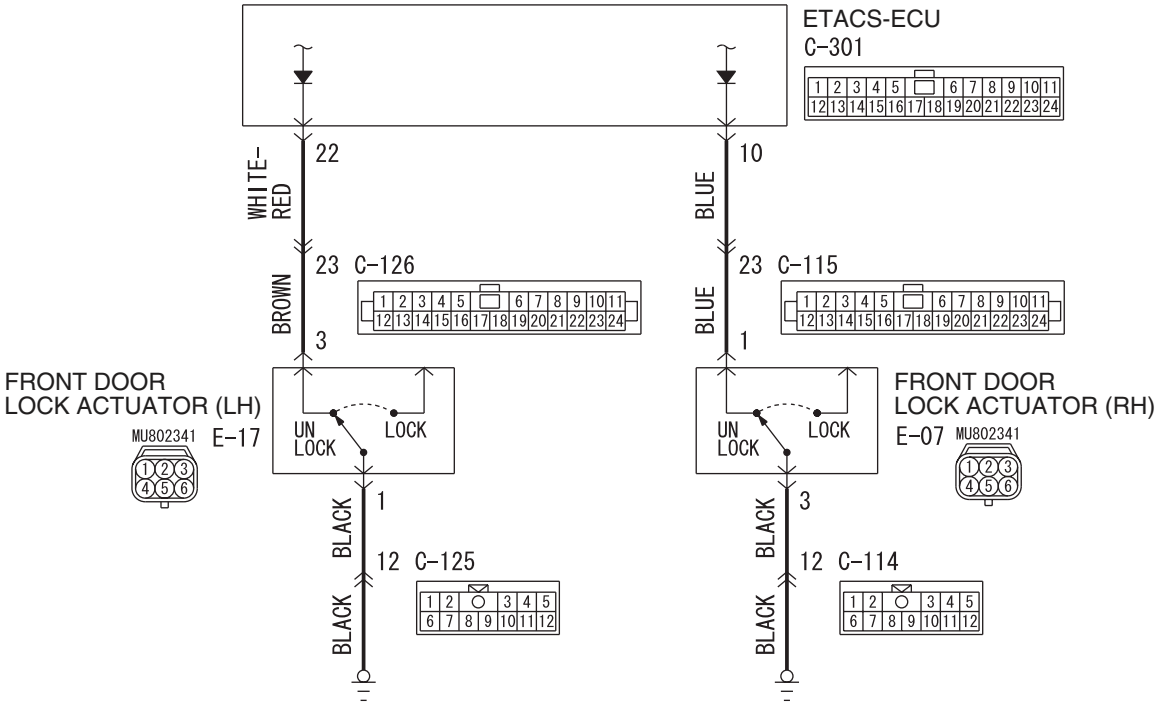
Q: Does continuity exist between the terminals?

NO : Replace the ETACS-ECU. Check that the input signal of key reminder switch is normal.

YES : Replace the key reminder switch. Check that the input signal of key reminder switch is normal.

Inspection Procedure 4: ETACS-ECU does not receive any signal from the front door lock actuator.

Door Look Actuator Input Circuit



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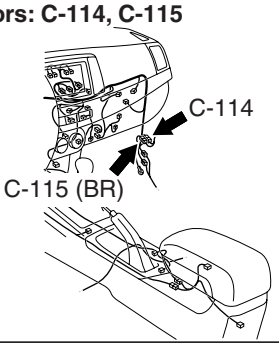
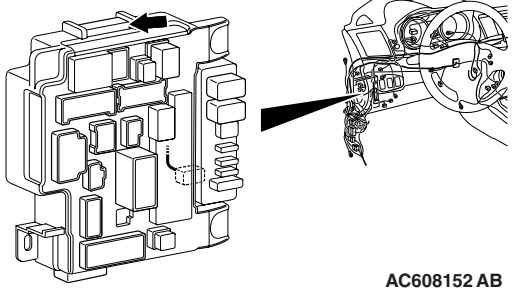
Connectors: C-114, C-115



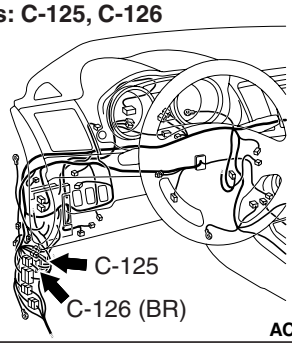
AC608146AY

Connector: C-301
Junction block



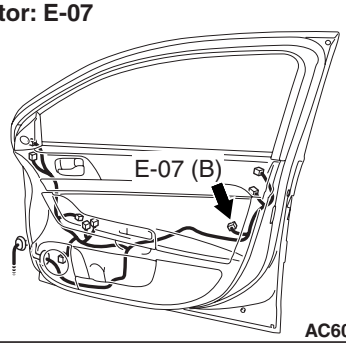
AC608152AB

Connectors: C-125, C-126



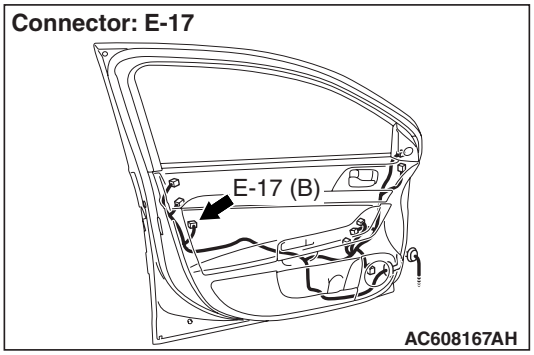
AC608145AR

Connector: E-07



AC608168AF

TSB Revision



COMMENTS ON TROUBLE SYMPTOM

The front door lock actuator (LH) or front door lock actuator (RH) <vehicles with KOS> input signal is used for the operation judgement of the functions below. If the signal is abnormal, these functions will not work normally.

- Key reminder function
- Central door locking
- KOS
- Keyless entry system
- Interior light

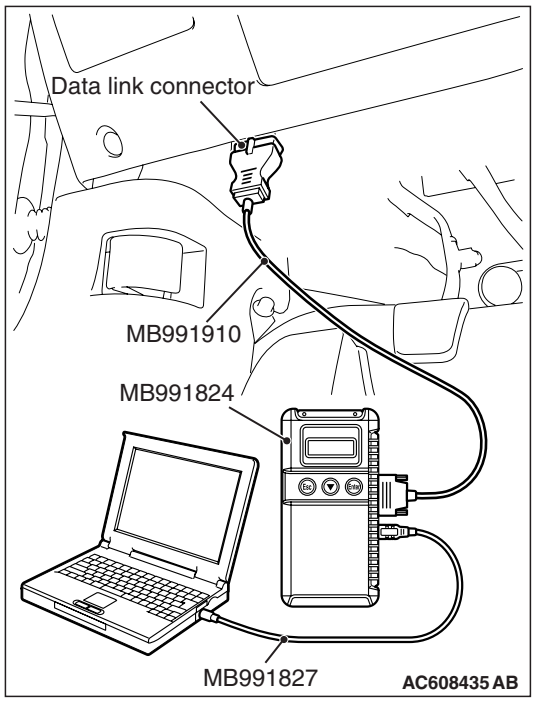
PROBABLE CAUSES

- The front door lock actuator (LH) may be defective
- The front door lock actuator (RH) may be defective <vehicles with KOS>
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the 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, check data list.
Check the input signals from the front door lock actuators.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch to the "ON" position.
(3) Check the ETACS data list.
- Set the driver's door to "UNLOCK."

Item No.	Item name	Normal condition
Item 271	Dr door unlock switch	Unlock

- Set the front passenger's door to "UNLOCK." <vehicles with KOS>

Item No.	Item name	Normal condition
Item 272	As door unlock switch	Unlock

(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Are normal conditions displayed on the "Dr door unlock switch" and "As door unlock switch"?
YES <Normal conditions are displayed for all the items> : No action is necessary and testing is complete.
NO <Normal condition is not displayed for item No.271> : Go to Step 2.
NO <Normal condition is not displayed for item No.272> : Go to Step 8.

STEP 2. Check front door lock actuator (LH) connector E-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

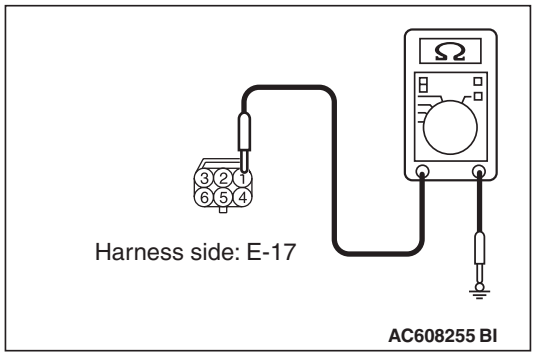
Q: Is front door lock actuator (LH) connector E-17 in good condition?
YES : Go to Step 3.
NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of front door lock actuator (LH) is normal.

STEP 3. Check the front door lock actuator (LH).
Disconnect front door lock actuator (LH) connector E-17. Then check continuity between the terminals.

Lever position	Tester connection	Specified condition
UNLOCK	1 –3	Continuity exists (2 ohms or less)
LOCK	1 –3	Open circuit

Q: Is the front door lock actuator (LH) in good condition?
YES : Go to Step 4.
NO : Replace the front door lock actuator (LH). Check that the input signal of front door lock actuator (LH) is normal.

STEP 4. Check the ground circuit to the front door lock actuator (LH). Measure the resistance at front door lock actuator (LH) connector E-17.
(1) Disconnect front door lock actuator (LH) connector E-17 and measure the resistance available at the wiring harness side of the connector.
(2) Measure the resistance value between 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 6.
NO : Go to Step 5.

STEP 5. Check the wiring harness between front door lock actuator (LH) connector E-17 (terminal 1) and ground.
NOTE: Also check intermediate connector C-125 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-125 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between front door lock actuator (LH) connector E-17 (terminal 1) 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. Check that the input signal of front door lock actuator (LH) is normal.

STEP 6. Check ETACS-ECU connector C-301 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-301 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). Check that the input signal of front door lock actuator (LH) is normal.

STEP 7. Check the wiring harness between front door lock actuator (LH) connector E-17 (terminal 3) and ETACS-ECU connector C-301 (terminal 22).

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.

Q: Is the wiring harness between front door lock actuator (LH) connector E-17 (terminal 3) and ETACS-ECU connector C-301 (terminal 22) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of front door lock actuator (LH) is normal.

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. Check that the input signal of front door lock actuator (LH) is normal.

STEP 8. Check front door lock actuator (RH) connector E-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door lock actuator (RH) connector E-07 in good condition?

YES : Go to Step 9.

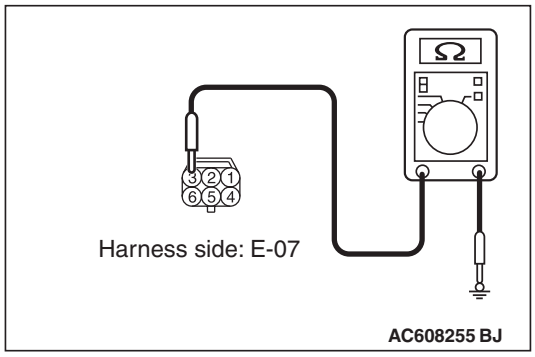
NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of front door lock actuator (RH) is normal.

STEP 9. Check the front door lock actuator (RH).
Disconnect front door lock actuator (RH) connector E-07. Then check continuity between the terminals.

Lever position	Tester connection	Specified condition
UNLOCK	1 –3	Continuity exists (2 ohms or less)
LOCK	1 –3	Open circuit

Q: Is the front door lock actuator (RH) in good condition?
YES : Go to Step 10.
NO : Replace the front door lock actuator (RH). Check that the input signal of front door lock actuator (RH) is normal.

STEP 10. Check the ground circuit to the front door lock actuator (RH). Measure the resistance at front door lock actuator (RH) connector E-07.
(1) Disconnect front door lock actuator (RH) connector E-07 and measure the resistance available at the wiring harness side of the connector.
(2) Measure the resistance value between terminal 3 and ground.
- The resistance should be 2 ohms or less.



Q: Is the measured resistance 2 ohms or less?
YES : Go to Step 12.
NO : Go to Step 11.

