

# GROUP 54A

# CHASSIS

# ELECTRICAL

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### **WARNING**

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

### 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, 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 (\*).

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## BATTERY

### GENERAL INFORMATION

M1541000100335

Item	Specification
	75D23L
Voltage V	12
Capacity (5-hour rate) Ah	52
Electrolytic fluid specific gravity [fully charged state at 20° C (68° F)]	1.220 –1.290

### ON-VEHICLE SERVICE

#### BATTERY CHECK

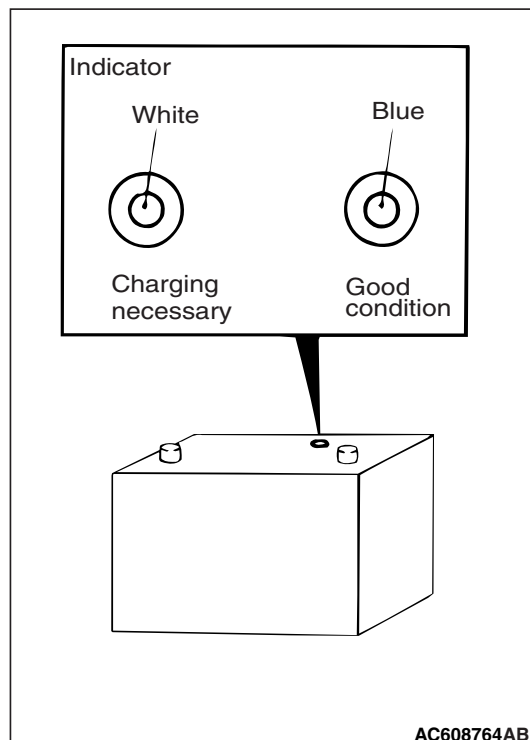
M1541001000591

**⚠ 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

M1541001101784

### **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

Recommended rate and time for fully discharged condition (flat discharged) is shown below. When the specific gravity of electrolyte keeps 1.22 to 1.29 for more than one hour, charging should be stopped.

### Charge Rate Chart

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

## BATTERY TEST

M1541001201918

### 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 6.  
**NO :** Go to Step 5.

**STEP 5. Battery charging**

Charge the battery. (See CHARGE RATE CHART P.54A-8)

**Q: Is open circuit voltage 12.4 volts or more?**

- YES :** Go to Step 6.  
**NO :** Replace the battery.

**STEP 6. 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.

**LOAD TEST RATE CHART**

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

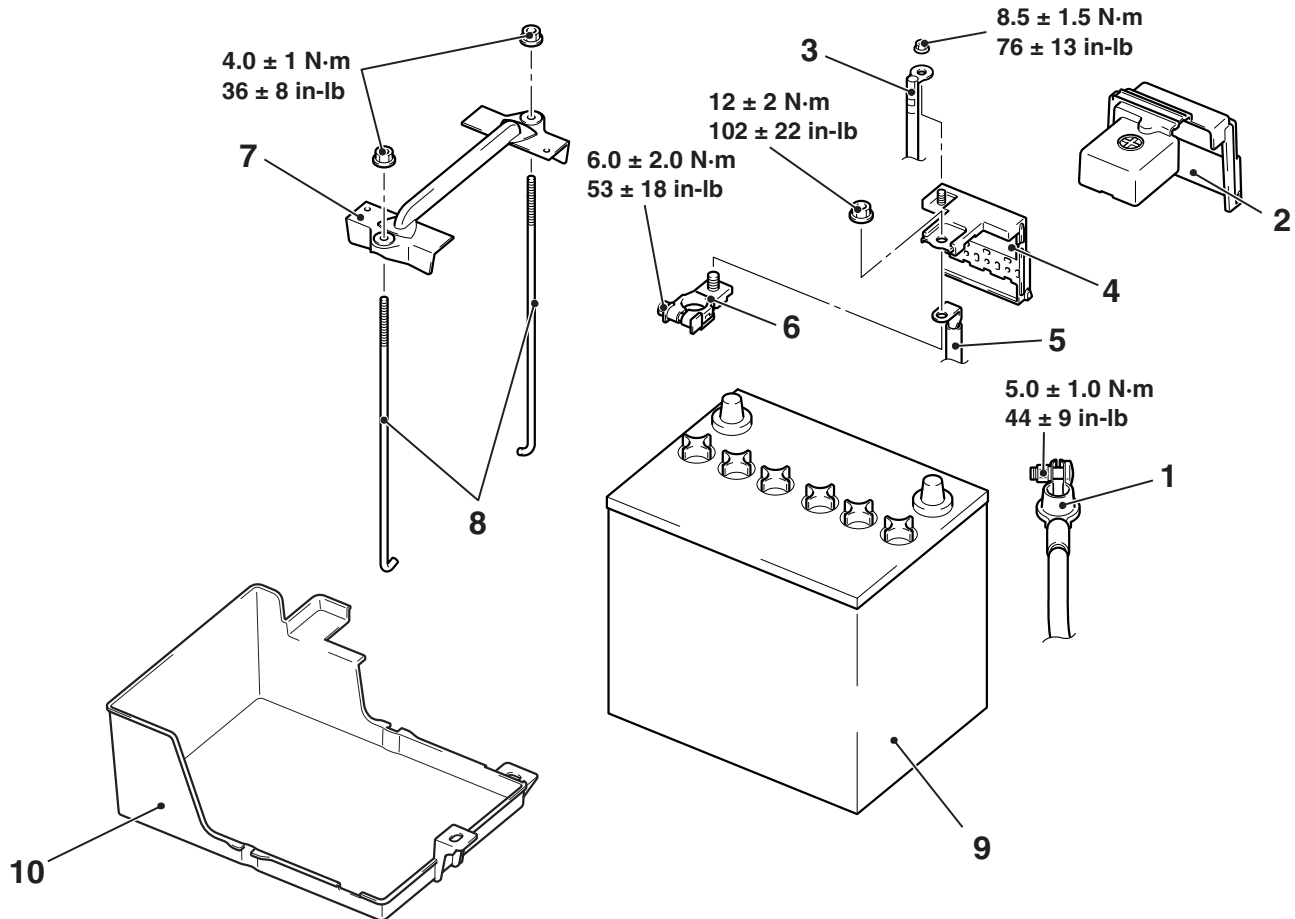
**LOAD TEST CHART**

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

## BATTERY REMOVAL AND INSTALLATION

M1541001300859

&lt;GTS&gt;



AC608766AB

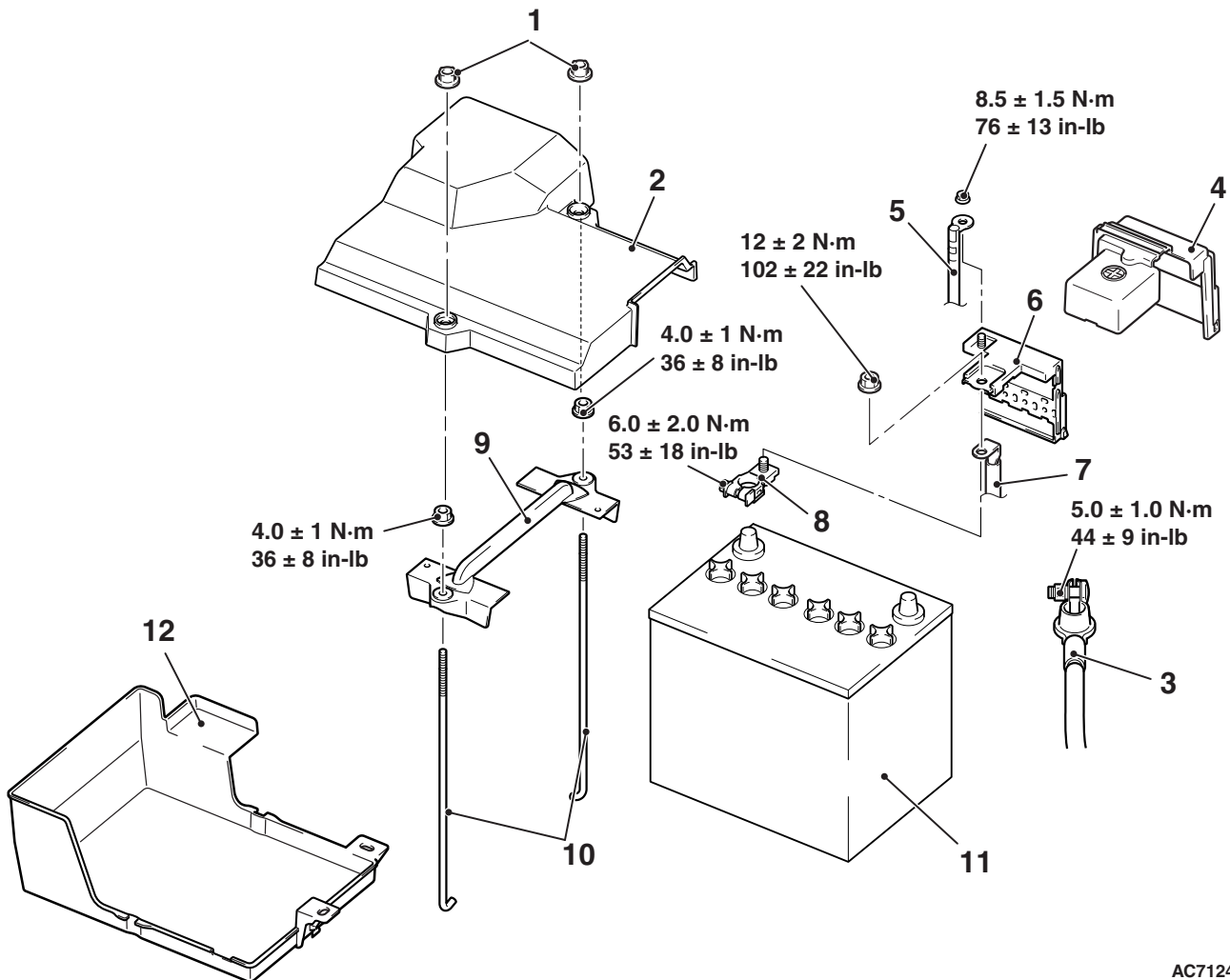
**Removal steps**

1. Connection of the battery harness [negative battery terminal]
  - Air cleaner intake duct (Refer to GROUP 15 –Air Cleaner P.15-10).
2. Fusible link box cover
3. Connection of the battery harness [positive battery terminal]
4. Connection of the fusible link box

**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

<RALLIART>



AC712404AD

**Removal steps**

- Air cleaner intake duct (Refer to GROUP 15 [P.15-9](#)).
- 1. Battery clip
- 2. Battery cover
- 3. Connection of the battery harness [negative battery terminal]
- 4. Fusible link box cover
- 5. Connection of the battery harness [positive battery terminal]

**Removal steps (Continued)**

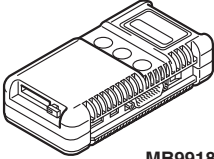
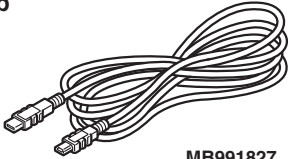
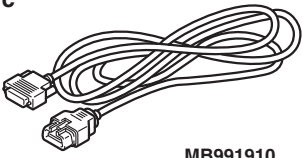
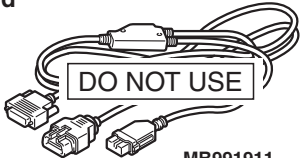
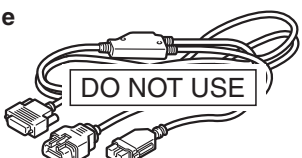
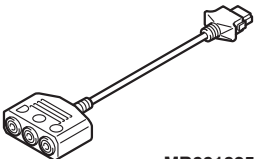
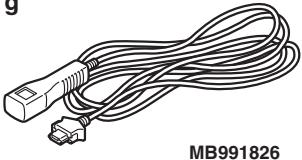
- 6. Connection of the fusible link box
- 7. Connection of the battery harness [positive battery terminal]
- 8. Battery terminal assembly
- 9. Battery holder
- 10. Battery bolt
- 11. Battery
- 12. Battery tray


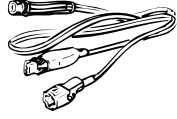
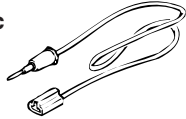

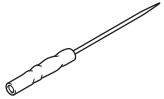


# IGNITION SWITCH

## SPECIAL TOOLS

M1543000603432

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

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

## TROUBLESHOOTING

### STANDARD FLOW OF DIAGNOSTIC TROUBLE SHOOTING

Refer to Group 00 –Contents of troubleshooting

[P.00-6.](#)

M1543006900937

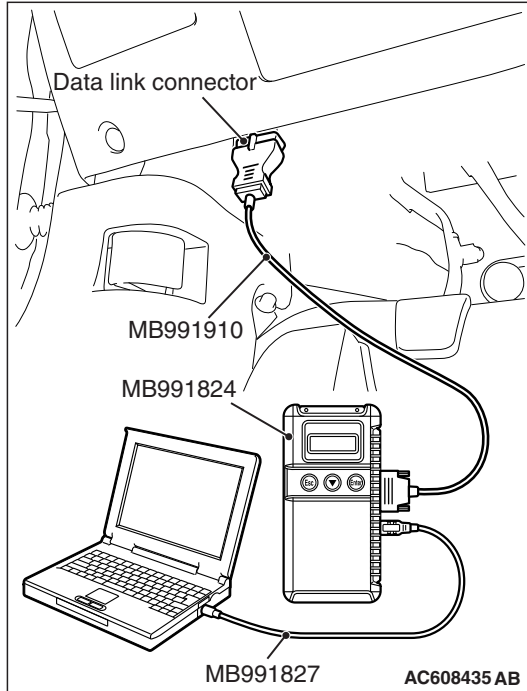
## DIAGNOSIS FUNCTION

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

M1543007001093

#### 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." to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

TROUBLE SYMPTOM CHART

M1543007202777

Trouble symptom	Inspection Procedure No.	Reference page
Ignition key cylinder illumination light does not illuminate/extinguish normally.	1	P.54A-15
Defective power supply system of the ignition switch	2	P.54A-20

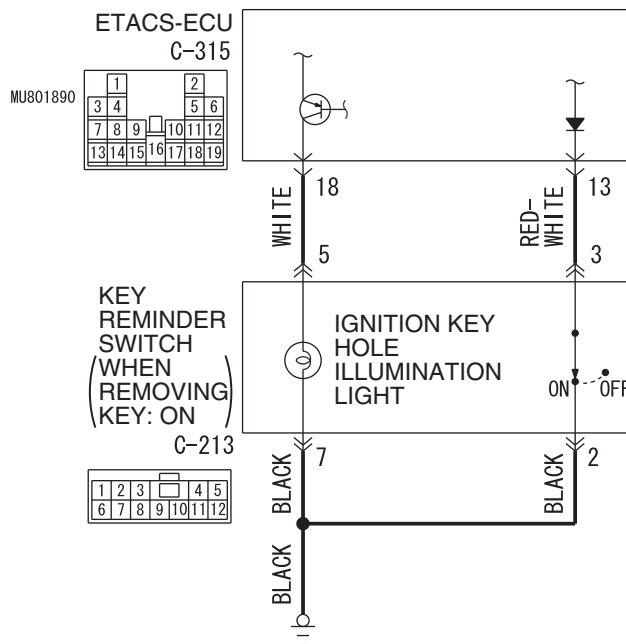
SYMPTOM PROCEDURES

Inspection Procedure 1: Ignition key cylinder illumination light does not illuminate/extinguish normally. <vehicles with WCM>

**CAUTION**

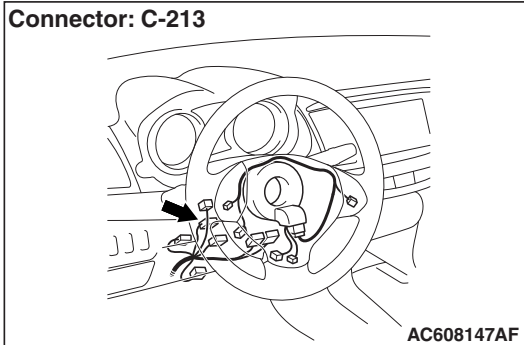
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Ignition Key Cylinder Illumination Light Circuit <Vehicles with WCM>

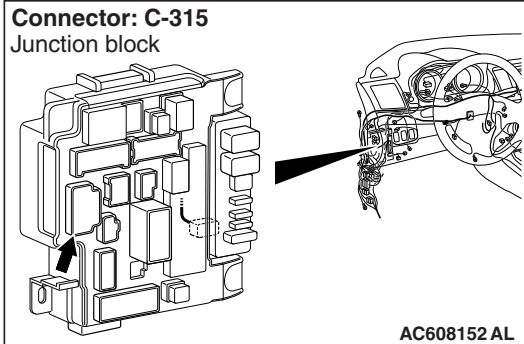


W8G54M068A

Connector: C-213



AC608147AF

Connector: C-315  
Junction block

AC608152AL

**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**

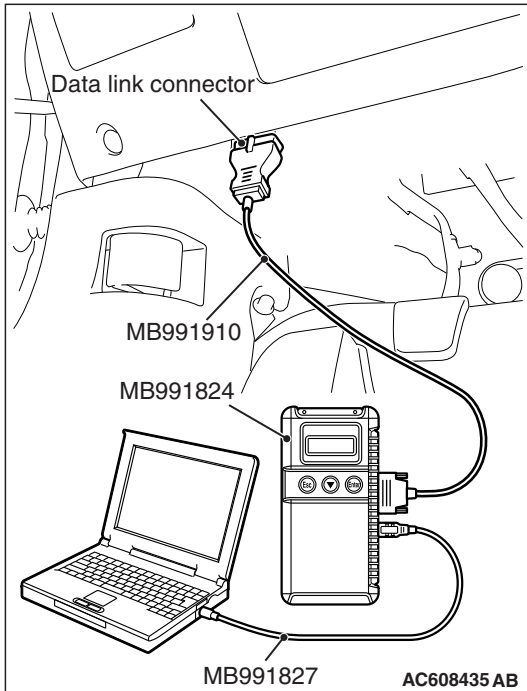
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-13."
- (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-769.

**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	1 V or less
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-740](#).

**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-734](#).

**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-749](#).

**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-737](#).

**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-740](#).



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**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.5) and ETACS-ECU connector C-315 (terminal No.18).**

- Check the input/output line for open circuit and short 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. Check the wiring harness between key reminder switch connector C-213 (terminal No.7) and body ground.**

- Check the ground line for open circuit.

**Q: Is the check result normal?**

**YES :** Go to Step 7.

**NO :** Repair the wiring harness between key reminder switch connector C-213 and body ground.

---

**STEP 7. Retest the system.**

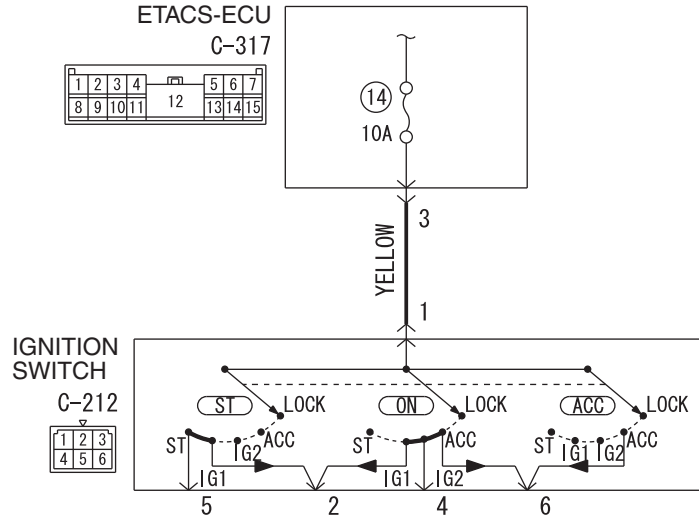
**Q: Does the ignition key cylinder illumination light illuminate/extinguish in good condition?**

**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.

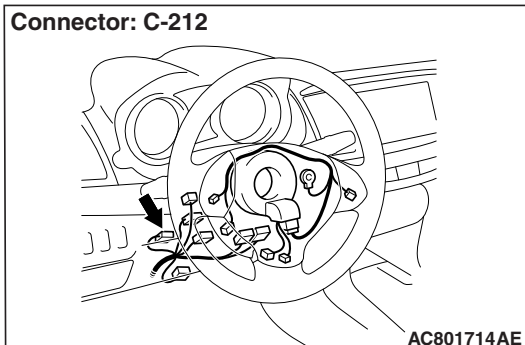
Inspection Procedure 2: Defective power supply system of the ignition switch

Ignition Switch Power Supply Circuit



W9S54M028A

Connector: C-212



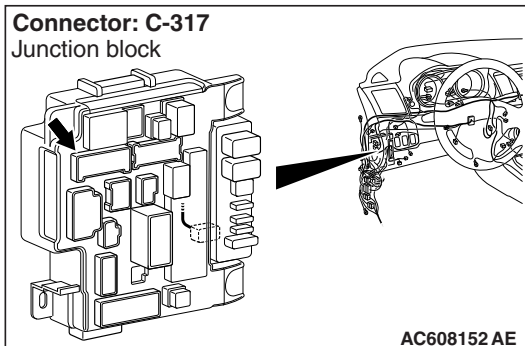
**TECHNICAL DESCRIPTION (COMMENT)**

When the power supply system of ignition switch has a problem, none of the equipment and system connected to the ignition switch works even if the ignition switch is operated.

**TROUBLESHOOTING HINTS**

- The ignition switch may be defective
- The fuse No.14 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

Connector: C-317  
Junction block



**DIAGNOSIS**

**Required Special Tools:**

- MB992006: Extra fine probe
- MB991223: Harness set

**STEP 1. Check ignition switch connector C-212 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is ignition switch connector C-212 in good condition?**

**YES :** Go to Step 2.

**NO :** Repair the defective connector.

**STEP 2. Check the battery power supply circuit to the ignition switch. Measure the voltage at ignition switch connector C-212.**

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

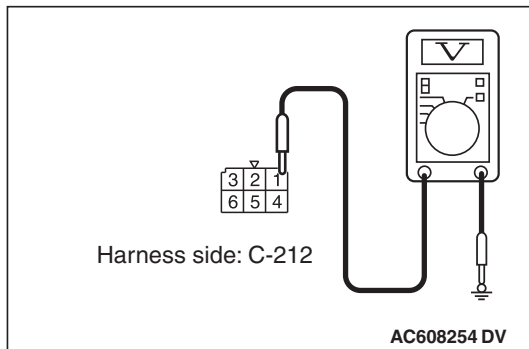
(2) Measure the voltage between terminal 1 and ground.

- 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 6.

**NO :** Go to Step 3.



**STEP 3. Check the fuse No.14.**

**Q: Is the check result normal?**

**YES :** Go to Step 4.

**NO :** Replace the fuse No.14. (Check that there is not a short to ground in the circuit of lower reaches before replacing. If there are any problems, replace the fuse after the circuit of lower reaches is repaired.)

**STEP 4. Check ETACS-ECU connector C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is ETACS-ECU connector C-317 in good condition?**

**YES :** Go to Step 5.

**NO :** Repair the damaged parts.

**STEP 5. Check the Wiring harness between ignition switch connector C-212 (terminal No.1) and ETACS-ECU connector C-317 (terminal No.3).**

- Check the battery power supply line for open circuit.

**Q: Is the check result normal?**

**YES :** Go to Step 7.

**NO :** Repair the wiring harness.

**STEP 6. Check the ignition switch.**

Remove the ignition switch. Then check continuity between the switch terminal.

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)

**Q: Is the ignition switch in good condition?**

**YES** : Go to Step 7.

**NO** : Replace the ignition switch.

**STEP 7. Retest the system.****Q: When the ignition switch is operated, do the equipment and system 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.

**ON-VEHICLE SERVICE****CHECK OF IGNITION KEY REMINDER WARNING FUNCTION (STEERING LOCK REMINDER TONE ALARM BY KOS)**

M1541200700182

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 tone alarm sounds normally.
4. If a malfunction is found, carry out the troubleshooting (Refer to [P.54A-73](#)).

REMOVAL AND INSTALLATION

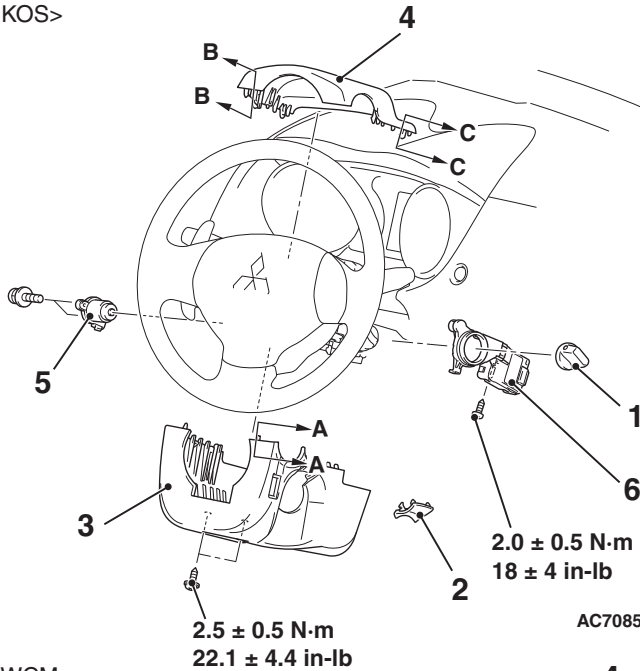
M1541200300719

**CAUTION**

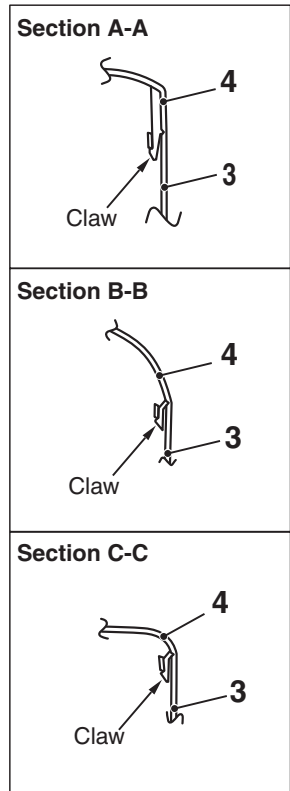
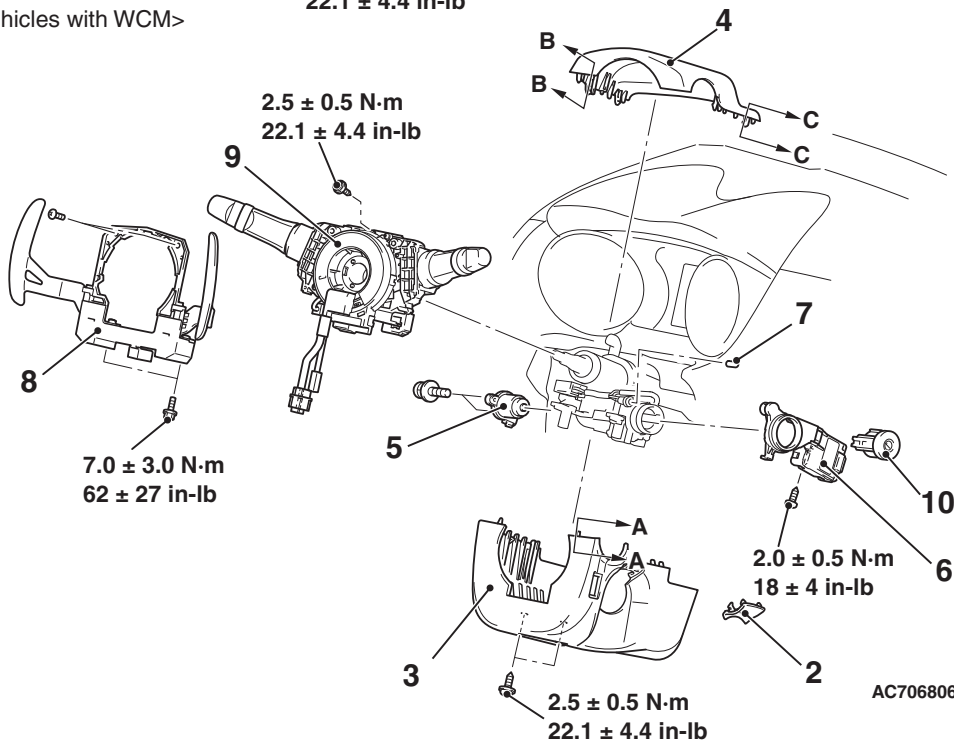
- Before removing the steering wheel and driver's air bag module assembly, refer to GROUP 52B – Service Precautions P.52B-26 and Driver's Air Bag Module and Clock Spring P.52B-414 <GTS> or P.52B-422 <RALLIART> <Vehicles with WCM>.
- After the installation, perform a calibration for the ASC-ECU to learn the steering wheel sensor neutral point (Refer to GROUP 35C, On-vehicle Service –Steering Wheel Sensor Calibration P.35C-304). <Vehicles with WCM and ASC>

Pre-removal Operation	Post-installation Operation
<ul style="list-style-type: none"> <li>• Steering wheel straight-ahead position check. &lt;Vehicles with WCM&gt;</li> <li>• Removal of steering wheel assembly (Refer to GROUP 37 –Steering Wheel P.37-32). &lt;Vehicles with WCM&gt;</li> </ul>	<ul style="list-style-type: none"> <li>• Installation of steering wheel assembly (Refer to GROUP 37 –Steering Wheel P.37-32). &lt;Vehicles with WCM&gt;</li> <li>• Steering wheel straight-ahead position check. &lt;Vehicles with WCM&gt;</li> </ul>

<Vehicles with KOS>



<Vehicles with WCM>



NOTE:  
Claw position is symmetrical

**Removal Steps**

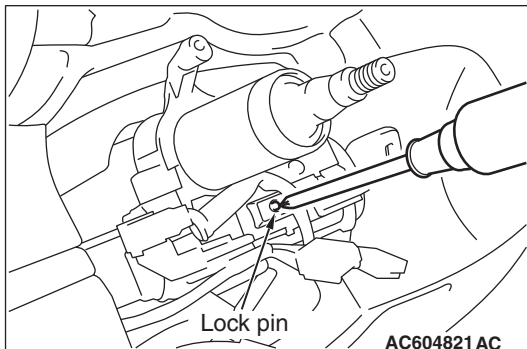
1. IG knob cap <Vehicles with KOS>
2. Ignition key cover
3. Steering column cover lower
4. Steering column cover upper
5. Ignition switch
- >>A<< 6. WCM <Vehicles with WCM>/receiver antenna module <Vehicles with KOS>

**Removal Steps (Continued)**

7. Key illumination bulb <Vehicles with WCM and paddle shift>
8. Paddle shift assembly <Vehicles with WCM and paddle shift>
9. Column switch assembly <Vehicles with WCM>
10. Steering lock cylinder <Vehicles with WCM>

**REMOVAL SERVICE POINT****<<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.

**INSTALLATION SERVICE POINT****>>A<< WIRELESS CONTROL MODULE <VEHICLES WITH WCM>/RECEIVER ANTENNA MODULE <VEHICLES WITH KOS> INSTALLATION**

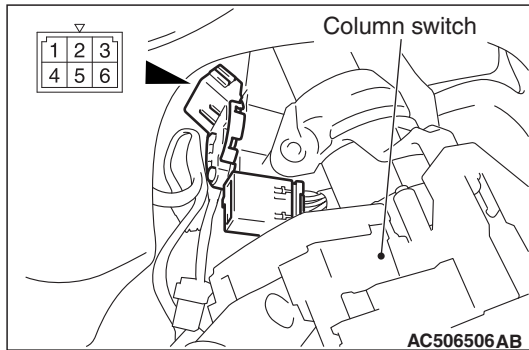
Check that the top claw of receiver antenna module is fixed securely to the boss of steering lock and the antenna is not floated on the key cylinder.

## INSPECTION

### IGNITION SWITCH CONTINUITY CHECK

M1541200400095

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

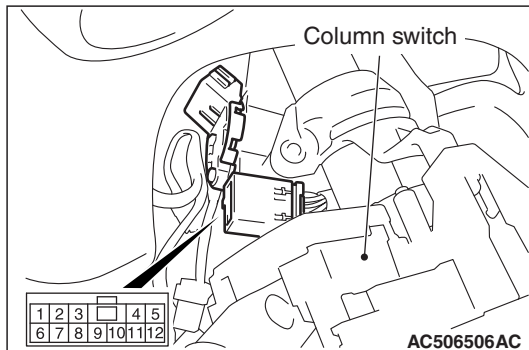


Ignition key position	Terminal number	Normal condition
LOCK	1 -2, 1 -4, 1 -5, 1 -6	No continuity
ACC	1 -6	Continuity exists (2 ohms or less)
ON	1 -2 -4 -6	Continuity exists (2 ohms or less)
START	1 -2 -5	Continuity exists (2 ohms or less)

### 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

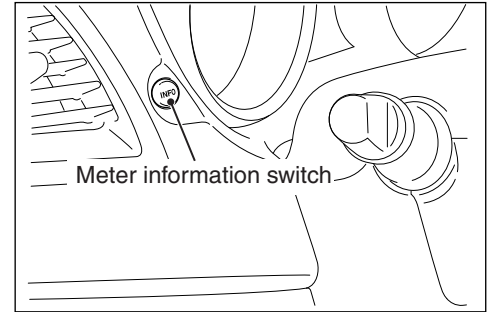
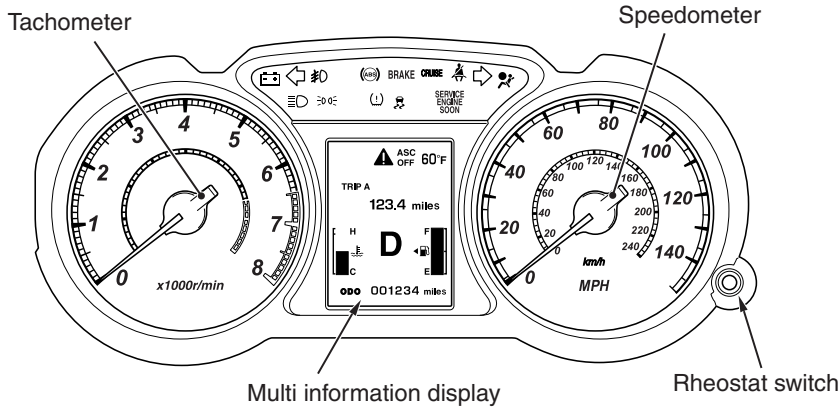
## GENERAL INFORMATION

M1540208400364

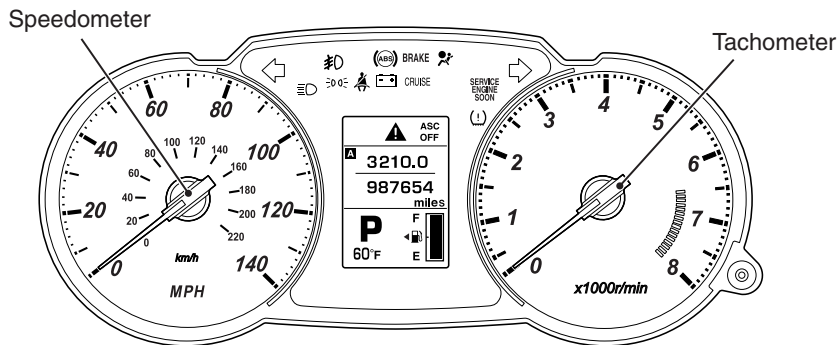
## CONSTRUCTION DIAGRAM

### 2.4 L engine

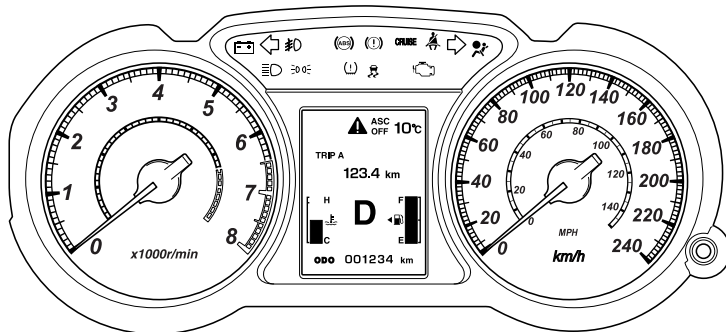
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<Option: Vehicles for USA (Federal emission regulation), PUERTO RICO, GUAM and SAIPAN>



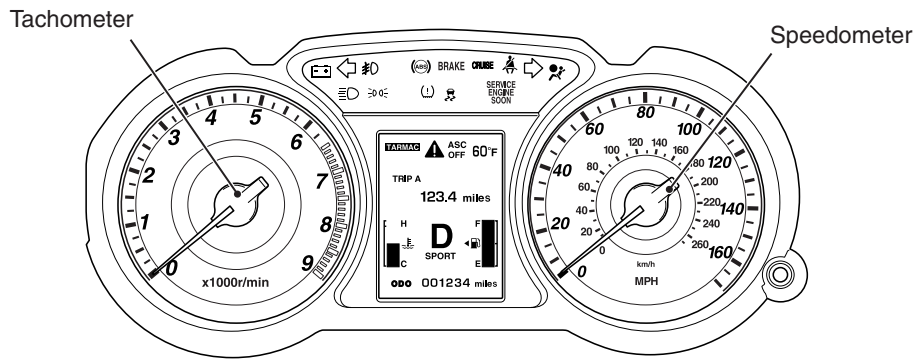
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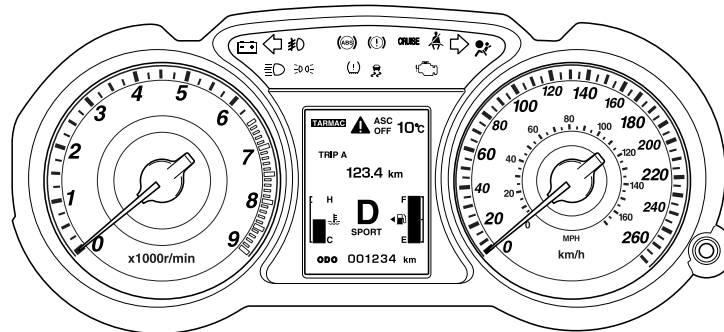
AC901653 AB

2.0 L engine

<Vehicles for USA, GUAM and SAIPAN>



<Vehicles for CANADA>



AC901651AB

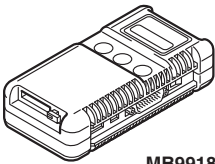
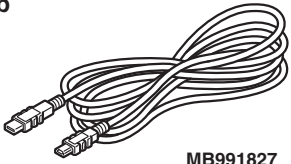
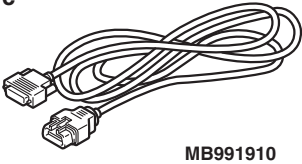
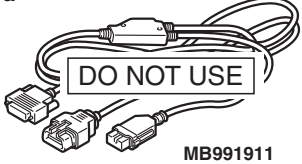
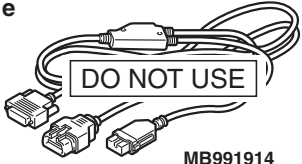
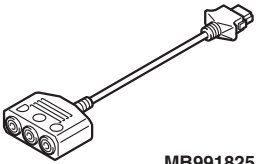
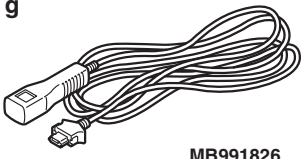
## SERVICE SPECIFICATIONS


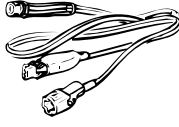
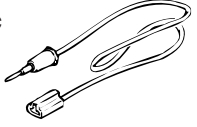

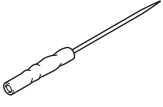
M1540200200571

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)		
		150 (241)	148.5 –153.5 (239.0 –247.0)		
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)		
		240 (149.1)	240.5 –247.0 (149.4 –153.5)		
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)		
FWD	Fuel level sensor resistance ( $\Omega$ )		Stopper position "F"	13.0 $\pm$ 1.0	
			Stopper position "E"	120.0 $\pm$ 1.0	
	Fuel level sensor float height {mm (in)}		Stopper position "F"	181.5 (7.1)	
			Stopper position "E"	26.7 (1.1)	
AWD	Fuel level sensor resistance ( $\Omega$ )		Main	Stopper position "F"	6.5 $\pm$ 1.0
				Stopper position "E"	41.9 $\pm$ 1.0
			Sub	Stopper position "F"	6.5 $\pm$ 1.0
				Stopper position "E"	78.1 $\pm$ 1.0
	Fuel level sensor float height {mm (in)}		Main	Stopper position "F"	140.9 (5.5)
				Stopper position "E"	39.1 (1.5)
			Sub	Stopper position "F"	14.2 $\pm$ 3.0 (0.6 $\pm$ 0.1)
				Stopper position "E"	179.3 $\pm$ 3.0 (7.1 $\pm$ 0.1)

SPECIAL TOOLS

M1540200300396

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

Tool	Tool number and name	Supersession	Application
<p>a</p>  <p>b</p>  <p>c</p>  <p>d</p> 	<p>MB991223</p> <p>a. MB991219 b. MB991220 c. MB991221 d. MB991222</p> <p>Harness set</p> <p>a. Check harness b. LED harness c. LED harness adapter d. Probe</p>	<p>General service tool (jumper)</p>	<p>Continuity check and voltage measurement at harness wire or connector</p> <p>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</p>
 <p>MB992006</p>	<p>MB992006</p> <p>Extra fine probe</p>	<p>–</p>	<p>Continuity check and voltage measurement at harness wire or connector</p>

## TROUBLESHOOTING

### STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1540203800152

Refer to GROUP 00, Contents of troubleshooting [P.00-6](#).

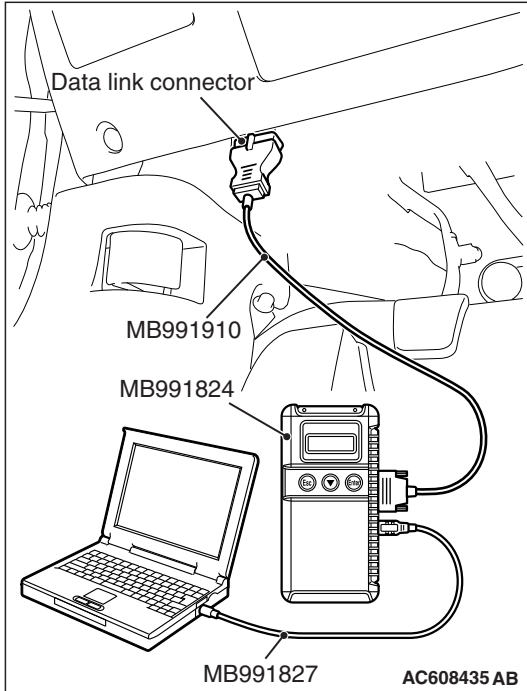
### DIAGNOSIS FUNCTION

M1540200500174

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

#### Required Special Tools:

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



**⚠ CAUTION**

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

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

*NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.*

7. Start the M.U.T.-III system on the personal computer.

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

## HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

### Required Special Tools:

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

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

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

*NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.*

6. Select "Diagnostic Trouble Code" to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

**HOW TO DIAGNOSE THE CAN BUS LINES****Required Special Tools:**

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

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

**CHECK OF FREEZE FRAME DATA**

The freeze frame data can be checked by using 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 diagnostic trouble code is generated	mile*
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	Accumulated minute	Cumulative time for current malfunction of diagnostic trouble code	min

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



DIAGNOSTIC TROUBLE CODE CHART

M1540200600461

**⚠ 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-115](#). 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	<a href="#">P.54A-34</a>
B1201	Abnormal fuel information	<FWD> <a href="#">P.54A-36</a>
		<AWD> <a href="#">P.54A-40</a>
B1208	Malfunction of LCD heater	<a href="#">P.54A-43</a>
B1209	Test mode	<a href="#">P.54A-44</a>
B2203	VIN not programmed	<a href="#">P.54A-44</a>
B2463	The sticking of rheostat switch	<a href="#">P.54A-46</a>
B2464	The sticking of meter information switch	<a href="#">P.54A-47</a>
B2465	Ignition switch signal error	<a href="#">P.54A-50</a>
U0019	Bus off (CAN-B)	<a href="#">P.54A-51</a>
U0100	Engine control module CAN timeout	<a href="#">P.54A-53</a>
U0141	ETACS CAN timeout	<a href="#">P.54A-55</a>
U0151	SRS-ECU CAN timeout	<a href="#">P.54A-57</a>
U0154	Occupant classification-ECU CAN timeout	<a href="#">P.54A-59</a>
U0164	A/C-ECU CAN timeout	<a href="#">P.54A-61</a>
U0168	KOS-ECU or WCM CAN timeout	<a href="#">P.54A-63</a>
U0184	Audio CAN timeout	<a href="#">P.54A-65</a>
U0197	Hands free module CAN timeout	<a href="#">P.54A-67</a>
U0245	Audio visual navigation unit CAN timeout	<a href="#">P.54A-69</a>
U1415	Coding not completed/Data fail	<a href="#">P.54A-71</a>

## DIAGNOSTIC TROUBLE CODE PROCEDURES

## DTC B1200: Malfunction of odometer

## TROUBLE JUDGMENT

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.

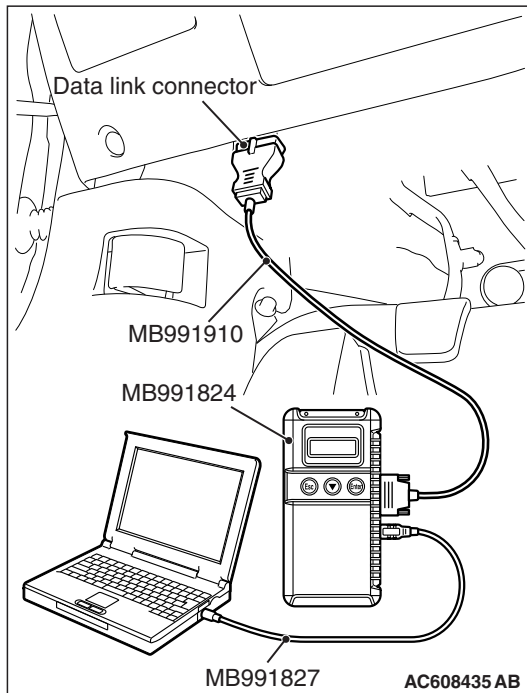
**CAUTION**

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-30."
- (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 diagnostic trouble 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 use Troubleshooting/inspection Service Points -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 diagnostic trouble code is set.

**Q: Is the DTC set?**

**YES** : Go to Step 1.

**NO** : The procedure is complete.



---

## TROUBLE JUDGMENT

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.

---

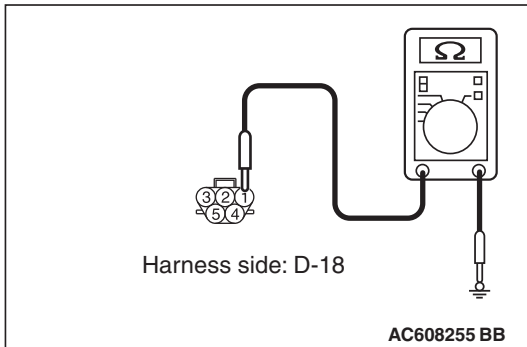
**STEP 2. Check the fuel level sensor.**

Check to see if the fuel level sensor is normal (Refer to [P.54A-114](#)).

**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 ohms 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.**

- Check the ground wire for open circuit.

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

**YES** : Go to Step 5.

**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).**

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

*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.

---

**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.

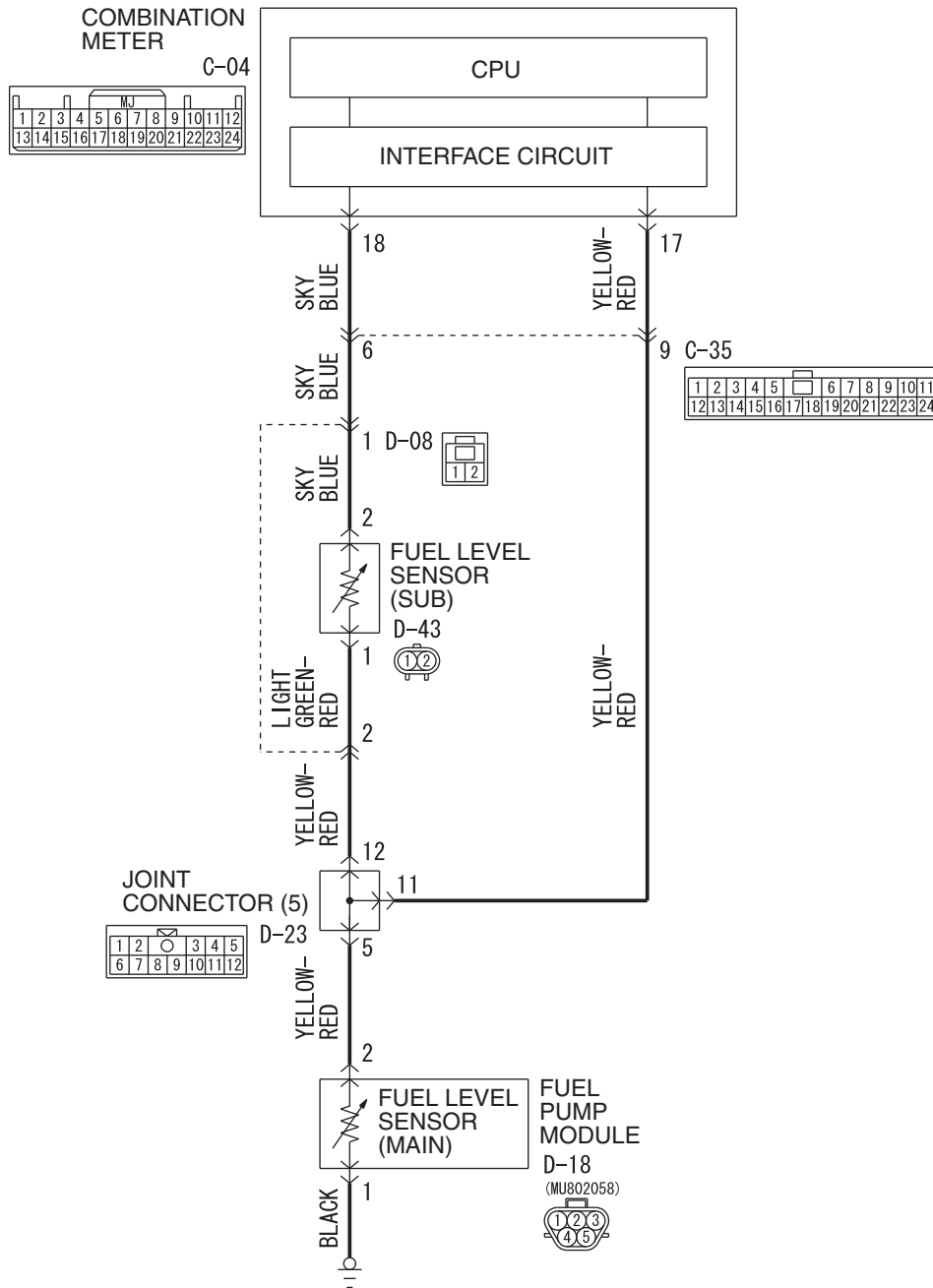
**NO :** The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction [P.00-13](#)).

DTC B1201: Abnormal fuel information <AWD>

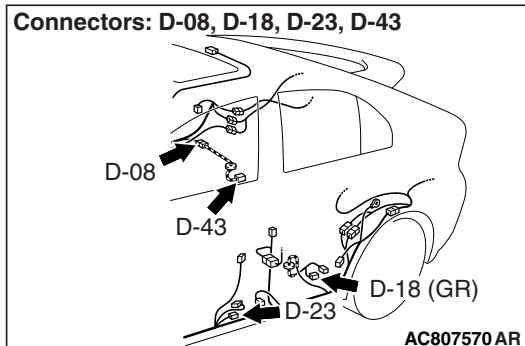
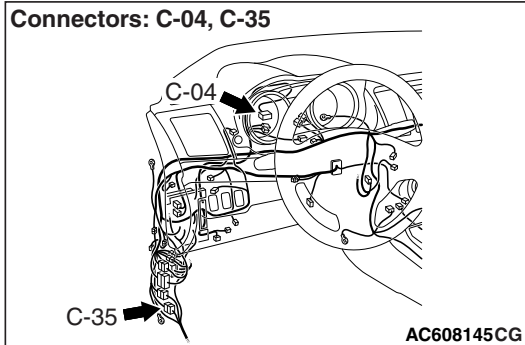
**CAUTION**

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

Fuel Gauge Unit Circuit







## TROUBLE JUDGMENT

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 (main)] may be defective.
- The fuel level sensor (sub) 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 [fuel level sensor (main)] connector D-18 and fuel level sensor (sub) connector D-43 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is fuel pump module [fuel level sensor (main)] connector D-18 in good condition?**

**YES :** Go to Step 2.

**NO :** Repair the connector.

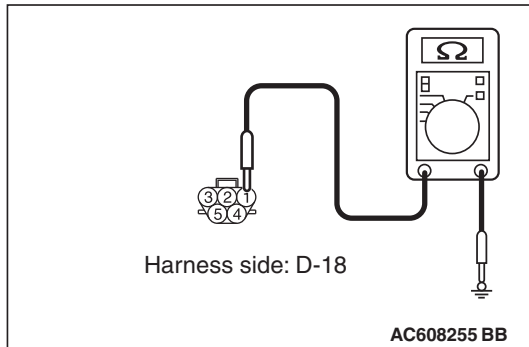
### STEP 2. Check the fuel level sensor.

Check to see if the fuel level sensor is normal (Refer to [P.54A-114](#)).

**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 [fuel level sensor (main)] connector D-18.**

- (1) Disconnect fuel pump module [fuel level sensor (main)] 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 ohms 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 [fuel level sensor (main)] connector D-18 (terminal 1) and ground.**

- Check the ground wire for open circuit.

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

**YES :** Go to Step 5.

**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 [fuel level sensor (main)] connector D-18 (terminal 2) and combination meter connector C-04 (terminal 17 or 18).**

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

*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 [fuel level sensor (main)] 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.

---

**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 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 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.

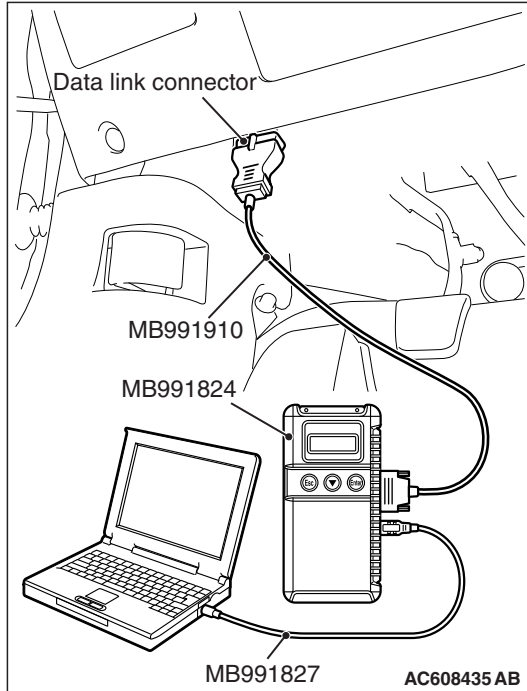
**TROUBLESHOOTING HINTS**

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-30."
- (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**

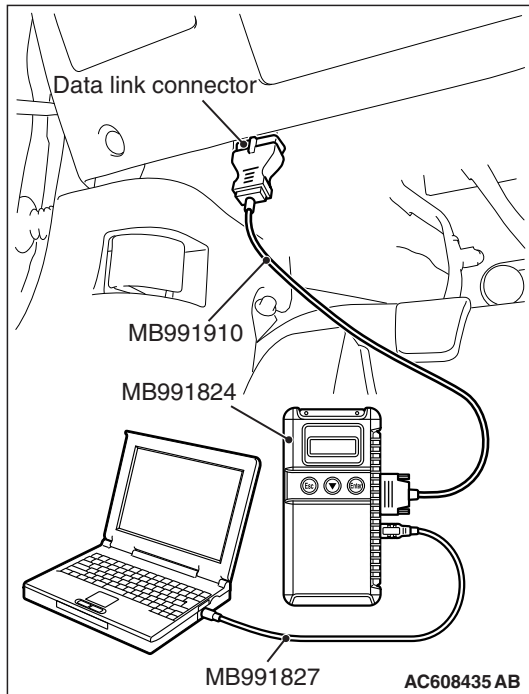
With the ignition switch at the ON position, if the VIN code is not written to the combination meter, DTC B2203 is stored.

**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)



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

**⚠ CAUTION**

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES :** Go to Step 2.

**NO :** Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-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-674).

**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 combination meter bezel (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 combination meter bezel.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Replace the combination meter or combination meter bezel.

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

Check if DTC is set to the combination meter.

**CAUTION**

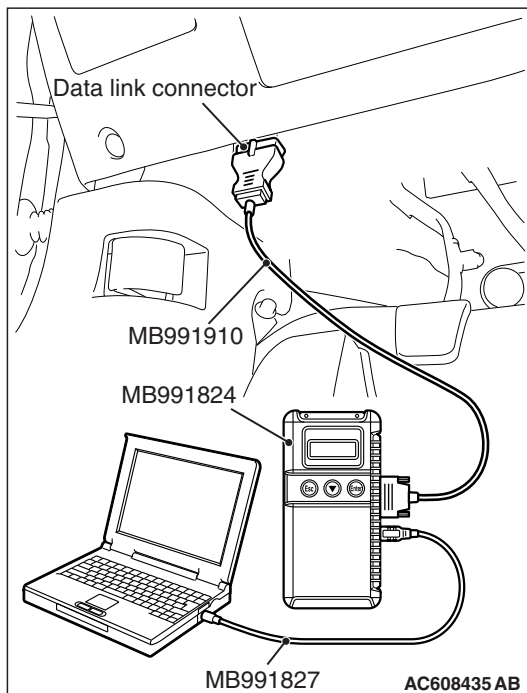
**To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.**

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-30](#)."
- (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.

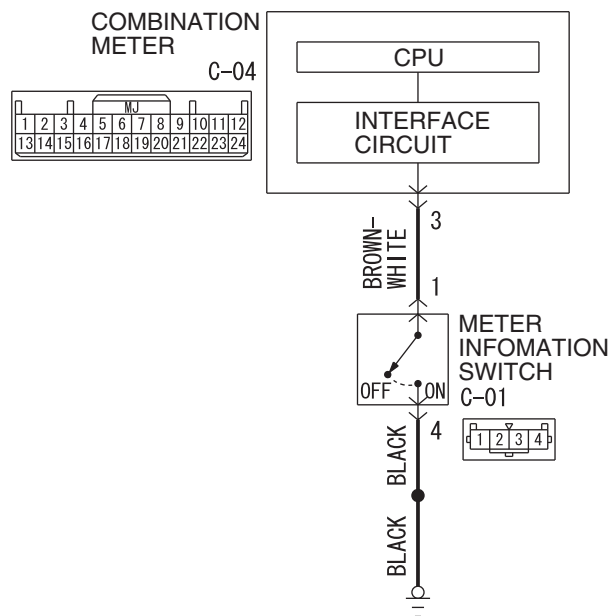
**NO :** The procedure is complete.

**DTC B2464: The sticking of meter information switch**

**CAUTION**

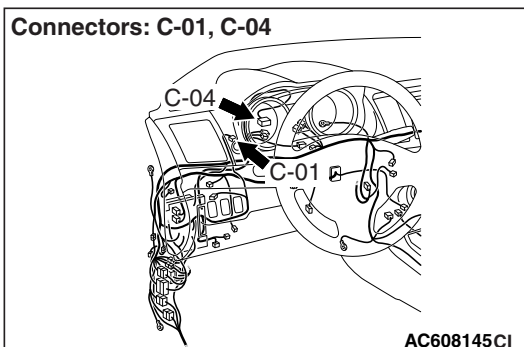
Whenever the ECU is replaced, ensure that the communication circuit is normal.

Meter Information Switch Circuit



W8G54M055A

Connectors: C-01, C-04



**TROUBLE JUDGMENT**

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

**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-115](#)).

**Q: Is the check result normal?**

**YES :** Go to Step 3.

**NO :** Replace the meter information switch.

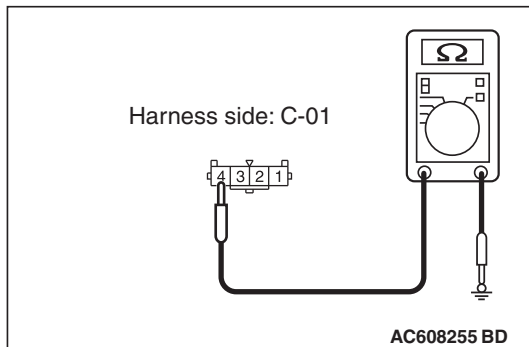
**STEP 3. Measure at meter information switch connector C-01 in order to the ground circuit to the meter information switch.**

- (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 ohms 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.**

- Check the ground wire for open circuit.

**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).**

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

**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**

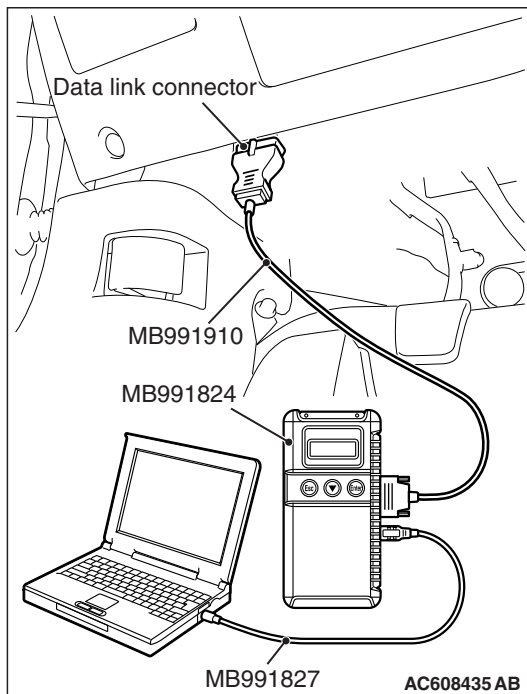
**To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.**

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (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.

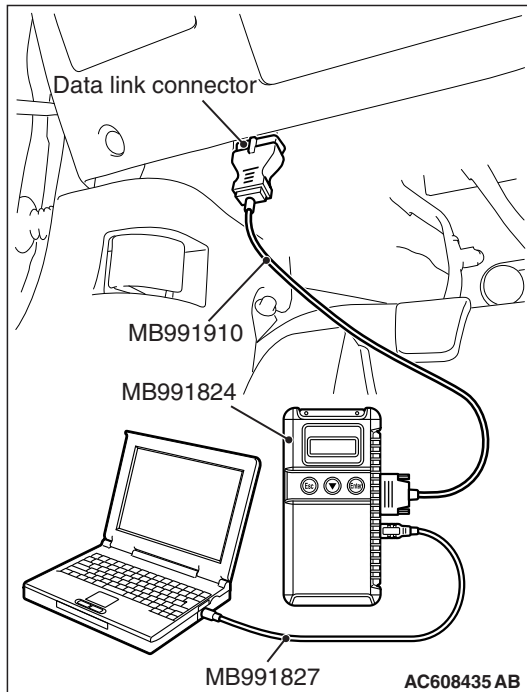
**⚠ CAUTION**

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-30."
- (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-674).  
**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).

---

**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-74](#)).

---

**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)**

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**⚠ 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.

**JUDGMENT 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
- 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:**

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

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

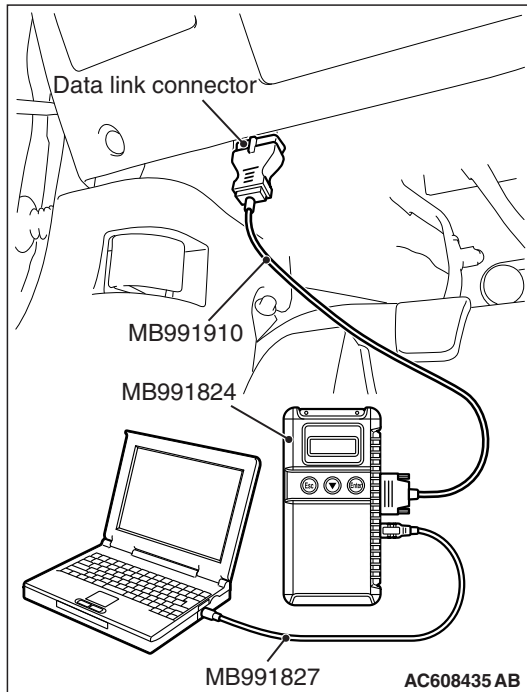
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES :** Go to Step 2.

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

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

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

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

**JUDGMENT CRITERIA**

With the ignition switch in the ON position, system voltage between 10-16 volts (data from ETACS-ECU), power supply fuse (IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with 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**

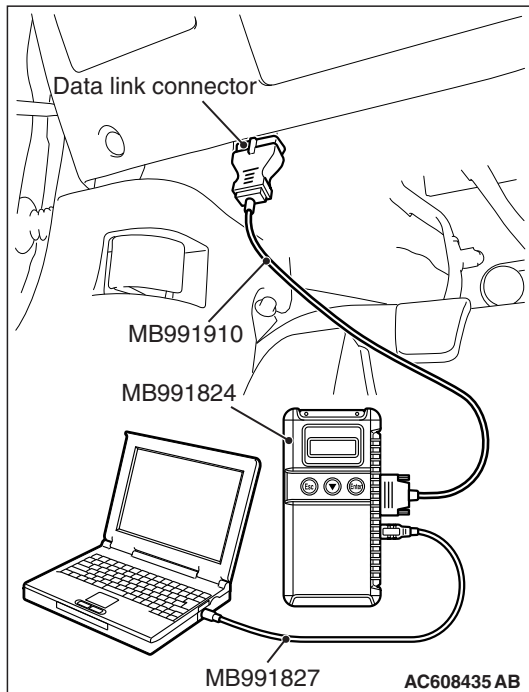
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES :** Go to Step 2.

**NO :** Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-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, Diagnosis [P.13A-50](#) <2.0 L engine> or GROUP 13B, Diagnosis [P.13B-51](#) <2.4 L engine>).

**NO** : Go to Step 3.

---

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

Check if DTC U0100 is set to the ETACS-ECU.

**Q: Is the DTC set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

**STEP 4. Recheck for diagnostic trouble code.**

Check again if the DTC is set to the 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 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 combination meter (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 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 such as a poor connection or open circuit in the CAN bus lines between the engine control module and the combination meter (Refer to GROUP 00, 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.

**JUDGMENT CRITERIA**

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

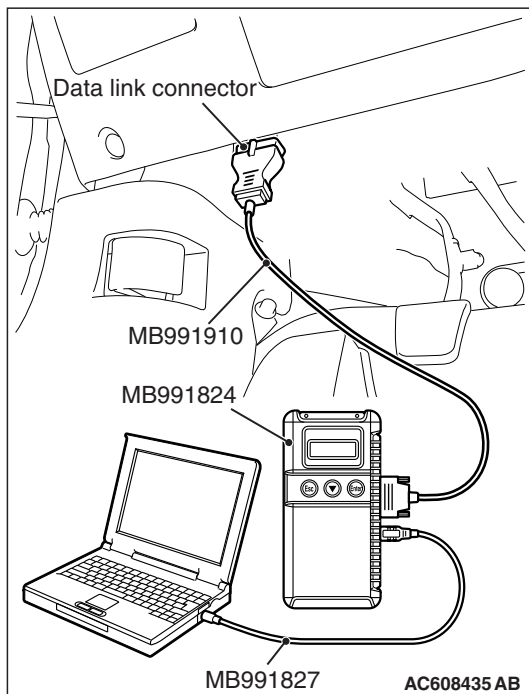
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES :** Go to Step 2.

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



---

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

Check if DTC is set to the ETACS-ECU.

**Q: Is the DTC set?**

**YES** : Diagnose the ETACS-ECU (Refer to [P.54A-674](#)).

**NO** : Go to Step 3.

---

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

Check if DTC U0141 is set to the A/C-ECU.

**Q: Is the DTC set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

**STEP 4. Recheck for diagnostic trouble code.**

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

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the combination meter (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 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 such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the combination meter (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, 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.

**JUDGMENT CRITERIA**

With the ignition switch in the ON position, system voltage between 10-16 volts (data from ETACS-ECU), power supply fuse (IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with SRS-ECU cannot be established for 2,500 ms or more, the 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**

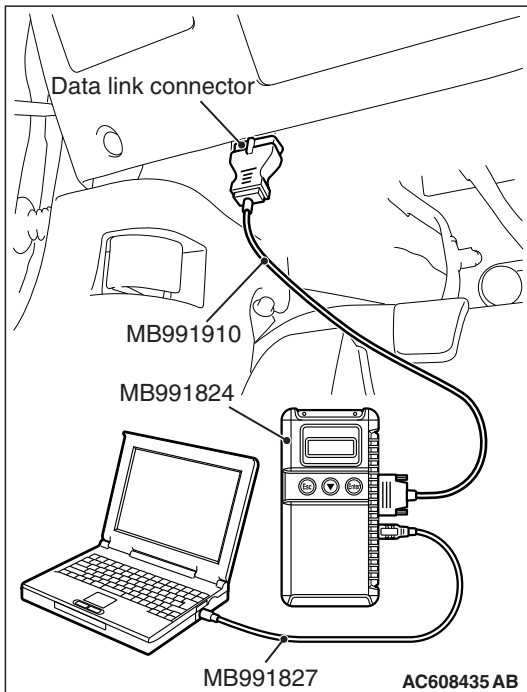
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES :** Go to Step 2.

**NO :** Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-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-32](#)).

**NO** : Go to Step 3.

---

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

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

**Q: Is the DTC set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

**STEP 4. Recheck for diagnostic trouble code.**

Check again if the DTC is set to the 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 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 combination meter (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 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 such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the combination meter (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, 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.

**JUDGMENT CRITERIA**

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

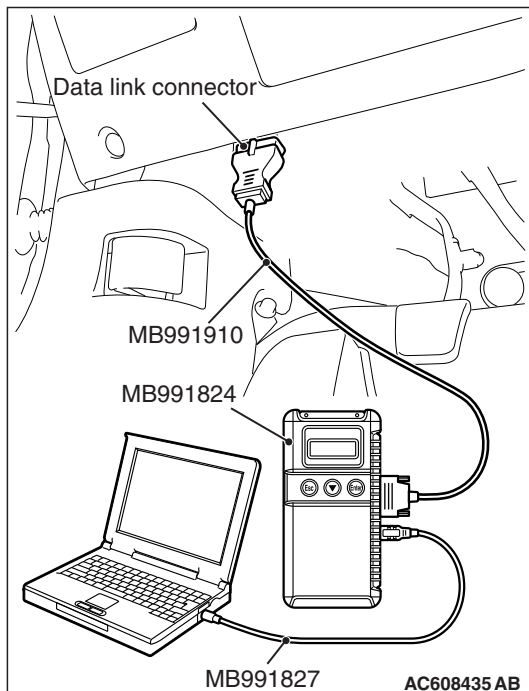
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-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-315](#)).

**NO** : Go to Step 3.

---

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

Check if the DTC U0154 is set to the A/C-ECU.

**Q: Is the DTC set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

**STEP 4. Recheck for diagnostic trouble code.**

Check again if the DTC is set to the 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 occupant classification-ECU.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the combination meter (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 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 such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the combination meter (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, 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.

**JUDGMENT CRITERIA**

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

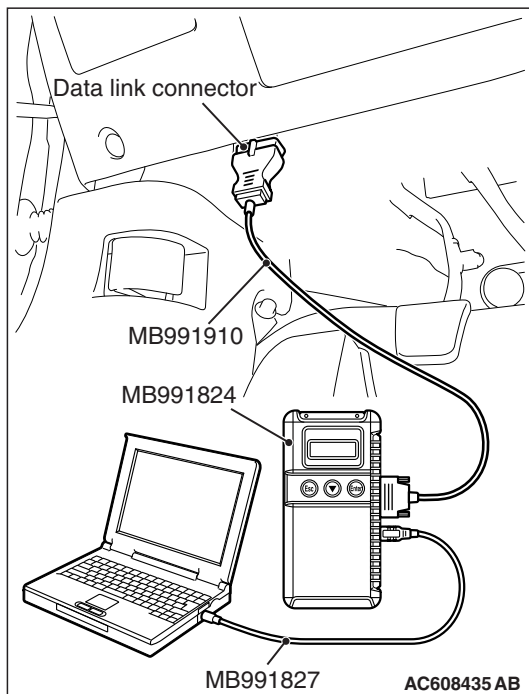
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES :** Go to Step 2.

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



---

**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-ECU (Refer to GROUP 55 [P.55-9](#)).

**NO** : Go to Step 3.

---

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

Check if the DTC U0164 is set to the ETACS-ECU.

**Q: Is the DTC set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

**STEP 4. Recheck for diagnostic trouble code.**

Check again if the DTC is set to the 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 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 combination meter (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 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 such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the combination meter (Refer to GROUP 00, 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.

**JUDGMENT CRITERIA**

With the ignition switch in the ON position, system voltage between 10 –16 V (data from ETACS-ECU), power supply fuse (IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with KOS-ECU 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**

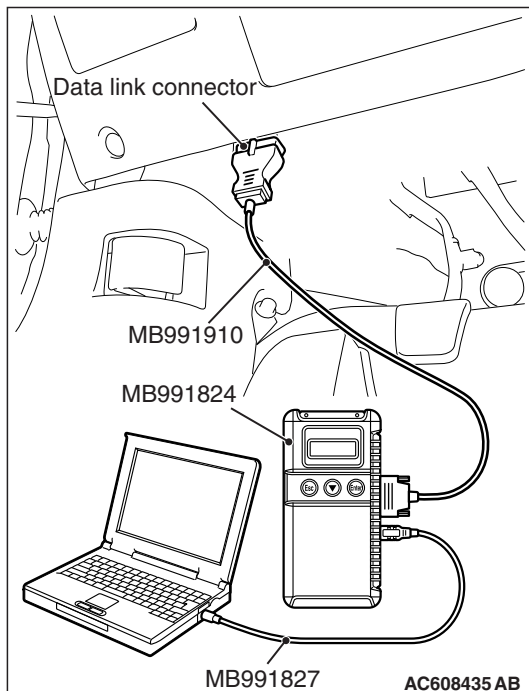
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-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-31](#) <KOS> or 42C, Troubleshooting [P.42C-18](#) <WCM>).

**NO** : Go to Step 3.

---

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

Check if the DTC U0168 is set to the ETACS-ECU.

**Q: Is the DTC set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

**STEP 4. Recheck for diagnostic trouble code.**

Check again if the DTC is set to the 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 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 combination meter (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 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 such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the combination meter (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).



**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.

**JUDGMENT CRITERIA**

With the ignition switch in the ON position, system voltage between 10 –16 volts (data from ETACS-ECU), power supply fuse (IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communications with 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**

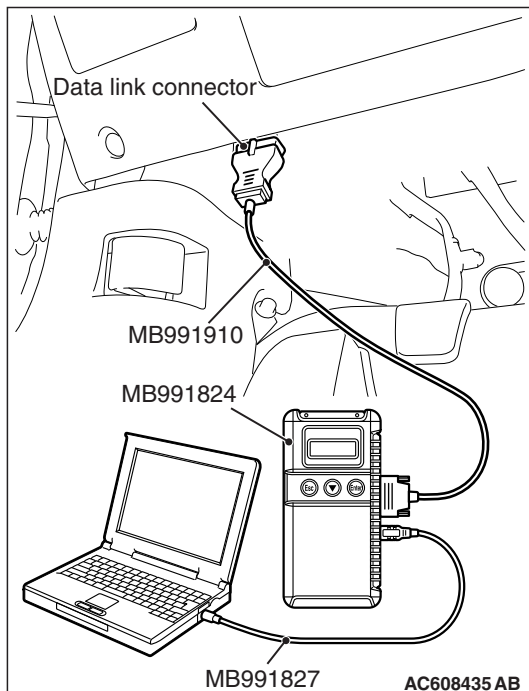
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-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-343](#)).

**NO** : Go to Step 3.

---

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

Check if the DTC U0184 is set to the ETACS-ECU.

**Q: Is the DTC set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

**STEP 4. Recheck for diagnostic trouble code.**

Check again if the DTC is set to the 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 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 combination meter (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 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 such as a poor connection or open circuit in the CAN bus lines between the radio and CD player or CD changer and the combination meter (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, 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.

**JUDGMENT CRITERIA**

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

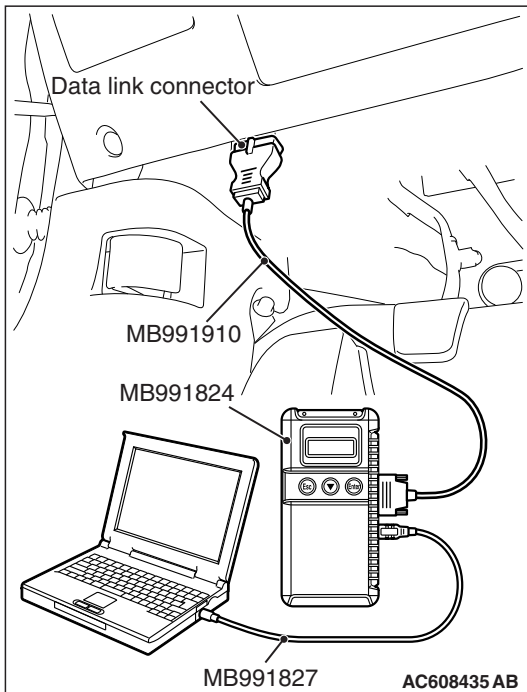
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES :** Go to Step 2.

**NO :** Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-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. Using scan tool MB991958, read the ETACS diagnostic trouble code.**

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

**Q: Is the DTC set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

**STEP 4. Recheck for diagnostic trouble code.**

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

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the combination meter (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 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 such as a poor connection or open circuit in the CAN bus lines between the hands free module and the combination meter (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, 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.

**JUDGMENT CRITERIA**

With the ignition switch in the ON position, system voltage between 10 –16 volts (data from ETACS-ECU), power supply fuse (IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communications with 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**

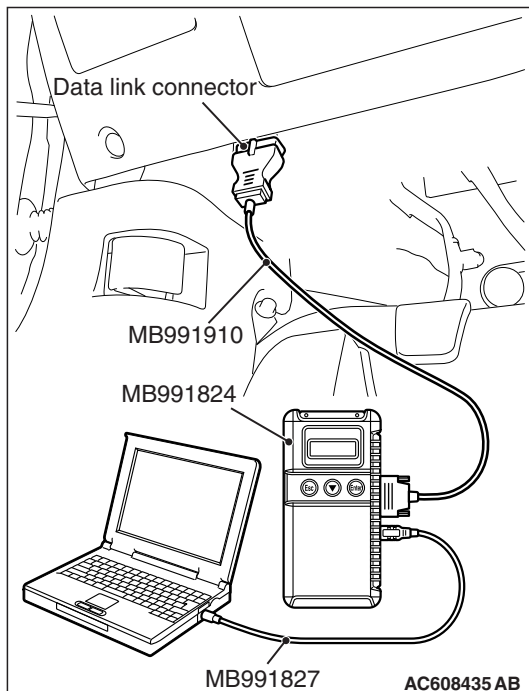
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-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-436](#)).

**NO** : Go to Step 3.

---

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

Check if the DTC U0245 is set to the ETACS-ECU.

