

# GROUP 54A

# CHASSIS ELECTRICAL

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### 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

- The 80D26L battery has been adopted for 3.0L engine.
- The 75D23L battery has been adopted for 2.4L engine.

M1541000100562

Item	Specification	
	75D23L	80D26L
Voltage V	12	
Capacity (5-hour rate) Ah	52	55
Electrolytic fluid specific gravity [fully charged state at 20°C (68°F)]	1.220 – 1.290	
Battery current sensor resistance (ohms)	Current sensor resistance value	between terminal No.1 – 3: 3 – 10 k
		between terminal No.1 – 4: less than 0.5 k
		between terminal No.3 – 4: 3 – 10 k
	Temperature sensor resistance value	4.5 – 7.2 k (when 0 °C)
		1.6 – 2.5 k (when 25 °C)
		0.96 – 1.40 k (when 40 °C)

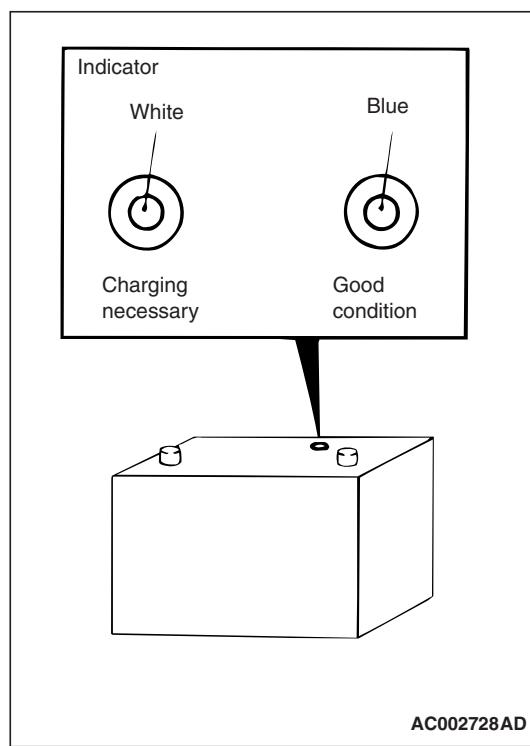
### ON-VEHICLE SERVICE

#### BATTERY CHECK

M1541001000610

 **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**

M1541001101687

**⚠️ 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	80D26L
Slow charging	5 amps 11 hours	5 amps 11 hours
	10 amps 6 hours	10 amps 6 hours
Fast charging	20 amps 3 hours	20 amps 3 hours
	30 amps 2 hours	30 amps 2 hours

**BATTERY TEST**

M1541001201792

**BATTERY TESTING PROCEDURE****STEP 1. Check the battery cables.**

(1) Remove the negative cable, then the positive cable.  
 (2) 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 posts.**

Check for loose battery post.

**Q: Are the battery posts loose?**

Yes : Replace the battery.  
 NO : Go to Step 3.

**STEP 3. Check the battery case and cover.**

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

**Q: Is the battery case or cover faulty?**

YES : Replace the battery.  
 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
80D26L	290 amps	582 amps	133 minutes

**LOAD TEST CHART**

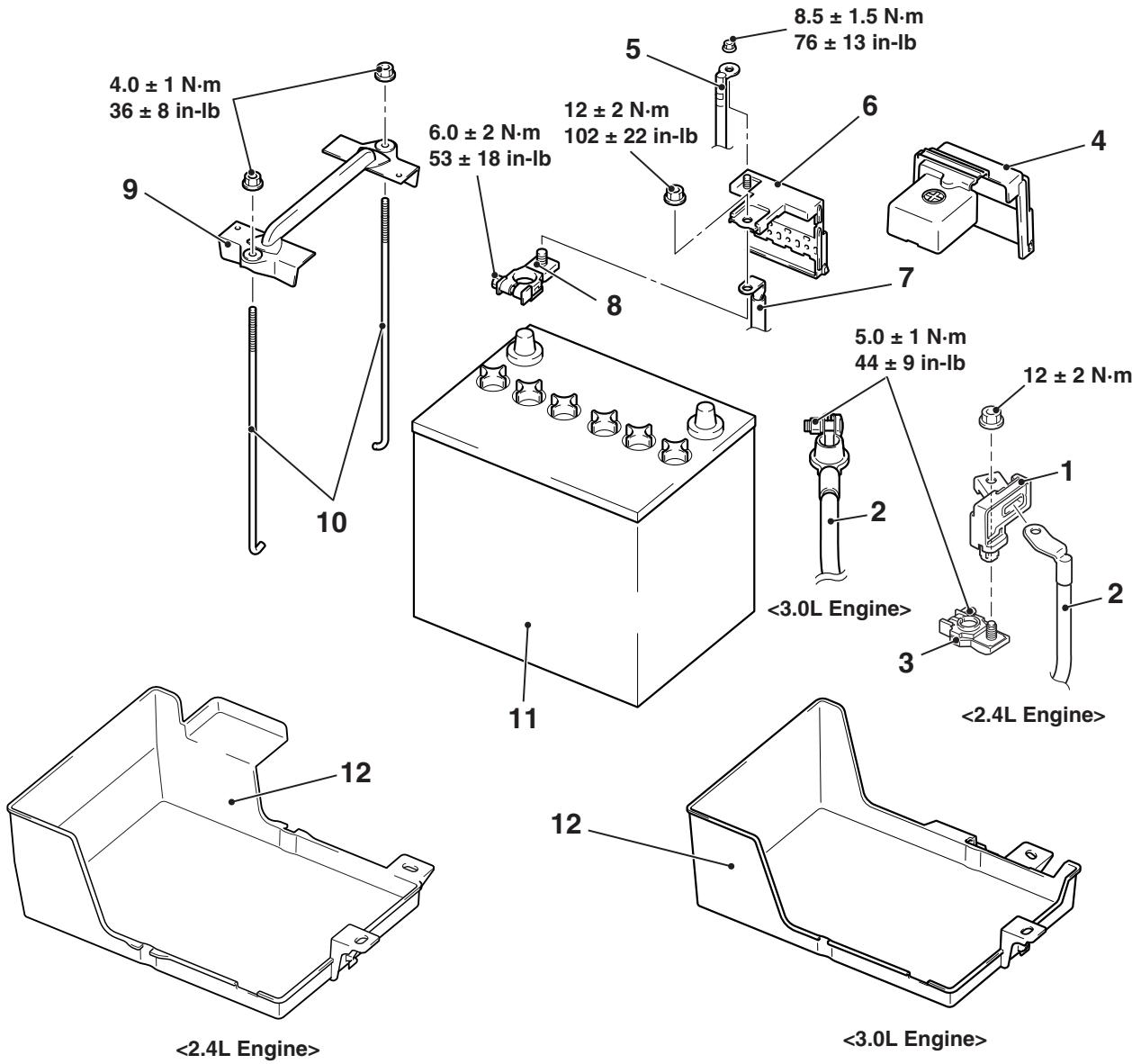
Temperature °C (°F)	21 (70) AND ABOV E	16 (60)	10 (50)	4 (40)	-1 (30)	-7 (20)	-12 (10)	-18 (0)
Minimum voltage	9.6	9.5	9.4	9.3	9.1	8.9	8.7	8.5

## REMOVAL AND INSTALLATION

M1541001301410

## △ CAUTION

- When the battery current sensor and the engine control module are replaced, make the battery current sensor learn the neutral point by using the scan tool. (Refer to GROUP 00 – Precautions before Service, Battery Current Sensor Calibration P.00-56.)



ACA02768AB

## Removal steps

1. Battery current sensor <2.4L Engine>
2. Battery (-) terminal connection harness
3. Battery (-) terminal assembly <2.4L Engine>
  - Air cleaner intake duct (Refer to GROUP 15 – Air Cleaner P.15-4.) <2.4L Engine>
4. Fusible link box cover

## Removal steps (Continued)

5. Battery (+) terminal connection harness
6. Fusible link box
7. Battery (+) terminal connection harness
8. Battery terminal assembly
9. Battery holder
10. Battery bolt
11. Battery
12. Battery tray

## INSPECTION

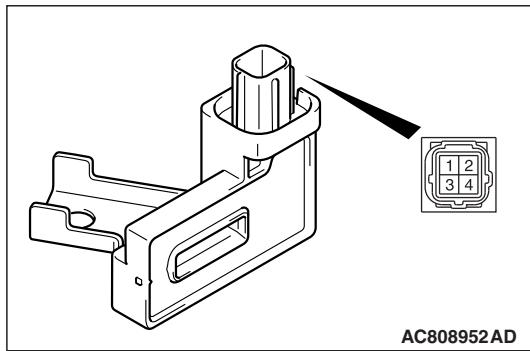
## BATTERY CURRENT SENSOR CHECK &lt;2.4L Engine&gt;

M1541002100342

## CURRENT SENSOR RESISTANCE VALUE

Use the circuit tester to measure the resistance value between battery current sensor connector terminals.

## Standard value:

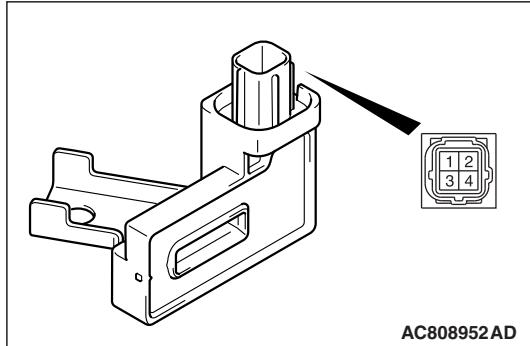


Terminal No. (positive terminal – negative terminal)	Resistance (kΩ)
1 – 3	3 – 10
1 – 4	Less than 0.5
3 – 4	3 – 10

## TEMPERATURE SENSOR RESISTANCE VALUE

Using the circuit tester, measure the resistance value between the battery current sensor connector terminal No. 2 and No. 3.

## Standard value:

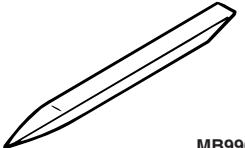
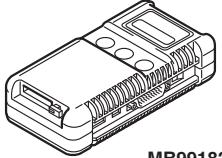


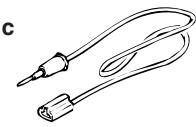
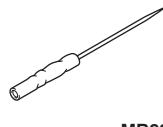
Temperature (°C)	Resistance (kΩ)
0	4.5 – 7.2
25	1.6 – 2.5
40	0.96 – 1.40

## IGNITION SWITCH

## SPECIAL TOOLS

M1543000603476

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

Tool	Tool number and name	Supersession	Application
   	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222 Harness set a. Test harness b. LED harness c. LED harness adaptor d. Probe	General service tools	Continuity check and voltage measurement at harness wire or connector a. Connector pin contact pressure inspection b. Power circuit inspection c. Power circuit inspection d. Commercial tester connection
	MB992006 Extra fine probe	—	Continuity check and voltage measurement at harness wire or connector.