STEP 11. Check the wiring harness between front door lock actuator (RH) connector E-07 (terminal 3) and ground.
NOTE: Also check intermediate connector C-114 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-114 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between front door lock actuator (RH) connector E-07 (terminal 3) 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. Check that the input signal of front door lock actuator (RH) is normal.

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STEP 12. Check ETACS-ECU connector C-301 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-301 in good condition?

YES : Go to Step 13.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of front door lock actuator (RH) is normal.

STEP 13. Check the wiring harness between front door lock actuator (RH) connector E-07 (terminal 1) and ETACS-ECU connector C-301 (terminal 10).

NOTE: Also check intermediate connector C-115 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-115 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

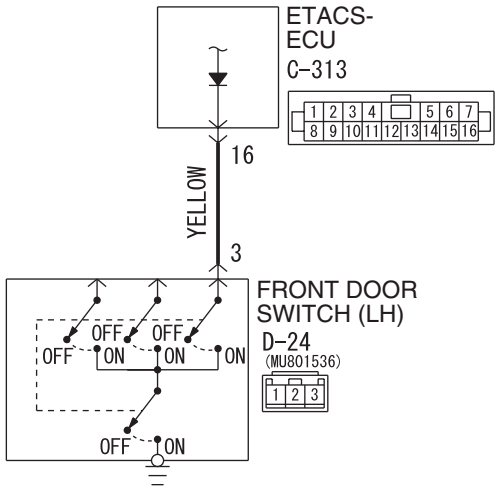
Q: Is the wiring harness between front door lock actuator (RH) connector E-07 (terminal 1) and ETACS-ECU connector C-301 (terminal 10) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of front door lock actuator (RH) is normal.

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. Check that the input signal of front door lock actuator (RH) is normal.

Inspection Procedure 5: ETACS-ECU does not receive any signal from the front door switch (LH).

Front Door Switch (LH) Input Circuit



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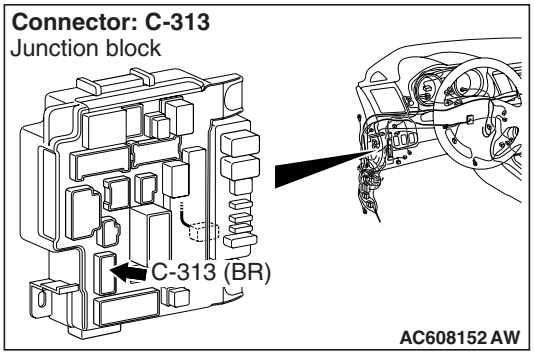

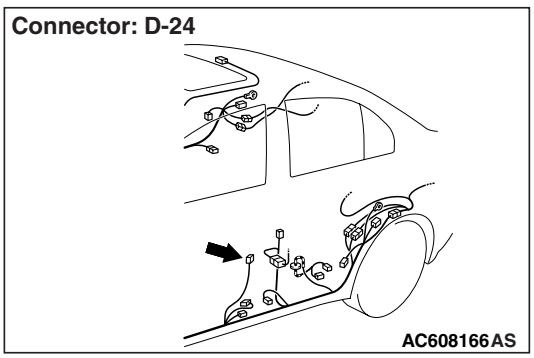

TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the front door switch (LH) input signal, the front door switch (LH) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The front door switch (LH) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

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STEP 1. Check front door switch (LH) connector D-24 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door switch (LH) connector D-24 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). Check that the input signal of front door switch (LH) is normal.

STEP 2. Check the front door switch (LH).

Remove the front door switch (LH). Then check the continuity between the switch terminals and the switch body.

Switch position	Tester connection	Specified condition
Released	3 –switch body	Continuity exists (2 ohms or less)
Pressed	3 –switch body	Open circuit

Q: Is the driver's door switch in good condition?

YES : Go to Step 3.

NO : Replace the front door switch (LH). Check that the input signal of front door switch (LH) is normal.

STEP 3. Measure at the lower metal part of the front door switch (LH) in order to check the ground circuit to the front door switch (LH).

NOTE: Check that the front door switch (LH) is grounded to the vehicle body by means of its mounting screw.

Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Check the fit of the switch, and repair if necessary. Check that the input signal of front door switch (LH) is normal.

STEP 4. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 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). Check that the input signal of front door switch (LH) is normal.

STEP 5. Check the wiring harness between driver's door switch connector D-24 (terminal 3) and ETACS-ECU connector C-313 (terminal 16).

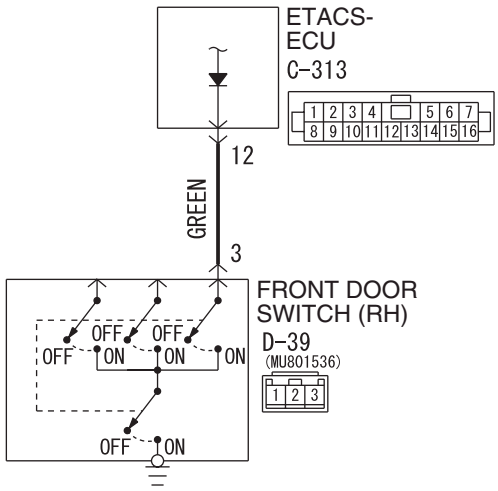
Q: Is the wiring harness between driver's door switch connector D-24 (terminal 3) and ETACS-ECU connector C-313 (terminal 16) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of front door switch (LH) is normal.

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. Check that the input signal of front door switch (LH) is normal.

Inspection Procedure 6: ETACS-ECU does not receive any signal from the front door switch (RH).

Front Door Switch (RH) Input Circuit



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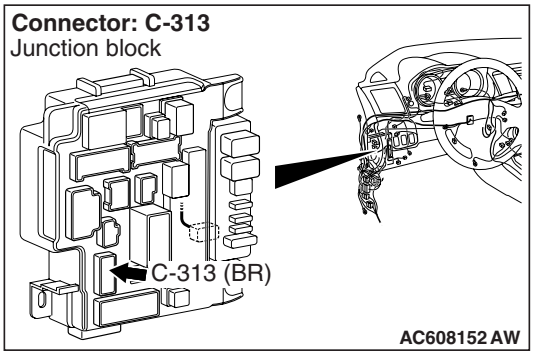

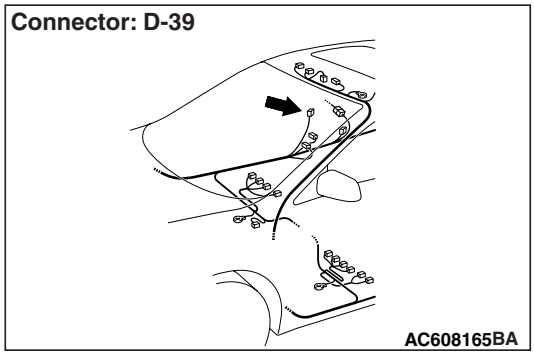

TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the front door switch (RH) input signal, the front door switch (RH) signal is no longer output to the communication line.

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TROUBLESHOOTING HINTS

- The front door switch (RH) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check front door switch (RH) connector D-35 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door switch (RH) connector D-35 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. Check that the input signal of front door switch (RH) is normal.

STEP 2. Check the front door switch (RH).

Remove the front door switch (RH). Then check the continuity between the switch terminals and the switch body.

Switch position	Tester connection	Specified condition
Released	3 –switch body	Continuity exists (2 ohms or less)
Pressed	3 –switch body	Open circuit

Q: Is the front door switch (RH) in good condition?

YES : Go to Step 3.

NO : Replace the front door switch (RH). Check that the input signal of front door switch (RH) is normal.

STEP 3. Measure at the lower metal part of the front door switch (RH) in order to check the ground circuit to the front door switch (RH).

NOTE: Check that the front door switch (RH) is grounded to the vehicle body by means of its mounting screw.

Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Check the fit of the switch, and repair if necessary. Check that the input signal of front door switch (RH) is normal.

STEP 4. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 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. Check that the input signal of front door switch (RH) is normal.

STEP 5. Check the wiring harness between front door switch (RH) connector D-39 (terminal 3) and ETACS-ECU connector C-313 (terminal 12).

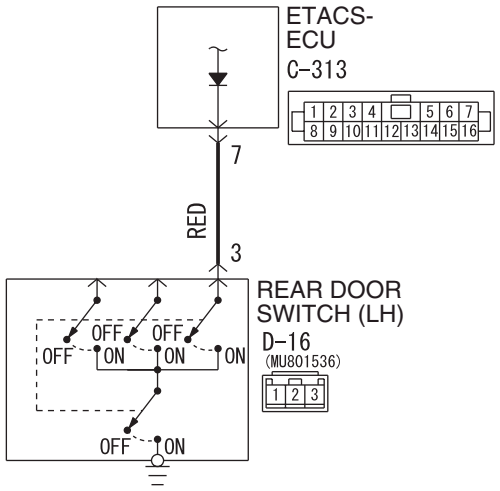
Q: Is the wiring harness between driver's door switch connector D-39 (terminal 3) and ETACS-ECU connector C-313 (terminal 12) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of front door switch (RH) is normal.

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. Check that the input signal of front door switch (RH) is normal.

Inspection Procedure 7: ETACS-ECU does not receive any signal from the rear door switch (LH).

Rear Door Switch (LH) Input Circuit



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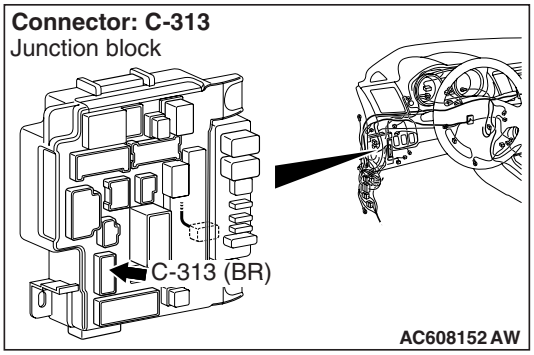

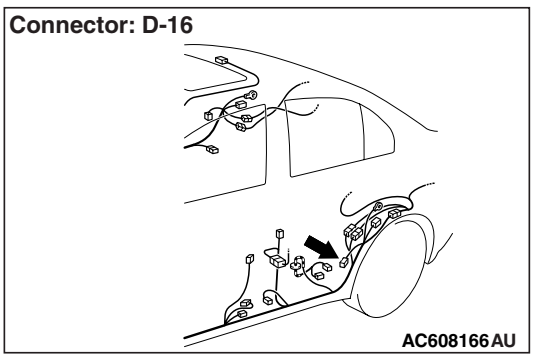

TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the rear door switch (LH) input signal, the rear door switch (LH) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The rear door switch (LH) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

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STEP 1. Check rear door switch (LH) connector D-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door switch (LH) connector D-16 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). Check that the input signal of rear door switch (LH) is normal.

STEP 2. Check the rear door switch (LH).

Remove the rear door switch (LH). Then check the continuity between the switch terminals and the switch body.

Switch position	Tester connection	Specified condition
Released	3 –switch body	Continuity exists (2 ohms or less)
Pressed	3 –switch body	Open circuit

Q: Is the rear door switch in good condition?

YES : Go to Step 3.

NO : Replace the rear door switch (LH). Check that the input signal of rear door switch (LH) is normal.

STEP 3. Measure at the lower metal part of the rear door switch (LH) in order to check the ground circuit to the rear door switch (LH).

NOTE: Check that the rear door switch (LH) is grounded to the vehicle body by means of its mounting screw.

Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Check the fit of the switch, and repair if necessary. Check that the input signal of rear door switch (LH) is normal.

STEP 4. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 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). Check that the input signal of rear door switch (LH) is normal.

STEP 5. Check the wiring harness between driver's door switch connector D-16 (terminal 3) and ETACS-ECU connector C-313 (terminal 7).

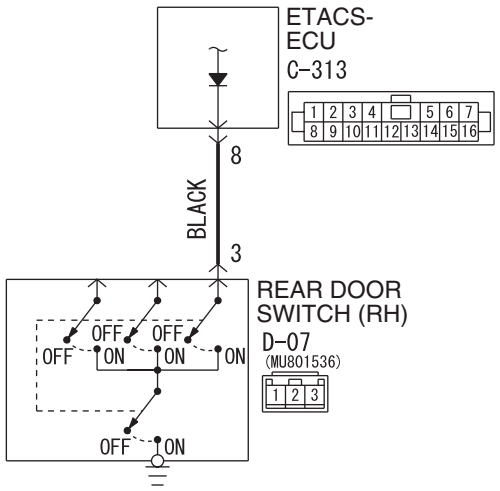
Q: Is the wiring harness between rear door switch connector D-16 (terminal 3) and ETACS-ECU connector C-313 (terminal 7) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of rear door switch (LH) is normal.