**Q: Is the DTC set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

**STEP 4. Recheck for diagnostic trouble code.**

Check again if the DTC is set to the 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 CAN box unit (audio visual navigation unit).

**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 combination meter (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 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 CAN box unit (audio visual navigation unit) and the combination meter (Refer to GROUP 00, 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**

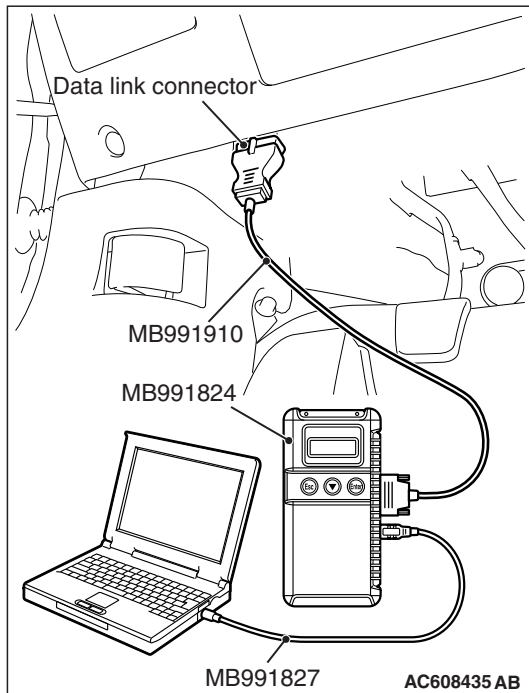
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES :** Go to Step 2.

**NO :** Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-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-674](#)).

**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**

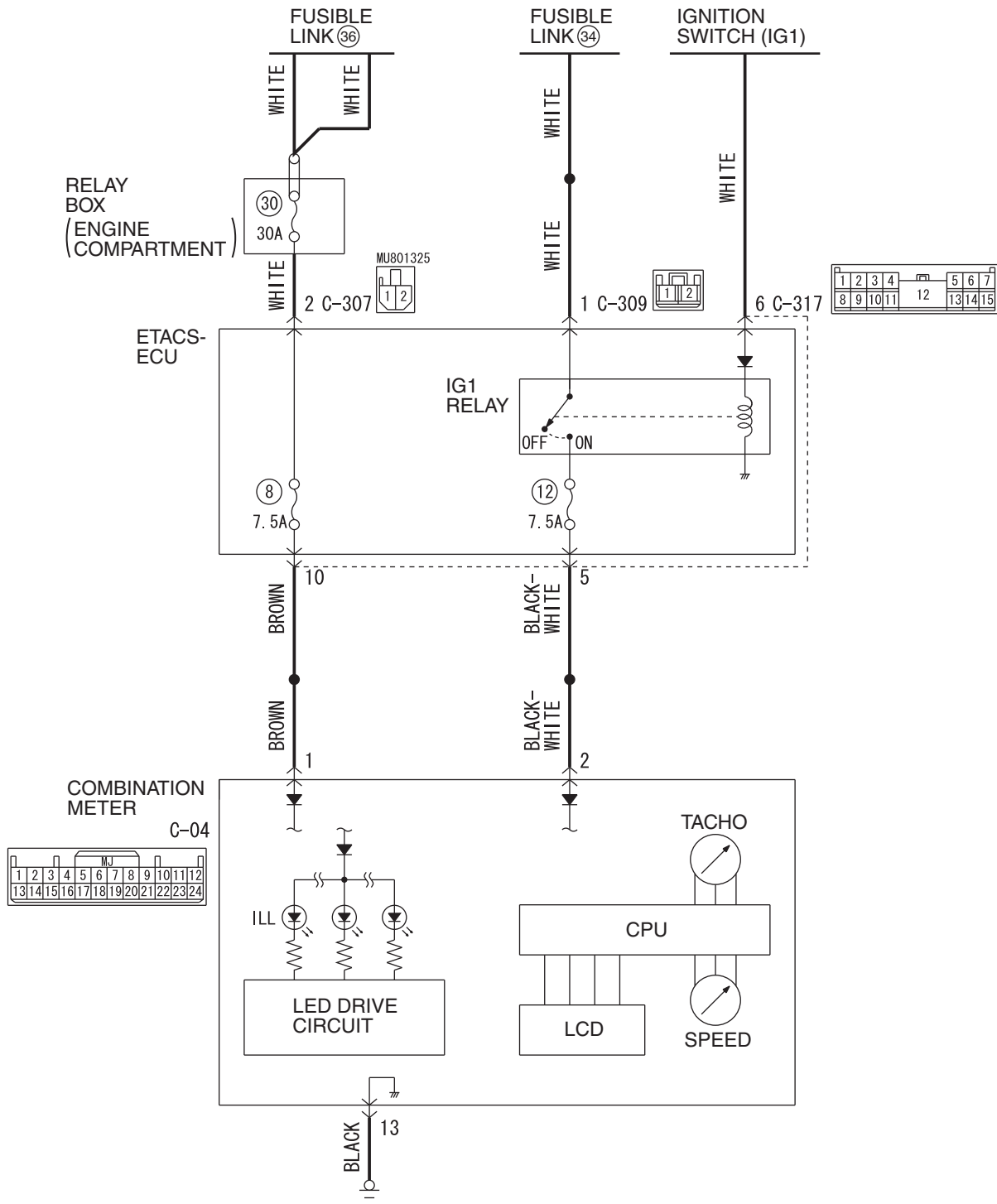
- During troubleshooting, a DTC code associated with another system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, confirm all systems for DTC code(s). If DTC code(s) are set, erase them all.
- When the combination meter is required to be replaced as a 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-115](#). 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	<a href="#">P.54A-74</a>
The speedometer does not work (the other meters work).	2	<a href="#">P.54A-80</a>
The tachometer does not work (the other meters work).	3	<a href="#">P.54A-82</a>
Tone alarm does not sound normally.	4	<a href="#">P.54A-84</a>
The combination meter light does not illuminate normally or the multi information display is not displayed normally.	5	<a href="#">P.54A-87</a>
The multi information display screen cannot be changed with the operation of the meter information switch.	6	<a href="#">P.54A-90</a>

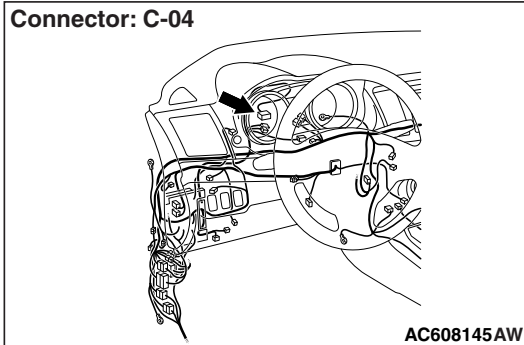
SYMPTOM PROCEDURES

Inspection Procedure 1: Power supply circuit check.

Combination Meter Power Supply Circuit



Connector: C-04



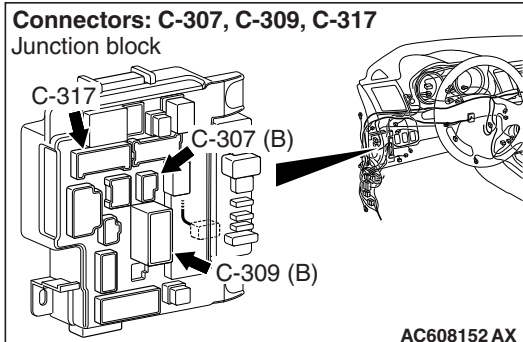
### TECHNICAL DESCRIPTION (COMMENT)

If the odometer and tripmeter do not display or no needle meters work, 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

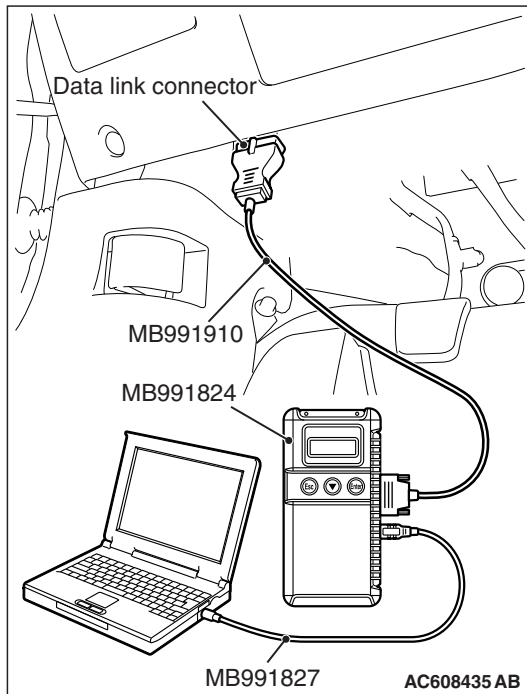
Connectors: C-307, C-309, C-317  
Junction block



### 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-30."
- (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-33).

**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.

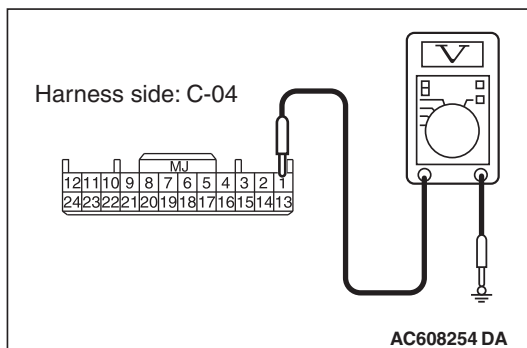
**STEP 3. Check the battery power supply circuit to the combination meter. Measure the voltage at combination meter connector C-04.**

- (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 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 5.

**NO :** Go to Step 4.



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

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

*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 combination meter connector C-04 (terminal 1) 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.

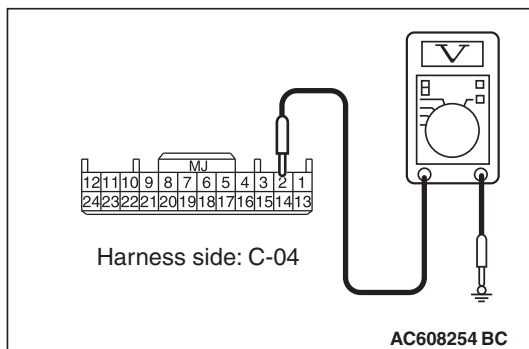
**STEP 5. Check the battery power supply circuit to the combination meter. Measure the voltage at combination meter connector C-04.**

- (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 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 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) 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)

(2) 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-734.](#)"

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

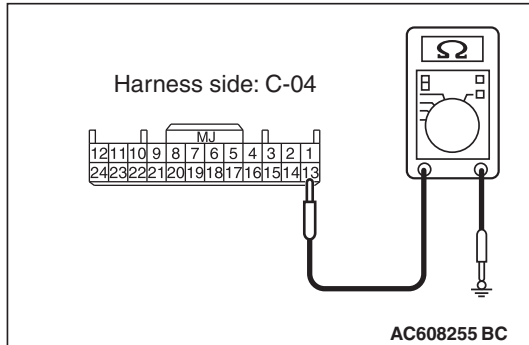
- Check the power supply line (battery supply) for open circuit and short circuit.

*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.**

- Check the ground wire for open circuit.

**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 ASC-ECU and combination meter may have a problem.

**TROUBLESHOOTING HINTS**

- The ASC-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**

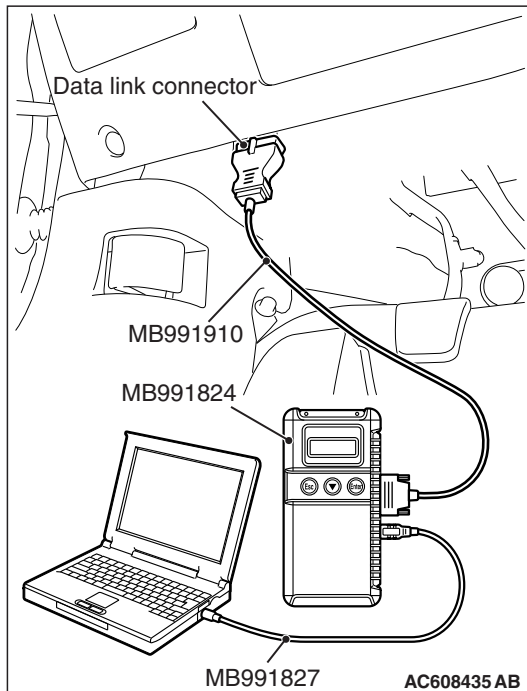
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-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-33).

**NO** : Go to Step 3.



---

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

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

**Q: Is the DTC set?**

**YES** : Troubleshoot the ASC (Refer to GROUP 35C, Diagnosis P.35C-27).

**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** : Go to Step 5.

**NO** : Replace the combination meter.

---

**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 1: Speedometer
  - The speedometer 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 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**

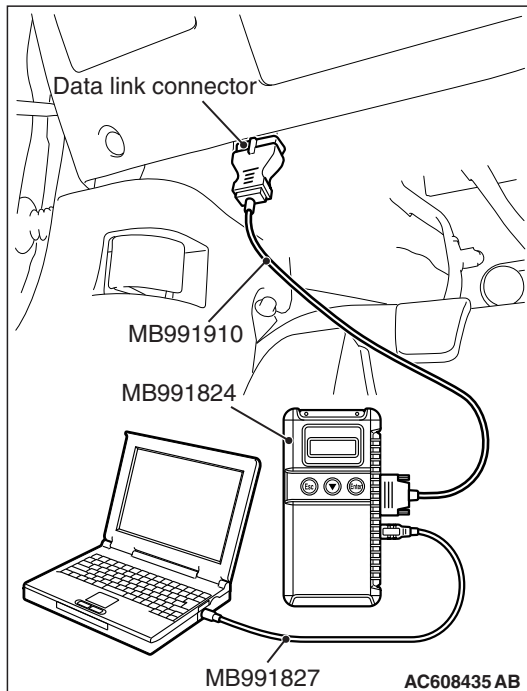
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-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-33).

**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-50](#) <2.0 L engine> or refer to GROUP 13B, Diagnosis [P.13B-51](#) <2.4 L engine>).

**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-50](#) <2.0 L engine> or refer to GROUP 13B, Diagnosis [P.13B-51](#) <2.4 L engine>). 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, ground 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 customize 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**

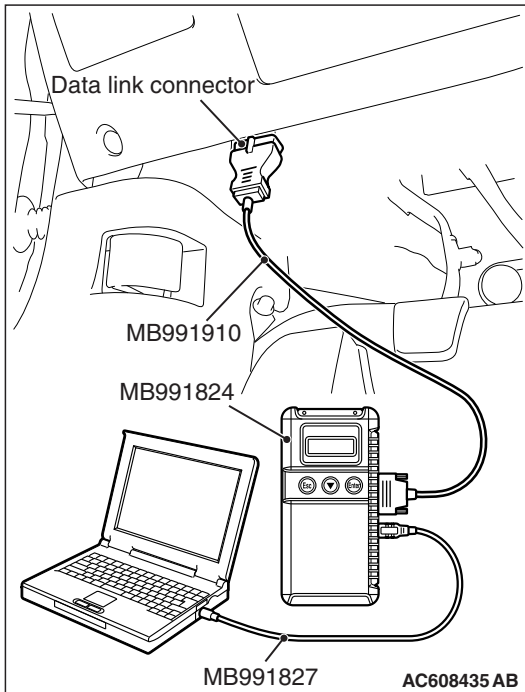
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES :** Go to Step 2.

**NO :** Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-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-33).

**NO :** Go to Step 3.

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

Check if diagnostic trouble code is set to the CVT, TC-SST, 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-26](#)).

**YES <Set to the TC-SST.>** : Troubleshoot the TC-SST (Refer to GROUP 22C, Diagnosis [P.22C-16](#)).

**YES <Set to the ETACS.>** : Troubleshoot the ETACS (Refer to [P.54A-674](#)).

**YES <Set to the WCM.>** : Troubleshoot the WCM (Refer to GROUP 42C, diagnosis [P.42C-18](#)).

**YES <Set to the KOS.>** : Troubleshoot the KOS (Refer to GROUP 42B, Diagnosis [P.42B-31](#)).

**YES <Set to the audio.>** : Troubleshoot the audio (Refer to [P.54A-343](#)).

**YES <Set to the A/C/Heater control unit.>** : Troubleshoot the A/C-ECU (Refer to GROUP 55 [P.55-9](#)).

**NO <The DTC is not set. (Vehicles without color liquid crystal display)>** : Go to Step 4.

**NO <The DTC is not set. (Vehicles with color liquid crystal display)>** : Go to Step 5.

---

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

**Q: Is the check result normal?**

**YES** : Go to Step 6.

**NO** : Replace the combination meter.

---

**STEP 5. Check by scan tool MB991958 "Special Function"**

Using scan tool MB991958, select "Test" from the special function of the combination meter. Execute the following item to check the buzzer.

- Item 3: Buzzer(AUTO)

**Q: Is the check result normal?**

**YES** : Go to Step 6.

**NO** : Replace the combination meter.

---

**STEP 6. 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, ground 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**

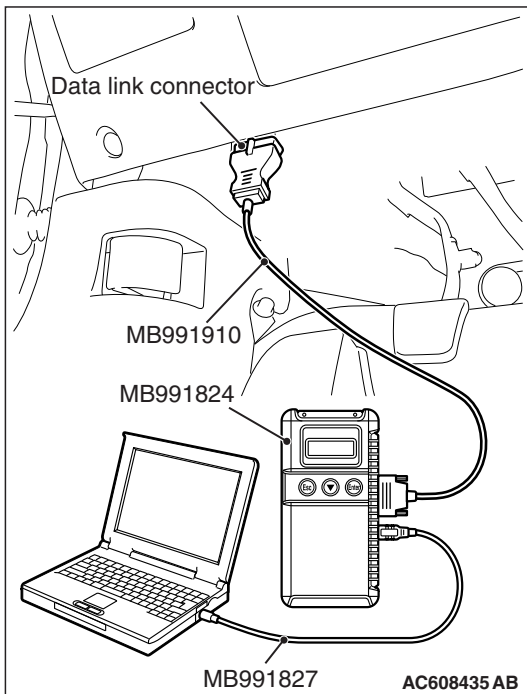
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES :** Go to Step 2.

**NO :** Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-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-33](#)).

**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, TC-SST, WCM, KOS, ASC, SRS, ETACS and A/C-ECU.

**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-50](#) <2.0 L engine> or GROUP 13B, Diagnosis [P.13B-51](#) <2.4 L engine>).

**YES <Set to the CVT.>** : Troubleshoot the CVT (Refer to GROUP 23A, Diagnosis [P.23A-26](#)).

**YES <Set to the TC-SST.>** : Troubleshoot the TC-SST (Refer to GROUP 22C, Diagnosis [P.22C-16](#)).

**YES <Set to the ASC.>** : Troubleshoot the ASC (Refer to GROUP 35C, Diagnosis [P.35C-27](#)).

**YES <Set to the WCM.>** : Troubleshoot the WCM (Refer to GROUP 42C, diagnosis [P.42C-18](#)).

**YES <Set to the KOS.>** : Troubleshoot the KOS (Refer to GROUP 42B, Diagnosis [P.42B-31](#)).

**YES <Set to the SRS.>** : Troubleshoot the SRS (Refer to GROUP 52B, Diagnosis [P.52B-32](#)).

**YES <Set to the ETACS.>** : Troubleshoot the ETACS (Refer to [P.54A-674](#)).

**YES <Set to the A/C/Heater control unit.>** : Troubleshoot the A/C/Heater control unit (Refer to GROUP 55 [P.55-9](#)).

**NO <The DTC is not set. (Vehicles without color liquid crystal display)>** : Go to Step 4.

**NO <The DTC is not set. (Vehicles with color liquid crystal display)>** : Go to Step 5.

---

**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 11: Shift indicator
- Item 13: Indicator4

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

**Q: Is the check result normal?**

**YES** : Go to Step 7.

**NO** : Replace the combination meter.



---

**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 7: Indicator1
  - Item 8: Indicator2
  - Item 9: Indicator3
  - Item 10: Indicator4
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

**Q: Is the check result normal?**

**YES** : Go to Step 6.

**NO** : Replace the combination meter.

---

**STEP 6. Check by scan tool MB991958 "Special Function"**

Using scan tool MB991958, select "Test" from the special function of the combination meter. Execute the following item to check the liquid crystal display.

- Item 2: LCD(AUTO)

**Q: Is the check result normal?**

**YES** : Go to Step 7.

**NO** : Replace the combination meter.

---

**STEP 7. 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](#)).

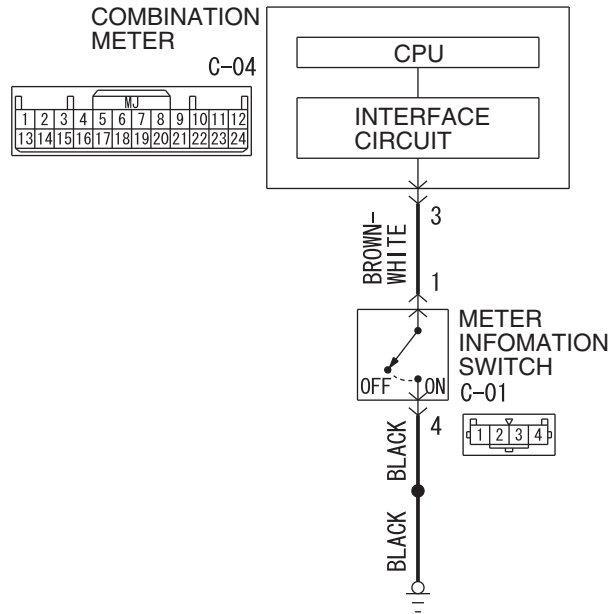
**NO** : Replace the combination meter.

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

**CAUTION**

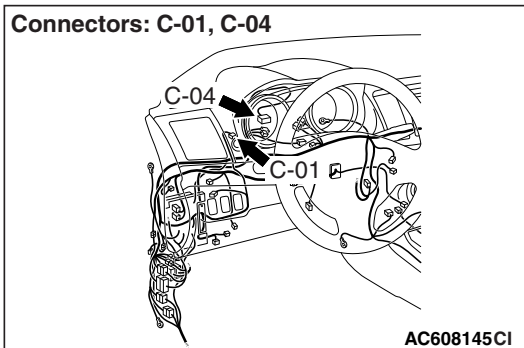
Before replacing the combination meter, be sure to check that the power supply circuit, ground circuit, and communication circuit are normal.

Meter Information Switch Circuit



W8G54M055A

Connectors: C-01, C-04



**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**

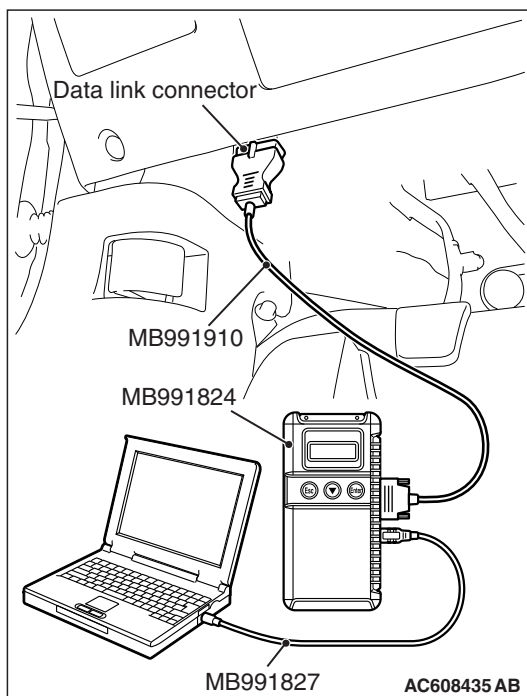
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
- (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-33).

**NO** : Go to Step 2.



### STEP 2. 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 3.

**NO** : Repair the connector.

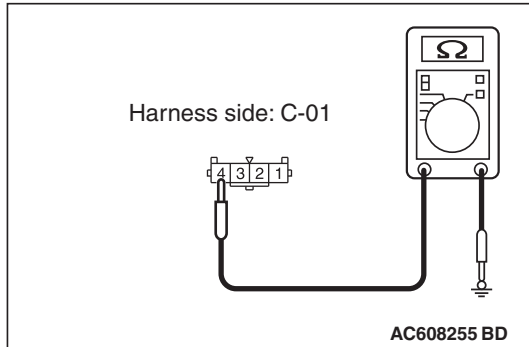
### STEP 3. Check the meter information switch.

Check the meter information switch (Refer to P.54A-115).

#### Q: Is the check result normal?

**YES** : Go to Step 4.

**NO** : Replace the meter information switch.




---

**STEP 4. 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 6.

**NO** : Go to Step 5.

---

**STEP 5. Check the wiring harness between meter information switch connector C-01 (terminal 4) and ground.**

- Check the ground wire for open circuit.

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

**YES** : Go to Step 6.

**NO** : Repair the wiring harness.

---

**STEP 6. 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 7.

**NO** : Repair the connector.

---

**STEP 7. Check the wiring harness between meter information switch connector C-01 (terminal 1) and combination meter connector C-04 (terminal 3).**

- Check the output line for open circuit.

**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 8.

**NO :** Repair the wiring harness.

---

**STEP 8. 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 <VEHICLES WITHOUT COLOR LIQUID CRYSTAL DISPLAY>**

M1540201000592

NOTE: For some information result read out by the ECU, the specific items may not be displayed.

Item No.	Display on scan tool	Check condition	Normal condition
01	Illumination	Taillight: Illuminated	ON
		Taillight: Extinguished	OFF
02	Outside temperature	-	°F
03	Frost warning indicator	With warning display	ON
		Without warning display	OFF
04	Engine coolant temp. light(HOT)	With warning display	ON
		Without warning display	OFF
05	Immobilizer indicator	Always	OFF
23	A/T failure indicator(Symbol)	With warning display	ON
		Without warning display	OFF
25	ASC/TCL failure indicator	With warning display	ON
		Without warning display	OFF
26	Key reminder indicator	With warning display	ON
		Without warning display	OFF
27	Headlight reminder indicator	With warning display	ON
		Without warning display	OFF
28	Brake reminder indicator	With warning display	ON
		Without warning display	OFF
29	F.A.S.T.indicator1(Low battery)	With warning display	ON
		Without warning display	OFF
30	F.A.S.T.indicator2(No key)	With warning display	ON
		Without warning display	OFF
31	F.A.S.T.indicator3(IG knob)	With warning display	ON
		Without warning display	OFF
32	F.A.S.T.indicator4(Take out key)	With warning display	ON
		Without warning display	OFF
33	F.A.S.T.indicator5(Take out key)	With warning display	ON
		Without warning display	OFF
34	F.A.S.T.indicator6(Lock disable)	With warning display	ON
		Without warning display	OFF
35	F.A.S.T.indicator7(Lock disable)	With warning display	ON
		Without warning display	OFF
36	F.A.S.T.indicator8(Lock disable)	With warning display	ON
		Without warning display	OFF
37	F.A.S.T.indicator9(System error)	With warning display	ON
		Without warning display	OFF

Item No.	Display on scan tool	Check condition	Normal condition
69	Security alarm buzzer	Exterior protection is operating	ON
		Exterior protection is not operating	OFF
70	Presecurity alarm buzzer	Interior alarm is operating	ON
		Interior alarm is not operating	OFF
80	Speed meter	Speedometer displayed value and scan tool displayed value agree with each other.	
87	Tachometer	Tachometer displayed value and scan tool displayed value agree with each other.	
89	Fuel gauge	The resistance value of the fuel gauge unit and scan tool displayed value agree with each other. (The allowance shall be defined as $\pm 2 \Omega$ )	
8A	Fuel gauge(Target)	The remaining fuel level is displayed by %.	
8C	Engine coolant temperature gauge	Coolant temperature and scan tool displayed value agree with each other.	
90	Odometer	Odometer displayed value and scan tool displayed value agree with each other.	
91	Rheostat	Lighting change by rheostat switch operation and change of scan tool displayed value agree with each other.	
92	Trip meter A	Trip meter displayed value and scan tool displayed value agree with each other.	
93	Trip meter B		
94	Power source voltage	Always	5 -20 V
A1	SRS warning light	With warning display	ON
		Without warning display	OFF
A2	ABS warning light	With warning display	ON
		Without warning display	OFF
A3	Oil pressure indicator	With warning display	ON
		Without warning display	OFF
A4	Charge indicator	With warning display	ON
		Without warning display	OFF
A5	Engine malfunction indicator	With warning display	ON
		Without warning display	OFF
A6	Fuel Warning (step1)	With warning display	ON
		Without warning display	OFF
A7	Brake warning light	With warning display	ON
		Without warning display	OFF
A8	Driver seatbelt indicator	With warning display	ON
		Without warning display	OFF
AA	ASC/TCL Operation indicator	When the indicator illuminates	ON
		When the indicator is extinguished	OFF

Item No.	Display on scan tool	Check condition	Normal condition
AB	ASC/TCL OFF indicator	When the indicator illuminates	ON
		When the indicator is extinguished	OFF
B1	Turn signal indicator(Right)	Turn-signal light (RH): Illuminated	ON
		Turn-signal light (RH): Extinguished	OFF
B2	Turn signal indicator(Left)	Turn-signal light (LH): Illuminated	ON
		Turn-signal light (LH): Extinguished	OFF
B3	Front fog light indicator	Taillight: illuminates and fog light switch: ON	ON
		When fog lights are off	OFF
B4	High beam indicator	Dimmer switch: ON	ON
		Dimmer switch: OFF	OFF
B5	Door indicator(Front Left)	Front passenger's door: Open	ON
		Front passenger's door: Closed	OFF
B6	Door indicator(Front Right)	Driver's door: Open	ON
		Driver's door: Closed	OFF
B7	Door indicator(Rear Left)	Rear left door: Open	ON
		Rear left door: Closed	OFF
B8	Door indicator(Rear Right)	Rear right door: Open	ON
		Rear right door: Closed	OFF
B9	Door indicator(Tailgate)	Liftgate: Open	ON
		Liftgate: Closed	OFF
BA	Position light indicator	Taillight switch: ON	ON
		Taillight switch: OFF	OFF
BE	A/T position indicator:Blank	The indicator is not displayed.	ON
		The indicator is displayed.	OFF
BF	A/T position indicator:A	Always	OFF
C1	A/T position indicator:P	Selector lever: P position	ON
		Selector lever: Other than P position	OFF
C2	A/T position indicator:R	Selector lever: R position	ON
		Selector lever: Other than R position	OFF
C3	A/T position indicator:N	Selector lever: N position	ON
		Selector lever: Other than N position	OFF
C4	A/T position indicator:D	Selector lever: D position	ON
		Selector lever: Other than D position	OFF
C5	A/T position indicator:Ds	Always	OFF
C6	A/T position indicator:6	Sport mode: 6th	ON
		Sport mode: Other than 6th	OFF
C7	A/T position indicator:5	Sport mode: 5th	ON
		Sport mode: Other than 5th	OFF



<b>Item No.</b>	<b>Display on scan tool</b>	<b>Check condition</b>	<b>Normal condition</b>
C8	A/T position indicator:4	Sport mode: 4th	ON
		Sport mode: Other than 4th	OFF
C9	A/T position indicator:3	Sport mode: 3rd	ON
		Sport mode: Other than 3rd	OFF
CA	A/T position indicator:2	Sport mode: 2nd	ON
		Sport mode: Other than 2nd	OFF
CB	A/T position indicator:1	Sport mode: 1st	ON
		Sport mode: Other than 1st	OFF
CE	Shift indicator:D1	Always	OFF
CF	Shift indicator:D2	Always	OFF
D1	Shift indicator:D3	Always	OFF
D2	Shift indicator:D4	Always	OFF
D3	Shift indicator:D5	Always	OFF
D4	Shift indicator:D6	Always	OFF
D6	Headlight auto leveling warning	Always	OFF
D8	Car symbol	When a door or the liftgate is opened	ON
		When the vehicle mark is off	OFF
E1	Tire Pressure indicator	With warning display	ON
		Without warning display	OFF
E2	A/T Oil TEMP.indicator	With warning display	ON
		Without warning display	OFF
E6	Rest reminder indicator	With warning display	ON
		Without warning display	OFF
E7	Service reminder indicator	With warning display	ON
		Without warning display	OFF
108	Fuel Warning (step2)	With warning display	ON
		Without warning display	OFF
F7	Cruise control indicator	When the indicator illuminates	ON
		When the indicator is extinguished	OFF
F13	ACD mode(TARMAc)	Always	OFF
F14	ACD mode(GRAVEL)	Always	OFF
F15	ACD mode(SNOW)	Always	OFF
F16	AFS/ACL failure indicator	Always	OFF
F17	AFS/ACL OFF indicator	Always	OFF
100	Distance to empty	Displayed values and scan tool MB991958 displayed values agree with each other.	
102	Average fuel consumption		
103	Instant fuel consumption		
104	Average speed		

## SERVICE DATA &lt;VEHICLES WITH COLOR LIQUID CRYSTAL DISPLAY&gt;

M1540201000600

NOTE: For some information result read out by the ECU, the specific items may not be displayed.

Item No.	Check item	Check condition	Normal condition
01	Illumination	Taillight: Illuminates	ON
		Taillight: OFF	OFF
25	ASC/TCL failure indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
80	Speed meter	Speedometer displayed value and scan tool MB991958 displayed value agree with each other.	
87	Tachometer	Tachometer displayed value and scan tool MB991958 displayed value agree with each other.	
89	Fuel gauge	Fuel gauge unit resistance value and scan tool MB991958 displayed value agree with each other. (Tolerance is $\pm 2 \Omega$ )	
8A	Fuel gauge(Target)	Fuel gauge and scan tool MB991958 displayed values agree with each other.	
90	Odometer	Odometer displayed value and scan tool MB991958 displayed value agree with each other.	
91	Rheostat	Lighting change by rheostat switch operation and scan tool MB991958 displayed change agree with each other.	
92	Trip meter A	Tripmeter displayed value and scan tool MB991958 displayed value agree with each other.	
93	Trip meter B		
94	Power source voltage	Always	5 -20 V
A1	SRS indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
A2	ABS indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
A4	Charge indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
A5	Check Engine indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
A7	Brake indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
A8	Driver seatbelt indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
AA	ASC/TCL Operation indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
AB	ASC/TCL OFF indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
B1	Turn signal indicator(Right)	Turn-signal light (RH): Illuminates	ON
		Turn-signal light (RH): OFF	OFF

<b>Item No.</b>	<b>Check item</b>	<b>Check condition</b>	<b>Normal condition</b>
B2	Turn signal indicator(Left)	Turn-signal light (LH): Illuminates	ON
		Turn-signal light (LH): OFF	OFF
B3	Front fog light indicator	1. Taillight: Illuminates 2. Fog light switch: ON	ON
		Fog light is not illuminated	OFF
B4	High beam indicator	Dimmer switch: ON	ON
		Dimmer switch: OFF	OFF
BA	Positionlight indicator	Taillight switch: ON	ON
		Taillight switch: OFF	OFF
D6	Head light auto leveling warning	Indicator illuminates	ON
		Indicator is extinguished	OFF
E1	Tire Pressure indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
F2	FL corner sensor indicator	Always	OFF
F3	FR corner sensor indicator	Always	OFF
F4	RL corner sensor indicator	Always	OFF
F5	RR corner sensor indicator	Always	OFF
F6	Back corner sensor	Always	OFF
F7	Cruise control indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
F8	Rear fog light indicator	Always	OFF
F10	Diesel GLOW indicator	Always	OFF
F17	AFS/ACL OFF indicator	Always	OFF
F27	PA. Seatbelt indicator	Always	OFF
F29	Inter cooler spray indicator	Always	OFF

**ACTUATOR TEST TABLE <VEHICLES WITHOUT COLOR LIQUID CRYSTAL DISPLAY>**

M1540201100566

Item No.	Item name	Test item	Driven content or unit
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 tone alarm can be sounded.	ON/OFF
8	Indicator2		ON/OFF
9	Indicator3		ON/OFF
11	Shift indicator		ON/OFF
12	Buzzer		ON/OFF
13	Indicator4		ON/OFF

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.

**ACTUATOR TEST TABLE <VEHICLES WITH COLOR LIQUID CRYSTAL DISPLAY>**

M1540201100577

**ACTUATOR TEST**

Item No.	Item name	Test item	Driven content or unit
1*	Speedometer	Pointer setting	-
2	Tachometer	Pointer setting	r/min
3	Fuel gauge	Status setting	ohm
5	Meter illumination	Status setting	%
7	Indicator1	By turning ON/OFF the item values, indicators can be illuminated/extinguished and buzzers can be sounded.	ON/OFF
8	Indicator2		ON/OFF
9	Indicator3		ON/OFF
10	Indicator4		ON/OFF

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.

**TEST (SPECIAL FUNCTION)**

Item No.	Item name	Test content
2	LCD(AUTO)	The display screen will be changed in the following order. 1. A black full screen is displayed. 2. The version information is displayed. 3. A white full screen is displayed. 4. A screen with black and white gradation is displayed.
3	Buzzer(AUTO)	The buzzer sounds.

**CHECK PROCEDURE FOR EACH MULTI INFORMATION DISPLAY SCREEN  
<VEHICLES WITHOUT COLOR LIQUID CRYSTAL DISPLAY>**


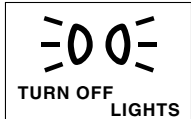

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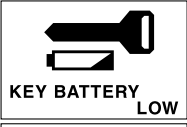








**⚠ CAUTION**








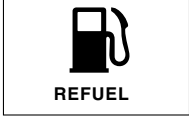
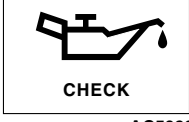
When there are TV towers, substations, or broadcasting stations which emit strong radio waves in proximity, on rare occasions, a warning is displayed on the multi information screen for a few seconds. This is caused by the reception of strong radio waves, and there is no functional problem.

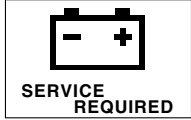



**WARNING SCREEN**

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
 <p>AC509825</p>	<p>Displayed with the sounding of tone alarm when the driver's door is opened with the key inserted in the ignition switch key cylinder.</p>	<p>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-84).</p>
 <p>AC509826</p>	<p>Displayed with the sounding of tone alarm when the driver's door is opened with the ignition switch at the LOCK (OFF) or ACC position and the lighting switch at the tail or head position.</p>	<p>If the lighting monitor warning tone alarm is not being sounded, perform the troubleshooting for the lighting monitor warning tone alarm (Refer to P.54A-84).</p>
 <p>AC505679</p>	<ul style="list-style-type: none"> <li>• Displayed while the theft alarm is in operation.</li> <li>• Immobilizer is registered.</li> </ul>	<p>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-781) or immobilizer system (Refer to GROUP 42B – Trouble symptom chart P.42B-136 &lt;vehicles with KOS&gt; or Refer to GROUP 42C –Trouble symptom chart P.42C-84 &lt;vehicles without KOS&gt;.)</p>




Display content	Factor	Action procedure
<p>a  STEERING WHEEL LOCK</p> <p>b  KEY BATTERY LOW</p> <p>c  KEY MISSING</p> <p>d  CONFIRM KEY LOCATION</p> <p>e  CHECK DOORS</p> <p>f  SERVICE REQUIRED</p> <p>AC606877AB</p>	<p>Displayed when a malfunction occurs to KOS. Refer to GROUP 42B –Diagnosis .</p> <p>a. Displayed when the following operations are carried out with the ignition switch at positions other than the LOCK (PUSH OFF) position after the engine is stopped.</p> <ul style="list-style-type: none"> <li>• When the driver's door is opened</li> <li>• When the doors are closed and locked</li> </ul> <p>b. Displayed when the KOS key battery is running low.</p> <p>c. Displayed if carrying a KOS key with different ID code or the KOS key is outside the operative range.</p> <p>d. Displayed when the KOS key removal monitoring function or KOS key confinement prevention function is in operation.</p> <p>e. Displayed when the door ajar prevention function is in operation.</p> <p>f. Displayed when there is a malfunction to KOS.</p>	<p>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 –Diagnostic Trouble Code Chart <a href="#">P.42B-31</a>).</p>
<p>a  LOW TIRE PRESSURE</p> <p>AC609827AB</p> <p>b  SERVICE REQUIRED</p> <p>AC609828AB</p>	<p>a. Displayed when the tire air pressure is an abnormality.</p> <p>b. Displayed when the TPMS is an abnormality.</p>	<p>If the warning screen is not displayed normally or erased, carry out the troubleshooting for the TPMS (Refer to GROUP 42B –Diagnosis <a href="#">P.42B-31</a>).</p>
<p>a  CHECK</p> <p>AC509829 AB</p> <p>b  RELEASE PARKING BRAKE</p> <p>AC509830AB</p>	<p>a. Displayed when the brake fluid amount is insufficient or a malfunction occurs to the brake device.</p> <p>b. Displayed if vehicle is driven with the parking brake engaged.</p>	<p>If the warning screen is not displayed normally or if the screen continues to be displayed, take the following measures for each displayed item.</p> <p>a. Check the brake fluid or brake device. Refer to GROUP 35A –On-vehicle service <a href="#">P.35A-19</a>.</p> <p>b. Check the parking brake. Refer to GROUP 36 –On-vehicle service <a href="#">P.36-10</a>.</p>

Display content	Factor	Action procedure
 AC509831	Displayed when a malfunction occurs to the anti-lock 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 35C –Trouble symptom chart <a href="#">P.35C-238</a> ).
 AC610018	If any of the doors or liftgate is not closed completely, the location of the ajar door is displayed with the sounding of tone alarm.	If the door ajar warning tone alarm does not sound, perform the troubleshooting for the door ajar warning tone alarm (Refer to <a href="#">P.54A-84</a> ).
 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 13B –Trouble symptom chart <a href="#">P.13B-56</a> <2.4 L engine>).
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 diagnostic trouble code (Refer to GROUP 23A –Diagnosis <a href="#">P.23A-26</a> ).
 AC509837	Displayed when the vehicle is driven 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 light (Refer to <a href="#">P.54A-87</a> ).
a.  AC509838AD  b.  AC509839AB	a. Displayed when there is a malfunction to the fuel system. b. Displayed when the remaining fuel amount is small.	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 combination meter diagnostic trouble code. Refer to <a href="#">P.54A-87</a> . b. Immediately fill the fuel.
 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. Refer to GROUP 13B –Trouble symptom chart <a href="#">P.13B-56</a> <2.4 L engine>.

Display content	Factor	Action procedure
 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 charging system. Refer to GROUP 16, On-vehicle service –Output current test <a href="#">P.16-9</a> and Regulated voltage test <a href="#">P.16-11</a> .
 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 light (Refer to GROUP 52B –Trouble symptom chart <a href="#">P.52B-383</a> ).
 AC509848	Displayed with the sounding of tone alarm when the ambient temperature is 37° F (3° C) or less.	If the warning screen is not displayed even when the indicator on the combination meter shows 37° F (3° C), perform the troubleshooting for the freeze warning tone alarm. (Refer to <a href="#">P.54A-84</a> ).
 AC509844	Displayed when there is a malfunction to the ASC.	If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the ASC. Refer to GROUP 35C –Trouble symptom chart <a href="#">P.35C-238</a> .

## 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
 AC505710	Displayed when the ASC is in operation.	If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the ASC. Refer to GROUP 35C –Trouble symptom chart <a href="#">P.35C-238</a> .
 AC509849	Displayed when the set period elapses.	–
 AC613245	Displayed when the set time elapses.	–



**CHECK PROCEDURE FOR EACH MULTI INFORMATION DISPLAY SCREEN  
<VEHICLES WITH COLOR LIQUID CRYSTAL DISPLAY>**

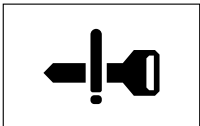
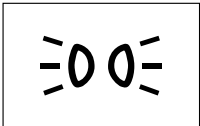

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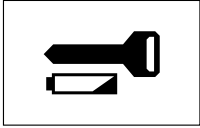
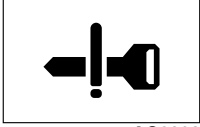
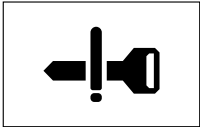
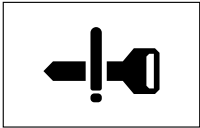
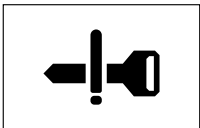
**⚠ CAUTION**







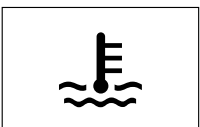
When there are TV towers, substations, or broadcasting stations which emit strong radio waves in proximity, on rare occasions, a warning is displayed on the multi information screen for a few seconds. This is caused by the reception of strong radio waves, and there is no functional problem.

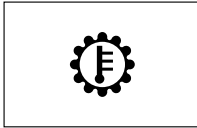
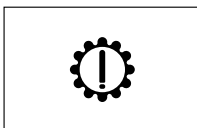



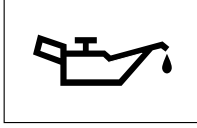
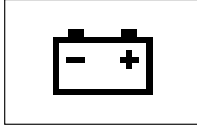
**WARNING SCREEN**



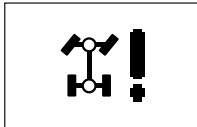


When malfunctions occur to the vehicle, the following warning screens are displayed. If these screens are not displayed normally or if they continue to be displayed even after the factor is eliminated, take measures according to the action procedure.

Display content	Message	Factor	Action procedure
 AC809615	REMOVE KEY	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-84).
 AC809612	TURN OFF LIGHTS	Displayed with the sounding of tone alarm when the driver's door is opened with the ignition switch at the LOCK (OFF) or ACC position and the lighting switch at the tail or head position.	If the lighting monitor warning tone alarm is not being sounded, perform the troubleshooting for the lighting monitor warning tone alarm (Refer to P.54A-84).
 AC505679	ALARM ACTIVATING	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-781.)

Display content	Message	Factor	Action procedure
 AC900961	-	<p>Displayed when the following operations are carried out with the ignition switch at positions other than the LOCK (PUSH OFF) position after the engine is stopped.</p> <ul style="list-style-type: none"> <li>• When the driver's door is opened</li> <li>• When the doors are closed and locked</li> </ul>	<p>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, Diagnostic trouble code chart P.42B-31).</p>
 AC809614	KEY BATTERY LOW	<p>Displayed when the KOS key battery is running low.</p>	
 AC809615	KEY NOT DETECTED	<ul style="list-style-type: none"> <li>• Displayed if carrying a KOS key with different ID code or the KOS key is outside the operative range.</li> <li>• Displayed when the keyless operation key is taken out of the car when the IG knob is in other than the LOCK position, and all the doors are closed.</li> </ul>	
 AC809615	KEY STILL IN VEHICLE	<p>Displayed when the front door outside handle lock switch is turned to ON position while the keyless operation key is left in the vehicles.</p>	
 AC809615	CHECK DOORS	<p>Displayed when the door ajar prevention function is in operation.</p>	
 AC809615	KEYLESS OPERATION SYSTEM SERVICE REQUIRED	<p>Displayed when there is a malfunction to KOS.</p>	


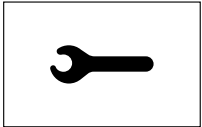

Display content	Message	Factor	Action procedure
 AC809643	LOW TIRE PRESSURE	Displayed when the tire air pressure is an abnormality. (except spare tire)	If the warning screen is not displayed normally or erased, carry out the troubleshooting for the TPMS (Refer to GROUP 42B, Diagnosis <a href="#">P.42B-31</a> ).
 AC809643	TPMS SERVICE REQUIRED	Displayed when the TPMS is an abnormality.	
 AC809617	BRAKE SYSTEM SERVICE REQUIRED	Displayed when the brake fluid amount is insufficient or a malfunction occurs to the brake device.	If the warning screen is not displayed normally or if the screen continues to be displayed, check the brake fluid or brake device. Refer to GROUP 35A, On-vehicle service <a href="#">P.35A-19</a> .
 AC809617	RELEASE PARKING BRAKE	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, check the parking brake. Refer to GROUP 36, On-vehicle service <a href="#">P.36-10</a> .
 AC809618	ABS SERVICE REQUIRED	Displayed when a malfunction occurs to the anti-lock 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 35C, Symptom Chart <a href="#">P.35C-238</a> .
 AC900962	-	If any of the doors or liftgate is not closed completely, the location of the ajar door is displayed with the sounding of tone alarm.	If the door ajar warning tone alarm does not sound, perform the troubleshooting for the door ajar warning tone alarm. Refer to <a href="#">P.54A-84</a> .
 AC809619	ENGINE OVERHEATING STOP SAFELY	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 <a href="#">P.13A-55</a> <2.0 L engine> or GROUP 13B – Trouble symptom chart <a href="#">P.13B-56</a> <2.4 L engine>).

Display content	Message	Factor	Action procedure
 AC809620	TRANSMISSION OVERHEATING SLOW DOWN	Displayed when the transmission oil temperature becomes high.	If the warning screen is not displayed normally or if the screen continues to be displayed, check the CVT or TC-SST diagnostic trouble code (Refer to GROUP 23A –Diagnosis <a href="#">P.23A-26</a> <CVT> or GROUP 22C –Diagnosis Trouble Code Chart <a href="#">P.22C-397</a> <TC-SST>).
 AC809621	TRANSMISSION SERVICE REQUIRED	Displayed when there is a malfunction to the CVT or TC-SST.	
 AC809622	FASTEN SEAT BELT	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 light. Refer to <a href="#">P.54A-87</a> .
 AC809623	FUEL SYSTEM SERVICE REQUIRED	Displayed when there is a malfunction to the fuel system.	If the warning screen is not displayed normally or if the screen continues to be displayed, check the combination meter diagnostic trouble code. Refer to <a href="#">P.54A-87</a> .
 AC809623	REFUEL	Displayed when the remaining fuel amount is small.	If the warning screen is not displayed normally or if the screen continues to be displayed, refuel immediately.
 AC809624	LOW OIL PRESSURE	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. Refer to GROUP 13A –Trouble symptom chart <a href="#">P.13A-55</a> <2.0 L engine> or GROUP 13B –Trouble symptom chart <a href="#">P.13B-56</a> <2.4 L engine>.
 AC809625	CHARGING SYSTEM SERVICE REQUIRED	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 charging system. Refer to GROUP 16, On-vehicle service – Output current test <a href="#">P.16-9</a> and Regulated voltage test <a href="#">P.16-11</a> .

Display content	Message	Factor	Action procedure
 AC809626	AIRBAG SYSTEM SERVICE REQUIRED	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 light. Refer to GROUP 52B, SRS Air Bag Diagnosis <a href="#">P.52B-32</a> .
 AC809630	ASC SYSTEM SERVICE REQUIRED	Displayed when there is a malfunction to the ASC.	If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the ASC. Refer to GROUP 35C, Symptom Chart <a href="#">P.35C-238</a> .
 AC809631	4WD SYSTEM SERVICE REQUIRED	Displayed when there is a malfunction to ACD.	If the warning screen is not displayed normally or if the screen continues to be displayed, perform troubleshooting for the ACD system. Refer to GROUP 22C –Diagnostic Trouble Code Chart <a href="#">P.22C-397</a> .
 AC809632	POSSIBLE ICY ROADS	Displayed with the sounding of tone alarm when the ambient temperature is 37 °F (3 °C) or less.	If the freeze warning tone alarm does not sound with the ambient temperature of 37 °F (3 °C) or less, perform the troubleshooting for the freeze warning tone alarm. Refer to <a href="#">P.54A-84</a> .
 AC809634	ENGINE SYSTEM SERVICE REQUIRED	Displayed when the timing chain is worn. <2.0 L engine>	If the warning screen is not displayed normally or if the screen continues to be displayed, visually check the timing chain elongation. Refer to GROUP 11A –Engine Adjustment <a href="#">P.11A-18</a> .

**OTHER SCREENS**

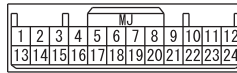
The screen displays the operation state of each system, periodic checkup timing, or timing for taking a rest during driving. If the screen display differs from the actual system operation state or if the screen is not displayed at the set timing, take measures according to the action procedure.

Display content	Message	System operation state	Action procedure
 AC809636	–	Displayed when the ASC is in operation.	If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the ASC. Refer to GROUP 35C, Symptom Chart <a href="#">P.35C-238</a> .
 AC809637	ROUTINE MAINTENANCE REQUIRED	Displayed when the set period elapses.	–
 AC809638	REST REMINDER	Displayed when the set time elapses.	–

CHECK AT ECU TERMINALS

M1540201200466

Connector: C-04



AC606907AD

Terminal No.	Check item	Check condition	Normal condition
1	ECU power supply (battery)	Always	Battery positive voltage
2	ECU power supply (Ignition switch: IG1)	Ignition switch: ON	Battery positive voltage
		Ignition switch: OFF	1 V or less
3	Meter information switch input	Meter information switch: ON	1 V or less
		Meter information switch: OFF	Battery positive voltage
4	Parking brake switch input	Parking brake switch: ON	1 V or less
		Parking brake switch: OFF	Battery positive voltage
5	Seat belt switch (driver's side) input	Seat belt switch (driver's side): ON	1 V or less
		Seat belt switch (driver's side): OFF	Battery positive voltage
6	Headlamp leveling	During headlight leveling warning display	1 V or less
		Without headlight leveling warning display	Battery positive voltage
7 to 12	–	–	–
13	Earth (sensor)	Always	1 V or less
14 to 16	–	–	–
17	Fuel level sensor input	–	Depending on the condition of the fuel level sensor, the voltage changes.
18	Fuel level sensor input	Fuel: FULL	Approximately 2 V
		Fuel: EMPTY	Approximately 8 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	1 V or less

Terminal No.	Check item	Check condition	Normal condition
22	Illumination (-) output	Lighting switch: OFF	1 V or less
		Lighting switch: TAIL position	In accordance with the rheostat switch operation, a pulse is generated.
23	Illumination (+) output	Lighting switch: TAIL position	Battery positive voltage
24	Illumination (power supply)	Always	Battery positive voltage

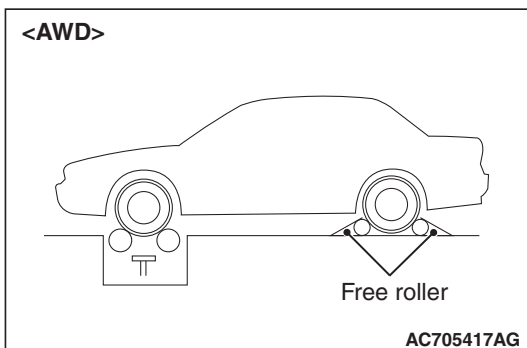
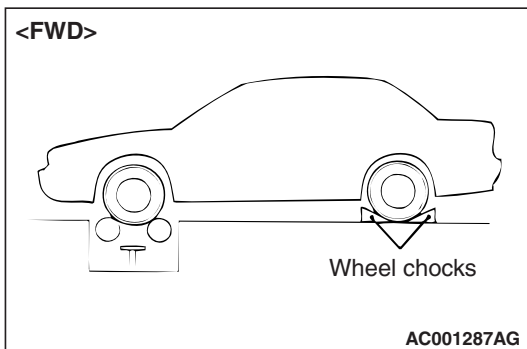
## ON-VEHICLE SERVICE

### SPEEDOMETER CHECK

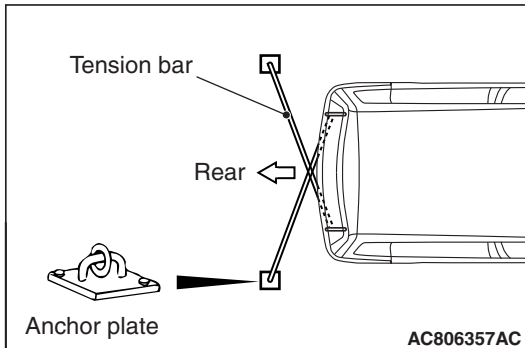
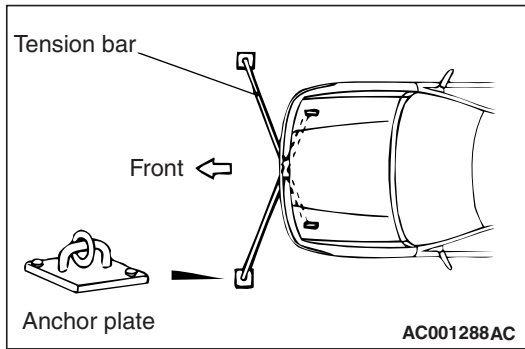
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**⚠ CAUTION**

- Since the diagnostic trouble code may be stored in the ASC-ECU when checking the speedometer with speedometer tester, erase the diagnostic trouble code.
  - Do not accelerate or decelerate suddenly during servicing work.
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.
  3. Press the ASC OFF switch for 3 seconds or more to stop the ASC operation.
  4. Set the vehicle onto a speedometer tester and use wheel chocks to hold the rear wheels. <FWD>
  5. Set the vehicle on the speedometer tester. Set the rear wheel on the free roller, and set to the FWD state. <AWD>







6. For prevention of vehicle from starting out, install extension fittings on front and rear towing hook or tie down hook, and install both ends to the anchor plate.
7. 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)
150 (241)	148.5 –153.5 (239.0 –247.0)

**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)
240 (149.1)	240.5 –247.0 (149.4 –153.5)

8. 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 ASC or engine control module and the combination meter. Check the following items.
  - ASC or MFI (Refer to GROUP 35C, Diagnosis [P.35C-27](#) <ASC> or GROUP 13A, Diagnostic Trouble Code Chart [P.13A-50](#) <2.0 L engine> or GROUP 13B, Diagnostic Trouble Code Chart [P.13B-51](#) <2.4 L engine>).
  - Combination meter (refer to [P.54A-33](#)).

## 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

M1540201600680

## NOMINAL RESISTANCE OF THE FUEL LEVEL SENSOR

1. Remove the fuel pump module (Refer to GROUP 13C –Fuel Tank P.13C-14 <2.4 L engine> or P.13C-24 <2.0 L engine>).
2. When float of the fuel level sensor is in stopper positions F and E, ensure that resistance between the fuel level sensor terminal and ground terminal is within the standard value.

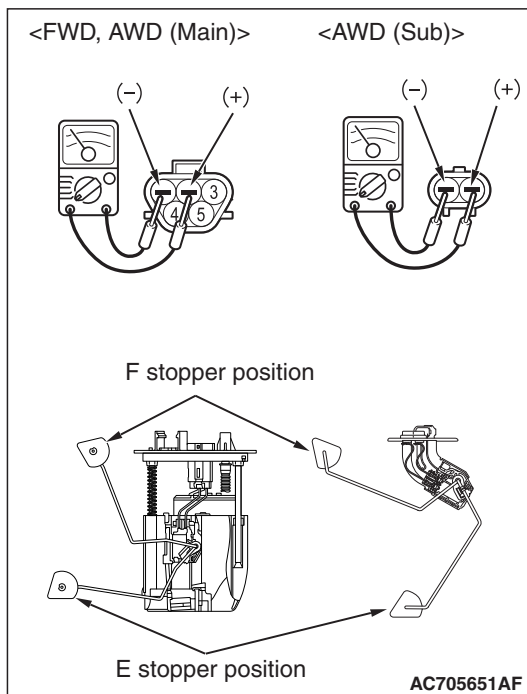
**<FWD> Standard value:**

Float position	Gauge resistance value ( $\Omega$ )
Stopper position "F"	$13.0 \pm 1.0$
Stopper position "E"	$120.0 \pm 1.0$

**<AWD> Standard value:**

Float position	Gauge resistance value ( $\Omega$ )	
	Main	Sub
Stopper position "F"	$6.5 \pm 1.0$	$6.5 \pm 1.0$
Stopper position "E"	$41.9 \pm 1.0$	$78.1 \pm 1.0$

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



**FUEL LEVEL SENSOR FLOAT HEIGHT**

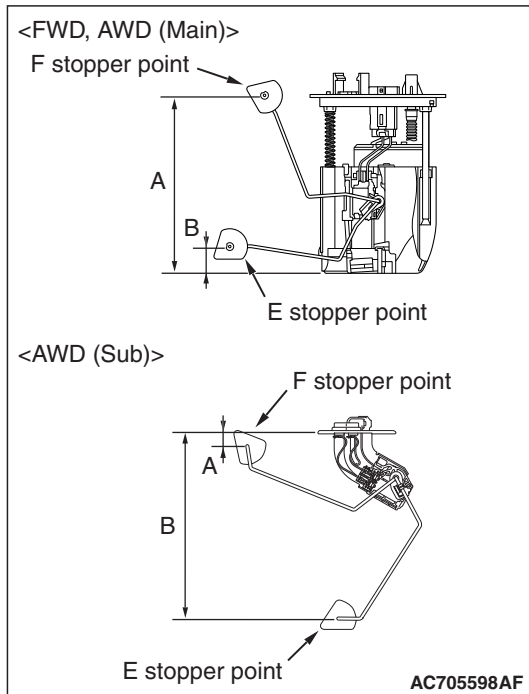
1. Remove the fuel pump module (Refer to GROUP 13C –Fuel Tank P.13C-14 <2.4 L engine> or P.13C-24 <2.0 L engine>).
2. When float is moved to contact the float arm on the stopper, ensure that stopper positions "F" (height A) and "E" (height B) are within the standard value.

**<FWD> Standard value:**

Float position	Float height {mm (in)}
Stopper position "F" (height A)	181.5 (7.1)
Stopper position "E" (height B)	26.7 (1.1)

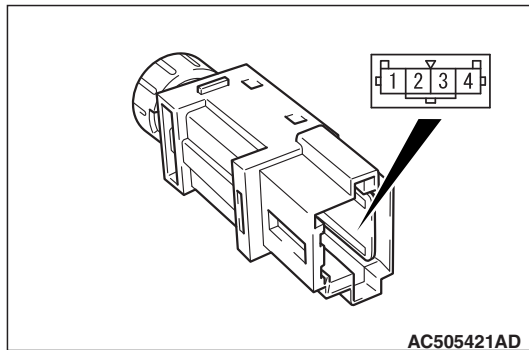
**<AWD> Standard value:**

Float position	Float height {mm (in)}	
	Main	Sub
Stopper position "F" (height A)	140.9 (5.5)	14.2 ± 3.0 (0.6 ± 0.1)
Stopper position "E" (height B)	39.1 (1.5)	179.3 ± 3.0 (7.1 ± 0.1)



**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**

M1540208200564

**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).

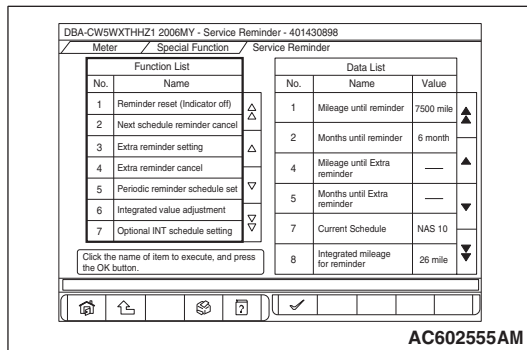
1. Reminder reset (Indicator off)
2. Next schedule reminder cancel
3. Extra reminder setting
4. Extra reminder cancel
5. Periodic reminder schedule set
6. Integrated value adjustment
7. Optional INT schedule setting

## 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-116](#)).
  - 2 Next schedule reminder cancel (Refer to [P.54A-117](#)).
  - 3 Extra reminder setting (Refer to [P.54A-118](#)).
  - 4 Extra reminder cancel (Refer to [P.54A-118](#)).
  - 5 Periodic reminder schedule set (Refer to [P.54A-119](#)).
  - 6 Integrated value adjustment (Refer to [P.54A-120](#)).
  - 7 Optional INT schedule setting (Refer to [P.54A-120](#)).



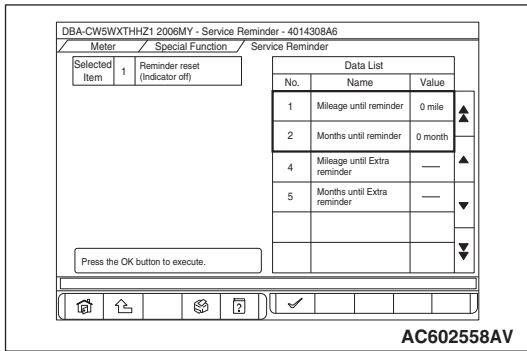
## 1. REMINDER RESET (INDICATOR OFF)

### **⚠ 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.

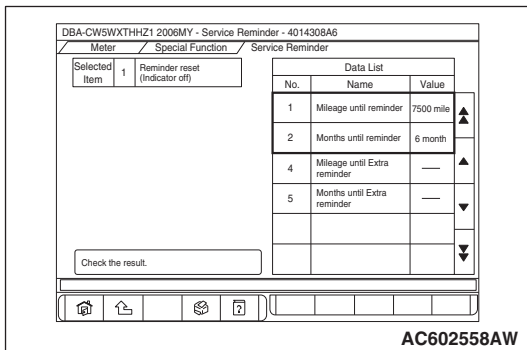
*NOTE: In addition to the operation of the scan tool MB991958, the service reminder warning indicator can be cancelled by operating the meter information switch on the combination meter. Refer to [P.54A-122](#) .*



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.



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 mile" and "6 month."*

## 2. NEXT SCHEDULE REMINDER CANCEL

### **CAUTION**

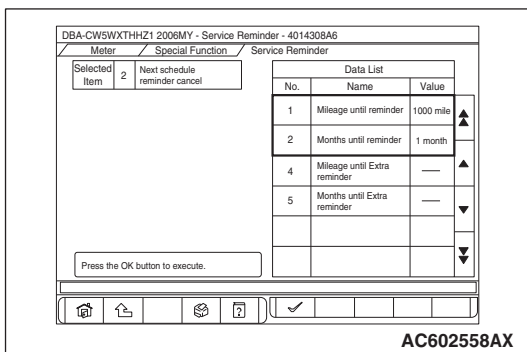
If the next warning period is cancelled by mistake, the cancelled warning period can be restored by executing "5 Periodic reminder schedule set" to set a schedule different from the current one once, and then returning it to the previous schedule.

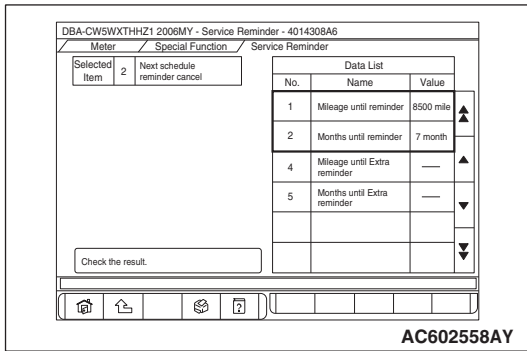
The next warning period is cancelled, and its following warning period can be set.

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.

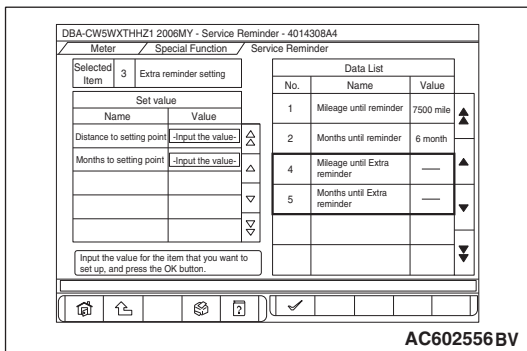




AC602558AY

- 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 mile" and "7 month."*



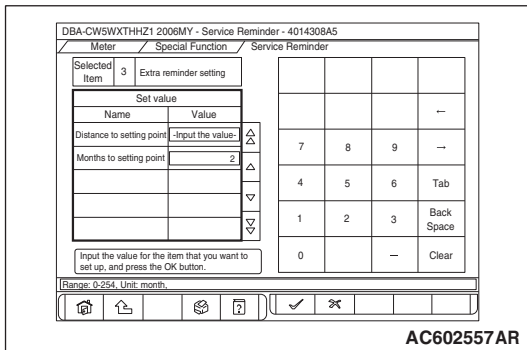
AC602556BV

### 3. EXTRA REMINDER SETTING

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

- 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.*

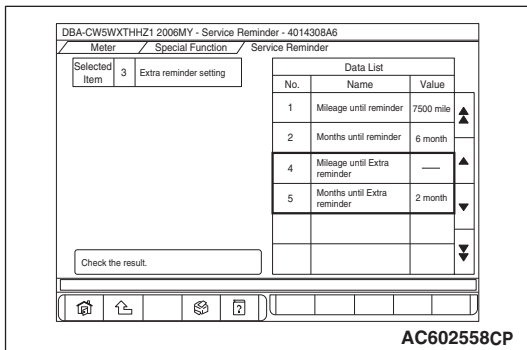


AC602557AR

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

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

- Press the "OK" button.



AC602558CP

- 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.

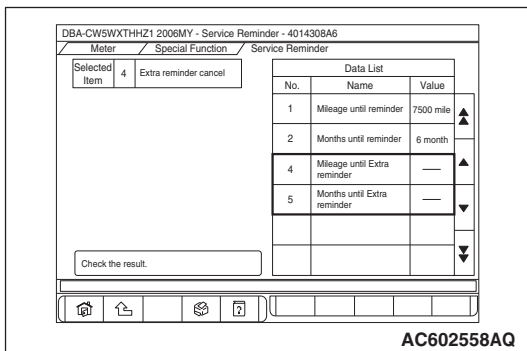
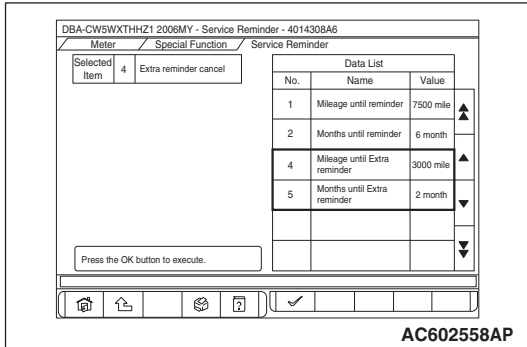
1. On the "Service Reminder" screen, select "4 Extra reminder cancel."

*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.

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

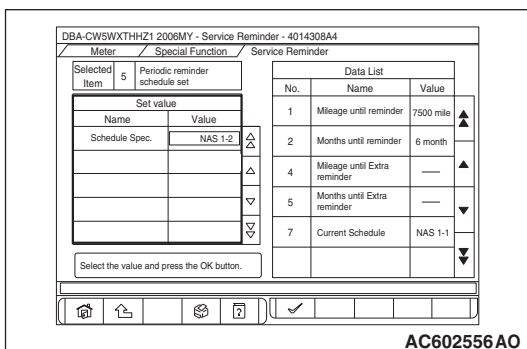
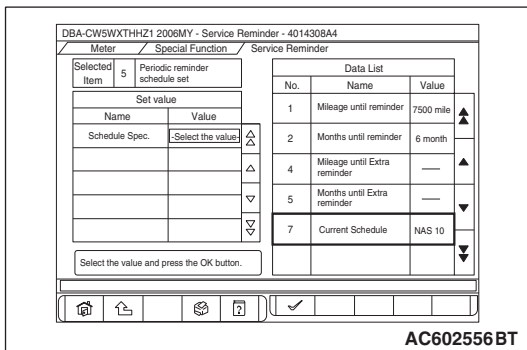
The service reminder schedule can be changed.

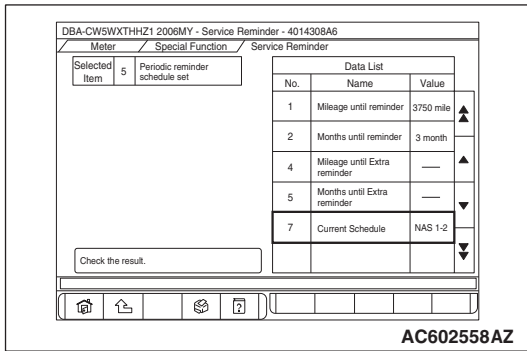
*NOTE: In addition to the operation of the scan tool MB991958, the schedule can be changed by operating the meter information switch on the combination meter. Refer to P.54A-122.*

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."*

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





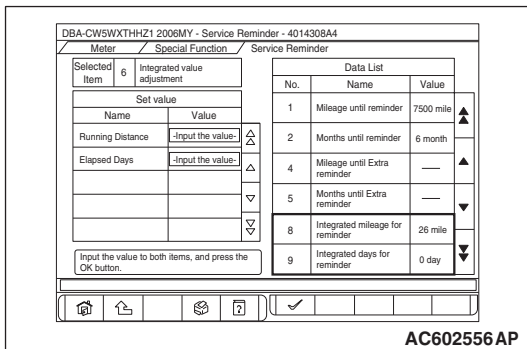
4. The schedule is changed.

*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.

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

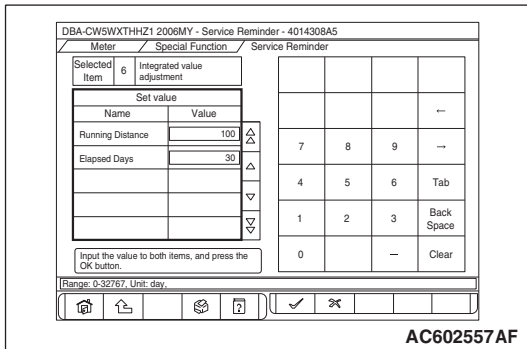


*NOTE: The screen indicates that the current mileage and elapsed days (Nos. 8 and 9 in the data list) are "26 mile" and "0 day."*

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

*NOTE: Always input both the mileage and elapsed days.*

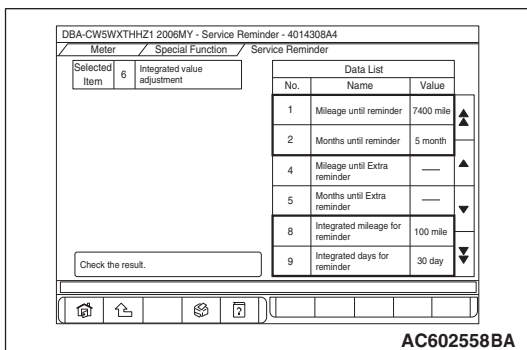
3. Press the "OK" button.



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.*

No.	Name	Value
1	Mileage until reminder	7500 mile
2	Months until reminder	6 month
8	Integrated mileage for reminder	26 mile
9	Integrated days for reminder	0 day
12	Optional interval for mileage	---
13	Optional interval for month	---

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.

Name	Value
Optional INT for month	2

No.	Name	Value
7	8	9
4	5	6
1	2	3
0	---	Clear

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).*

No.	Name	Value
1	Mileage until reminder	---
2	Months until reminder	2 month
8	Integrated mileage for reminder	26 mile
9	Integrated days for reminder	0 day
12	Optional interval for mileage	---
13	Optional interval for month	2 month

Check the result.  
Please set up "Optional INT" in "Periodic inspection schedule set" function.  
When you start the service reminder at this interval setting.

## 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(GCC/EXP)", "EU" and "AUS(MMAL)" 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) <2.4 L engine>	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 (initial setting) <2.0 L engine>	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 scan tool can be set.)	
OFF Display	Without function. "OFF" is displayed on the multi information display.	
Function OFF	Without function (Only scan tool can be set.)	

*NOTE: For schedule, "JPN", "GCC(GCC/EXP)", "EU" and "AUS(MMAL)" 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

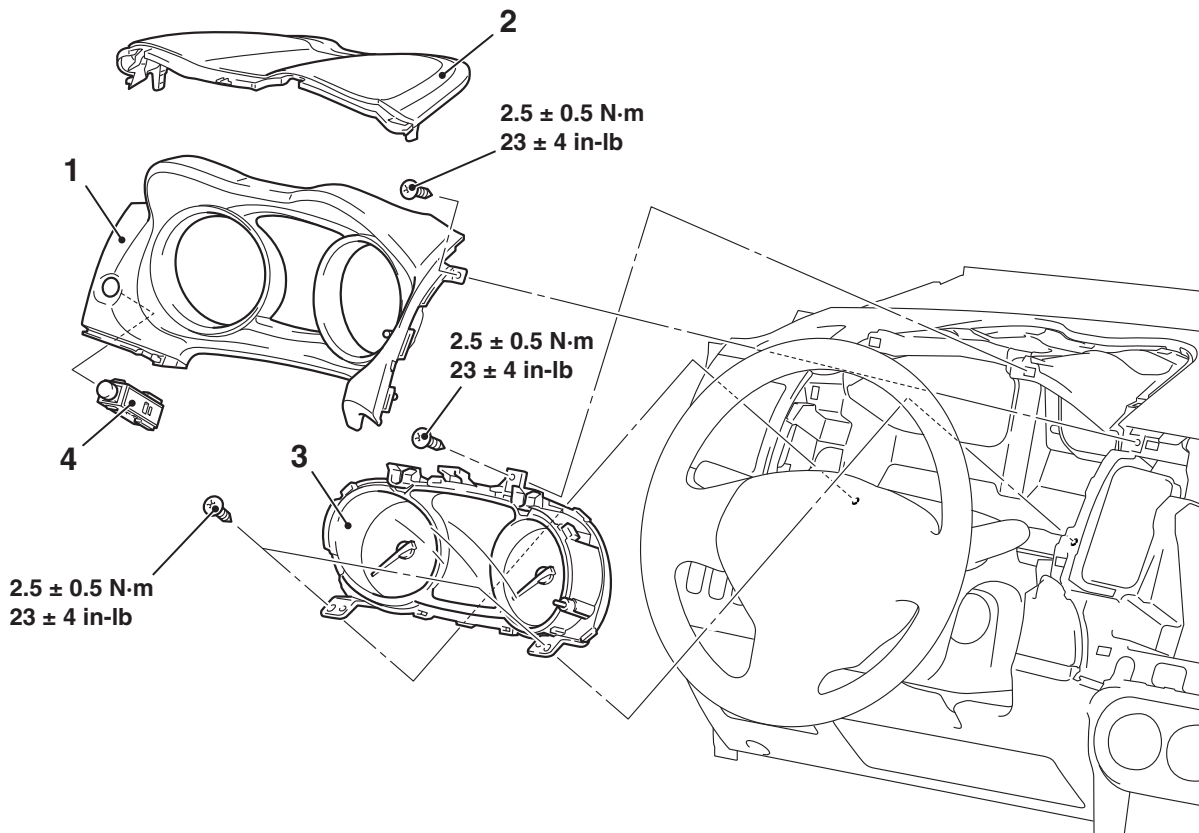
**CAUTION**

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-115](#). 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.

**Pre-removal and Post-installation Operation**

- Glove box side panel (Refer to GROUP 52A, Glove box [P.52A-6](#)).
- Instrument center panel (Refer to GROUP 52A, Instrument Center Panel [P.52A-7](#)).
- Instrument panel air outlet garnish lower (Left side) (Refer to GROUP 52A, Instrument lower Panel [P.52A-8](#)).