## TROUBLESHOOTING

### STANDARD FLOW OF DIAGNOSTIC TROUBLE SHOOTING

Refer to Group 00 – Contents of troubleshooting

[P.00-7.](#)

M1543006900959

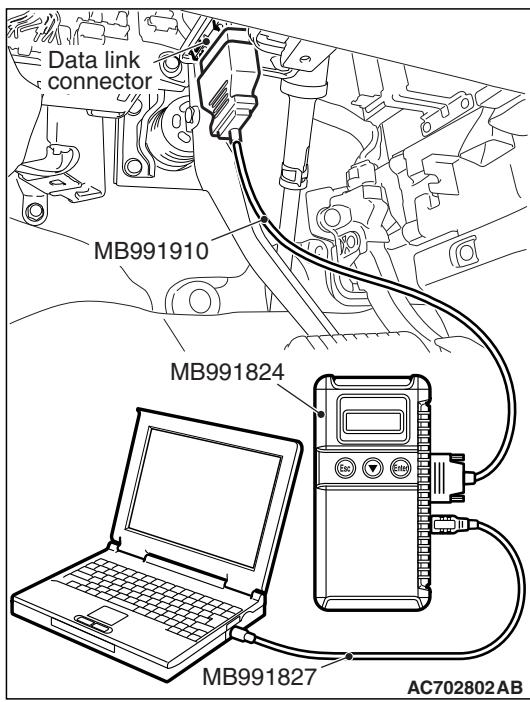
### DIAGNOSIS FUNCTION

M1543007001101

### 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.

## 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.

## TROUBLE SYMPTOM CHART

M1543007202603

Trouble symptom		Inspection Procedure No.	Reference page
Ignition key cylinder illumination light does not illuminate/extinguish normally.	vehicles with WCM	1	<a href="#">P.54A-17</a>
Defective power supply system of the ignition switch		2	<a href="#">P.54A-21</a>

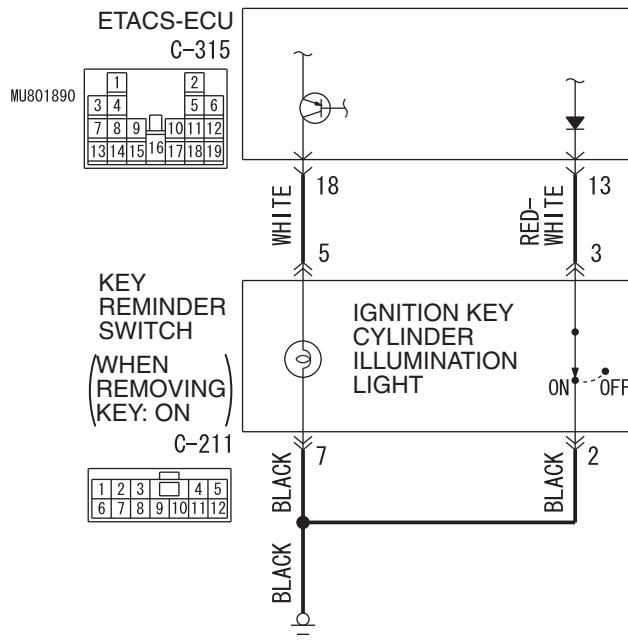
## SYMPTOM PROCEDURES

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

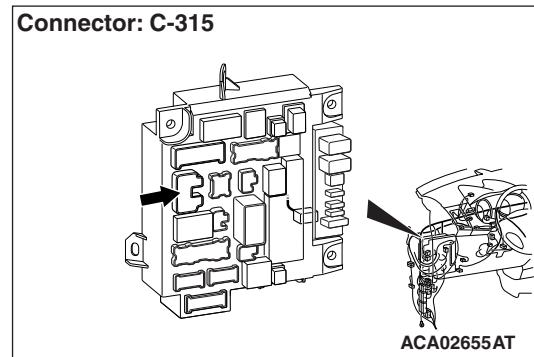
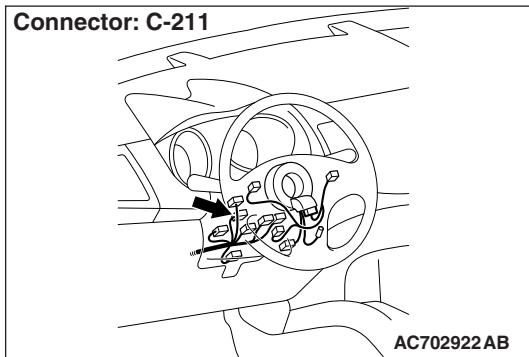
**CAUTION**

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

**Ignition Key Cylinder Illumination Light Circuit**



AC702921AB  
D7G54M026A00



**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**

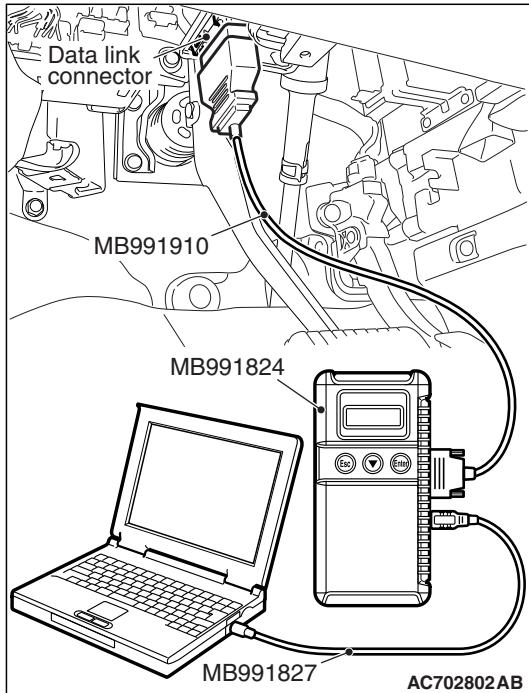
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-14](#)."
- (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-825](#).

**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-794](#).

**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-788](#).

**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-803](#).

**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-791](#).

**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-794](#).

**STEP 3. Check key reminder switch connector C-211, 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-211, 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-211 (terminal No. 5) and ETACS-ECU connector C-315 (terminal No. 18).**

- Check the input/output line for open circuit.

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

**YES** : Go to Step 5.

**NO** : Repair the wiring harness between key reminder switch connector C-211 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-211 (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-211 and body ground.

---

**STEP 7. Retest the system.**

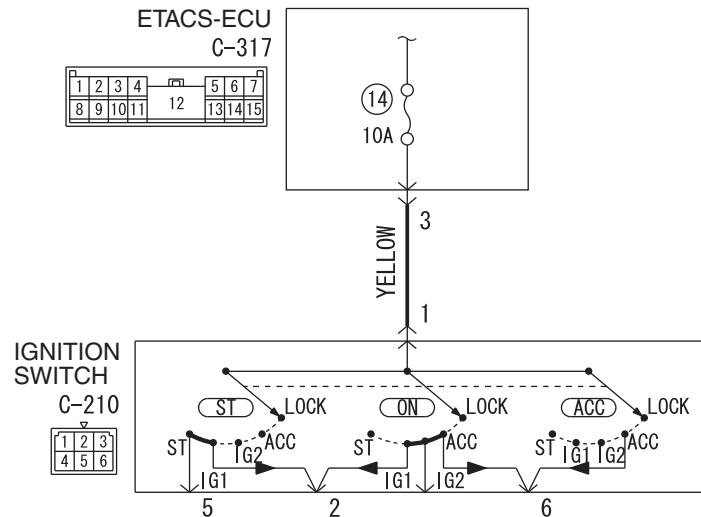
**Q: Does the ignition key cylinder illumination light illuminate/extinguish in good condition?**

**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.00-15](#)).

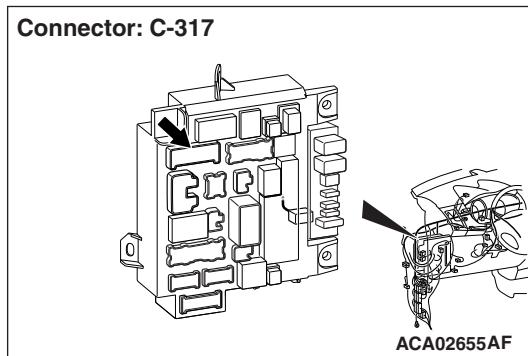
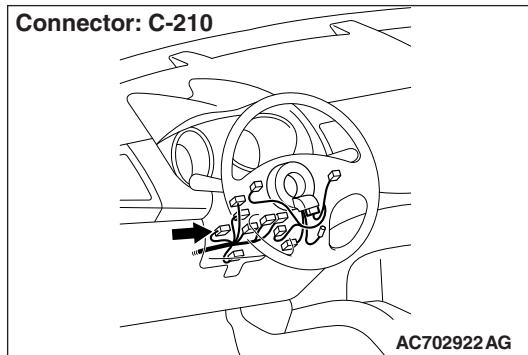
**NO** : Replace the ETACS-ECU.

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

## Ignition Switch Power Supply Circuit



WAG54M052A



## 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

## DIAGNOSIS

### **Required Special Tools:**

- MB992006: Extra fine probe
- MB991223: Harness set

---

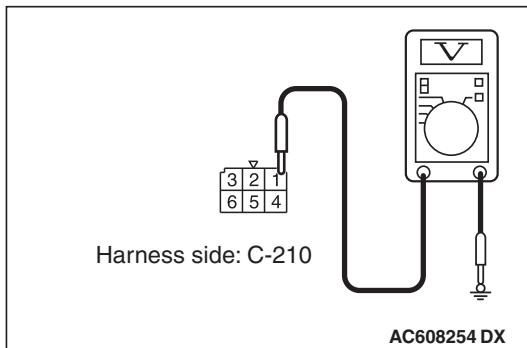
**STEP 1. Check ignition switch connector C-210 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is ignition switch connector C-210 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-210.**

(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-210 (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.00-15](#)).

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

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

M1541200700148

1. Close the driver's door, unlock the steering lock, and turn the key (for the vehicle with KOS, the emergency key is inversely inserted into the keyless operation key) to the LOCK (OFF) position (the key is being inserted). <Vehicles with WCM and vehicles with KOS (When using the emergency key)>
2. Release the steering wheel lock with the driver's door closed, and turn the IG knob to the position other than the LOCK (OFF) position. <Vehicles with KOS (When not using the emergency key)>
3. Change the driver's door state from closed to open.
4. Check that the tone alarm sounds normally.
5. If a malfunction is found, carry out the troubleshooting (Refer to [P.54A-69](#)).

## REMOVAL AND INSTALLATION

M1541200300560

**⚠ CAUTION**

Before removing the steering wheel assembly, refer to GROUP 52B – Service Precautions [P.52B-25](#) and Air Bag Module and Clock Spring [P.52B-439](#) <Vehicles with WCM>.

**⚠ CAUTION**

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-283](#)). <Vehicles with WCM and ASC>

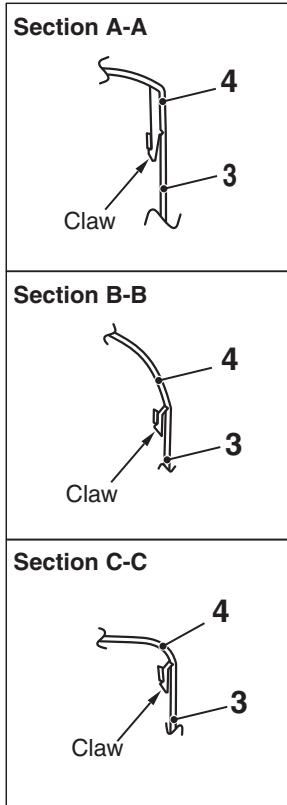
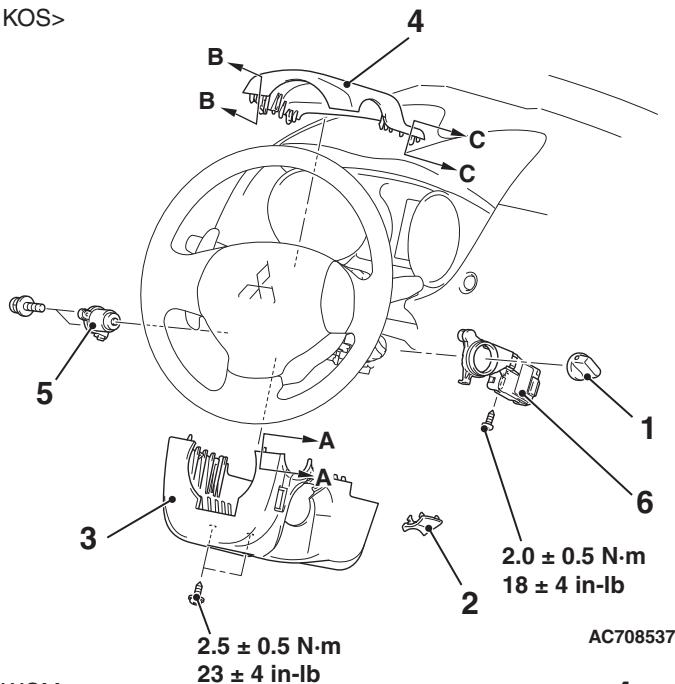
**Pre-removal Operation**

- Steering wheel straight-ahead position check. <Vehicles with WCM>
- Removal of steering wheel assembly (Refer to GROUP 37 – Steering Wheel [P.37-31](#)). <Vehicles with WCM>