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. Check that the input signal of rear door switch (LH) is normal.

Inspection Procedure 8: ETACS-ECU does not receive any signal from the rear door switch (RH).

Rear Door Switch (RH) Input Circuit



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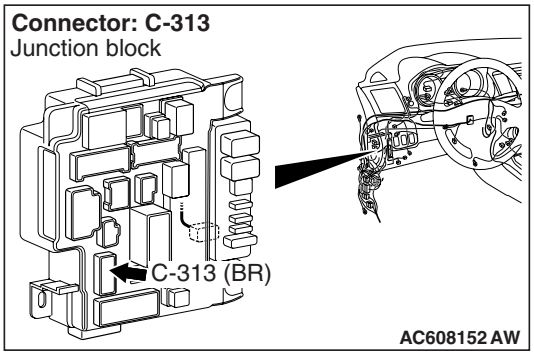

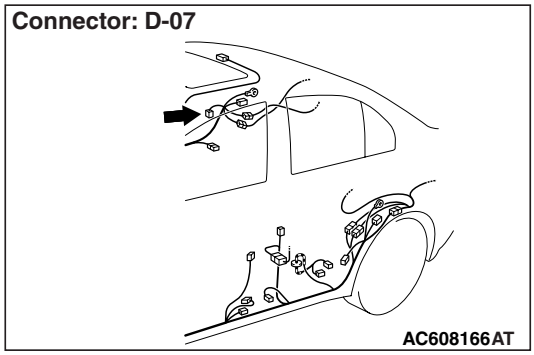

TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the rear door switch (RH) input signal, the rear door switch (RH) signal is no longer output to the communication line.

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TROUBLESHOOTING HINTS

- The rear door switch (RH) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check rear door switch (RH) connector D-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door switch (RH) connector D-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). Check that the input signal of rear door switch (RH) is normal.

STEP 2. Check the rear door switch (RH).

Remove the rear door switch (RH). Then check the continuity between the switch terminals and the switch body.

Switch position	Tester connection	Specified condition
Released	3 –switch body	Continuity exists (2 ohms or less)
Pressed	3 –switch body	Open circuit

Q: Is the rear door switch in good condition?

YES : Go to Step 3.

NO : Replace the rear door switch (RH). Check that the input signal of rear door switch (RH) is normal.

STEP 3. Measure at the lower metal part of the rear door switch (RH) in order to check the ground circuit to the rear door switch (RH).

NOTE: Check that the rear door switch (RH) is grounded to the vehicle body by means of its mounting screw.

Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Check the fit of the switch, and repair if necessary. Check that the input signal of rear door switch (RH) is normal.

STEP 4. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 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). Check that the input signal of rear door switch (RH) is normal.

STEP 5. Check the wiring harness between driver's door switch connector D-07 (terminal 3) and ETACS-ECU connector C-313 (terminal 8).

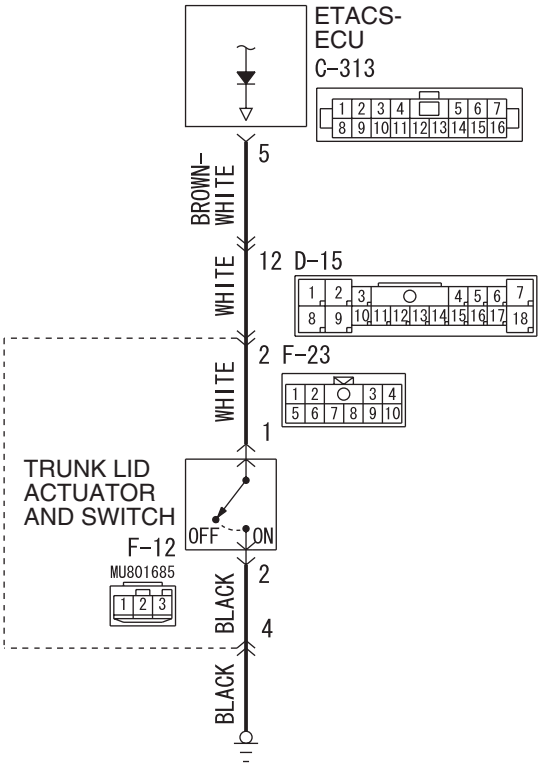
Q: Is the wiring harness between rear door switch connector D-07 (terminal 3) and ETACS-ECU connector C-313 (terminal 8) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of rear door switch (RH) is normal.

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. Check that the input signal of rear door switch (RH) is normal.

Inspection Procedure 9: ETACS-ECU does not receive any signal from the trunk lid actuator and switch.

Trunk Lid Actuator and Switch Input Circuit



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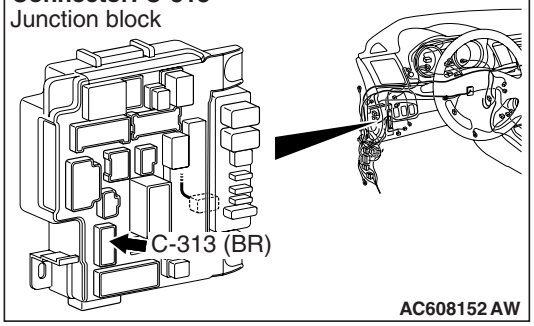
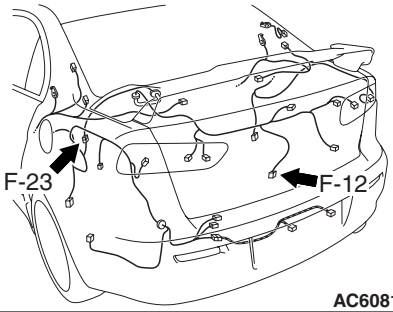
Connector: C-313
Junction block



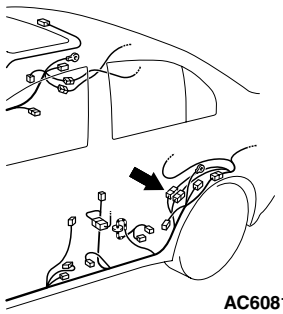
AC608152 AW

Connectors: F-12, F-23



AC608171AE

Connector: D-15



AC608166AL

TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the trunk lid actuator and switch input signal, the trunk lid actuator and switch signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The trunk lid actuator and switch may be defective
- The ETACS-ECU may be defective

TSB Revision

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check trunk lid actuator and switch connector F-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is trunk lid actuator and switch connector F-12 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). Check that the input signal of trunk lid actuator and switch is normal.

STEP 2. Check the trunk lid actuator and switch.

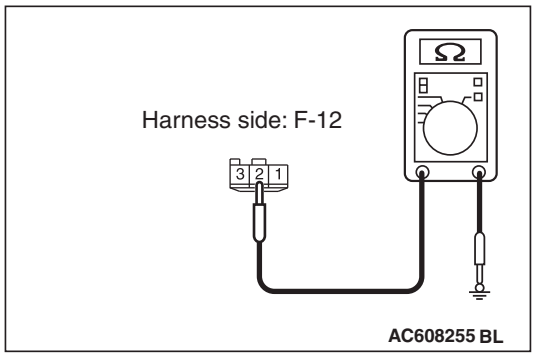
Disconnect trunk lid actuator and switch connector F-12. Then check continuity between terminals.

Ignition key	Tester connection	Specified condition
Released	1 –2	Continuity exists (2 ohms or less)
Pressed	1 –2	Open circuit

Q: Is the trunk lid actuator and switch in good condition?

YES : Go to Step 3.

NO : Replace the trunk lid actuator and switch. Check that the input signal of trunk lid actuator and switch is normal.



STEP 3. Check the ground circuit to the trunk lid actuator and switch. Measure the resistance at trunk lid actuator and switch connector F-12.

(1) Disconnect trunk lid actuator and switch connector F-12 and measure the resistance available at the wiring harness side of the connector.
(2) Measure the resistance value between terminal 2 and ground.
- 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 trunk lid actuator and switch connector F-12 (terminal 2) and ground.

NOTE: Also check intermediate connector F-23 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-23 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between trunk lid actuator and switch connector F-12 (terminal 2) 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. Check that the input signal of trunk lid actuator and switch is normal.

STEP 5. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 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). Check that the input signal of trunk lid actuator and switch is normal.

STEP 6. Check the wiring harness between trunk lid actuator and switch connector F-12 (terminal 1) and ETACS-ECU connector C-313 (terminal 5).

NOTE: Also check intermediate connectors F-23 and D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-23 or D-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

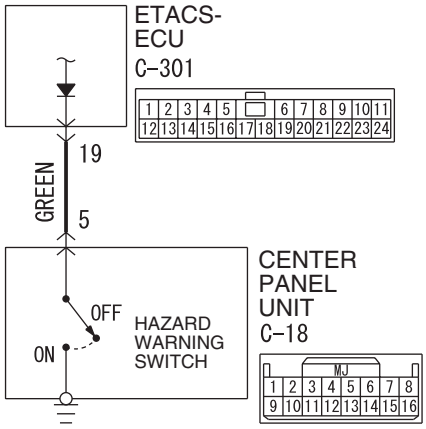
Q: Is the wiring harness between trunk lid actuator and switch connector F-12 (terminal 1) and ETACS-ECU connector C-313 (terminal 5) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of trunk lid actuator and switch is normal.

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. Check that the input signal of trunk lid actuator and switch is normal.

Inspection Procedure 10: ETACS-ECU does not receive any signal from the hazard warning light switch.

Hazard Warning Switch Input Circuit



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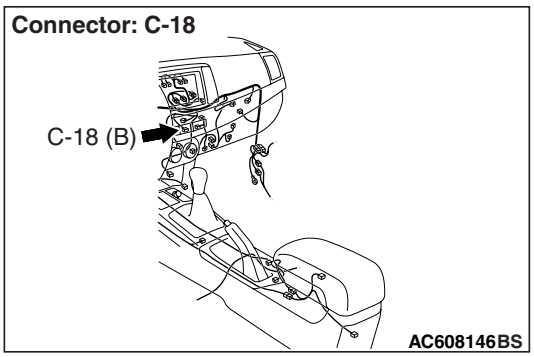

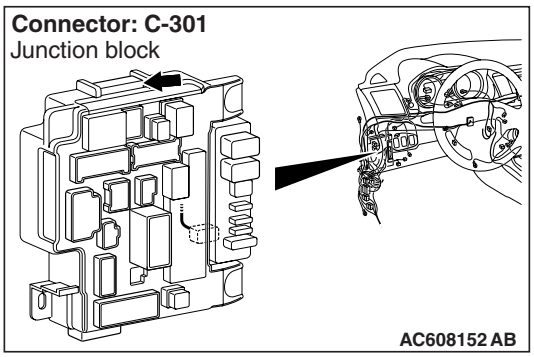

TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the hazard warning light switch input signal, the hazard warning light switch signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The center panel unit may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

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STEP 1. Check center panel unit connector C-18 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is center panel unit connector C-18 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). Check that the input signal of hazard warning light switch is normal.

STEP 2. Check the hazard warning light switch.

Remove the center panel unit. Then check continuity between the switch terminal and switch body.

Switch position	Tester connection	Specified condition
Released	5 –switch body	Continuity exists (2 ohms or less)
Pressed	5 –switch body	Open circuit

Q: Is the hazard warning light switch in good condition?

YES : Go to Step 3.

NO : Replace the center panel unit. Check that the input signal of hazard warning light switch is normal.

STEP 3. Check ETACS-ECU connector C-301 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-301 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). Check that the input signal of hazard warning light switch is normal.

STEP 4. Check the wiring harness between center panel unit connector C-18 (terminal 5) and ETACS-ECU connector C-301 (terminal 19).

Q: Is the wiring harness between center panel unit connector C-18 (terminal 5) and ETACS-ECU connector C-301 (terminal 19) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of hazard warning light switch is normal.

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. Check that the input signal of hazard warning light switch is normal.

Inspection Procedure 11: ETACS-ECU does not receive any signal from the column switch signal.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU receives the column switch signal via the LIN communication. If there is an abnormality to column switch or LIN bus line, the lights and wiper/washer do not work normally.