AC609711AB

**Removal Steps**

1. Combination meter bezel
2. Instrument meter cluster panel

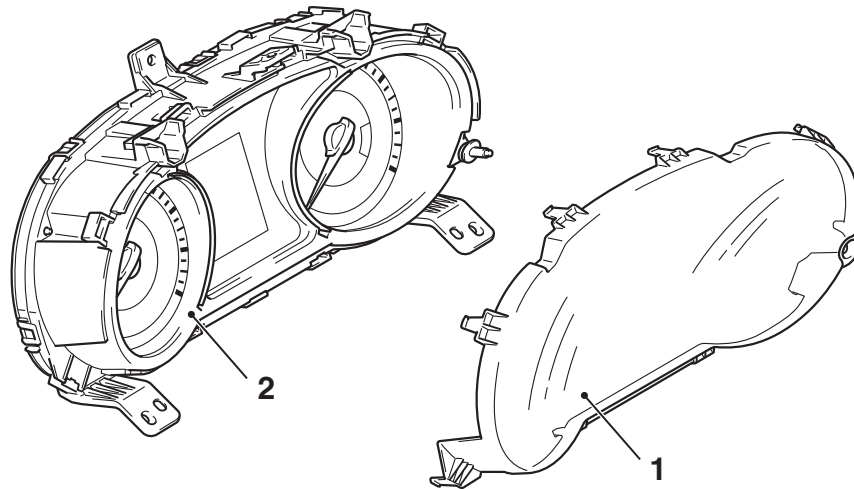
**Removal Steps (Continued)**

3. Combination meter assembly
4. Meter information switch

TSB Revision

DISASSEMBLY AND ASSEMBLY

M1540201800123



AC506448AB

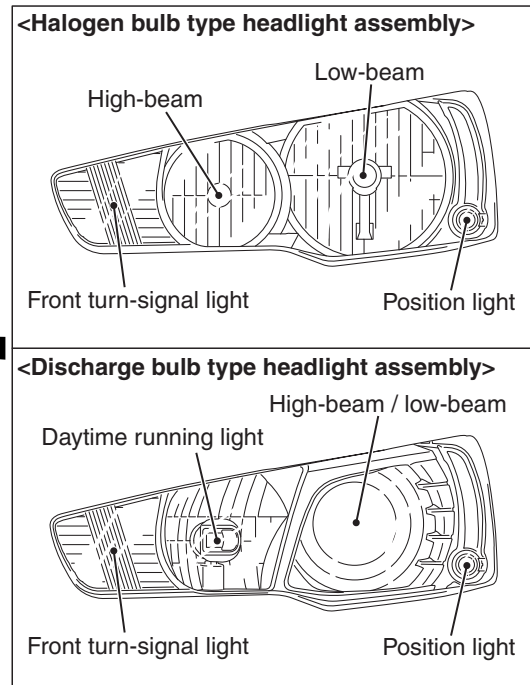
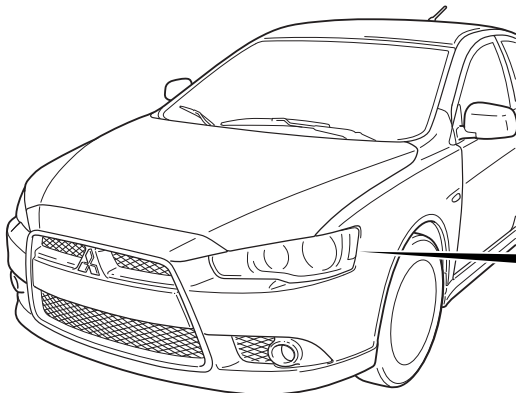
**Disassembly steps**

1. Combination meter glass
2. Combination meter

HEADLIGHT

GENERAL INFORMATION

M1542000100639



AC807370AB

- As for headlight assembly, a type with halogen bulbs for the high-beam and low-beam and a type with a discharge bulb for both high-beam and low-beam are established.
- The halogen bulb type headlight assembly employs the four-light type integrated with the headlight (low-beam), headlight (high-beam), front turn-signal light, and position light. The dimmed headlight (low-beam) is also used as a daytime running light.

TSB Revision

- For the discharge bulb type headlight assembly, the headlight assembly with two headlights has been adopted which incorporates the projector type headlight (low-beam/high-beam), daytime running light, front turn-signal light, and position

light. Also, the headlight manual leveling system has been adopted. The switching of headlight (low-beam/high-beam) is performed by the driving of light-shield in the projector unit using the signal from lighting switch.

**SERVICE SPECIFICATIONS**

M1540100200314

Item			Standard value	Limit
Headlight aiming [at 7.62 m (25.0 ft)]	Low-beam <Vehicles without discharge headlight>	Vertical direction	Horizontal line (H) $\pm 50.5$ mm ( $\pm 2.0$ inches) ( $\pm 0.38$ degrees angle)	–
		Horizontal direction	$\pm 126.4$ mm ( $\pm 5.0$ inches) ( $\pm 0.95$ degrees angle) from the axis, which is 266.1 mm (10.5 inches) (2 degrees angle) rightward from the vertical line (V)	–
	Low-beam <Vehicles with discharge headlight>	Vertical direction	53.2 mm (2.1 inches) (0.4 degrees) below horizontal line (H). $\pm 50.5$ mm ( $\pm 2.0$ inches) ( $\pm 0.38$ degrees angle)	–
		Horizontal direction	Elbow point intersects the vertical line (V). $\pm 126.4$ mm ( $\pm 5.0$ inches) ( $\pm 0.95$ degrees angle)	–
Headlight intensity cd (at high-beam)			–	40,000 or more {when a screen is set 18.3m(60 ft) ahead of the vehicle}

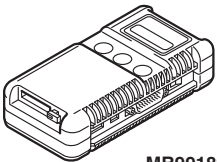
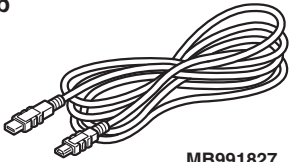
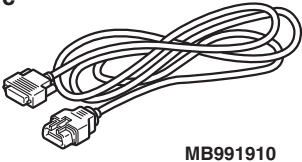
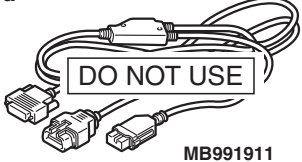
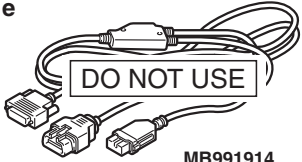
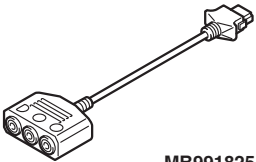
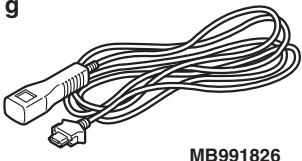
**PRECAUTIONS ON HOW TO USE THE HEADLIGHT ASSEMBLY**


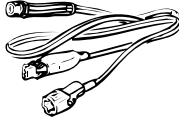
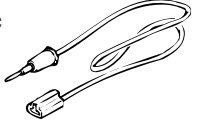

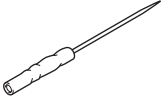
Be careful with the following items as resin lenses are used in the headlight assembly.

- 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 genuine bulb.

SPECIAL TOOLS

M1540104400116

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

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

**SERVICE PRECAUTIONS <DISCHARGE HEADLIGHT>**

M1540100300269

Before checking the discharge headlight related parts, be sure to read the following warnings and precautions carefully, and then perform necessary operations.

**⚠ DANGER**

- **Do not touch the socket and the connector while the headlights are on. High voltage is applied to the bulb socket and connector during headlight operation. The operator may be burnt or dead due to an electric shock by high voltage.**
- **Do not attempt to use a tester to check them. If the bulb socket and connectors should be inspected using a tester, the operator may be burnt or dead due to an electric shock by high voltage.**
- **Do not turn ON the headlights while the controller or the bulb is removed. If the headlights are turned ON with the controller or bulb removed, the operator may get burned by the high temperature of the bulb. The operator may be burnt or dead due to an electric shock by high voltage.**
- **Before service work, turn the lighting**

**switch OFF and disconnect the battery terminal and the controller connector in a dry place. Do not touch the components with wet hands. If you work on the components with wet hands or in wet conditions, the operator may be burnt or dead due to an electric shock by high voltage.**

**⚠ WARNING**

**Do not illuminate the bare headlight bulb. (Do not illuminate the headlight using other than the vehicle power supply.) If the headlight bulb illuminates without fitting it in the headlight unit, it may burst due to rise in its internal pressure.**

**⚠ CAUTION**

**When reusing the controller with the discharge headlight damaged, observe the inspection procedures for the related parts of the discharge headlight before determining the reusability of the controller. If you fail to observe "How to check discharge headlight components," the vehicle may be damaged.**



## 1. CHECKING PROCEDURE FOR DISCHARGE HEADLIGHT RELATED PARTS (INSPECTION PROCEDURE WHEN REUSING THE CONTROLLER)

### 1 –1 VISUAL CHECK OF CONTROLLER (CASE)

If any of the check items below are found, replace the controller.

Items to be checked	Why the controller should be replaced
Obvious deformation (warping, twisting, dents, nicks, chipped edges) of controller case	The printed circuit board or the element(s) may be cracked
Damaged connector (chipped or cracked plastics, or deformed terminal)	The damaged part(s) may cause poor connection or short circuit.

### 1 –2 CHECK OF WIRING HARNESS BETWEEN CONTROLLER AND BULB

If any of the check items below are found, replace the wiring harness between the controller and the bulb.

** DANGER**

***If the wiring harness between the controller and the bulb is damaged, always replace it. Attempting to repair the wiring harness may cause a melted harness wire, or may result in a burn or death due to an electric shock by high voltage.***

Items to be checked	Why the controller should be replaced
Wiring harness shield damaged	Abnormal noise may cause.
Damaged connector (chipped or cracked plastics, or deformed terminal)	The damaged part(s) may cause poor connection or short circuit.

### 1 –3 CHECK OF CONTROLLER OPERATION

If any of the abnormalities below are found, replace the controller.

**NOTE:** *Ensure that the headlight control system and its circuit (power supply control at engine start and during steady illumination, high-voltage generating circuit, etc.) are working normally. Then, check whether any internal breakage has occurred in the controller. However, some internal breakage may not be found.*

Check item (Check of illumination operation)
With the headlight bulb in the cold state (with the light turned off for 10 minutes or more) and in warm state (after the light is illuminated for 15 minutes or more, it is turned off for 1 minute), turn ON and OFF the headlight several times, and then check that the headlight illuminates without fail.
Observe the headlights until they illuminate steadily (approximately 5 minutes after switching them on). Check that the headlights do not flash or flicker.
Turn on the headlights for 30 minutes. Check that the brightness is the same between right and left lights.
Turn on the headlights for 30 minutes. Check that the headlights do not flash or flicker for 30 minutes.

**2. Troubleshooting procedure for discharge headlight (diagnostic procedure for malfunctions)**

1. Check that the connectors are connected securely and the fuse has not been blown.
2. Before troubleshooting, read through the "Symptom chart" to understand what and how you should do. Follow all the procedures carefully.
3. The components should be checked with their connectors disconnected.

**SYMPTOM CHART**

Item to be checked	Trouble symptom		
	The headlights do not illuminate.	The headlights flicker.	The headlights are dim.
Fuse	1	-	-
Wiring harness and connector	2	1	-
Column switch	3	-	-
Bulb	4	2	1
Controller	5	3	2
ETACS-ECU	6	4	-

**NOTE:**

1. The numbers indicate the sequence in which the component is checked.
2. For the troubleshooting of other than the above, refer to Trouble Symptom Chart [P.54A-154](#).
3. If ETACS-ECU fails, only the low-beam headlights will illuminate as a fail-safe measure.

**DIAGNOSIS****STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING**

Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, Troubleshooting Contents [P.00-6](#).

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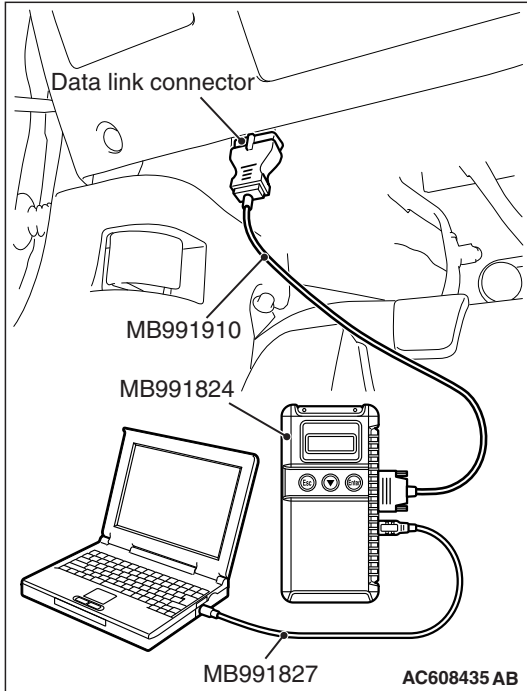
**DIAGNOSTIC FUNCTION****HOW TO CONNECT THE SCAN TOOL (M.U.T.-III)**

M1540104300283

**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" to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

## DIAGNOSTIC TROUBLE CODE CHART

M1540101400366

**⚠ 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.

**ETACS-ECU**

DTC No.	Diagnostic item	Reference page
B16A2	Blown turn-signal light (LH) bulb	<a href="#">P.54A-133</a>
B16A3	Turn-signal light (LH) short circuit	<a href="#">P.54A-138</a>
B16A4	Blown turn-signal light (RH) bulb	<a href="#">P.54A-142</a>
B16A5	Turn-signal light (RH) short circuit	<a href="#">P.54A-147</a>

**LIN**

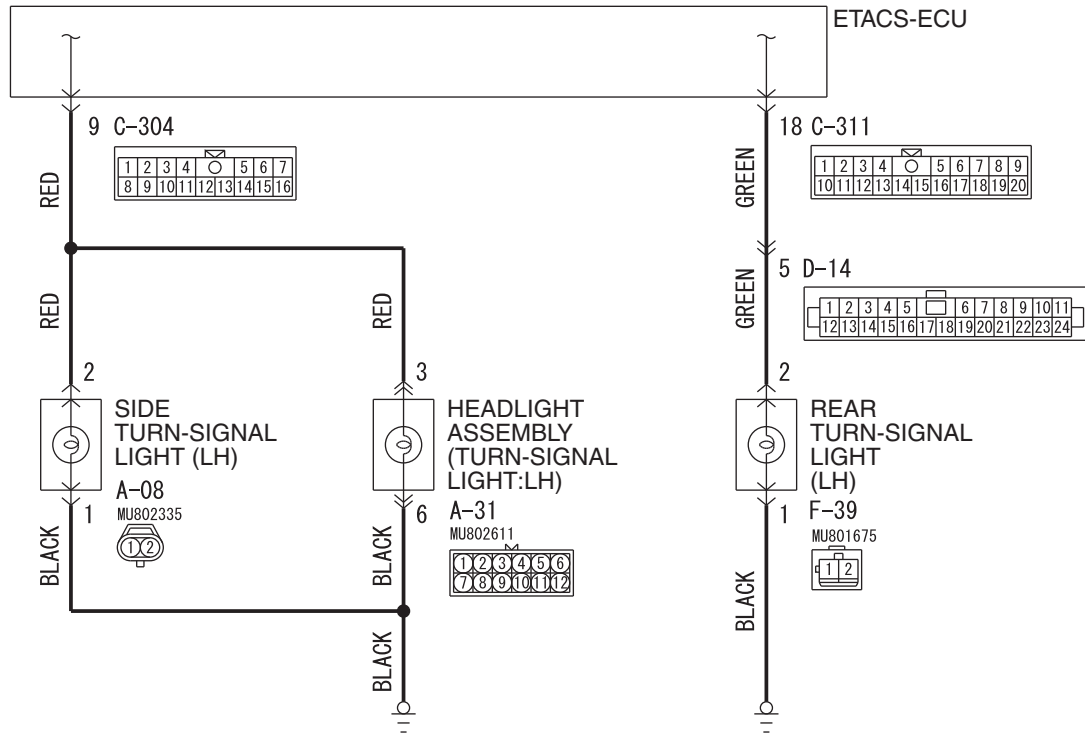
DTC No.	Diagnostic item	Reference page
L0432	RLS* RS adaptation error	<a href="#">P.54A-150</a>
L0434	RLS* rain sensor error	<a href="#">P.54A-152</a>
L0436	RLS* light sensor error	

NOTE: \*: Rain light sensor (Lighting control sensor)

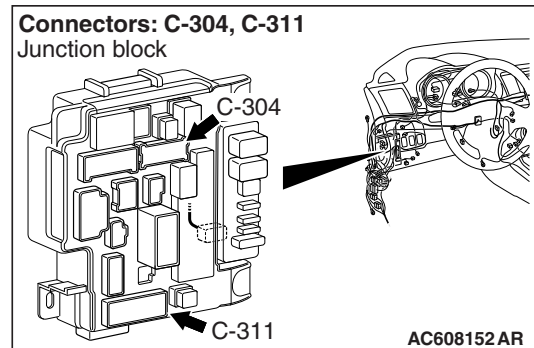
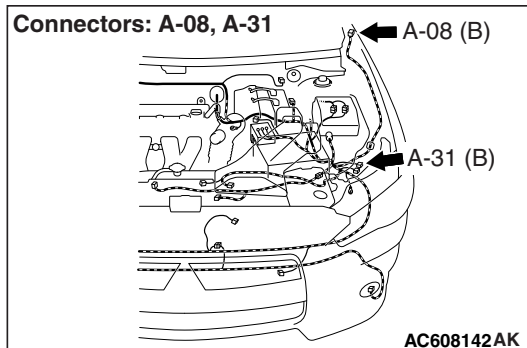
DIAGNOSTIC TROUBLE CODE PROCEDURES

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

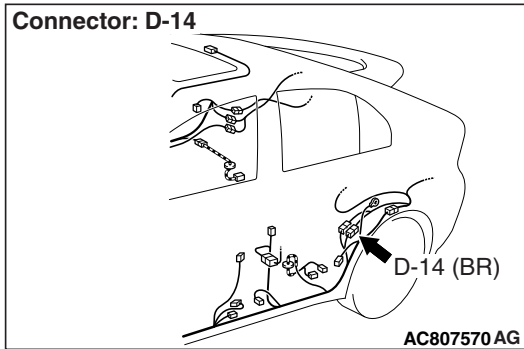
Turn-Signal Lights (LH) Circuit



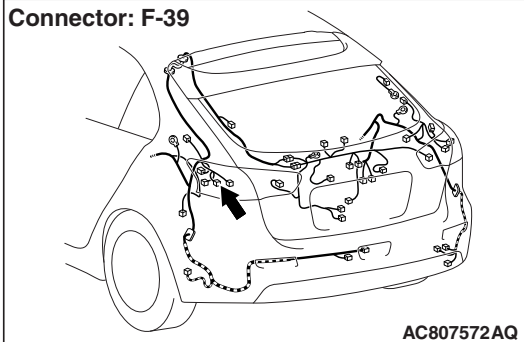
W9S54M021A



Connector: D-14



Connector: F-39

**TROUBLE JUDGMENT**

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
- 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. 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. Check headlight assembly (LH) connector A-31 <front>, side turn-signal light (LH) connector A-08 <side>, rear turn-signal light (LH) connector F-39 <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 turn-signal light (LH) connector F-39 <rear> in good condition?**

**YES** : Go to Step 3.

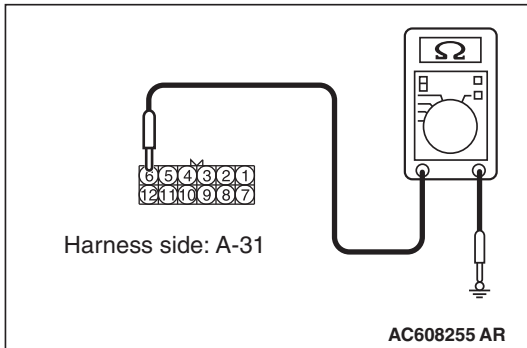
**NO** : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

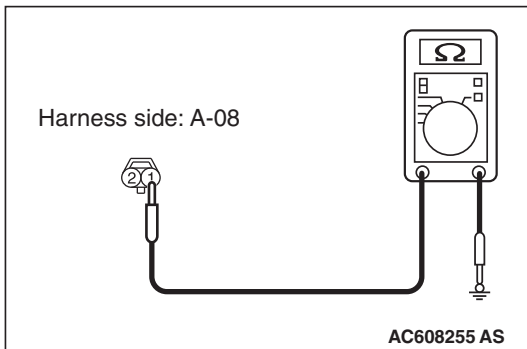
**STEP 3. Resistance measurement at headlight assembly (LH) connector A-31 <front>, side turn-signal light (LH) connector A-08 <side>, and rear turn-signal light (LH) connector F-39 <rear>.**

- (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>



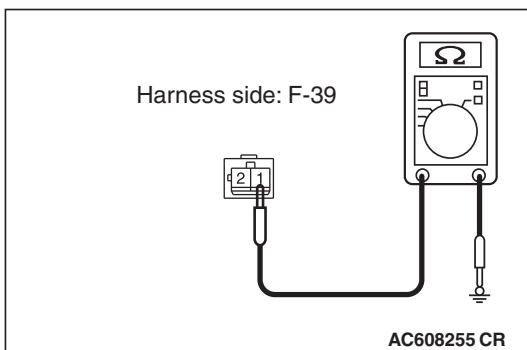
- Measure the resistance between rear turn-signal light (LH) connector F-39 (terminal 1) and body ground. <Rear>

**OK: The measured value should be 2  $\Omega$  or less.**

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

**YES :** Go to Step 5.

**NO :** Go to Step 4.



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**STEP 4. 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 turn-signal light (LH) connector F-39 (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 turn-signal light (LH) connector F-39 (terminal 1) <rear> and ground 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. Verify that the headlights illuminate normally.

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**STEP 5. 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-311 <rear> in good condition?**

**YES :** Go to Step 6.

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

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**STEP 6. 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 turn-signal light (LH) connector F-39 (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 power supply 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 turn-signal light (LH) connector F-39 (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 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. Verify that the headlights illuminate normally.



**STEP 7. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.**

**⚠ CAUTION**

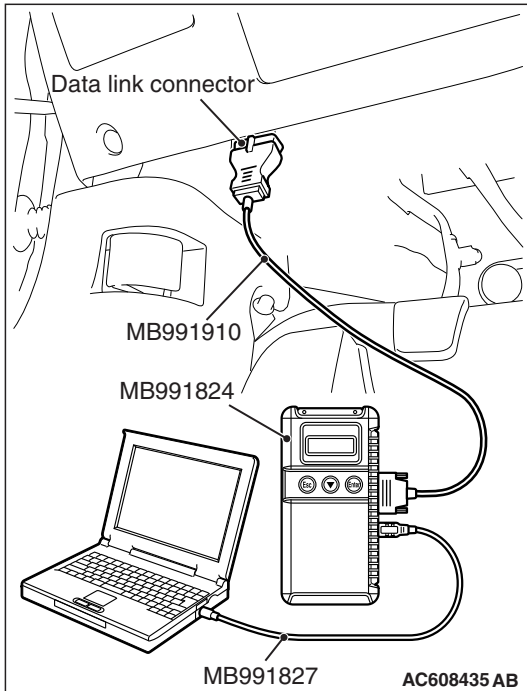
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-130](#)."
- (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?**

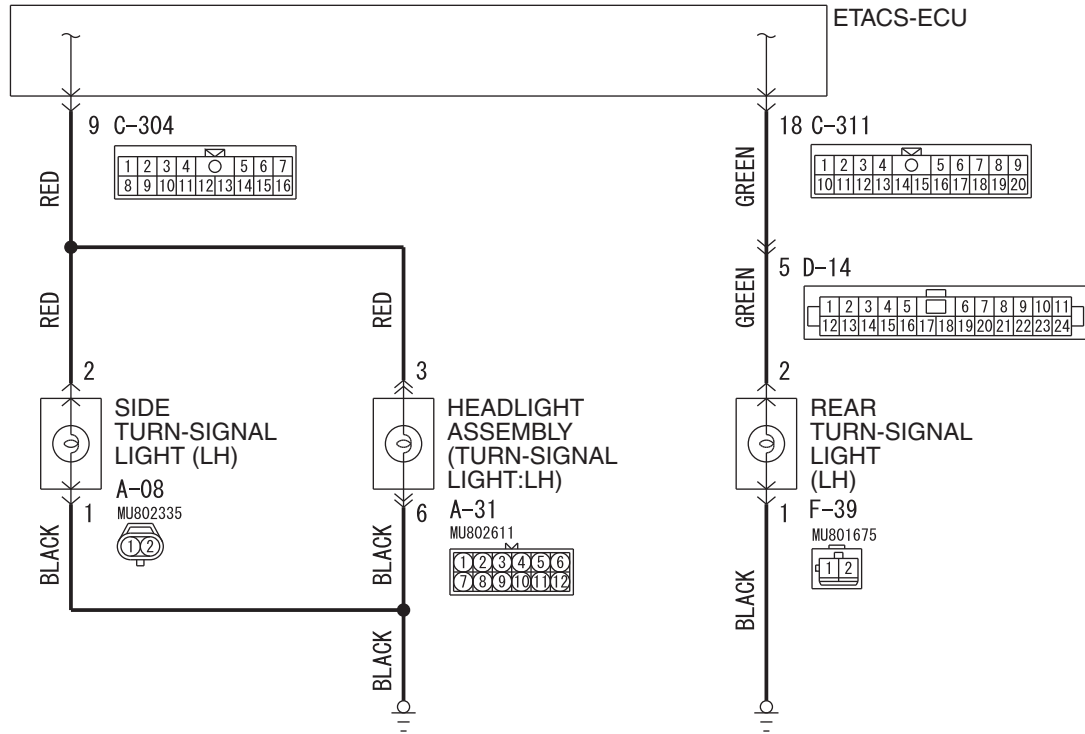
**YES :** Replace the ETACS-ECU.

**NO :** The procedure is complete.

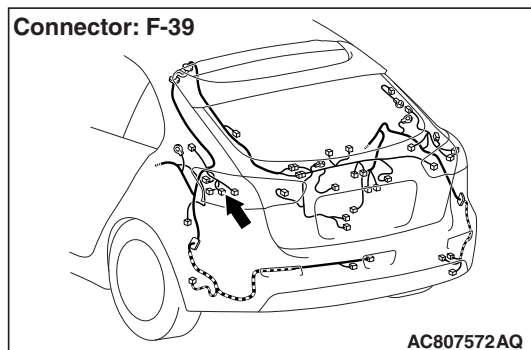
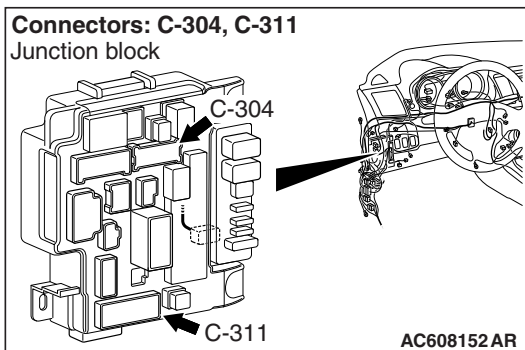
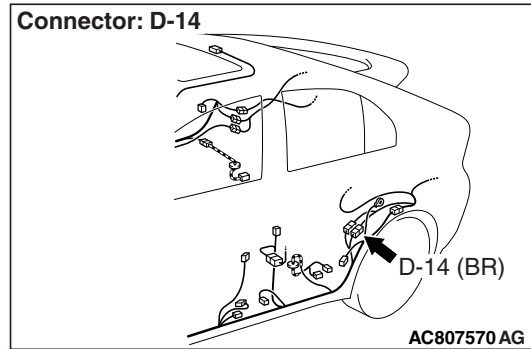
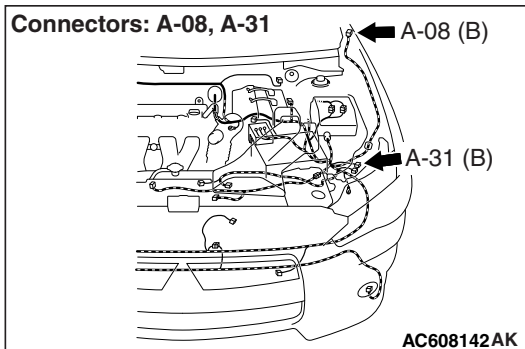


DTC B16A3: Turn-signal light (LH) short circuit

Turn-Signal Lights (LH) Circuit



W9S54M021A



## 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)

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**STEP 1. Check headlight assembly (LH) connector A-31 <front>, side turn-signal light (LH) connector A-08 <side>, rear turn-signal light (LH) connector F-39 <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 turn-signal light (LH) connector F-39 <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](#).

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**STEP 2. 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-311 <rear> 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 (LH) connector A-31 (terminal 3) <front>, side turn-signal light (LH) connector A-08 (terminal 2) <side>, rear turn-signal light (LH) connector F-39 (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 power supply line for short 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 turn-signal light (LH) connector F-39 (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 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. Verify that the headlights illuminate normally.

**STEP 4. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.**

**⚠ CAUTION**

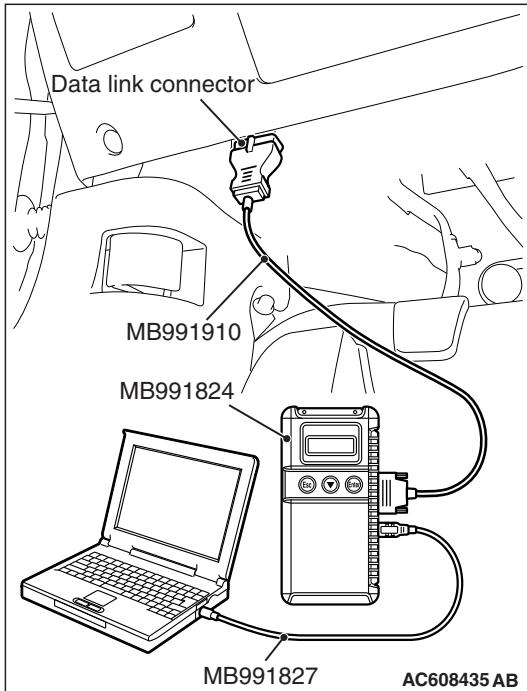
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-130](#)."
- (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?**

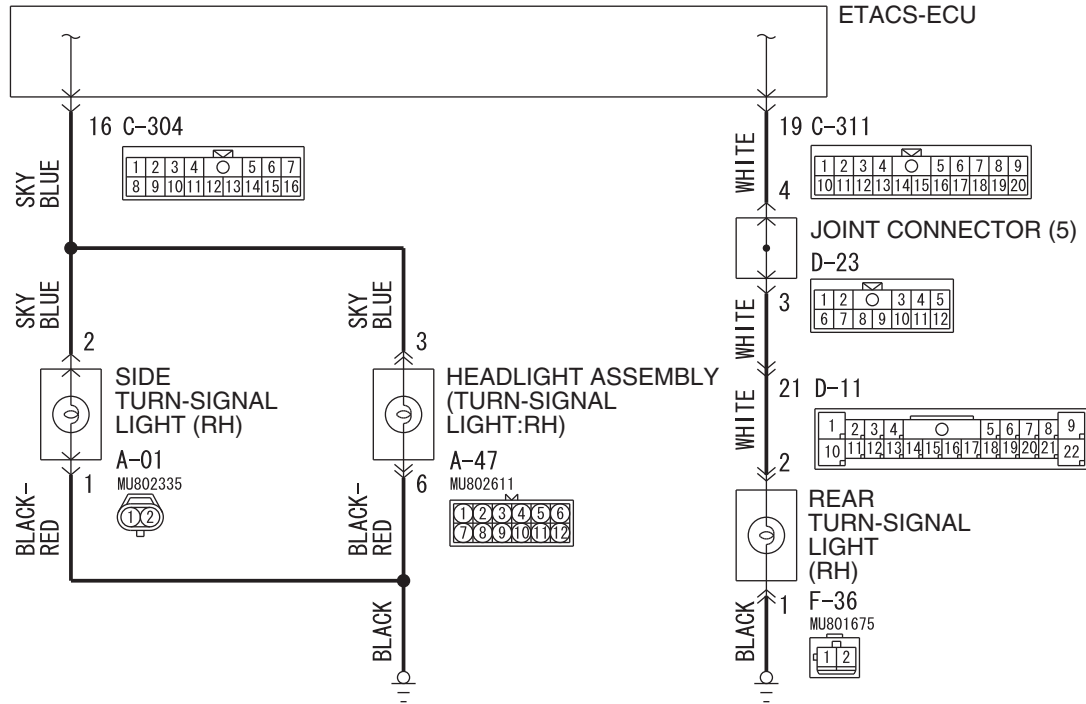
**YES :** Replace the ETACS-ECU.

**NO :** The procedure is complete.

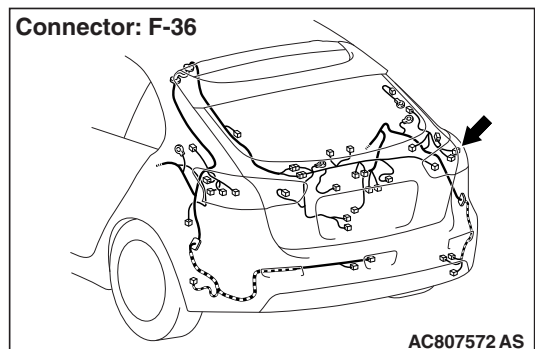
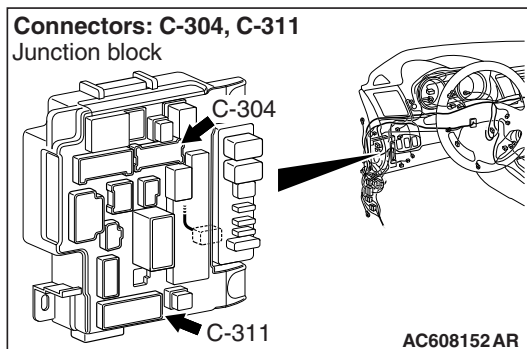
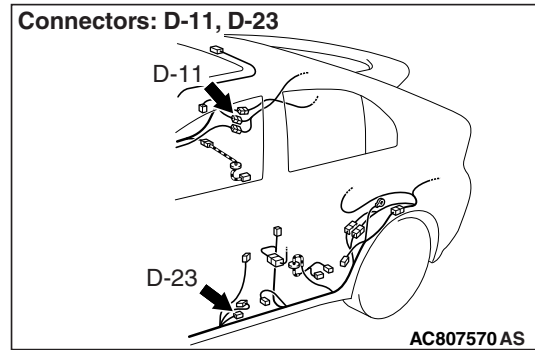
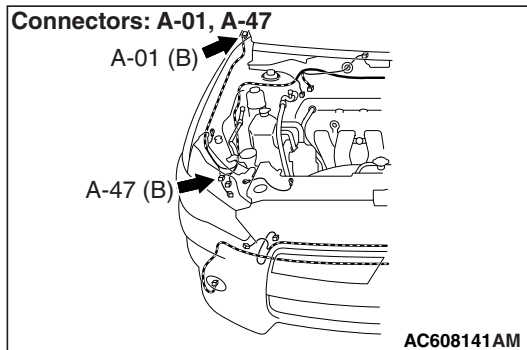


DTC B16A4: Blown turn-signal light (RH) bulb

Turn-Signal Lights (RH) Circuit



WAS54M001A



**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
- 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. 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. Check headlight assembly (RH) connector A-47 <front>, side turn-signal light (RH) connector A-01 <side>, rear turn-signal light (RH) connector F-36 <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 turn-signal light (RH) connector F-36 <rear> in good condition?**

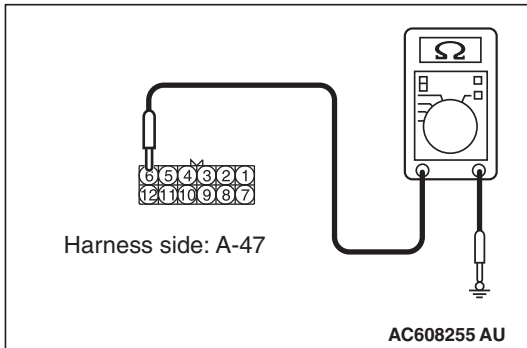
**YES** : Go to Step 3.

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

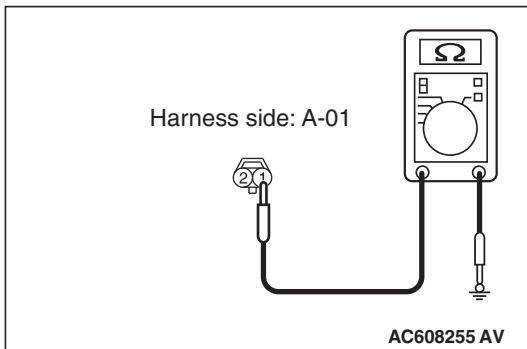
**STEP 3. Resistance measurement at headlight assembly (RH) connector A-47 <front>, side turn-signal light (RH) connector A-01 <side>, and rear turn-signal light (RH) connector F-36 <rear>.**

- (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>



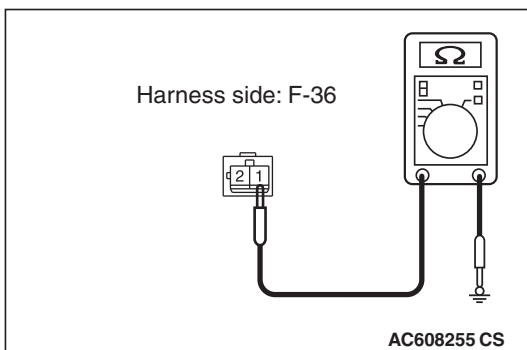
- Measure the resistance between the rear turn-signal light (RH) connector F-36 (terminal 1) and body ground. <Rear>

**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 5.

**NO :** Go to Step 4.





---

**STEP 4. 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 turn-signal light (RH) connector F-36 (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 turn-signal light (RH) connector F-36 (terminal 1) <rear> and ground 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 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 6.

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

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**STEP 6. 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 turn-signal light (RH) connector F-36 (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 power supply 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 turn-signal light (RH) connector F-36 (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 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. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.**

**⚠ CAUTION**

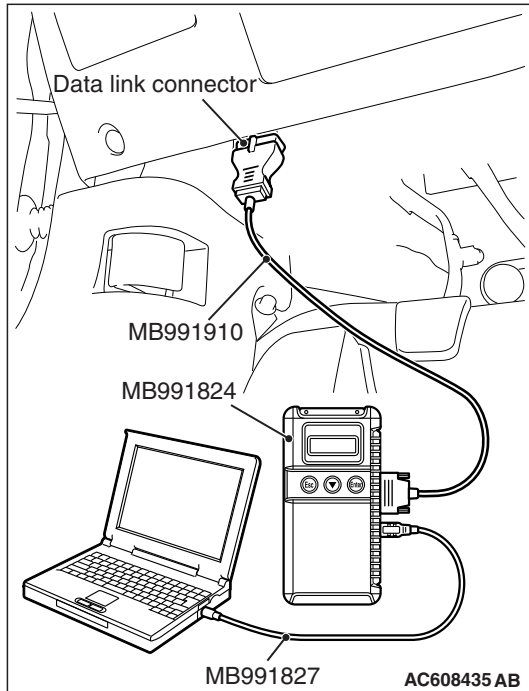
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-130](#)."
- (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?**

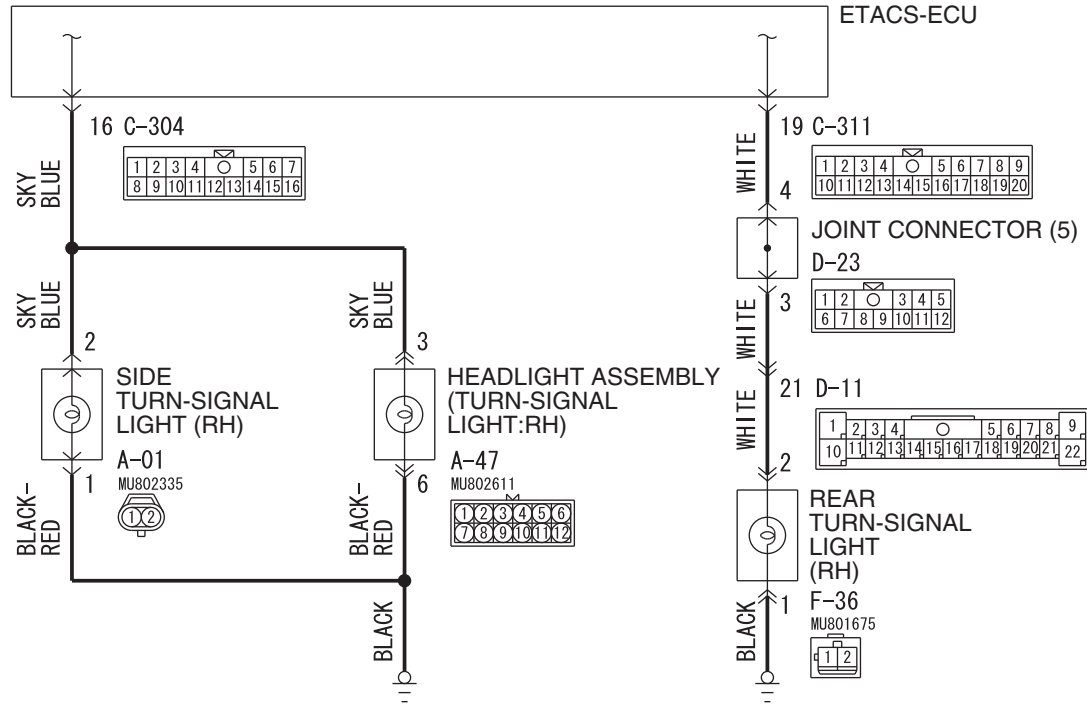
**YES :** Replace the ETACS-ECU.

**NO :** The procedure is complete.

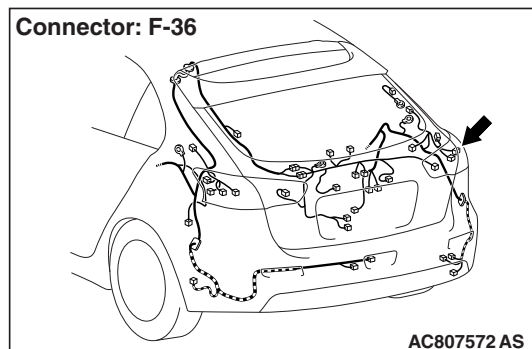
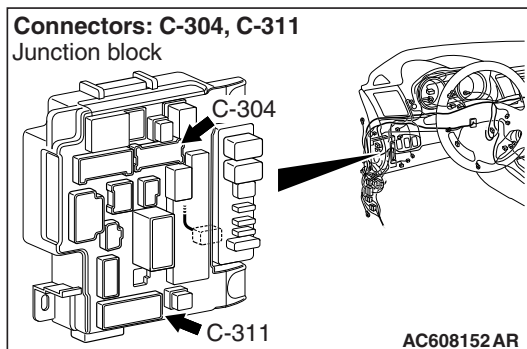
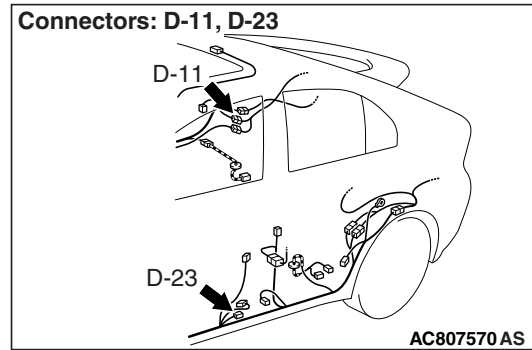
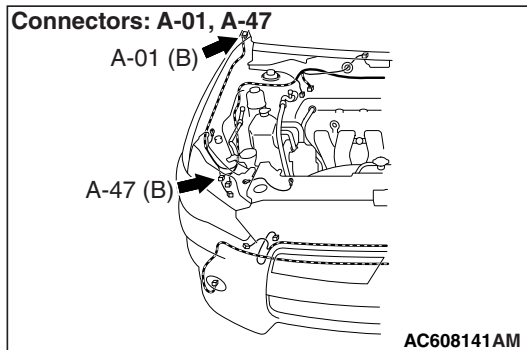


DTC B16A5: Turn-signal light (RH) short circuit

Turn-Signal Lights (RH) Circuit



WAS54M001A



**TROUBLE JUDGMENT**

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)

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**STEP 1. Check headlight assembly (RH) connector A-47 <front>, side turn-signal light (RH) connector A-01 <side>, rear turn-signal light (RH) connector F-36 <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 turn-signal light (RH) connector F-36 <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. 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 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 headlight assembly (RH) connector A-47 (terminal 3) <front>, side turn-signal light (RH) connector A-01 (terminal 2) <side>, rear turn-signal light (RH) connector F-36 (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 power supply line for short 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 turn-signal light (RH) connector F-36 (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 4.

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

**STEP 4.** Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

**⚠ CAUTION**

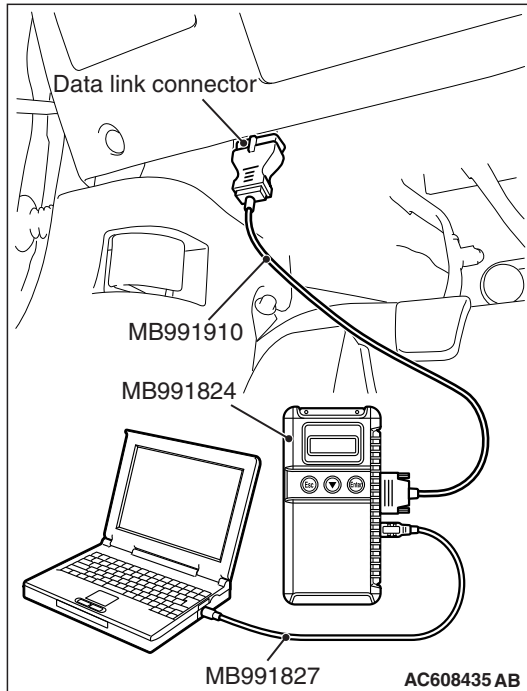
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool P.54A-130."
- (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 L0432: RLS RS Adaptation Error

### TROUBLE JUDGMENT

When the lighting control sensor is installed with the wrong procedure, DTC L0432 is stored by LIN.

### TECHNICAL DESCRIPTION (COMMENT)

The lighting control sensor may have been installed with the wrong procedure.

- Incorrect installation procedure: Connect the connector before mounting the lighting control sensor onto the optical coupler of the windshield.

- Correct installation procedure: Mount the lighting control sensor onto the optical coupler of the windshield. Wipe the windshield surface thoroughly, and check that the surface is dry. Then, connect the connector.

### TROUBLESHOOTING HINTS

- Lighting control sensor improperly installed
- Lighting control sensor (rain sensor) abnormal operation

### 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.**

Disconnect the connector from the lighting control sensor, and connect the connector to the lighting control sensor again. Then, check again if the DTC is set to LIN.

**⚠ 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-130](#)."

(2) Disconnect the connector of lighting control sensor, and connect it again.

*NOTE: When connecting the connector, follow the correct installation procedure.*

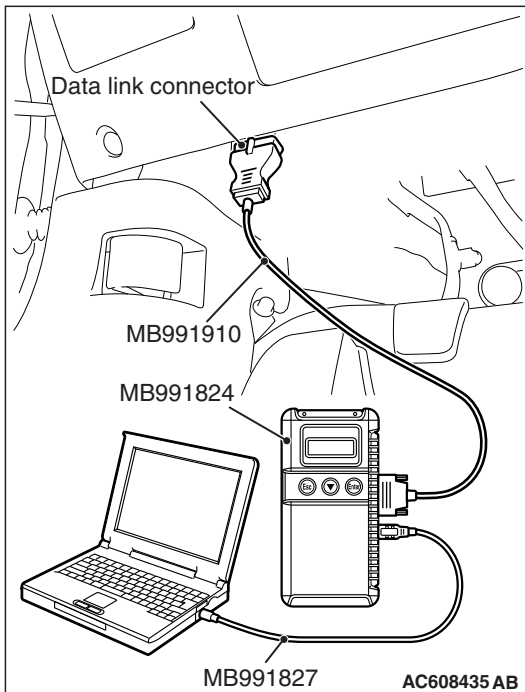
(3) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(4) Check if DTC is set.

**Q: Is the DTC set?**

**YES :** Go to Step 2.

**NO :** The lighting control sensor is installed with the wrong procedure.



**STEP 2. Lighting control sensor installation surface check**

Visually check the presence of scratches or air bubbles < diameter of 5 mm (0.2 inch) or more > on the windshield to which the lighting control sensor is installed. In addition, visually check that the optical coupler is not broken and that the lighting control sensor can be installed.

**Q: Is the check result normal?**

**YES :** Go to Step 3.

**NO :** Replace the windshield (Refer to GROUP 42A – Windshield [P.42A-19](#))

**STEP 3. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.**

Check again if the DTC is set to LIN.

- (1) Wipe the windshield surface of the lighting control sensor section thoroughly, and check that the surface is dry. Then, perform the lighting control sensor (rain sensor) adaptation. <Refer to GROUP 51 –Lighting Control Sensor (Rain Sensor) Adaptation P.51-90>.
- (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 lighting control sensor.

**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 L0434: RLS Rain Sensor Error**  
**DTC L0436: RLS Light Sensor Error**

---

**TROUBLE JUDGMENT**

If a trouble occurs in the lighting control sensor, DTC L0434 and L0436 are stored to LIN.

**TECHNICAL DESCRIPTION (COMMENT)**

Malfunction of the lighting control sensor

**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)



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

Check again if the DTC is set to LIN.

**⚠ CAUTION**

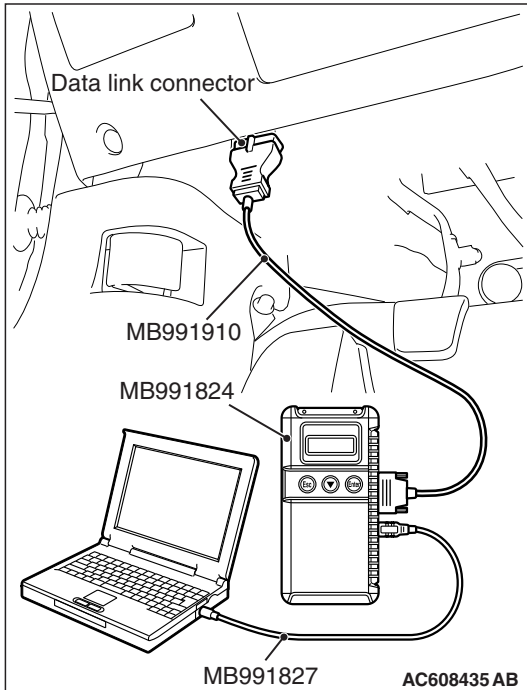
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-130](#)."
- (2) Erase the DTC.
- (3) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (4) Check if DTC is set.

**Q: Is the DTC set?**

**YES** : Replace the lighting control sensor.

**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

M1540102100636

Trouble symptom		Inspection Procedure No.	Reference page	
Headlight and taillight	None of headlights (low-beam) illuminates.	1	<a href="#">P.54A-155</a>	
	None of headlights (high-beam) illuminates.	2	<a href="#">P.54A-160</a>	
	The headlights illuminate at low-beam (high-beam does not illuminate) regardless of the lighting switch positions.	3	<a href="#">P.54A-164</a>	
	Headlights do not illuminate when the passing switch is operated.	4	<a href="#">P.54A-166</a>	
	One of the headlights does not illuminate.	5	<a href="#">P.54A-168</a>	
	High-beam indicator light does not illuminate normally.	6	<a href="#">P.54A-172</a>	
	The headlight automatic shutdown function does not work normally.	7	<a href="#">P.54A-174</a>	
	Daytime running light function does not work normally.	Halogen type headlight	8	<a href="#">P.54A-177</a>
		Discharge type headlight		<a href="#">P.54A-180</a>
	One of the tail lights, side marker lights or the license plate lights does not illuminate.	9	<a href="#">P.54A-187</a>	
The auto light function does not work normally.	10	<a href="#">P.54A-194</a>		
Turn-signal light	None of turn-signal lights illuminates.	11	<a href="#">P.54A-196</a>	
	The comfort flasher does not work normally.	12	<a href="#">P.54A-197</a>	
	The turn-signal indicator lights do not illuminate.	13	<a href="#">P.54A-199</a>	
The welcome light function does not work normally.		14	<a href="#">P.54A-201</a>	
The coming home light function does not work normally.		15	<a href="#">P.54A-202</a>	

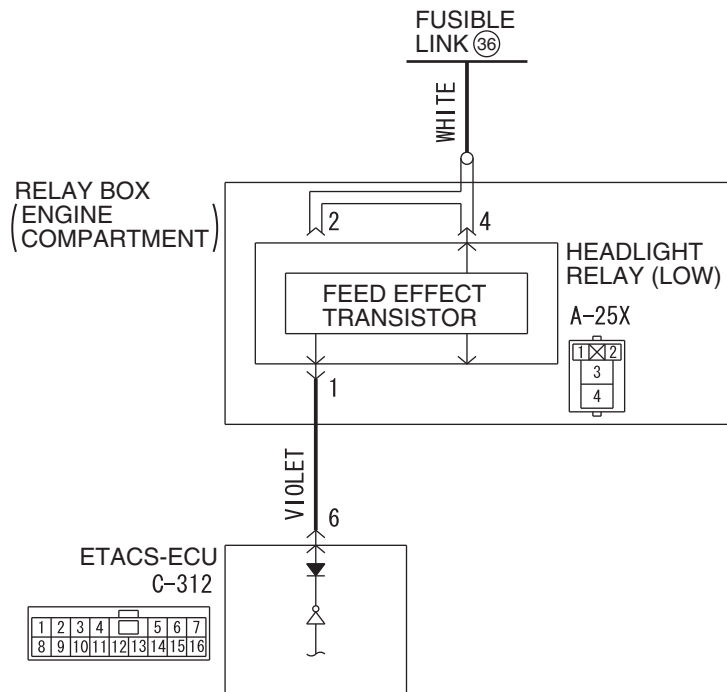
SYMPTOM PROCEDURES

Inspection Procedure 1: None of headlights (low-beam) illuminates.

**CAUTION**

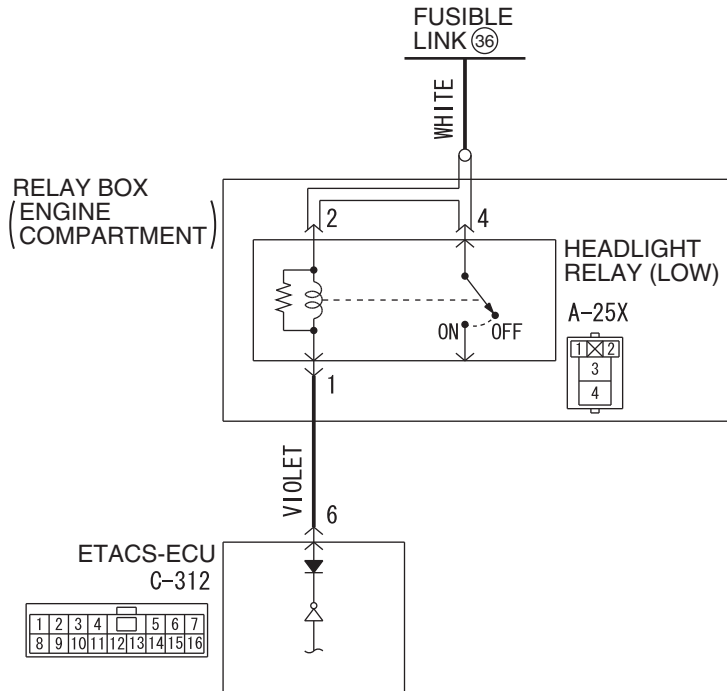
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Headlight Relay (Low-Beam) Circuit <Halogen Type>

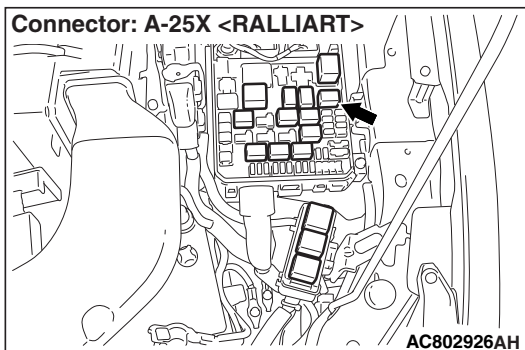
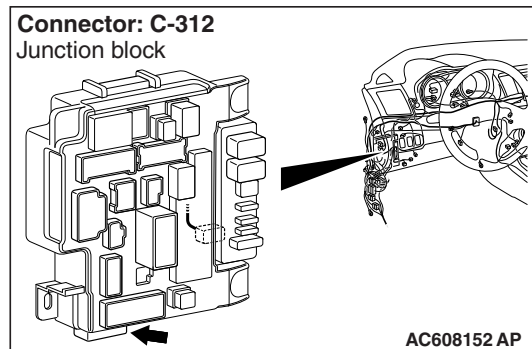
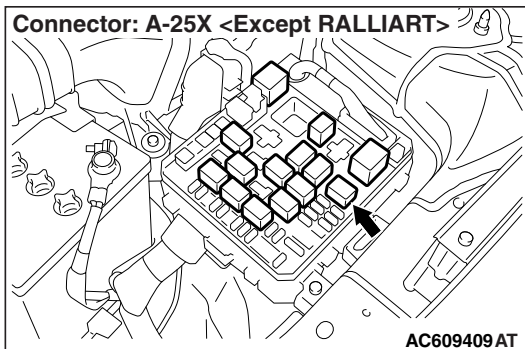


WAS54M002A

Headlight Relay (Low-Beam) Circuit <Discharge Type>



WAS54M003A



**TECHNICAL DESCRIPTION (COMMENT)**

If none of headlights (low-beam) illuminates, 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**

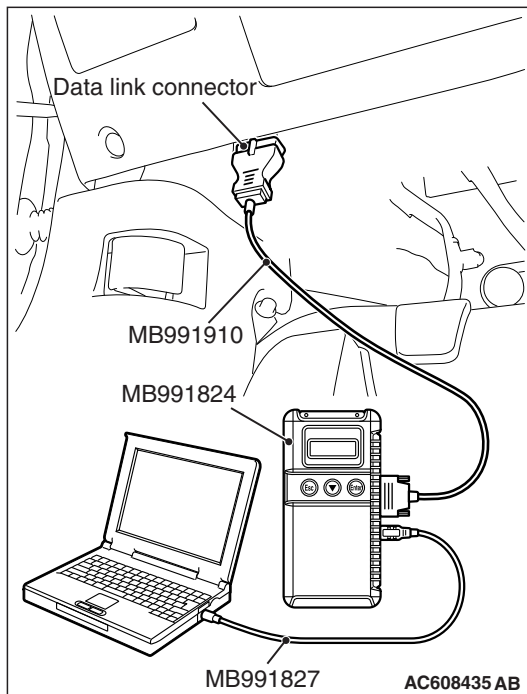
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-130."
- (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-674.

**NO :** Go to Step 2.



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

Use the ETACS-ECU service data to check the signals related to the operation of headlight function.

- Turn the headlight switch to the ON position.

Item No.	Item name	Normal condition
Item 341	Headlight switch	ON

**Q: Do scan tool MB991958 display the items "Headlight switch" as normal condition?**

**YES :** Go to Step 3.

**NO :** Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-730.

**STEP 3. 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 <Halogen type>** : Go to Step 5.

**YES <Discharge type>** : Go to Step 4.

**NO** : Repair the damaged parts.

---

**STEP 4. Check of headlight relay (LOW)**

Refer to [P.54A-219](#).

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

**YES** : Go to Step 5.

**NO** : Replace the headlight relay (LOW). Verify that the high-beam headlights illuminate normally.

---

**STEP 5. 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 6.

**NO** : Go to Step 8.

---

**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 headlight relay (LOW) connector A-25X (terminal 1) and ETACS-ECU connector C-312 (terminal 6).**

- Check the output line 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 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. Verify that the low-beam headlights illuminate normally.

---

**STEP 8. 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 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. Verify that the low-beam headlights illuminate normally.

---

**STEP 9. Temporarily replace the headlight relay (LOW), and retest the system.**

Temporarily replace the headlight relay (LOW), check that the headlights (low-beam) illuminate normally.

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

**YES :** Replace the headlight relay (LOW).

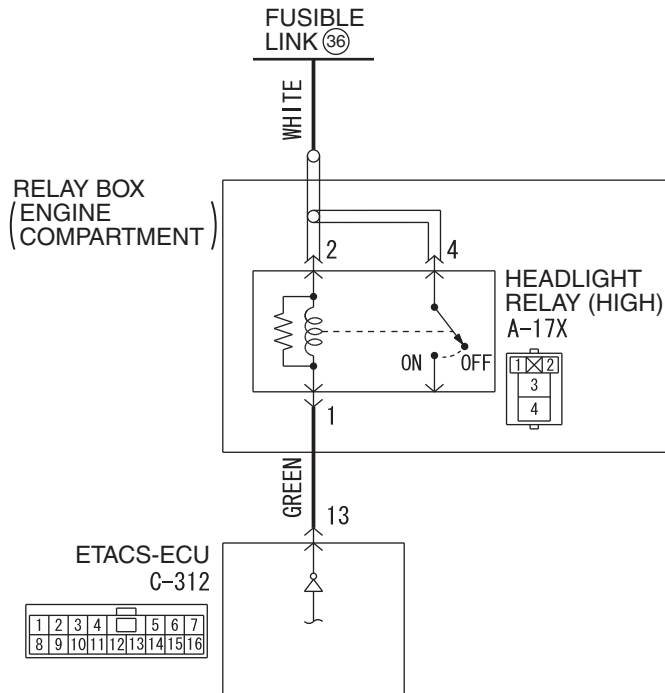
**NO :** Replace the ETACS-ECU.

Inspection Procedure 2: None of headlights (high-beam) illuminates.

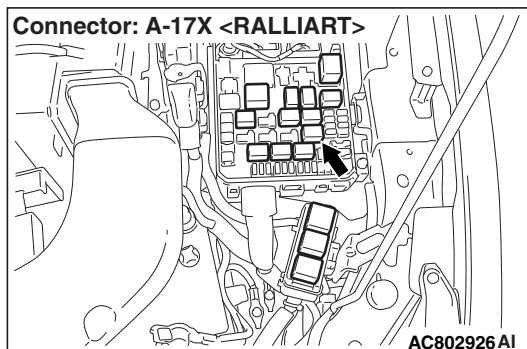
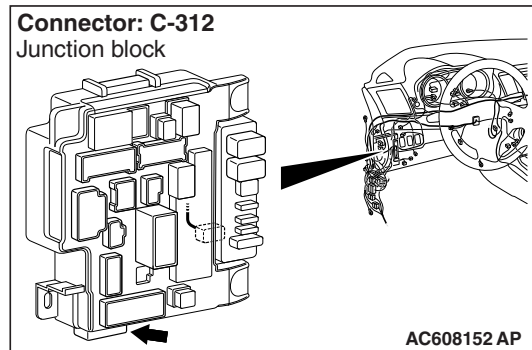
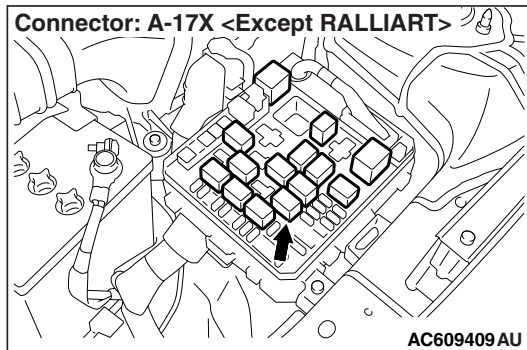
**CAUTION**

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



W8G54M030A



**TECHNICAL DESCRIPTION (COMMENT)**

If none of headlights (high-beam) illuminates, 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



## 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**

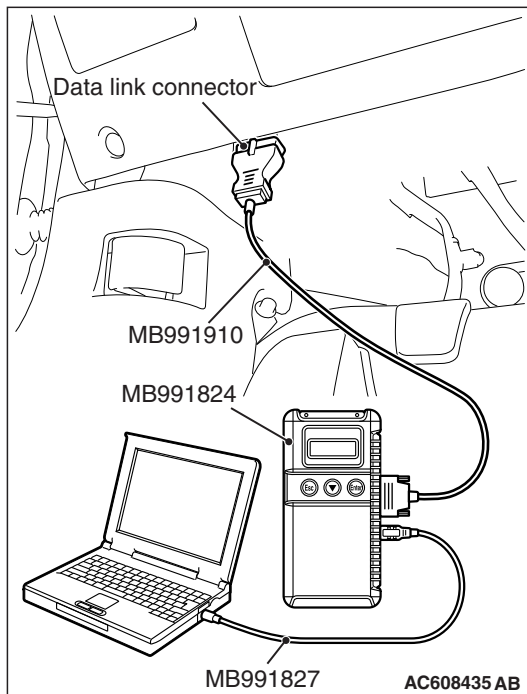
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-130](#)."
- (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-674](#).

**NO** : Go to Step 2.



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

Use the ETACS-ECU service data to check the signals related to the operation of headlight function.

- Turn the headlight switch to the ON position.

Item No.	Item name	Normal condition
Item 341	Headlight switch	ON

- Turn the passing switch to the ON position.

Item No.	Item name	Normal condition
Item 350	Headlight switch (flasher)	ON

**Q: Do scan tool MB991958 display the items "Headlight switch" and "Headlight switch (flasher)" as normal condition?**

**YES :** (Normal conditions are displayed for all items.) Go to Step 3.

**NO :** (Normal condition is not displayed.) Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis [P.54A-730](#).

**STEP 3. 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 4.

**NO :** Repair the damaged parts.

**STEP 4. Check of headlight relay (HIGH)**

Refer to [P.54A-219](#).

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

**YES :** Go to Step 5.

**NO :** Replace the headlight relay (HIGH). Verify that the high-beam headlights illuminate normally.

---

**STEP 5. 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 2/4 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 6.

**NO :** Go to Step 8.

---

**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 headlight relay (HIGH) connector A-17X (terminal 1) and ETACS-ECU connector C-312 (terminal 13).**

- Check the output line 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 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. Verify that the high-beam headlights illuminate normally.

---

**STEP 8. Check the wiring harness between headlight relay (HIGH) connector A-17X (terminal 2/4) 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 2/4) and fusible link (36) in good condition?**

**YES :** Go to Step 9.

**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. 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 illuminate at low-beam (high-beam does not illuminate) regardless of the lighting switch positions.**

---

 **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

**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**

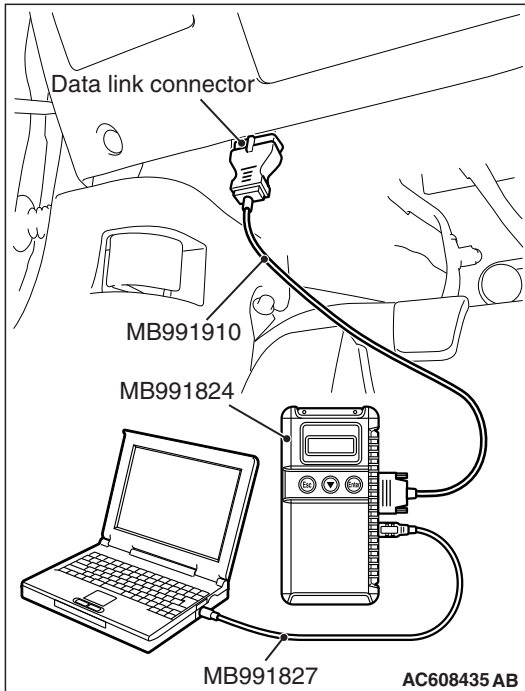
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-130."
- (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-674.

**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 none of headlights (low-beam and high-beam) illuminates, 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 "None of headlights (low-beam) illuminates." [P.54A-155](#) and Inspection Procedure 2 "None of headlights (high-beam) illuminates." [P.54A-160](#).

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

**⚠ CAUTION**

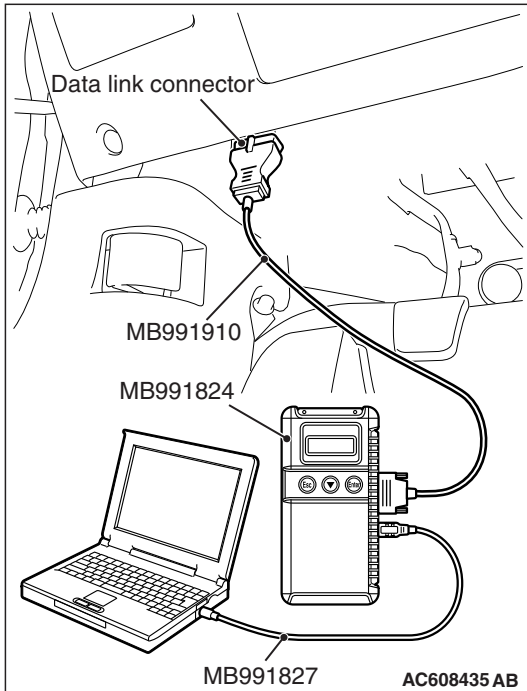
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-130."
- (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-674.

**NO :** Go to Step 3.



**STEP 3. Retest the system**

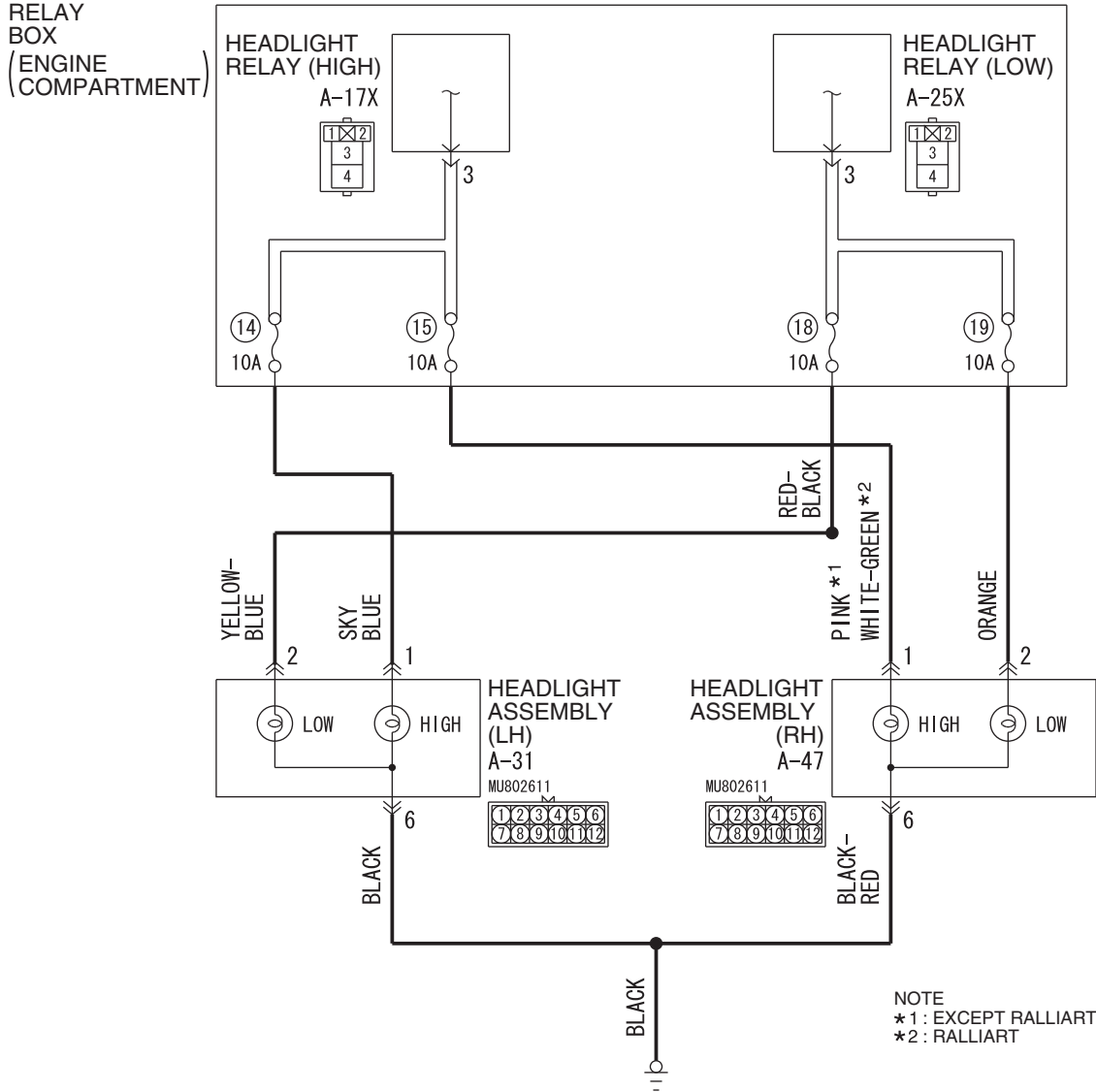
**Q: Do the headlights (low-beam and high-beam) illuminate normally when turning ON the passing switch?**

**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: One of the headlight(s) does not illuminate.

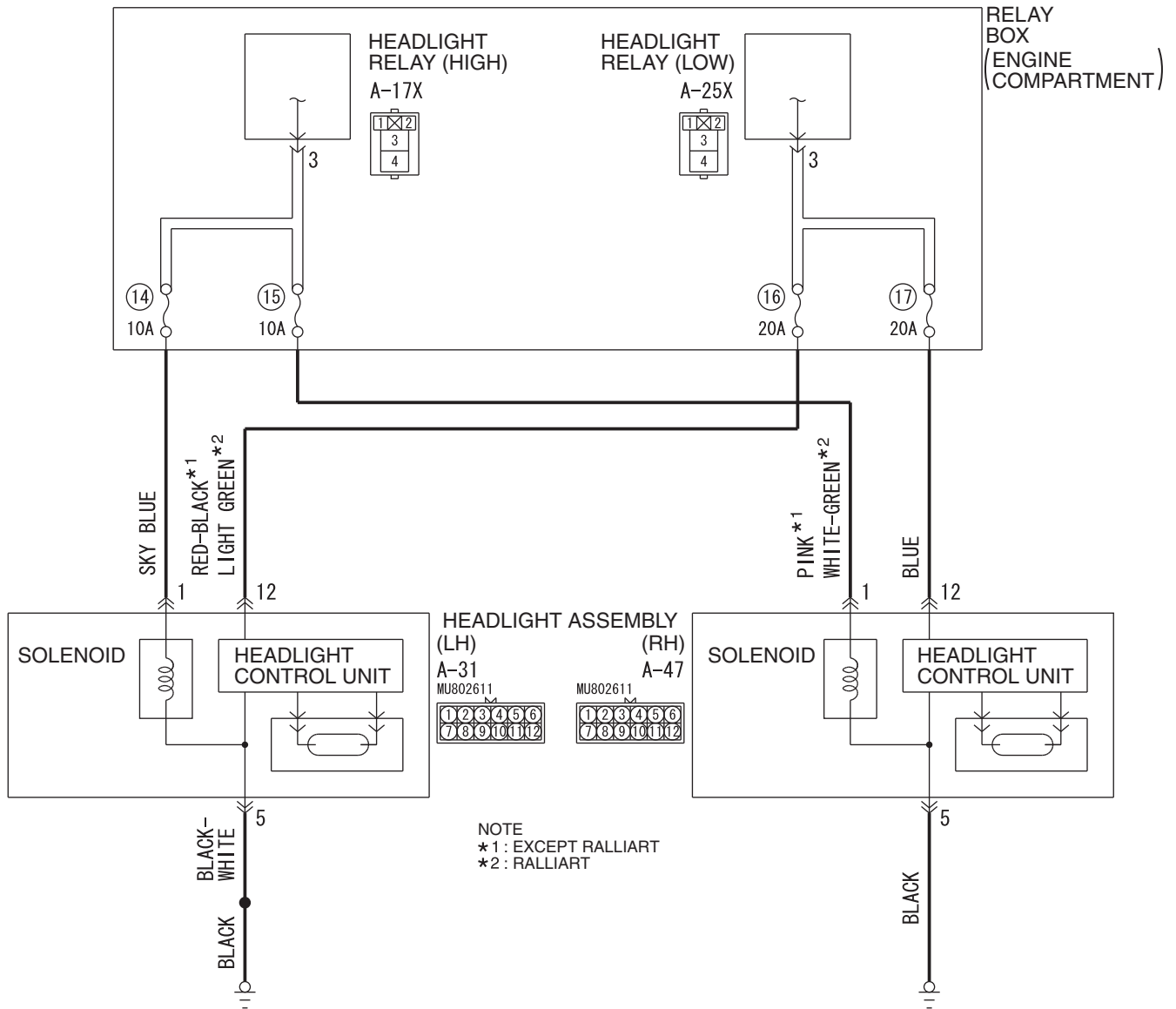
Headlights Circuit <Halogen Type>



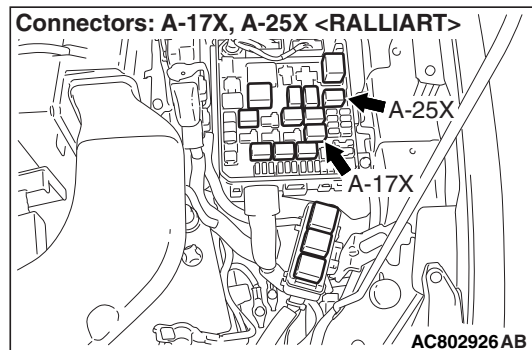
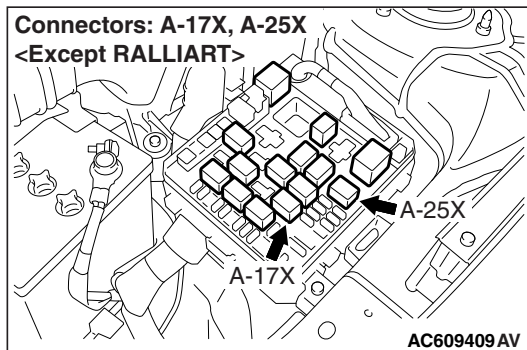
WAS54M004A

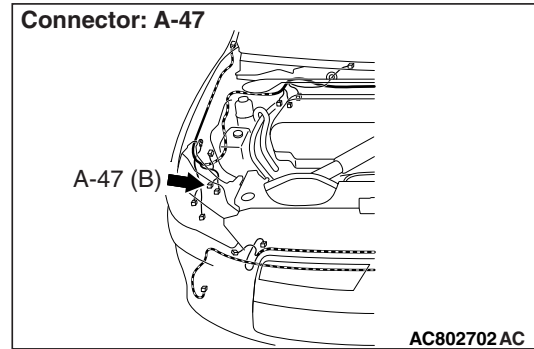
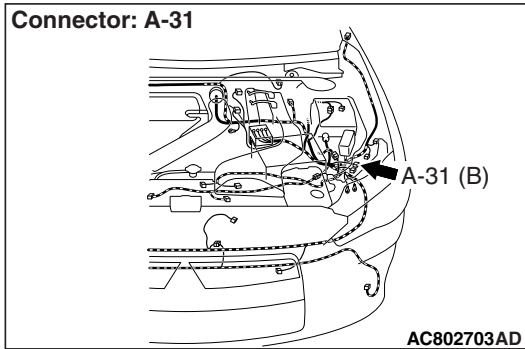


Headlights Circuit <Discharge Type>



WAS54M005A





### TECHNICAL DESCRIPTION (COMMENT)

When one of the headlights does not illuminate, the wiring harness, connector(s), or the bulb may have a problem, or the fuse may be burned out.