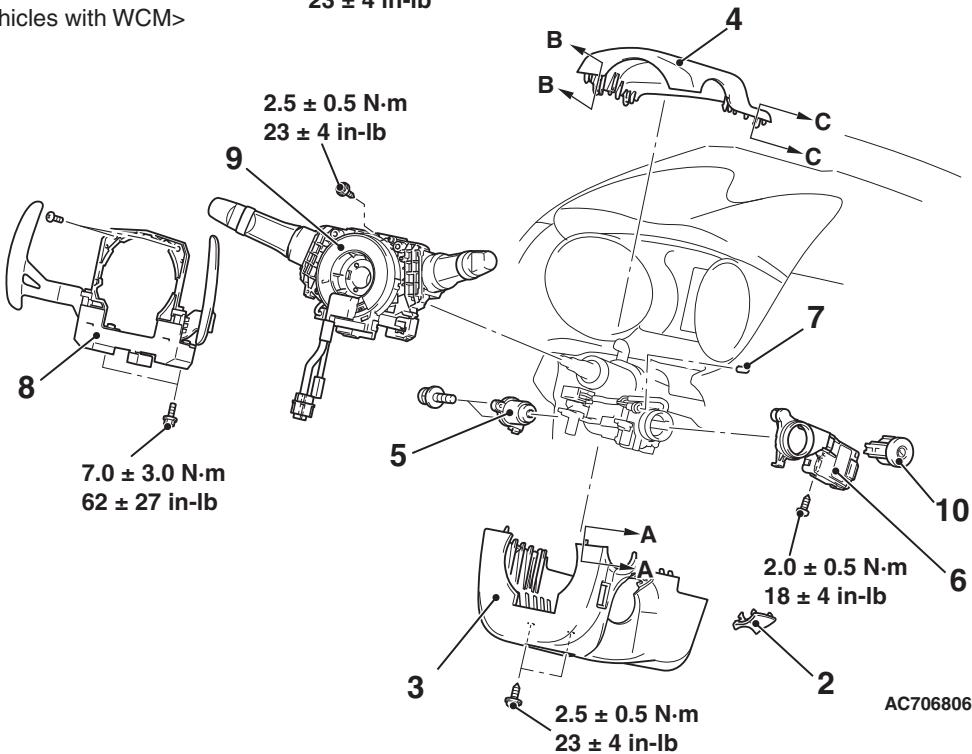
**Post-installation Operation**

- Installation of steering wheel assembly (Refer to GROUP 37 – Steering Wheel [P.37-31](#)). <Vehicles with WCM>
- Steering wheel straight-ahead position check. <Vehicles with WCM>

&lt;Vehicles with KOS&gt;



&lt;Vehicles with WCM&gt;



NOTE:  
Claw position is symmetrical

**Removal Steps**

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

&lt;&lt;A&gt;&gt;

**Removal Steps (Continued)**

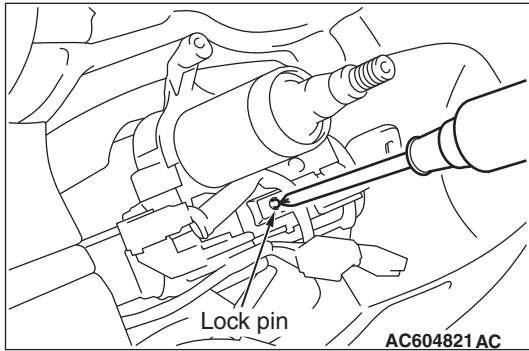
7. Key illumination bulb <Vehicles with WCM and paddle shift>
8. Paddle shift assembly <Vehicles with WCM and paddle shift>
9. Column switch assembly <Vehicles with WCM>
10. Steering lock cylinder <Vehicles with WCM>

AC801751AI

## 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 (WCM)  
<VEHICLES WITH WCM>/RECEIVER ANTENNA  
MODULE <VEHICLES WITH KOS> INSTALLATION

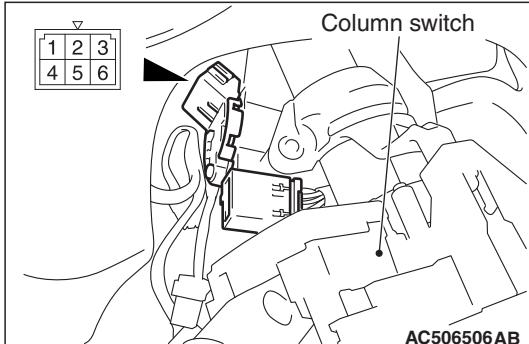
Check that the top claw of receiver antenna module is fixed securely to the boss of steering lock and the antenna is not floated on the key cylinder.

## INSPECTION

## IGNITION SWITCH CONTINUITY CHECK

M1541200400181

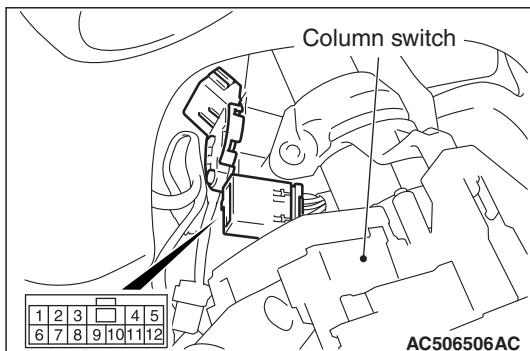
With the ignition switch mounted to the vehicle, disconnect and check the ignition switch connection connector.



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

## KEY REMINDER SWITCH CONTINUITY CHECK

M1541200500188



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 $\Omega$ or less)
Key inserted	2 – 3	No continuity

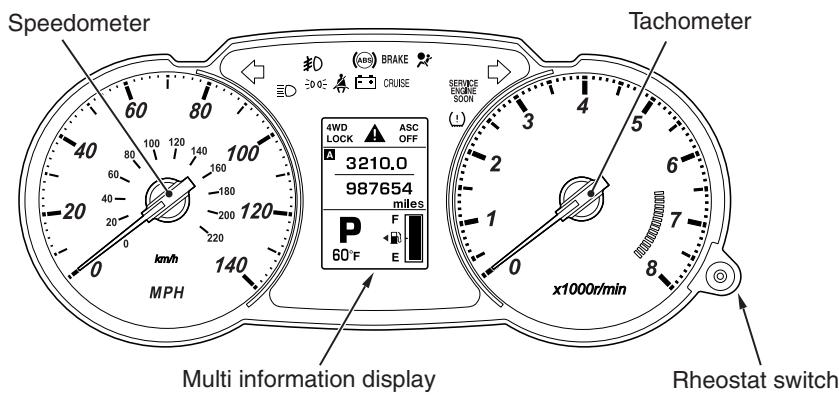
## COMBINATION METER

## GENERAL INFORMATION

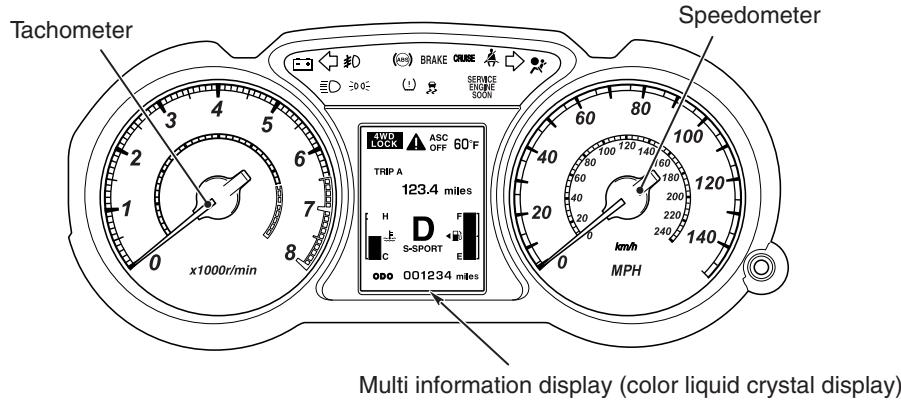
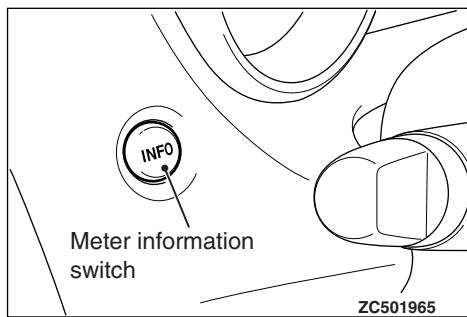
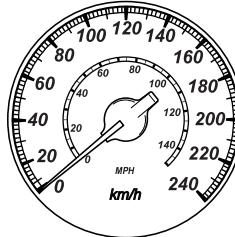
M1540208400353

## CONSTRUCTION DIAGRAM

&lt;Except color liquid crystal display&gt;

Speedometer (mile and km)  
<Vehicles for CANADA>

&lt;Color liquid crystal display&gt;

Speedometer (mile and km)  
<Vehicles for CANADA>

AC901442 AB

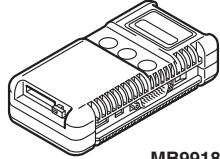
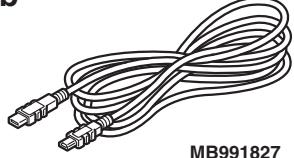
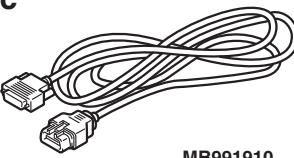
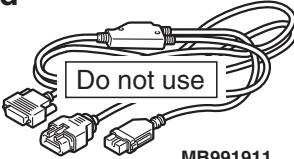
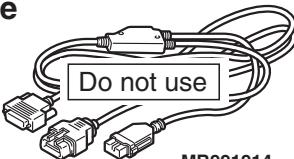
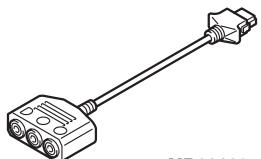
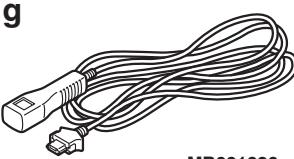
## SERVICE SPECIFICATIONS

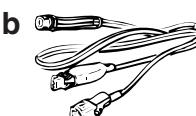
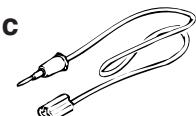
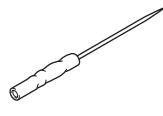
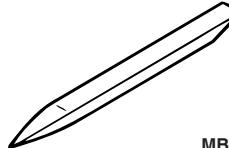
M1540200200300

Item			Standard Value
Speedometer indication tolerance mph (km/h) <Except vehicles for CANADA>	10 (16)		8.5 – 11.5 (13.6 – 18.4)
	25 (40)		23.5 – 26.5 (37.6 – 42.4)
	50 (80)		48.5 – 51.5 (77.6 – 82.4)
	75 (120)		73.5 – 76.5 (117.6 – 122.4)
	100 (161)		98.5 – 102.5 (158.6 – 165.0)
	125 (201)		123.5 – 127.5 (198.6 – 205.0)
Speedometer indication tolerance km/h (mph) <Vehicles for CANADA>	20 (12.4)		19 – 24 (11.8 – 14.9)
	40 (24.8)		40 – 44 (24.8 – 27.3)
	80 (49.7)		80 – 85 (49.7 – 52.8)
	120 (74.6)		120.5 – 125.5 (74.9 – 78.0)
	160 (99.4)		160.5 – 165.5 (99.7 – 102.8)
	200 (124.3)		200.5 – 207.0 (124.6 – 128.6)
Tachometer indication tolerance r/min The value in parentheses is a reference value.)	600		550 – 650
	(2,000)		(1,950 – 2,050)
	3,000		2,950 – 3,050
	(4,000)		(3,950 – 4,050)
	5,000		4,950 – 5,050
	6,000		5,950 – 6,050
	(7,000)		(6,950 – 7,050)
	(8,000)		(7,950 – 8,050)
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" (height A) $201.6 (7.9)$
			Stopper position "E" (height B) $18.0 (0.7)$
AWD	Fuel level sensor resistance ( $\Omega$ )	Fuel level sensor (main)	Stopper position "F" $6.5 \pm 1.0$
			Stopper position "E" $44.7 \pm 1.0$
		Fuel level sensor (sub)	Stopper position "F" $6.5 \pm 1.0$
			Stopper position "E" $75.3 \pm 1.0$
	Fuel level sensor float height mm (in)	Fuel level sensor (main)	Stopper position "F" (height A) $166.2 (6.5)$
			Stopper position "E" (height B) $38.8 (1.5)$
		Fuel level sensor (sub)	Stopper position "F" (height A) $48.8 \pm 3.0 (1.9 \pm 0.1)$
			Stopper position "E" (height B) $238.0 \pm 3.0 (9.3 \pm 0.1)$

## SPECIAL TOOLS

M1540200300200

Tool	Tool number and name	Supersession	Application
a  MB991824	MB991958 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826	MB991824-KIT <i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i>	<b>⚠ CAUTION</b> <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> Combination meter check (Diagnostic trouble code, service data)
b  MB991827	M.U.T.-III sub assembly		
c  MB991910	a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable		
d  MB991911	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  MB991914	e. M.U.T.-III main harness C (for Chrysler models only)		
f  MB991825	f. M.U.T.-III measurement adapter		
g  MB991826 MB991958	g. M.U.T.-III trigger harness		

Tool	Tool number and name	Supersession	Application
 <b>a</b>  <b>b</b>  <b>c</b>  <b>d</b> MB991223	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222 Harness set a. Test harness b. LED harness c. LED harness adaptor d. Probe	General service tools	Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector. a. Connector pin contact pressure inspection b. Power circuit inspection c. Power circuit inspection d. Commercial tester connection
 MB992006	MB992006 Extra fine probe	—	Making voltage and resistance measurement during troubleshooting
 MB990784	MB990784 Ornament remover	General service tool	Removal of switch, trim, etc.