TROUBLESHOOTING HINTS

- The column switch may be defective
- The LIN bus line may be defective

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, read the ETACS diagnostic trouble code.

Check the DTC is set to the ETACS-ECU.

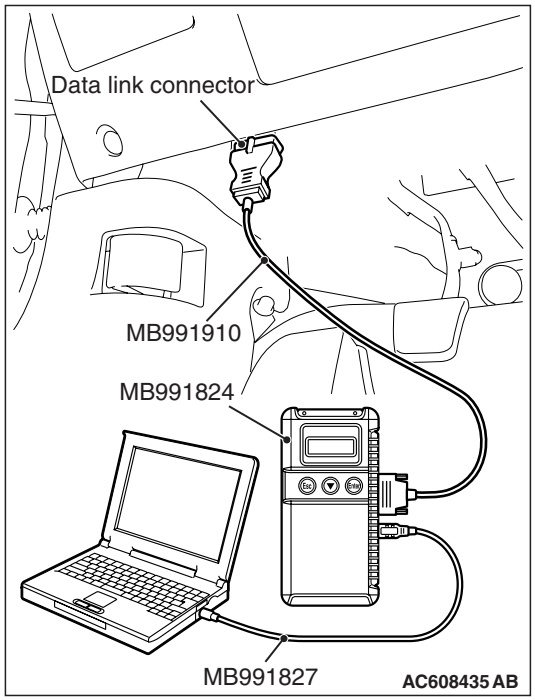
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-479."
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to P.54A-482).
NO : Go to Step 2.



STEP 2. Column switch check

- Check the continuity for windshield wiper and windshield washer switch (Refer to P.54A-231).
- Check the continuity for column switch (switch body part) (Refer to P.54A-231).

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.00-13).

NO : Replace the column switch.

ON-VEHICLE SERVICE

CONFIGURATION FUNCTION

M1545002500104

Use scan tool MB991958 to adjust the following functions. The programmed information is held even when the battery is disconnected.

Adjustment item (scan tool display)	Adjustment item	Adjusting contents (scan tool display)	Adjusting contents
ACC power auto cut	Time to ACC power cut-off when the ignition switch is in the ACC position	Disable	No function (default)
		30 min	30 minutes
		60 min	60 minutes
Turn power source	Adjustment of turn-signal light operation condition	ACC or IG1	Operable with ACC or ON position
		IG1	Operable with ON position (default)
Comfort flasher	With/without comfort flasher function	Disable	No function
		Enable	With function (default)
Comfort flasher switch time	Switch operation time to activate the comfort flasher function	Normal	0.4 seconds (default)
		Long	0.8 seconds
Hazard answer back	Adjustment of the number of keyless hazard warning light answer back flashes	Lock:1, Unlock:2	LOCK: Flashes once, UNLOCK: Flashes twice (default)
		Lock:1, Unlock:0	LOCK: Flashes once, UNLOCK: No flash
		Lock:0, Unlock:2	LOCK: No flash, UNLOCK: Flash twice
		Lock:2, Unlock:1	LOCK: Flash twice, UNLOCK: Flash once
		Lock:2, Unlock:0	LOCK: Flash twice, UNLOCK: No flash
		Lock:0, Unlock:1	LOCK: No flash, UNLOCK: Flash once
		Lock:0, Unlock:0	No function
Front wiper operation	Adjustment of the intermittent windshield wiper operation	Normal INT	Intermittent wiper interval is fixed to 4 seconds.
		Variable INT	Intermittent wiper interval is calculated only by the wiper volume control.
		Speed sensitive	Intermittent wiper interval is calculated according to the intermittent wiper volume control and vehicle speed (default).
Front wiper washer	Disabling or enabling washer-linked wiper function	Only washer	No function
		Washer and wiper	With function (default)

Adjustment item (scan tool display)	Adjustment item	Adjusting contents (scan tool display)	Adjusting contents
Dome light delay timer with door	Adjustment of interior light delay shutdown time	0 sec	0 second (no delay shutdown time) (default <Vehicles without central door locking system>)
		7.5 sec	7.5 seconds
		15 sec	15 seconds
		30 sec	30 seconds (default <Vehicles with central door locking system>)
		60 sec	60 seconds
		120 sec	120 seconds
		180 sec	180 seconds
Headlight auto cut customize	Adjustment of headlight automatic shutdown function	Disable	No function
		Enable (C-spec.)	With function (default)
Interior light auto cut timer	Adjustment of interior light automatic shutdown function operation time	Disable	No function
		3 min	3 minutes
		30 min	30 minutes (default)
		60 min	60 minutes
Door unlock mode	Door lock system <Vehicles with central door locking system>	All doors unlock	All the doors are unlocked when the driver's side door is unlocked.
		Dr door unlock	Only the driver's side door is unlocked when the driver's side door is unlocked. (default)
Auto door unlock by P position	Auto door unlock by P position function <Vehicles with central door locking system>	Disable	No function (default)
		Always enabled	Always with function
Duration of horn chirp	Horn sounding time during horn answer back	Short	0.01 second (default)
		Long	0.02 second
Horn chirp by keyless	Horn chirp by keyless entry system	Not sound horn	No horn answerback function
		Lock any time	The horn sounds when the lock button of keyless entry transmitter is pressed once.
		W lock any time	The horn sounds when the lock button of keyless entry transmitter is pressed twice. (default)
Buzzer answer back <Vehicles with KOS>	Adjusts the tone alarm answer back function.	Not sound buzzer	No function
		At keyless	Sounds when the keyless entry system is activated.
		At F.A.S.T.	Sounds when KOS is activated (default).
		At Both	Sounds when the keyless entry system or KOS is activated.

Adjustment item (scan tool display)	Adjustment item	Adjusting contents (scan tool display)	Adjusting contents
Timer lock timer	Timer lock period adjustment	30 sec	30 seconds (default)
		60 sec	60 seconds
		120 sec	120 seconds
		180 sec	180 seconds
Panic alarm switch	With/without panic alarm function	Disable	No function
		Enable	With function (default)
F.A.S.T. key out of car	With/without KOS key exterior detection function	Enable	No function
		Disable	With function (default)
F.A.S.T. feature	KOS function adjustment	Both enable	All KOS functions are enabled (default).
		DoorEntry enable	Only door entry function is enabled.
		ENG strt enable	Only engine starting function is enabled.
		Both disabled	All KOS functions are disabled.
F.A.S.T. unlock disable time	Adjusts the door unlock inhibition period after door lock is activated.	0 sec	0 seconds
		3 sec	3 seconds (default)
		5 sec	5 seconds

ETACS-ECU

REMOVAL AND INSTALLATION

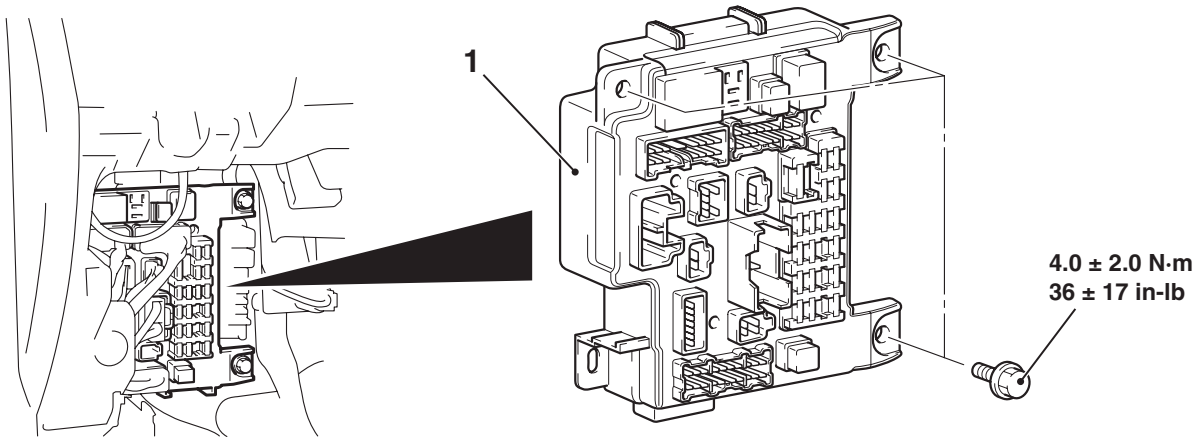
M1545004700030

⚠ *WARNING*

- ***Before removing the ETACS-ECU and knee air bag module, refer to GROUP 52B, Service Precautions P.52B-24 and Knee Air Bag Module P.52B-378.***
- ***When removing and installing the ETACS-ECU, do not let it bump against the knee air bag module.***

⚠ CAUTION

When replacing the ETACS-ECU, use the ETACS-ECU to which the chassis number is written and the coding is implemented. Also, if diagnosis code No. B1761 "VIN not programmed" or No. B222C "Coding not completed" is set to the ETACS-ECU, replace with the ETACS-ECU to which the chassis number same as that of vehicle is written and the coding is implemented.



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Removal Steps

- Side lower panel assembly (Refer to GROUP 52A, Instrument Lower Panel P.52A-7).

Removal Steps (Continued)

- Knee air bag module (Refer to GROUP 52B, Knee Air Bag Module P.52B-378).

1. ETACS-ECU

CHECK WITH TERMINAL VOLTAGE

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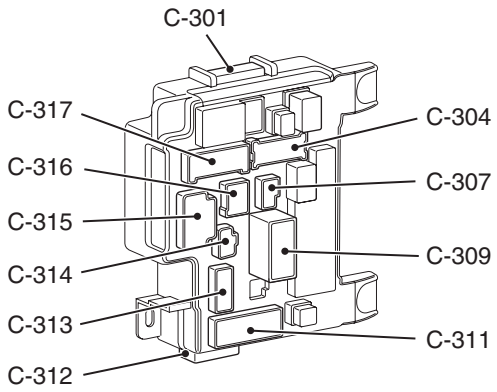

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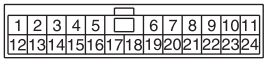
TSB Revision

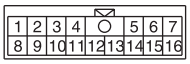
CONNECTOR: C-301



AC507030AB

Terminal No.	Check item	Check condition	Normal condition
1	–	–	–
2	Input from power window main switch or front power window sub switch (lock)	Power window main switch or front power window sub switch: Locked	0 volt
3–9	–	–	–
10	Input from front passenger's door lock actuator (unlock)	Front passenger's door lock: Unlocked	0 volt
11	–	–	–
12	Output to defogger switch	Defogger switch: ON	0 volt
13–15	–	–	–
16	Input from door lock key cylinder switch (lock)	Door lock key cylinder switch: Locked	0 volt
17	Input from door lock key cylinder switch (unlock)	Door lock key cylinder switch: Unlocked	0 volt
18	–	–	–
19	Input from hazard warning light switch	Hazard warning light switch: ON	0 volt
20	–	–	–
21	Input from windshield wiper backup switch	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	0 volt
22	Input from driver's door lock actuator (unlock)	Driver's door lock: Unlocked	0 volt
23, 24	–	–	–

CONNECTOR: C-304



AC507031AB

Terminal No.	Check item	Check condition	Normal condition
1	Stop light switch power supply	Stop light switch: ON	Battery voltage
2	–	–	–
3	Output to position light (LH)	When position light is illuminated	Battery voltage
4	–	–	–
5	Output to windshield wiper (HI)	When windshield wipers are operating at high speed	Battery voltage
6	Output to windshield wiper (LO)	When windshield wipers are operating at low speed	Battery voltage
7	Output position light (RH)	When position light illuminated	Battery voltage
8	Input from windshield wiper auto stop switch	When windshield wipers are operating	Battery voltage
9	Output to front and side turn-signal light (LH)	When front and side turn-signal light (LH) is illuminated	Battery voltage
10	Output to engine control module (IG1)	Ignition switch: ON	Battery voltage
11	Input from engine control module (fuel control)	Engine: Started	0 volt
12	Output to windshield wiper (ACC)	Ignition switch: ACC	Battery voltage
13	Output to windshield washer	When windshield washer is operating	Battery voltage
14	–	–	–
15	Output to engine control module (START)	Ignition switch: START	Battery voltage
16	Output to front and side turn-signal light (RH)	When front and side turn-signal light (RH) is illuminated	Battery voltage