### TROUBLESHOOTING HINTS

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

### 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). <Halogen type (LH-LOW)>
- Check the wiring harness between headlight assembly (LH) connector A-31 (terminal 12) and headlight relay (LOW) connector A-25X (terminal 3). <Discharge type (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. <Halogen type (LH-LOW and HIGH)>
- Check the wiring harness between headlight assembly (LH) connector A-31 (terminal 5) and ground. <Discharge type (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). <Halogen type (RH-LOW)>
- Check the wiring harness between headlight assembly (RH) connector A-47 (terminal 12) and headlight relay (LOW) connector A-25X (terminal 3). <Discharge type (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. <Halogen type (RH-LOW and HIGH)>
- Check the wiring harness between headlight assembly (RH) connector A-47 (terminal 5) and ground. <Discharge type (RH-LOW and HIGH)>

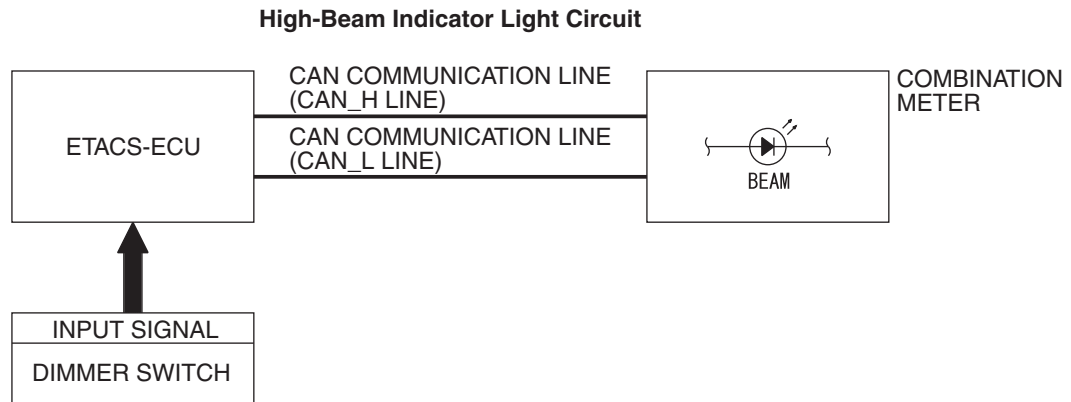
**Q: Is the wiring harness between headlight assembly connector and headlight relay connector in good condition?**

**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.



W4X54E031A

**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)

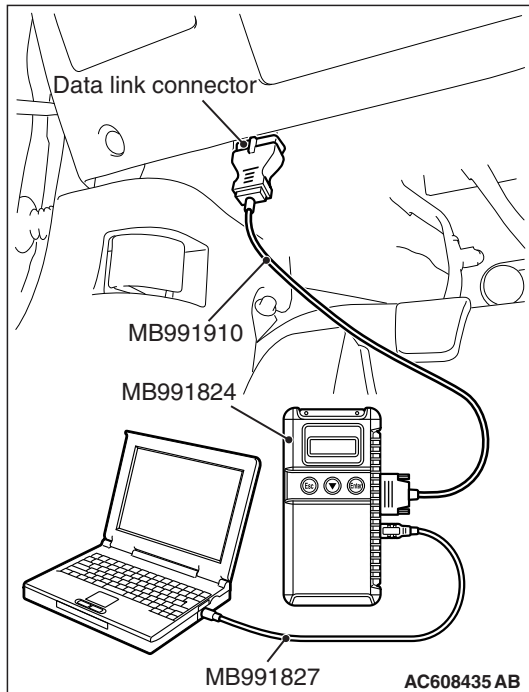
**STEP 1. Check of headlight (high-beam).**

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 "None of headlights (high-beam) illuminates [P.54A-160.](#)"



**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-130."
- (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-130."
- (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-674.

**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-100).
- (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 "Enable (C-spec.)"

**⚠ CAUTION**

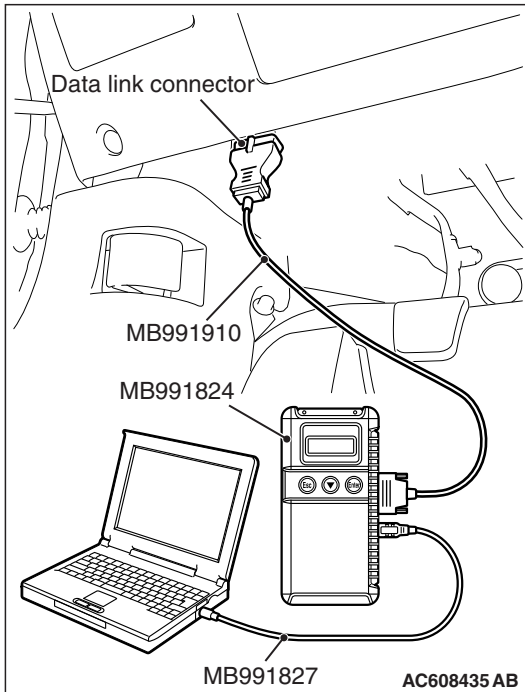
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the scan tool (M.U.T.-III) P.54A-130."
- (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 "C-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 "Enable (C-spec.)" (Refer to P.54A-211).



**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-674).

**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	1 V or less

- 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-730](#).

**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.

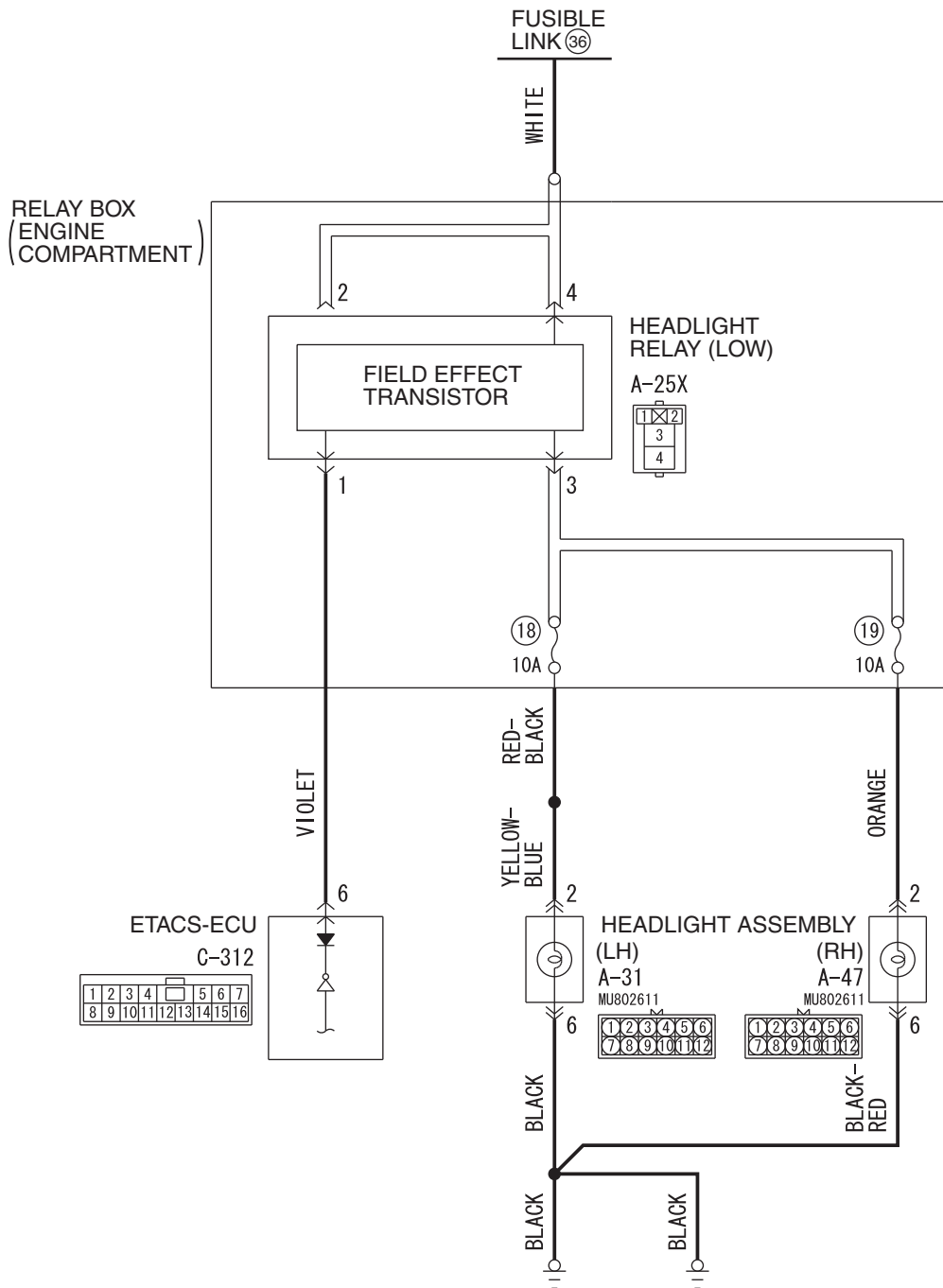


Inspection Procedure 8: Daytime running light function does not work normally. <Halogen type headlight>

**CAUTION**

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

Daytime Running Light Circuit



**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 headlight relay (LOW)
- 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. 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 "None of headlights (low-beam) illuminates [P.54A-155](#)."

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

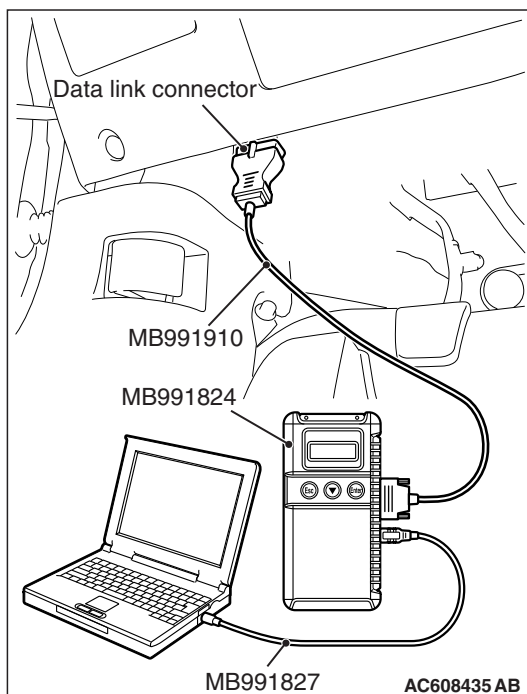
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-130](#)."
- (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-674](#).

**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-50](#) <2.0L Engine>, GROUP 13B, Diagnosis [P.13B-51](#) <2.4L Engine>.

**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** : Go to Step 6.

**NO** : Refer to GROUP 36, Diagnosis, Inspection Procedure 2 [P.36-5](#). Verify that the daytime running light function does not work normally.

---

**STEP 6. Temporarily replace the headlight relay (LOW), and retest the system.**

After temporarily replacing the headlight relay (LOW), with the ignition switch being in the ON position (engine is running), release the parking brake (parking brake switch: OFF) and turn the lighting switch to the OFF or TAIL position, and then check if the headlights (low-beam) illuminate with a reduced beam state.

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

**YES** : Replace the headlight relay (LOW).

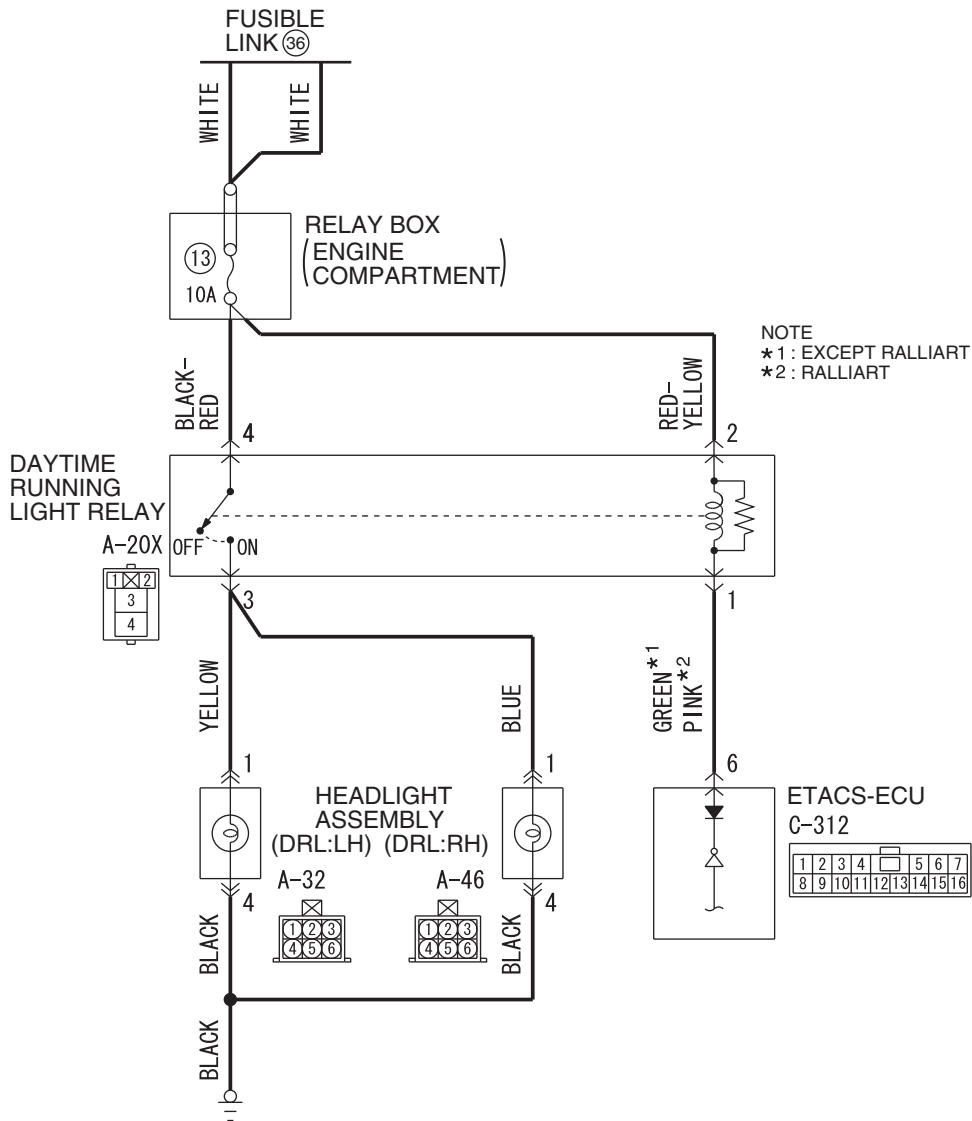
**NO** : Replace the ETACS-ECU.

Inspection Procedure 8: Daytime running light function does not work normally. <Discharge type headlight>

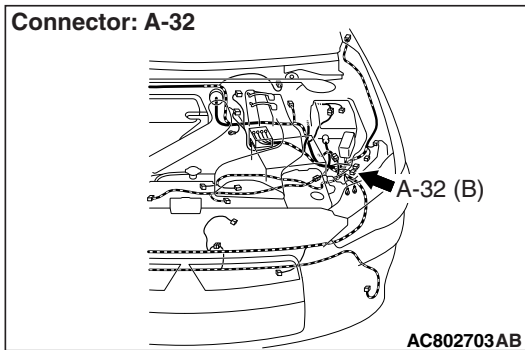
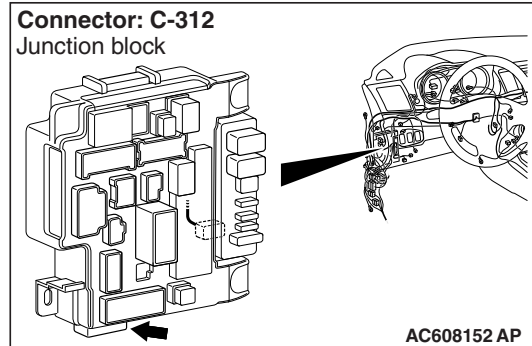
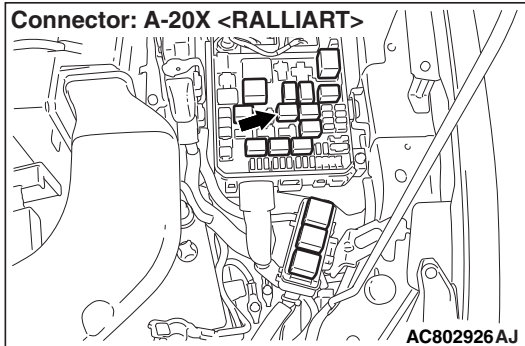
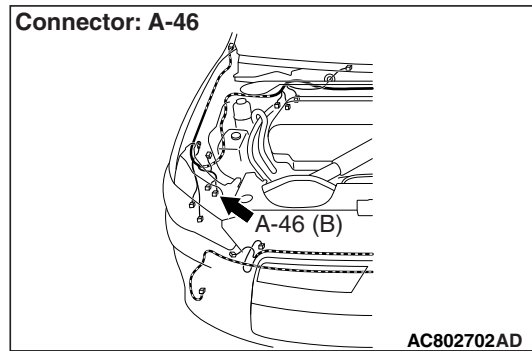
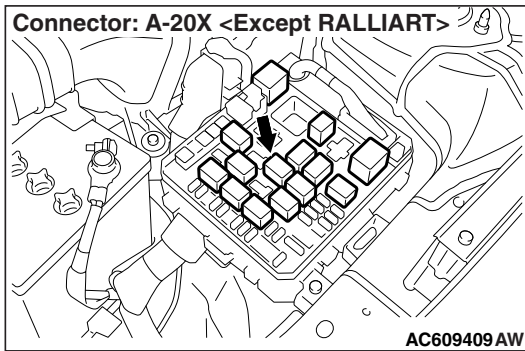
**CAUTION**

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

Daytime Running Light Circuit



WAS54M006A



### COMMENTS ON TROUBLE SYMPTOM

If the daytime running lights do not illuminate, the wiring harness connector(s), the bulb or the ETACS-ECU may have a problem.

### PROBABLE CAUSES

- Burned-out daytime running light bulb
- Malfunction of the daytime running light relay
- 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. 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 2.

**NO** : Check the tail/stop lights and the headlights (Refer to trouble symptom chart [P.54A-154](#)).

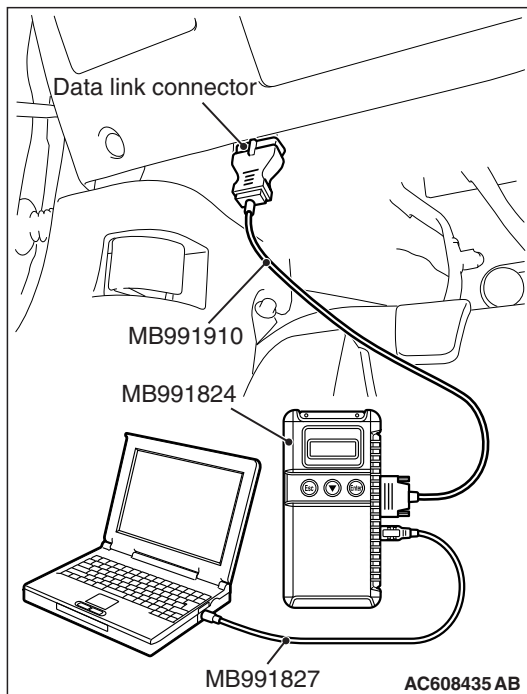
**STEP 2. Check the daytime running light bulb.**

- (1) Remove the daytime running light bulb.
- (2) Verify that the daytime running light bulb is not damaged or burned out.

**Q: Is the daytime running light bulb in good condition?****YES** : Go to Step 3.**NO** : Replace the fog light bulb. Verify that the daytime running lights illuminate normally.**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. Refer to "How to connect scan tool (M.U.T.-III) P.54A-130."
- (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 4.**NO** : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).**STEP 4. 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-674.**NO** : Go to Step 5.

**STEP 5. 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-50](#) <2.0 L Engine>, GROUP 13B, Diagnosis [P.13B-51](#) <2.4 L Engine>.

**NO :** Go to Step 6.

**STEP 6. 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 :** Go to Step 7.

**NO :** Refer to GROUP 36, Diagnosis, Inspection Procedure 2 [P.36-5](#). Verify that the daytime running light function does not work normally.

**STEP 7. Check daytime running light (LH) connector A-32, daytime running light (RH) A-46 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is daytime running light (LH) connector A-32, daytime running light (RH) A-46 in good condition?**

**YES :** Go to Step 8.

**NO :** Repair the damaged parts.

**STEP 8. Check the ground circuit to the daytime running light (LH) or daytime running light (RH). Measure the resistance at daytime running light (LH) connector A-32 or daytime running light (RH) connector A-46.**

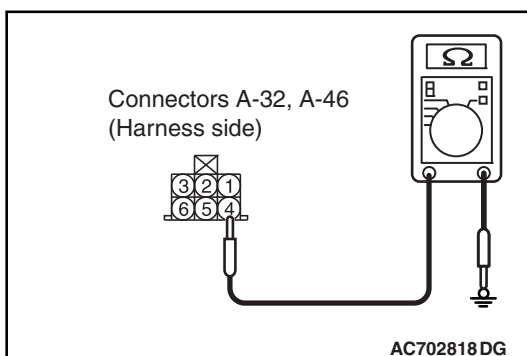
- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Check the resistance between the fog light connector and ground.
  - Resistance between A-32 daytime running light (LH) connector terminal No.4 and ground
  - Resistance between A-46 daytime running light (RH) connector terminal No.4 and ground

**OK: 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 daytime running light (LH) connector A-32 (terminal 4) or daytime running light (RH) connector A-46 (terminal 4) and ground.**

- Check the ground wires for open circuit.

**Q: Is the wiring harness between daytime running light (LH) connector A-32 (terminal 4) or daytime running light (RH) connector A-46 (terminal 4) and ground 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 :** 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 daytime running lights illuminate normally.

---

**STEP 10. Check daytime running light relay connector A-20X for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is daytime running light relay connector A-20X in good condition?**

**YES :** Go to Step 11.

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

---

**STEP 11. Check the daytime running light relay.**

Refer to [P.54A-219](#).

**Q: Is the daytime running light relay in good condition?**

**YES :** Go to Step 12.

**NO :** Replace the daytime running light relay. Verify that the daytime running lights illuminate normally.



**STEP 12. Check the battery power supply circuit to the daytime running light relay. Measure the voltage at daytime running light relay connector A-20X.**

**⚠ CAUTION**

The top and bottom of the daytime running light relay are difficult to identify. Prior to inspection, confirm the triangle mark on the relay box.

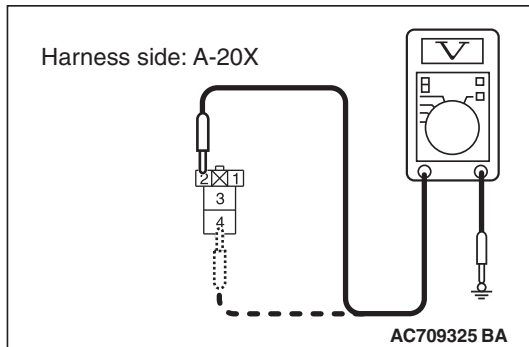
- (1) Disconnect daytime running light relay connector A-20X and measure the voltage available at the relay box side of the connector.
- (2) Measure the voltage between terminal 2 and ground, and also between terminal 4 and ground.

**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 14.

**NO :** Go to Step 13.



**STEP 13. Check the wiring harness between daytime running light relay connector A-20X (terminal 2 and 4) and fusible link (36).**

- Check the power supply line for open circuit.

**Q: Is the wiring harness between daytime running light relay connector A-20X (terminal 2 and 4) and 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 :** 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 daytime running lights illuminate normally.

**STEP 14. 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 15.

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

**STEP 15. Check the wiring harness between daytime running light relay connector A-20X (terminal 1) and ETACS-ECU connector C-312 (terminal 6).**

- Check the communication wires for open circuit.

**Q: Is the wiring harness between daytime running light relay connector A-20X (terminal 1) and ETACS-ECU connector C-312 (terminal 6) in good condition?**

**YES :** Go to Step 16.

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

---

**STEP 16. Retest the system.**

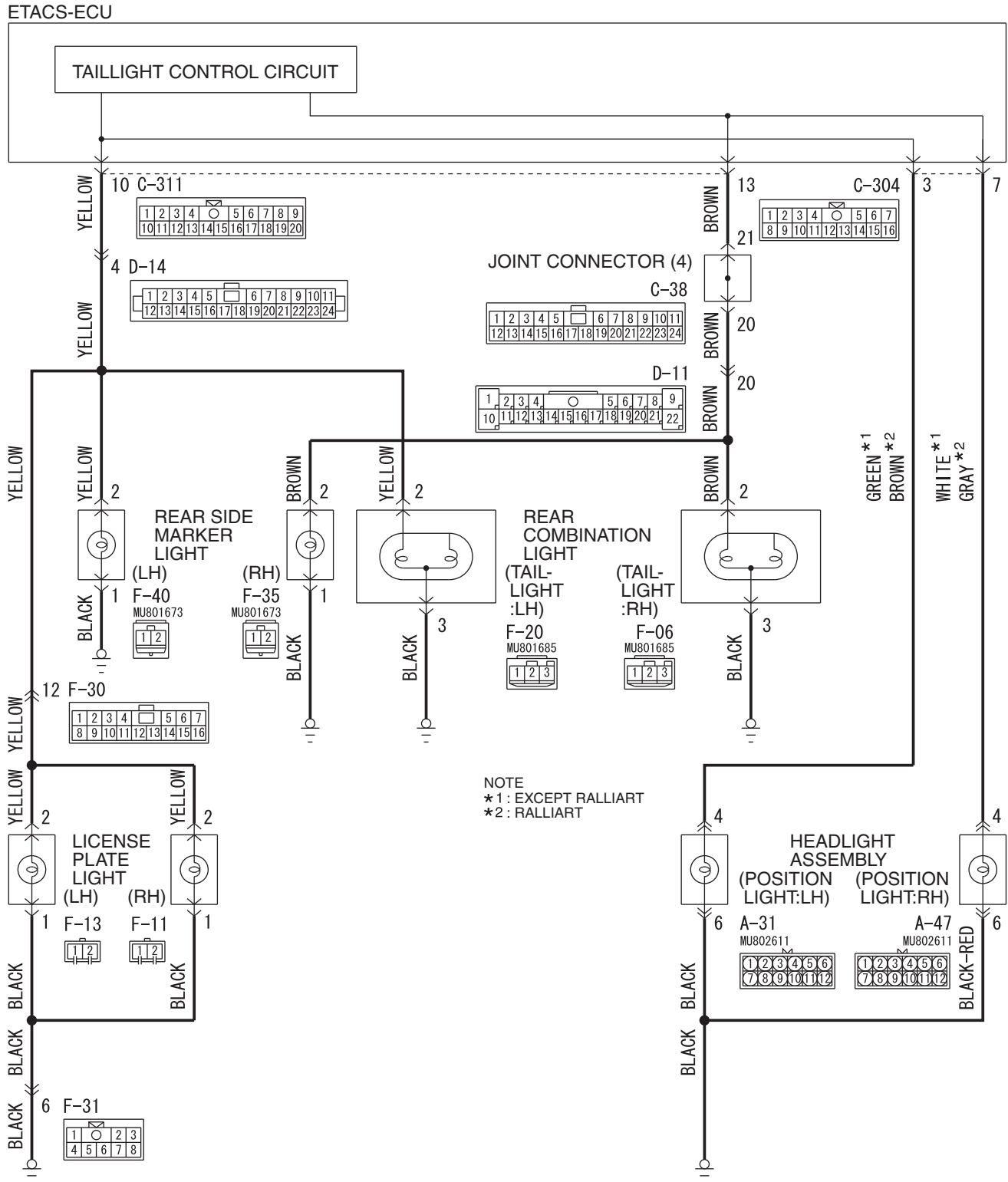
**Q: Does the daytime running lights illuminate in good condition?**

**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](#)).

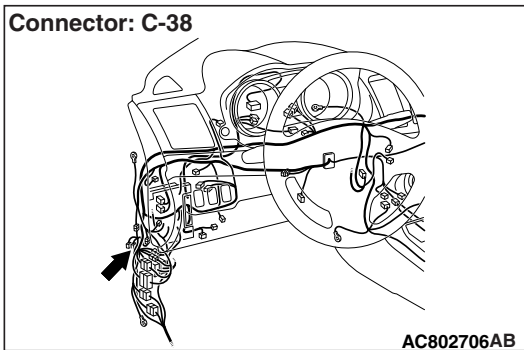
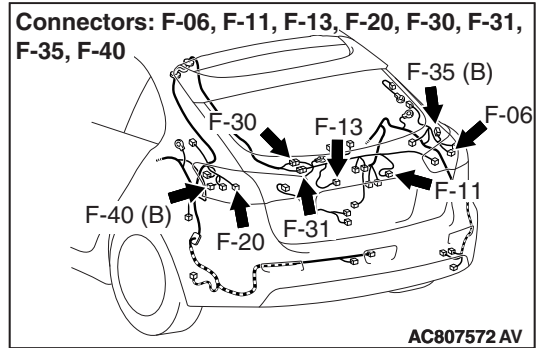
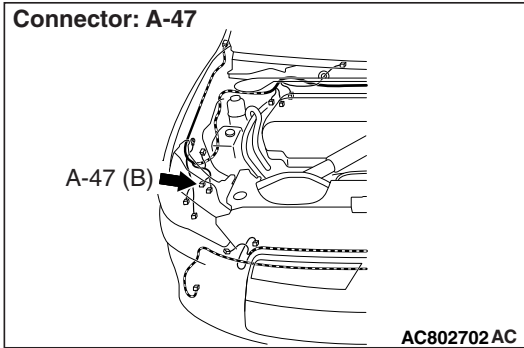
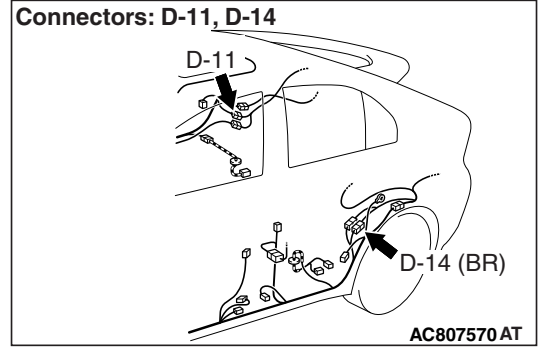
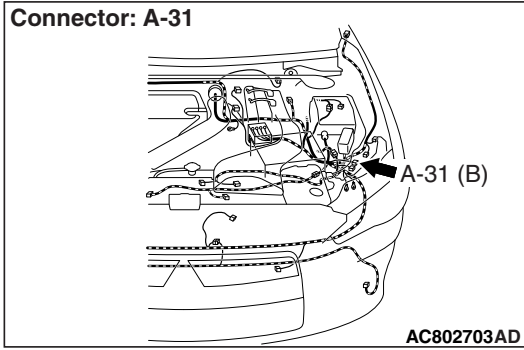
**NO :** Replace the ETACS-ECU.

**Inspection Procedure 9: One of the position light, the taillight, the rear side marker lights or the license plate light does not illuminate.**

Position Lights, License Plate Lights, Tail Lights and Rear Side Marker Lights Circuit

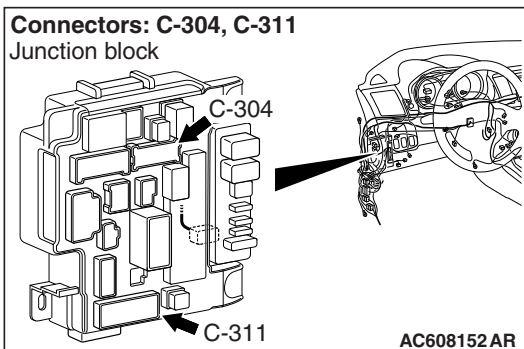


WAS54M007A



**TECHNICAL DESCRIPTION (COMMENT)**

If one of the position light, the taillight, the rear side marker light or the license plate light does 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 taillight
- Malfunction of license plate light
- Malfunction of headlight
- 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

---

**STEP 1. Check headlight assembly connector A-31 (position light: LH) or A-47 (position light: RH), rear combination light connector F-20 (taillight: LH) or F-06 (taillight: RH), rear side marker light connector F-40 (LH) or F-35 (RH), 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 combination light connector F-20 (taillight: LH) or F-06 (taillight: RH), rear side marker light connector F-40 (LH) or F-35 (RH), license plate light connector F-13 (LH) or F-11 (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. Bulb check.

Check the bulb(s) of the light that does not illuminate.

**Q: Is the check result normal?**

**YES :** Go to Step 3.

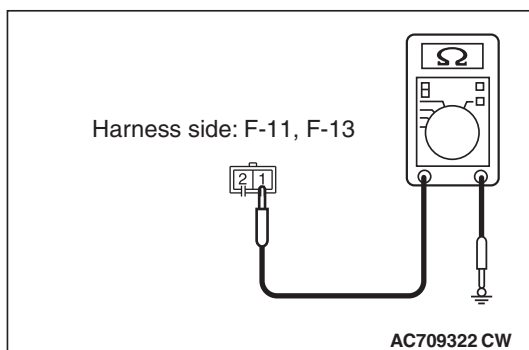
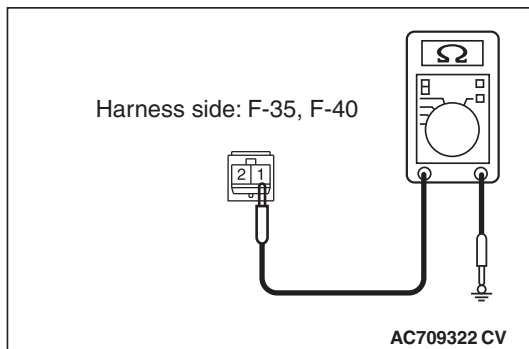
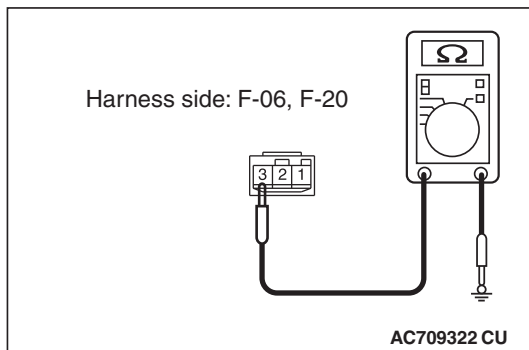
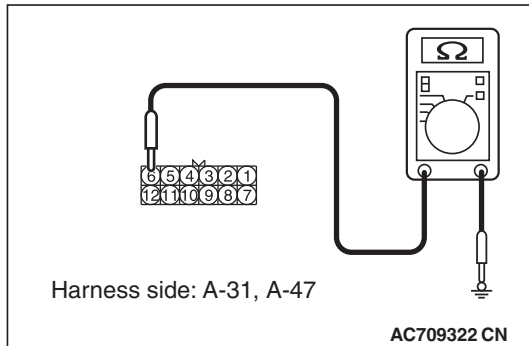
**NO :** Replace the bulb(s) of the light that does not illuminate.

**STEP 3. Resistance measurement at headlight assembly connector A-31 (position light: LH) or A-47 (position light: RH), rear combination light connector F-20 (taillight: LH) or F-06 (taillight: RH), rear side marker light connector F-40 (LH) or F-35 (RH), 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 (position light: LH) or A-47 (position light: RH) (terminal 6) and body ground.



- Measure the resistance between rear combination light connector F-20 (taillight: LH) or F-06 (taillight: RH) (terminal 3) and body ground.

- Measure the resistance between rear side marker light connector F-40 (LH) or F-35 (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 ( $2 \Omega$  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 headlight assembly connector, rear combination light 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 (position light: LH) connector A-31 (terminal 6) and the body ground.
- Check the wiring harness between headlight assembly (position light: RH) connector A-47 (terminal 6) and the body ground.
- Check the wiring harness between rear combination light connector F-20 (taillight: LH) (terminal 3) and the body ground.
- Check the wiring harness between rear combination light connector F-06 (taillight: RH) (terminal 3) and the body ground.
- Check the wiring harness between rear side marker light connector F-40 (LH) (terminal 1) and the body ground.
- Check the wiring harness between rear side marker light connector F-35 (RH) (terminal 1) and the body ground.
- Check the wiring harness between license plate light (LH) connector F-13 (terminal 1) and the body ground.

*NOTE: Also check intermediate connector F-31 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-31 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.

*NOTE: Also check intermediate connector F-31 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-31 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 combination light connector, rear side marker light connector or license plate light connector and the body ground in good condition?**

**YES :** Go to Step 7.

**NO :** Repair the wiring harness.

---

**STEP 5. Check ETACS-ECU connector C-304 or C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is ETACS-ECU connector C-304 or C-311 in good condition?**

**YES :** Go to Step 6.

**NO :** Repair the damaged parts.

**STEP 6. Check wiring harness between headlight assembly connector, rear combination light connector, rear side marker light connector or license plate light connector and ETACS-ECU connector.**

Check the power supply line for open circuit or short circuit.

- Check the wiring harness between headlight assembly (position light: LH) connector A-31 (terminal 4) and ETACS-ECU connector C-304 (terminal 3).
- Check the wiring harness between headlight assembly (position light: RH) connector A-47 (terminal 4) and ETACS-ECU connector C-304 (terminal 7).
- Check the wiring harness between rear combination light (taillight: LH) connector F-20 (terminal 2) and ETACS-ECU connector C-311 (terminal 10).

*NOTE: Also check intermediate connectors 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 wiring harness between rear combination light (taillight: RH) connector F-06 (terminal 2) 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 wiring harness between rear side marker light (LH) connector F-40 (terminal 2) 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 wiring harness between rear side marker light (RH) connector F-35 (terminal 2) and ETACS-ECU connector C-311 (terminal 13).

*NOTE: Also check intermediate connector D-11 and joint connector C-38 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-11 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).

*NOTE: Also check intermediate connectors D-14 and F-30 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 or F-30 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 10).

*NOTE: Also check intermediate connectors D-14 and F-30 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 or F-30 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 combination light connector, rear side marker light connector or license plate light connector and ETACS-ECU connector in good condition?**

**YES :** Go to Step 7.

**NO :** Repair the wiring harness.

---

**STEP 7. Retest the system.**

Check that the position light, taillight, rear side marker light, or license plate light illuminate normally.

**Q: Do the position light, taillight, rear side marker light, or license plate light work normally?**

**YES (The light illuminate normally.) :** 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 rear combination light (taillight) do not illuminate> :** Replace the rear combination light socket.

**NO <When the rear side marker light do not illuminate> :**  
Replace the rear side marker light socket.

**NO <When the license plate light does not illuminate> :**  
Replace the license plate light socket.

**Inspection Procedure 10: The auto light 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 driving distance, lighting control sensor, and column switch (auto light switch). Also, when the column switch (lighting switch) is in the "AUTO" position, and when an abnormality is present to the auto light circuit, the fail-safe function is activated and the low beam is turned ON at all times regardless of the brightness around the vehicle.

**TECHNICAL DESCRIPTION (COMMENT)**

If the auto light function does not work normally, the above input signal circuit(s) or the ETACS-ECU may have a problem.

**TROUBLESHOOTING HINTS**

- Malfunction of the lighting control sensor
- Malfunction of the 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, diagnose the CAN bus line****⚠ CAUTION**

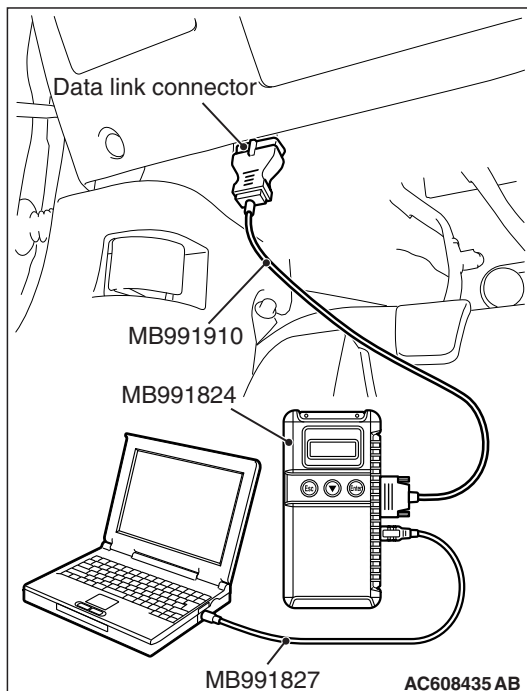
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-130."
- (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 diagnostic trouble code.**

Check if DTC is set to the LIN.

**Q: Is the DTC set?**

**YES** : Refer to DTC chart [P.54A-132](#).

**NO** : Go to Step 3.

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

Check if DTC is set to the ETACS-ECU.

**Q: Is the DTC set?**

**YES** : Troubleshoot the ETACS (Refer to [P.54A-674](#)).

**NO** : Go to Step 4.

**STEP 4. Check that the headlights operate.**

Check that the headlights (low-beam) illuminate normally.

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Refer to Inspection Procedure 1 "None of headlights (low-beam) illuminates." [P.54A-155](#).

**STEP 5. Using scan tool MB991958, check data list**

Use the ETACS-ECU service data to check the signals related to the operation of auto light function.

- Turn the lighting switch to the "AUTO" position.

Item No.	Item name	Normal condition
Item 348	Headlight switch (auto)	ON

**Q: Do scan tool MB991958 display the items "Headlight switch (auto)" as normal condition?**

**YES** : Go to Step 6.

**NO** : Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis [P.54A-730](#).

**STEP 6. Lighting control sensor check**

Check the lighting control sensor. Refer to [P.54A-222](#).

**Q: Is the check result normal?**

**YES** : Go to Step 7.

**NO** : Replace the lighting control sensor.

**STEP 7. Retest the system**

Check that the auto light 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 11: None of turn-signal lights illuminates.****TECHNICAL DESCRIPTION (COMMENT)**

If none of turn-signal lights illuminates, 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**

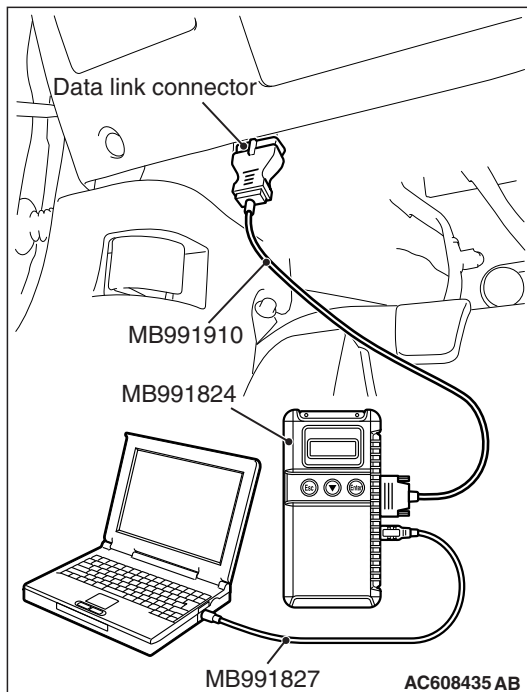
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-130."
- (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-674).

**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 condition
Item 254	IG voltage	Battery positive 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-730](#).

**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 12: The comfort flasher does not work normally.**

**TECHNICAL DESCRIPTION (COMMENT)**

If the comfort flasher does not work normally, the turn-signal light switch input circuit(s) and ETACS-ECU may have a problem.

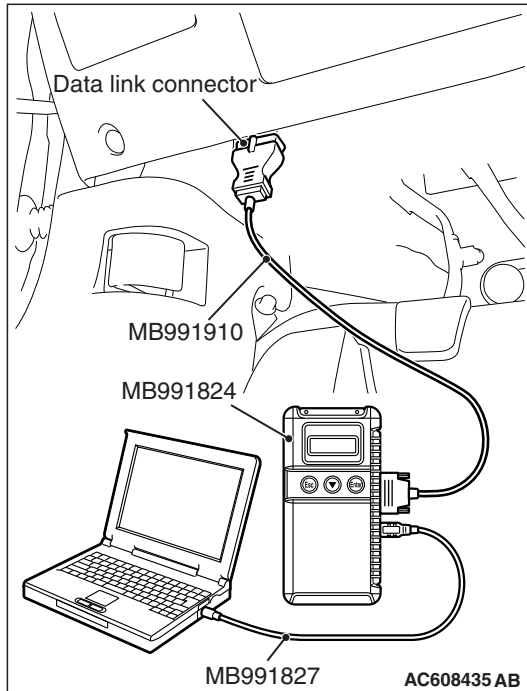
**TROUBLESHOOTING HINTS**

- 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-130.](#)"
- (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-211](#)).

**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-674](#)).

**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 11 "None of turn-signal lights illuminates" [P.54A-196](#).

---

**STEP 4. Retest the system**

Check that the comfort flasher works normally.

**Q: Does comfort flasher 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 13: The turn-signal indicator lights 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)

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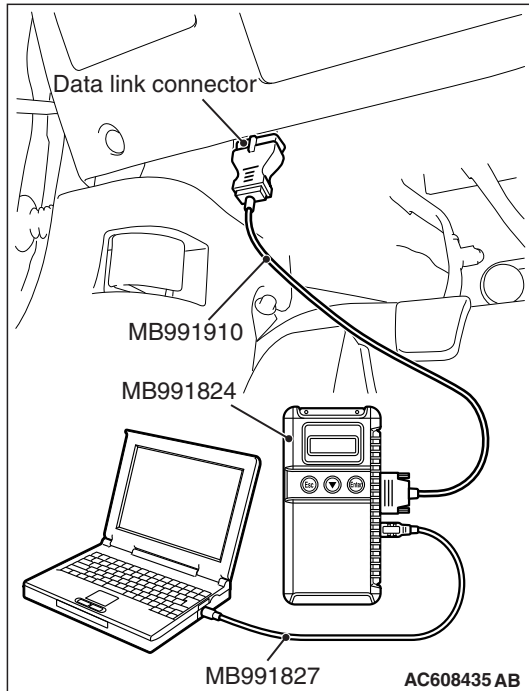
**STEP 1. Check turn-signal light.**

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 11 "None of turn-signal lights illuminates" [P.54A-196](#).



**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-130."
- (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-674.

**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.



**Inspection Procedure 14: The welcome light 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.

**TECHNICAL DESCRIPTION (COMMENT)**

When the welcome light function does not operate normally, the keyless entry system or the ETACS-ECU may have a problem. Or, the welcome light function may have been set to disabled using the customization function.

**TROUBLESHOOTING HINTS**

- Malfunction of the keyless entry system
- 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. Using scan tool MB991958, Check the configuration function.**

**CAUTION**

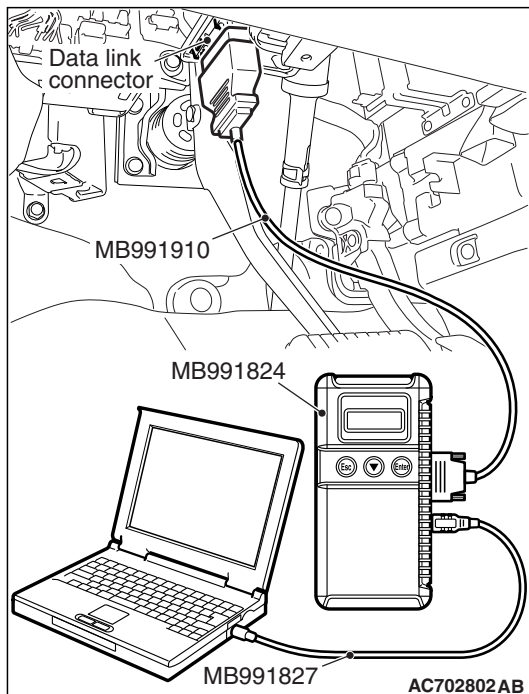
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-130."
- (2) Turn the ignition switch to the "ON" position.
- (3) Check that any one of the followings other than "Disabled" is set for "Welcome light" with a customization function.
  - Small light
  - Head light
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

**Q: Is it set to other than "Disabled"?**

**YES :** Go to Step 2.

**NO :** Set "Welcome light" to any one other than "Disabled" with a customization function (Refer to P.54A-211).



**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-674](#))

**NO** : Go to Step 3.

**STEP 3. Check the keyless entry system operation**

Check that the keyless entry system operation normally.

**Q: Is the check result normal?**

**YES** : Go to Step 4.

**NO** : Troubleshoot the keyless entry system. Refer to GROUP 42B, Troubleshooting [P.42B-136](#) <KOS> or GROUP 42C, Troubleshooting [P.42C-84](#) <WCM>.

**STEP 4. Check the tail lights and headlights.**

When the lighting switch is operated, check that the tail lights and headlights illuminate/go off normally.

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Troubleshoot the tail lights and headlights. Refer to trouble symptom chart [P.54A-154](#).

**STEP 5. Retest the system.**

Check that the welcome light 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 15: The coming home light 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.

**TECHNICAL DESCRIPTION (COMMENT)**

When the coming home light function does not operate normally, the ETACS-ECU may have a problem. Or, the coming home light function may have been set to disabled using the customization function.

**TROUBLESHOOTING HINTS**

- Malfunction of the lighting switch
- 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. Using scan tool MB991958, Check the configuration function.

#### ⚠ CAUTION

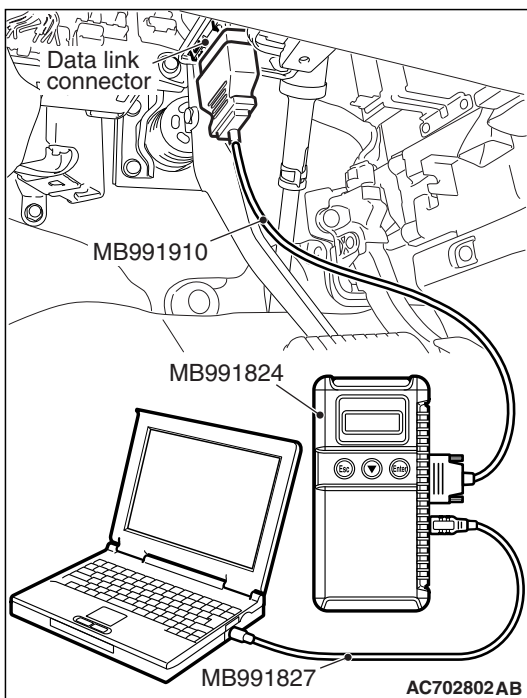
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-130."
- (2) Turn the ignition switch to the "ON" position.
- (3) Check that any one of the followings other than "Disabled" is set for "Coming home light" with a customization function.
  - 15 sec
  - 30 sec
  - 60 sec
  - 180 sec
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

#### Q: Is it set to other than "Disabled"?

**YES** : Go to Step 2.

**NO** : Set "Coming home light" to any one other than "Disabled" with a customization function (Refer to P.54A-211).



### 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-674)

**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.

Item No.	Item name	Normal condition
Item 254	IG voltage	1 V or less

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

**YES :** Go to Step 4.

**NO :** Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 2 "The ignition switch (IG1) signal is not received" [P.54A-734](#).

**STEP 4. Check the headlights.**

When the lighting switch is operated, check that the headlights illuminate/go off normally.

**Q: Is the check result normal?**

**YES :** Go to Step 5.

**NO :** Troubleshoot the headlights. Refer to trouble symptom chart [P.54A-154](#).

**STEP 5. Retest the system.**

Check that the coming home light 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.

**DATA LIST REFERENCE TABLE**

M1540103800218

**LIN <LIGHTING CONTROL SENSOR (LIGHT SENSOR)>**

Item No.	Scan tool display	Check conditions	Normal conditions
7001	RLS IG1	When the ignition switch is in the "LOCK" or "ACC" position	OFF
		When the ignition switch is in the "ON" or "START" position	ON
7002	RLS Light sensor sensitivity	When the customize value of lighting control sensor sensitivity is set to Level 1 (fast)	Level 1 bright
		When the customize value of lighting control sensor sensitivity is set to Level 2 (slightly fast)	Level 2 bright
		When the customize value of lighting control sensor sensitivity is set to Level 3 (normal)	Level 3
		When the customize value of lighting control sensor sensitivity is set to Level 4 (slightly slow)	Level 4 dark
		When the customize value of lighting control sensor sensitivity is set to Level 5 (slow)	Level 5 dark
7004	RLS Radio ACC	When the ignition switch is in the "LOCK" or "START" position	OFF
		When the ignition switch is in the "ACC" or "ON" position	ON
7007	RLS Vehicle speed	Perform a test run of the vehicle.	The values displayed on the speedometer and the scan tool MB991958 are almost the same.
7009	RLS Low beam "ON" request	When the lighting control sensor area is bright	OFF
		When the lighting control sensor area is dark	ON
7010	RLS judgment illuminance output	When the lighting control sensor area changes from dark to bright	The value displayed on the scan tool MB991958 increases.
		When the lighting control sensor area changes from bright to dark	The value displayed on the scan tool MB991958 decreases.
7011	RLS Taillight "ON" request	When the lighting control sensor area is bright	OFF
		When the lighting control sensor area is dark	ON

Item No.	Scan tool display	Check conditions	Normal conditions
7012	RLS Tunnel detect output	When the lighting control sensor area is bright	OFF
		When the lighting control sensor area is dark	ON
7014	RLS specification	–	EU
7015	RLS ECU Diagnostic Version	–	–
7016	RLS ECU Hardware Version	–	–
7017	RLS ECU Software Version	–	–
7018	RLS ECU Part number	–	8634A001
7019	RLS ECU Serial number	–	–

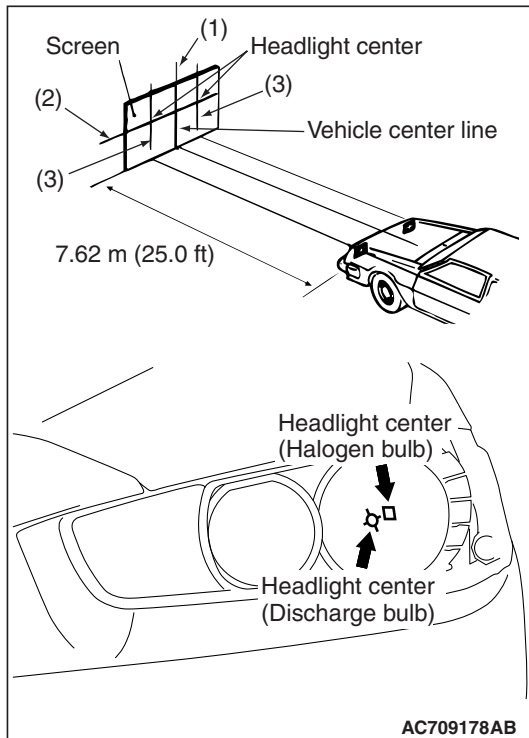
## ON-VEHICLE SERVICE

### HEADLIGHT AIMING

M1540100500412

#### PRE-AIMING INSTRUCTIONS (LOW-BEAM)

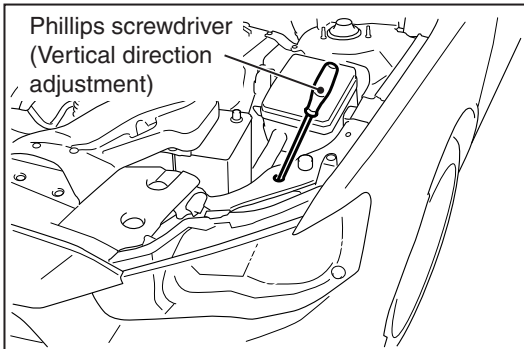
1. Inspect for rusted or faulty headlight assemblies.
2. These conditions must be corrected before a satisfactory adjustment can be made.
3. Inspect tire inflation, and adjust if necessary.
4. If the fuel tank is not full, place a weight in the trunk of the vehicle to simulate weight of a full tank [3 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. Turn the headlight leveling switch to the switch position "0."  
<Vehicles with headlight manual leveling system>
7. Thoroughly clean headlight lenses.
8. 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.
9. Rock vehicle sideways to allow vehicle to assume its normal position.
10. Bounce the front suspension through three (3) oscillations by applying the body weight to hood or bumper.



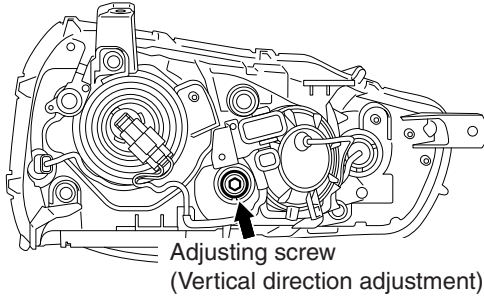
11. Set the distance between the screen and the bulb center marks of the headlight as shown in the illustration.
12. Four lines of adhesive tape (or equivalent markings) are required on screen or wall:
  - (1) Position a vertical tape or mark so that it is aligned with the vehicle center line.
  - (2) 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)

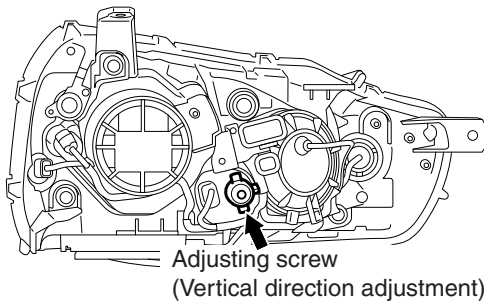
1. The low-beam headlight will project on the screen upper edge of the beam (cut-off).



<Vehicles without discharge headlight>



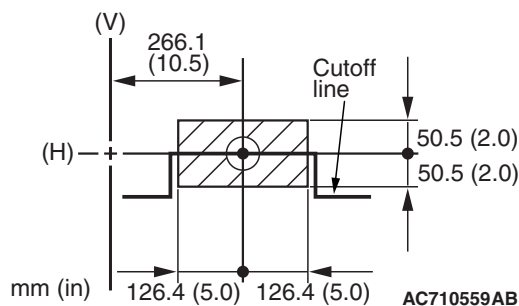
<Vehicles with discharge headlight>



AC709195AB

- Turn the adjusting screw to achieve the specified low-beam cut-off location on the aiming screen.

<Vehicles without discharge headlight>

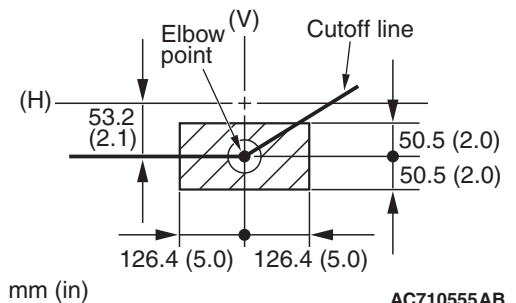


Standard value <Vehicles without discharge headlight>:

(Vertical direction) Horizontal line (H)  $\pm 50.5$  mm ( $\pm 2.0$  inches) ( $\pm 0.38$  degrees angle)

(Horizontal direction):  $\pm 126.4$  mm ( $\pm 5.0$  inches) ( $\pm 0.95$  degrees angle) from the axis, which is 266.1 mm (10.5 inches) (2 degrees angle) rightward from the vertical line (V)

<Vehicles with discharge headlight>



Standard value <Vehicles with discharge headlight>:

(Vertical direction) 53.2 mm (2.1 inches) (0.4 degrees) below horizontal line (H).  $\pm 50.5$  mm ( $\pm 2.0$  inches) ( $\pm 0.38$  degrees angle)

(Horizontal direction): Elbow point intersects the vertical line (V).  $\pm 126.4$  mm ( $\pm 5.0$  inches) ( $\pm 0.95$  degrees angle)



**⚠ 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**

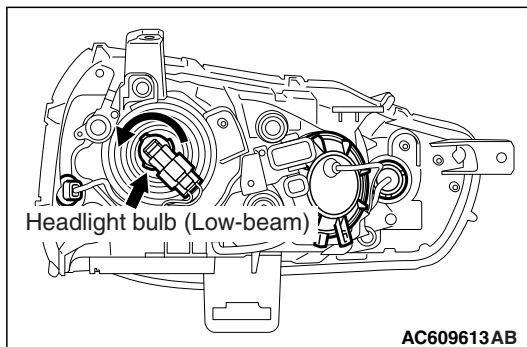
M1540100700353

**HEADLIGHT BULB (LOW-BEAM) REPLACEMENT  
<VEHICLES WITHOUT DISCHARGE HEADLIGHT>**

**⚠ 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.**

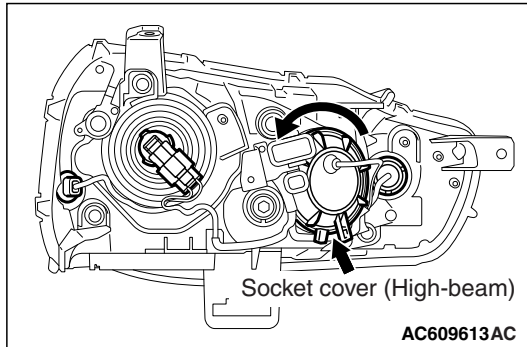
Disconnect the connector, and twist the headlight bulb (low-beam) to remove.



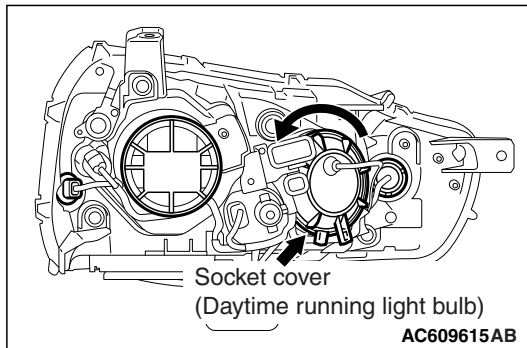
**HEADLIGHT BULB (HIGH-BEAM) REPLACEMENT  
<VEHICLES WITHOUT DISCHARGE HEADLIGHT>****⚠ CAUTION**

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.

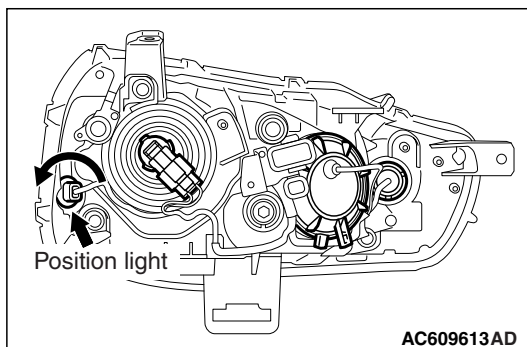
1. Twist the socket cover to remove.
2. Disconnect the connector, and twist the headlight bulb (high-beam) to remove.

**DAYTIME RUNNING LIGHT BULB REPLACEMENT  
<VEHICLES WITH DISCHARGE HEADLIGHT>**

1. Twist the socket cover to remove.
2. Twist the daytime running light socket to remove it.

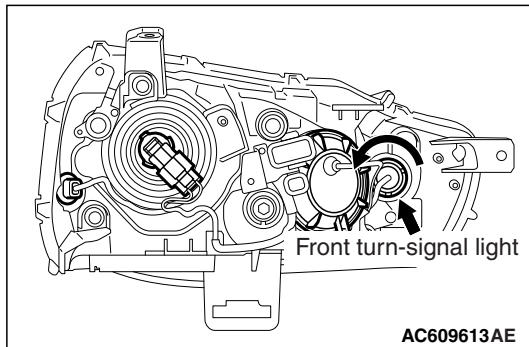
**POSITION LIGHT BULB REPLACEMENT**

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

M1540100800220

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-154](#)).

## HEADLIGHT AUTO LIGHT FUNCTION CHECK

M1540100900227

Under the direct sunlight with the ignition switch ON and the lighting switch in the AUTO position, check that the headlight automatically illuminates when the lighting control sensor receiver is covered by hand. If there is any trouble, carry out the troubleshooting. (Refer to [P.54A-154](#).)

*NOTE: When covering the lighting control sensor receiver, be careful not to touch the windshield surface (where the lighting control sensor receiver is mounted). (The lighting control sensor receiver has limited resistance to oil.)*

## WELCOME LIGHT FUNCTION CHECK

When the lighting switch is in the OFF or AUTO position, unlock the door by the keyless entry system and check that the taillights or headlights turn on. If there is a malfunction, perform the troubleshooting (Refer to [P.54A-154](#)).

M1540112700026

*NOTE: As for the vehicles with lighting control sensor, carry out the inspection in the dark place.*

## COMING-HOME LIGHT FUNCTION CHECK

After turning the ignition switch to the LOCK (OFF) position, check that passing operation lights up the headlights. If there is a malfunction, perform the troubleshooting (Refer to [P.54A-154](#)).

M1540112800023

## CUSTOMIZATION FUNCTION

By operating the ETACS system or MMCS of scan tool MB991958, the following functions can be programmed. The programmed information is held even when the battery is disconnected.

M1540103700794

Adjustment item (scan tool MB991958 display)	Adjustment item	Adjusting contents (scan tool MB991958 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
		30 min	30 minutes (initial condition)
		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 (initial condition)
Comfort flasher	With/without comfort flasher	Disable	No function
		Enable	With function (initial condition)
Comfort flasher switch time	Switch operation time to activate the comfort flasher	Normal	0.4 second (initial condition)
		Long	0.8 second
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 (initial condition)
		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
Sensitivity for auto light	Lighting control sensor sensitivity (illumination intensity) <vehicles with auto light>	Level 1 bright	High-high ambient brightness
		Level 2 bright	High ambient brightness
		Level 3	Standard ambient brightness (initial condition)
		Level 4 dark	Low ambient brightness
		Level 5 dark	Low-low ambient brightness
Headlight auto cut customize	Adjustment of headlight automatic shutdown function	Disable	No function
		Enable (C-spec.)	With function (initial condition)
Welcome light	Disabling or enabling welcome light function	Disabled	No function
		Small light	Tail light illuminates. (initial condition)
		Head light	Headlight illuminates.
Coming home light	Disabling or enabling coming home light function	Disabled	No function
		15 sec	Headlight illuminates for 15 seconds.
		30sec	Headlight illuminates for 30 seconds. (initial condition)
		60 sec	Headlight illuminates for 60 seconds.
		180 sec	Headlight illuminates for 180 seconds.

HEADLIGHT REMOVAL AND INSTALLATION

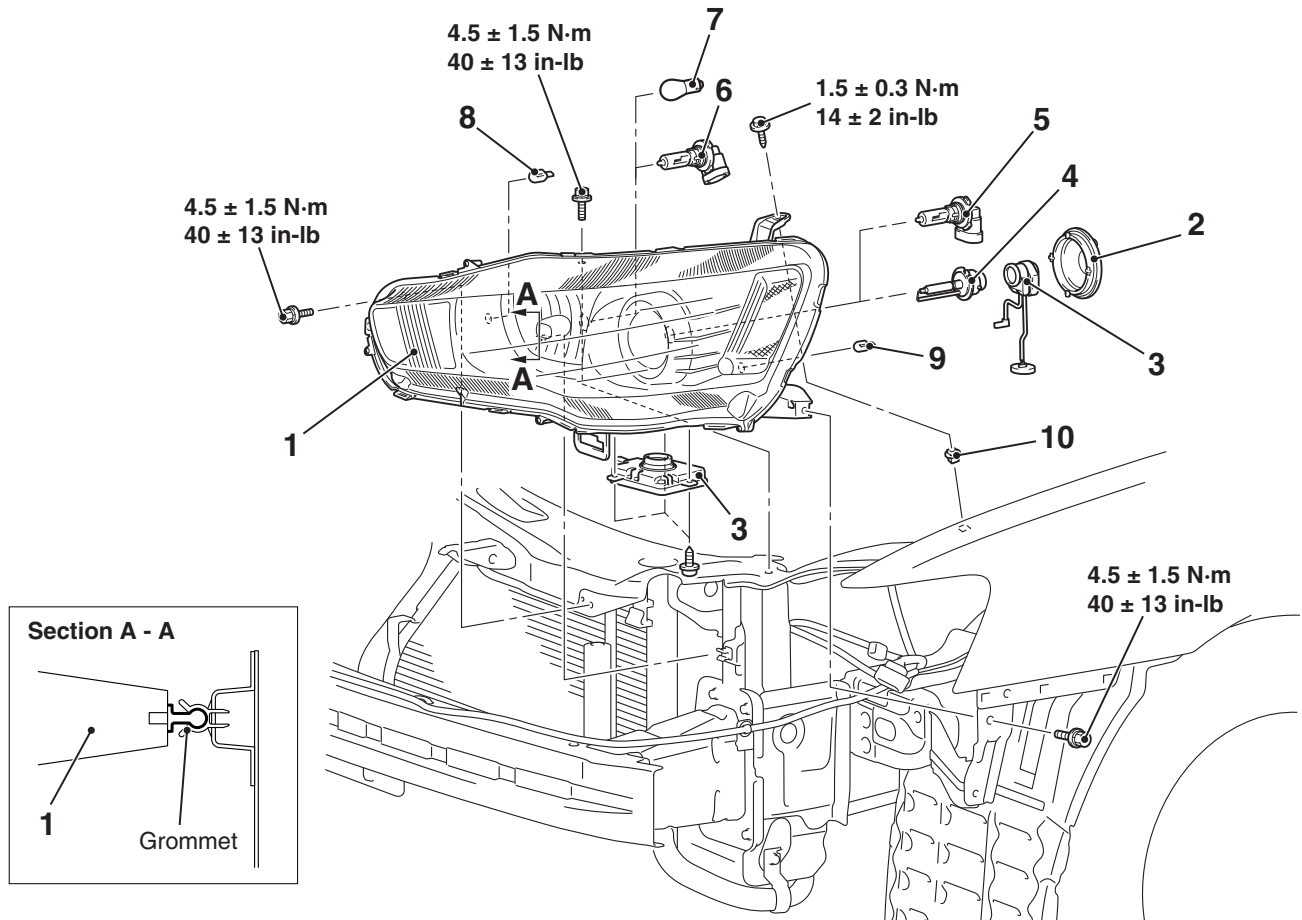
M1540101000528

**Pre-removal operation**

Front bumper and radiator grille assembly removal (Refer to GROUP 51 –Front Bumper Assembly and Radiator Grille P.51-5.)

**Post-installation operation**

- Front bumper and radiator grille assembly installation (Refer to GROUP 51 –Front Bumper Assembly and Radiator Grille P.51-5).
- Check the beam direction of the headlight (Refer to Headlight Aiming P.54A-206).



AC711846AC

**Removal Steps**

1. Headlight assembly
2. Headlight bulb socket cover  
<Vehicles with discharge headlight>
- <<A>> >>A<< 3. Headlight control unit <Vehicles with discharge headlight>
- <<B>> 4. Headlight bulb <Vehicles with discharge headlight>
5. Headlight bulb (low-beam)  
<Vehicles without discharge headlight>

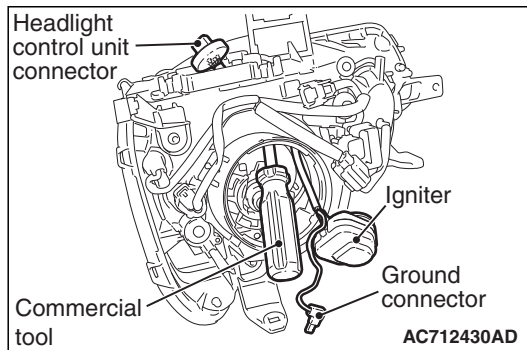
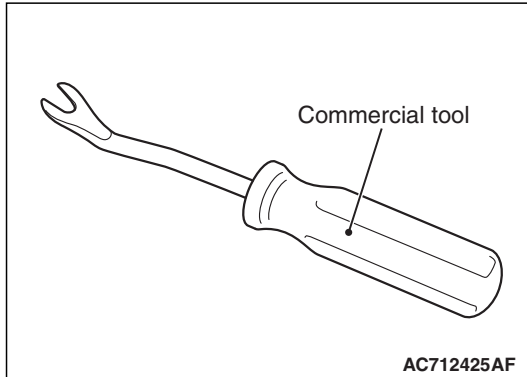
**Removal Steps (Continued)**

6. Headlight bulb (high-beam)  
<Vehicles without discharge headlight>
7. Daytime running light bulb  
<Vehicles with discharge headlight>
8. Front turn-signal light bulb
9. Position light bulb
10. Grommet

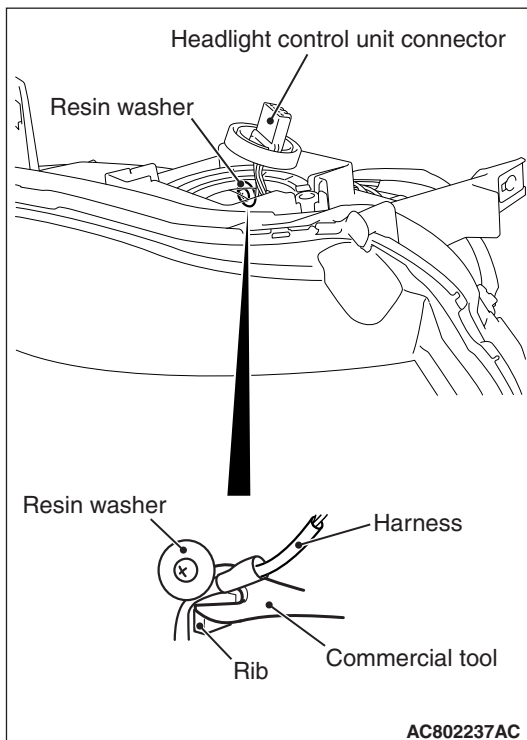
## REMOVAL SERVICE POINTS

<<A>> HEADLIGHT CONTROL UNIT (HARNESS)  
REMOVAL <VEHICLES WITH DISCHARGE HEAD-  
LIGHT>

1. As shown in the figure, use the commercial tool to remove it.



2. To insert the tool available in the market into the headlight assembly from the opening at the igniter side, firstly remove the headlight control unit, the socket cover, the igniter and the ground connector.



3. Using the commercial tool, make the resin washer sag to push up the harness above the resin washer.

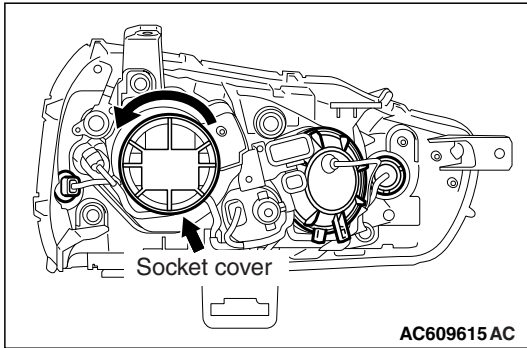
4. Pull out the harness from the headlight assembly.

<<B>> HEADLIGHT BULB REMOVAL <VEHICLES  
WITH DISCHARGE HEADLIGHT>

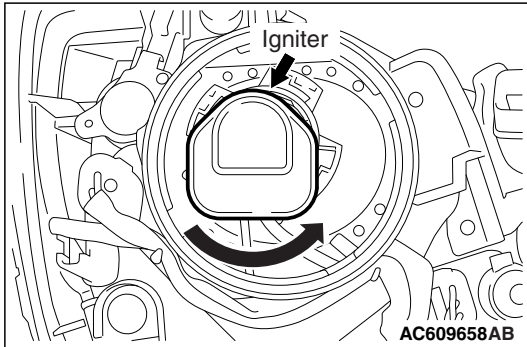
**⚠ CAUTION**

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.

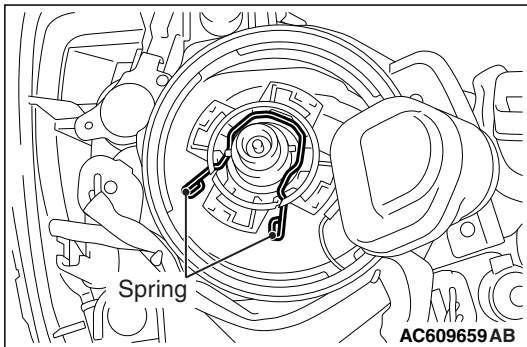
1. Twist the socket cover to remove.



2. Disconnect the igniter.

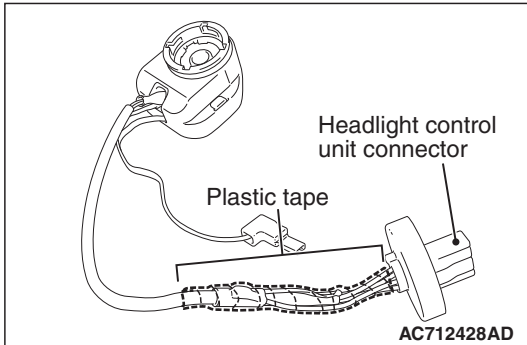


3. Release the bulb securing spring, and remove the bulb.

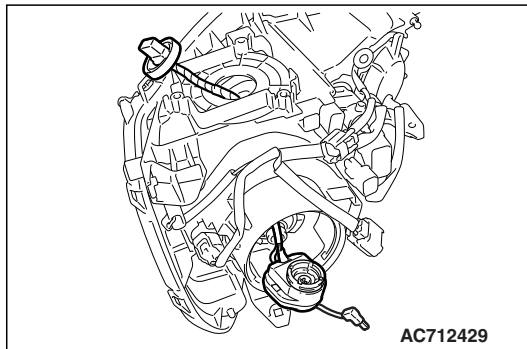


## INSTALLATION SERVICE POINT

## &gt;&gt;A&lt;&lt; HEADLIGHT CONTROL UNIT INSTALLATION &lt;VEHICLES WITH DISCHARGE HEADLIGHT&gt;



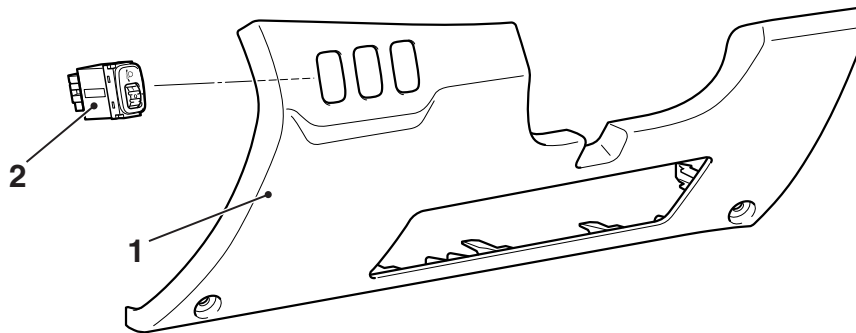
1. As shown in the figure, doubly wrap the portion in the vinyl tape, from the headlight control unit connector root to the point where the harness separation is hidden.



2. Install the harness to the headlight assembly. At that time, fitting the harness into the resin washer is unnecessary.