## COMBINATION METERS DIAGNOSTIC

### STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1540203800215

Refer to GROUP 00, Contents of troubleshooting [P.00-7](#).

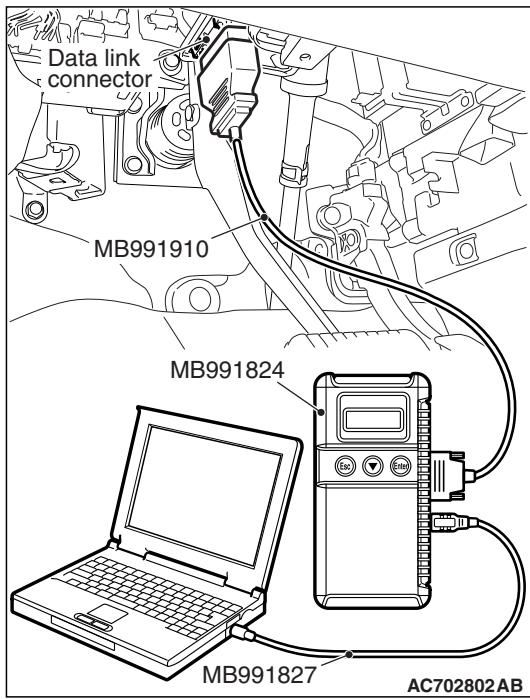
### DIAGNOSTIC FUNCTION

M1540200500130

### 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.00-15](#)).

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	Content	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	Current trouble accumulative time	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

M1540200600580

**△ 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-110](#). 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.

Diagnostic trouble code number	Diagnostic item	Reference page
B1200	Malfunction of odometer	<a href="#">P.54A-35</a>
B1201	Abnormal fuel information	<a href="#">P.54A-37</a>
B1208	Malfunction of LCD heater	<a href="#">P.54A-42</a>
B1209	Test mode	<a href="#">P.54A-42</a>
B2203	Chassis No. not programmed	<a href="#">P.54A-43</a>
B2463	The sticking of rheostat switch	<a href="#">P.54A-44</a>
B2464	The sticking of meter information switch	<a href="#">P.54A-46</a>
B2465	Ignition switch signal error	<a href="#">P.54A-48</a>
U0019	Bus off(CAN-B)	<a href="#">P.54A-50</a>
U0100	Engine control module CAN timeout	<a href="#">P.54A-51</a>
U0141	ETACS CAN timeout	<a href="#">P.54A-53</a>
U0151	SRS-ECU CAN timeout	<a href="#">P.54A-55</a>
U0154	Occupant classification-ECU CAN timeout	<a href="#">P.54A-57</a>
U0164	A/C-ECU CAN timeout	<a href="#">P.54A-59</a>
U0168	KOS-ECU or WCM CAN timeout	<a href="#">P.54A-61</a>
U0184	Audio CAN timeout	<a href="#">P.54A-63</a>
U0245	Audio visual navigation unit CAN timeout	<a href="#">P.54A-65</a>
U1415	Coding not completed/Data fail	<a href="#">P.54A-67</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**

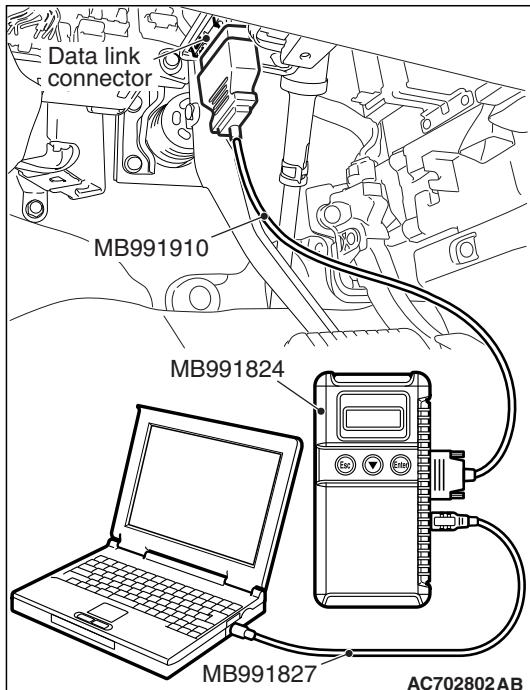
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (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 Cope with Intermittent Malfunction [P.00-15](#)).



**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.

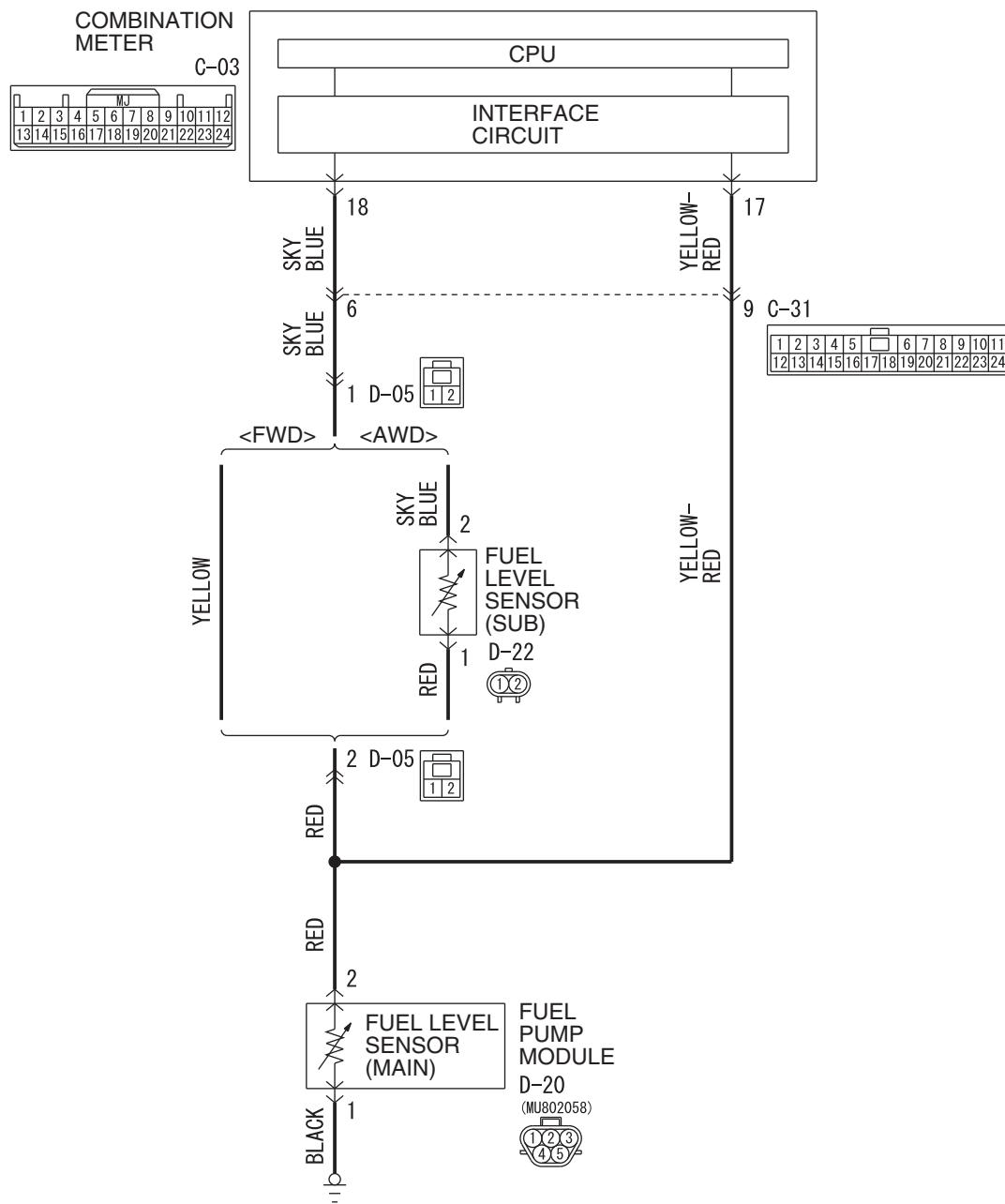
**Q: Is the DTC set?**

**YES** : Go to Step 1.

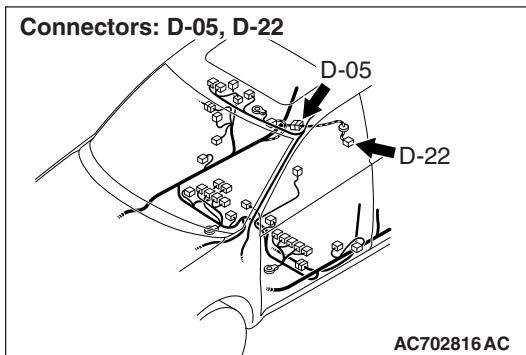
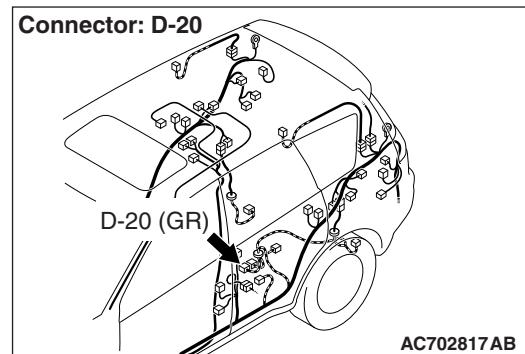
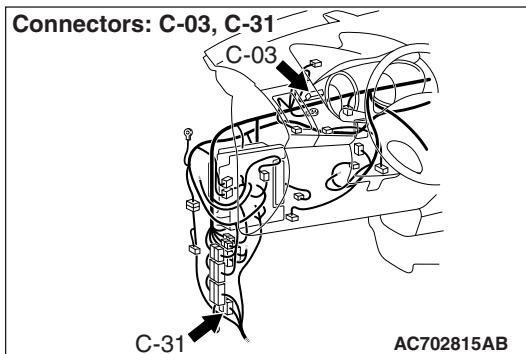
**NO** : The procedure is complete.

## DTC B1201: Abnormal fuel information

## Fuel Gauge Unit Circuit



WAG54M007A



### CAUTION

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

### 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. <FWD, AWD>
- The fuel level sensor (sub) may be defective. <AWD>
- 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 the malfunctioning vehicle.

Q: Is the malfunctioning vehicle a FWD?

YES <FWD> : Go to Step 2.

NO <AWD> : Go to Step 8.

---

**STEP 2. Check fuel pump module connector D-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is fuel pump module connector D-20 in good condition?**

**YES** : Go to Step 3.

**NO** : Repair the connector.

---

**STEP 3. Check the fuel level sensor (main).**

Check to see if the fuel level sensor (main) is normal. Refer to [P.54A-107](#).

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

**YES** : Go to Step 4.

**NO** : Replace the fuel level sensor (main).

---

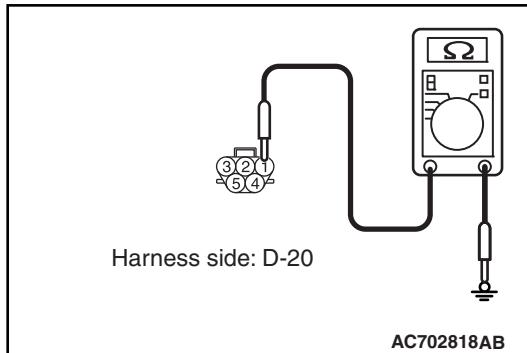
**STEP 4. Measure the resistance at fuel pump module connector D-20.**

- (1) Disconnect pump module connector D-20, and measure at the wiring harness side.
- (2) Measure the resistance value between terminal 1 and ground.
  - The measured value should be 2 ohm or less.

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

**YES** : Go to Step 6.

**NO** : Go to Step 5.



---

**STEP 5. Check the wiring harness between fuel pump module connector D-20 (terminal 1) and ground.**

- Check the ground wire for open circuit.