CONNECTOR: C-307

AC507032AB

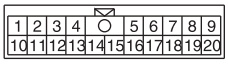
Terminal No.	Check item	Check condition	Normal condition
1	Fuel pump power supply	Ignition switch: ON	Battery voltage
2	Battery power supply	Always	Battery voltage

CONNECTOR: C-309

AC507033AB

Terminal No.	Check item	Check condition	Normal condition
1	Battery power supply	Always	Battery voltage
2	Battery power supply	Always	Battery voltage

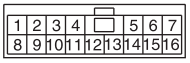
CONNECTOR: C-311



AC507035AB

Terminal No.	Check item	Check condition	Normal condition
1	Output to trunk lid lock actuator	When trunk is locked	Battery voltage
2	Backup light power supply	When backup light is illuminated	Battery voltage
3	Input from luggage compartment light	When luggage compartment light is illuminated	0 volt
4, 5	–	–	–
6	Output to rear door lock actuator (unlock)	When rear door is unlocked	Battery voltage
7, 8	–	–	–
9	Output to rear door lock actuator (lock)	When rear door is locked	Battery voltage
10	Output to taillight (LH) and side maker light (LH) and license plate light	When taillight (LH) and side maker light (LH) and license plate light are illuminated	Battery voltage
11	–	–	–
12	Rear power window motor power supply	Ignition switch: ON	Battery voltage
13	Output to taillight (RH) and side maker light (RH) and glove box light	When taillight (RH) and side maker light (RH) and glove box light are illuminated	Battery voltage
14, 15	–	–	–
16	Output to accessory socket 1	Ignition switch: ACC	Battery voltage
17	Output to luggage compartment light	When luggage compartment light is illuminated	2 volts or less
18	Output to rear turn-signal light (LH)	When rear turn-signal light (LH) is illuminated	Battery voltage
19	Output to rear turn-signal light (RH)	When rear turn-signal light (RH) is illuminated	Battery voltage
20	–	–	–

CONNECTOR: C-312



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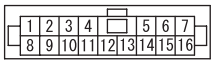
Terminal No.	Check item	Check condition	Normal condition
1	Input from brake fluid level switch	Brake fluid level switch: ON	0 volt
2	Output to radiator fan relay	When radiator fan is operating	0 volt
3	–	–	–
4	Output to fog lights	Fog light switch: ON	0 volt
5	–	–	–
6	Output to headlight (LO)	Headlight switch: ON	0 volt
7	Input from ambient temperature sensor	Always	0.2 –2.72 volts
8	Output to condenser fan relay	When condenser fan is operating	0 volt
9	Output to fan control relay	When fan control is operating	0 volt
10	Output to daytime running light	Ignition switch: ON	0 volt
11	Output to horn	When horn sounds	0 volt
12	–	–	–
13	Output to Headlight (HI)	Dimmer switch: ON	0 volt
14	Ground (ambient temperature sensor)	Always	0 volt
15	–	–	–
16	Input from stoplight switch	Stoplight switch: ON	12 volts

CONNECTOR: C-313



AC610017

Terminal No.	Check item	Check condition	Normal condition
1	–	–	–
2	Ignition switch (IG1) power supply	Ignition switch: ON	Battery voltage
3	–	–	–
4	Ignition switch (IG1) power supply	Ignition switch: ON	Battery voltage
5	Input from trunk lid actuator and switch	Trunk lid actuator and switch: ON (trunk lid open)	0 volt
6	–	–	–
7	Input from rear door switch (LH)	Rear door switch (LH): ON (door open)	0 volt
8	Input from rear door switch (RH)	Rear door switch (RH): ON (door open)	0 volt
9–11	–	–	–

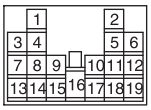
Terminal No.	Check item	Check condition	Normal condition
12	Input from front door switch (RH)	Front door switch (LH): ON (door open)	0 volt
13–15	–	–	–
16	Input from front door switch (LH)	Front door switch (RH): ON (door open)	0 volt

CONNECTOR: C-314

AC507037AB

Terminal No.	Check item	Check condition	Normal condition
1	Output to fuel pump	Engine: Started	Battery voltage
2	–	–	–

CONNECTOR: C-315



AC507029AB

Terminal No.	Check item	Check condition	Normal condition
1	–	–	–
2	Output to front door lock actuator (LH) (unlock)	When front door (LH) is unlocked	Battery voltage
3	–	–	–
4	Battery power supply	Always	Battery voltage
5	Output to front door lock actuator (RH) (unlock)	When front door (RH) is unlocked	Battery voltage
6	Output to central door locking (for locking the doors)	When the door lock actuators lock the doors	Battery voltage
7	Ignition switch (START) power supply	Ignition switch: START	Battery voltage
8	Power window motor power supply	Ignition switch: ON	Battery voltage
9	Ignition switch (ACC) power supply	Ignition switch: ACC	Battery voltage
10	Power window main switch power supply	Ignition switch: ON	Battery voltage
11	Output to accessory socket 2	Ignition switch: ACC	Battery voltage
12	Output to accessory socket 3	Ignition switch: ACC	Battery voltage
13	Input from key reminder switch	Key reminder switch: ON (ignition key removed)	0 volt
14	–	–	–

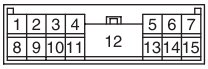
Terminal No.	Check item	Check condition	Normal condition
2	Input from power window main switch or front power window sub switch (unlock)	Power window main switch or front power window sub switch: Unlocked	0 volt
16	Output to blower motor	Blower motor in operation	Battery voltage
17	Ground (signal)	Always	0 volt
18	Output to ignition key cylinder illumination light	When ignition key cylinder illumination is ON	12 volts
19	Input from horn switch	Horn switch: ON	0 volt

CONNECTOR: C-316

AC507038AB

Terminal No.	Check item	Check condition	Normal condition
1	–	–	–
2	Sunroof motor assembly power supply	Always	Battery voltage
3, 4	–	–	–
5	Input from dome light	When dome light is illuminated	0 volt
6	Output to dome light output	When dome light is illuminated	2 volts or less

CONNECTOR: C-317



AC507028AB

Terminal No.	Check item	Check condition	Normal condition
1	Battery power supply	Always	Battery voltage
2	Battery power supply	Always	Battery voltage
3, 4	–	–	–
5	Ignition switch (IG1) power supply	Ignition switch: ON	Battery voltage
6	Input from ignition switch (IG1)	Ignition switch: ON	Battery voltage
7	Input from ignition switch (ACC)	Ignition switch: ACC	Battery voltage
8	–	–	–
9	Output to theft-alarm indicator light	When theft-alarm indicator light is illuminated	0 volt
10	Battery power supply	Always	Battery voltage
11–14	–	–	–
15	Ground	Always	0 volt

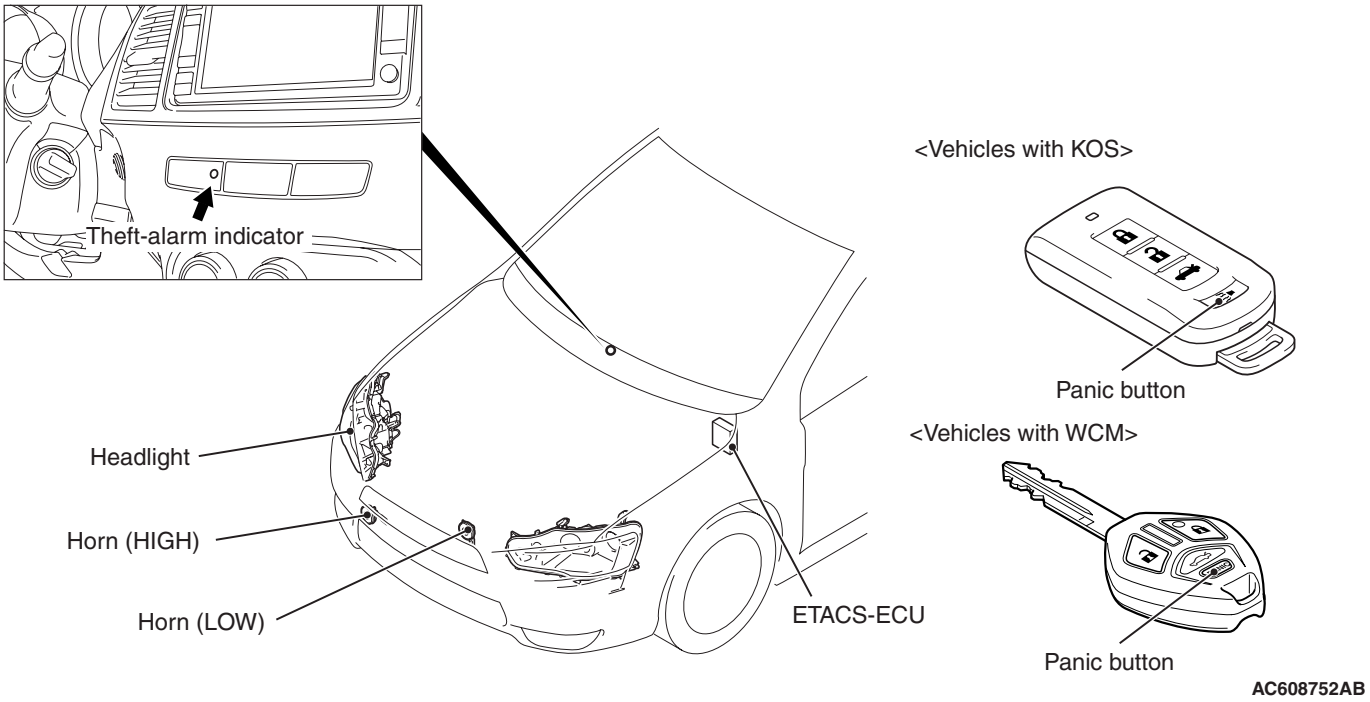
THEFT ALARM

GENERAL INFORMATION

M1547000100098

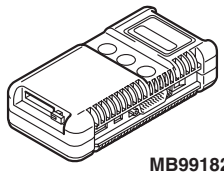
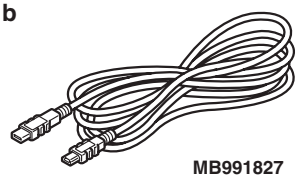
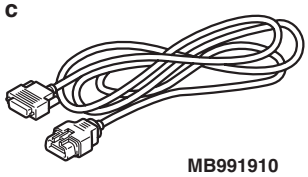
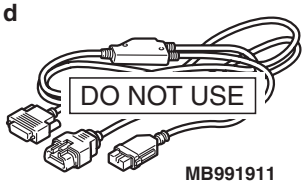
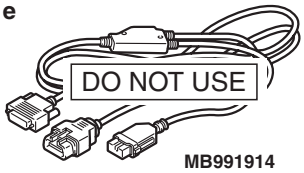
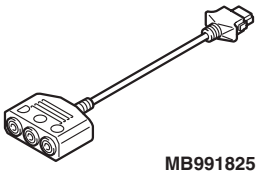
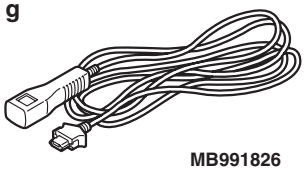
- When the doors are locked using the keyless entry or KOS (except when locked by using the key cylinder or door lock switch), the improper opening of door or trunk causes the ETACS-ECU function and control to give off an alarm with the flashing of headlights and the intermittent sounding of horns. Also, the ETACS-ECU warns that the theft-alarm system is being set by flashing the theft-alarm indicator. < ES,GTS: Standard, DE (Except for California and Canada): Option>
- By pressing the panic button of transmitter, the flashing of headlights and the intermittent sounding of horns can be performed by remote control operation. < ES,GTS: Standard, DE (Except for California and Canada):Option>

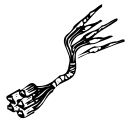
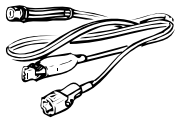
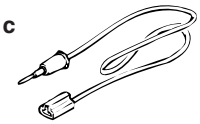
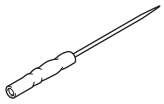
CONSTRUCTION DIAGRAM



SPECIAL TOOLS

M1547000600145

Tool	Tool number and name	Supersession	Application
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991914 f  MB991825 g  MB991826 MB991958	MB991958 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826 M.U.T.-III sub-assembly a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable c. M.U.T.-III main harness A (Vehicles with CAN communication system) d. M.U.T.-III main harness B (Vehicles without CAN communication system) e. M.U.T.-III main harness C (for Daimler Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness	MB991824-KIT *NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.*	**⚠ CAUTION** **M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.** Reading diagnostic trouble code.