## HEADLIGHT LEVELING SWITCH REMOVAL AND INSTALLATION

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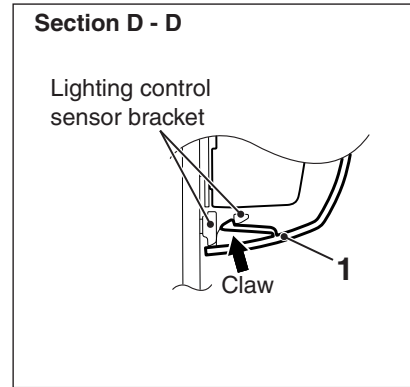
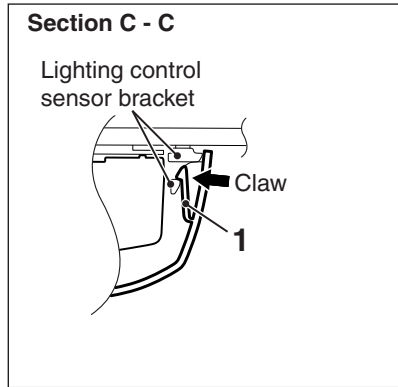
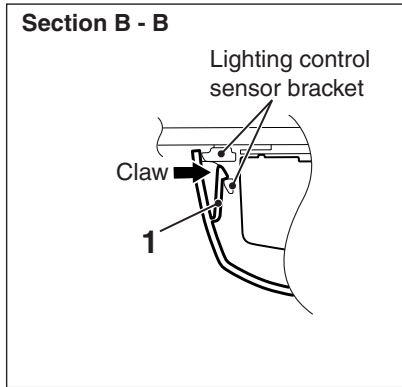
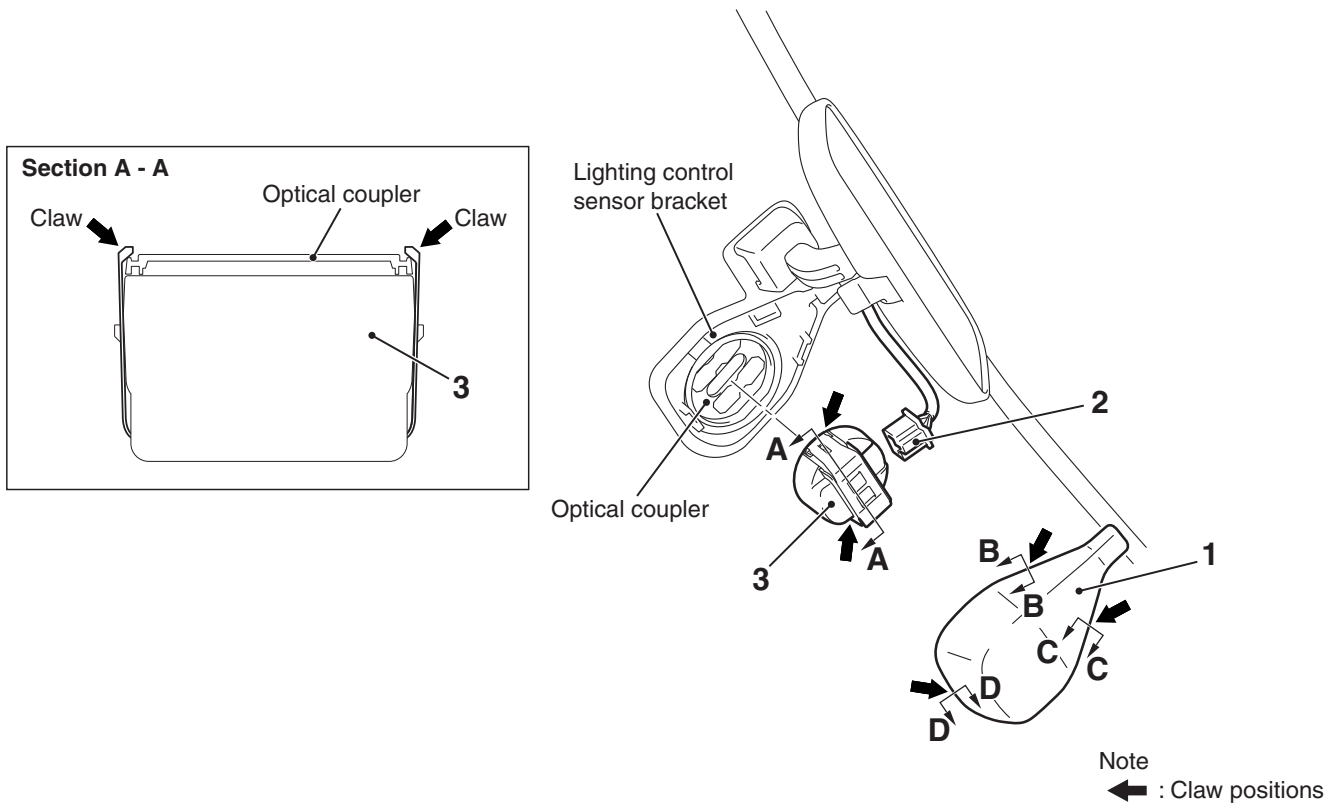
**Removal Steps**

1. Instrument panel lower (Refer to GROUP 52A –Instrument Lower Panel [P.52A-8](#)).
2. Headlight leveling switch



LIGHTING CONTROL SENSOR REMOVAL AND INSTALLATION

M1540108500193



AC709252AB

**Removal Steps**

1. Lighting control sensor cover

<<A>> >>A<<

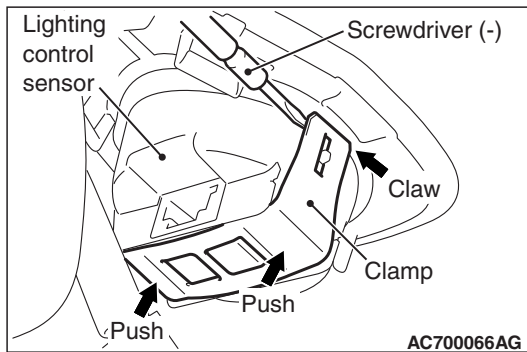
**Removal Steps (Continued)**

2. Connector
3. Lighting control sensor

## REMOVAL SERVICE POINT

## &lt;&lt;A&gt;&gt; LIGHTING CONTROL SENSOR REMOVAL

While pushing the clamp to the windshield side, pry up the clamp to disengage the right and left claws using the screwdriver (-), and then remove the lighting control sensor.



## INSTALLATION SERVICE POINT

## &gt;&gt;A&lt;&lt; LIGHTING CONTROL SENSOR INSTALLATION

**⚠ CAUTION**

After executing the lighting control sensor (rain sensor) adaptation, do not touch the lighting control sensor (or do not move it from the fixed position).

- Mount the lighting control sensor onto the optical coupler, and then connect the connector.
- When reusing the lighting control sensor or when the lighting control sensor is pushed to check the installation condition, install the connector and the lighting control sensor cover and wipe the windshield thoroughly. When the windshield is dry, execute the lighting control sensor (rain sensor) adaptation. <Refer to GROUP 51 –Lighting Control Sensor (Rain Sensor) Adaptation P.51-90>.

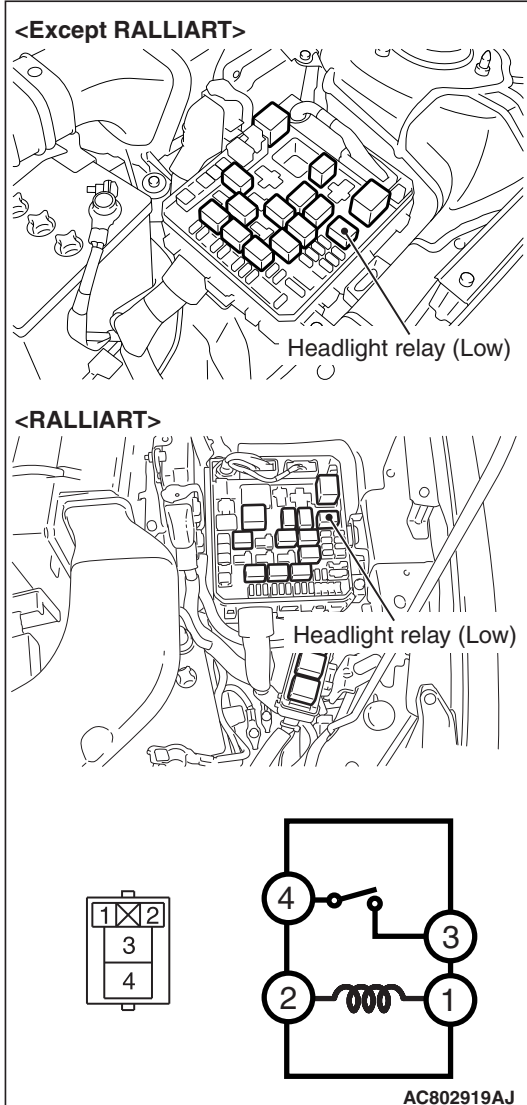
*NOTE: Be careful not to touch the lighting control sensor receiver. (The lighting control sensor receiver has limited resistance to oil.)*

INSPECTION

HEADLIGHT RELAY CHECK

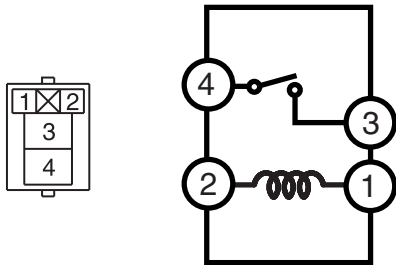
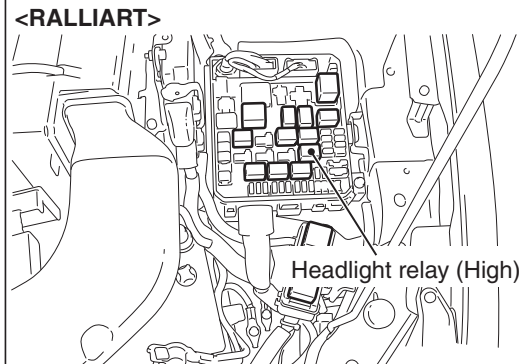
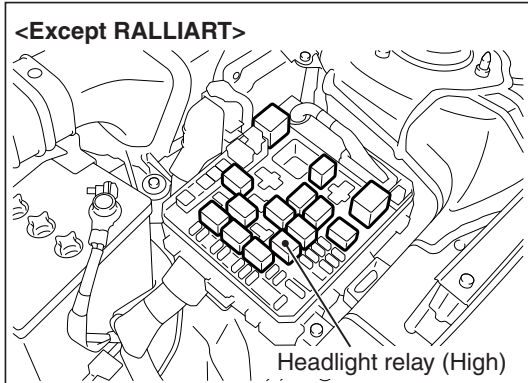
M1540104000301

HEADLIGHT RELAY (LOW) CHECK <VEHICLES  
WITH DISCHARGE HEADLIGHT>



Battery voltage	Terminal number	Normal conditions
Not energized	3 -4	No continuity
With current supply [terminal 2 (+), terminal 1 (-)]		Continuity exists (2 ohms or less)

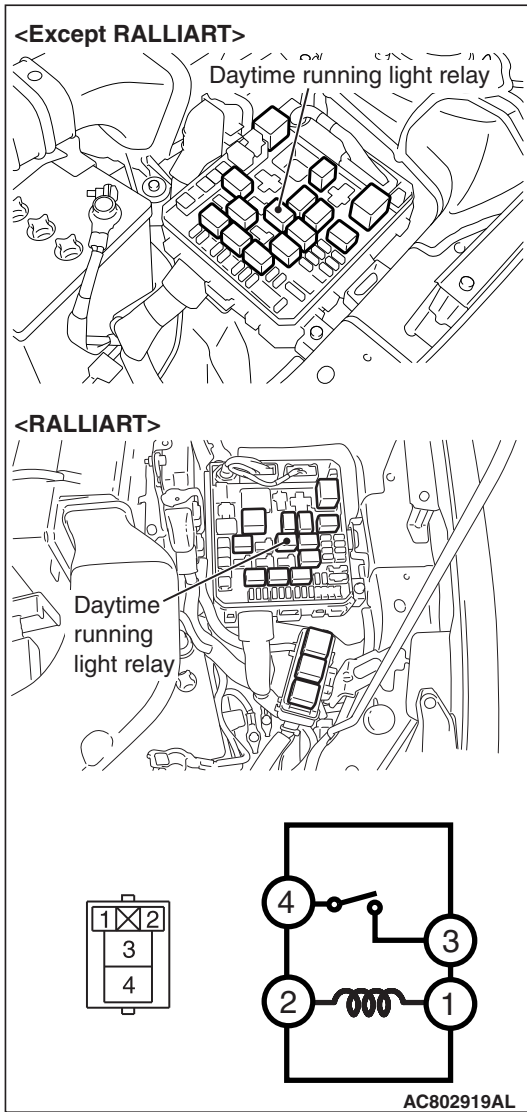
HEADLIGHT RELAY (HIGH) CHECK



AC802919AK

Battery voltage	Terminal number	Normal conditions
Not energized	3 -4	No continuity
With current supply [terminal 2 (+), terminal 1 (-)]		Continuity exists (2 ohms or less)

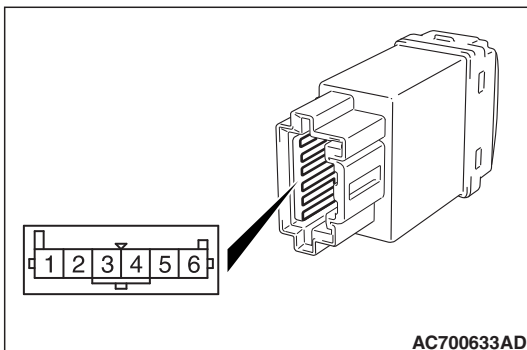
**DAYTIME RUNNING LIGHT RELAY CHECK**  
**<VEHICLES WITH DISCHARGE HEADLIGHT>**



Battery voltage	Terminal number	Normal conditions
Not energized	3 -4	No continuity
With current supply [terminal 2 (+), terminal 1 (-)]		Continuity exists (2 ohms or less)

**HEADLIGHT LEVELING SWITCH CHECK**

M1540101300295



Measured terminals	Switch position	Resistance value $\Omega$
4 -6	0	750
	1	1,110
	2	1,470
	3	1,830
5 -6	4	2,190
	0, 1, 2, 3, 4	2,810

**LIGHTING CONTROL SENSOR (LIGHT SENSOR)  
CHECK**

M1540109000179

Using the scan tool MB991958, check the LIN data list as follows.

1. Under the direct sunlight, turn the ignition switch to the ON position and the lighting switch to the AUTO position.
2. When the lighting control sensor receiver is covered by hand, and if the item No. 7009 (RLS Low beam "ON" request) and the item No. 7011 (RLS Taillight "ON" request) turn from OFF to ON, it is judged normal.

**NOTE:**

- Before inspection using the scan tool MB991958, wipe off the windshield clearly. Then check that there is no abnormality on the windshield surface where the lighting control sensor is mounted.
- When covering the lighting control sensor receiver, be careful not to touch the windshield surface (where the lighting control sensor receiver is mounted). (The lighting control sensor receiver has limited resistance to oil.)

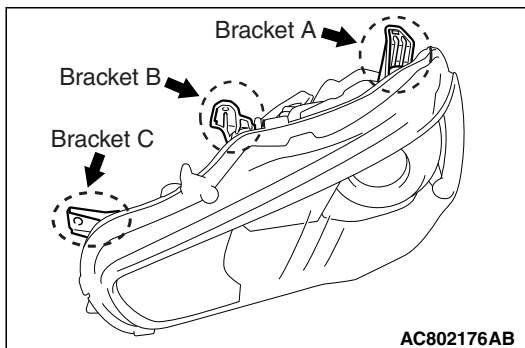
**BRACKET REPAIR OF HEADLIGHT ASSEMBLY**

M1540104500113

**⚠ CAUTION**

- If damage is present to locations other than the repairable bracket, replace the assembly.
- Apply a tape to the area around the damaged bracket to prevent damage.
- During repair work, be careful not to damage the repair bracket installation bosses.

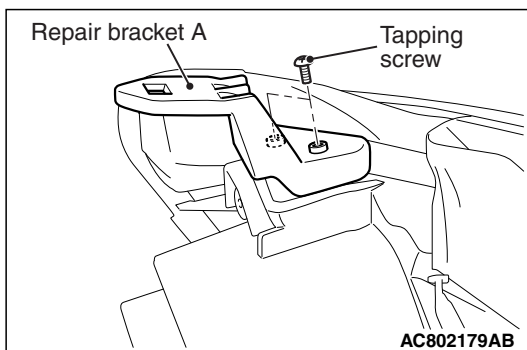
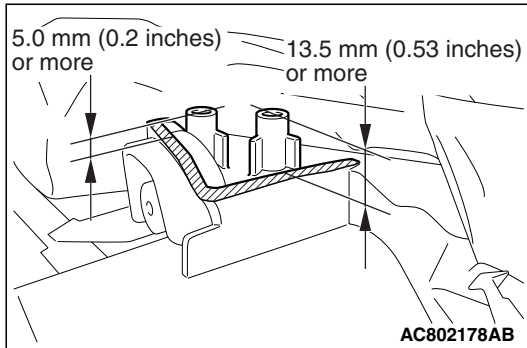
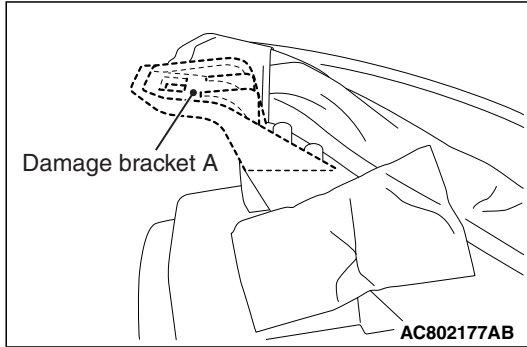
When brackets A, B and C shown in the figure are damaged, a low-cost repair can be performed by mounting a repair bracket.

**OPERATIONS BEFORE REPAIRING BRACKET**

Remove the headlight assembly.

### REPAIR PROCEDURE OF BRACKET A

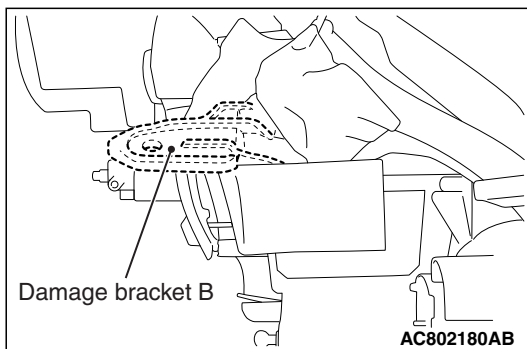
1. Cut the damaged bracket A so that it has the larger dimension than the dimension shown in the figure from the mounting boss seating face.
2. Smoothen the bracket cut surface using the sandpaper.

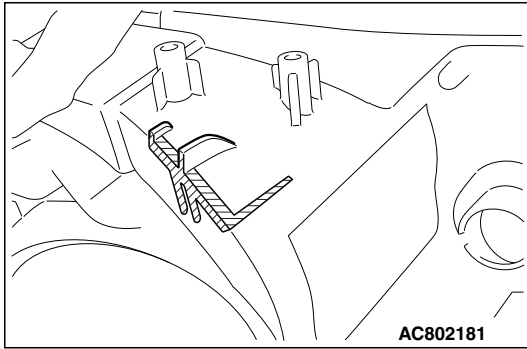


3. Fix the repair bracket A to the headlight assembly using the tapping screw.

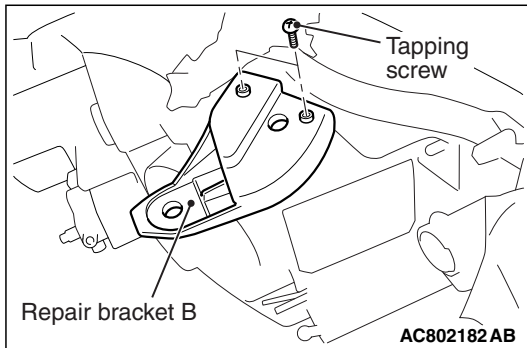
### REPAIR PROCEDURE OF BRACKET B

1. Cut off the damaged bracket B.

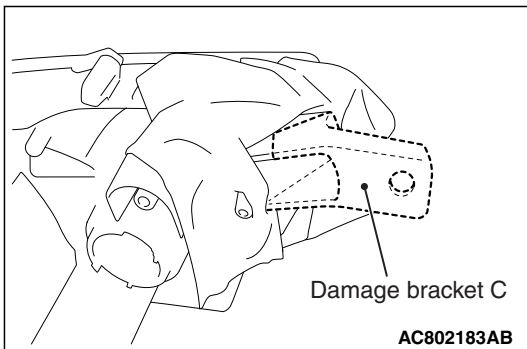




2. Remove the remaining bracket cut surface using the sandpaper.

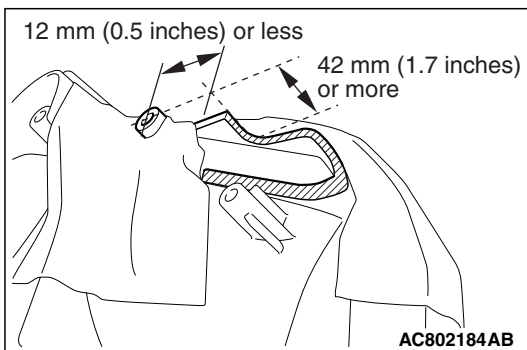


3. Fix the repair bracket B to the headlight assembly using the tapping screw.

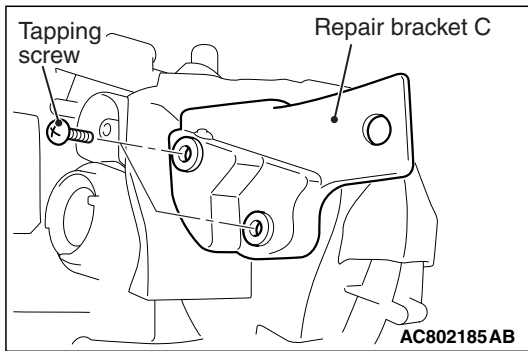


### REPAIR PROCEDURE OF BRACKET C

1. Cut the damaged bracket C so that it has the dimension shown in the figure.
2. Smoothen the bracket cut surface using the sandpaper.







3. Fix the repair bracket C to the headlight assembly using the tapping screw.

### OPERATIONS AFTER REPAIRING BRACKET

1. Mount the headlight assembly to the vehicle.
2. Check that the headlight assembly does not vibrate during driving.
3. Check whether each light built in the headlight assembly and the headlight leveling system are properly operated.
4. Perform the headlight aiming adjustment and light intensity measurement.

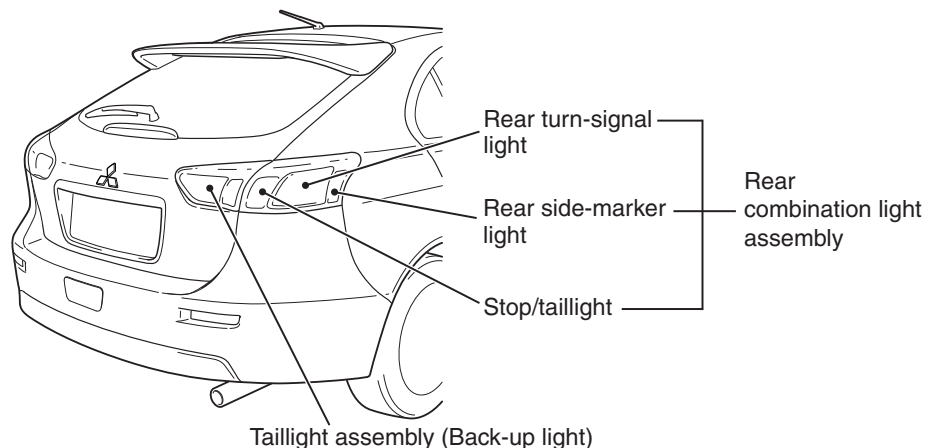
### REPAIR BRACKET PART NUMBER

Part name	Part number
Headlight (LH) bracket kit	8301B173
Headlight (RH) bracket kit	8301B174

## REAR COMBINATION LIGHT

### GENERAL INFORMATION

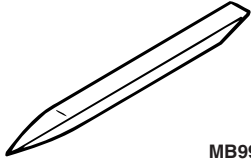
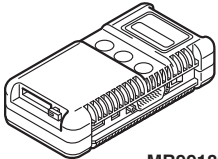
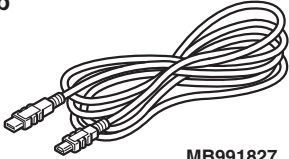
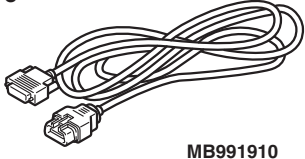
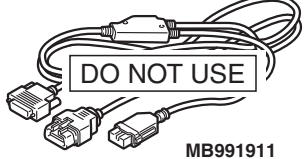
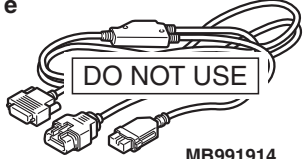
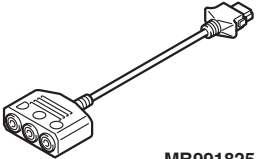
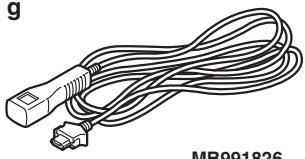
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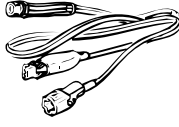
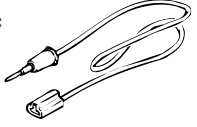
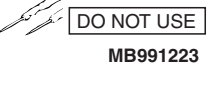
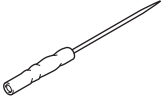


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- The rear combination light assembly are integrated with the stop/taillight, rear turn-signal light and rear side-marker light.
- The taillight assembly are integrated with the back-up light.

SPECIAL TOOLS

Tool	Tool number and name	Supersession	Application
 <p>MB990784</p>	<p>MB990784 Ornament remover</p>	<p>General service tool</p>	<p>Removal of rear combination light assembly, taillight assembly</p>
<p>a</p>  <p>MB991824</p> <p>b</p>  <p>MB991827</p> <p>c</p>  <p>MB991910</p> <p>d</p>  <p>MB991911</p> <p>e</p>  <p>MB991914</p> <p>f</p>  <p>MB991825</p> <p>g</p>  <p>MB991826 MB991958</p>	<p>MB991958</p> <p>a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826</p> <p>M.U.T.-III sub-assembly</p> <p>a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable c. M.U.T.-III main harness A (Vehicles with CAN communication system) d. M.U.T.-III main harness B (Vehicles without CAN communication system) e. M.U.T.-III main harness C (for Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness</p>	<p>MB991824-KIT</p> <p><i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i></p>	<p><b>⚠ CAUTION</b></p> <p><b>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.</b></p> <p>DTC, data list and actuator test check.</p>

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

## 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

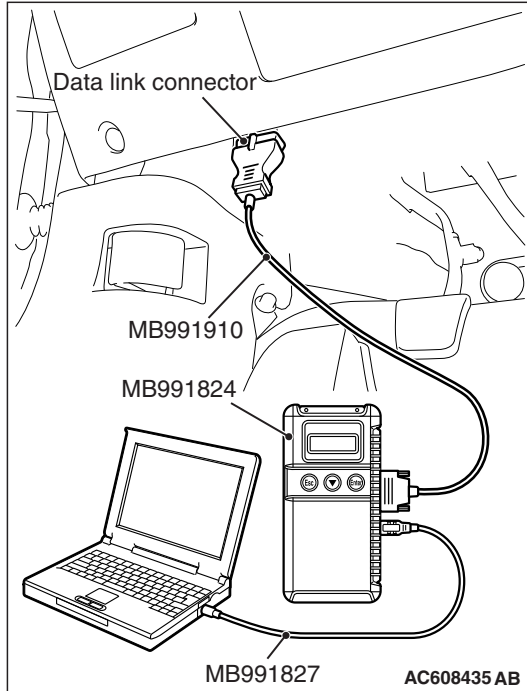
M1541400900157

### 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" to read the DTC.
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.

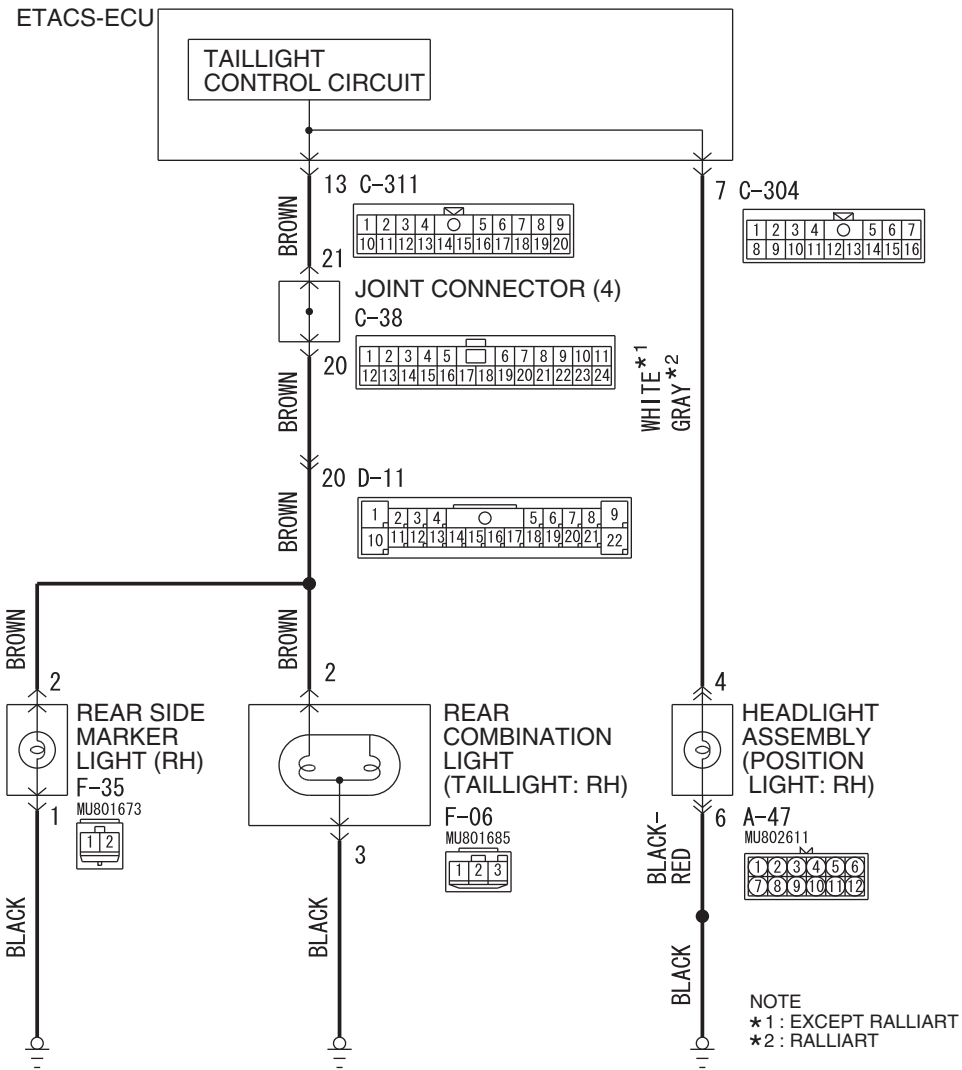
Diagnostic trouble code No.	Diagnostic item	Reference page
B16A0	Taillight (RH) circuit open <Open circuit in the position light (RH) circuit, the taillight (RH) circuit and the rear side marker light (RH) circuit>	P.54A-230
B16A7	Taillight (RH) circuit short <Short circuit in the position light (RH) circuit, the taillight (RH) circuit or the rear side marker light (RH) circuit>	
B16A1	Taillight (LH) circuit open <Open circuit in the position light (LH) circuit, the taillight (LH) circuit, the rear side marker light (LH) circuit and the license plate light circuit>	P.54A-237
B16A8	Taillight (LH) circuit short <Short circuit in the position light (LH) circuit, the taillight (LH) circuit, the rear side marker light (LH) circuit or the license plate light circuit>	

DIAGNOSTIC TROUBLE CODE PROCEDURES

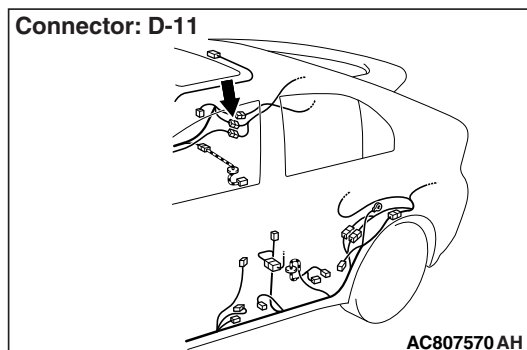
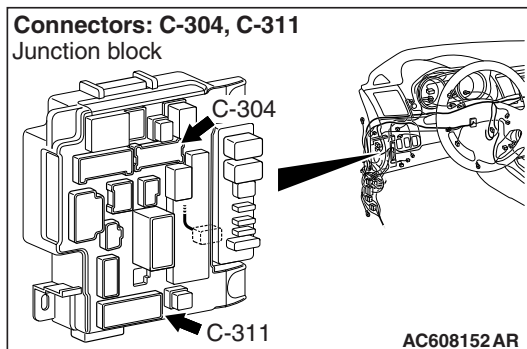
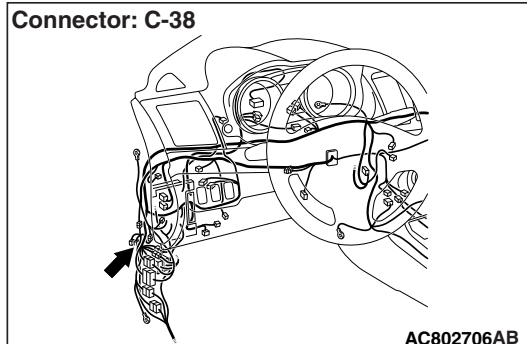
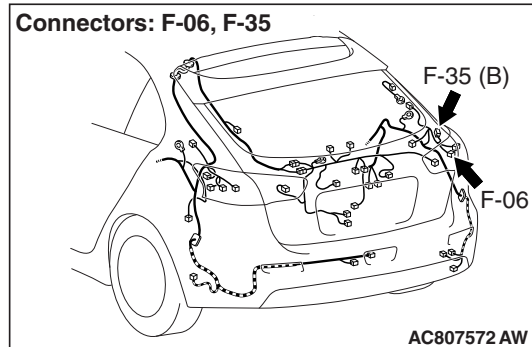
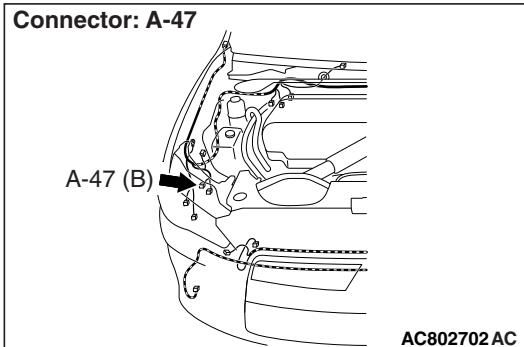
DTC B16A0: Taillight (RH) circuit open <Open circuit in the position light (RH) circuit, the taillight (RH) circuit and the rear side marker light (RH) circuit>

DTC B16A7: Taillight (RH) circuit short <Short circuit in the position light (RH) circuit, the taillight (RH) circuit or the rear side marker light (RH) circuit>

Taillight and Position Light Circuit



WAS54M008A



## TROUBLE JUDGMENT

When an open circuit is detected in the position light circuit, the taillight circuit or the rear side marker light circuit, the ETACS-ECU sets DTC B16A0. If a short circuit is detected, DTC B16A7 is set.

## TECHNICAL DESCRIPTION (COMMENT)

The problem detection of the position light, the taillight or the rear side marker light is made based on the digital feed back signal (input signal to ETACS-ECU) which operates the position light, taillight or rear side marker light. When the ignition switch is "ON", the ETACS-ECU determines the position light circuit, the taillight circuit or the rear side marker light 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 bulbs
- 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. Bulb check.**

Check the bulb(s) of the light that does not illuminate.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

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

---

**STEP 2. Check headlight assembly (position light: RH) connector A-47, rear combination light (taillight: RH) connector F-06 and rear side marker light (RH) connector F-35 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is headlight assembly (position light: RH) connector A-47, rear combination light (taillight: RH) connector F-06 and rear side marker light (RH) connector F-35 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](#).

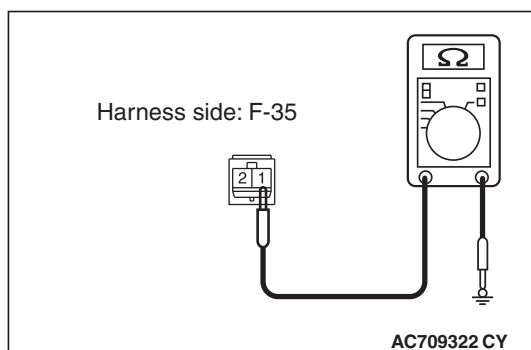
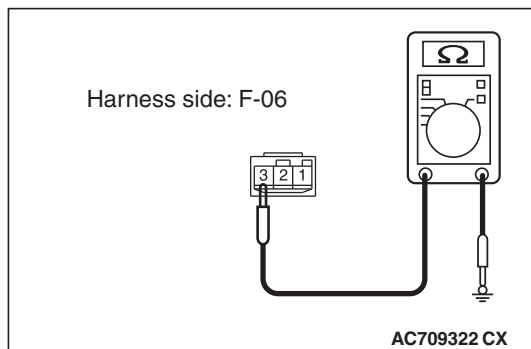
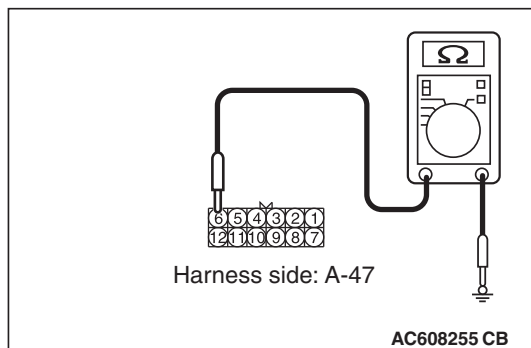


**STEP 3. Resistance measurement at headlight assembly (position light: RH) connector A-47, rear combination light (taillight: RH) connector F-06 and rear side marker light (RH) connector F-35.**

(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 (position light: RH) connector A-47 (terminal 6) and the body ground.



- Measure the resistance between rear combination light (taillight: RH) connector F-06 (terminal 3) and the body ground.

- Measure the resistance between rear side marker light (RH) connector F-35 (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 5.

**NO :** Go to Step 4.

**STEP 4. Check the wiring harness between headlight assembly connector, rear combination light connector or rear side marker light connector and the body ground.**

Check the ground line for open circuit.

- Check the wiring harness between headlight assembly (position light: RH) connector A-47 (terminal 6) and the body ground.
- Check the wiring harness between rear combination light (taillight: RH) connector F-06 (terminal 3) and the body ground.
- Check the wiring harness between rear side marker light (RH) connector F-35 (terminal 1) and the body ground.

**Q: Is the wiring harness between headlight assembly connector, rear combination light connector or rear side marker light connector and the body ground 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 ETACS-ECU connectors C-304 and C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.****Q: Is ETACS-ECU connector C-304 or 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](#).

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**STEP 6. Check wiring harness between headlight assembly connector, rear combination light connector, rear side marker light connector and ETACS-ECU connector.**

Check the power supply line for open circuit or short circuit.

- Check the wiring harness between headlight assembly (position light: RH) connector A-47 (terminal 4) and ETACS-ECU connector C-304 (terminal 7).
- Check the wiring harness between rear combination light (taillight: RH) connector F-06 (terminal 2) 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 wiring harness between rear side marker light (RH) connector F-35 (terminal 2) and ETACS-ECU connector C-311 (terminal 13).

*NOTE: Also check intermediate connector D-11 and joint connector C-38 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-11 or joint connector C-38 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 combination light connector, rear side marker light connector and ETACS-ECU connector 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. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.**

**⚠ CAUTION**

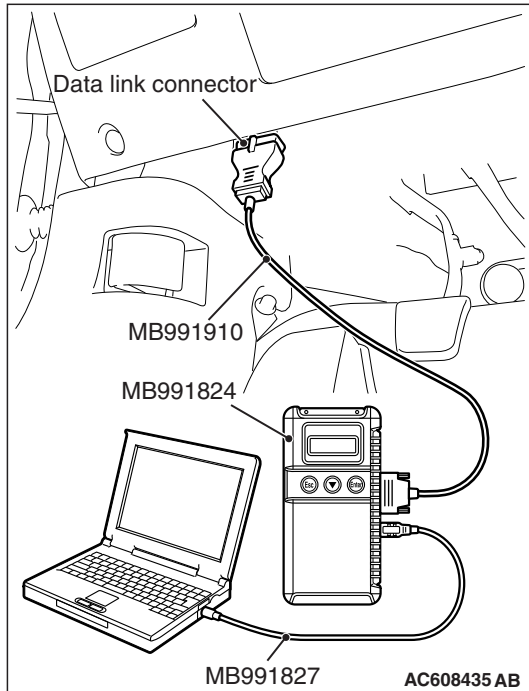
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-227."
- (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?**

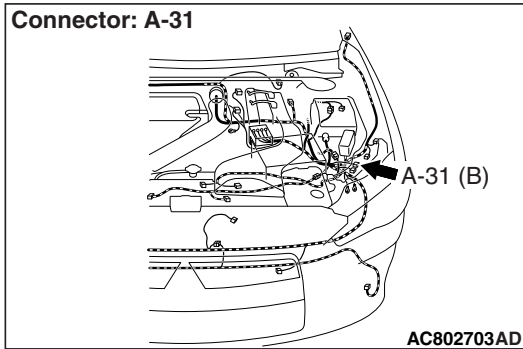
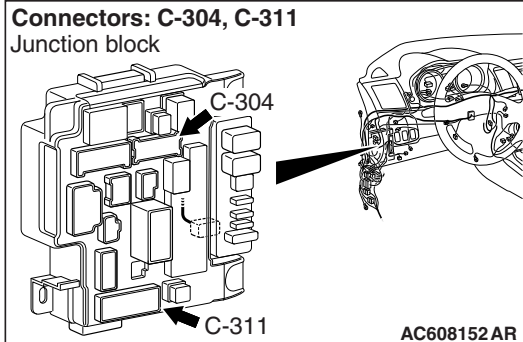
**YES :** Replace the ETACS-ECU.

**NO :** The procedure is complete.

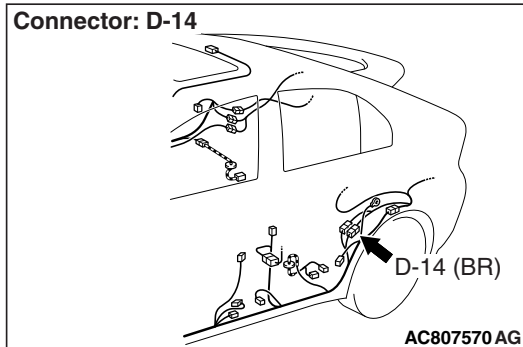




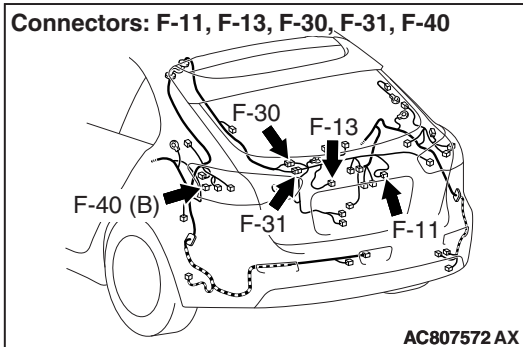
Connector: A-31

Connectors: C-304, C-311  
Junction block

Connector: D-14



Connectors: F-11, F-13, F-30, F-31, F-40

**TROUBLE JUDGMENT**

When an open circuit is detected in the position light circuit, the taillight circuit, the rear side marker light circuit or the license plate light circuit, the ETACS-ECU sets DTC B16A1. If a short circuit is detected, DTC B16A8 is set.

**TECHNICAL DESCRIPTION (COMMENT)**

The problem detection of the position light, the taillight, the rear side marker light or license plate light 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 position light circuit, the taillight circuit, the rear side marker light circuit or the license plate light 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 bulbs
- Malfunction of the ETACS-ECU

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## 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. Bulb check.

Check the bulb(s) of the light that does not illuminate.

#### Q: Is the check result normal?

**YES** : Go to Step 2.

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

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### STEP 2. Check headlight assembly (position light: LH) connector A-31, rear combination light (taillight: LH) connector F-20, rear side marker light (LH) connector F-40, license plate light (LH) connector F-13 and license plate light (RH) connector F-11 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

**Q: Is headlight assembly (position light: LH) connector A-31, rear combination light (taillight: LH) connector F-20, rear side marker light (LH) connector F-40, license plate light (LH) connector F-13 and license plate light (RH) connector F-11 in good condition?**

**YES** : Go to Step 3.

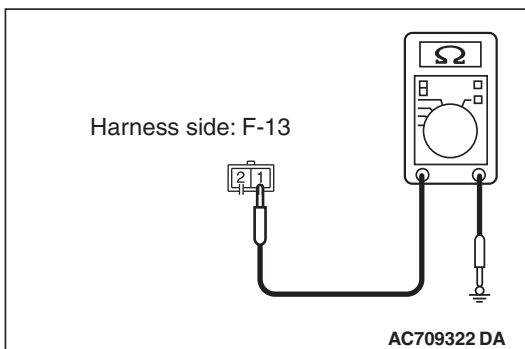
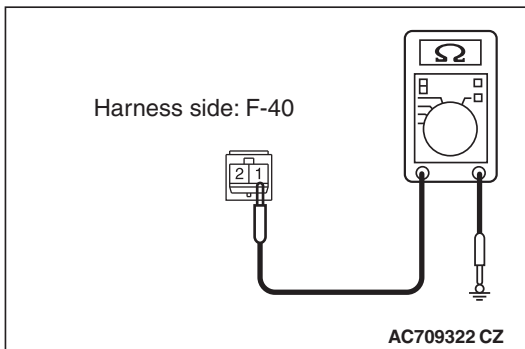
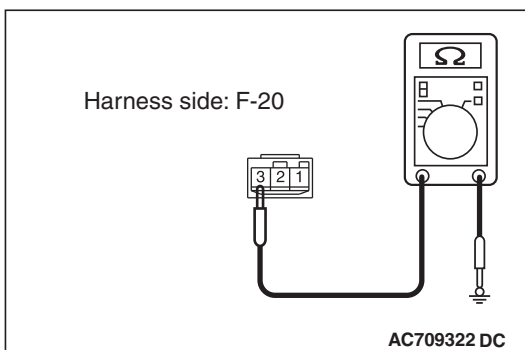
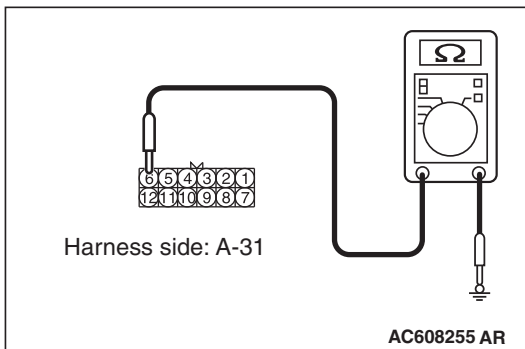
**NO** : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).

**STEP 3. Resistance measurement at headlight assembly (position light: LH) connector A-31, rear combination light (taillight: LH) connector F-20, rear side marker light (LH) connector F-40, license plate light (LH) connector F-13 and license plate light (RH) connector F-11.**

(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 (position light: LH) connector A-31 (terminal 6) and body ground.

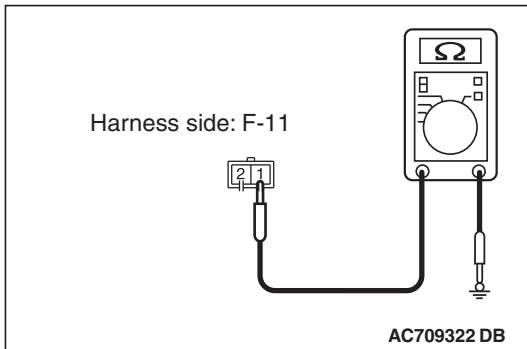


- Measure the resistance between the rear combination light (LH) connector F-20 (terminal 3) and the body ground.

- Measure the resistance between rear side marker light (LH) connector F-40 (terminal 1) and body ground.

- Measure the resistance between license plate light (LH) connector F-13 (terminal 1) and body ground.





- Measure the resistance between license plate light (RH) connector F-11 (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 5.

**NO :** Go to Step 4.

**STEP 4. Check the wiring harness between headlight assembly connector, rear combination light connector, rear side marker light connector or license plate light and the body ground.**

Check the ground line for open circuit.

- Check the wiring harness between headlight assembly (position light: LH) connector A-31 (terminal 6) and the body ground.
- Check the wiring harness between rear combination light (taillight: LH) connector F-20 (terminal 3) and the body ground.
- Check the wiring harness between rear side marker light (LH) connector F-4 (terminal 1) and the body ground.
- Check the wiring harness between license plate light (LH) connector F-13 (terminal 1) and the body ground.

*NOTE: Also check intermediate connector F-31 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-31 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.

*NOTE: Also check intermediate connector F-31 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-31 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 combination light connector, rear side marker light connector or license plate light and ground 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 ETACS-ECU connectors C-304 and C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is ETACS-ECU connectors C-304 and 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](#).

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**STEP 6. Check wiring harness between headlight assembly connector, rear combination light connector, rear side marker light connector or license plate light and ETACS-ECU connector.**

Check the power supply line for open circuit or short circuit.

- Check the wiring harness between headlight assembly (position light: LH) connector A-31 (terminal 4) and ETACS-ECU connector C-304 (terminal 3).
- Check the wiring harness between rear combination light (taillight: LH) connector F-20 (terminal 2) and ETACS-ECU connector C-311 (terminal 10).

*NOTE: Also check intermediate connectors 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 wiring harness between rear side marker light (LH) connector F-40 (terminal 2) 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 wiring harness between license plate light (LH) connector F-13 (terminal 2) and ETACS-ECU connector C-311 (terminal 10).

*NOTE: Also check intermediate connectors D-14 and F-30 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 or F-30 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 10).

*NOTE: Also check intermediate connectors D-14 and F-30 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 or F-30 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 combination light connector, rear side marker light connector or license plate light and ETACS-ECU connector 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. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.**

**⚠ CAUTION**

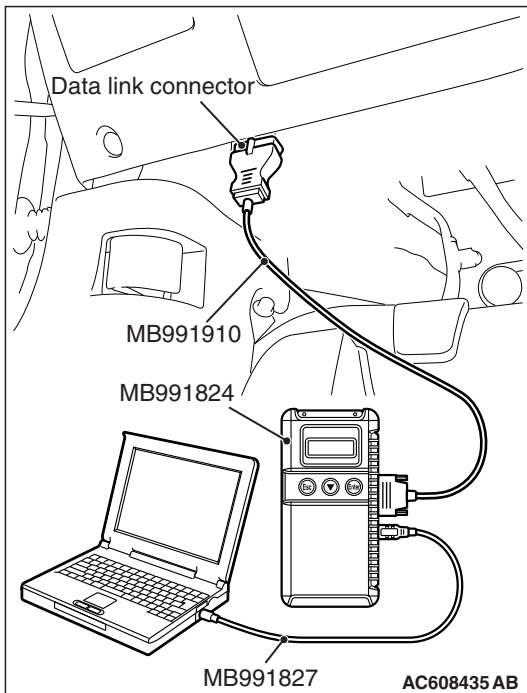
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-227."
- (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**

M1541401000306

Inspection Procedure No.	Trouble symptom	Reference page
1	None of taillights illuminates.	<a href="#">P.54A-244</a>
2	One of the taillights does not illuminate.	<a href="#">P.54A-246</a>

**SYMPTOM PROCEDURES**

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**Inspection Procedure 1: None of taillights illuminates.**

---

** CAUTION**

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

**TECHNICAL DESCRIPTION (COMMENT)**

If none of taillights illuminates, 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)

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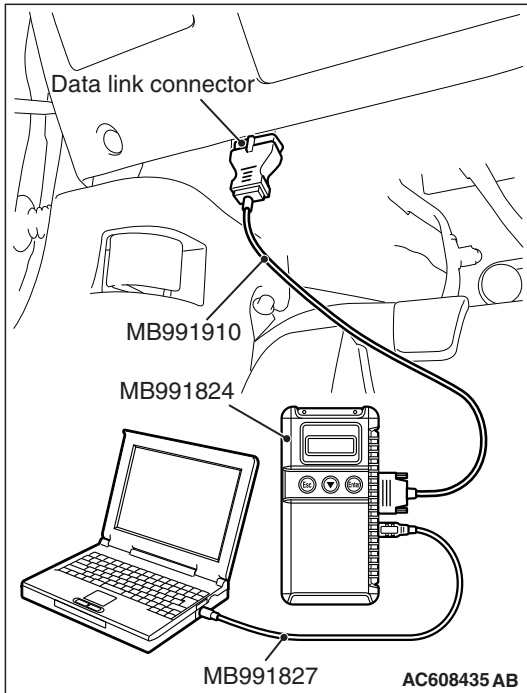
**STEP 1. License plate light operation check**

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 tool (M.U.T.-III) P.54A-227."
- (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-674.

**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 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-730).

**STEP 4. Retest the system**

Check that the taillight illuminates normally.

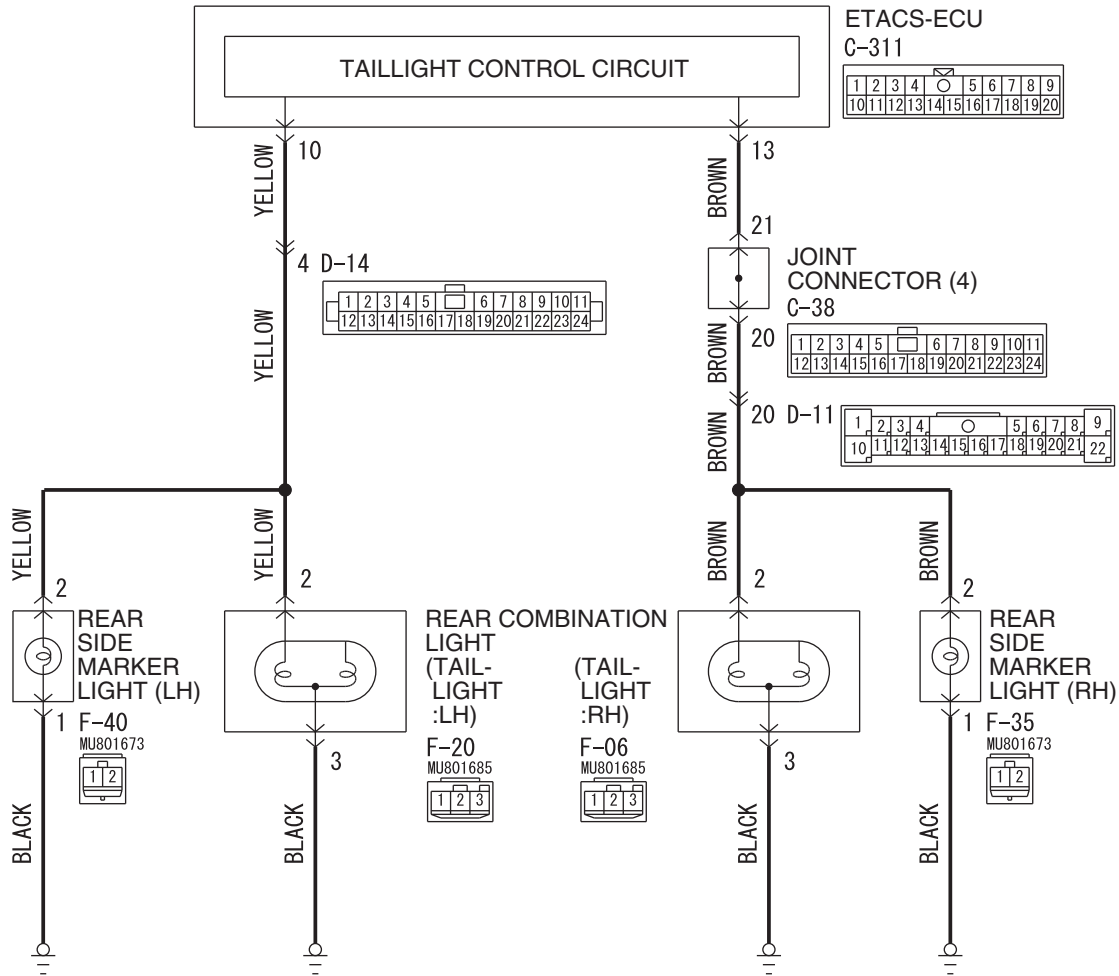
**Q: Does the taillight work normally?**

**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).

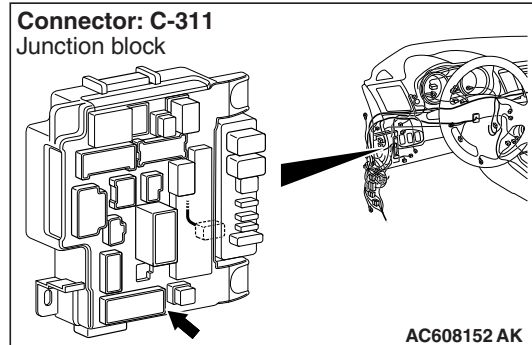
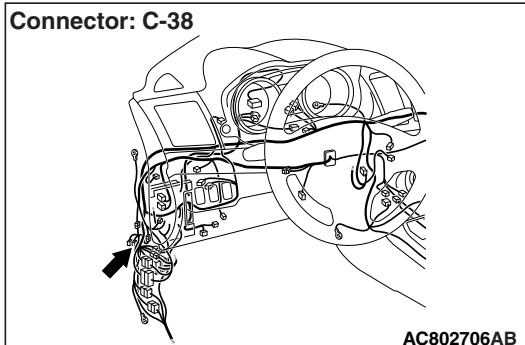
**NO :** Replace the ETACS-ECU.

Inspection Procedure 2: One of the taillights does not illuminate.

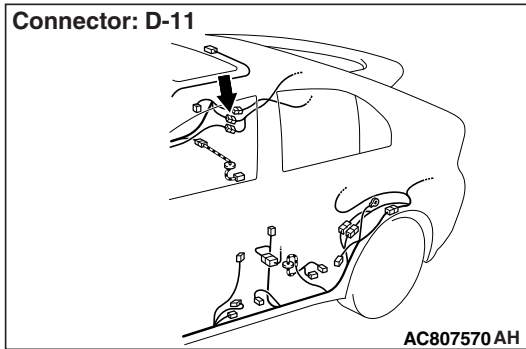
Taillight Circuit



WAS54M010A



Connector: D-11



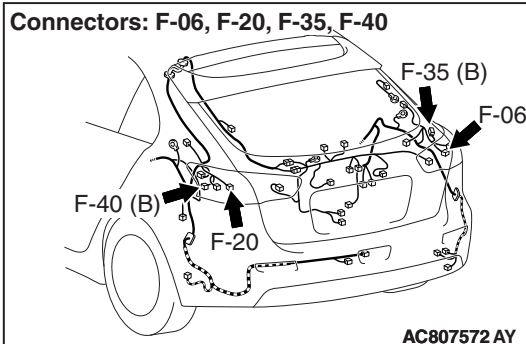
## TECHNICAL DESCRIPTION (COMMENT)

If one of the taillights does 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

Connectors: F-06, F-20, F-35, F-40



## 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 (taillight: LH) or F-06 (taillight: RH), rear side marker light connector F-40 (LH) or F-35 (RH) for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is rear combination light connector F-20 (taillight: LH) or F-06 (taillight: RH), rear side marker light connector F-40 (LH) or F-35 (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](#).

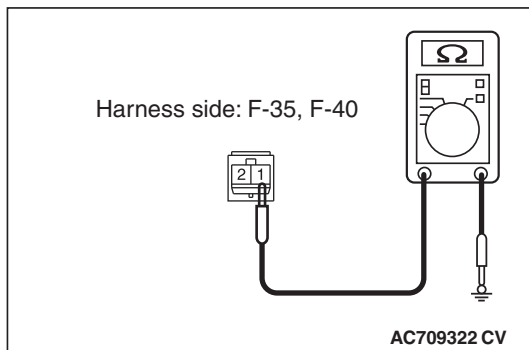
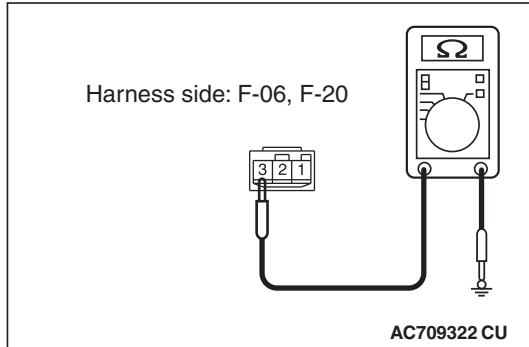
### STEP 2. Bulb check.

Check the bulb(s) of the light that does not illuminate.

**Q: Is the check result normal?**

**YES :** Go to Step 3.

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



**STEP 3. Resistance measurement at rear combination light connector F-20 (taillight: LH) or F-06 (taillight: RH), rear side marker light connector F-40 (LH) or F-35 (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 rear combination light connector F-20 (taillight: LH) or F-06 (taillight: RH) (terminal 3) and body ground.

- Measure the resistance between rear side marker light connector F-40 (LH) or F-35 (RH) (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 5.

**NO :** Go to Step 4.

**STEP 4. Check the wiring harness between rear combination light connector or rear side marker light connector and the body ground.**

Check the ground line for open circuit.

- Check the wiring harness between rear combination light connector F-20 (taillight: LH) (terminal 3) and the body ground.
- Check the wiring harness between rear combination light connector F-06 (taillight: RH) (terminal 3) and the body ground.
- Check the wiring harness between rear side marker light connector F-40 (LH) (terminal 1) and the body ground.
- Check the wiring harness between rear side marker light connector F-35 (RH) (terminal 1) and the body ground.

**Q: Is the wiring harness between rear combination light connector or rear side marker light connector and the body ground in good condition?**

**YES :** Go to Step 7.

**NO :** Repair the wiring harness.



---

**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 connector C-311 in good condition?**

**YES :** Go to Step 6.

**NO :** Repair the damaged parts.

---

**STEP 6. Check wiring harness between rear combination light connector or rear side marker light connector and ETACS-ECU connector.**

Check the power supply line for open circuit or short circuit.

- Check the wiring harness between rear combination light (taillight: LH) connector F-20 (terminal 2) and ETACS-ECU connector C-311 (terminal 10).

*NOTE: Also check intermediate connectors 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 wiring harness between rear combination light (taillight: RH) connector F-06 (terminal 2) 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 wiring harness between rear side marker light (LH) connector F-40 (terminal 2) 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 wiring harness between rear side marker light (RH) connector F-35 (terminal 2) and ETACS-ECU connector C-311 (terminal 13).

*NOTE: Also check intermediate connector D-11 and joint connector C-38 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-11 or joint connector C-38 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 or rear side marker light connector and ETACS-ECU connector in good condition?**

**YES :** Go to Step 7.

**NO :** Repair the wiring harness.

**STEP 7. Retest the system.**

Check that the taillight or rear side marker light illuminate normally.

**Q: Do the taillight or rear side marker light work normally?**

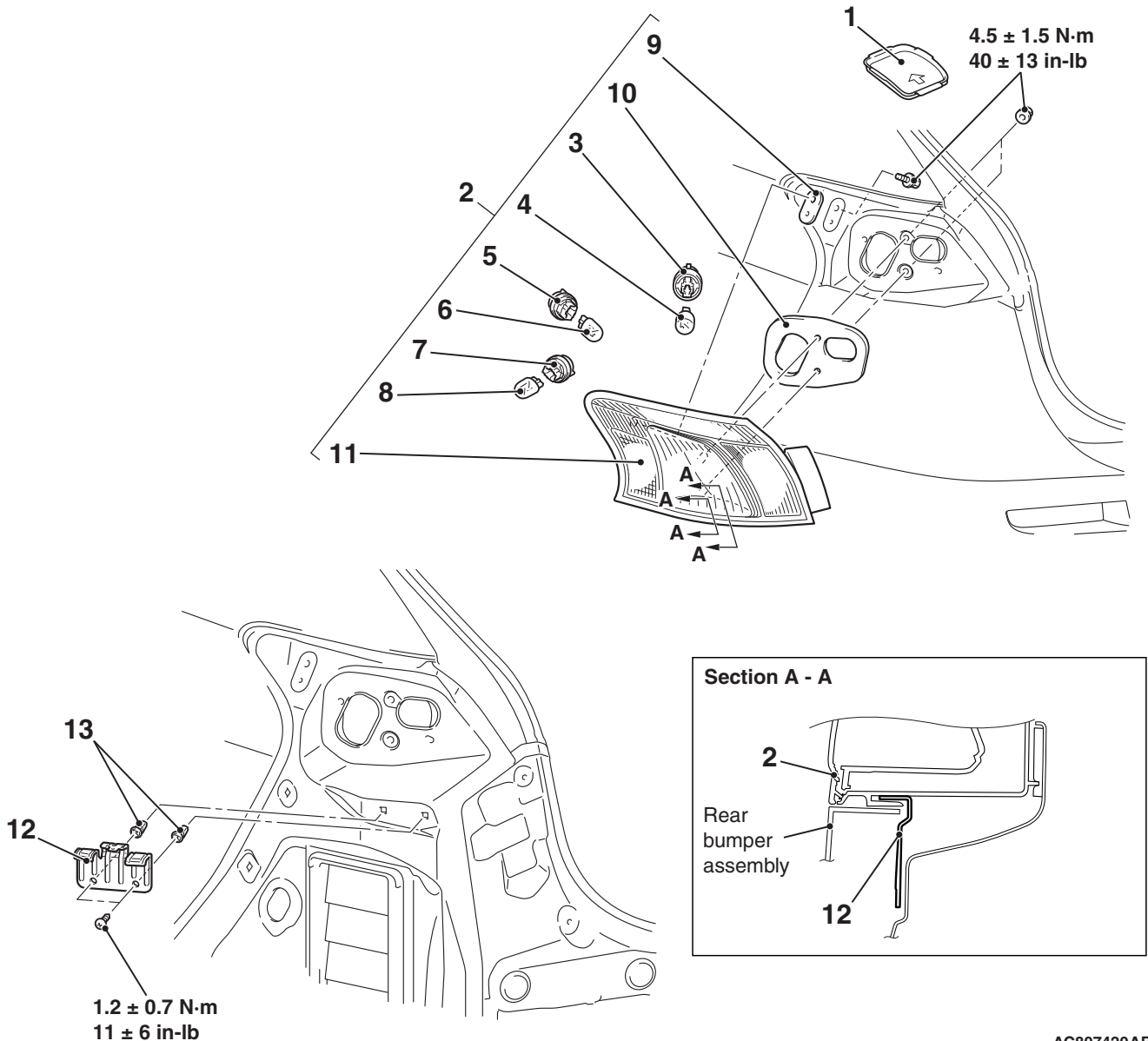
**YES (The light illuminate normally.)** : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

**NO <When the rear combination light (taillight) do not illuminate>** : Replace the rear combination light socket.

**NO <When the rear side marker light do not illuminate>** : Replace the rear side marker light socket.

**REAR COMBINATION LIGHT REMOVAL AND INSTALLATION**

M1541402200369



AC807420AB

**Rear combination light removal steps**

**Rear combination light removal steps (Continued)**

<<A>>

1. Rear combination light lid
- Stop/taillight connector and rear turn-signal light connector
2. Rear combination light assembly
3. Socket (stop/taillight)
4. Bulb (stop/taillight)
5. Socket (rear turn-signal light)
6. Bulb (rear turn-signal light)
7. Socket (rear side-marker light)
8. Bulb (rear side-marker light)

9. Gasket
10. Gasket
11. Rear combination light unit

**Rear combination light bracket removal steps**

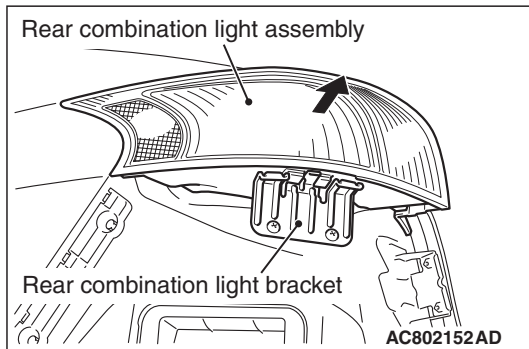
>>A<<

- Rear bumper assembly (Refer to GROUP 51, Rear bumper assembly P.51-9).
12. Rear combination light bracket
  13. Grommet

**REMOVAL SERVICE POINT**

**<<A>> REAR COMBINATION LIGHT ASSEMBLY REMOVAL**

Remove the rear combination light assembly by pulling it toward a diagonal rear direction.



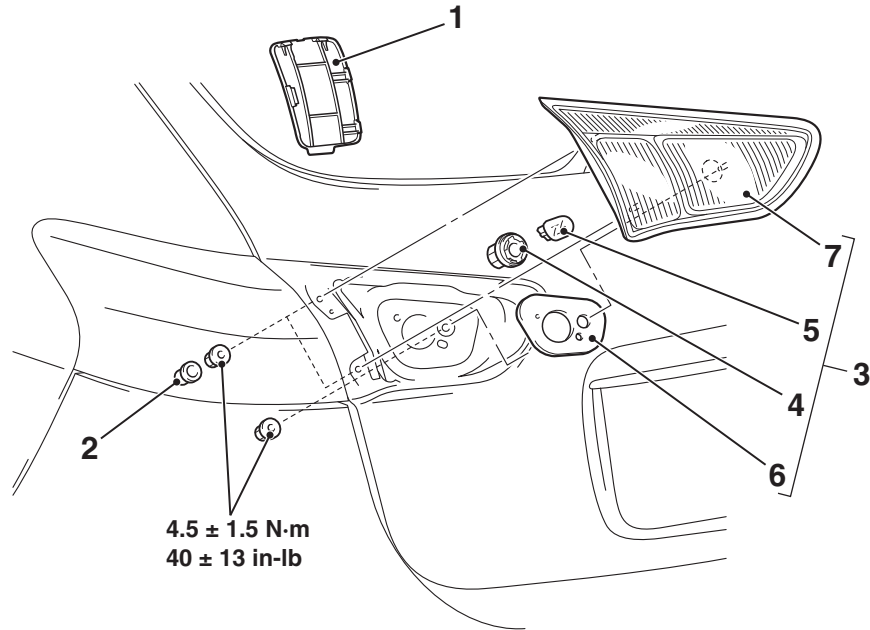
**INSTALLATION SERVICE POINT**

**>>A<< REAR COMBINATION LIGHT BRACKET INSTALLATION**

1. Temporarily fix the rear combination light bracket.
2. Install the rear combination light assembly to the specified torque.
3. Install the rear combination light bracket to the specified torque.

TAILLIGHT REMOVAL AND INSTALLATION

M1541402600174



AC802258AD

**Removal Steps**

1. Liftgate lower trim lid (Refer to GROUP 52A, Liftgate Trim P.52A-17).
2. Cap

**Removal Steps (Continued)**

3. Taillight assembly
4. Socket
5. Bulb (back-up light)
6. Gasket
7. Taillight unit

**FOG LIGHT**

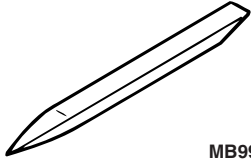
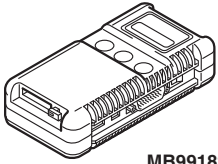
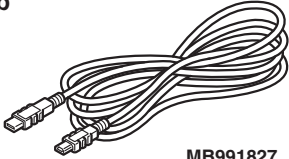
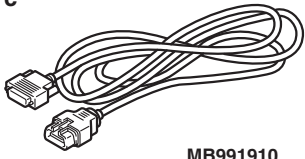
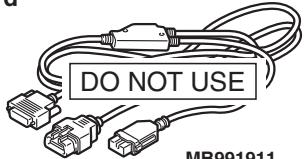
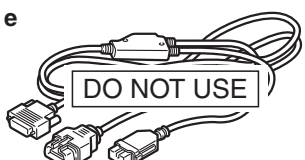
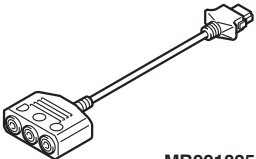

**SERVICE SPECIFICATIONS**


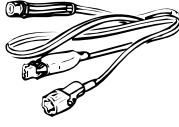
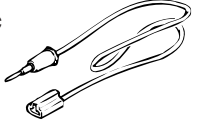

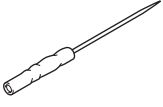
M1540400900091

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
 <p>MB990784</p>	<p>MB990784 Ornament remover</p>	<p>General service tool</p>	<p>Removal of front fog light bezel</p>
<p>a</p>  <p>MB991824</p> <p>b</p>  <p>MB991827</p> <p>c</p>  <p>MB991910</p> <p>d</p>  <p>MB991911</p> <p>e</p>  <p>MB991914</p> <p>f</p>  <p>MB991825</p> <p>g</p>  <p>MB991826 MB991958</p>	<p>MB991958</p> <p>a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826</p> <p>M.U.T.-III sub-assembly</p> <p>a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable c. M.U.T.-III main harness A (Vehicles with CAN communication system) d. M.U.T.-III main harness B (Vehicles without CAN communication system) e. M.U.T.-III main harness C (for Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness</p>	<p>MB991824-KIT</p> <p><i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i></p>	<p><b>⚠ CAUTION</b></p> <p><b>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.</b></p> <p>DTC, data list and actuator test check.</p>

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

## DIAGNOSIS

### STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1540401700012

Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, Troubleshooting Contents [P.00-6](#).

### DIAGNOSTIC FUNCTION

M1540403000042

### 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**

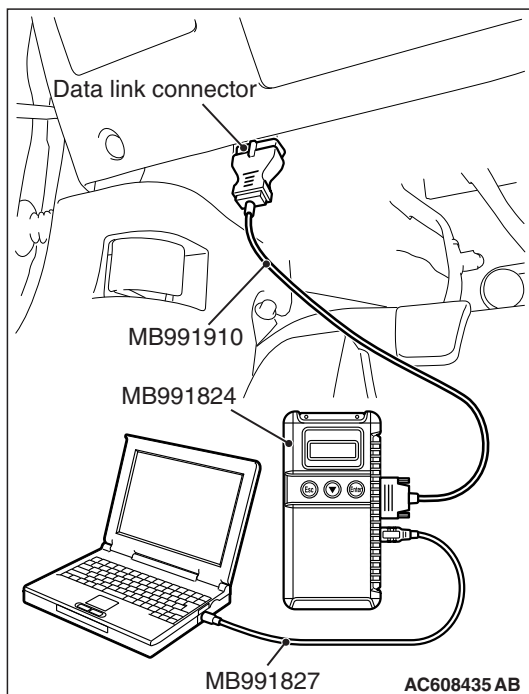
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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" to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

**TROUBLE SYMPTOM CHART**

M1540401000273

Inspection Procedure No.	Trouble symptom	Reference page
1	None of the front fog lights illuminates.	<a href="#">P.54A-257</a>
2	One of the front fog lights does not illuminate.	<a href="#">P.54A-263</a>
3	The front fog light indicator does not illuminate normally.	<a href="#">P.54A-267</a>



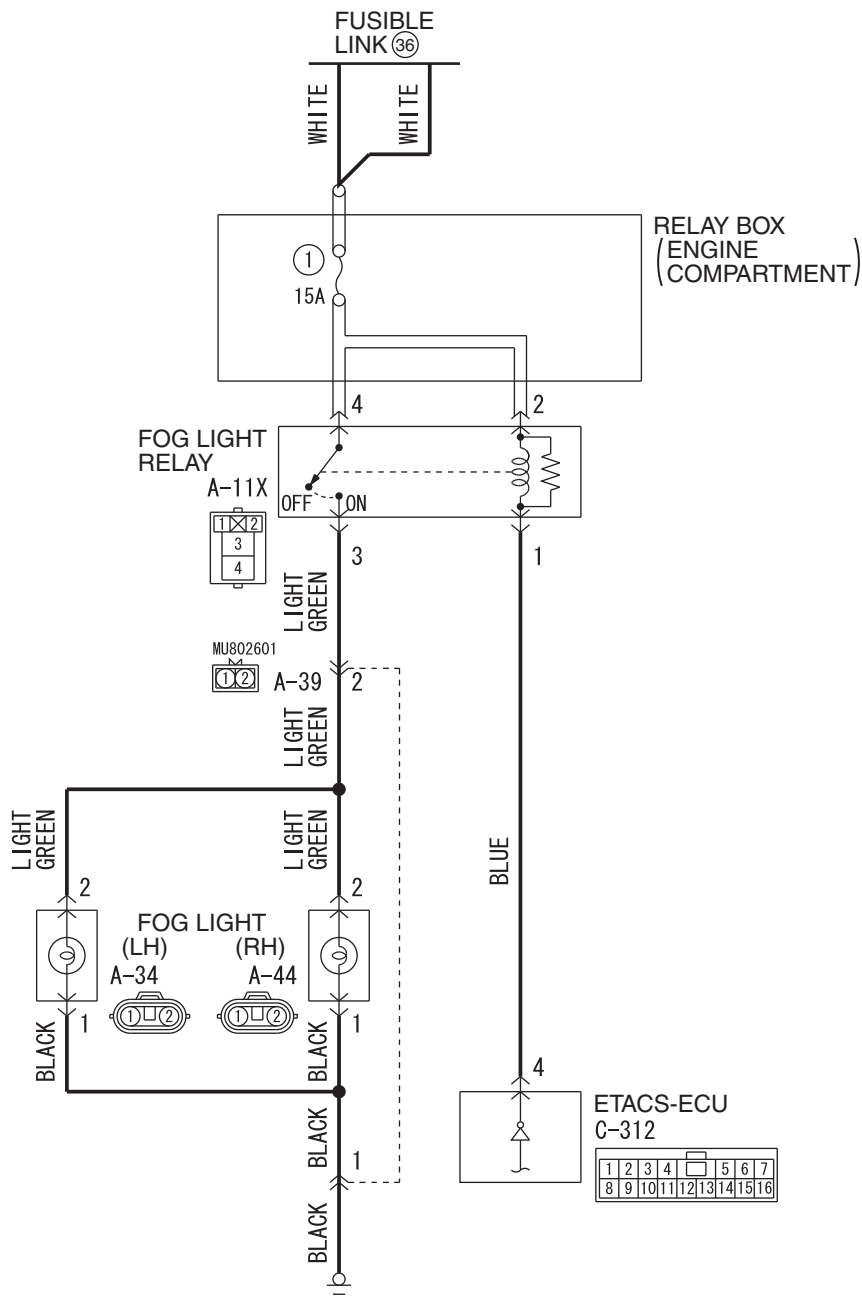
SYMPTOM PROCEDURES

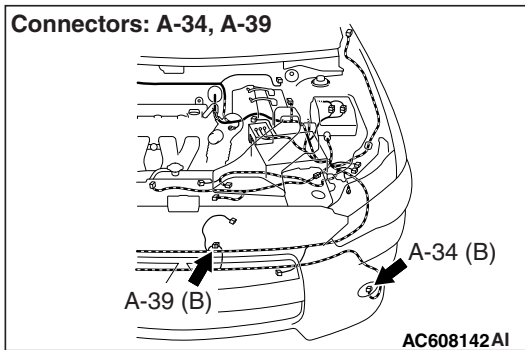
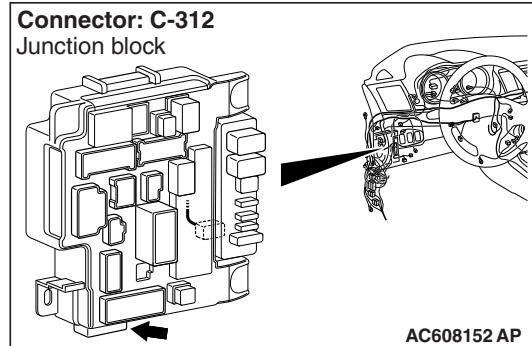
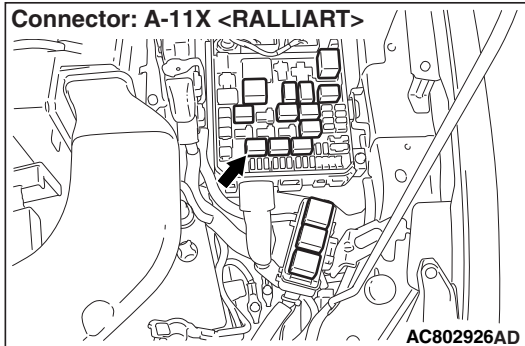
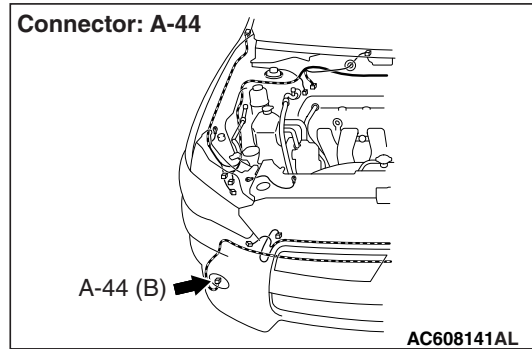
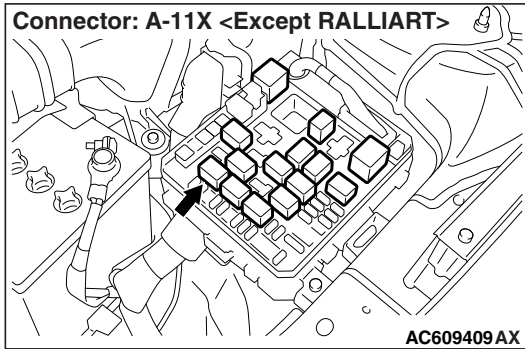
Inspection Procedure 1: None of the front fog lights illuminates.