**Q: Is the wiring harness between fuel pump module connector D-20 (terminal 1) and ground in good condition?**

**YES** : There is no action to be taken.

**NO** : Repair the wiring harness.

---

**STEP 6. Check combination meter connector C-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is combination meter connector C-03 in good condition?**

**YES** : Go to Step 7.

**NO** : Repair the connector.

---

**STEP 7. Check the wiring harness between fuel pump module connector D-20 (terminal 2) and combination meter connector C-03 (terminal 17 or 18).**

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

*NOTE: Also check intermediate connectors C-31 and D-05. If intermediate connectors C-31 and D-05 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-20 (terminal 2) and combination meter connector C-03 (terminal 17 or 18) in good condition?**

**YES** : Go to Step 14.

**NO** : Repair the wiring harness. The fuel gauge should work normally.

---

**STEP 8. Check fuel pump module connector D-20 and fuel level sensor (sub) connector D-22 <AWD> for loose, corroded or damaged terminals, or terminals pushed back in the connector.****Q: Is fuel pump module connector D-20 and fuel level sensor (sub) connector D-22 <AWD> in good condition?**

**YES** : Go to Step 9.

**NO** : Repair the connector.

---

**STEP 9. Check the fuel level sensor (main) and (sub)**

Check to see if the fuel level sensor (main) and (sub) is normal. Refer to [P.54A-107](#).

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

**YES** : Go to Step 10.

**NO** : Replace the fuel level sensor (main) or (sub).

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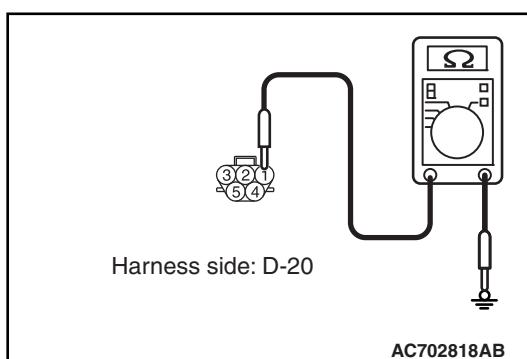
**STEP 10. Measure the resistance at fuel pump module connector D-20.**

- (1) Disconnect fuel pump module connector D-20, and measure at the wiring harness side.
- (2) Measure the resistance value between terminal 1 and ground.
  - The measured value should be 2 ohm or less.

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

**YES** : Go to Step 12.

**NO** : Go to Step 11.



---

**STEP 11. Check the wiring harness between fuel pump module connector D-20 (terminal 1) and ground.**

- Check the ground wire for open circuit.

**Q: Is the wiring harness between fuel pump module connector D-20 (terminal 1) and ground in good condition?**

**YES** : There is no action to be taken.

**NO** : Repair the wiring harness.

---

**STEP 12. Check combination meter connector C-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is combination meter connector C-03 in good condition?**

**YES** : Go to Step 13.

**NO** : Repair the connector.

---

**STEP 13. Check the wiring harness between fuel pump module connector D-20 (terminal 2) and combination meter connector C-03 (terminal 17 or 18).**

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

*NOTE: Also check intermediate connectors C-31 and D-05. If intermediate connectors C-31 and D-05 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-20 (terminal 2) and combination meter connector C-03 (terminal 17 or 18) in good condition?**

**YES** : Go to Step 14.

**NO** : Repair the wiring harness. The fuel gauge should work normally.

---

**STEP 14. 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 15.

**NO** : Replace the combination meter.

---

**STEP 15. Recheck for diagnostic trouble code.**

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

(1) Erase the DTC.

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

(3) Check if DTC is set.

**Q: Is the DTC set?**

**YES** : Replace the combination meter.

**NO** : The procedure is complete.

**DTC B1208: Malfunction of LCD heater****TROUBLE 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 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**

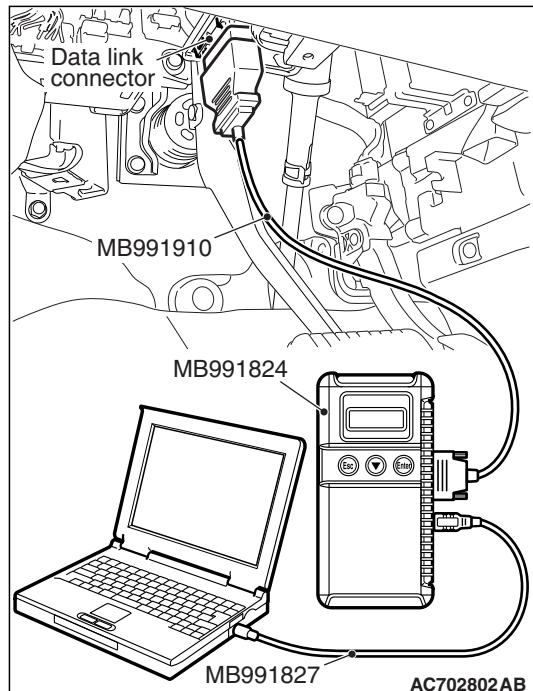
**To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.**

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (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 JUDGMENT**

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: Chassis No. not programmed

## TROUBLE JUDGMENT

With the ignition switch at the ON position, if the chassis number 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**

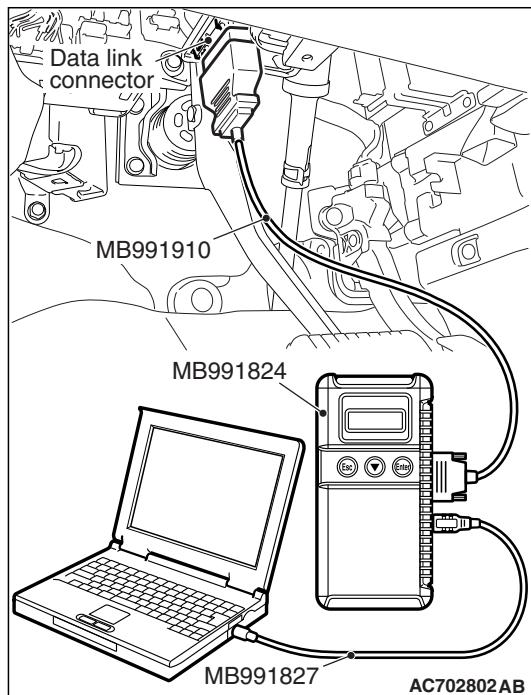
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.

NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).



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

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

## Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU. (Refer to [P.54A-732](#).)

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.00-15](#)).

---

**DTC B2463: The sticking of rheostat switch**

---

**TROUBLE JUDGMENT**

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

**TROUBLESHOOTING HINTS**

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

**DIAGNOSTIC PROCEDURE****Required Special Tools:**

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

---

**STEP 1. Check the rheostat switch.**

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

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

**YES** : Go to Step 2.

**NO** : Replace the combination meter or meter hood assembly.

---

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

Check if DTC is set to the combination meter.

**⚠ CAUTION**

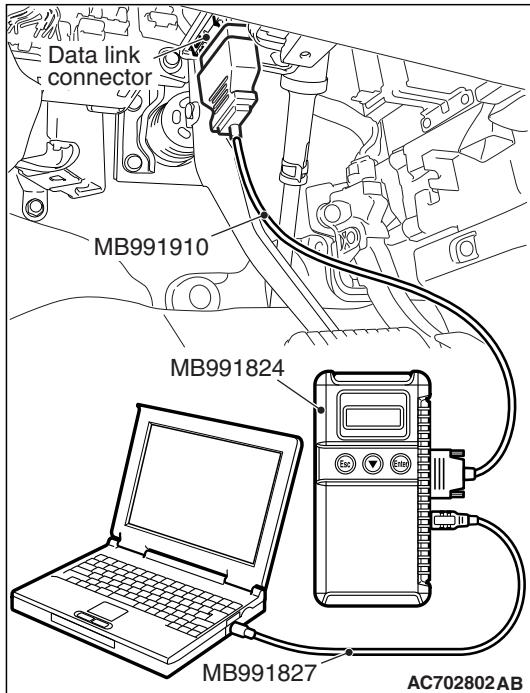
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (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 3.

**NO** : The procedure is complete.



---

**STEP 3. Recheck for diagnostic trouble code.**

Check if DTC is set to the combination meter.

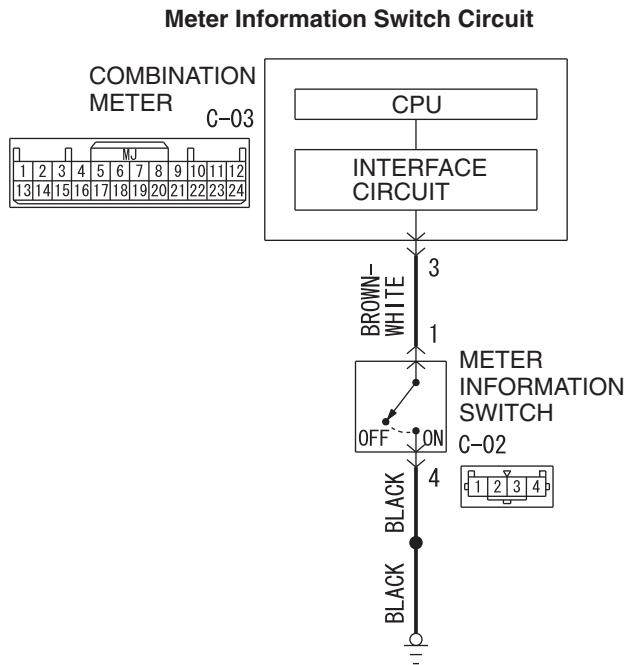
- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if diagnostic trouble code is set.

**Q: Is the DTC set?**

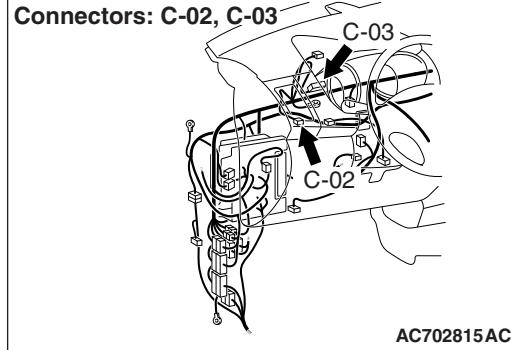
**YES** : Go to Step 1.

**NO** : The procedure is complete.

## DTC B2464: The sticking of meter information switch



AC702819AC  
D7G54M068A00



**CAUTION**

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

**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-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is meter information switch connector C-02 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-109](#).

**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-02 in order to the ground circuit to the meter information switch.**

(1) Disconnect meter information switch connector C-02, and measure at the wiring harness side.

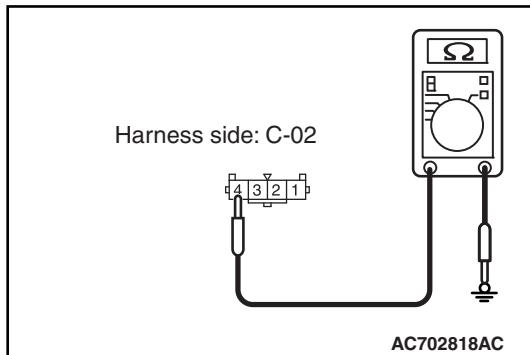
(2) Measure the resistance value between terminal 4 and ground.

• The measured value should be 2 ohm or less.

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

**YES** : Go to Step 5.

**NO** : Go to Step 4.



---

**STEP 4. Check the wiring harness between meter information switch connector C-02 (terminal 4) and ground.**

• Check the ground wire for open circuit.

**Q: Is the wiring harness between fuel meter information switch connector C-02 (terminal 4) and ground in good condition?**

**YES** : Go to Step 7.

**NO** : Repair the wiring harness, and then go to Step 7.

---

**STEP 5. Check combination meter connector C-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is combination meter connector C-03 in good condition?**

**YES** : Go to Step 6.

**NO** : Repair the connector, and then go to Step 7.

---

**STEP 6. Check the wiring harness between meter information switch connector C-02 (terminal 1) and combination meter connector C-03 (terminal 3).**

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

**Q: Are the wiring harness between meter information switch connector C-02 (terminal 1) and combination meter connector C-03 (terminal 3) in good condition?****YES** : Go to Step 7.**NO** : Repair the wiring harness, and then go to Step 7.