Tool	Tool number and name	Supersession	Application
a  b  c  d  MB991223	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222 Harness set a. Check harness b. LED harness c. LED harness adapter d. Probe	General service tool (jumper)	Continuity check and voltage measurement at harness wire or connector a. For checking connector pin contact pressure b. For checking power supply circuit c. For checking power supply circuit d. For connecting a locally sourced tester
 MB992006	MB992006 Extra fine probe	–	Continuity check and voltage measurement at harness wire or connector

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

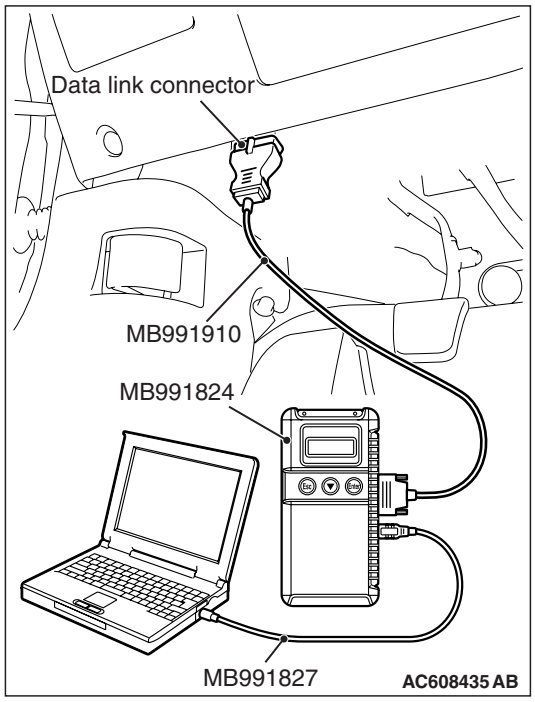
M1547001200106

Refer to GROUP 00 –Contents of troubleshooting
P.00-6.

DIAGNOSTIC FUNCTION

M1547001300028

HOW TO CONNECT THE SCAN TOOL (M.U.T.-III)



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)

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to special tool MB991824.
5. Connect special tool MB991910 to the data link connector.
6. Turn the power switch of special tool MB991824 to the "ON" position.

   NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.
7. Start the M.U.T.-III system on the personal computer.

NOTE: Disconnecting scan tool MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: 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)

⚠ 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.

NOTE: If the battery voltage is low, diagnostic trouble codes will not be set. Check the battery if scan tool MB991958 does not display.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "System select" from the start-up screen.
4. Select "From 2006 MY" of "Model Year." When the "Vehicle Information" is displayed, check the contents.
5. Select "ETACS" from "System List", and press the "OK" button.

   NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.
6. Select "Diagnostic Trouble Code."
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: 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)

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "CAN bus diagnosis" from the start-up screen.
4. When the vehicle information is displayed, confirm that it matches the vehicle being diagnosed.
   - If they match, go to step 8.
   - If not, go to step 5.
5. Select the "view vehicle information" button.
6. Enter the vehicle information and select the "OK" button.
7. When the vehicle information is displayed, confirm again that it matches the vehicle being diagnosed.
   - If they match, go to step 8.
   - If not, go to step 5.
8. Select the "OK" button.
9. When the optional equipment screen is displayed, choose the one which the vehicle is fitted with, and then select the "OK" button.

TROUBLE SYMPTOM CHART

M1547001500152

TSB Revision

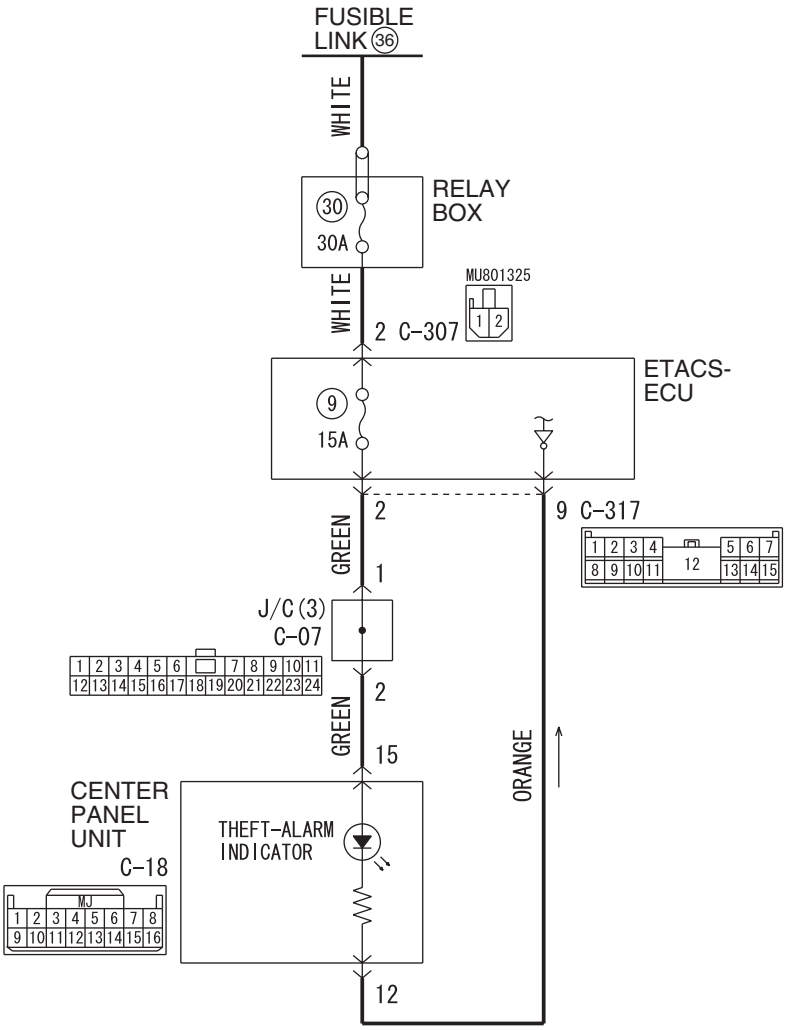
Trouble symptom	Inspection Procedure No.	Reference page
The theft-alarm is not armed (the theft-alarm indicator does not illuminate).	1	P.54A-577
The interior alarm does not work normally while the theft-alarm is triggered.	2	P.54A-583
Horns do not sound while the theft-alarm system is triggered.	3	P.54A-587
Panic alarm function does not work normally.	4	P.54A-592

SYMPTOM PROCEDURES

Inspection Procedure 1: The theft-alarm is not armed (the theft-alarm indicator does not illuminate).

⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Theft-alarm Indicator Circuit



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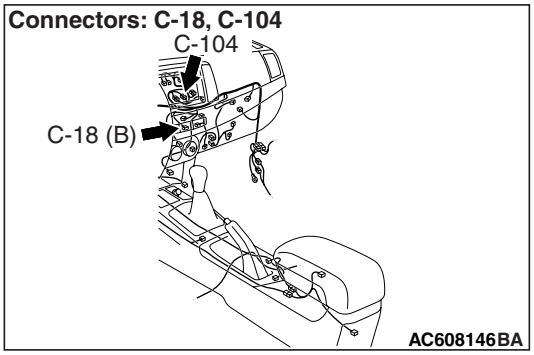
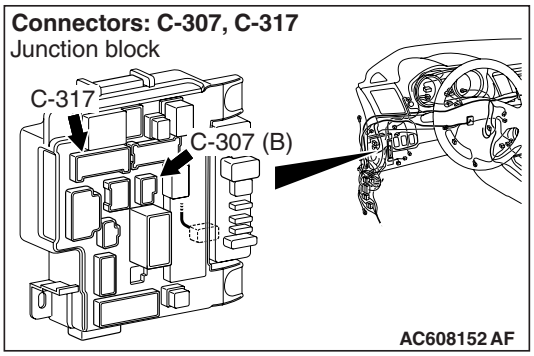




TECHNICAL DESCRIPTION (COMMENT)

If this function does not work normally, the input signal circuits to the components below, the theft-alarm indicator, the ETACS-ECU or the CAN bus line may have a problem.

- Keyless entry transmitter
- Key reminder switch
- Ignition switch (ACC)
- Hood switch
- Door switches
- Trunk latch switch

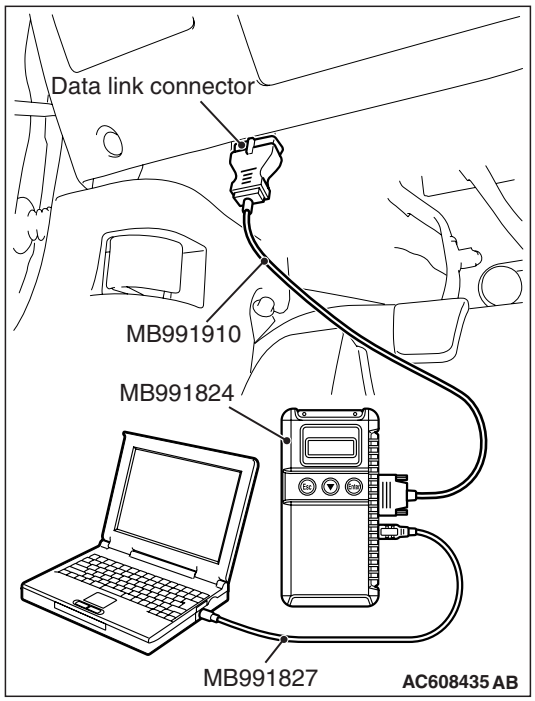
TROUBLESHOOTING HINTS

- CAN bus line may be defective
- Theft-alarm indicator may be defective
- Keyless entry transmitter may be defective
- The key reminder switch may be defective
- Door switch may be defective
- Trunk latch switch may be defective
- Hood switch may be defective
- The KOS-ECU may be defective
- The WCM may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the scan tool (M.U.T.-III) P.54A-574."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 2. Using scan tool MB991958, check for any diagnostic trouble code.

Check if DTC is set to the KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM>.
(1) Turn the ignition switch to the "ON" position.
(2) Check whether the KOS or WCM related DTC is set.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES <vehicles with KOS> : Troubleshoot the KOS (Refer to GROUP 42B, KOS P.42B-20).
YES <vehicles with WCM> : Troubleshoot the WCM (Refer to GROUP 42C, WCM P.42C-14).
NO : Go to Step 3.

STEP 3. Check the keyless operation key <KOS> or keyless entry transmitter <WCM>.

Q: is the keyless operation key <KOS> or keyless entry transmitter <WCM> normally?

YES : Go to Step 4.
NO <vehicles with KOS> : Troubleshoot the KOS (Refer to GROUP 42B, KOS P.42B-20).
NO <vehicles with WCM> : Troubleshoot the WCM (Refer to GROUP 42C, WCM P.42C-14).

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STEP 4. Using scan tool MB991958, check data list.

Use the ETACS-ECU data list to check the signals related to the theft-alarm function.

- Turn the ignition switch to the "ACC" position.
- Close the hood.
- Turn the ignition switch to the "LOCK" (OFF) position (with ignition key <vehicles with WCM> or emergency key <vehicles with KOS> inserted).
- Open each door.
- Open the Trunk.

Item No.	Item name	Normal condition
Item 256	Dr door ajar switch	Open
Item 257	As door ajar switch	Open
Item 258	RR door ajar switch	Open
Item 259	RL door ajar switch	Open
Item 260	Trunk/gate trunk ajar switch	Open
Item 264	Handle lock switch	Key in
Item 288	ACC switch	ON

Q: Does scan tool MB991958 display the items "Dr door ajar switch", "As door ajar switch", "RR door ajar switch", "RL door ajar switch", "Trunk/gate trunk ajar switch" , "Handle lock switch", "Hood switch" and "ACC switch" as normal condition?

YES <Normal conditions are displayed for all items.> : Go to Step 5.

NO <Normal condition is not displayed for item No. 256.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 5 "ETACS-ECU does not receive any signal from the front door switch (LH)" P.54A-543.

NO <Normal condition is not displayed for item No. 257.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 6 "ETACS-ECU does not receive any signal from the front door switch (RH)" P.54A-545.