**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





## CIRCUIT OPERATION

When none of the front fog lights illuminates, the mentioned input signal circuit(s) or 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.

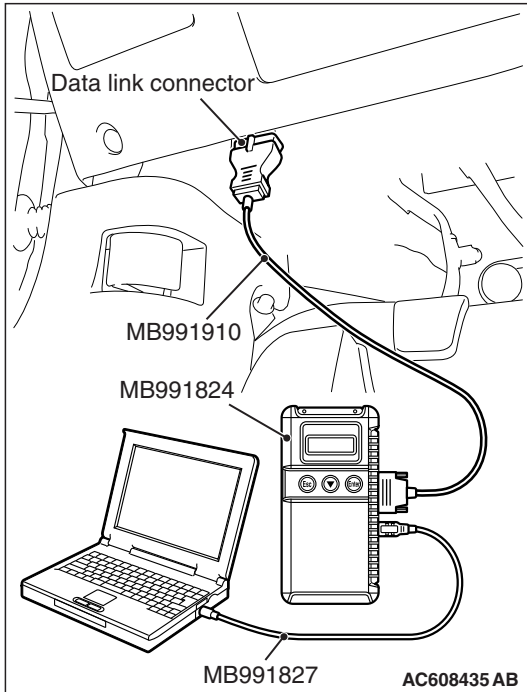
## TROUBLESHOOTING HINTS

- 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 tool (M.U.T.-III) P.54A-255."
- (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.00-28).
- (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-154).

**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-674).

**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 11 "ETACS-ECU does not receive any signal from the column switch signal." [P.54A-730](#).

**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-274](#).

**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.

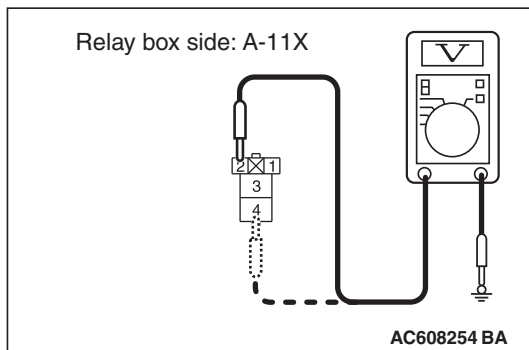
- (1) Disconnect fog light relay connector A-11X and measure the voltage available at the relay box side of the connector.
- (2) Measure the voltage between terminal 2 and ground, and between terminal 4 and ground.

- 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 (terminal 2) 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-34 (terminal 2) or fog light (RH) connector A-44 (terminal 2) 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 (terminal 1) 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 (terminal 1) or fog light (RH) connector A-44 (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.**

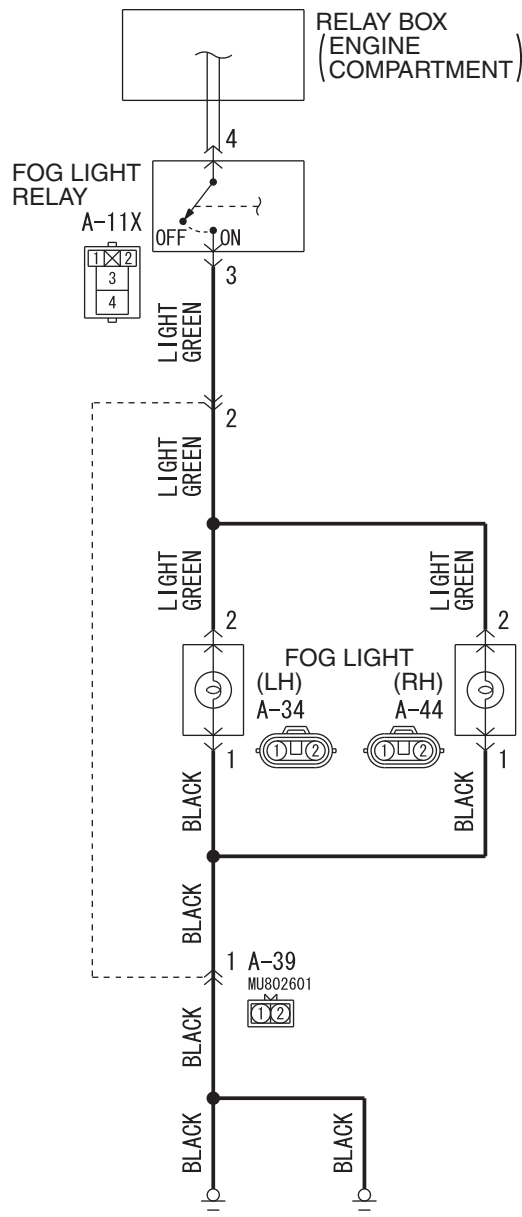
**Q: Does the fog lights illuminate in good condition?**

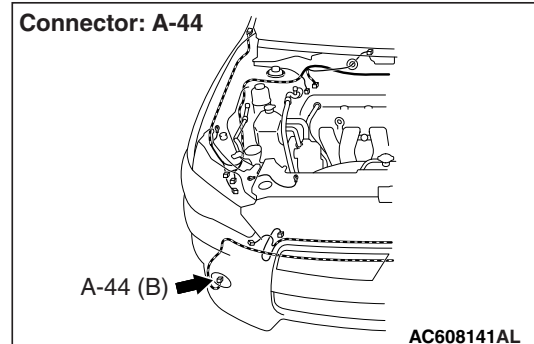
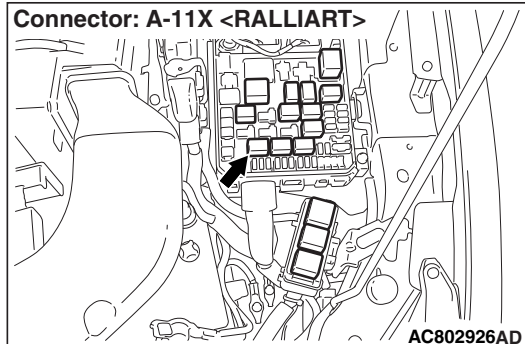
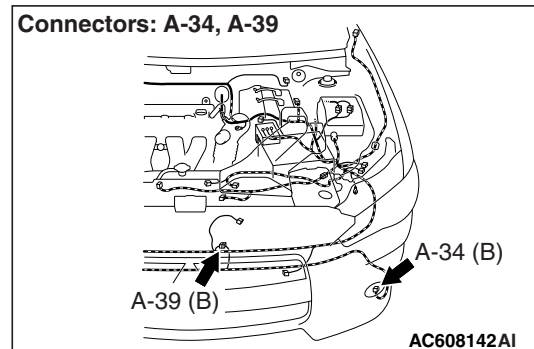
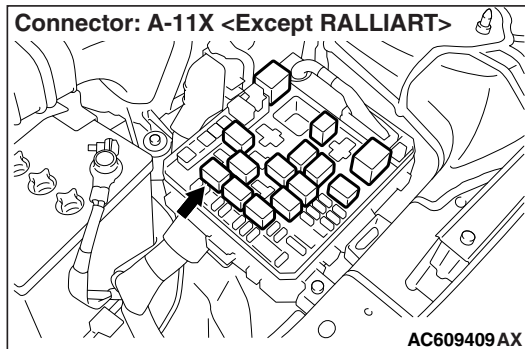
**YES :** The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

**NO :** Replace the ETACS-ECU.

**Inspection Procedure 2: One of the front fog lights does not illuminate.**

Fog Light Circuit





### TECHNICAL DESCRIPTION (COMMENT)

If one 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) connector 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) connector 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.

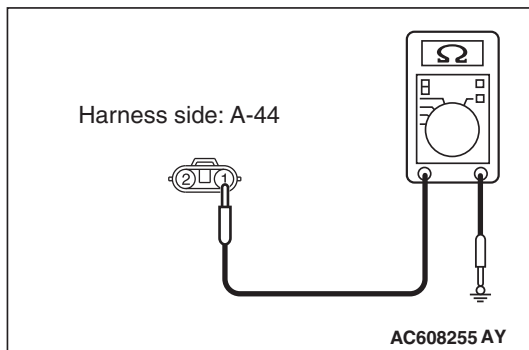
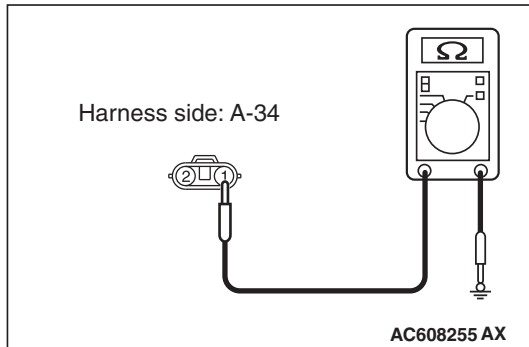
(2) Verify that the fog light bulb is not damaged or burned out.

**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 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 fog light (LH) connector A-34 (terminal 1) 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 (terminal 1) 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 (terminal 2) 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 (terminal 2) 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?**

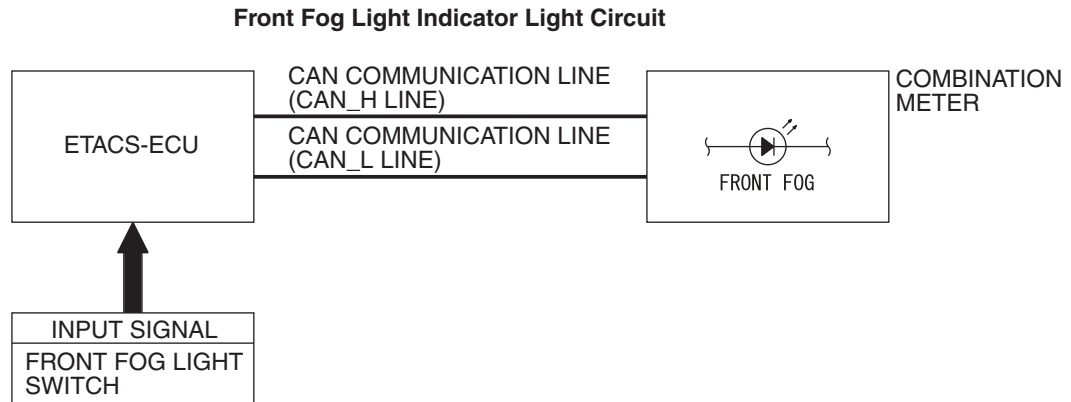
**YES :** The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction [P.00-13](#)).

**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.



W4X54E035A

**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

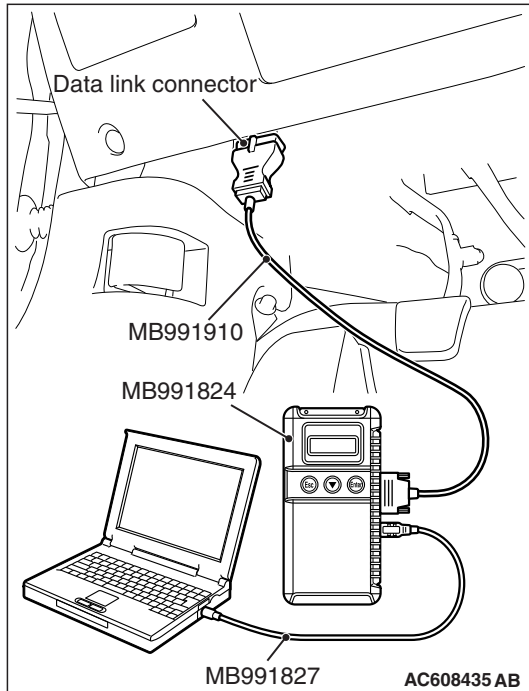
**STEP 1. Check the fog lights.**

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 "One of the front fog lights does not illuminate [P.54A-263](#)."



**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-255."
- (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-33).

**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-73).
- (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.

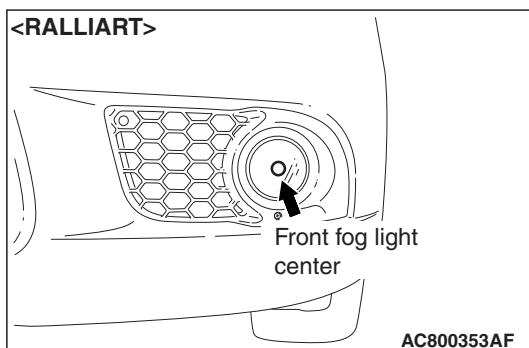
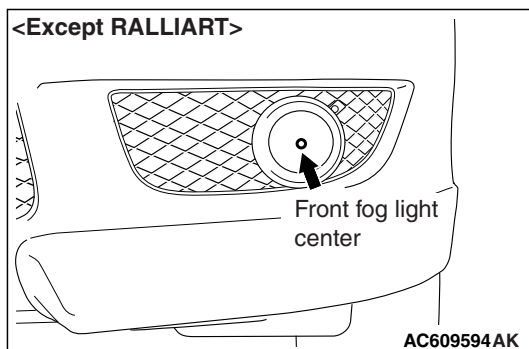
## ON-VEHICLE SERVICE

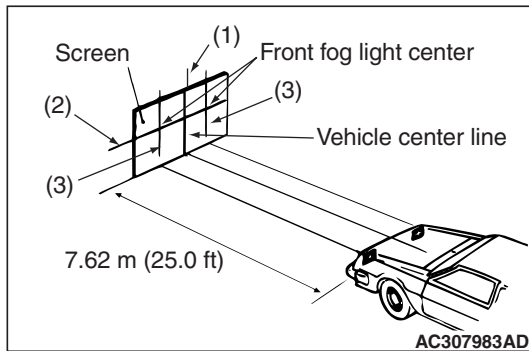
### FRONT FOG LIGHT AIMING

M1540400300572

#### 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)**

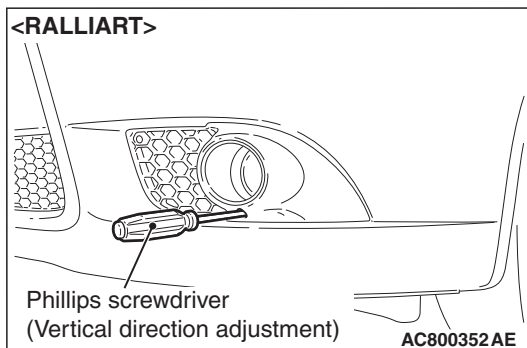
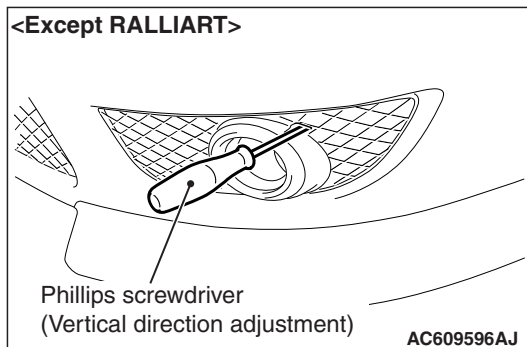
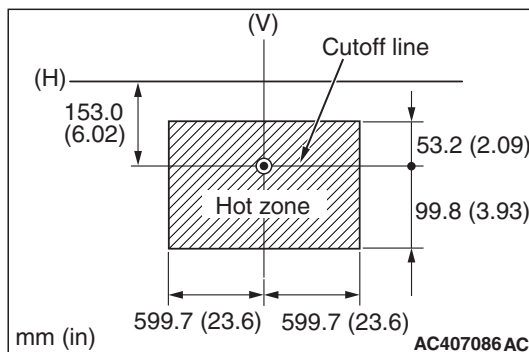
#### Limit:

**(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)  $\pm$  599.7 mm ( $\pm$  23.6 inches) ( $\pm$  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.*



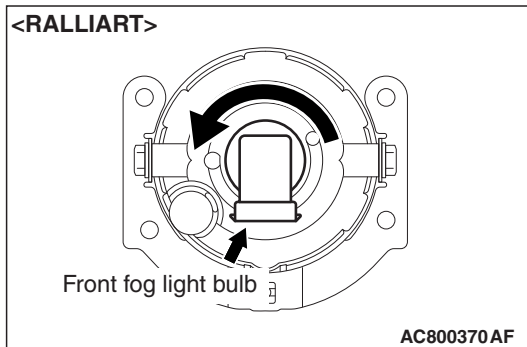
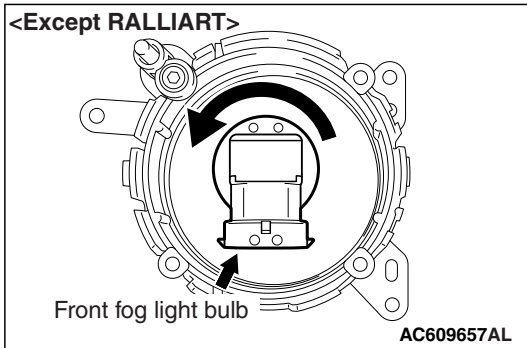
## BULB REPLACEMENT

M1540400400591

### 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.

1. Remove the front fog light bezel and the front fog light assembly. (Refer to [P.54A-272.](#))
2. Disconnect the connector and withdraw the bulb.
3. After replacing the bulb, securely connect the connector, and install the front fog light assembly and the front fog light bezel.

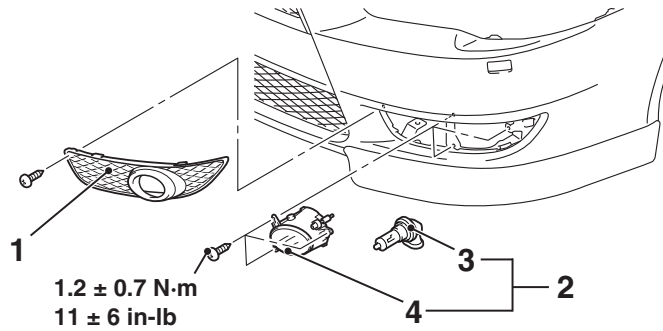


REMOVAL AND INSTALLATION

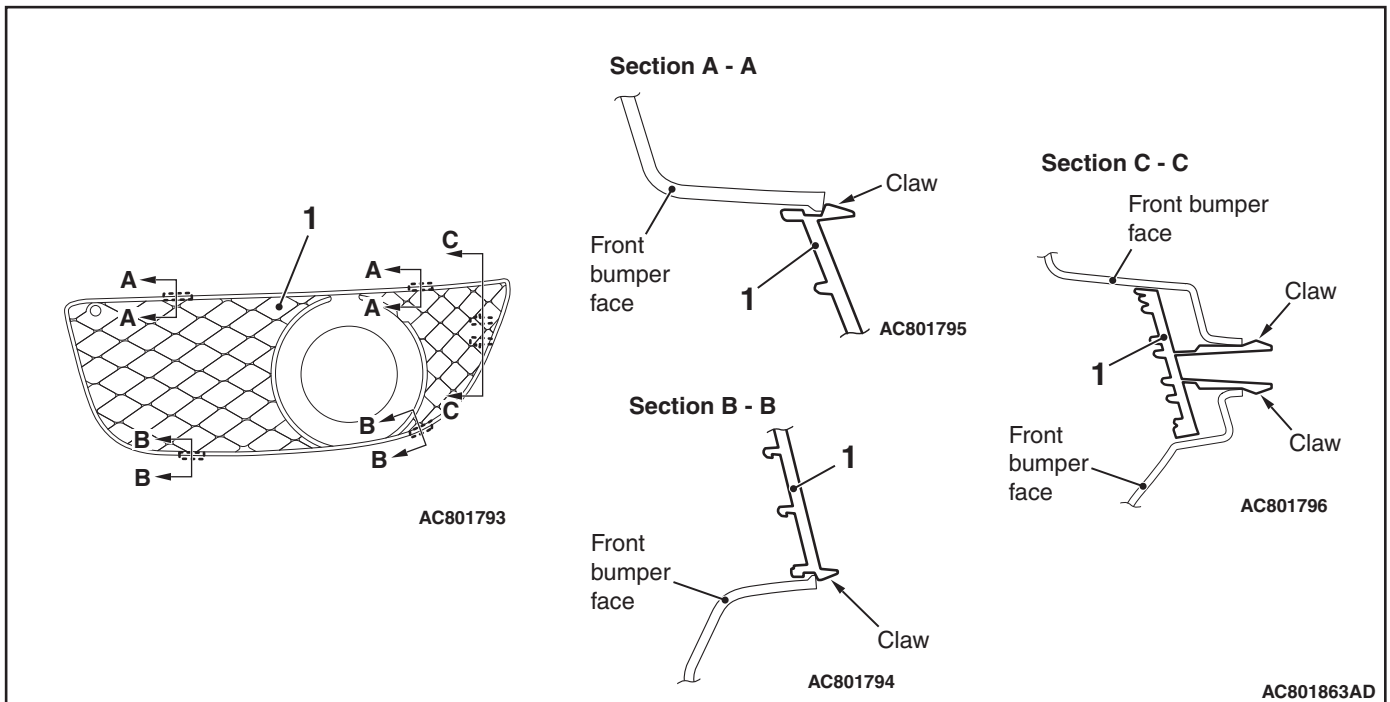
<EXCEPT RALLIART>

**Post-installation operation**

Check the beam direction of the front fog light (Refer to Front Fog light Aiming P.54A-269).



AC609818AB



**Removal steps**

1. Front fog light bezel
2. Fog light assembly

**Removal steps (Continued)**

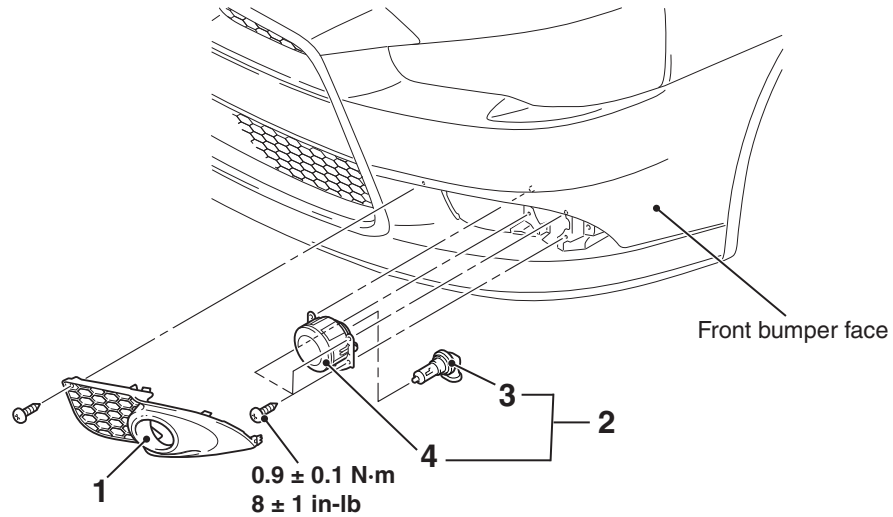
3. Front fog light bulb
4. Front fog light unit



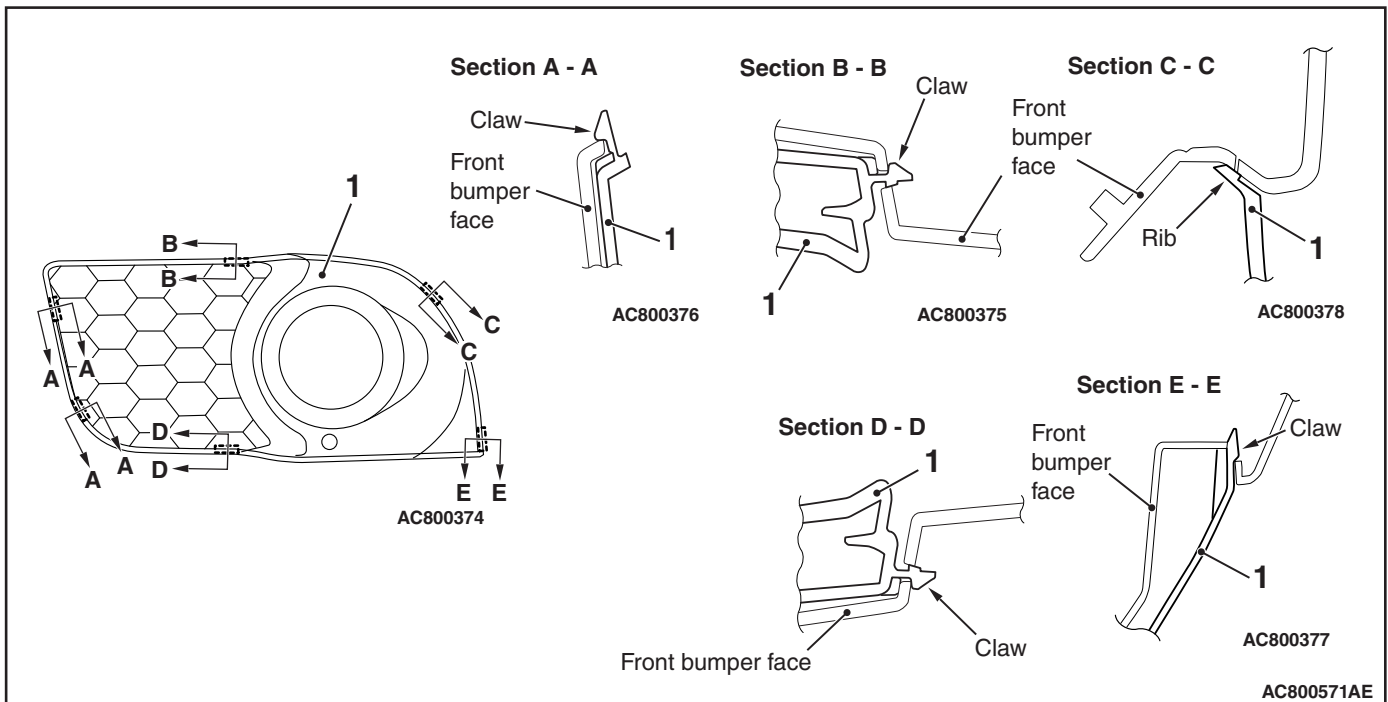
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**Post-installation operation**

Check the beam direction of the front fog light (Refer to Front Fog light Aiming P.54A-269).



AC800354AE



**Removal steps**

1. Front fog light bezel
2. Fog light assembly

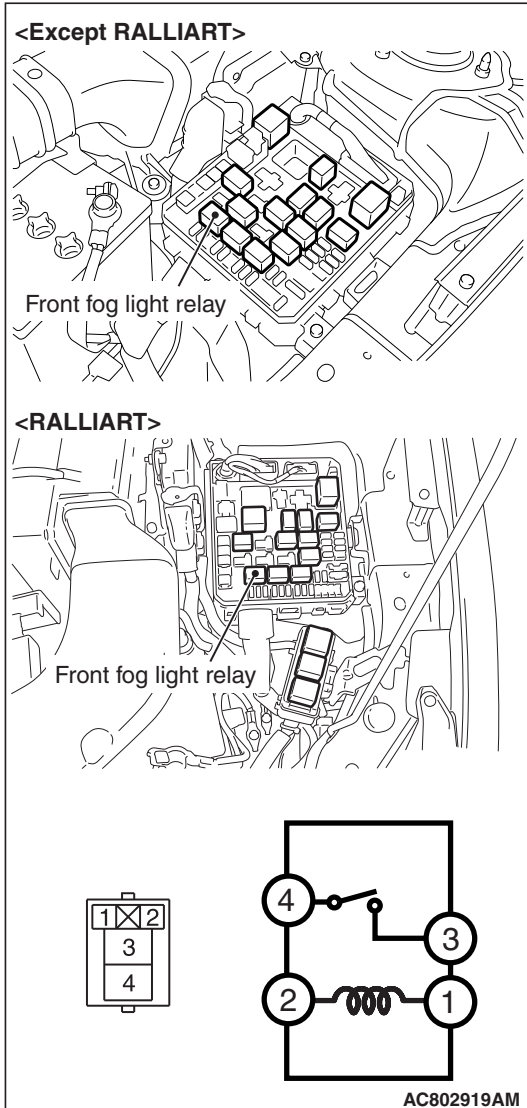
**Removal steps (Continued)**

3. Front fog light bulb
4. Front fog light unit

INSPECTION

FRONT FOG LIGHT RELAY CHECK

M1540400700161

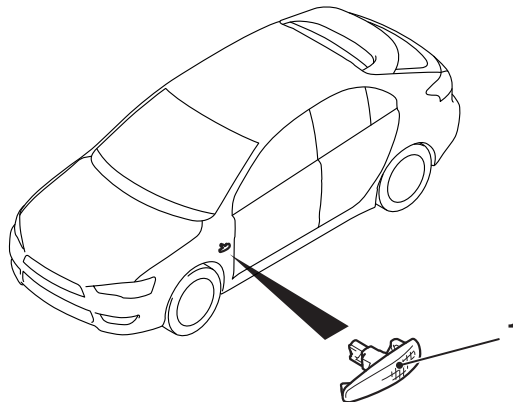


Battery voltage	Terminal number	Normal conditions
Not energized	3 -4	No continuity
With current supply [terminal 2 (+), terminal 1 (-)]		Continuity exists (2 ohms or less)

# SIDE TURN-SIGNAL LIGHT

## REMOVAL AND INSTALLATION

M1541800200372



AC802267AD

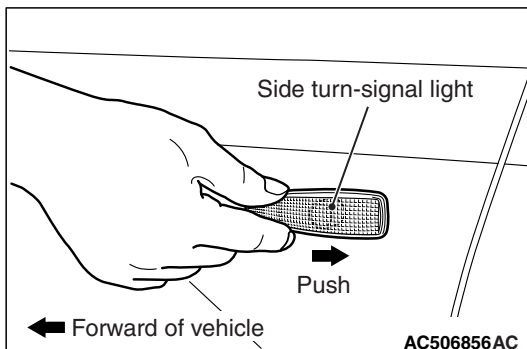
### Removal step

- <<A>> >>A<< 1. Side turn-signal light assembly

### REMOVAL SERVICE POINT

#### <<A>> SIDE TURN-SIGNAL LIGHT REMOVAL

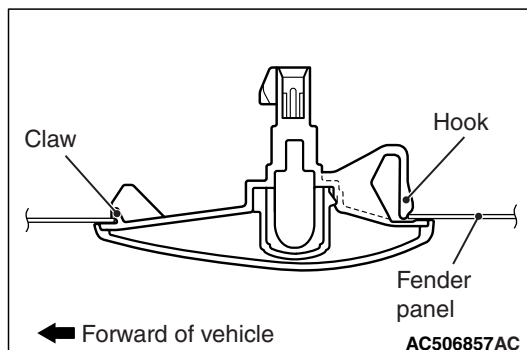
Push the side turn-signal light toward the vehicle rear to bend the hook, and then remove by disengaging the tab from the fender panel.



### INSTALLATION SERVICE POINT

#### >>A<< SIDE TURN-SIGNAL LIGHT INSTALLATION

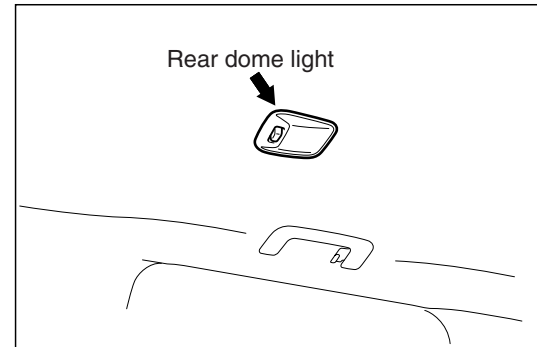
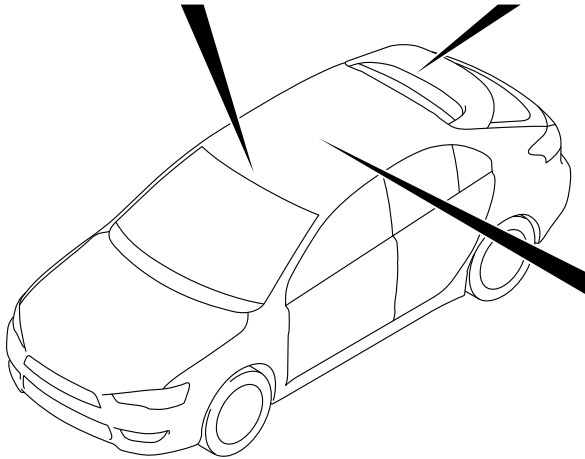
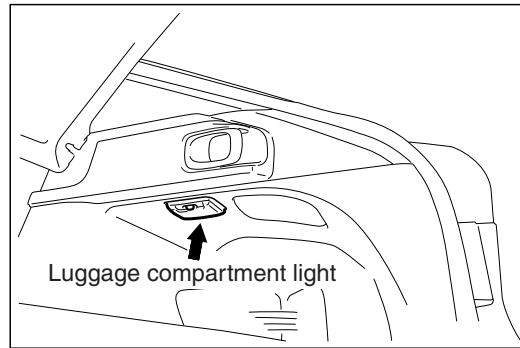
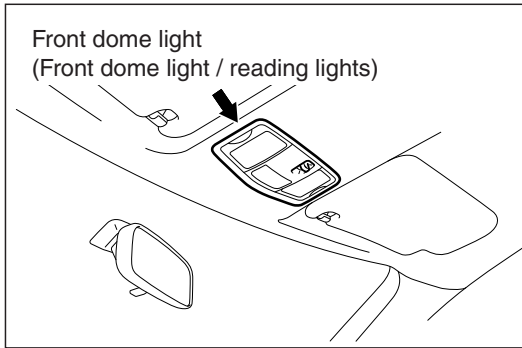
Engage the claw to the fender panel to install the side turn signal light.



## DOME LIGHT

## GENERAL INFORMATION

M1542000100651

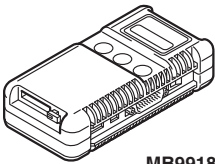
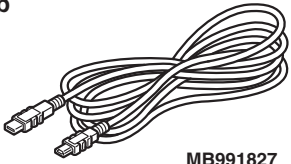
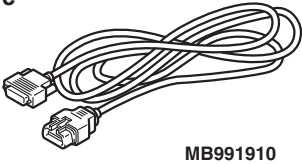
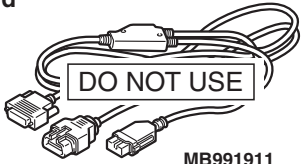
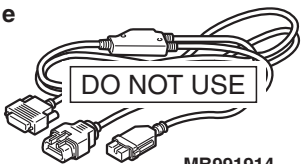
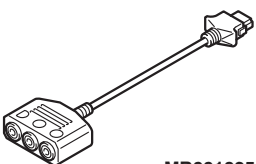
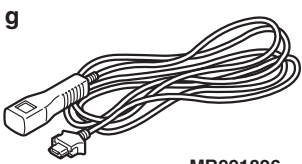



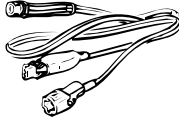
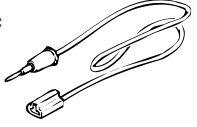
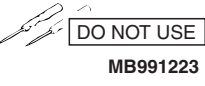
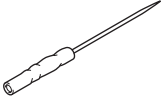
AC802092AC

- A front dome light, installed to the front part of the roof, has been equipped with the lens-push type front dome light / reading 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.
- The rear dome light, which illuminates the rear passenger's seat, is installed above the rear seat. <Vehicle without sunroof>
- The luggage compartment light that illuminates the luggage compartment has been installed to the quarter trim lower (RH).

SPECIAL TOOLS

M1541301600088

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

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

## 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

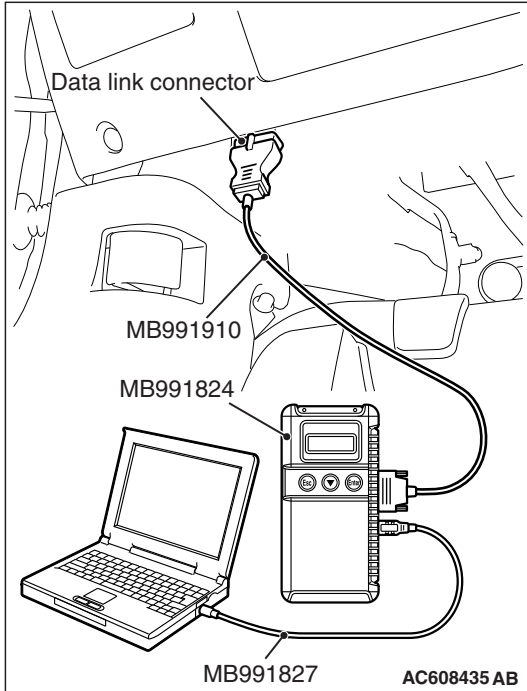
M1541302100053

### 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" to read the DTC.
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-280
2	The rear dome light does not illuminate normally.	P.54A-286
3	The luggage compartment light does not illuminate normally.	P.54A-291
4	The interior light auto-cut function does not operate correctly.	P.54A-296

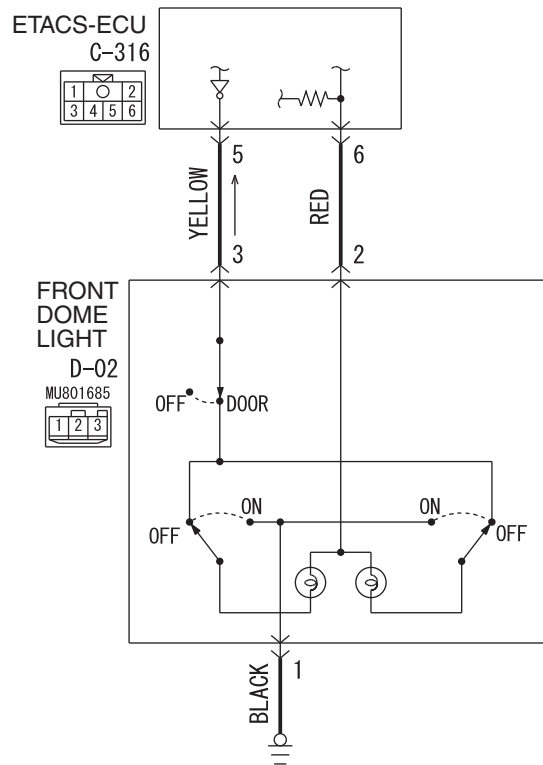
SYMPTOM PROCEDURES

Inspection Procedure 1: The front dome light does not illuminate normally.



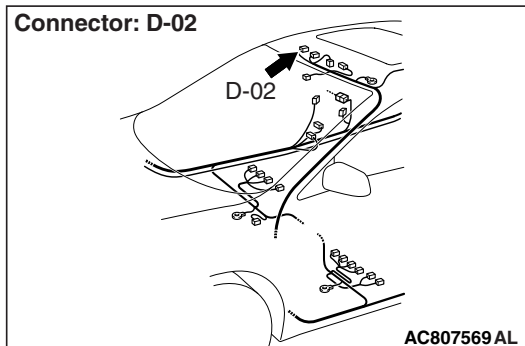
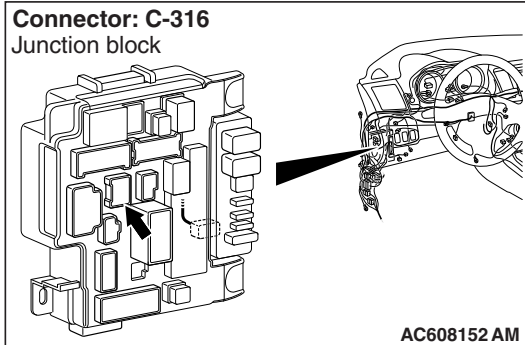
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Front Dome Light Circuit



W8G54M040A





## TROUBLE JUDGMENT

The ETACS-ECU illuminates and extinguishes the front room 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), 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)

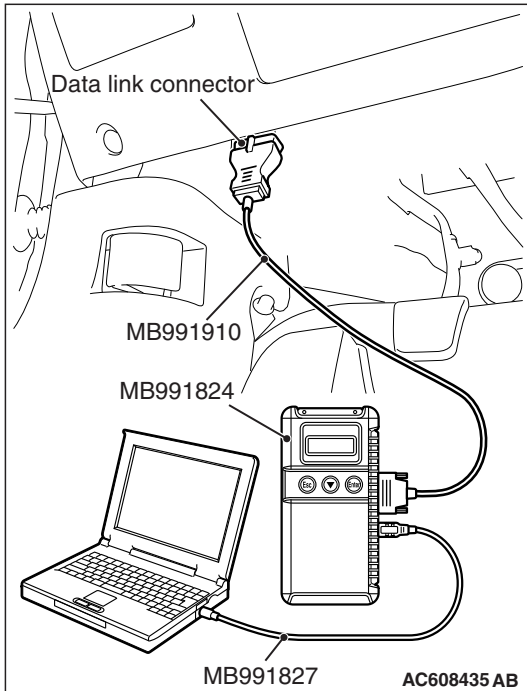
### STEP 1. Rear dome light operation check.

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 tool (M.U.T.-III) P.54A-278."
- (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-674.

**NO :** Go to Step 3.

**STEP 3.** Check whether the front dome light illuminates.

When the front dome light switch is turned to the "DOOR" or "ON" position, check that the front dome light illuminates.

**Q: Does the front dome light illuminate?**

**The light does not illuminate at the "DOOR" position. :**  
Go to Step 4.

**The light does not illuminate at the "ON" position. :** Go to Step 7.

**The light illuminates at neither the "DOOR" nor "ON" position. :** Got to Step 9.

**STEP 4. 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	1 V or less
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 5.

**NO** : (Normal condition is not displayed.) Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis, Input signal chart [P.54A-730](#).

**STEP 5. Check front dome light connector D-02 and ETACS-ECU connector C-316 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is front dome light connector D-02 or ETACS-ECU connector C-316 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 front dome light connector D-02 (terminal 3) and ETACS-ECU connector C-316 (terminal 5)**

Check the output lines for open circuit and short circuit.

**Q: Are wiring harness between front dome light connector D-02 (terminal 3) and ETACS-ECU connector C-316 (terminal 5) 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 7. 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 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 front dome light connector D-02 (terminal 1) and body ground.**

Check the ground lines for open circuit.

**Q: Are wiring harness between front dome light connector D-02 (terminal 1) and body 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 9. 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 10.

**NO :** Replace the front dome light bulb.

---

**STEP 10. Check front dome light connector D-02 and ETACS-ECU connector C-316 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is front dome light connector D-02 or ETACS-ECU connector C-316 in good condition?**

**YES :** Go to Step 11.

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

---

**STEP 11. Check the wiring harness between front dome light connector D-02 (terminal 2) and ETACS-ECU connector C-316 (terminal 6)**

Check the input lines for open circuit and short circuit.

**Q: Are wiring harness between front dome light connector D-02 (terminal 2) and ETACS-ECU connector C-316 (terminal 6) 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 12. 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.

---

**STEP 13. Retest the system**

Check that the front dome light illuminates and extinguishes normally.

**Q: Do the front dome light work normal?**

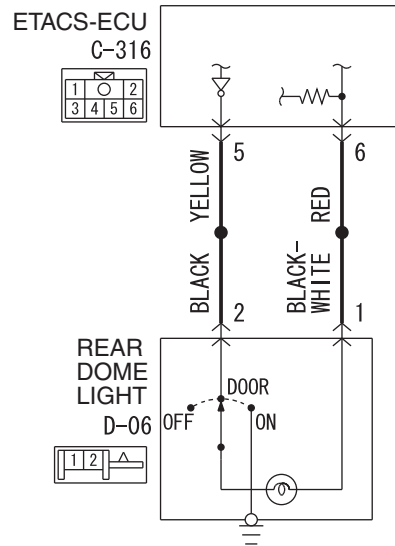
**YES :** The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction [P.00-13](#)).

**NO :** Replace the front dome light.

**Inspection Procedure 2: The rear dome light does not illuminate normally.****CAUTION**

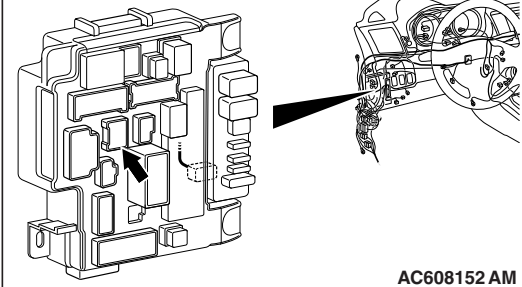
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Rear Dome Light Circuit



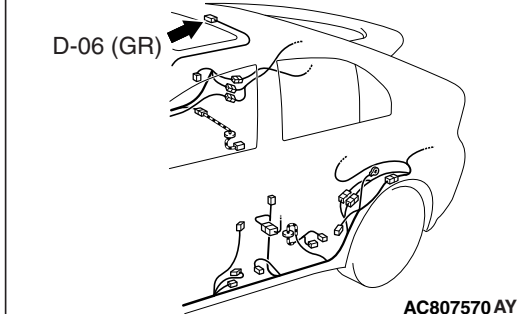
W8G54M041A

**Connector: C-316**  
Junction block



AC608152 AM

**Connector: D-06**



AC807570 AY

**TROUBLE JUDGMENT**

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 (LH)
- 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

## 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**

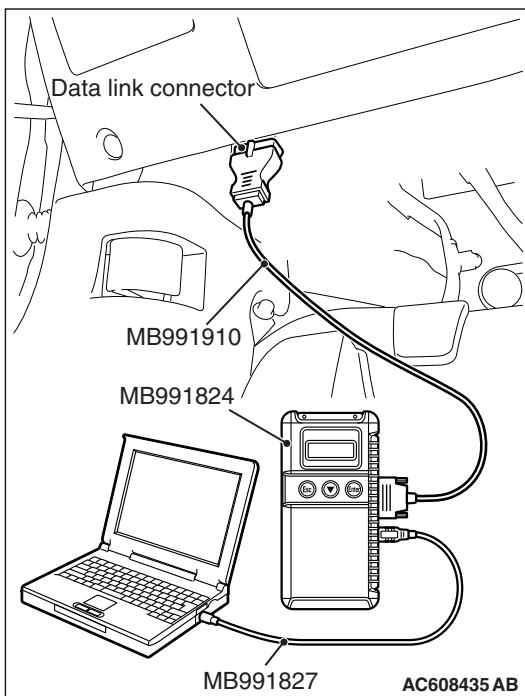
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-278."
- (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-674.

**NO** : Go to Step 3.



**STEP 3. Check whether the rear dome light illuminates.**  
When the rear dome light switch is turned to the "DOOR" or "ON" position, check that the rear dome light illuminates.

**Q: Does the rear dome light illuminate?**

**The light does not illuminate at the "DOOR" position. :**

Go to Step 4.

**The light does not illuminate at the "ON" position. :**

Replace the rear dome light.

**The light illuminates at neither the "DOOR" nor "ON" position. :** Got to Step 7.

**STEP 4. 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	1 V or less
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 5.

**NO :** (Normal condition is not displayed.) Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis, Input signal chart [P.54A-730](#).

**STEP 5. Check rear dome light connector D-06 and ETACS-ECU connector C-316 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is rear dome light connector D-06 or ETACS-ECU connector C-316 in good condition?**

**YES :** Go to Step 6.

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



---

**STEP 6. Check the wiring harness between rear dome light D-06 connector (terminal 2) and ETACS-ECU connector C-316 (terminal 5)**

Check the output lines for open circuit and short circuit.

**Q: Is wiring harness between rear dome light D-06 connector (terminal 2) and ETACS-ECU connector C-316 (terminal 5) in good condition?**

**YES :** Go to Step 10.

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

---

**STEP 7. 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 8.

**NO :** Replace the rear dome light bulb.

---

**STEP 8. Check rear dome light connector D-06 and ETACS-ECU connector C-316 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is rear dome light connector D-06 or ETACS-ECU connector C-316 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 rear dome light D-06 connector (terminal 1) and ETACS-ECU connector C-316 (terminal 6)**

Check the input lines for open circuit and short circuit.

**Q: Is wiring harness between rear dome light D-06 connector (terminal 1) and ETACS-ECU connector C-316 (terminal 6) 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 10. 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.

---

**STEP 11. 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](#)).

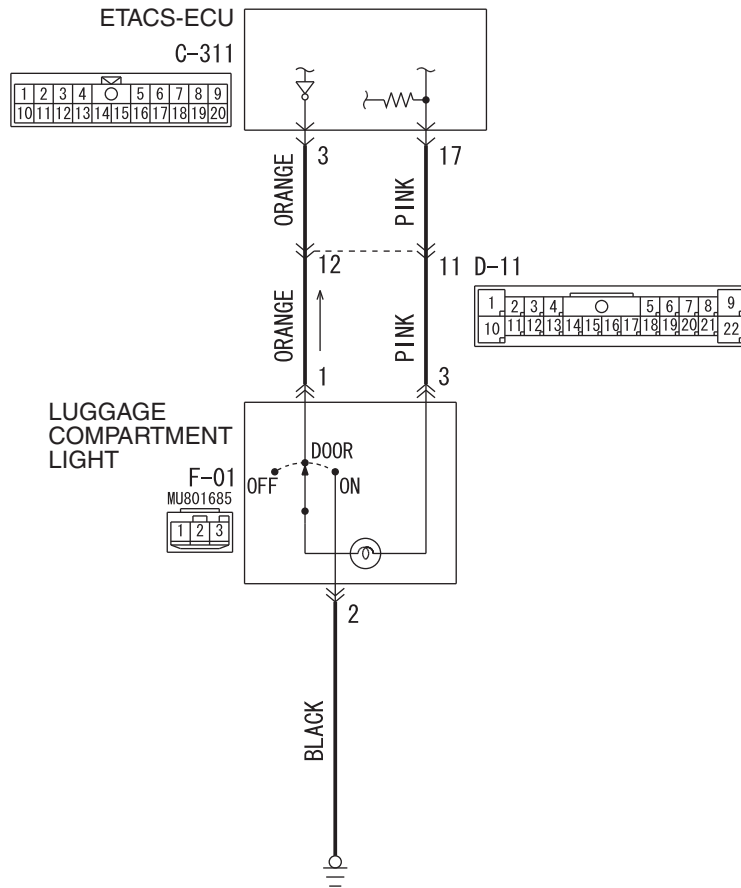
**NO** : Replace the rear dome light.

Inspection Procedure 3: The luggage compartment light does not illuminate normally.

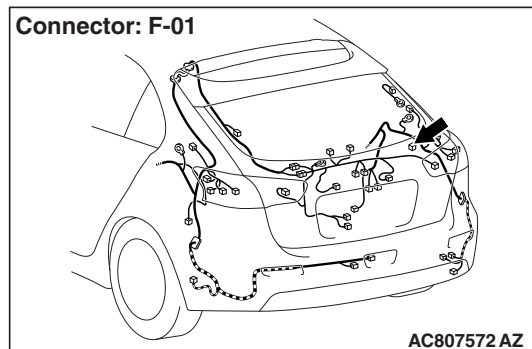
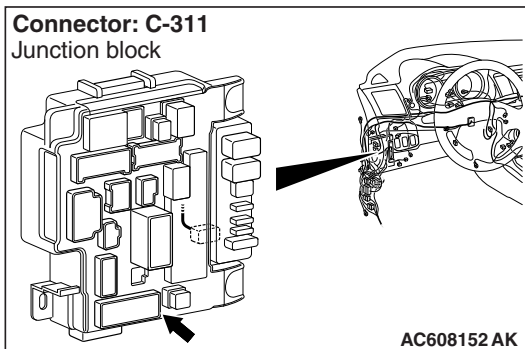
**CAUTION**

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

Luggage Compartment Light Circuit



W9S54M035A



**TROUBLE JUDGMENT**

The ETACS-ECU illuminates and extinguishes the luggage compartment light in accordance with the input signals from liftgate switch.

**TECHNICAL DESCRIPTION (COMMENT)**

If this does not work normally, the liftgate switch input circuit, luggage compartment light, or ETACS-ECU may have a problem.

**TROUBLESHOOTING HINTS**

- Malfunction of liftgate switch assembly
- 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**

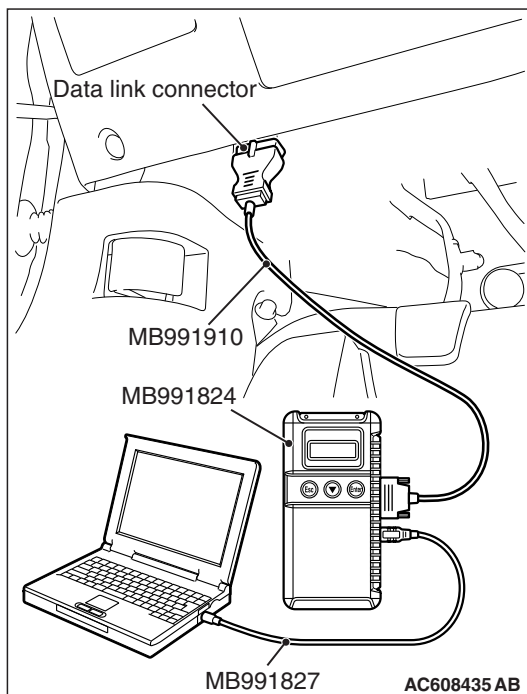
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-278."
- (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-674.

**NO** : Go to Step 2.



**STEP 2. Check whether the luggage compartment light illuminates.**

When the luggage compartment light switch is turned to the "DOOR" or "ON" position, check that the luggage compartment light illuminates.

**Q: Does the luggage compartment light illuminate?**

**The light does not illuminate at the "DOOR" position. :**

Go to Step 3.

**The light does not illuminate at the "ON" position. :** Go to Step 6.

**The light illuminates at neither the "DOOR" nor "ON" position. :** Got to Step 8.

**STEP 3. 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 liftgate.

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 4.

**NO :** (Normal condition is not displayed.) Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis, Input signal chart [P.54A-730](#).

**STEP 4. Check luggage compartment light connector F-01 and ETACS-ECU connector C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is luggage compartment light connector F-01 or ETACS-ECU connector 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 luggage compartment light connector F-01 (terminal 1) and ETACS-ECU connector C-311 (terminal 3).**

Check the output lines for open circuit and short circuit.

*NOTE: Also check intermediate connector D-11 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-11 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) and ETACS-ECU connector C-311 (terminal 3) 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 6. 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 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 luggage compartment light connector F-01 (terminal 2) and body ground.**

Check the ground lines for open circuit.

**Q: Is wiring harness between luggage compartment light connector F-01 (terminal 2) and body ground 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 8. 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 9.

**NO :** Replace the luggage compartment light bulb.

---

**STEP 9. Check luggage compartment light connector F-01 and ETACS-ECU connector C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is luggage compartment light connector F-01 or ETACS-ECU connector C-311 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 luggage compartment light connector F-01 (terminal 3) and ETACS-ECU connector C-311 (terminal 17).**

Check the input lines for open circuit and short circuit.

*NOTE: Also check intermediate connector D-11 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-11 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 3) and ETACS-ECU connector C-311 (terminal 17) 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 11. Retest the system**

Check that the luggage compartment light illuminates and extinguishes normally.

**Q: Does the luggage compartment light illuminate?**

**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.

---

**STEP 12. Retest the system**

Check that the luggage compartment light illuminates and extinguishes normally.

**Q: Does the luggage compartment light illuminate?**

**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 luggage compartment light.

**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 "Disable" 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**

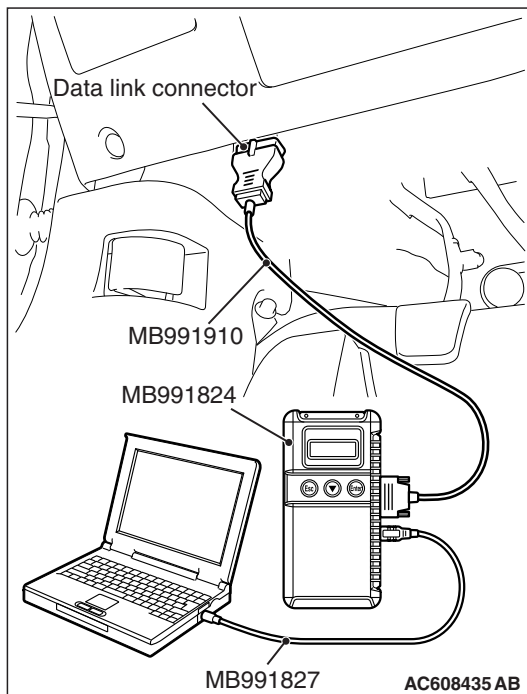
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-278."
- (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 "Disable" 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 "Disable" (Refer to P.54A-764).





**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-674](#).

**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 "LOCK" (OFF) position.
- Open each door.

Item No.	Item name	Normal condition
Item 254	IG voltage	1 V or less
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", "Dr door ajar 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-730](#).

**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

CUSTOMIZATION FUNCTION

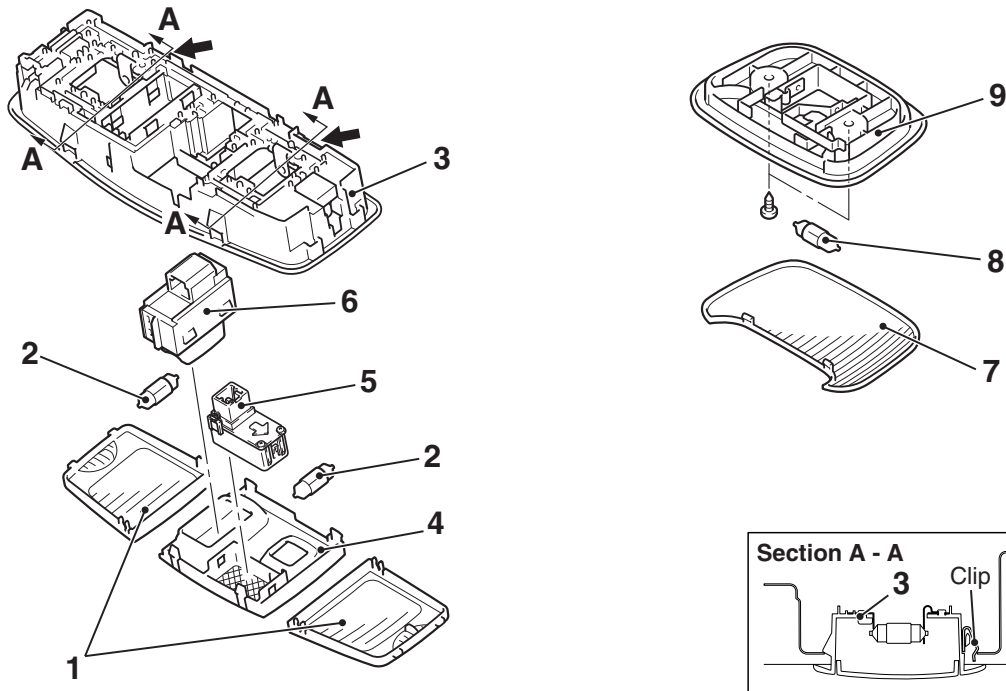
M1541301200325

By operating the ETACS system or MMCS of scan tool MB991958, the following functions can be programmed. The programmed information is held even when the battery is disconnected.

Adjustment item (scan tool MB991958 display)	Adjustment item	Adjusting contents (scan tool MB991958 display)	Adjusting contents
Dome light delay timer with door	Adjustment of interior light delay shutdown time	0 sec	0 second (no delay shutdown time)
		7.5 sec	7.5 seconds
		15 sec	15 seconds
		30 sec	30 seconds (initial condition)
		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 (initial condition)
		60 min	60 minutes

DOME LIGHT REMOVAL AND INSTALLATION

M1541302700011



Note  
 ← : Clip positions

AC709278AB

<<A>>

**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>

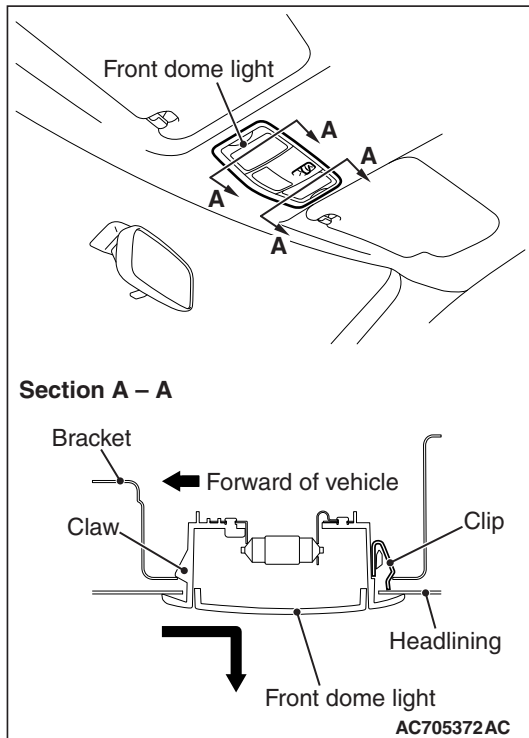
**Removal Steps (Continued)**

6. Sunroof switch <Vehicles with sunroof>
7. Rear dome light lens
8. Dome light bulb
9. Rear dome light

**REMOVAL SERVICE POINT**

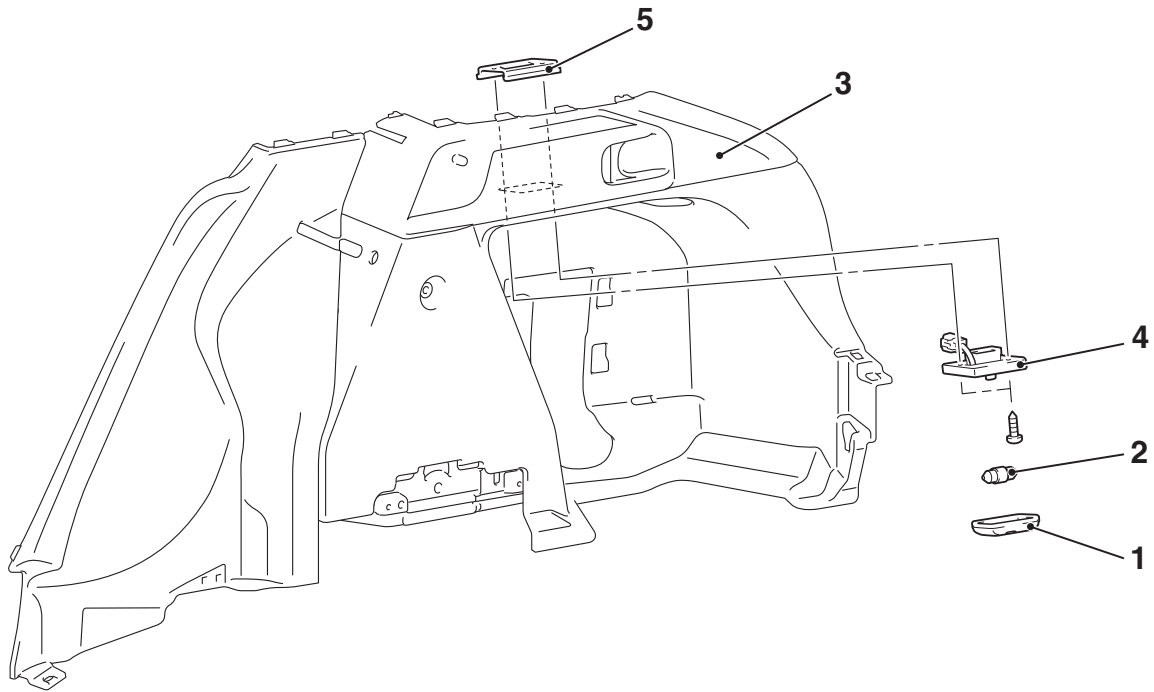
**<<A>> FRONT DOME LIGHT REMOVAL**

While pressing the front dome light toward the rear of the vehicle, slide the front side of the front dome light downward, and remove the front dome light.



## LUGGAGE COMPARTMENT LIGHT REMOVAL AND INSTALLATION

M1541302600133



AC802120AC

**Removal Steps**

1. Cargo room light lens (luggage compartment light lens)
2. Cargo room light bulb (luggage compartment light bulb)
3. Quarter trim (Refer to GROUP 52A, Interior Trim [P.52A-11](#)).

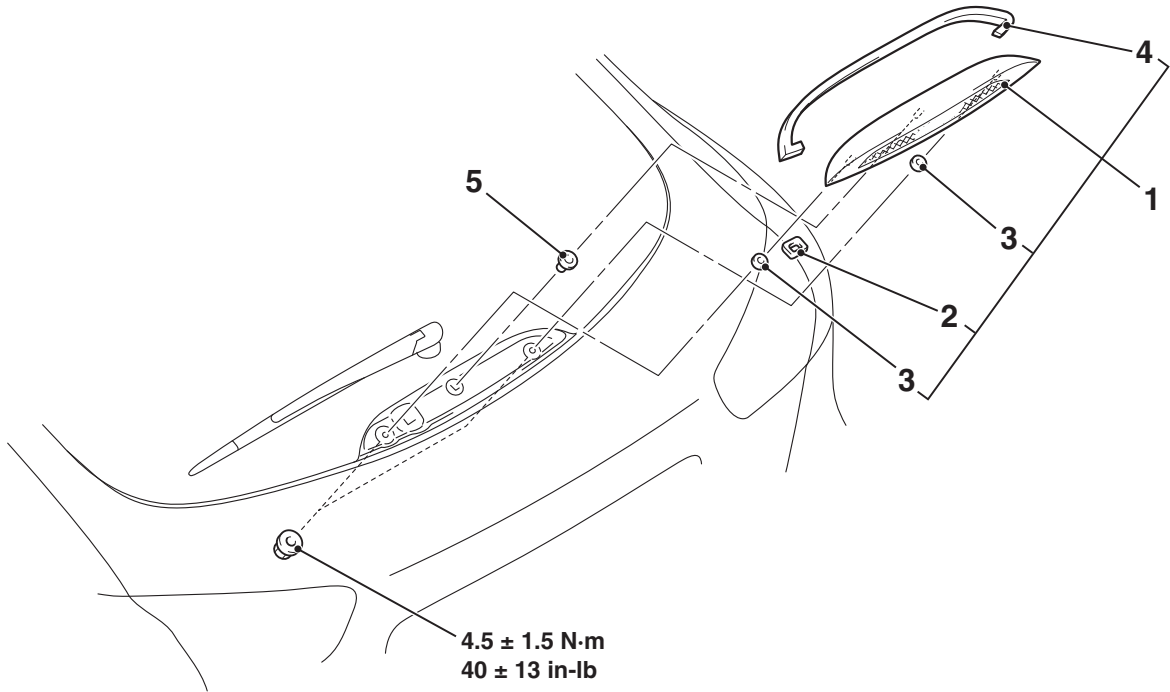
**Removal Steps (Continued)**

4. Cargo room light (luggage compartment light)
5. Cargo room light bracket (luggage compartment light bracket)

# HIGH-MOUNTED STOPLIGHT

## REMOVAL AND INSTALLATION

M1541700200438



AC802360AC

### Removal Steps

- Liftgate lower trim (Refer to GROUP 52A, Liftgate Trim P.52A-17).
- 1. High-mounted stoplight assembly

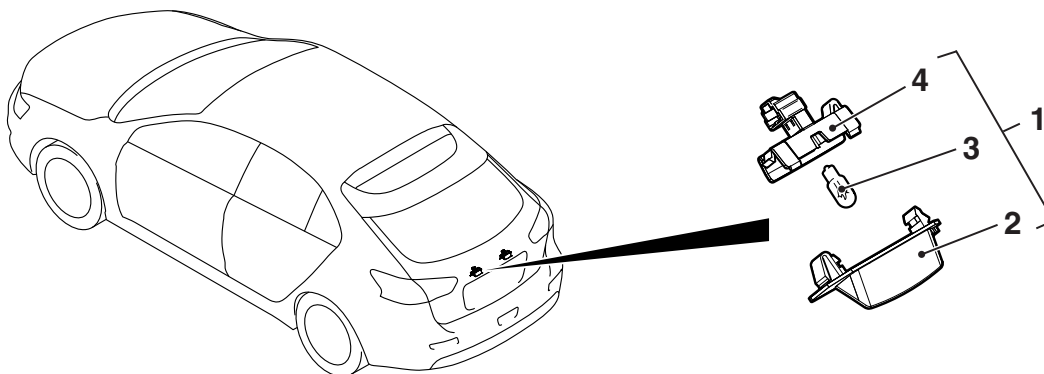
### Removal Steps (Continued)

2. Gasket
3. Gasket
4. Gasket
5. Grommet

# LICENSE PLATE LIGHT

## REMOVAL AND INSTALLATION

M1541900200380



AC802268AC

### Removal Steps

1. License plate light assembly
2. Lens

### Removal Steps (Continued)

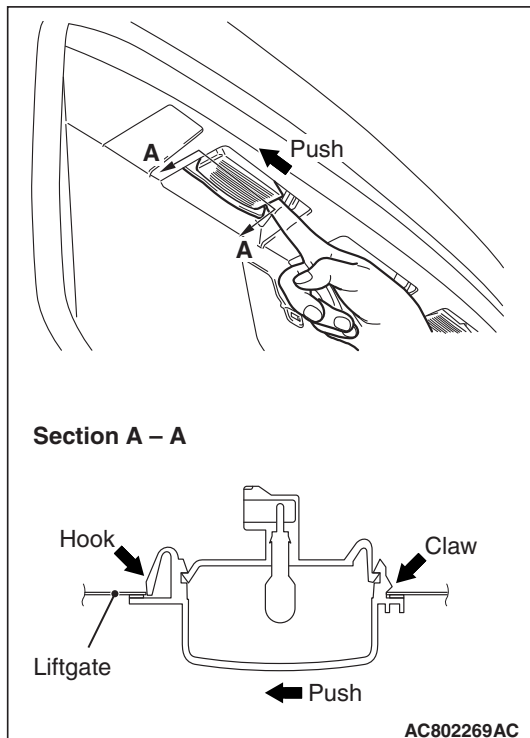
3. Bulb
4. Socket

<<A>>

## REMOVAL SERVICE POINT

<<A>> LICENSE PLATE LIGHT ASSEMBLY  
REMOVAL

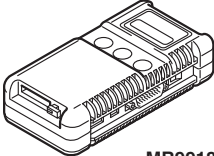
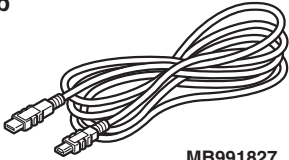
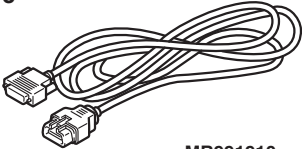
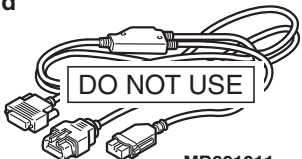
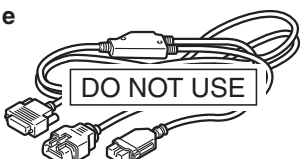
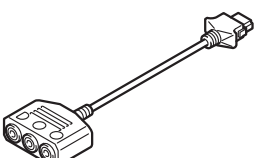
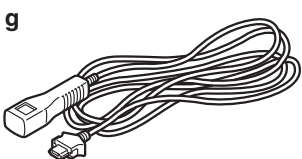
Push the license plate light assembly to the left to bend the hook, and then remove by disengaging the tab from the liftgate.

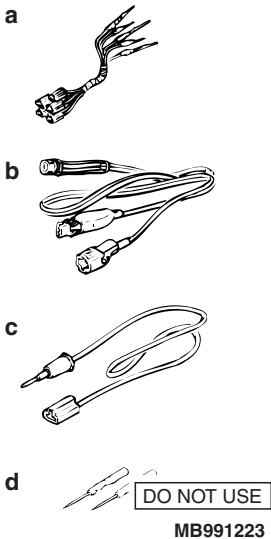
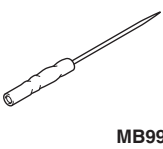


# HAZARD WARNING LIGHT SWITCH

## SPECIAL TOOLS

M1541500100084

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

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

**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**

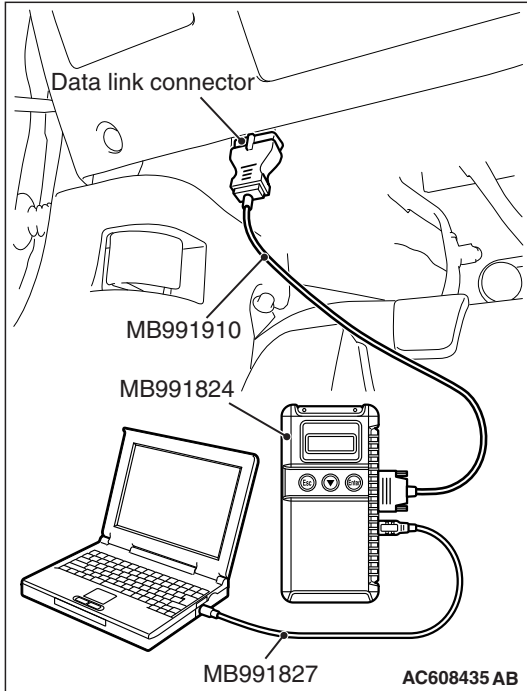
M1541500600164

**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" to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

**DIAGNOSTIC TROUBLE CODE CHART****⚠ 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	<a href="#">P.54A-306</a>

**DIAGNOSTIC TROUBLE CODE PROCEDURES****DTC B16A6: Turn-signal fuse blown****TROUBLE JUDGMENT**

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 B16A6.

**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**

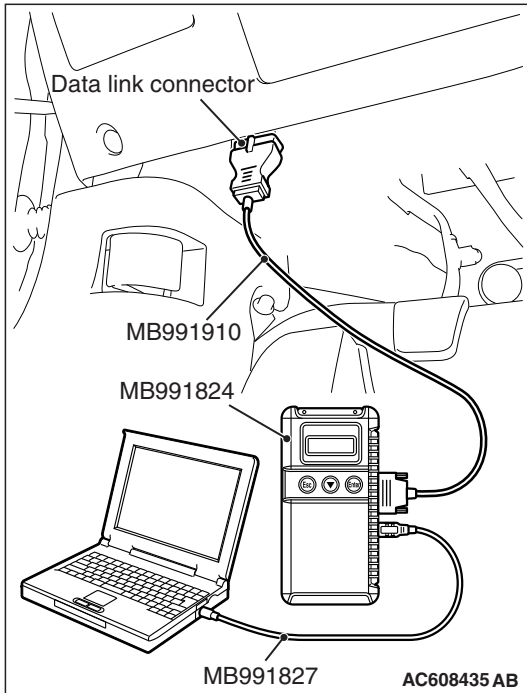
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool P.54A-304."
- (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-307

**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 11 "None of turn-signal lights illuminates" [P.54A-196](#).

**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-304](#)."

2. Turn the ignition switch to the "ACC" position.

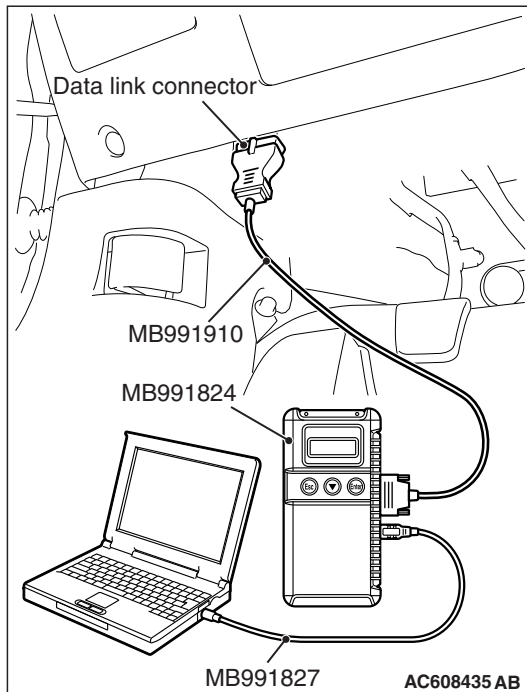
3. Turn "ON" the hazard light switch.

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 10 "ETACS-ECU does not receive any signal from the hazard warning light switch" [P.54A-761](#).



**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**

Refer to GROUP 52A –Instrument Center Panel  
P.52A-7.

M1541501000154

**INSPECTION**

**HAZARD WARNING LIGHT SWITCH CHECK**

M1541501100333

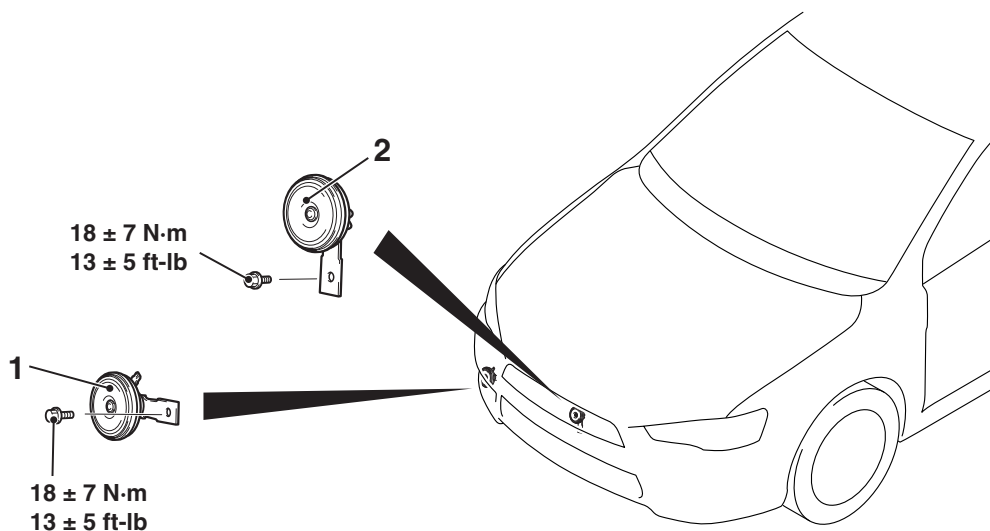
Check the ETACS service data list using the scan tool MB991958. With the item No. 265 (Hazard switch), it is judged normal if the display shows ON when the hazard warning light switch is pressed, and OFF when not pressed.

**HORN**

**REMOVAL AND INSTALLATION**

<GTS>

M1542100200763



AC802984AB

**Removal Steps**

- Front bumper and radiator grille assembly (Refer to GROUP 51 – Front Bumper Assembly and Radiator Grille P.51-5).