---

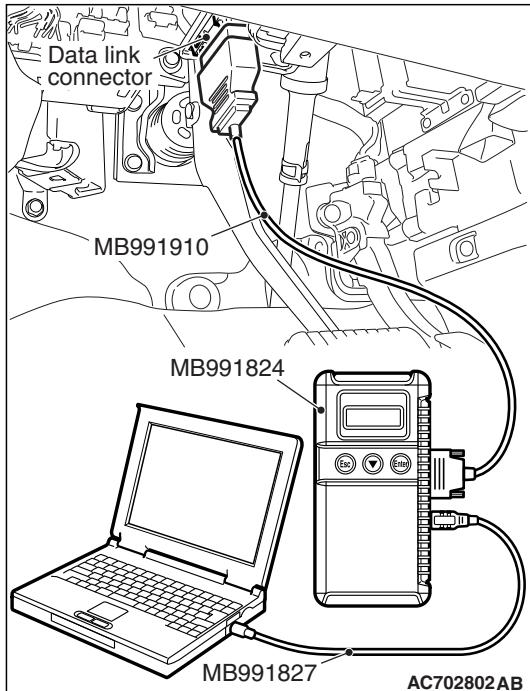
**STEP 7. Recheck for diagnostic trouble code.**

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-31](#)."
- (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 JUDGMENT**

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**

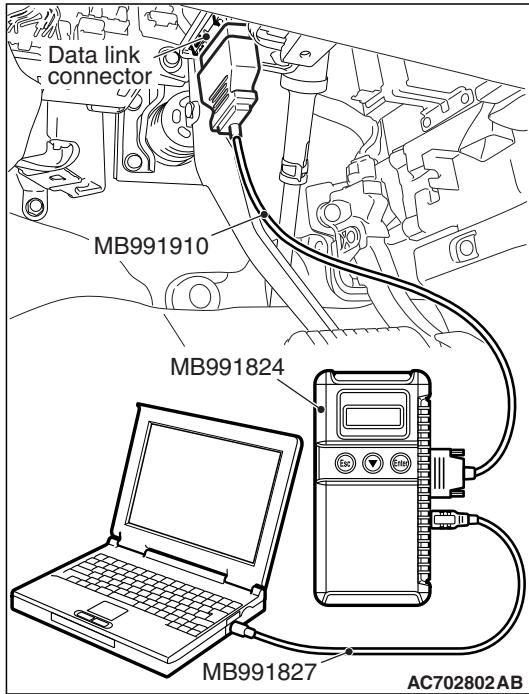
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (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-732](#).)

**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-17](#)).

---

**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-70](#).

**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.00-15](#)).

---

**DTC U0019: Bus off(CAN-B)**

---

**⚠ CAUTION**

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

**DIAGNOSTIC FUNCTION**

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

**JUDGMENT CRITERIA**

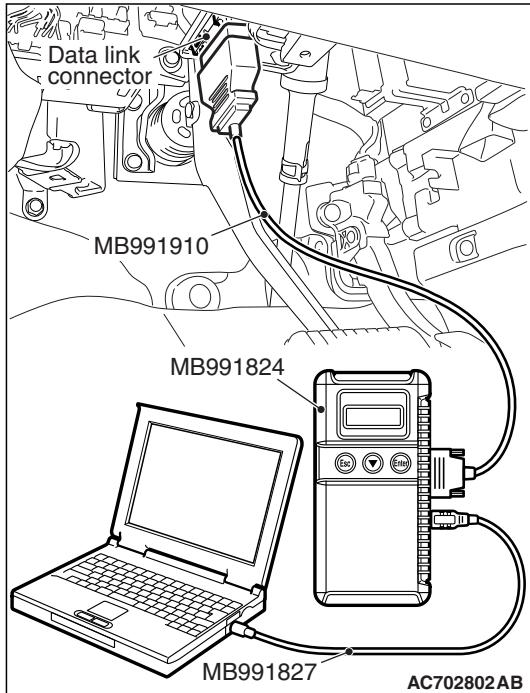
With the ignition switch at the ON position and the system voltage at 10 – 16 volts (data from ETACS-ECU), if the combination meter becomes unable to transmit data normally due to the CAN-B bus circuit malfunction, the combination meter determines that a problem has occurred.

**TROUBLESHOOTING HINTS**

The CAN bus line may be defective

**DIAGNOSIS****Required Special Tools:**

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

**STEP 1. Recheck for diagnostic trouble code.**

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

**⚠ CAUTION**

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

**Q: Is the DTC set?**

**YES** : Go to Step 2.

**NO** : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-15](#)).

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

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

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

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

**NO** : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).

**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**

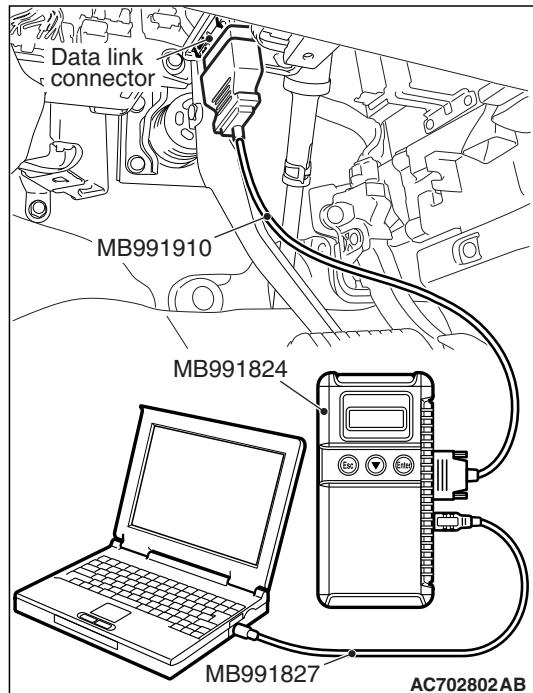
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- Turn the ignition switch to the "ON" position.
- Diagnose the CAN bus line.
- Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.

NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).



## STEP 2. Using scan tool MB991958, read the 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, Diagnostic Trouble Code Chart [P.13A-49](#) <2.4 L engine> or GROUP 13B, Diagnostic Trouble Code Chart [P.13B-50](#) <3.0 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.00-15](#)).

---

**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.00-15](#)).

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**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**

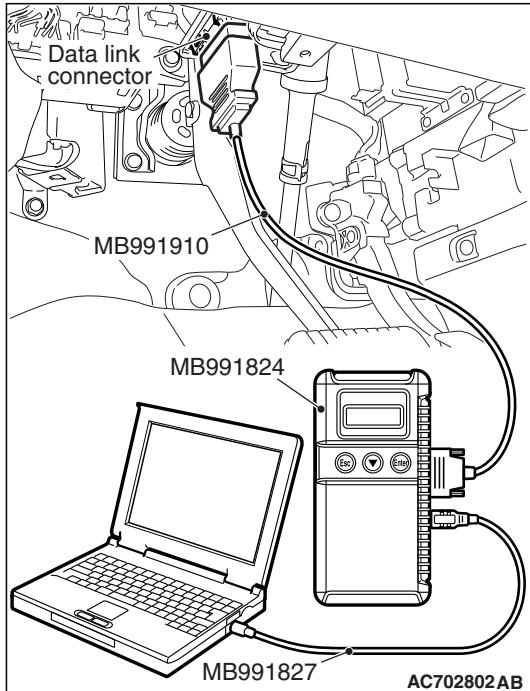
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).




---

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

Check if DTC is set to the ETACS-ECU.

**Q: Is the DTC set?**

**YES** : Diagnose the ETACS-ECU (Refer to [P.54A-732](#)).

**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.00-15](#)).

---

**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.00-15](#)).

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**DTC U0151: SRS-ECU CAN timeout**

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**⚠ 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**

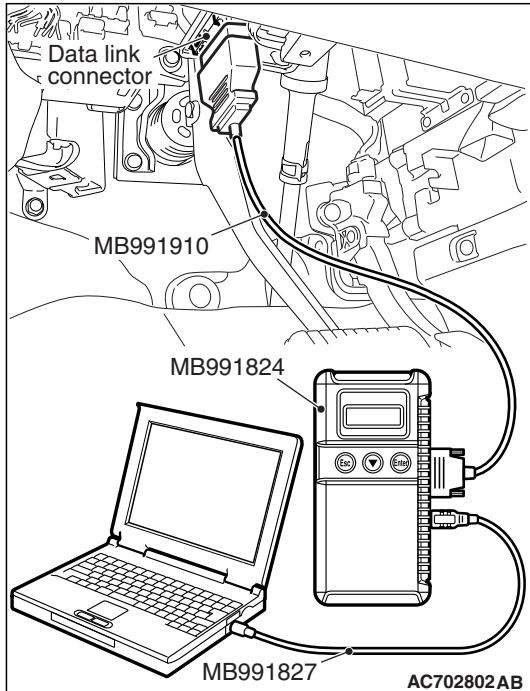
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).




---

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

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

**Q: Is the DTC set?**

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

**NO** : Go to Step 3.

---

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

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

**Q: Is the DTC set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

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

Check again if the DTC is set to the 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.00-15](#)).

---

**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.00-15](#)).

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**DTC U0154: Occupant classification-ECU CAN timeout**

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**⚠ 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**

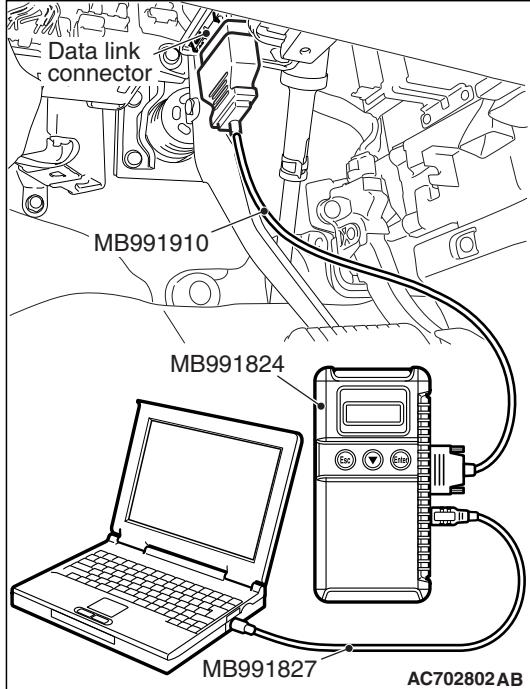
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.

NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).



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

Check if DTC is set to the SRS-ECU.

## Q: Is the DTC set?

YES : Troubleshoot the SRS. (Refer to GROUP 52B, Diagnosis [P.52B-344](#).)

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.00-15](#)).

---

**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.00-15](#)).

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**DTC U0164: A/C-ECU CAN timeout****⚠ CAUTION**

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

**DIAGNOSTIC FUNCTION**

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

**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)

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

**⚠ CAUTION**

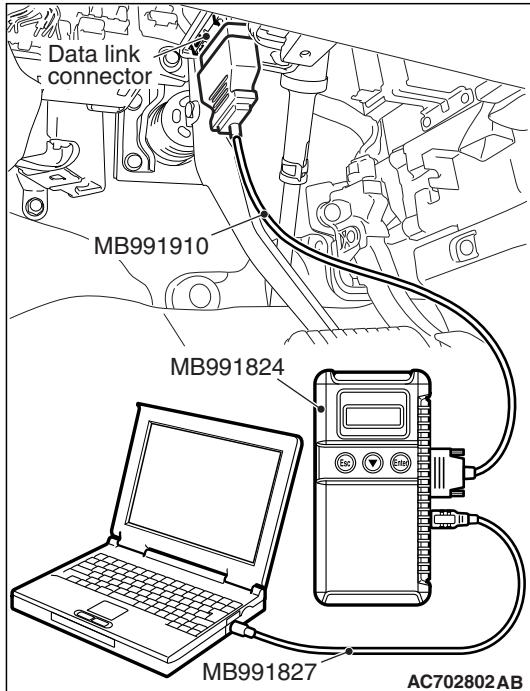
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).




---

**STEP 2. Using scan tool MB991958, read the A/C diagnostic trouble code.**

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

**Q: Is the DTC set?**

**YES** : Troubleshoot the A/C (Refer to GROUP 55A, Manual A/C Diagnosis [P.55A-11](#) or GROUP 55B, Auto A/C Diagnosis [P.55B-8](#)).

**NO** : Go to Step 3.

---

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

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

**Q: Is the DTC set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

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

Check again if the DTC is set to the 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.00-15).