NO <Normal condition is not displayed for item No. 258.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 7 "ETACS-ECU does not receive any signal from the rear door switch (LH)" P.54A-548.

NO <Normal condition is not displayed for item No. 259.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 8 "ETACS-ECU does not receive any signal from the rear door switch (RH)" P.54A-550.

NO <Normal condition is not displayed for item No.

260.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 9 "ETACS-ECU does not receive any signal from the trunk lid actuator and switch P.54A-553.

NO <Normal condition is not displayed for item No. 264.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 3 "ETACS-ECU does not receive any signal from key reminder switch" P.54A-533.

NO <Normal condition is not displayed for item No. 288.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 1 "ETACS-ECU does not receive any signal from the ignition switch (ACC) signal" P.54A-529.

STEP 5. Check center panel unit connector C-18 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

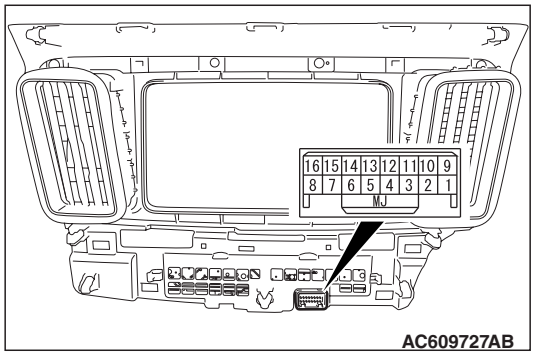
Q: Is center panel unit connector C-104 in good condition?

YES : Go to Step 6.
NO : Repair the damaged parts.

STEP 6. Check the theft-alarm indicator.

Q: Is the theft-alarm indicator in good condition?

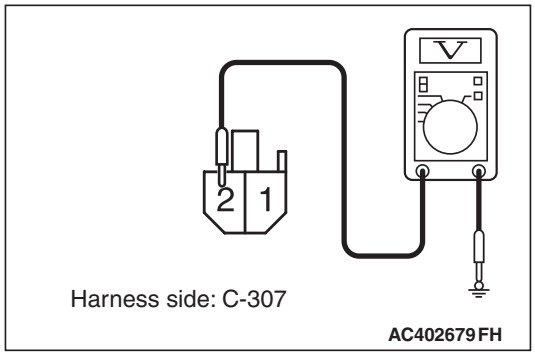
YES : Go to Step 7.
NO : Replace the center panel unit.



STEP 7. Check ETACS-ECU connector C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the ETACS-ECU connector C-307 in good condition?

YES : Go to Step 8.
NO : Repair the damaged parts.



STEP 8. Measure the voltage at ETACS-ECU connector C-307.

(1) Disconnect ETACS-ECU connector C-307, and measure the voltage wiring harness side.
(2) Measure the voltage between ETACS-ECU connector-307 (terminal No. 2) and the body 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 10.
NO : Go to Step 9.

STEP 9. Check the Wiring harness between ETACS-ECU connector C-307 (terminal No. 2) and fusible link (36).

- Check the power supply line for open circuit.

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.00-13).
NO : Repair the wiring harness between ETACS-ECU connector C-307 and fusible link (36).

STEP 10. 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 11.
NO : Repair the damaged parts.

STEP 11. Check the Wiring harness between ETACS-ECU connector C-317 (terminal No. 2,9) and center panel unit connector C-104 (terminal No. 15,12).

- Check the input/output lines for open circuit and short circuit.

Q: Is the check result normal?

YES : Go to Step 12.
NO : Repair the wiring harness between ETACS-ECU connector C-317 and center panel unit connector C-104.

STEP 12. Retest the system.

Q: Does the theft-alarm work 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.00-13).

NO : Replace the ETACS-ECU.

Inspection Procedure 2: The interior alarm does not work normally while the theft-alarm is triggered.

⚠ CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

If the interior alarm does not work normally, the input signal circuits to the components below, ETACS-ECU, or combination meter built-in tone alarm may have a problem.

- Hood switch
- All of the door switches
- Trunk latch switch

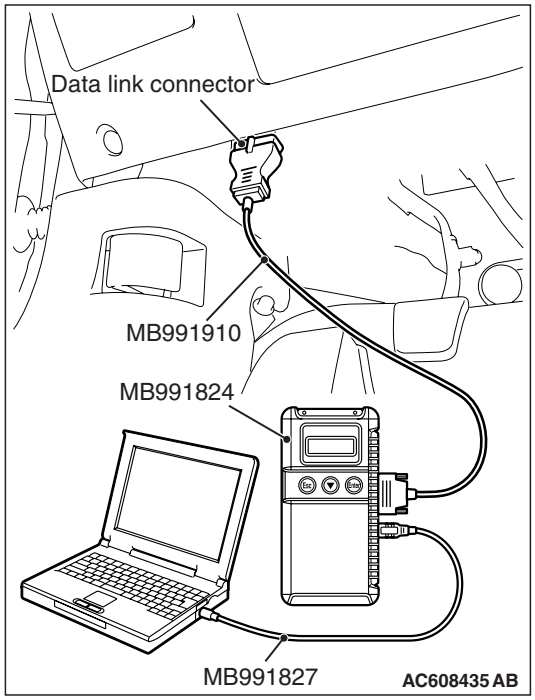
TROUBLESHOOTING HINTS

- Hood switch may be defective
- All the door switch may be defective
- Trunk latch switch may be defective
- The ETACS-ECU may be defective
- Combination meter may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

Check if DTC is set to the ETACS-ECU.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-574."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to P.54A-482).
NO : Go to Step 2.

STEP 2. Using scan tool MB991958, check data list.

Use the ETACS-ECU data list to check the signals related to the theft-alarm function.

- Turn the ignition switch to the "ACC" position.
- Close the hood.
- Turn the ignition switch to the "LOCK" (OFF) position (with ignition key <vehicles with WCM> or emergency key <vehicles with KOS> inserted).
- Open each door.
- Hood is opened
- Open the trunk.

Item No.	Item name	Normal condition
Item 256	Dr door ajar switch	Open
Item 257	As door ajar switch	Open
Item 258	RR door ajar switch	Open
Item 259	RL door ajar switch	Open
Item 260	Trunk/gate trunk ajar switch	Open

Q: Does scan tool MB991958 display the items "Dr door ajar switch", "As door ajar switch", "RR door ajar switch", "RL door ajar switch", "Trunk/gate trunk ajar switch" and "Hood switch" as normal condition?

YES <Normal conditions are displayed for all items.> : Go to Step 3.

NO <Normal condition is not displayed for item No. 256.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 5 "ETACS-ECU does not receive any signal from the front door switch (LH)" P.54A-543.

NO <Normal condition is not displayed for item No. 257.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 6 "ETACS-ECU does not receive any signal from the front door switch (RH)" P.54A-545.

NO <Normal condition is not displayed for item No. 258.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 7 "ETACS-ECU does not receive any signal from the rear door switch (LH)" P.54A-548.

NO <Normal condition is not displayed for item No. 259.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 8 "ETACS-ECU does not receive any signal from the rear door switch (RH)" P.54A-550.

NO <Normal condition is not displayed for item No. 260.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 9 "ETACS-ECU does not receive any signal from the trunk lid actuator and

switch" P.54A-553.

STEP 3. Using scan tool MB991958, check actuator test.

(1) Connect scan tool MB991958 to the data link connector.
(2) Turn the ignition switch to the "ON" position.
(3) Set scan tool MB991958 to the actuator test mode.
- Item 12: Buzzer

(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Go to Step 4.
NO : Replace the combination meter.

STEP 4. Retest the system.

Check that the theft-alarm works normally.

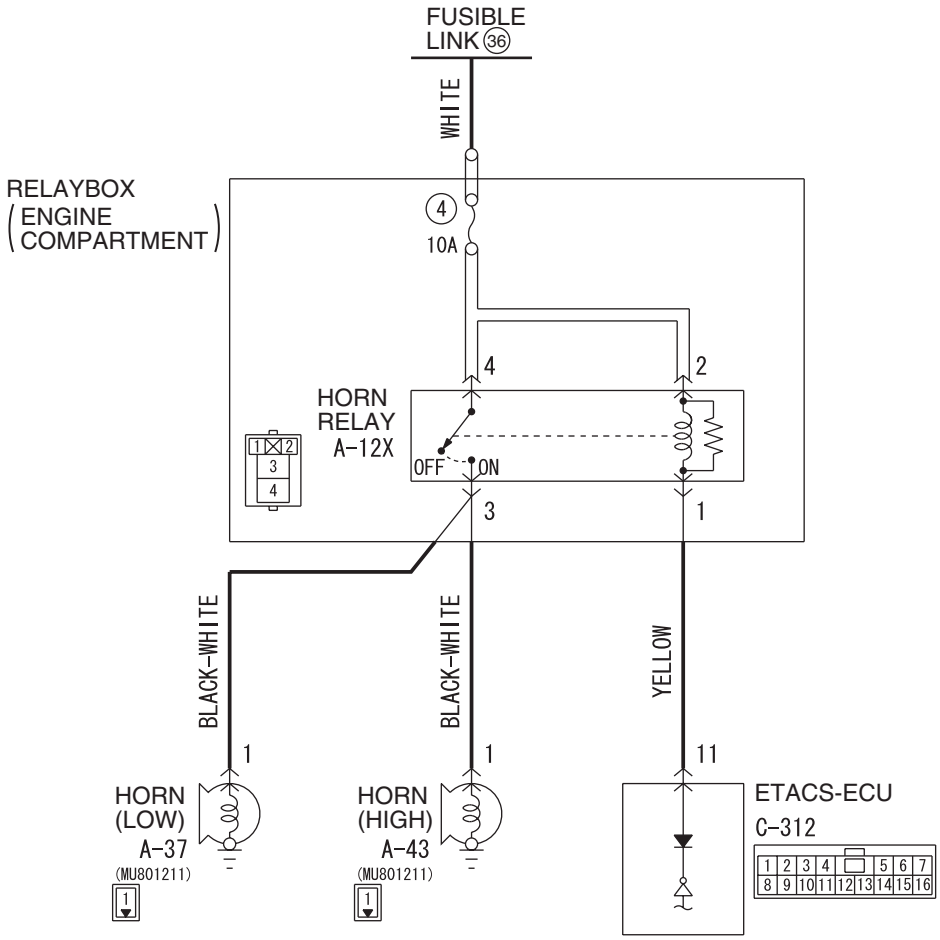
Q: Does the theft-alarm work normally?

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.00-13).
NO : Replace the ETACS-ECU.

Inspection Procedure 3: Horns do not sound while the theft-alarm system is triggered.

⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Horn Circuit



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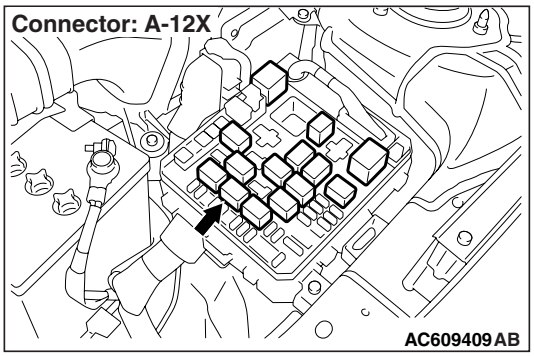

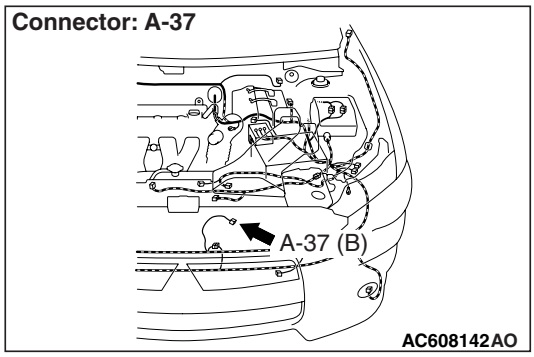

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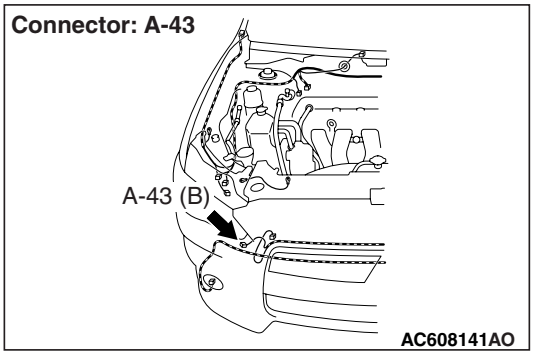
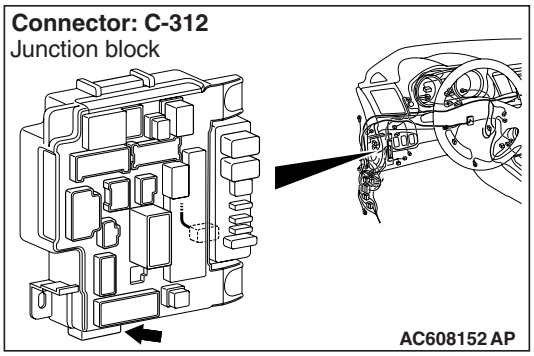




TECHNICAL DESCRIPTION (COMMENT)

If horns do not sound, the horn input signal circuit or the ETACS-ECU may be defective.