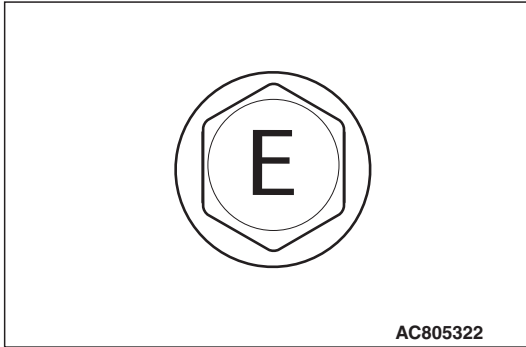
**Removal Steps (Continued)**

- >>A<< 1. Horn (HIGH)  
>>A<< 2. Horn (LOW)

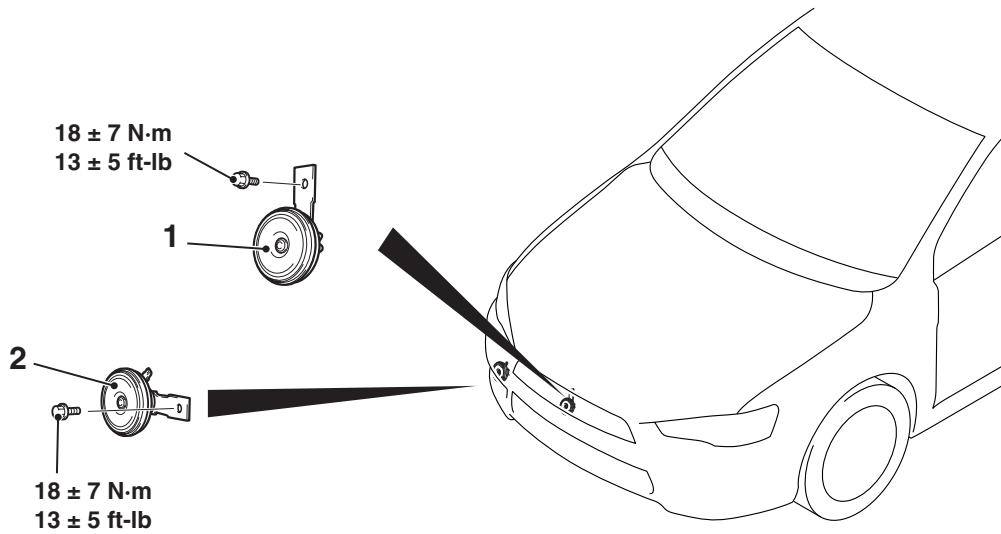
INSTALLATION SERVICE POINT

>>A<< HORN (LOW)/HORN (HIGH) INSTALLATION

Use the ground bolts as the mounting bolts for horn (LOW) and horn (HIGH). The ground bolts have "E" mark on the bolt heads.



<RALLIART>



AC802985AB

**Removal Steps**

- Headlight support panel cover (Refer to GROUP 51 –Front Bumper Assembly and Radiator Grille P.51-5).

>>A<< 1. Horn (LOW)

**Removal Steps (Continued)**

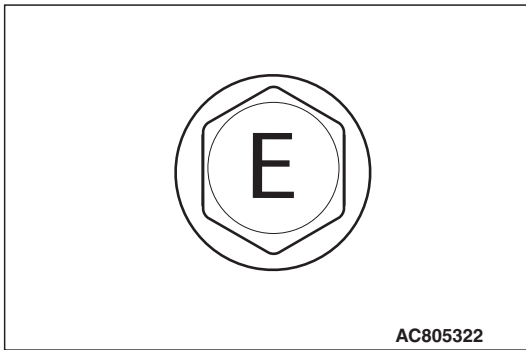
- Front bumper and radiator grille assembly (Refer to GROUP 51 – Front Bumper Assembly and Radiator Grille P.51-5).

>>A<< 2. Horn (HIGH)

**INSTALLATION SERVICE POINT**

**>>A<< HORN (LOW)/HORN (HIGH) INSTALLATION**

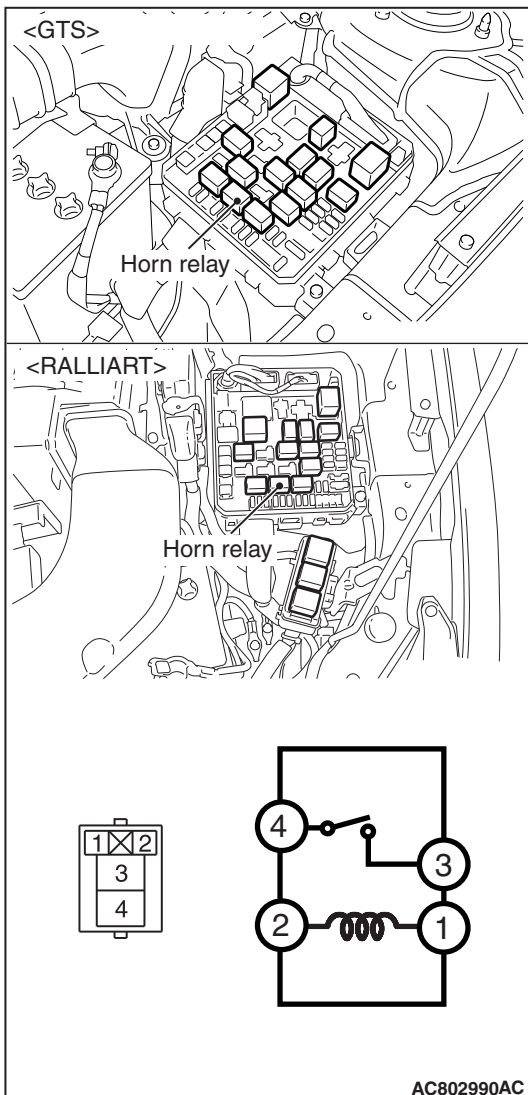
Use the ground bolts as the mounting bolts for horn (LOW) and horn (HIGH). The ground bolts have "E" mark on the bolt heads.



**INSPECTION**

**HORN RELAY CHECK**

M1542100400574



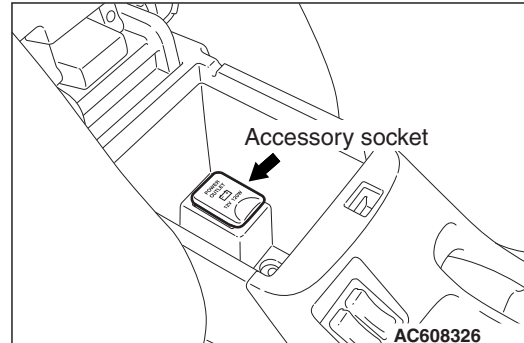
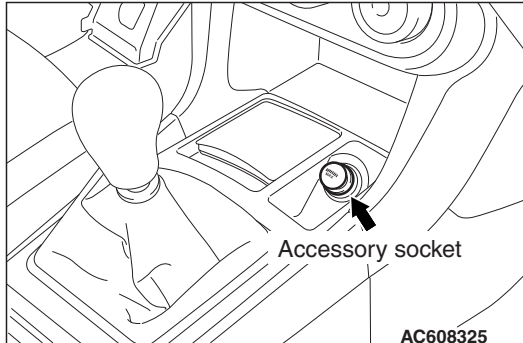
Battery voltage	Terminal number	Normal condition
At no energization	3 -4	No continuity
With current supply [terminal 1 (-), terminal 2 (+)]		Continuity exists (2 ohms or less)

# ACCESSORY SOCKET AND CIGARETTE LIGHTER

## GENERAL INFORMATION

M1542300500207

The plug-in type accessory socket has been installed for the convenient use of accessories.



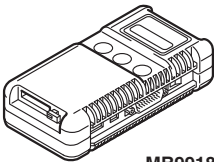
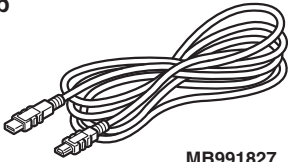
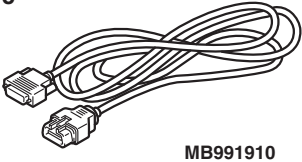
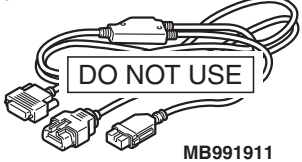
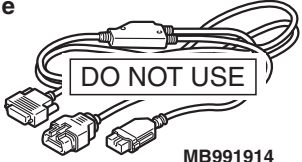
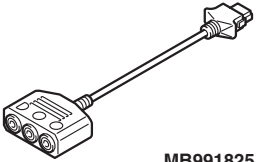
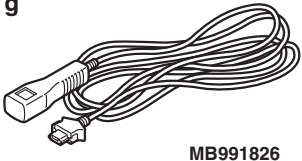
AC608567


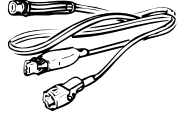
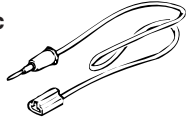

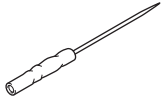
- Accessory socket has been added to the floor console panel assembly. This accessory socket can be replaced to the cigarette lighter as an option.
- Accessory sockets have been added to the Floor console box. <Standard equipment: GTS, RAL-LIART>
- The maximum load is 120 W when a single accessory socket is used. When two accessory sockets are used simultaneously, the combined maximum load for two sockets is 120 W.



SPECIAL TOOLS

M1542300700041

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

Tool	Tool number and name	Supersession	Application
<p>a </p> <p>b </p> <p>c </p> <p>d  <span style="border: 1px solid black; padding: 2px;">DO NOT USE</span> MB991223</p>	<p>MB991223</p> <p>a. MB991219</p> <p>b. MB991220</p> <p>c. MB991221</p> <p>d. MB991222</p> <p>Harness set</p> <p>a. Check harness</p> <p>b. LED harness</p> <p>c. LED harness adapter</p> <p>d. Probe</p>	<p>General service tool (jumper)</p>	<p>Continuity check and voltage measurement at harness wire or connector</p> <p>a. For checking connector pin contact pressure</p> <p>b. For checking power supply circuit</p> <p>c. For checking power supply circuit</p> <p>d. For connecting a locally sourced tester</p>
<p></p> <p>MB992006</p>	<p>MB992006</p> <p>Extra fine probe</p>	<p>–</p>	<p>Continuity check and voltage measurement at harness wire or connector</p>

**DIAGNOSIS**

**STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING**

M1542301100042

Refer to GROUP 00, Contents of troubleshooting [P.00-6](#).

**TROUBLE SYMPTOM CHART**

M1542300800059

Trouble symptom	Inspection Procedure No.	Reference page
The accessory socket does not work. <Vehicles with accessory socket>	1	<a href="#">P.54A-315</a>
The cigarette lighter does not work.<Vehicles with cigarette lighter>	2	<a href="#">P.54A-321</a>

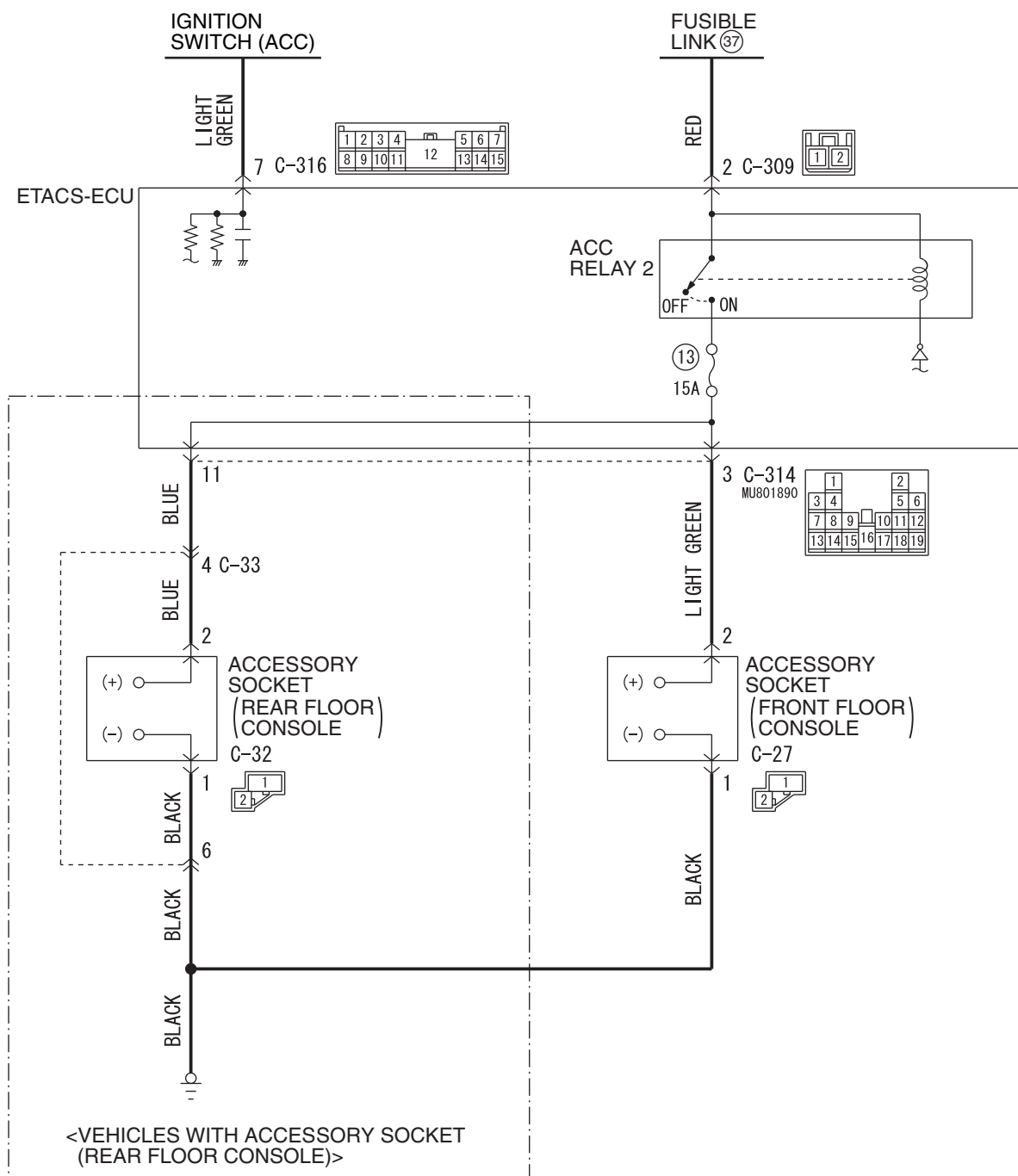
SYMPTOM PROCEDURES

Inspection Procedure 1: The accessory socket does not work. <Vehicles with accessory socket>

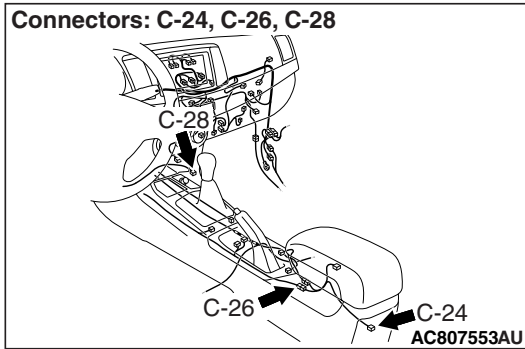
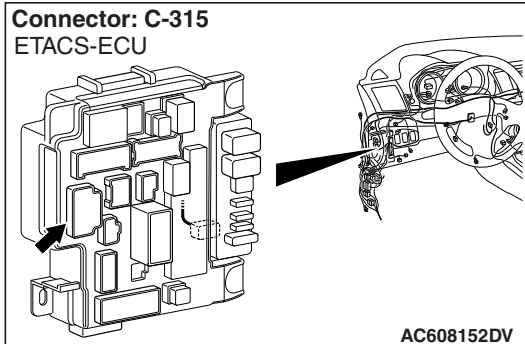
**CAUTION**

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

Accessory Socket Circuit



Connectors: C-24, C-26, C-28

Connector: C-315  
ETACS-ECU**OPERATION**

When the ignition switch is in the ON or ACC position, the accessory socket can be used.

*NOTE: The maximum load of accessory socket is 120 W.*

**TECHNICAL DESCRIPTION (COMMENT)**

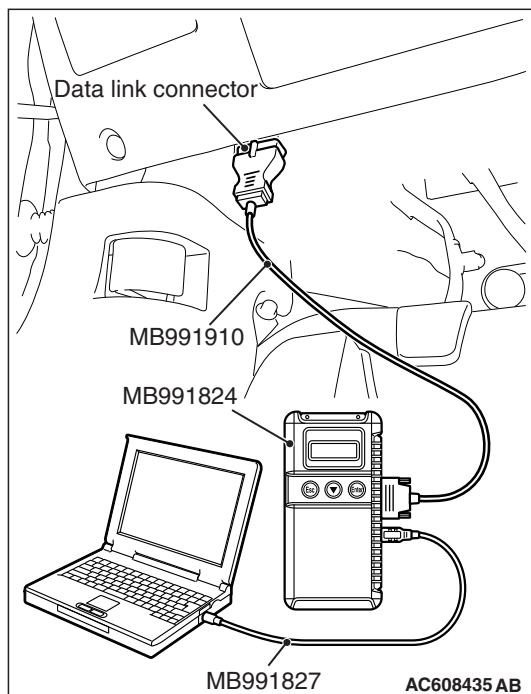
If the accessory socket cannot be used even when the ignition switch is in the ON or ACC position, ETACS-ECU, accessory socket itself, or accessory socket power supply circuit may have a problem.

**TROUBLESHOOTING HINTS**

- Malfunctions of accessory socket (front floor console)
- Malfunctions of accessory socket (rear floor console) <vehicles with accessory socket (rear floor console)>
- 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: 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 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-13."
- (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-769.

**NO** : Go to Step 2.

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

Check the input signal of ACC relay. (ETACS-ECU)

- Turn the ignition switch to the ACC position.

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

**Q: Does scan tool MB991958 display the item "ACC switch" as normal condition?**

**YES** : Go to Step 3.

**NO** : Troubleshoot the ETACS-ECU. Refer to ETACS – Input Signal Procedure 1 "The ignition switch (ACC) signal is not sent to the ETACS-ECU" P.54A-731.

**STEP 3. Check ETACS-ECU connector C-315, accessory socket (front floor console) connector C-28 and accessory socket (rear floor console) connector C-24 <vehicles with accessory socket (rear floor console)> for loose, corroded or damaged terminals, or terminals pushed back in the connector**

**Q: Is ETACS-ECU connector C-315, accessory socket (floor console panel) connector C-28 and accessory socket (floor console) connector C-24 in good condition?**

**YES :** Go to Step 4.

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

---

**STEP 4. Check the power supply circuit to the accessory socket (front floor console) and accessory socket (rear floor console) <vehicles with accessory socket (rear floor console)>. Measure the voltage at accessory socket (front floor console) connector C-28 and accessory socket (rear floor console) connector C-24 <vehicles with accessory socket (rear floor console)>.**

- (1) Disconnect the connector, and measure at the wiring harness-side connector.
- (2) Turn the ignition switch to the "ACC" or "ON" position.
- (3) Measure the voltage between accessory socket (front floor console) connector C-28 terminal No.2 and ground.
  - The voltage should measure approximately 12 volts (battery positive voltage).
- (4) Measure the voltage between accessory socket (rear floor console) connector C-24 terminal No.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 7.

**NO <accessory socket (front floor console) side> :** Go to Step 5.

**NO <accessory socket (rear floor console) side> :** Go to Step 6.

---

**STEP 5. Check the wiring harness between accessory socket (front floor console) connector C-28 terminal No.2 and ETACS-ECU connector C-315 terminal No.3.**

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

**Q: Is the wiring harness between accessory socket (front floor console) connector C-28 terminal No.2 and ETACS-ECU connector C-315 terminal No.3 in good condition?**

**YES :** Go to Step 7.

**NO :** Repair the wiring harness.

---

**STEP 6. Check the wiring harness between accessory socket (rear floor console) connector C-24 terminal No.2 and ETACS-ECU connector C-315 terminal No.12.**

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

*NOTE: Check C-26 intermediate connector, and repair if necessary.*

**Q: Is the wiring harness between accessory socket (rear floor console) connector C-24 terminal No.2 and ETACS-ECU connector C-315 terminal No.12 in good condition?**

**YES :** Go to Step 7.

**NO :** Repair the wiring harness.

---

**STEP 7. Check the ground circuit to the accessory socket (front floor console) and accessory socket (rear floor console) connector <vehicles with accessory socket (rear floor console)>. Measure the resistance at accessory socket (front floor console) connector C-28 and accessory socket (rear floor console) connector C-24 <vehicles with accessory socket (rear floor console)>.**

- (1) Disconnect the connector, and measure the resistance available at the wiring harness side of the connector.
- (2) Measure the resistance value between accessory socket (front floor console) connector C-28 terminal No.1 and ground.
  - The resistance should be 2 ohms or less.
- (3) Measure the resistance value between accessory socket (rear floor console) connector C-24 terminal No.1 and ground. <vehicles with accessory socket (front floor console)>
  - The resistance should be 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 10.

**NO <accessory socket (front floor console) side> :** Go to Step 8.

**NO <accessory socket (rear floor console) side> :** Go to Step 9.

---

**STEP 8. Check the wiring harness between accessory socket (front floor console) connector C-28 terminal No.1 and the ground.**

- Check the ground wires for open circuit.

**Q: Is the wiring harness between accessory socket (front floor console) connector C-28 terminal No.1 and the ground in good condition?**

**YES :** Go to Step 10.

**NO :** Repair the wiring harness.

---

**STEP 9. Check the wiring harness between accessory socket (rear floor console) connector C-24 terminal No.1 and the ground.**

- Check the body ground wires for open circuit.

*NOTE: Check C-26 intermediate connector, and repair if necessary.*

**Q: Is the wiring harness between accessory socket (rear floor console) connector C-24 terminal No.1 and the ground in good condition?**

**YES :** Go to Step 10.

**NO :** Repair the wiring harness.

---

**STEP 10. Retest the system**

Check if the accessory socket 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 accessory socket.

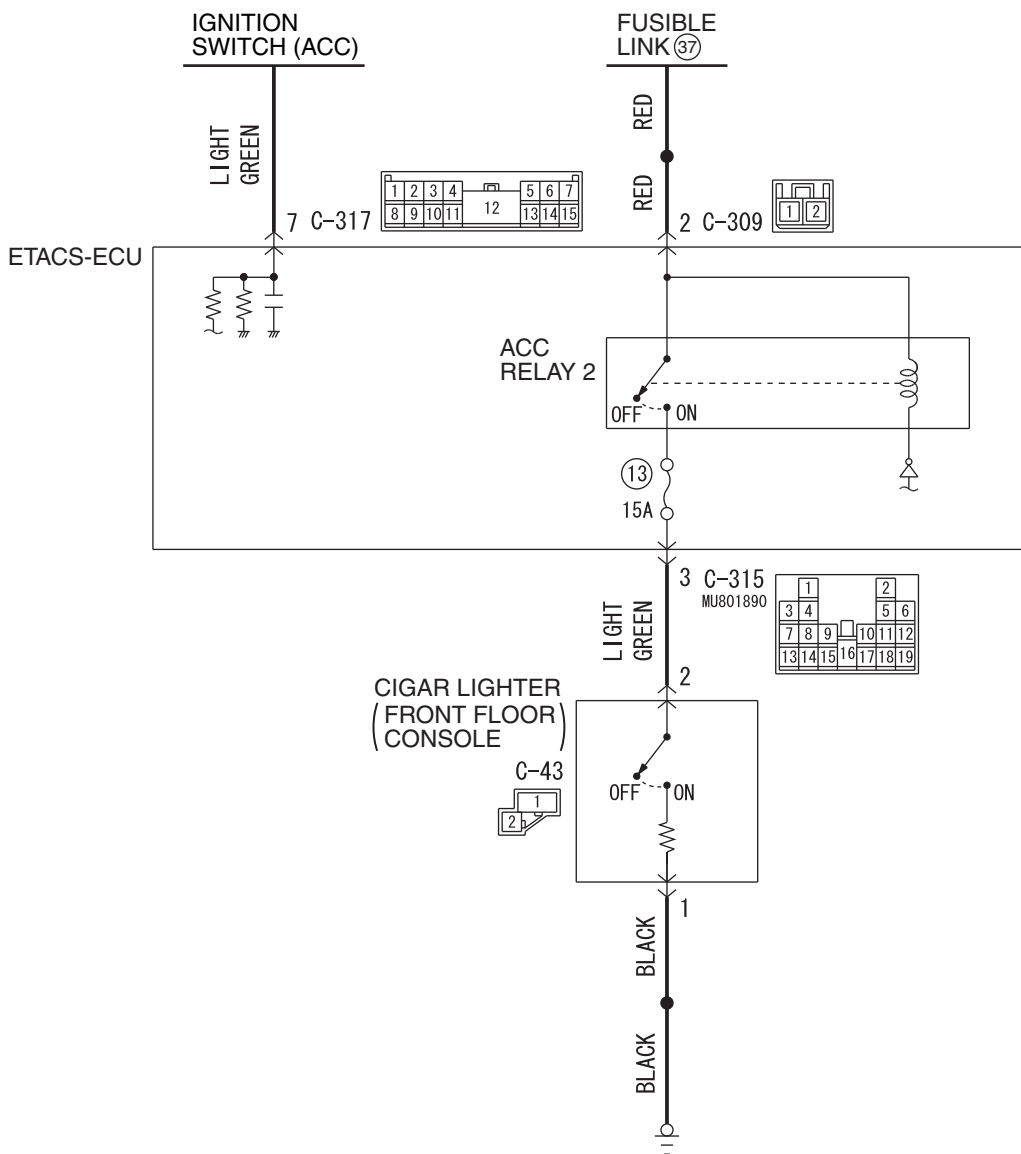


Inspection Procedure 2: The cigarette lighter does not work.<Vehicles with cigarette lighter>

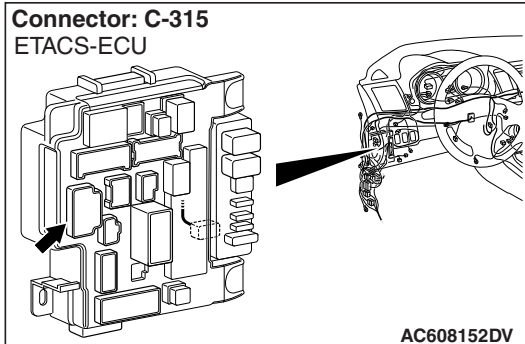
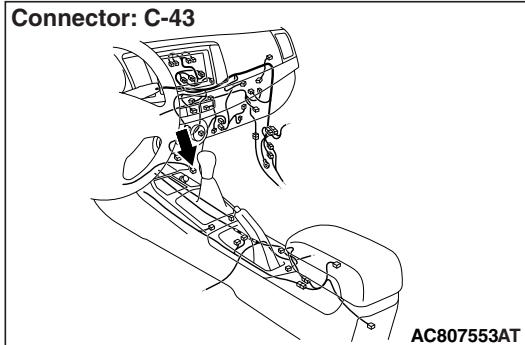
**CAUTION**

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

Cigar Lighter Circuit



W9S54M044A



## OPERATION

When the ignition switch is in the ON or ACC position, the cigarette lighter can be used.

## TECHNICAL DESCRIPTION (COMMENT)

If the cigarette lighter cannot be used even when the ignition switch is in the ON or ACC position, ETACS-ECU, cigarette lighter itself, or cigarette lighter power supply circuit may have a problem.

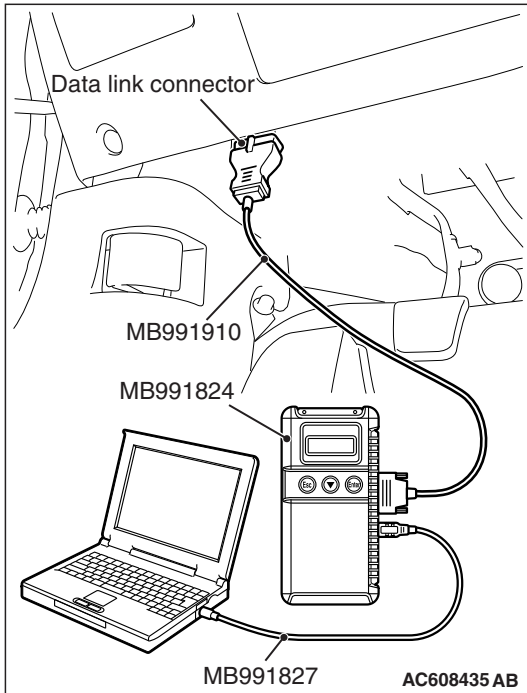
## TROUBLESHOOTING HINTS

- Malfunctions of cigarette lighter
- 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: 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 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-13."
- (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-769.  
**NO** : Go to Step 2.

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

Check the input signal of ACC relay. (ETACS-ECU)

- Turn the ignition switch to the ACC position.

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

**Q: Does scan tool MB991958 display the item "ACC switch" as normal condition?**

- YES** : Go to Step 3.  
**NO** : Troubleshoot the ETACS-ECU. Refer to ETACS – Input Signal Procedure 1 "The ignition switch (ACC) signal is not sent to the ETACS-ECU" P.54A-731.

**STEP 3. Cigarette lighter check**

Refer to P.54A-327.

**Q: Is the check result normal?**

- YES** : Go to Step 4.  
**NO** : Replace the cigarette lighter. Then go to Step 10.

---

**STEP 4. Check ETACS-ECU connector C-315 and cigarette lighter connector C-43 for loose, corroded or damaged terminals, or terminals pushed back in the connector**

**Q: Is ETACS-ECU connector C-315 and cigarette lighter connector C-43 in good condition?**

**YES :** Go to Step 5.

**NO :** Repair the defective connector.

---

**STEP 5. Check the power supply circuit to the cigarette lighter. Measure the voltage at cigar lighter connector C-43.**

- (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 cigarette lighter connector C-43 terminal No.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 7.

**NO :** Go to Step 6.

---

**STEP 6. Check the wiring harness between cigarette lighter connector C-43 terminal No.2 and ETACS-ECU connector C-315 terminal No.3.**

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

**Q: Is the wiring harness between cigarette lighter connector C-43 terminal No.2 and ETACS-ECU connector C-315 terminal No.3 in good condition?**

**YES :** Go to Step 7.

**NO :** Repair the wiring harness.

---

**STEP 7. Check the ground circuit to the cigarette lighter. Measure the resistance at cigarette lighter connector C-43.**

- (1) Disconnect the connector, and measure the resistance available at the wiring harness side of the connector.
- (2) Measure the resistance value between cigarette lighter connector C-43 terminal No.1 and ground.
  - The resistance should be 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 9.

**NO :** Go to Step 8.

**STEP 8. Check the wiring harness between cigarette lighter connector C-43 terminal No.1 and the ground.**

- Check the ground wires for open circuit.

**Q: Is the wiring harness between cigarette lighter connector C-43 terminal No.1 and the ground in good condition?**

**YES :** Go to Step 9.

**NO :** Repair the wiring harness.

**STEP 9. Retest the system**

Check that the cigarette lighter operates 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.00-28](#)).

**NO :** Replace the cigar lighter.

**STEP 10. Retest the system**

Check that the cigarette lighter operates normally.

**Q: Is the check result normal?**

**YES :** The procedure is complete.

**NO :** Return to Step 1.

## REMOVAL AND INSTALLATION

M1542301400140

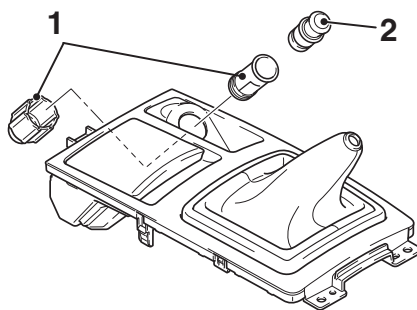
### ACCESSORY SOCKET <FLOOR CONSOLE PANEL ASSEMBLY>

#### Pre-removal operation

- Removal of floor console panel assembly (Refer to GROUP 52A –Floor Console Assembly [P.52A-9](#))

#### Post-installation operation

- Installation of floor console panel assembly (Refer to GROUP 52A –Floor Console Assembly [P.52A-9](#))



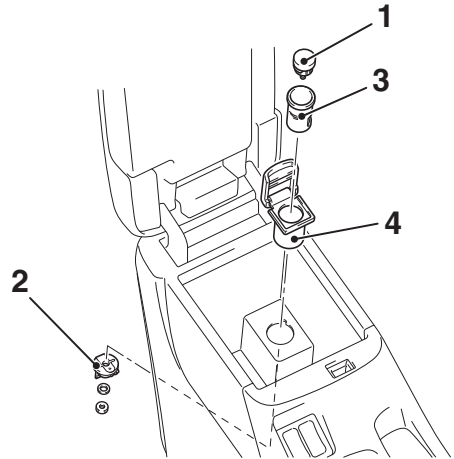
AC706787AB

#### Removal Steps

1. Accessory socket (socket and cover)
2. Accessory socket cap

**ACCESSORY SOCKET <FLOOR CONSOLE ASSEMBLY>**

<p><b>Pre-removal operation</b></p> <ul style="list-style-type: none"> <li>Removal of Floor console assembly (Refer to GROUP 52A –Floor Console Assembly <a href="#">P.52A-9</a>).</li> </ul>	<p><b>Post-installation operation</b></p> <ul style="list-style-type: none"> <li>Installation of Floor console assembly (Refer to GROUP 52A –Floor Console Assembly <a href="#">P.52A-9</a>).</li> </ul>
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<<A>>

**Removal steps**

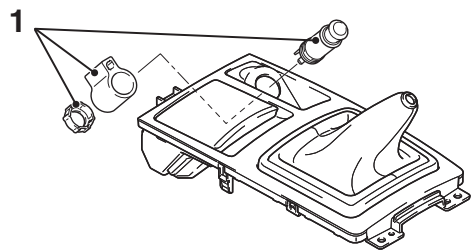
- Accessory socket (positive terminal assembly)
- Accessory socket (negative terminal assembly)

**Removal steps (Continued)**

- Accessory socket (socket)
- Accessory socket (cover)

**CIGARETTE LIGHTER**

<p><b>Pre-removal operation</b></p> <ul style="list-style-type: none"> <li>Removal of floor console panel assembly (Refer to GROUP 52A –Floor Console Assembly <a href="#">P.52A-9</a>)</li> </ul>	<p><b>Post-installation operation</b></p> <ul style="list-style-type: none"> <li>Installation of floor console panel assembly (Refer to GROUP 52A –Floor Console Assembly <a href="#">P.52A-9</a>)</li> </ul>
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AC707557AB

**Removal Step**

- Cigarette lighter

**REMOVAL SERVICE POINT**

**<<A>> REMOVAL OF ACCESSORY SOCKET  
<FLOOR CONSOLE ASSEMBLY>**

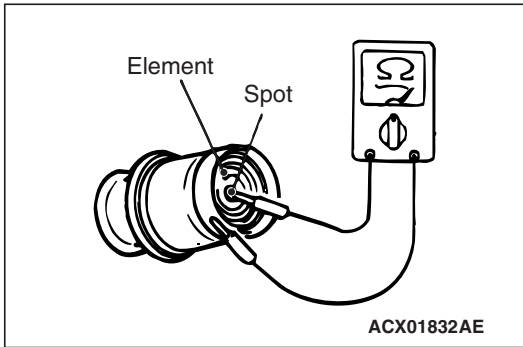
Disassemble, and remove.

**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.



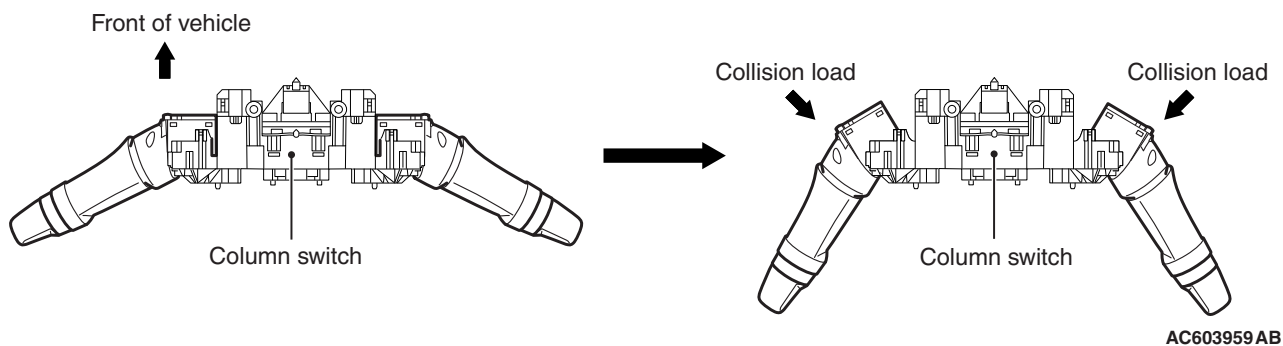
**COLUMN SWITCH**

**GENERAL INFORMATION**

M1543101800017

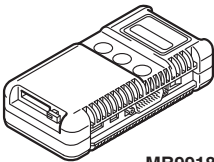
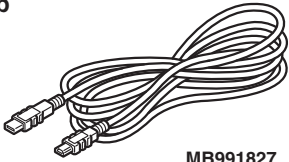
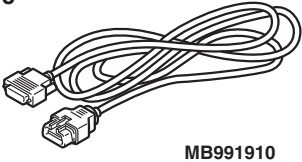
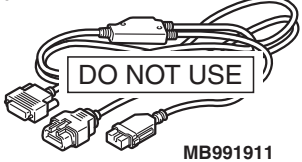
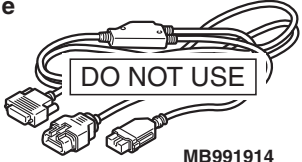
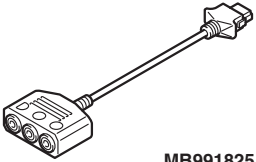
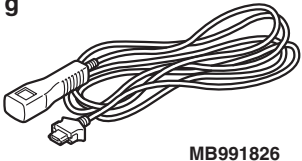
Column switch has a function to ensure the driver's safety during frontal collision of vehicle.

**Function**

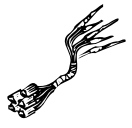
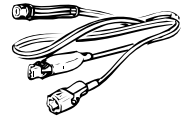
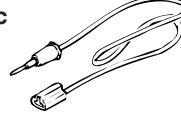

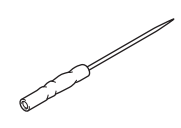


If the column switch is moved to the front of the vehicle and hit on the instrument panel or meter bezel by the frontal collision of vehicle, the steering wheel is moved to the front of the vehicle because the right and left levers fall down, ensuring the driver's safety. In addition, the column switch secures the rigidity that the levers do not fall down by the normal operation, however, it cannot be reused after the deformation.

SPECIAL TOOLS

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



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

## TROUBLESHOOTING

### STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 –Contents of troubleshooting

[P.00-6.](#)

M1543101200112

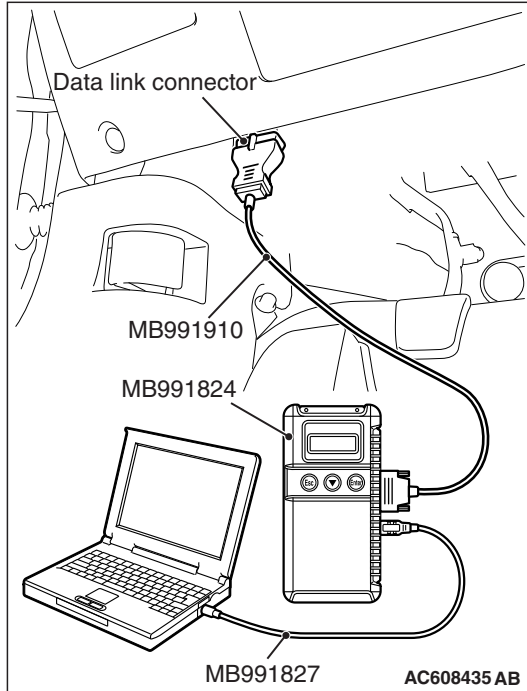
## DIAGNOSTIC FUNCTION

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

M1543101300090

#### 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." to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

## DIAGNOSTIC TROUBLE CODE TABLE

M1543100300406

*NOTE: The ETACS-ECU sets a diagnostic trouble code.*

Diagnostic trouble code number	Diagnostic item	Reference page
B2350	Malfunction of lighting switch	<a href="#">P.54A-331</a>
B2351	Malfunction of the wiper/washer switch	

## DIAGNOSTIC TROUBLE CODE PROCEDURES

**DTC B2350: Malfunction of lighting switch,**  
**DTC B2351: Malfunction of wiper/washer switch**

### TROUBLE JUDGMENT

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 (Lighting switch) or B2351 (Wiper/washer switch) is stored.

### TECHNICAL DESCRIPTION (COMMENT)

The column switch or the ETACS-ECU may have a problem.

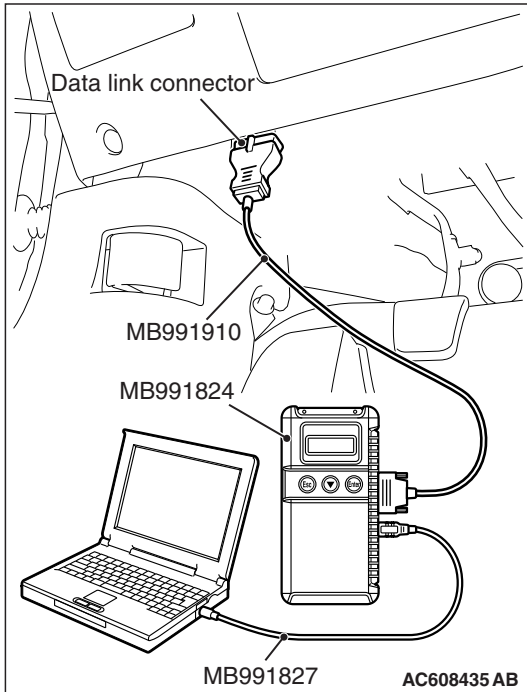
### TROUBLESHOOTING HINTS

- Malfunction of lighting switch (integrated with the column-ECU)
- Malfunction of wiper/washer switch
- 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)




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**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-329](#)".
- (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](#)).

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**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 (integrated with the column-ECU).
- (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.

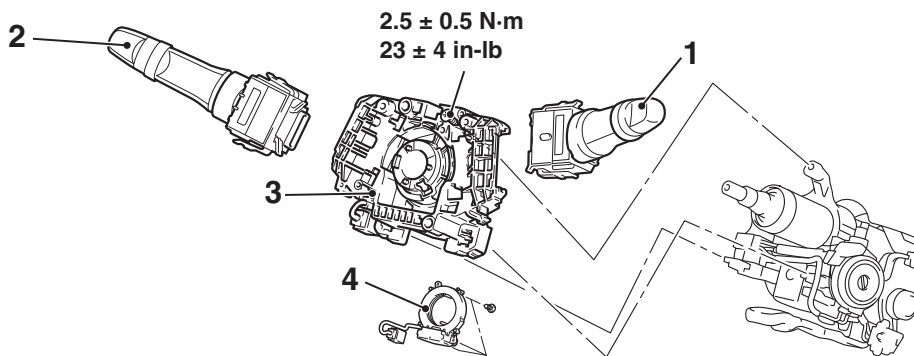
**NO :** The procedure is complete.

**REMOVAL AND INSTALLATION**

M1543100700493

**CAUTION**

- To remove the driver airbag module, refer to **GROUP 52B –Service Precautions P.52B-26 and Driver's Air Bag Module and Clock Spring P.52B-414 <GTS> or P.52B-422 <RALLIART>**.
- When the steering wheel sensor is replaced, always carry out calibration to make ASC-ECU learn the neutral point. (Refer to **GROUP 35C –On-vehicle Service-Steering Wheel Sensor Calibration P.35C-304.**)



AC610328AB

**Removal Steps**

- Lower, upper Steering column cover (Refer to **GROUP 37 Steering Column shaft assembly P.37-36**).
- 1. Wiper/washer switch
- 2. Lighting switch (integrated with the column ECU)
- Steering wheel assembly (Refer to **GROUP 52B - Driver's Air Bag Module and Clock Spring P.52B-414 <GTS> or P.52B-422 <RALLIART>**).

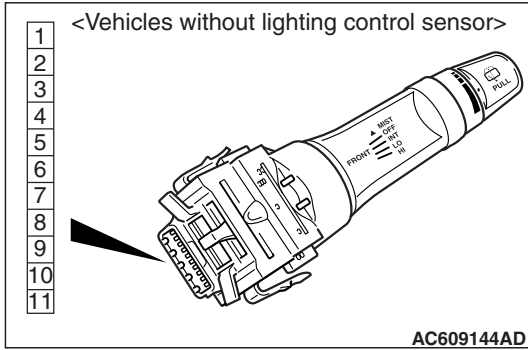
**Removal Steps (Continued)**

- Clock spring (Refer to **GROUP 52B - Driver's Air Bag Module and Clock Spring P.52B-414 <GTS> or P.52B-422 <RALLIART>**).
- 3. Column switch body
- 4. Steering wheel sensor (Refer to **GROUP 35C –Steering wheel sensor P.35C-321.**)

INSPECTION

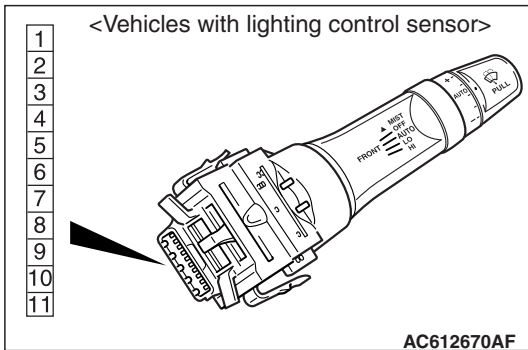
WIPER/WASHER SWITCH CONTINUITY CHECK

M1543101700151



<VEHICLES WITHOUT LIGHTING CONTROL SENSOR>

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)



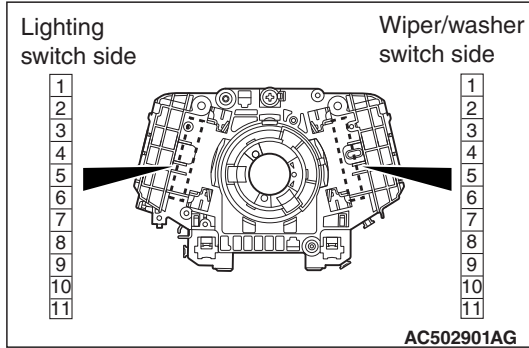
<VEHICLES WITH LIGHTING CONTROL SENSOR>

Switch position	Tester connection	Specified condition	
OFF	-	Open circuit	
Windshield rain sensitive wiper function 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)
	Auto	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.

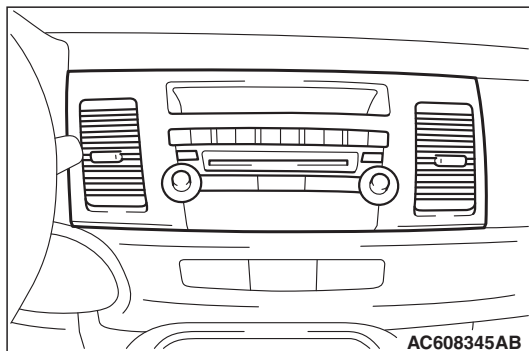


Column switch body	Terminal number	Normal condition
Lighting switch side connector	3 -3	Continuity exists (2 ohms or less)
	6 -6	
Wiper/washer switch side connector	7 -7	
	8 -8	
	9 -9	
	10 -10	
	11 -11	

**RADIO AND CD PLAYER**

**GENERAL INFORMATION**

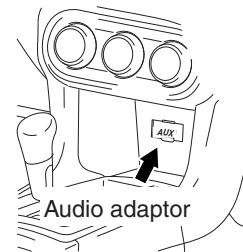
M1544000100873



- Two types of radio and CD player, or CD changer built-in type radio and CD player have been established. The radio and CD player was designed to create a uniformity impression with the instrument panel.

<Vehicles without instrument panel console box>

<Vehicles with instrument panel console box>



AC802019AE

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

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

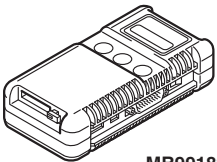
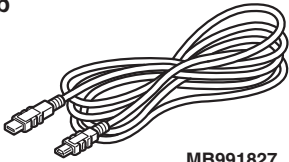
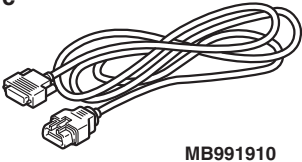
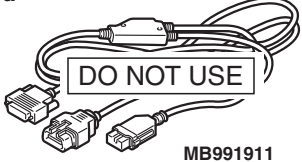
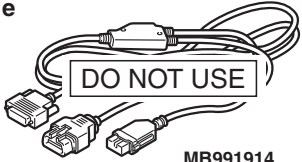
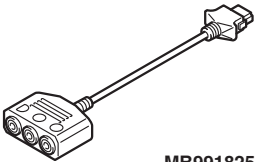
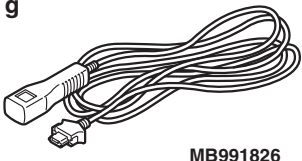
**NOTE:**


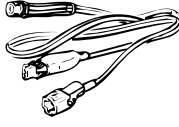
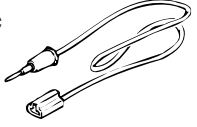

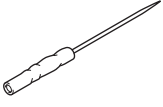
- <sup>\*1</sup>: CD-R/CD-RW may not be played.
- <sup>\*2</sup>: Some may not be played.



SPECIAL TOOLS

M1542000602146

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

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

## DIAGNOSIS

### INTRODUCTION TO AUDIO SYSTEM DIAGNOSIS

M1544018900090

### RADIO AND CD PLAYER ERROR CODES

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

Error code	Cause	Cause of trouble and its solution
ERROR	Power supply error	This error code will be shown if there is any problem in the power supply system of the radio and CD player. Check the connectors and wiring harness of the power supply system, and check that the battery voltage is normal. Check that the same error does not appear.
ERROR 01	Focus error	These error codes will be shown if there is any problem with the CD or there is excessive vibration on the vehicle. If the error codes are not displayed when the vehicle is stopped and another CD is inserted, there is a problem with the CD. Check if there is any of the following problems with the CD. <ul style="list-style-type: none"> <li>• Contamination, scratch, or deformation</li> <li>• Formation of moisture or grease</li> </ul> Repair the CD and insert it again. Then, check that no error appears.
ERROR 02	Abnormal disk	
ERROR 03	Mechanical error	This error codes will be shown if there is any internal mechanical or electrical problem in the radio and CD player. Replace the radio and CD player check that no error codes are shown.
ERROR HOT	Protection against high temperature	If the internal temperature is extremely high, this error code will be shown. Turn off the radio and CD player and wait until they cool down. Wait for a while, and then turn on the unit again. Check that the same error does not appear.
ERROR DC	Detection abnormal output to the speaker	This error code will be shown if the radio and CD player or the audio amplifier has an internal error or is contaminated with the foreign material, and there is a problem with output to the speaker. If it is contaminated with the foreign material, turn OFF the power. Dry the foreign material if it is liquid, and remove it if it is solid. Then, check if the error code is displayed. If the error code is displayed, replace the radio and CD player or the audio amplifier.

**SATELLITE RADIO ERROR CODES <Vehicles with satellite radio tuner>**

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

<b>Error code</b>	<b>Cause</b>	<b>Cause of trouble and its solution</b>
ANTENNA ERROR	Antenna error	This code is displayed when there is a failure, improper connection, or open circuit in the satellite antenna base and the satellite radio tuner cannot receive normal voltage value or current value. Check the satellite radio tuner, the satellite antenna base and the antenna feeder cable, and replace if necessary.
ACQUIRING SIGNAL	Cannot pick up signal	This code is displayed when the signal is too weak and it cannot be received. Move to a place where the signal can be received easily, or check if there is foreign material that interferes with signal reception on the satellite antenna base, and remove if necessary.
CALL 888-539-SIRIUS	Unauthorized channel	This code is displayed when the channel to be received is not included in the contract with SIRIUS™ satellite radio. Contact SIRIUS™ satellite radio and make a contract for the channel.
NO CHANNEL	There is no selectable channel	There is no channel that can be selected. Cancel the SKIP settings so that the channels can be selected.
INVALID CHANNEL	Channel is invalid	No program is broadcast on this channel now, or this channel cannot be received. Ask SIRIUS™ satellite radio.
SAT ERROR	Mechanical fault or bad connection	This code is displayed when the satellite radio tuner has a mechanical problem or when an error occurs in the communication with radio and CD player. Check the radio and CD player, the satellite radio tuner, and each harness and connector, and replace if necessary. (Refer to <a href="#">P.54A-658.</a> )
OFF AIR	OFF AIR	This code is displayed when this channel is not broadcast at this moment, or broadcast of the satellite radio is interrupted. Check the airtime and the broadcast conditions of SIRIUS™ satellite radio.
NOT ACTIVATED	ID not registered	This code is displayed when the SIRIUS ID is not written to the satellite radio tuner. Replace the satellite radio tuner.
READING	Data reading in progress	This code is displayed when the data received is being read. Wait until reading of the data received is completed.
UPDATING	Channel data updating in progress	This code is displayed when SIRIUS™ satellite radio is updating the channel data. Wait until update is completed.
SUB UPDATING PRESS ANY KEY	Contract status updating complete	This code is displayed when the contract status is updated. This code disappears when any of the audio switch is pressed.

## STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1544004800409

Refer to GROUP 00, Troubleshooting contents [P.00-6](#).

## DIAGNOSIS FUNCTION

M1544013200353

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

#### Required Special Tools:

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

#### **⚠ CAUTION**

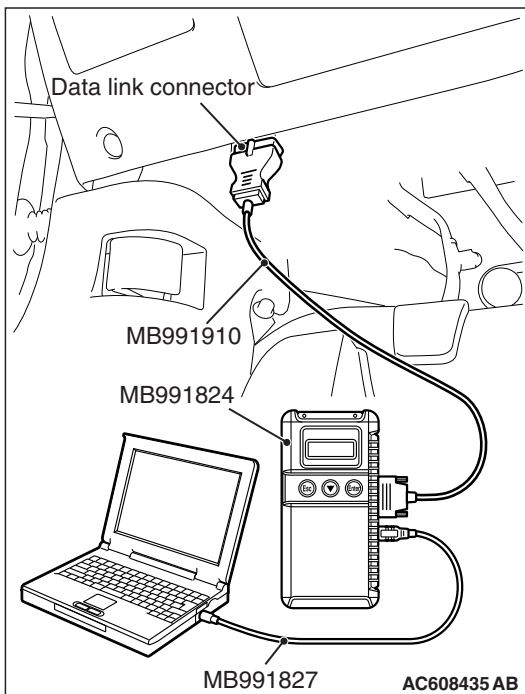
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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

*NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.*

7. Start the scan tool system on the personal computer.

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



## HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

#### Required Special Tools:

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

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

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "System select" from the start-up screen.

4. Select "From 2006 MY" of "Model Year." When the "Vehicle Information" is displayed, check the contents.
5. Select "Meter" from "System List," and press the "OK" button.

*NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.*

6. Select "Diagnostic Trouble Code." to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

## HOW TO DIAGNOSE THE CAN BUS LINES

### Required Special Tools:

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

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

## CHECK OF FREEZE FRAME DATA

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

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

Display item list

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

DIAGNOSTIC TROUBLE CODE CHART

M1544012900423

**⚠ 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 number	Diagnostic item	Reference page
U0019	Bus off (CAN-B)	<a href="#">P.54A-344</a>
U0141	ETACS CAN timeout	<a href="#">P.54A-345</a>
U0151	SRS-ECU CAN timeout	<a href="#">P.54A-348</a>
U0154	OCM (occupant classification-ECU) CAN timeout	<a href="#">P.54A-350</a>
U0155	Meter CAN timeout	<a href="#">P.54A-352</a>
U0164	A/C CAN timeout	<a href="#">P.54A-354</a>
U0168	WCM/KOS CAN timeout	<a href="#">P.54A-356</a>
U0195	Satellite radio CAN timeout	<a href="#">P.54A-358</a>
U0197	Hands free module CAN timeout	<a href="#">P.54A-360</a>
U1415	Coding not completed/Data fail	<a href="#">P.54A-362</a>
B2420	Power integrated circuit	<a href="#">P.54A-364</a>
B2421	Radio tuner	<a href="#">P.54A-366</a>
B2423	6 CD player error	<a href="#">P.54A-367</a>
B2424	CD player error	<a href="#">P.54A-369</a>
B2450	Switch panel communication	<a href="#">P.54A-370</a>
B2451	Audio panel type error	<a href="#">P.54A-372</a>

## DIAGNOSTIC TROUBLE CODE PROCEDURES

## DTC U0019: Bus off (CAN-B)

**⚠ CAUTION**

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

**⚠ CAUTION**

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

## TROUBLE JUDGMENT

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

## TROUBLESHOOTING HINTS

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

## TROUBLESHOOTING HINTS

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

## DIAGNOSIS

## Required Special Tools:

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

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

**⚠ CAUTION**

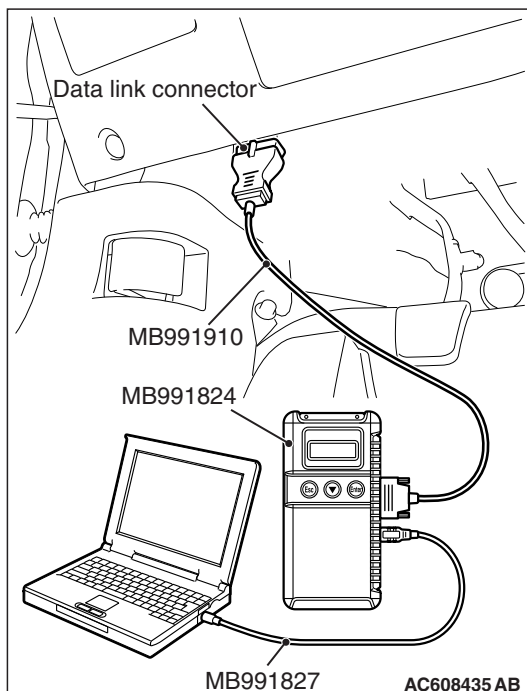
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-341."
- (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 radio and CD player.

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

**Q: Is the check result normal?**

**YES :** Replace the radio and CD player.

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

---

**DTC U0141: ETACS CAN timeout**

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**⚠ CAUTION**

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

**⚠ CAUTION**

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

**DIAGNOSTIC FUNCTION**

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

**JUDGMENT CRITERIA**

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

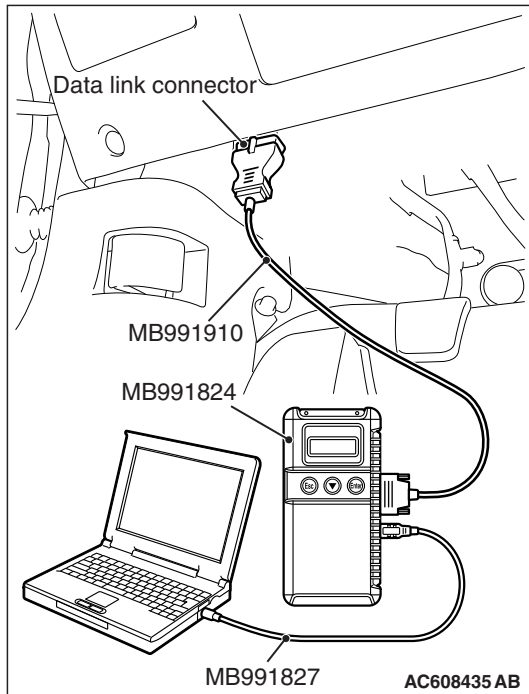
**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS**

**Required Special Tools:**

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



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

**⚠ CAUTION**

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-341."
- (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 diagnostic trouble code.**

Check if DTC is set to the ETACS-ECU.

**Q: Is the DTC set?**

**YES :** Diagnose the ETACS-ECU (Refer to P.54A-674).

**NO :** Go to Step 3.

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

Check if DTC U0141 is set to the A/C-ECU.

**Q: Is the DTC set?**

**YES :** Go to Step 4.

**NO :** Go to Step 5.

---

**STEP 4. Recheck for diagnostic trouble code.**

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

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

**Q: Is the DTC set?**

**YES :** Replace the ETACS-ECU.

**NO :** The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

---

**STEP 5. Recheck for diagnostic trouble code.**

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

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

**Q: Is the DTC set?**

**YES :** Replace the radio and CD player.

**NO :** The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

**DTC U0151: SRS-ECU CAN timeout****CAUTION**

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

**DIAGNOSTIC FUNCTION**

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

**JUDGMENT CRITERIA**

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

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS****Required Special Tools:**

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

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

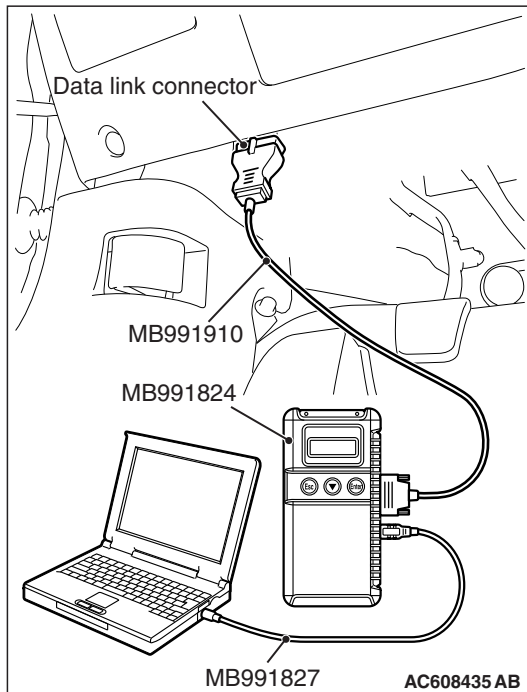
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-341."
- (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-32](#)).

**NO** : Go to Step 3.

---

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

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

**Q: Is the DTC set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

**STEP 4. Recheck for diagnostic trouble code.**

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

(1) Erase the DTC.

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

(3) Check if DTC is set.

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

**Q: Is the DTC set?**

**YES** : Replace the SRS-ECU.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

---

**STEP 5. Recheck for diagnostic trouble code.**

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

(1) Erase the DTC.

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

(3) Check if DTC is set.

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

**Q: Is the DTC set?**

**YES** : Replace the radio and CD player.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

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

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

**CAUTION**

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

**DIAGNOSTIC FUNCTION**

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

**JUDGMENT CRITERIA**

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

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS****Required Special Tools:**

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

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

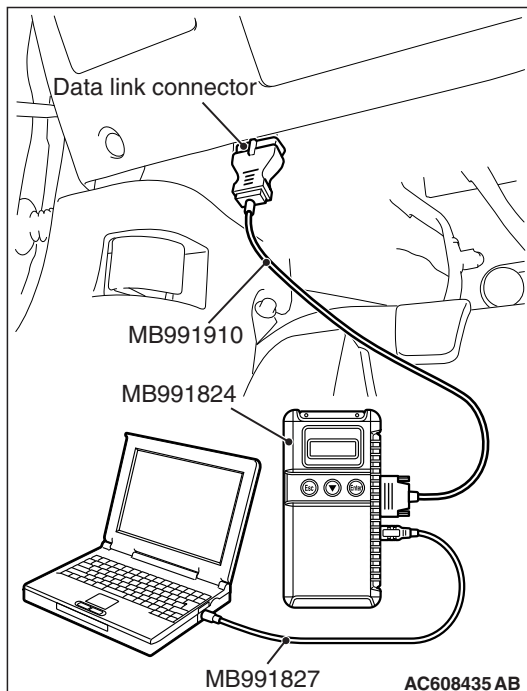
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-341."
- (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-315](#)).

**NO** : Go to Step 3.

---

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

Check if the DTC U0154 is set to the A/C-ECU.

**Q: Is the DTC set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

**STEP 4. Recheck for diagnostic trouble code.**

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

(1) Erase the DTC.

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

(3) Check if DTC is set.

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

**Q: Is the DTC set?**

**YES** : Replace the occupant classification-ECU.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

---

**STEP 5. Recheck for diagnostic trouble code.**

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

(1) Erase the DTC.

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

(3) Check if DTC is set.

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

**Q: Is the DTC set?**

**YES** : Replace the radio and CD player.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

**DTC U0155: Meter CAN timeout****CAUTION**

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

**CAUTION**

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

**DIAGNOSTIC FUNCTION**

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

**JUDGMENT CRITERIA**

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

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS****Required Special Tools:**

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

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

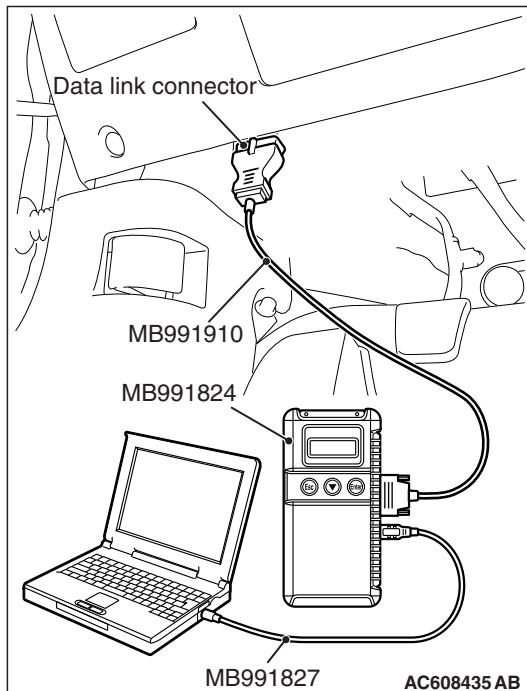
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-341."
- (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 DTC set?**

**YES :** Diagnose the combination meter (Refer to combination meter, Diagnosis [P.54A-33](#)).

**NO :** Go to Step 3.

---

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

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

**Q: Is the DTC set?**

**YES :** Go to Step 4.

**NO :** Go to Step 5.

---

**STEP 4. Recheck for diagnostic trouble code.**

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

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

**Q: Is the DTC set?**

**YES :** Replace the combination meter.

**NO :** The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

---

**STEP 5. Recheck for diagnostic trouble code.**

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

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

**Q: Is the DTC set?**

**YES :** Replace the radio and CD player.

**NO :** The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

**DTC U0164: A/C CAN timeout****CAUTION**

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

**DIAGNOSTIC FUNCTION**

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

**JUDGMENT CRITERIA**

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

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS****Required Special Tools:**

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

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

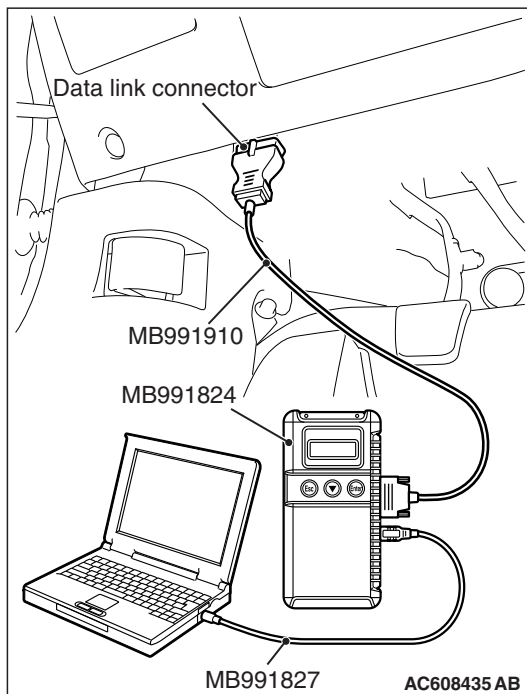
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-341."
- (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-ECU diagnostic trouble code.**

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

**Q: Is the DTC set?**

**YES** : Troubleshoot the A/C-ECU (Refer to GROUP 55, Manual A/C Diagnosis [P.55-9](#)).

**NO** : Go to Step 3.

---

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

Check if the DTC U0164 is set to the ETACS-ECU.

**Q: Is the DTC set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

**STEP 4. Recheck for diagnostic trouble code.**

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

(1) Erase the DTC.

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

(3) Check if DTC is set.

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

**Q: Is the DTC set?**

**YES** : Replace the A/C-ECU.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

---

**STEP 5. Recheck for diagnostic trouble code.**

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

(1) Erase the DTC.

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

(3) Check if DTC is set.

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

**Q: Is the DTC set?**

**YES** : Replace the radio and CD player.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

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**DTC U0168: WCM/KOS CAN timeout**

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**⚠ CAUTION**

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

**DIAGNOSTIC FUNCTION**

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

**JUDGMENT CRITERIA**

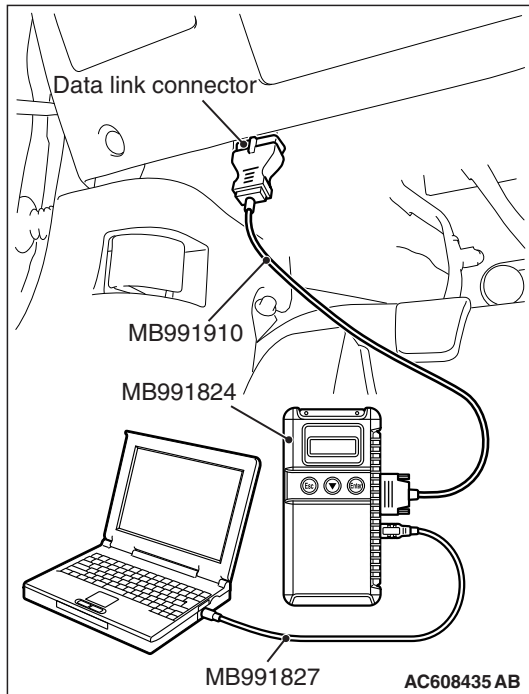
With the ignition switch in the ON position, system voltage between 10 –16 V (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> cannot be established for 2,500 ms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

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS****Required Special Tools:**

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



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

**⚠ CAUTION**

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-341."
- (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-31 <KOS> or GROUP 42C, Diagnosis P.42C-18 <WCM>).

**NO :** Go to Step 3.

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

Check if the DTC U0168 is set to the ETACS-ECU.

**Q: Is the DTC set?**

**YES :** Go to Step 4.

**NO :** Go to Step 5.

**STEP 4. Recheck for diagnostic trouble code.**

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

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

**Q: Is the DTC set?**

**YES** : Replace the 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 radio and CD player (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 radio and CD player.

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

**Q: Is the DTC set?**

**YES** : Replace the radio and CD player.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

**DTC U0195: Satellite radio CAN timeout****⚠ CAUTION**

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

**⚠ CAUTION**

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

**DIAGNOSTIC FUNCTION**

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

**JUDGMENT CRITERIA**

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

**TROUBLESHOOTING HINTS**

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

## DIAGNOSIS

### Required Special Tools:

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

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

#### **CAUTION**

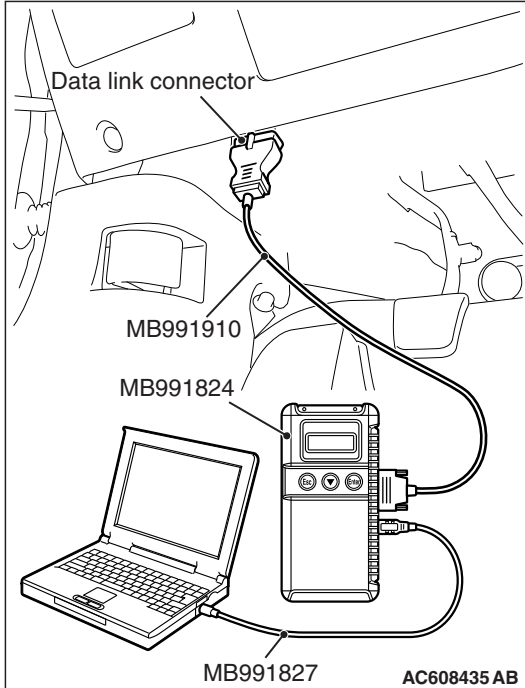
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-341."
- (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 DTC set?

**YES** : Diagnose the satellite radio tuner. (Refer to P.54A-639.)

**NO** : Go to Step 3.

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

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

#### Q: Is the DTC set?

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 4. Recheck for diagnostic trouble code.**

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

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

**Q: Is the DTC set?**

**YES** : Replace the satellite radio tuner.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

**STEP 5. Recheck for diagnostic trouble code.**

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

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

**Q: Is the DTC set?**

**YES** : Replace the radio and CD player.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

**DTC U0197: Hands free module CAN timeout****CAUTION**

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

**DIAGNOSTIC FUNCTION**

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

**JUDGMENT CRITERIA**

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

**TROUBLESHOOTING HINTS**

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



## DIAGNOSIS

### Required Special Tools:

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

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

#### **CAUTION**

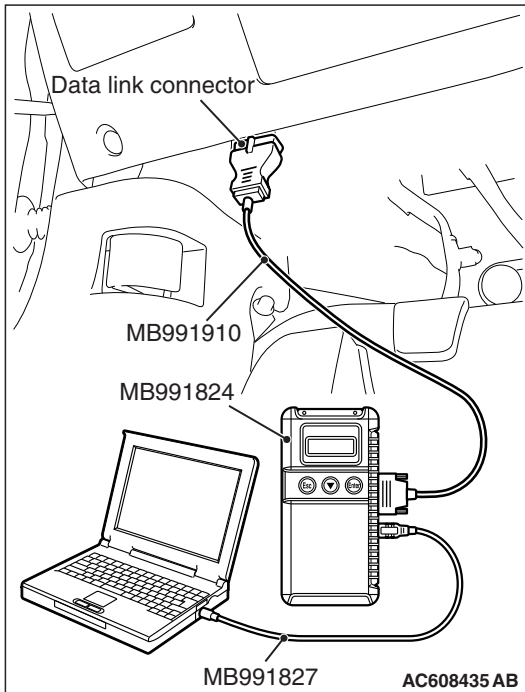
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-341."
- (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.

- (1) Turn the ignition switch to the "ON" position.
- (2) Check for hands free module DTCs.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

#### Q: Is the DTC set?

**YES** : Troubleshoot the hands-free cellular phone system. (Refer to P.54A-555.)

**NO** : Go to Step 3.

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

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

#### Q: Is the DTC set?

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 4. Recheck for diagnostic trouble code.**

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

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

**Q: Is the DTC set?**

**YES** : Replace the hands free module.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

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**STEP 5. Recheck for diagnostic trouble code.**

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

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

**Q: Is the DTC set?**

**YES** : Replace the radio and CD player.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the radio and CD player (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

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**DTC U1415: Coding not completed/Data fail**

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** CAUTION**

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

** CAUTION**

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

**TROUBLE JUDGMENT**

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

**TECHNICAL DESCRIPTION (COMMENT)**

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

## TROUBLESHOOTING HINTS

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

## DIAGNOSIS

### Required Special Tools:

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

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

#### **CAUTION**

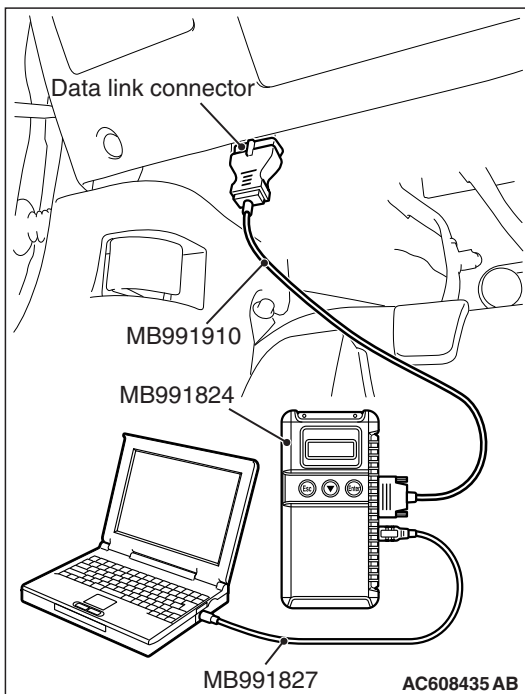
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-341."
- (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 DTC.

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

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

#### Q: Is the DTC set?

**YES** : Diagnose the ETACS-ECU (Refer to GROUP 54A, ETACS-ECU, Diagnosis P.54A-674), and then go to Step 3.

**NO** : Go to Step 3.

**STEP 3. Recheck for diagnostic trouble code.**

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

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

**Q: Is the DTC set?**

**YES :** Replace the radio and CD player.

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

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**DTC B2420: Power integrated circuit**

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**⚠ CAUTION**

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

**⚠ CAUTION**

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

**TROUBLE JUDGMENT**

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

**TECHNICAL DESCRIPTION (COMMENT)**

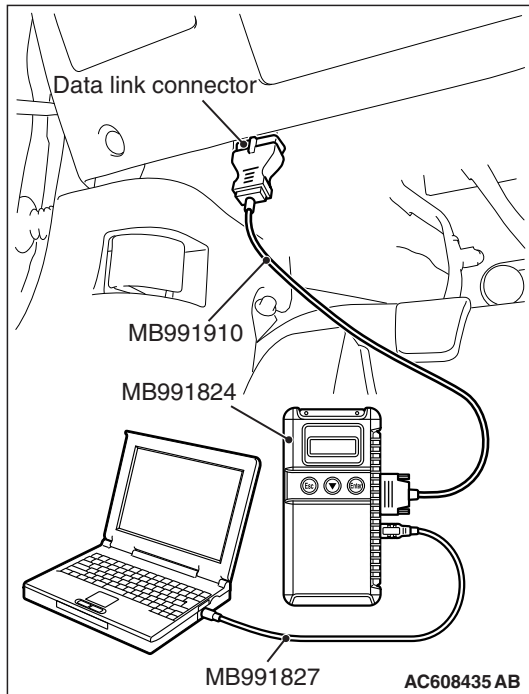
The radio and CD player or CAN bus line may have a problem.

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS****Required Special Tools:**

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



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

**⚠ CAUTION**

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-341."
- (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 radio and CD player.

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

**Q: Is the diagnostic trouble code set?**

**YES :** Replace the radio and CD player.

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

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

**TROUBLE JUDGMENT**

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

**TECHNICAL DESCRIPTION (COMMENT)**

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

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS****Required Special Tools:**

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

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

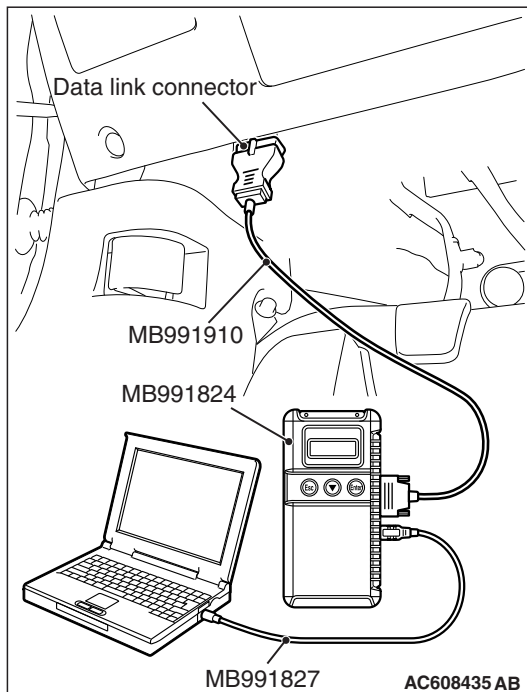
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-341."
- (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. Recheck for diagnostic trouble code.**

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

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

**Q: Is the DTC set?**

**YES :** Replace the radio and CD player.

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

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**DTC B2423: 6 CD player error**

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 **CAUTION**

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

 **CAUTION**

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

**TROUBLE JUDGMENT**

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

**TECHNICAL DESCRIPTION (COMMENT)**

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

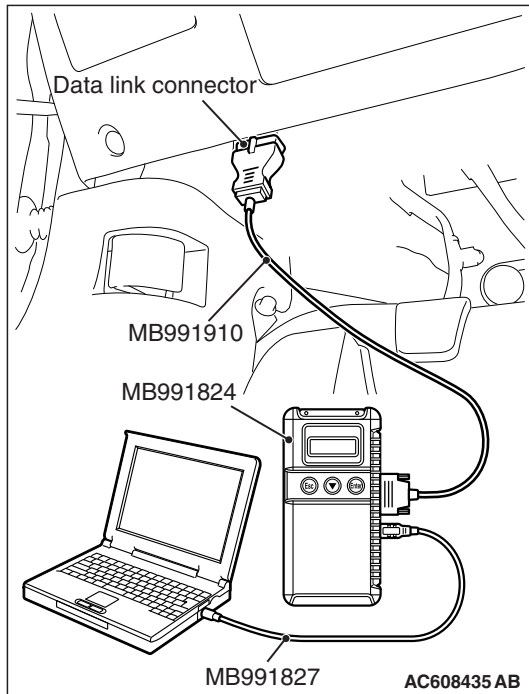
**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS**

**Required Special Tools:**

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



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

#### **CAUTION**

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-341."
- (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. CD check

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

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

#### **Q: Is the DTC set?**

**YES** : Go to Step 3.

**NO** : Clean the CD, use a CD without scratches and burrs, or remove the CD burrs, and then reinsert the CD.

### STEP 3. Recheck for diagnostic trouble code.

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

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

#### **Q: Is the DTC set?**

**YES** : Replace the radio and CD player.

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



**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 player, be sure to check that the power supply circuit, ground circuit, and communication circuit are normal.