---

**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.00-15).

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**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**

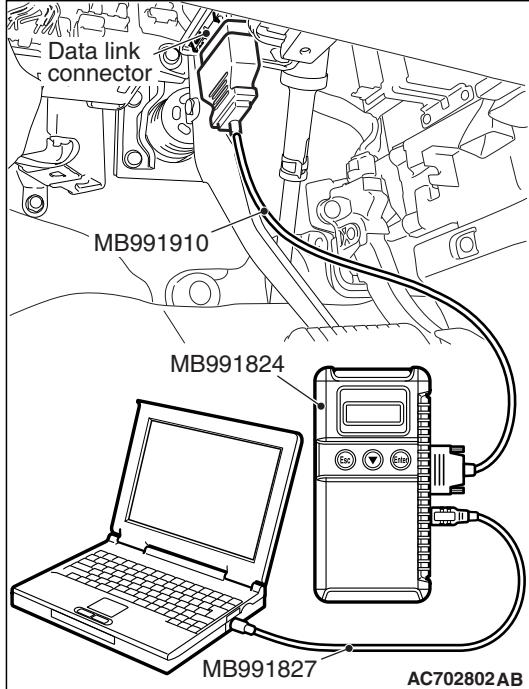
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.

NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).



## STEP 2. Using scan tool MB991958, read the KOS-ECU 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-35](#) <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.00-15](#)).

---

**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.00-15](#)).

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**DTC U0184: Audio CAN timeout**

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**⚠ 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**

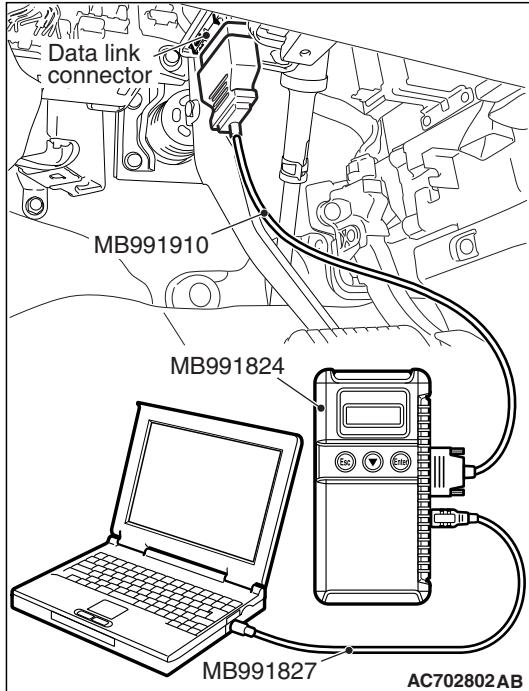
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.

NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).



## STEP 2. Using scan tool MB991958, read the 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-333](#).)

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.00-15](#)).

---

**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.00-15](#)).

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**DTC U0245: Audio visual navigation unit CAN timeout**

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**⚠ 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**

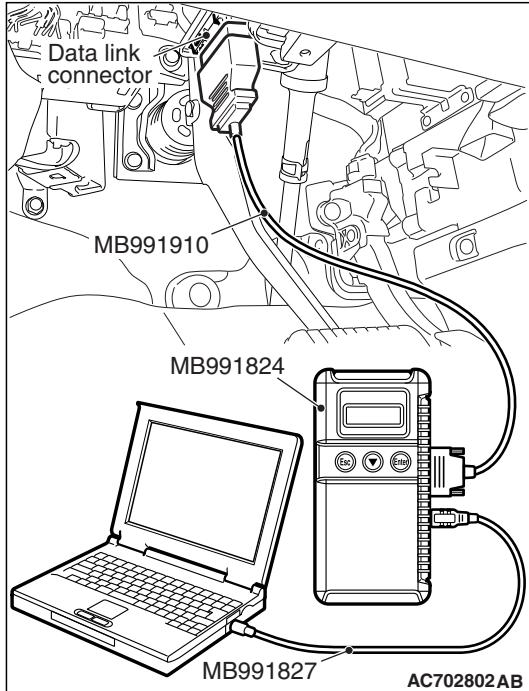
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.

NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).



## STEP 2. Using scan tool MB991958, read the 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-460](#).)

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.00-15](#)).

---

**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.00-15](#)).

---

**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.

**JUDGMENT 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)

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

**⚠ CAUTION**

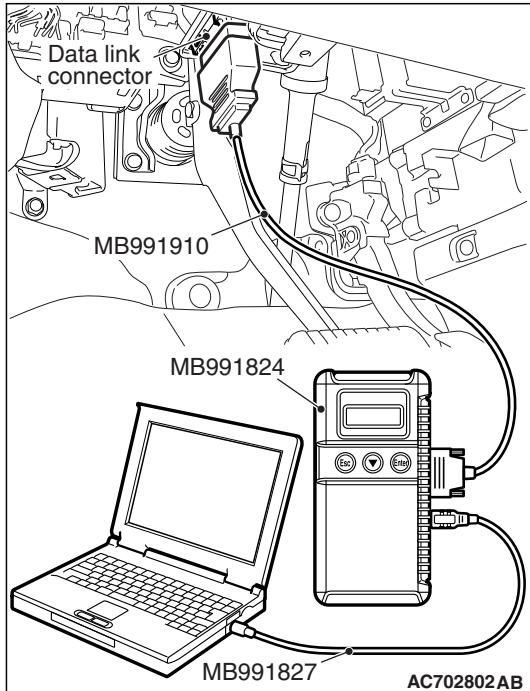
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).




---

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

Check if the DTC relating to the coding error is set to the ETACS-ECU.

**Q: Is the DTC set?**

**YES** : Troubleshoot the ETACS-ECU. (Refer to [P.54A-732](#).)

**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.00-15](#)).

## TROUBLE SYMPTOM CHART

M1540200800249

**△ CAUTION**

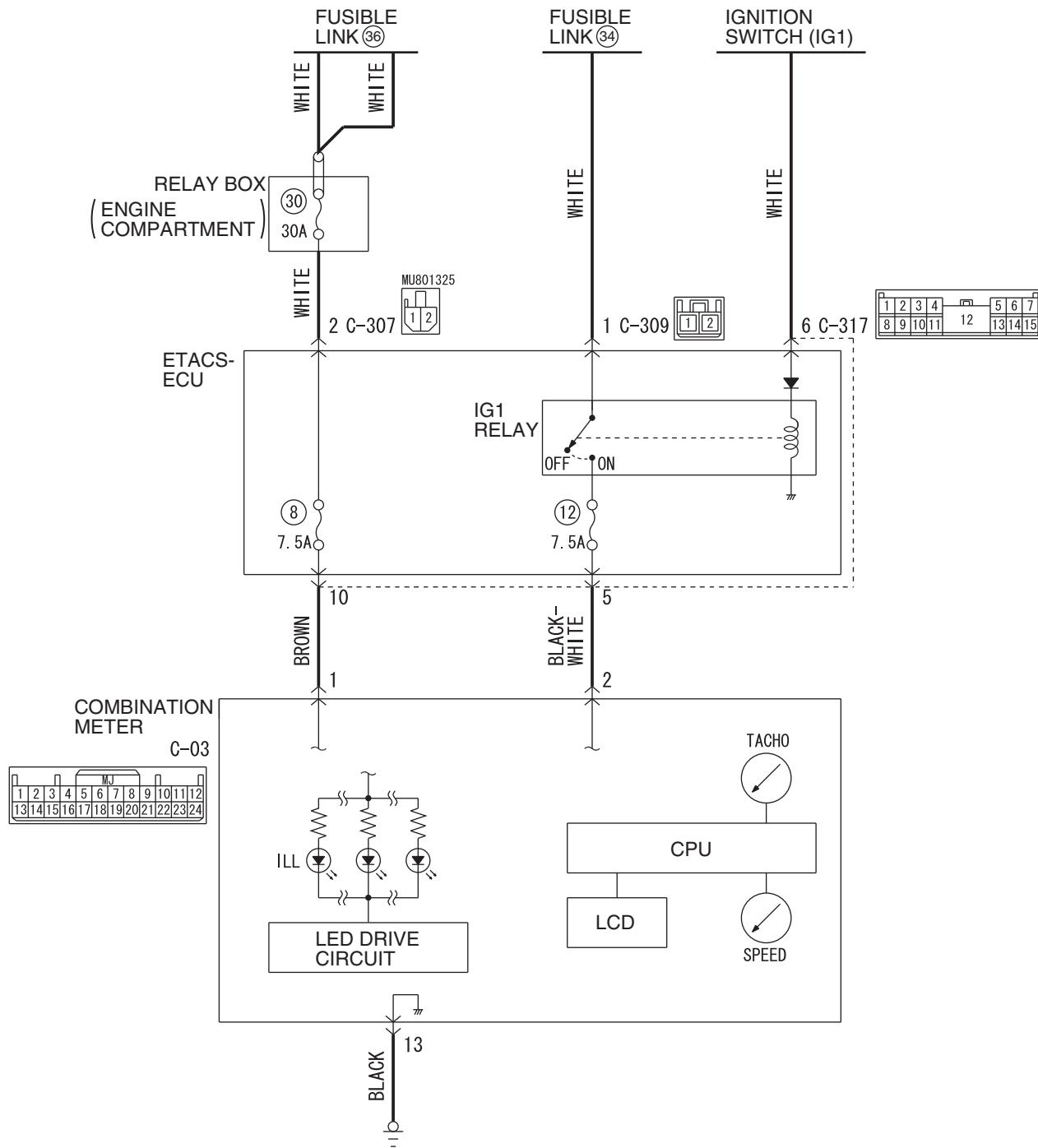
- During troubleshooting, a DTC code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, confirm all systems for DTC code(s). If DTC code(s) are set, erase them all.
- When the combination meter is required to be replaced as a result 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-110](#). 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.

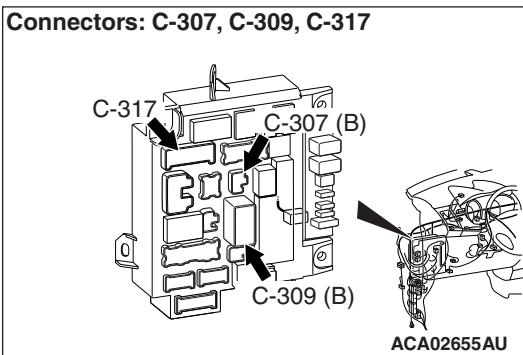
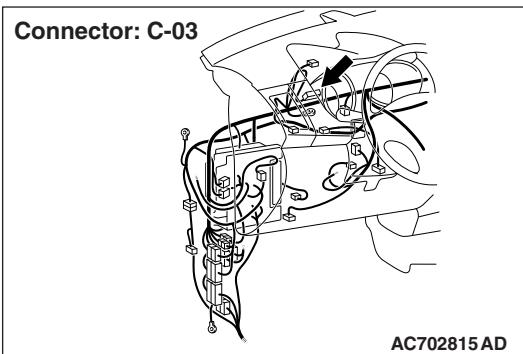
Trouble symptom	Inspection Procedure No.	Reference page
Power supply circuit check.	1	<a href="#">P.54A-70</a>
The speedometer does not work (the other meters work).	2	<a href="#">P.54A-75</a>
The tachometer does not work (the other meters work).	3	<a href="#">P.54A-77</a>
Tone alarm does not sound normally.	4	<a href="#">P.54A-79</a>
The combination meter light does not illuminate normally or the multi information display is not displayed normally.	5	<a href="#">P.54A-82</a>
The multi information display screen cannot be changed with the operation of the meter information switch.	6	<a href="#">P.54A-86</a>

## SYMPTOM PROCEDURES

## Inspection Procedure 1: Power supply circuit check.

## Combination Meter Power Supply Circuit





## TECHNICAL DESCRIPTION (COMMENT)

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

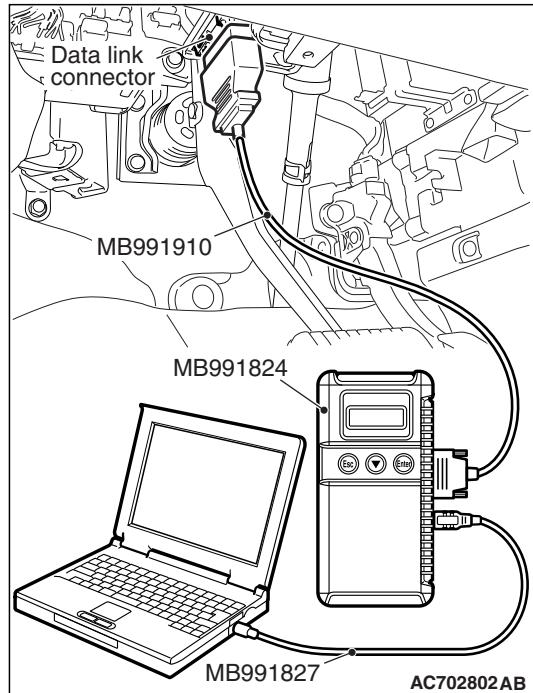
## TROUBLESHOOTING HINTS

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

## DIAGNOSIS

### Required Special Tools:

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



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

Check if DTC is set to the combination meter.