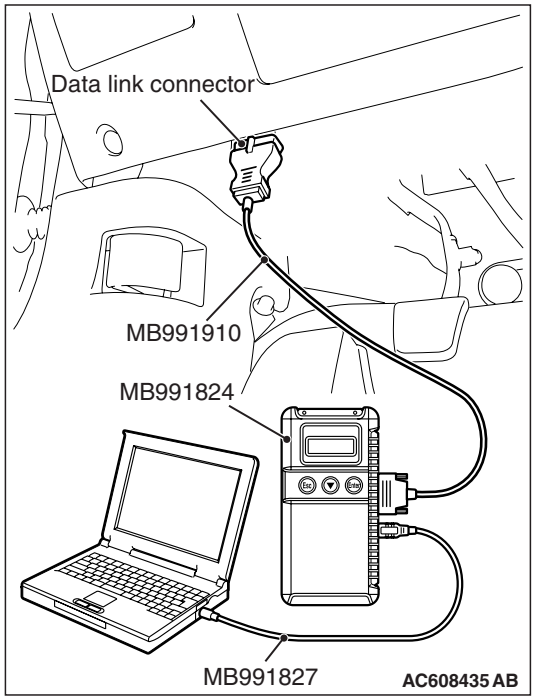
TROUBLESHOOTING HINTS

- Horns may be defective
- Horn relay may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

Check if DTC is set to the ETACS-ECU.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-574."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to P.54A-482.
NO : Go to Step 2.

STEP 2. Check horn relay connector A-12X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is horn relay connector A-12X in good condition?

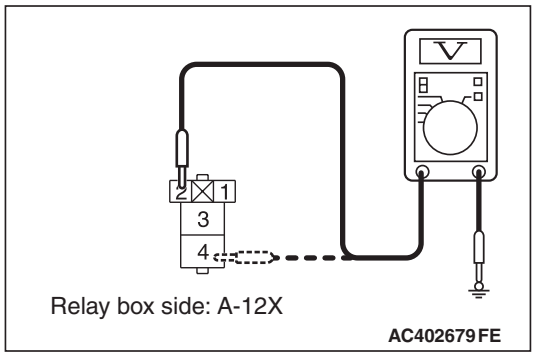
YES : Go to Step 3.
NO : Repair the damaged parts.

STEP 3. Check the horn relay.

Refer to P.54A-594.

Q: Is the horn relay in good condition

YES : Go to Step 4.
NO : Replace the theft-alarm horn relay.



STEP 4. Measure the voltage at horn relay A-12X.

(1) Remove the relay, and measure at the relay box side.
(2) Measure the voltage between horn relay connector A-12X (terminal No. 2,4) and the body 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 theft-alarm horn relay connector A-12X (terminal No. 2,4) and fusible link (36).

Check the power supply line for open circuit and short circuit.

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.00-13).
NO : Repair the wiring harness between horn relay connector A-12X and fusible link (36).

STEP 6. Check ETACS-ECU connector C-312 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-312 in good condition?

YES : Go to Step 7.
NO : Repair the damaged parts.

STEP 7. Check the Wiring harness between theft-alarm horn relay connector A-12X (terminal No. 1) and ETACS-ECU connector C-312 (terminal No. 11).

Check the output lines for open circuit and short circuit.

Q: Is the check result normal?

YES : Go to Step 8.
NO : Repair the wiring harness between horn relay connector A-12X and ETACS-ECU connector C-312.

STEP 8. Check horn (HIGH) connector A-43 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is Horn (HIGH) connector A-43 in good condition?

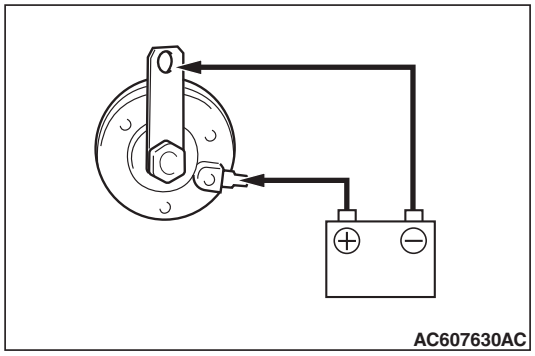
YES : Go to Step 9.
NO : Repair the damaged parts.

STEP 9. Check the Wiring harness between horn (HIGH) connector A-43 (terminal No. 1) and horn relay connector A-12X (terminal No. 3).
Check the output lines for open circuit and short circuit.

Q: Is the check result normal?

YES : Go to Step 10.
NO : Repair the wiring harness between horn (HIGH) connector A-43 and horn relay connector A-12X.

STEP 10. Check the horn (HIGH) work normally.
Connect the battery as shown, and verify that the horn sounds.



Q: Is the check result normal?

YES : Go to Step 11.
NO : Replace the horn (HIGH). go to step 11.

STEP 11. Check horn (LOW) connector A-37 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is Horn (LOW) connector A-37 in good condition?

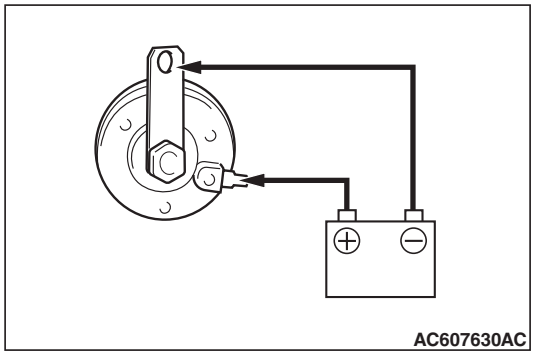
YES : Go to Step 12.
NO : Repair the damaged parts.

STEP 12. Check the Wiring harness between horn (LOW) connector A-37 (terminal No. 1) and horn relay connector A-12X (terminal No. 3).
Check the output lines for open circuit and short circuit.

Q: Is the check result normal?

YES : Go to Step 13.
NO : Repair the wiring harness between horn (LOW) connector A-37 and horn relay connector A-12X.

STEP 13. Check the horn (LOW) work normally.
Connect the battery as shown, and verify that the horn sounds.



Q: Is the check result normal?

YES : Go to Step 14.
NO : Replace the horn (LOW). go to step 14.

STEP 14.Retest the theft-alarm system.

Q: Does the theft-alarm system work normally?

YES : he trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

Inspection Procedure 4: Panic alarm does not work normally.

TECHNICAL DESCRIPTION (COMMENT)

If keyless operation system <KOS> or keyless entry system <WCM> is normal, the ETACS-ECU may be defective.

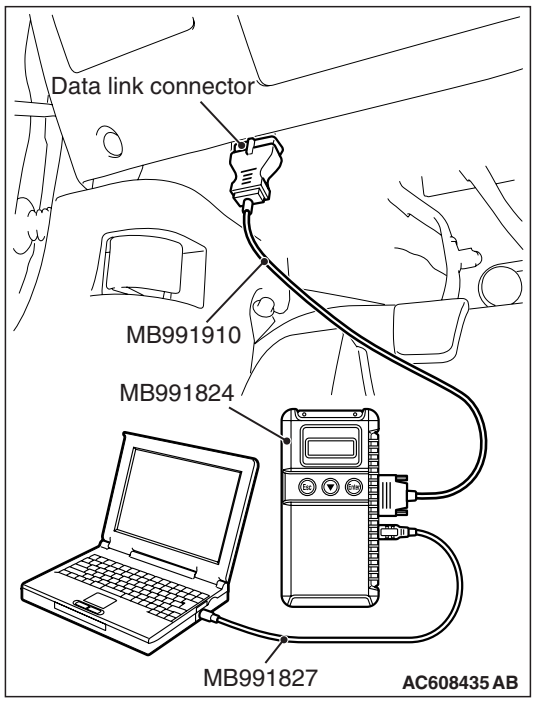
TROUBLESHOOTING HINTS

- Keyless operation system <KOS> or keyless entry system <WCM> may be defective
- The ETACS-ECU may be defective
- Function is not set with the customization.
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

Check if DTC is set to the KOS-ECU <Vehicles with KOS> or WCM <Vehicles with WCM>.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the scan tool (M.U.T.-III) P.54A-574."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the KOS or WCM related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES <vehicles with KOS> : Troubleshoot the KOS (Refer to GROUP 42B, KOS P.42B-20).
YES <vehicles with WCM> : Troubleshoot the WCM (Refer to GROUP 42C, WCM P.42C-14).
NO : Go to Step 2.

STEP 2. Check keyless operation system <KOS> or keyless entry system <WCM>.

Q: Do keyless operation system <KOS> or keyless entry system <WCM> work normally?

YES : Go to Step 3.
NO <vehicles with KOS> : Troubleshoot the KOS (Refer to GROUP 42B, KOS P.42B-120).
NO <vehicles with WCM> : Troubleshoot the WCM (Refer to GROUP 42C, WCM P.42C-74).

STEP 3. Using scan tool MB991958, check the configuration function.

(1) Turn the ignition switch to the "ON" position.
(2) Use the ETACS-ECU configuration function to check that the "Panic alarm switch" is set to "Enable".
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the "Panic alarm switch" set to "Enable"?

YES : Replace the ETACS-ECU.
NO : Use the ETACS-ECU configuration function to set the "Panic alarm switch" to "Enable"(Refer to P.54A-594).

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ON-VEHICLE SERVICE

CONFIGURATION FUNCTION

M1547003400098

Use scan tool MB991958 to adjust the following functions. The programmed information is held even when the battery is disconnected.

Adjustment item (scan tool display)	Adjustment item	Adjustment contents (scan tool display)	Adjusting contents
Panic alarm switch	With/without panic alarm function	Disable	Without function
		Enable	With function (default)

REMOVAL AND INSTALLATION

M1547001000339

Theft-alarm system component parts

- Headlight assembly (Refer to P.54A-151).
- Horn (Refer to P.54A-222).
- Door switch (Refer to GROUP 42A –Door, Door Assembly P.42A-148).
- Front and rear door lock actuator (Refer to GROUP 42A –Door, Door Handle and Latch P.42A-157).
- Trunk lid latch assembly (Refer to GROUP 42A – Trunk Lid P.42A-174).
- Key reminder switch (Refer to P.52A-6).
- Theft-alarm indicator (Refer to GROUP 52A – Instrument Center Panel P.52A-2).

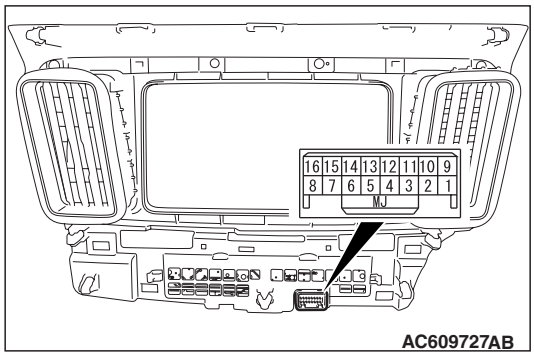
Panic alarm system component parts

- Headlight assembly (Refer to P.54A-151).
- Horn (Refer to P.54A-222).

INSPECTION

THEFT-ALARM INDICATOR CHECK

M1547001100187



1. Remove the center panel.
2. Connect the battery (+) terminal with the center panel connector (terminal No. 15). Then, check if the theft-alarm indicator is illuminated when the battery (−) terminal and the center panel connector (terminal No. 12) are connected.
3. If the theft-alarm indicator is illuminated, it is judged good.