**TROUBLE JUDGMENT**

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

**TECHNICAL DESCRIPTION (COMMENT)**

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

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS**

**Required Special Tools:**

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

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

**⚠ CAUTION**

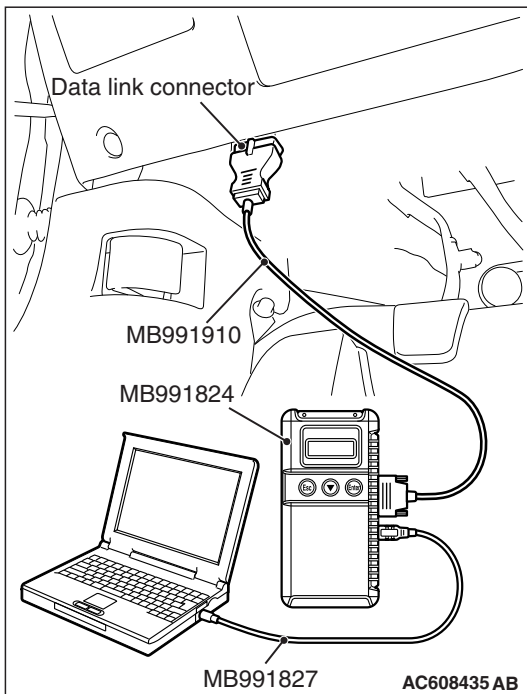
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-341."
- (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. 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.

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**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](#)).

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**DTC B2450: Switch panel communication**

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** CAUTION**

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

** CAUTION**

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

**TROUBLE JUDGMENT**

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

**TECHNICAL DESCRIPTION (COMMENT)**

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

**TROUBLESHOOTING HINTS**

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

## DIAGNOSIS

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

Use scan tool MB991958 to diagnose the CAN bus lines.

#### **⚠ CAUTION**

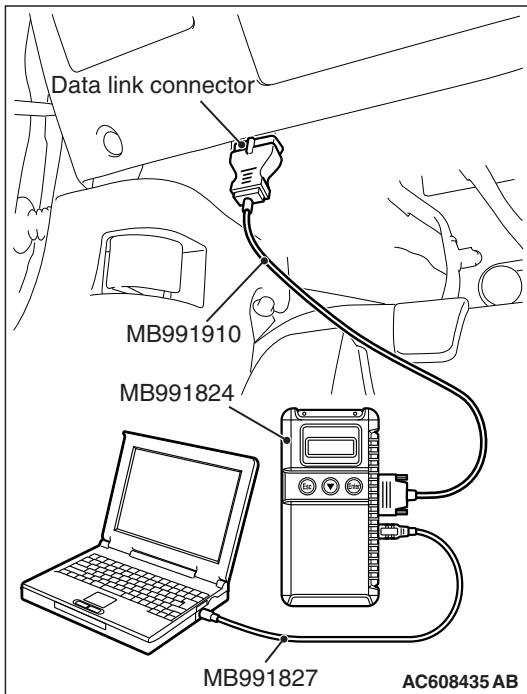
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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

#### Q: Is the check result normal?

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-16](#)).



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

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

#### Q: Is the connection established?

**YES** : Go to Step 3.

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

### STEP 3. Recheck for diagnostic trouble code.

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

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

#### Q: Is the DTC set?

**YES** : Replace the radio and CD player.

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

**DTC B2451: Audio panel type error****CAUTION**

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

**TROUBLE JUDGMENT**

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

**TECHNICAL DESCRIPTION (COMMENT)**

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

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS**

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

**CAUTION**

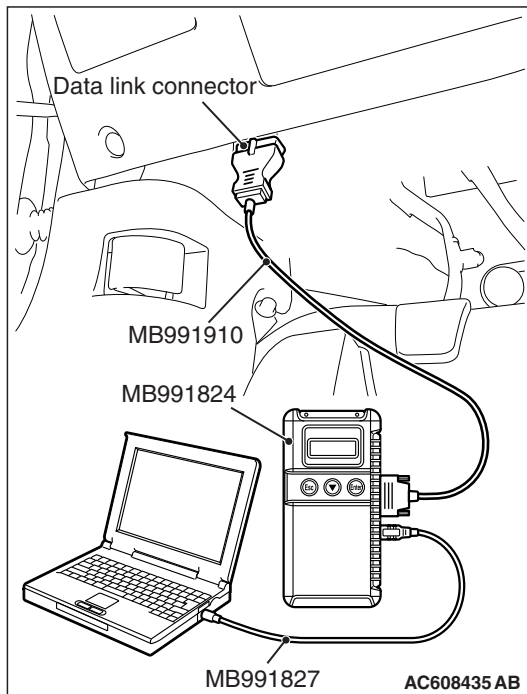
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-341."
- (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 radio and CD player.

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

**Q: Is the DTC set?**

**YES :** Go to Step 3.

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

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

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

(1) Erase the DTC.

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

(3) Check if DTC is set.

**Q: Is the DTC set?**

**YES :** Replace the radio and CD player.

**NO :** Replace the center panel assembly.

**TROUBLE SYMPTOM CHART**

M1544004901926

Trouble symptom	Inspection Procedure No.	Reference page
Power of the radio and CD player does not turn ON when the ignition switch is in the "ACC" position or "ON" Position.	1	<a href="#">P.54A-374</a>
No sound is heard. <Vehicles with audio amplifier>	2	<a href="#">P.54A-379</a>
No sound is heard from one of the speakers.	3	<Vehicles without audio amplifier> <a href="#">P.54A-385</a>
		<Vehicles with audio amplifier> <a href="#">P.54A-391</a>
The audio does not operate normally by operating the radio and CD player of the center panel unit.	4	<a href="#">P.54A-398</a>
Audio illumination does not work normally.	5	<a href="#">P.54A-402</a>
The sound of external input are not played.	6	<a href="#">P.54A-407</a>
Troubleshooting for noise	7	<a href="#">P.54A-409</a>

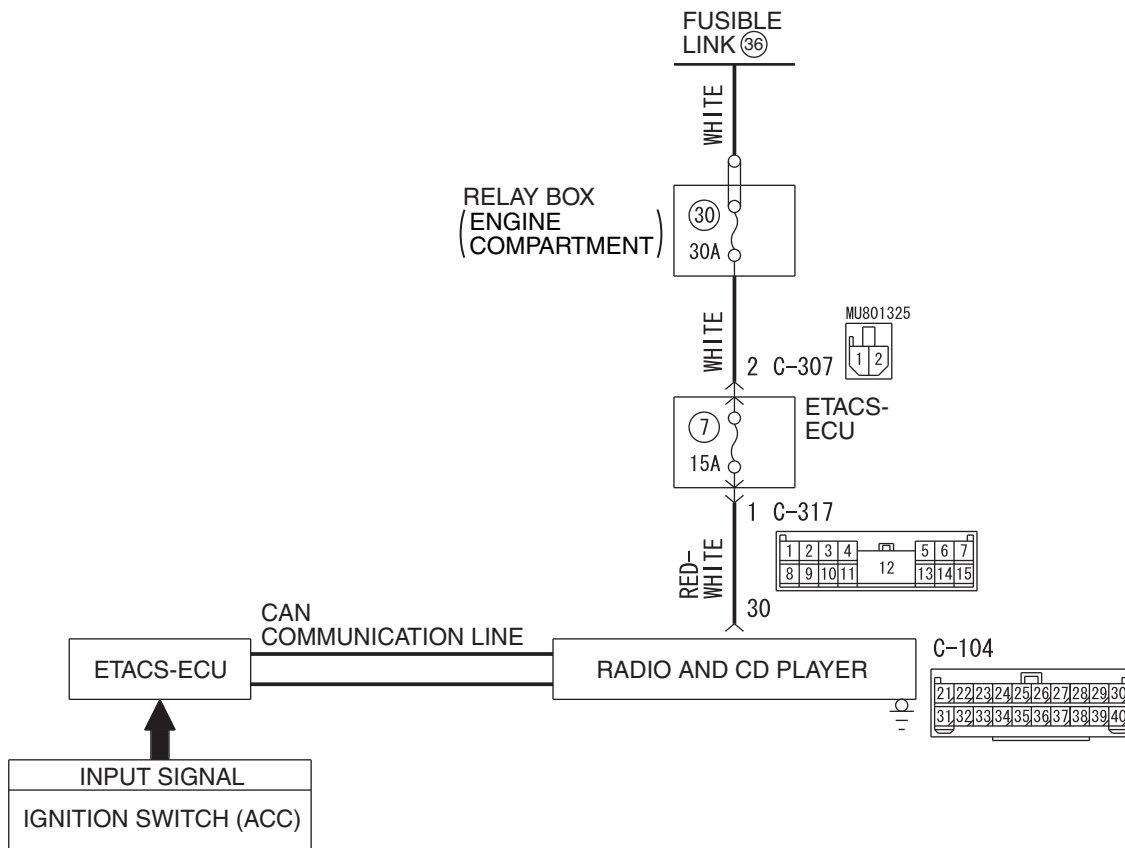
SYMPTOM PROCEDURES

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

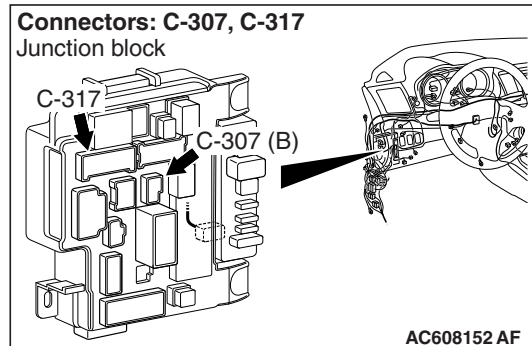
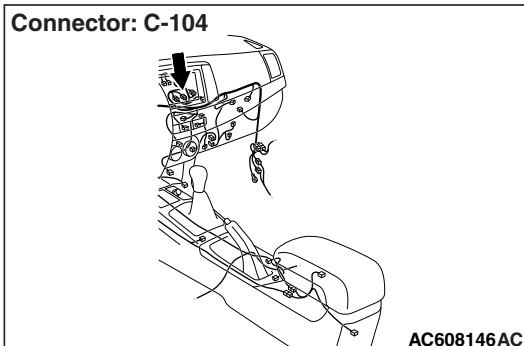
**CAUTION**

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

Radio and CD Player Power Supply Circuit



W9H54M032A



**CAUTION**

When the ignition switch is turned to the ACC position for 30 minutes with the ETACS-ECU function, the ACC power is cut-off automatically. For this function, the time to cut-off can be changed with the operation of ETACS system by the scan tool MB991958. (Refer to P.54A-764.)

**OPERATION**

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

**TECHNICAL DESCRIPTION (COMMENT)**

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

**TROUBLESHOOTING HINTS**

- Radio and CD player may be defective
- The ETACS-ECU may be defective
- Option coding information inconsistency
- 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

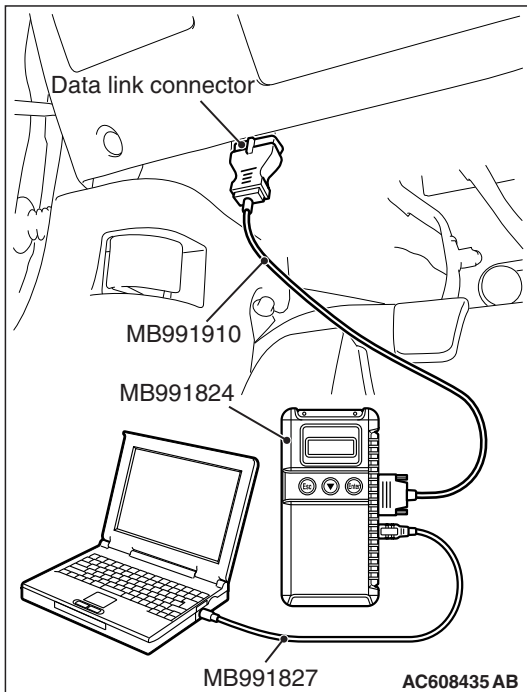
**STEP 1. ETACS-ECU coding data check.**

- (1) Operate scan tool MB991958 to read the ETACS-ECU option coding information (Refer to GROUP 00, Coding Table P.00-28).
- (2) Check that the "AUDIO" is set to "Present."

**Q: Is the check result normal?**

**YES :** Go to Step 2.

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



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

Use scan tool MB991958 to diagnose the CAN bus lines.

**⚠ CAUTION**

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

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

**Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO** : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-16](#).) On completion, go to Step 3.

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

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

**Q: Is the DTC set?**

**YES** : Troubleshoot the ETACS-ECU (Refer to GROUP 54A, ETACS, Diagnosis [P.54A-674](#)), and then go to Step 4.

**NO** : Go to Step 4.

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

Check the input signal of ACC relay.

- Turn the ignition switch to the ACC position.

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

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

**YES** : Go to Step 5.

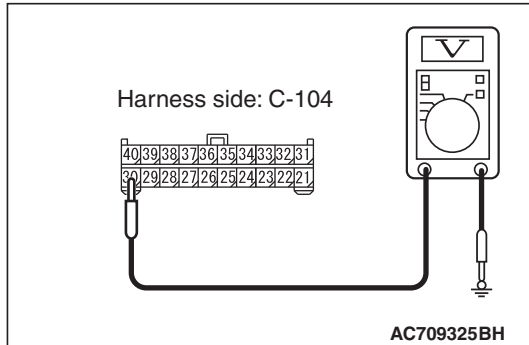
**NO** : Refer to GROUP 54A, ETACS, Diagnosis –Inspection Procedure 1 "The ignition switch (ACC) signal is not received" [P.54A-731](#).

**STEP 5. Check ETACS-ECU connector C-317 and radio and CD player connector C-104 for loose, corroded or damaged terminals, or terminals pushed back in the connector.****Q: Are ETACS-ECU connector C-317 and radio and CD player connector C-104 in good condition?**

**YES** : Go to Step 6.

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





**STEP 6. Check the power supply circuit to the radio and CD player. Measure the voltage at radio and CD player connector C-104.**

- (1) Disconnect the connector, and measure at the wiring harness-side connector.
- (2) Measure the voltage between terminal 30 and ground.

**OK: Battery positive voltage**

**Q: Is the measured voltage battery positive voltage?**

**YES :** Go to Step 8.

**NO :** Go to Step7.

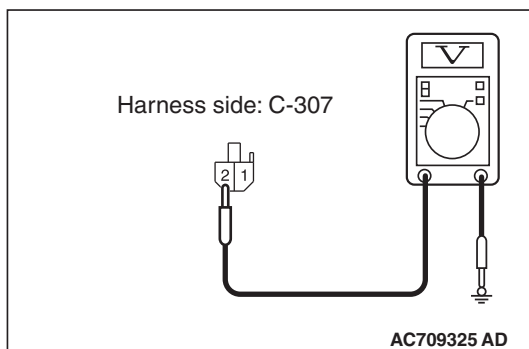
**STEP 7. Check the wiring harness between ETACS-ECU connector C-317 (terminal 1) and radio and CD player connector C-104 (terminal 30).**

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

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

**YES :** Go to Step 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 the power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-307.**

- (1) Disconnect the connector, and measure at the wiring harness-side connector.
- (2) Measure the voltage between terminal 2 and ground.

**OK: Battery positive voltage**

**Q: Is the measured voltage battery positive voltage?**

**YES :** Go to Step 10.

**NO :** Go to Step 9.

---

**STEP 9. Check the wiring harness between ETACS-ECU connector C-307 (terminal 2) and fusible link (36)**

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

**Q: Is the wiring harness between ETACS-ECU connector C-307 (terminal 2) and fusible link (36) in good condition?****YES :** Go to Step 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. Check that the radio and CD player is correctly grounded**

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

**Q: Is the radio and CD player correctly grounded?****YES :** Go to Step 11.**NO :** Securely install and ground the radio and CD player.

---

**STEP 11. Retest the system**

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

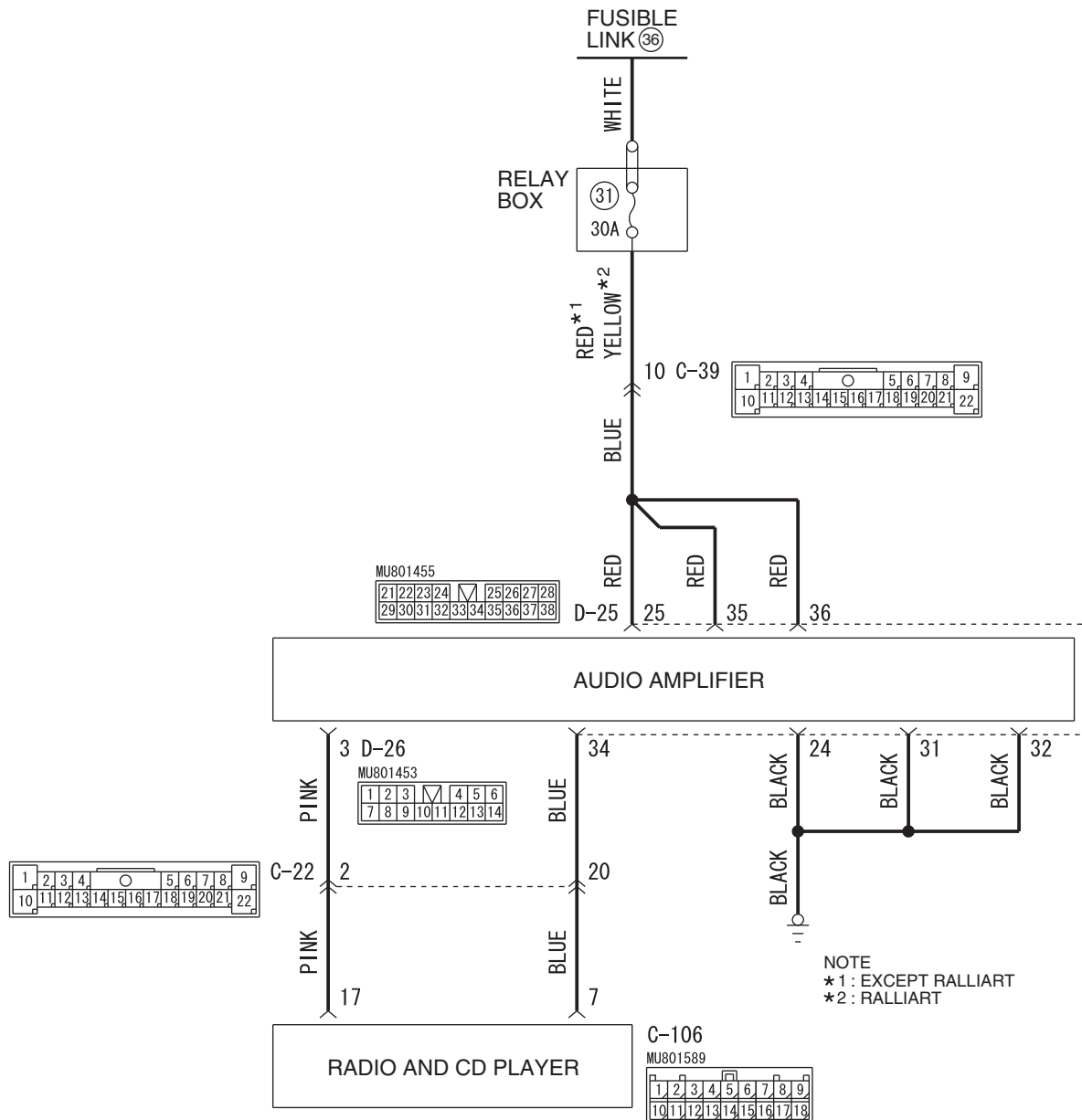
**Q: Is the check result normal?****YES :** The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction [P.00-13](#)).**NO :** Replace the radio and CD player.

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

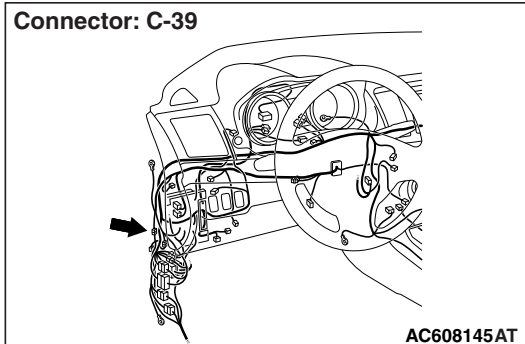
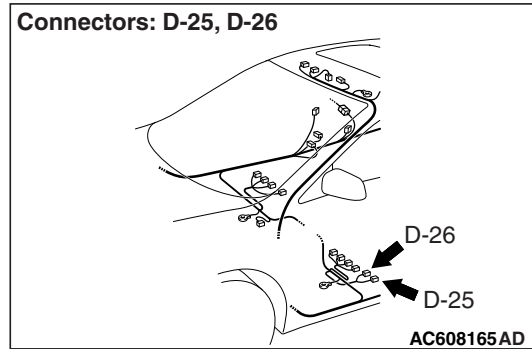
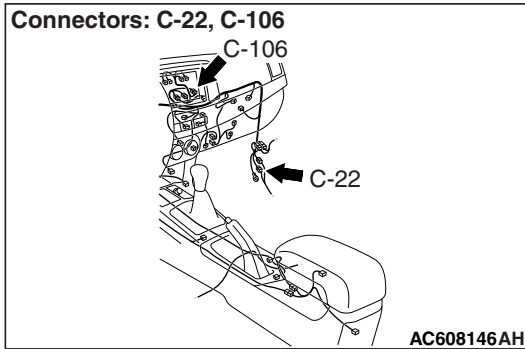
**CAUTION**

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

Audio System Circuit



WAS54M011A



### TECHNICAL DESCRIPTION (COMMENT)

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

### TROUBLESHOOTING HINTS

- Radio and CD player may be defective
- Audio amplifier may be defective
- Option coding information inconsistency
- 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. 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.00-28](#)).
- (2) Check that the "Number of speaker" is set to "Premium."

#### Q: Is the check result normal?

**YES** : Go to Step 2.

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

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

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

**YES :** Go to Step 3.

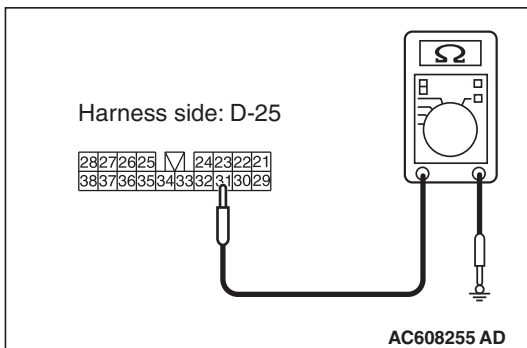
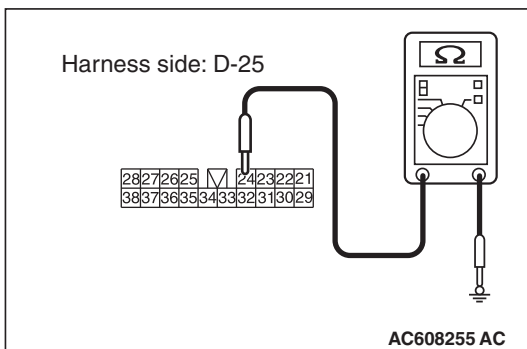
**NO :** Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

**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.

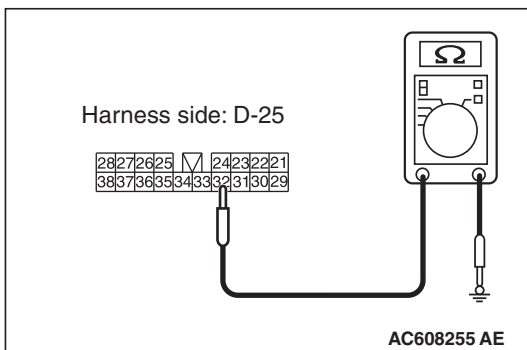
(2) Measure the resistance between terminal 24 and ground.

**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

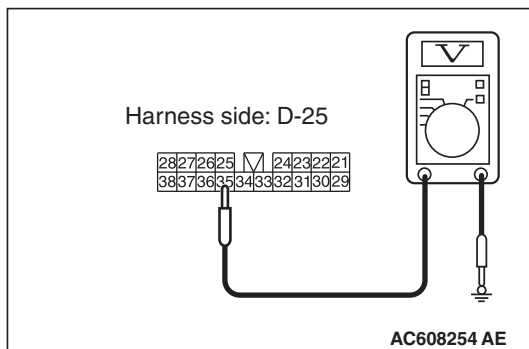
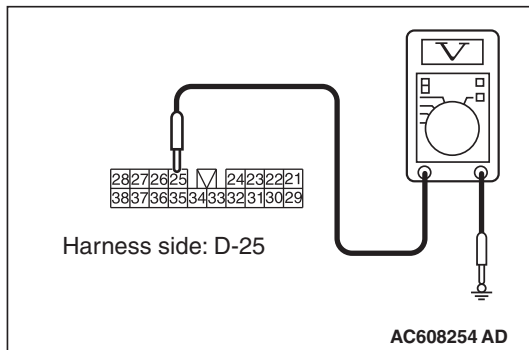
Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

**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.

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

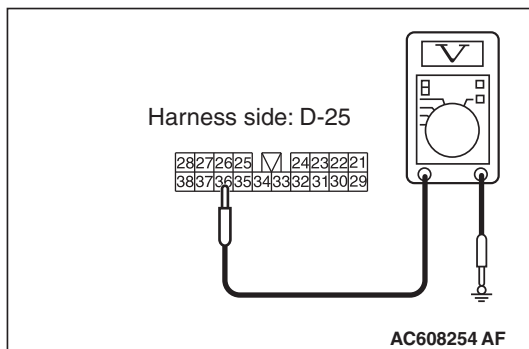
- (1) Disconnect audio amplifier connector D-25, and measure the voltage available at the wiring harness-side connector.
- (2) Measure the voltage between terminal 25 and ground.

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



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

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



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

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

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

**YES :** Go to Step 7.

**NO :** Go to Step 6.

---

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

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

*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.*

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

**YES :** Go to Step 7.

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

---

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

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

**YES :** Go to Step 8.

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

---

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

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

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

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

**YES :** Go to Step 9.

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

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

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

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

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

**YES :** Go to Step 10.

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

---

**STEP 10. Retest the system**

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

**Q: Is the check result normal?**

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

**NO :** Replace the radio and CD player.

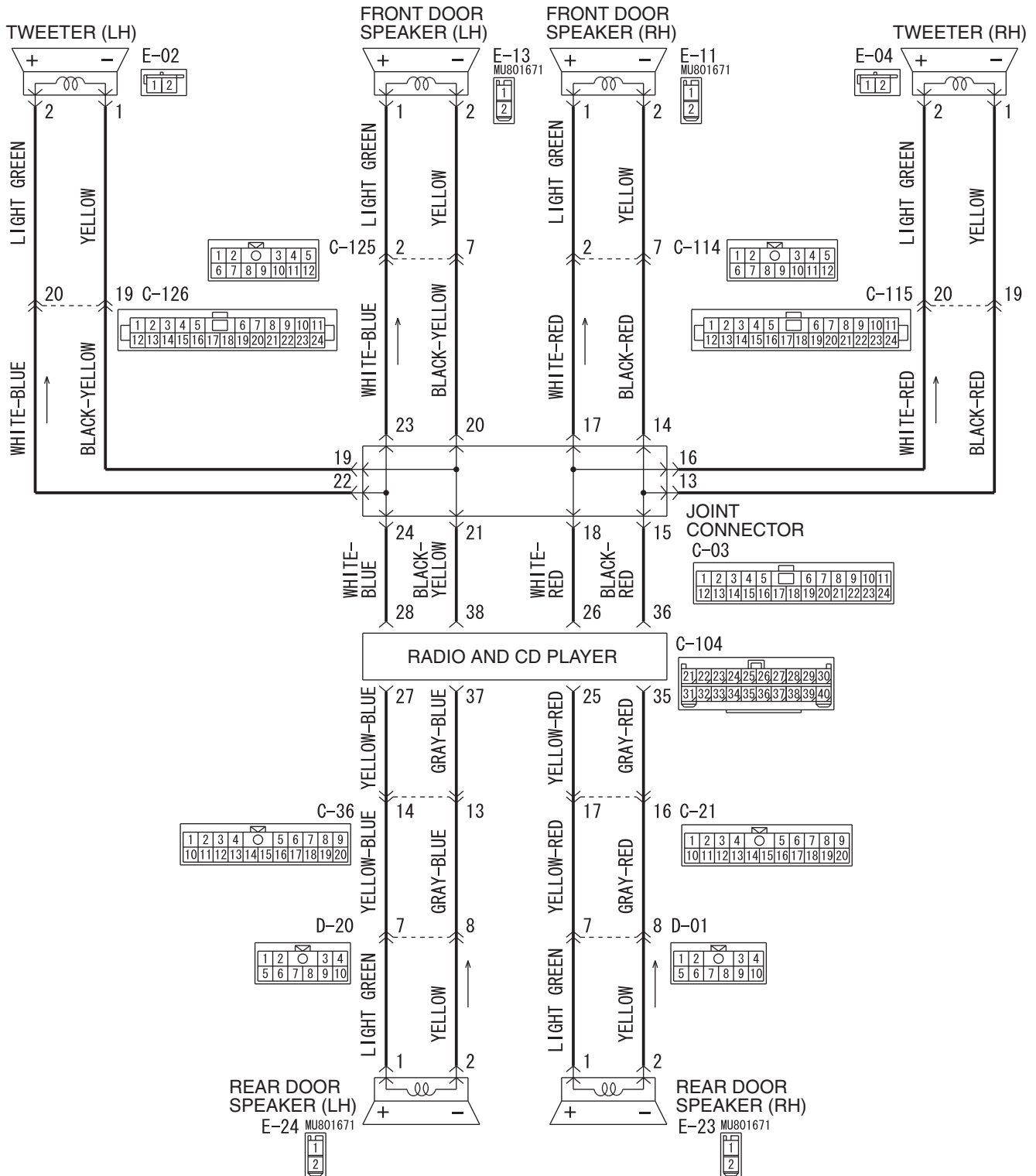


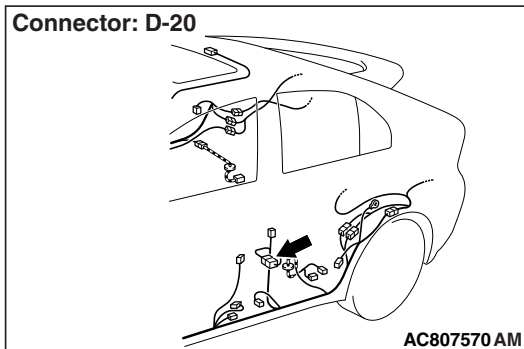
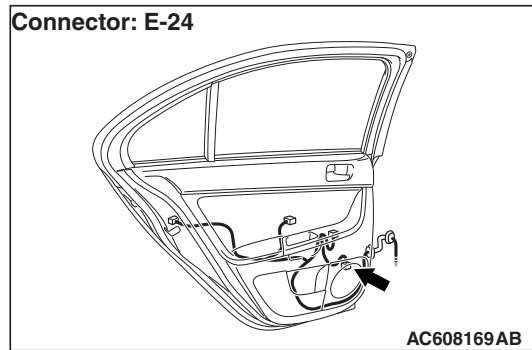
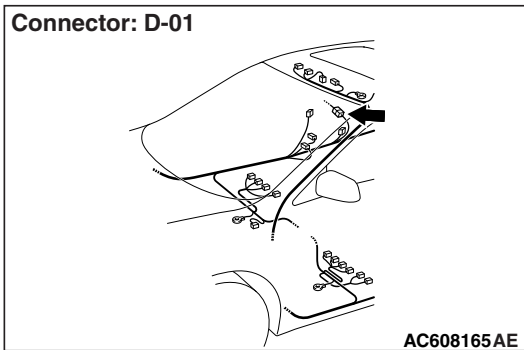
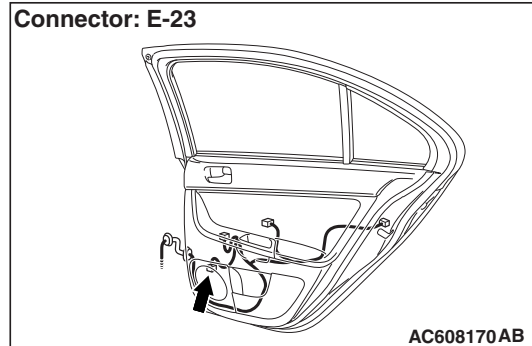
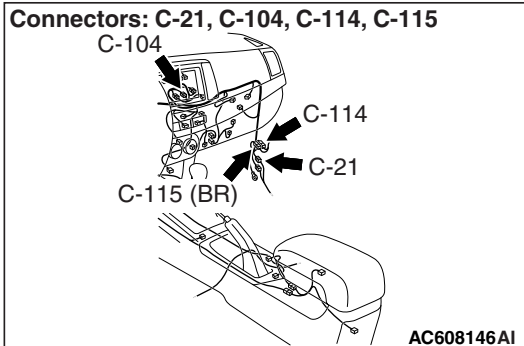
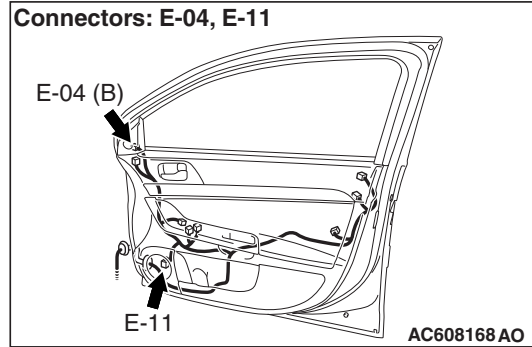
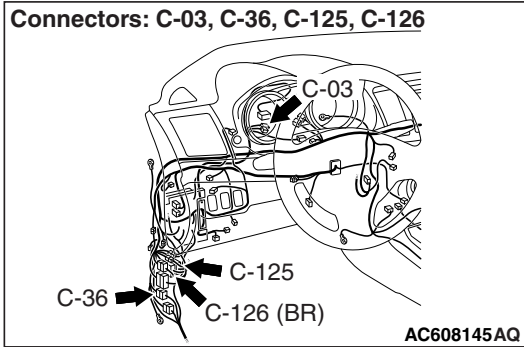
**Inspection Procedure 3: No sound is heard from one of the speakers. <Vehicles without audio amplifier>**

**CAUTION**

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

**Speaker System Circuit**



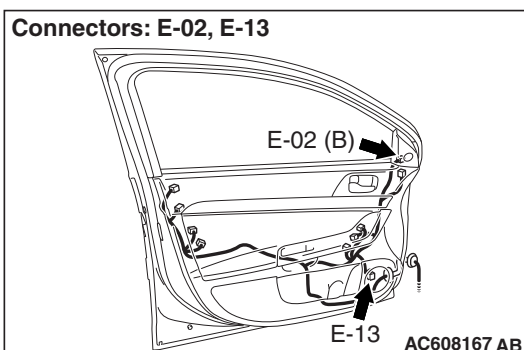


**TECHNICAL DESCRIPTION (COMMENT)**

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

**TROUBLESHOOTING HINTS**

- Speaker may be defective
- Radio and CD player 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. 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.00-28](#)).
- (2) Check that the "Number of speaker" is set to "6 speakers" .

#### Q: Is the check result normal?

**YES** : Go to Step 2.

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

---

### STEP 2. Checking with speaker test

Perform the speaker test, and check which speaker does not output the sound (Refer to [P.54A-624](#)).

*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 power supply and ground circuit, and repair if necessary. If the radio and CD player power supply and ground circuit is normal, replace the radio and CD player.

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

---

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

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

**YES** : Go to Step 4.

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

**STEP 4. Check the speaker or tweeter.**

- (1) Remove the speaker or tweeter (Refer to [P.54A-626](#)).
- (2) Check that the speaker or tweeter outputs the noise when the voltage of 5 V is applied to the speaker or tweeter connector terminal.

**Q: Does the speaker or tweeter output the noise?****YES** : Go to Step 5.**NO** : Replace the speaker or tweeter.

---

**STEP 5. Check radio and CD player connector C-104 for loose, corroded or damaged terminals, or terminals pushed back in the connector.****Q: Is radio and CD player connector C-104 in good condition?****YES** : Go to Step 6.**NO** : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)).

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

Check the communication lines for open circuit and short circuit.

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

*NOTE: Also check joint connector C-03 and intermediate connector C-125 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 or intermediate connector C-125 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

- <Front door speaker (RH)> Check the wiring harness between front door speaker (RH) connector E-11 (terminal 1, 2) and radio and CD player connector C-104 (terminal 26, 36).

*NOTE: Also check joint connector C-03 and intermediate connector C-114 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 or intermediate connector C-114 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

- <Rear door speaker (LH)> Check the wiring harness between rear door speaker (LH) connector E-24 (terminal 1, 2) and radio and CD player connector C-104 (terminal 27, 37).

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

- <Rear door speaker (RH)> Check the wiring harness between rear door speaker (RH) connector E-23 (terminal 1, 2) and radio and CD player connector C-104 (terminal 25, 35).

*NOTE: Also check intermediate connectors C-21 and D-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-21 or D-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

- <Tweeter (LH)> Check the wiring harness between tweeter (LH) connector E-02 (terminal 1, 2) and radio and CD player connector C-104 (terminal 38, 28).

*NOTE: Also check joint connector C-03 and intermediate connector C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 or intermediate connector C-126 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

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

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

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

**YES :** Replace the radio and CD player.

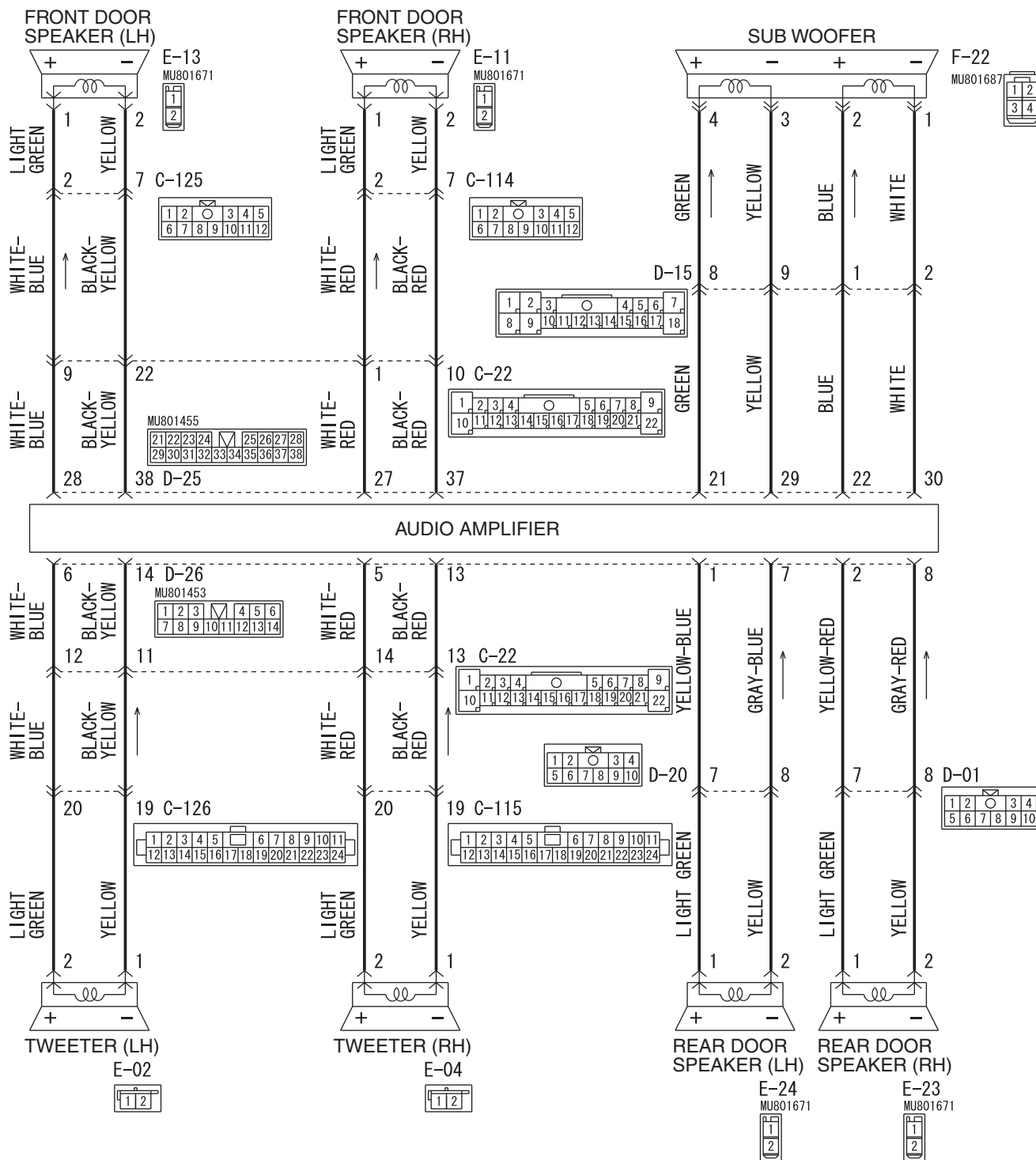
**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

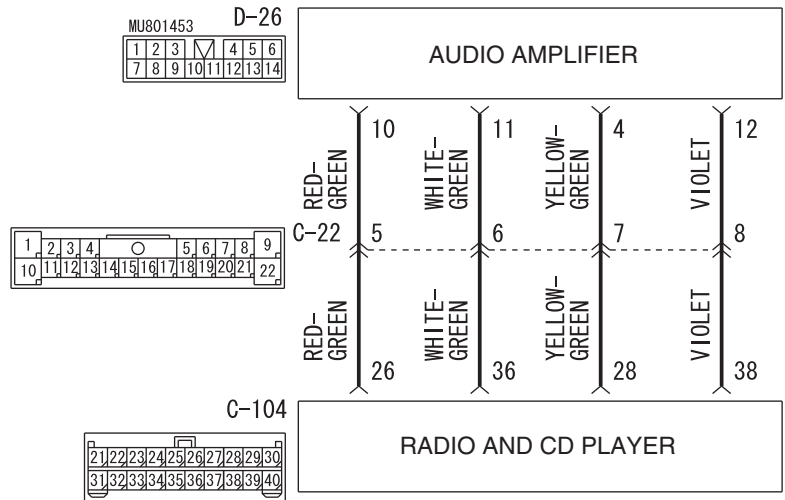
Inspection Procedure 3: No sound is heard from one of the speakers. <Vehicles with audio amplifier>

**CAUTION**

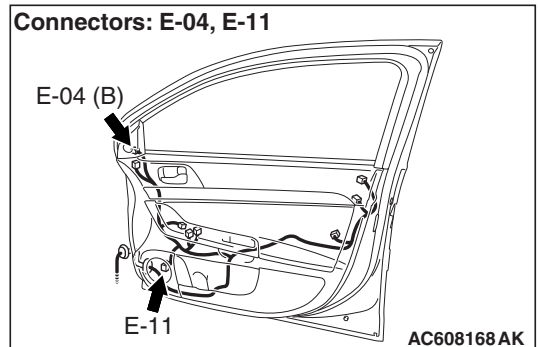
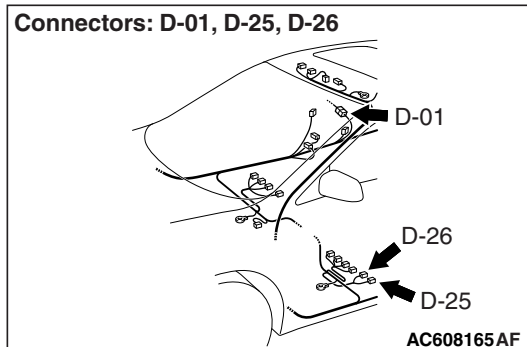
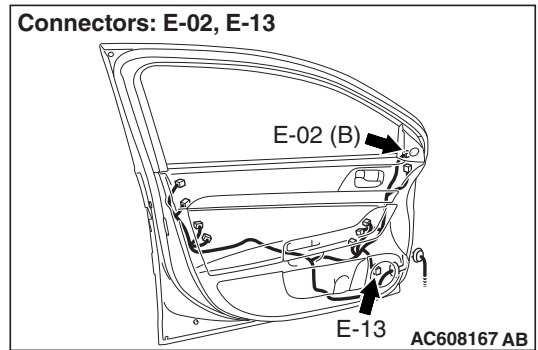
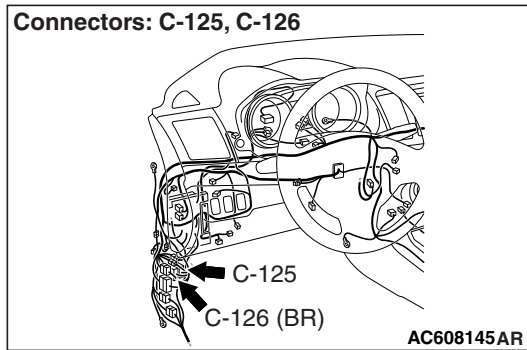
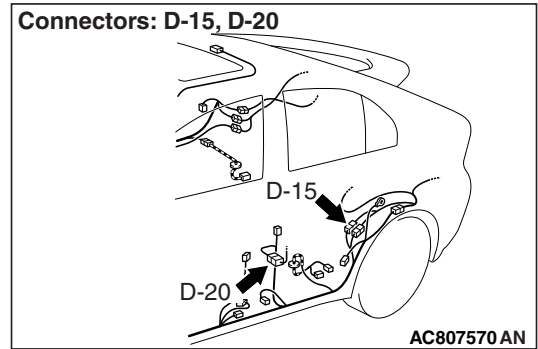
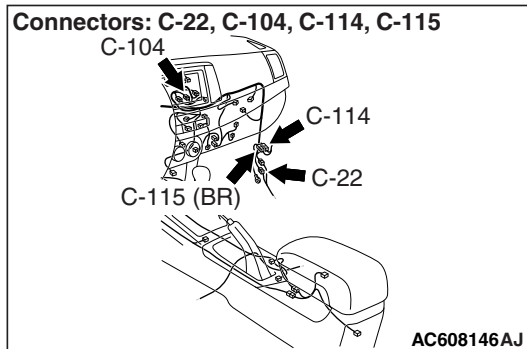
Before replacing the radio and CD player or audio amplifier, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Speaker System Circuit



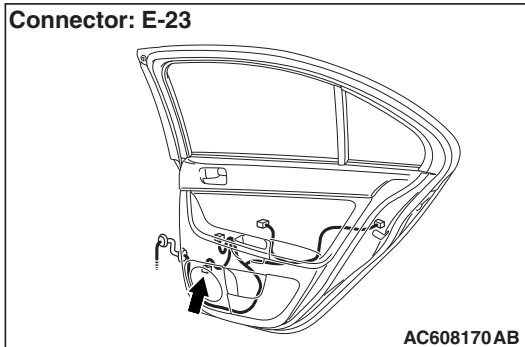


WAS54M012A

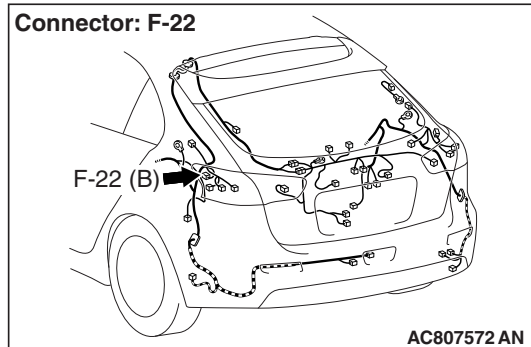




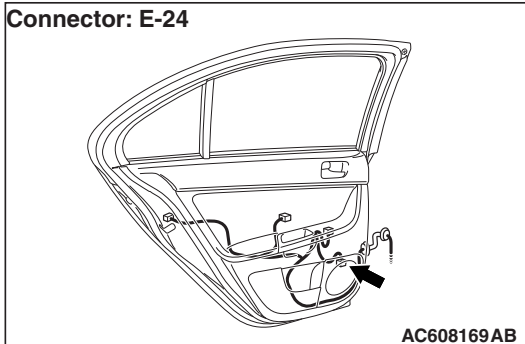
Connector: E-23



Connector: F-22



Connector: E-24



### TECHNICAL DESCRIPTION (COMMENT)

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

### TROUBLESHOOTING HINTS

- Speaker may be defective
- Radio and CD player may be defective
- Audio amplifier may be defective
- Option coding information inconsistency
- 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. 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.00-28](#)).
- (2) Check that the "Number of speaker" is set to "Premium."

#### Q: Is the check result normal?

**YES** : Go to Step 2.

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

**STEP 2. Checking with speaker test**

Perform the speaker test, and check which speaker does not output the sound (Refer to [P.54A-624](#)).

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

**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** : Go to Step 3.

---

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

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

**YES** : Go to Step 4.

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

---

**STEP 4. Check the speaker, tweeter or subwoofer.**

- (1) Remove the speaker, tweeter or subwoofer (Refer to [P.54A-626](#)).
- (2) Check that the speaker or tweeter outputs the noise when the voltage of 5 V is applied to the speaker or tweeter connector terminal. <speaker or tweeter>
- (3) Check that the subwoofer outputs the noise when the voltage of 5 V is applied to the subwoofer connector terminal. <subwoofer>

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Replace the speaker, tweeter or subwoofer.

---

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

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

**YES** : Go to Step 6.

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

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

Check the communication lines for open circuit and short circuit.

- <Front door speaker (LH)> Check the wiring harness between front door speaker (LH) connector E-13 (terminal 1, 2) and audio amplifier connector D-25 (terminal 28, 38).  
*NOTE: Also check intermediate connectors C-22 and C-125 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-125 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*
- <Front door speaker (RH)> Check the wiring harness between front door speaker (RH) connector E-11 (terminal 1, 2) and audio amplifier connector D-25 (terminal 27, 37).  
*NOTE: Also check intermediate connectors C-22 and C-114 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-114 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*
- <Rear door speaker (LH)> Check the wiring harness between rear door speaker (LH) connector E-24 (terminal 1, 2) and audio amplifier connector D-26 (terminal 1, 7).  
*NOTE: Also check intermediate connector D-20 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-20 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*
- <Rear door speaker (RH)> Check the wiring harness between rear door speaker (RH) connector E-23 (terminal 1, 2) and audio amplifier connector D-26 (terminal 2, 8).  
*NOTE: Also check intermediate connector D-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

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

*NOTE: Also check intermediate connectors C-22 and C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-126 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

- <Tweeter (RH)> Check the wiring harness between tweeter (RH) connector E-04 (terminal 1, 2) and audio amplifier connector D-26 (terminal 13, 5).

*NOTE: Also check intermediate connectors C-22 and C-115 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-115 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

- <Subwoofer> Check the wiring harness between subwoofer connector F-22 (terminal 1, 2, 3, 4) and audio amplifier connector D-25 (terminal No.30, 22, 29, 21).

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

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

**YES :** Go to Step 7.

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

---

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

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

**YES :** Go to Step 8.

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

---

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

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

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

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

**YES :** Check the trouble symptom, go to Step 9.

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

---

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

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

**Q: Is the check result normal?**

**YES :** Replace the audio amplifier.

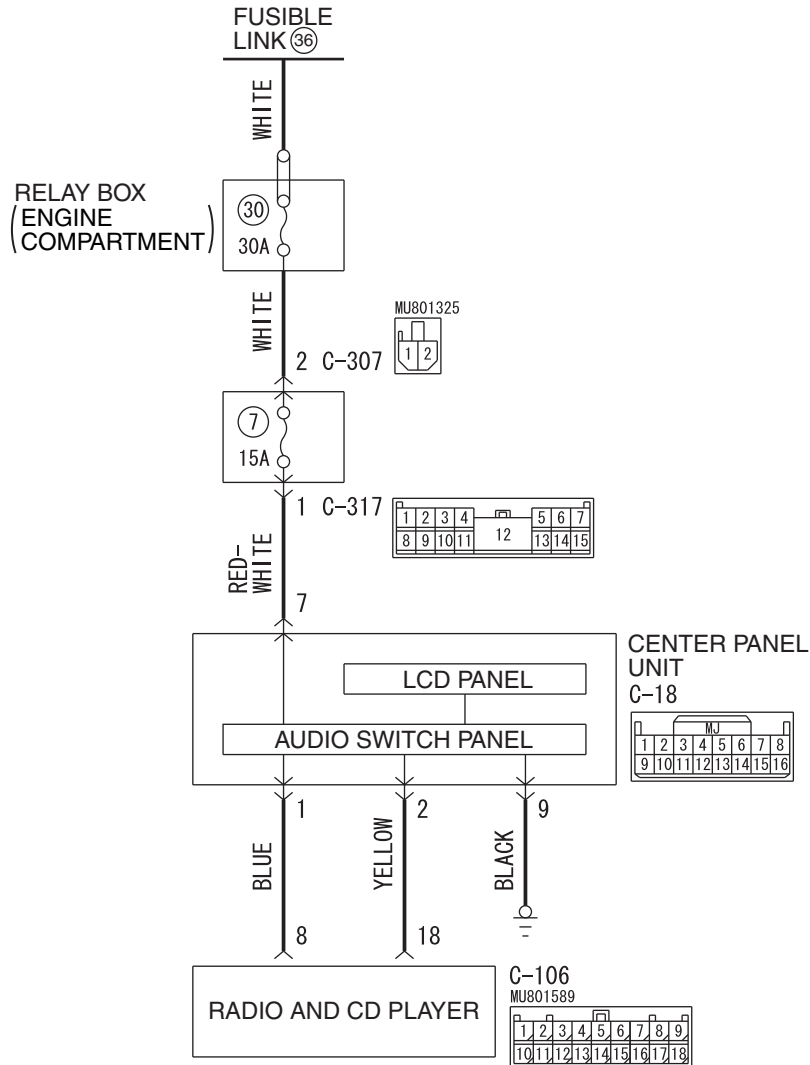
**NO :** Replace the radio and CD player.

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

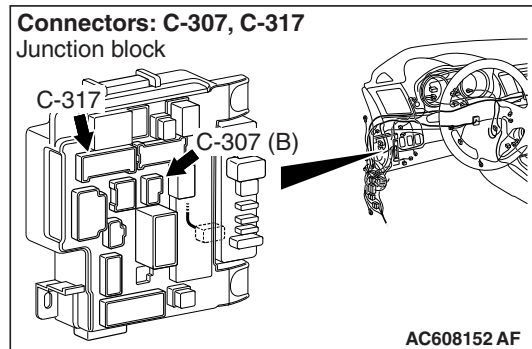
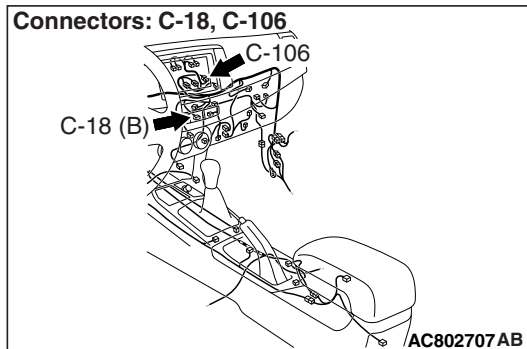
**CAUTION**

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

Center Panel Unit Power Supply Circuit



W9H54M037A



### TECHNICAL DESCRIPTION (COMMENT)

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

### TROUBLESHOOTING HINTS

- The radio and CD player may be defective.
- The center panel unit 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 center panel unit connector C-18 and radio and CD player connector C-106 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

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

**YES :** Go to Step 2.

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

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

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

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

**YES :** Go to Step 3.

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

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

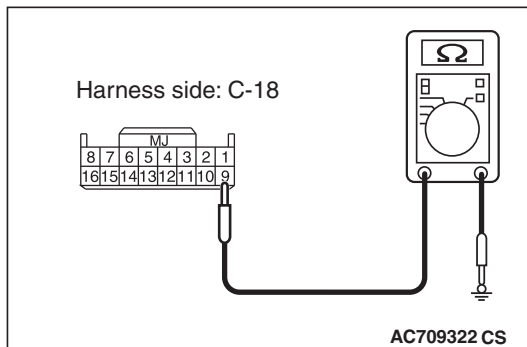
- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure resistance between terminal 9 and ground.

**OK: The resistance should be 2 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 center panel unit connector C-18 (terminal 9) and ground.**

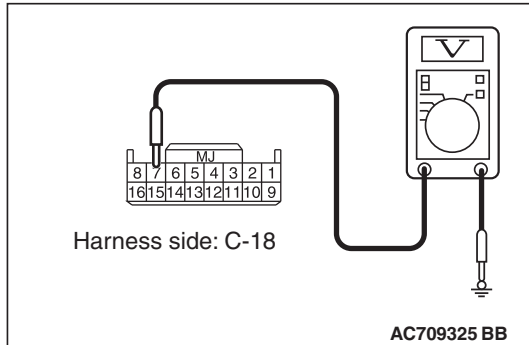
- Check the ground wire for open circuit.

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

**YES :** Check the trouble symptom.

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





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

- (1) Disconnect the connector, and measure at the harness side connector.
- (2) Measure voltage between terminal 7 and ground.

**OK: Battery positive voltage**

**Q: Is the measured voltage battery positive voltage?**

**YES :** Go to Step 7.

**NO :** Go to Step 6.

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

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

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

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

**YES :** Check the trouble symptom.

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

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

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

**Q: Is the check result normal?**

**YES :** Replace the center panel unit.

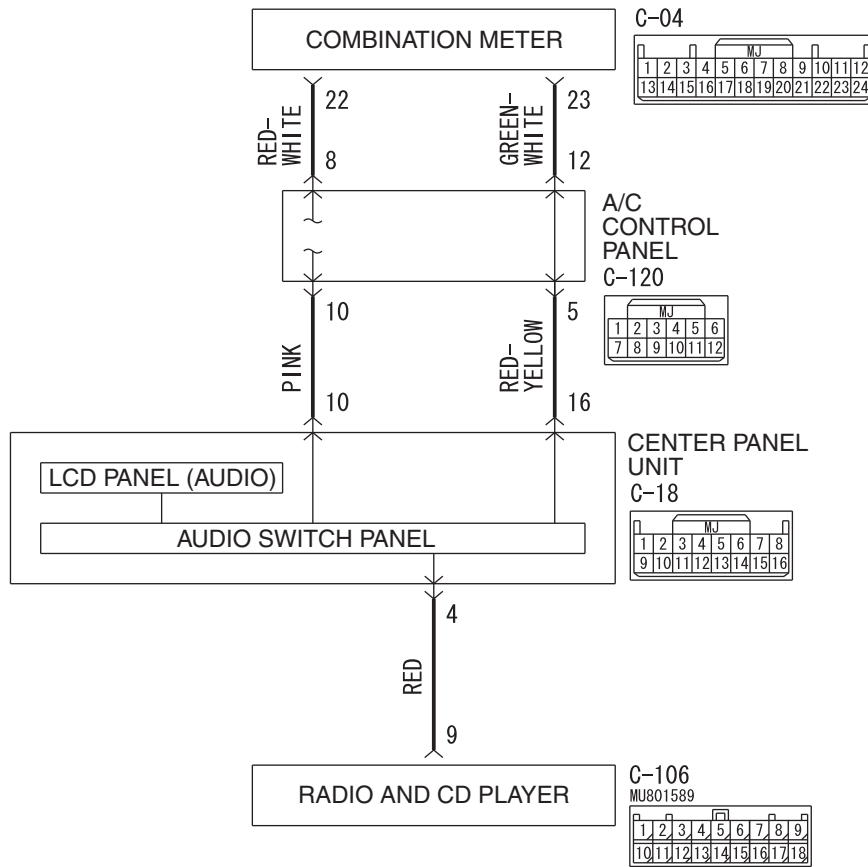
**NO :** Replace the radio and CD player.

**Inspection Procedure 5: Audio illuminations does not work normally.**

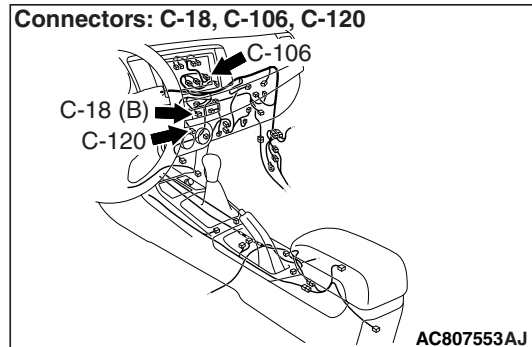
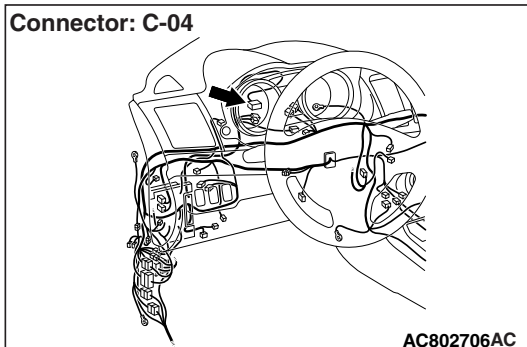
**CAUTION**

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

Center Panel Unit Communication Circuit



W9S54M012A



## OPERATION

- When the position light is illuminated, the audio illumination is switched to the nighttime illumination.
- When the brightness is adjusted using the combination meter rheostat switch, the audio illumination brightness is also adjusted.

## TECHNICAL DESCRIPTION (COMMENT)

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

## TROUBLESHOOTING HINTS

- The combination meter may be defective.
- The radio and CD player may be defective.
- The center panel unit 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. Operation check of the center panel unit

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

#### Q: Is the check result normal?

**YES** : Go to Step 2.

**NO** : Refer to Inspection Procedure 4 "The audio does not operate normally by operating the radio and CD player of the center panel unit." [P.54A-398](#).

---

### STEP 2. Check the combination meter.

Check whether the combination meter works normally.

#### Q: Is the check result normal?

**YES** : Go to Step 3.

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

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

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

**⚠ CAUTION**

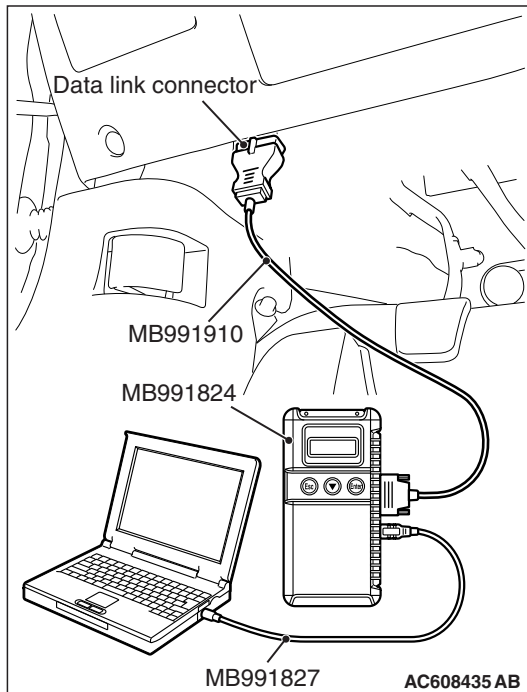
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-341](#)".
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for combination meter DTCs.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

**Q: Is the DTC set?**

**YES** : Diagnose the combination meter (Refer to [P.54A-33](#)).

**NO** : Go to Step 4.

**STEP 4. Check center panel unit connector C-18 and combination meter connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.****Q: Are center panel unit connector C-18 and combination meter connector C-04 in good condition?**

**YES** : Go to Step 5.

**NO** : Repair the connector concerned.

---

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

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

*NOTE: Also check A/C control panel connector C-120 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If A/C control panel connector C-120 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

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

**YES :** Go to Step 6.

**NO :** Repair the wiring harness.

---

**STEP 6. Check A/C control panel C-120 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is A/C control panel C-120 in good condition?**

**YES :** Go to Step 7.

**NO :** Repair the connector concerned.

---

**STEP 7. Check the wiring harness between A/C control panel C-120 (terminal 8) and combination meter connector C-04 (terminal 22).**

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

**Q: Is the wiring harness between A/C control panel C-120 (terminal 8) and combination meter connector C-04 (terminal 22) in good condition?**

**YES :** Go to Step 8.

**NO :** Repair the wiring harness.

---

**STEP 8. Check the wiring harness between A/C control panel C-120 (terminal 10) and center panel unit connector C-18 (terminal 10).**

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

**Q: Is the wiring harness between A/C control panel C-120 (terminal 10) and center panel unit connector C-18 (terminal 10) in good condition?**

**YES :** Go to Step 9.

**NO :** Repair the wiring harness.

---

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

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

**YES :** Go to Step 10.

**NO :** Repair the connector concerned.

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

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

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

**YES :** Go to Step 11.

**NO :** Repair the wiring harness.

---

**STEP 11. Replace the A/C control panel temporarily, and check the trouble symptom.**

Replace the A/C control panel temporarily, and check that the audio illumination works normally.

**Q: Is the check result normal?**

**YES :** Replace the A/C control panel.

**NO :** Go to Step 12.

---

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

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

**Q: Is the check result normal?**

**YES :** Replace the center panel unit.

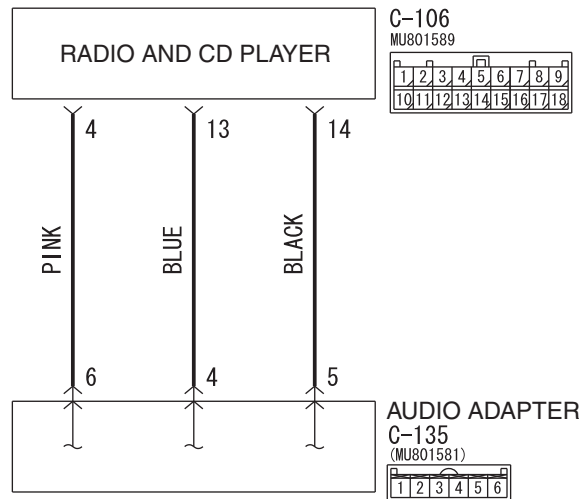
**NO :** Replace the radio and CD player.

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

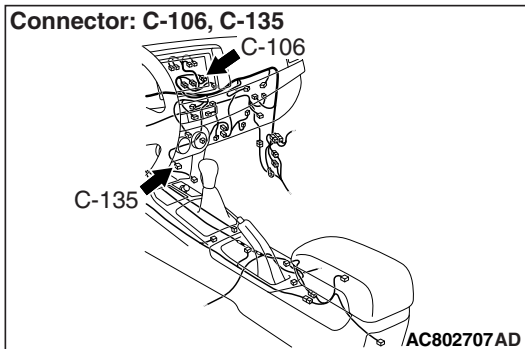
**CAUTION**

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

**Audio and Video Adapter Communication Circuit**



W9H54M039A



**TECHNICAL DESCRIPTION (COMMENT)**

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

**TROUBLESHOOTING HINTS**

- The audio adapter may be defective.
- The radio and CD player 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 the Radio and CD player.**

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

**Q: Is the check result normal?**

**YES :** Go to Step 2.

**NO :** Troubleshoot the radio and CD player (Refer to [P.54A-373](#)).

**STEP 2. Check the external sound input mode.**

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

**Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO** : Set the external sound input mode.

---

**STEP 3. Check the audio adapter.**

Check the continuity at the audio adapter. (Refer to [P.54A-414.](#))

**Q: Is the check result normal?**

**YES** : Go to Step 4.

**NO** : Replace the Audio adapter.

---

**STEP 4. Check audio adapter connector C-135 and radio and CD player connector C-106 for loose, corroded or damaged terminals, or terminals pushed back in the connector.****Q: Are audio adapter connector C-135 and radio and CD player connector C-106 in good condition?**

**YES** : Go to Step 5.

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

---

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

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

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

**YES** : Replace the audio adapter, and go to Step 6.

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

---

**STEP 6. Retest the system.**

Check that the external input is normal.

**Q: Is the check result normal?**

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

**NO** : Replace the radio and CD player.

---



Inspection Procedure 7: Troubleshooting for noise

**⚠ CAUTION**

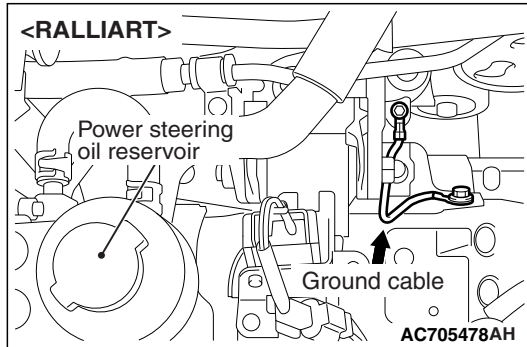
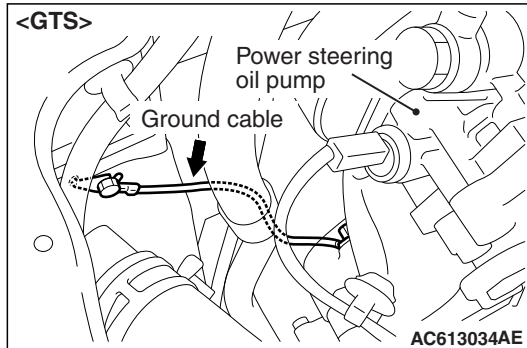
- Check that no noise of external origin is present. Because the signal reception becomes poor indoors, check in the open air. If this check is neglected, the source of noise cannot be determined, resulting in a false recognition. Therefore, be sure to perform this check.
- When implementing the noise prevention, start the prevention from the object causing the strongest noise.
- Check that the radio and CD player main body and others are securely grounded.

**COMMENTS ON TROUBLE SYMPTOM**

While the engine is running, if noise is generated when the radio or CD is being played, check the relevant item by following the table below, and repair if necessary.

Noise types ( ) indicates the sound type.	Situation	Cause	Countermeasure
Ignition noise: (Crack, tapping, rattle, splash)	<ul style="list-style-type: none"> <li>• When the engine speed is increased, the scratch noise becomes faster and the sound volume decreases.</li> <li>• When the ignition switch is turned to ACC, the noise disappears.</li> </ul>	<ul style="list-style-type: none"> <li>• Radiation noise caused mainly by the spark plug</li> <li>• Noise wraparound</li> </ul>	Check the ground cable, and replace if necessary. (Refer to the figure below.)
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.	Noise generated by the wiper motor operation	Check the wiper motor (Refer to GROUP 51 – Windshield Wiper, Inspection P.51-83.), and replace if necessary.
Electric mirror noise: (hum, distorted hum)	The noise is generated when the electric mirror is operated.	Noise generated by the electric mirror motor operation	Check the electric mirror motor (Refer to GROUP 51 – Door Mirror, Inspection P.51-131.), and replace if necessary.
Static electricity (cracking, popping)	<ul style="list-style-type: none"> <li>• No noise is generated when the vehicle comes to a complete stop.</li> <li>• Louder noise is generated when the clutch is disengaged.</li> </ul>	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, trunk lid, bumper, exhaust pipe and muffler, suspension, or others.	Securely tighten the mounting bolts of each part.

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.



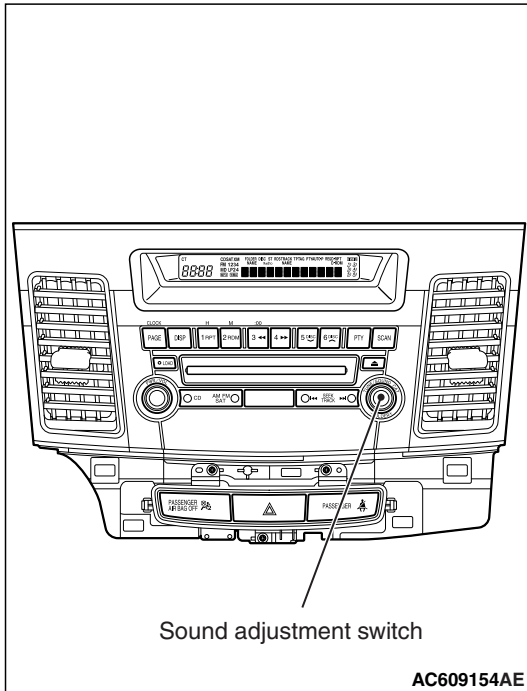
## ON-VEHICLE SERVICE

### ADJUSTMENT OF VOLUME AND SOUND QUALITY AUTOMATIC CORRECTION FUNCTION

M1544014200226

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

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



## SERVICE DATA

M1544014100230

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

REMOVAL AND INSTALLATION

M1544010900513

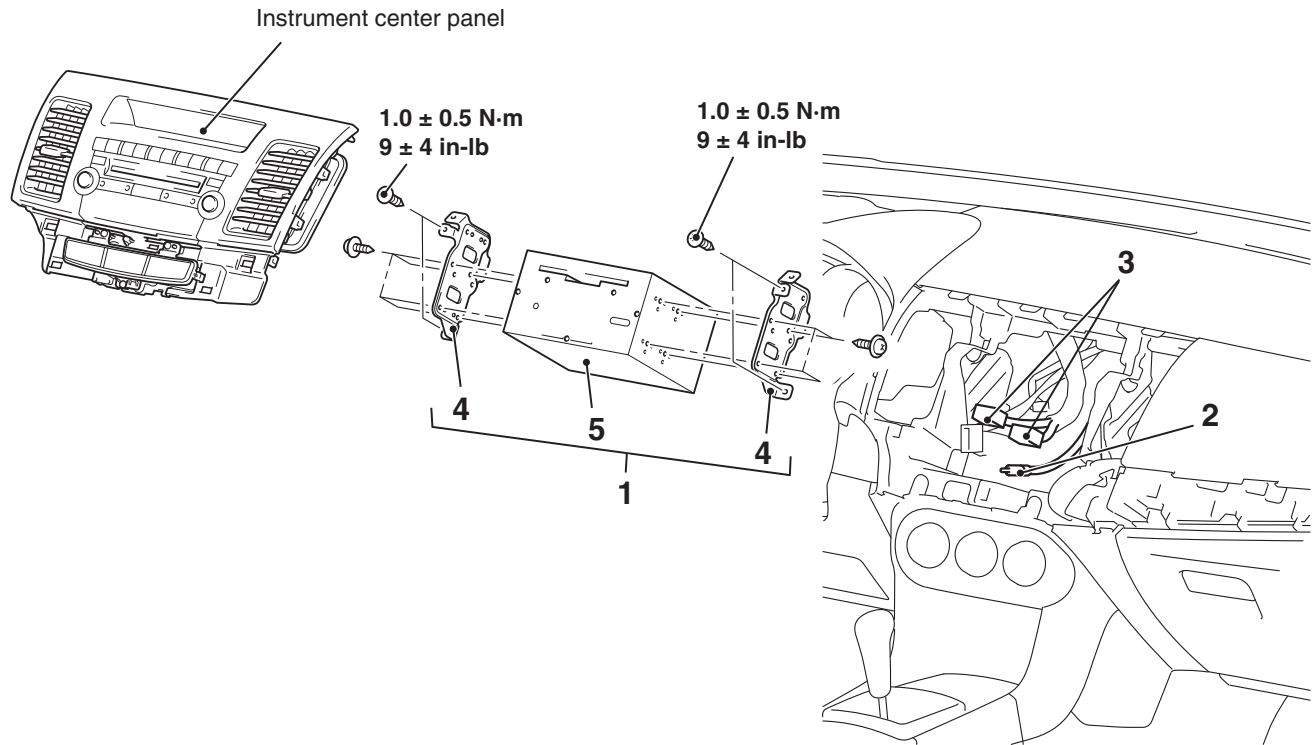
RADIO AND CD PLAYER

**Pre-removal operation**

- Removal of instrument center panel (Refer to GROUP 52A –Instrument Center Panel assembly P.52A-7).

**Post-installation operation**

- Installation of instrument center panel (Refer to GROUP 52A –Instrument Center Panel assembly P.52A-7).



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**Removal Steps**

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

**Removal Steps (Continued)**

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

**AUDIO ADAPTER**

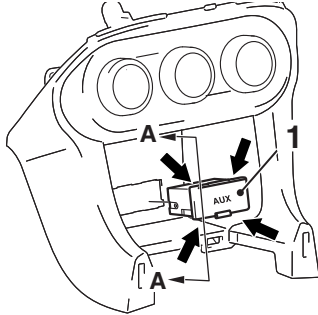
**Pre-removal operation**

- Removal of instrument console box (Refer to GROUP 52A –Instrument Center Panel assembly P.52A-7).

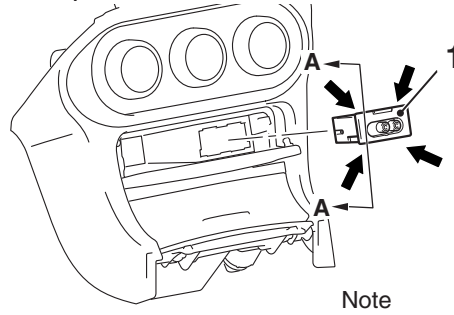
**Post-installation operation**

- Installation of instrument console box (Refer to GROUP 52A –Instrument Center Panel assembly P.52A-7).

<Vehicles with instrument panel console box>

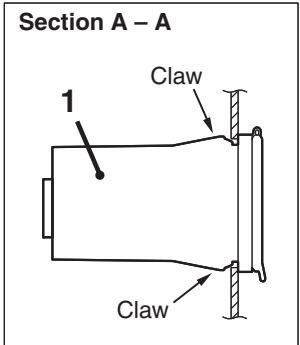


<Vehicles without instrument panel console box>



Note

← : Claw positions



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**Removal Step**

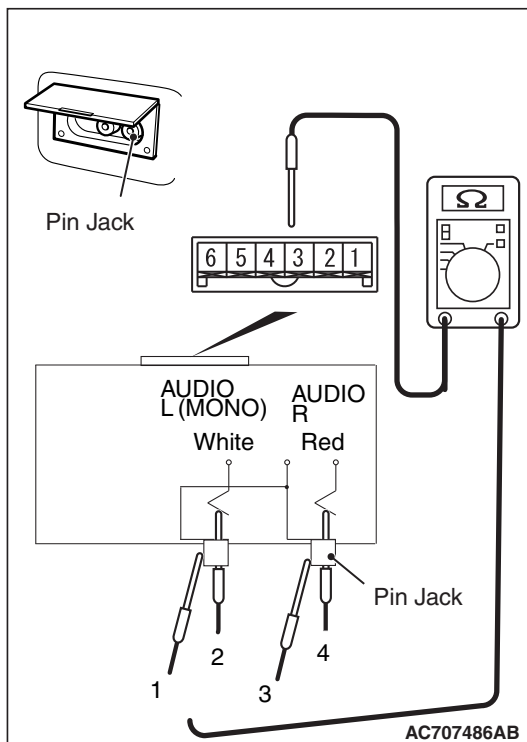
1. Audio adapter

**INSPECTION**

**AUDIO ADAPTER INSPECTION**

M1544019000119

1. Remove the audio adapter.(Refer to P.54A-413)
2. Check the continuity between terminals of audio adapter and pin jack.



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