**CAUTION**

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (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-34](#).)

**NO** : Go to Step 2.

**STEP 2. Check combination meter connector C-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is combination meter connector C-03 in good condition?**

**YES** : Go to Step 3.

**NO** : Repair the defective connector.

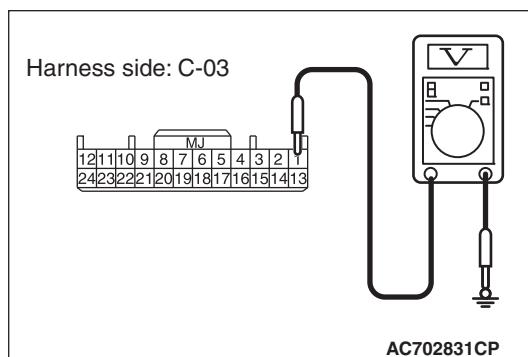
**STEP 3. Check the battery power supply circuit to the combination meter. Measure the voltage at combination meter connector C-03.**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the LOCK (OFF) position.
- (3) Measure the voltage between terminals 1 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-03 (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-03 (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.00-15](#)).

**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-03.**

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

(2) Turn the ignition switch to the ON position.

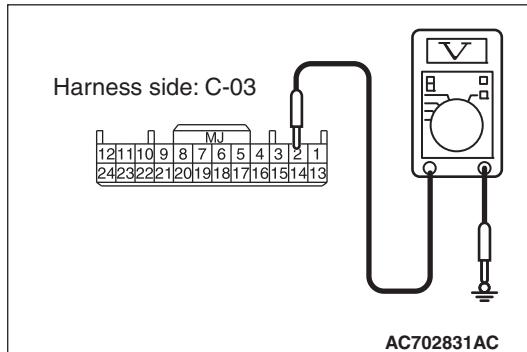
(3) Measure the voltage between terminals 2 and ground.

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

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

**YES** : Go to Step 8.

**NO** : Go to Step 6.



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

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

- (1) Turn the ignition switch to the "ON" position.
- (2) Check the ETACS data list.

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

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

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

**Q: Does 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-788](#)."

**STEP 7. Check the wiring harness between combination meter connector C-03 (terminal 2) and the fusible link (34).**

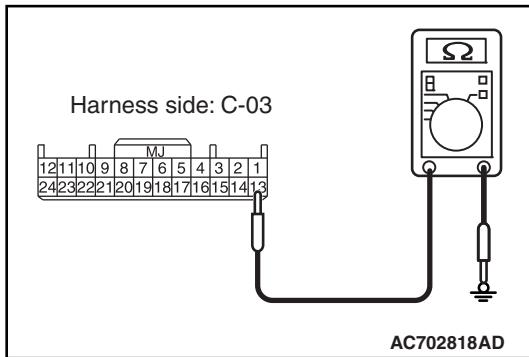
- Check the power supply line (battery supply) for open circuit and short circuit.

*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-03 (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.00-15](#)).

**NO** : Repair the wiring harness.




---

**STEP 8. Check the ground circuit to the combination meter. Test at combination meter connector C-03.**

- (1) Disconnect combination meter connector C-03 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-03 (terminal 13) and ground.**

- Check the ground wire for open circuit.

**Q: Is the wiring harness between combination meter connector C-03 (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.00-15](#)).

**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.00-15](#)).

**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 ABS-ECU <Vehicles without ASC> or ASC-ECU <Vehicles with ASC> and combination meter may have a problem.

**TROUBLESHOOTING HINTS**

- The ABS-ECU may be defective <Vehicles without ASC>
- The ASC-ECU may be defective <Vehicles with ASC>
- 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**

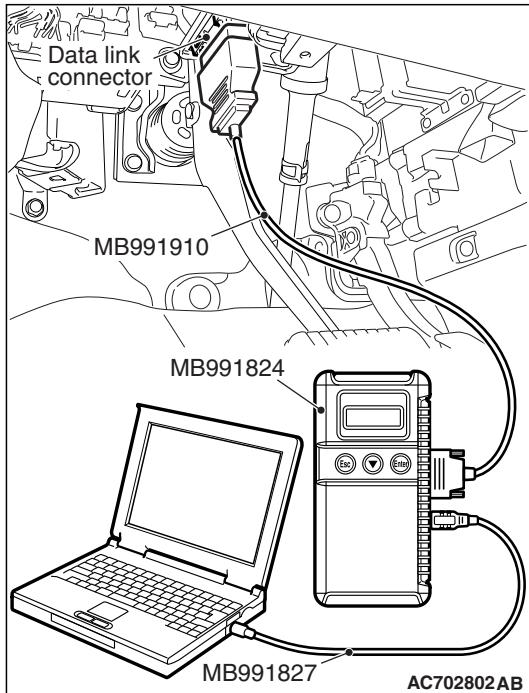
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).



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

Check if DTC is set to the combination meter.

## Q: Is the DTC set?

YES : Troubleshoot the combination meter (Refer to [P.54A-34](#)).

NO : Go to Step 3.

## STEP 3. Using scan tool MB991958, read the ABS-ECU &lt;Vehicles without ASC&gt; or ASC-ECU &lt;Vehicles with ASC&gt; diagnostic trouble code.

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

## Q: Is the DTC set?

YES : Troubleshoot the ABS or ASC (Refer to GROUP 35B, Diagnosis [P.35B-15](#) <ABS> or GROUP 35C, Diagnosis [P.35C-18](#) <ASC>).

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.

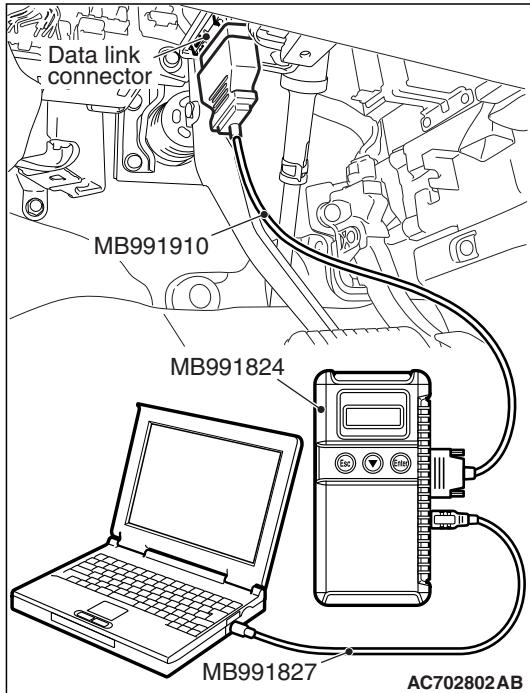
**TROUBLESHOOTING HINTS**

- 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-31](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).

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

Check if DTC is set to the combination meter.

**Q: Is the DTC set?**

**YES** : Troubleshoot the combination meter. (Refer to [P.54A-34](#).)

**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-49](#) <2.4 L engine> or GROUP 13B, Diagnosis [P.13B-50](#) <3.0 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-49](#) <2.4 L engine> or GROUP 13B, Diagnosis [P.13B-50](#) <3.0 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, earth circuit, and communication circuit are normal.

**TECHNICAL DESCRIPTION (COMMENT)**

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

**Seat belt reminder function**

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

**Keyless operation key reminder tone alarm function (vehicles with KOS)**

- Ignition switch OFF signal

- IG knob push switch ON signal
- Driver's door switch ON signal

**Ignition key reminder tone alarm function (vehicles without KOS)**

- Ignition switch OFF signal
- Key reminder switch OFF signal
- Driver's door switch ON signal

**Light reminder tone alarm function**

- Ignition switch OFF signal
- Lighting switch ON signal
- Driver's door switch ON signal

**Door-ajar warning tone alarm function**

- Ignition switch ON signal
- Any door switch or liftgate switch ON signal
- Vehicle speed signal

**Freeze warning tone alarm**

- Ignition switch ON signal

- Ambient temperature signal

#### Parking brake reminder tone alarm function

- Ignition switch ON signal
- Parking brake switch ON signal
- Vehicle speed signal

#### 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

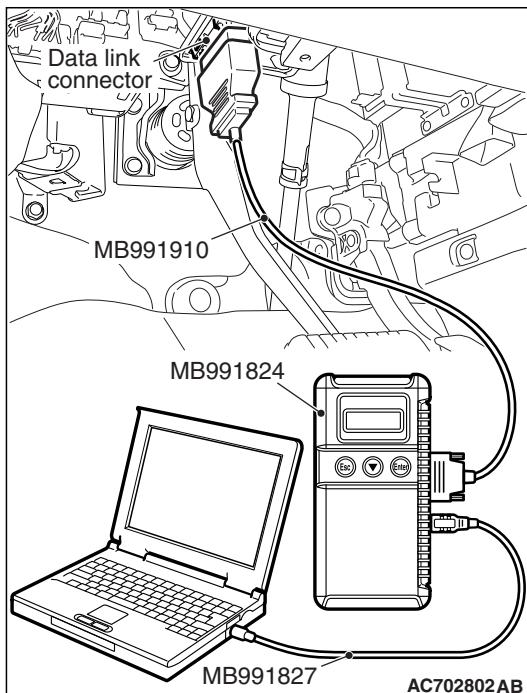
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.

NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).



---

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

Check if DTC is set to the combination meter.

**Q: Is the DTC set?**

**YES** : Refer to [P.54A-34](#).

**NO** : Go to Step 3.

---

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

Check if diagnosis code is set to the CVT, A/T, ABS, ASC, ETACS-ECU, WCM, KOS-ECU, AUDIO and A/C-ECU.

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

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

**YES <Set to the A/T.>** : Troubleshoot the A/T. Refer to GROUP 23C, Diagnosis [P.23C-27](#).

**YES <Set to the ABS.>** : Troubleshoot the ABS. Refer to GROUP 35B, Diagnosis [P.35B-15](#).

**YES <Set to the ASC.>** : Troubleshoot the ASC. Refer to GROUP 35C, Diagnosis [P.35C-18](#).

**YES <Set to the ETACS.>** : Troubleshoot the ETACS. Refer to [P.54A-732](#).

**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-35](#).

**YES <Set to the AUDIO.>** : Troubleshoot the AUDIO. (Refer to [P.54A-333](#).)

**YES <Set to the A/C.>** : Troubleshoot the A/C. Refer to GROUP 55A, Manual A/C Diagnosis [P.55A-11](#) or GROUP 55B, Automatic A/C Diagnosis [P.55B-8](#).

**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.00-15](#)).

**NO** : Replace the combination meter.

---

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

---

**⚠ CAUTION**

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

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.

**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.

**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**

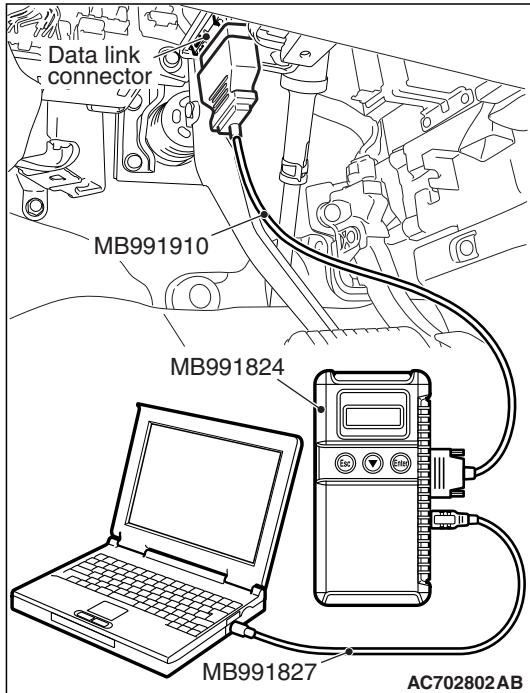
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).



---

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

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

**Q: Is the DTC set?**

**YES** : Refer to [P.54A-34](#).

**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, A/T, AWD, WCM, KOS, ABS, ASC, SRS, ETACS and A/C.

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

**YES <Set to the MFI.>** : Troubleshoot the MFI. Refer to GROUP 13A, Diagnosis [P.13A-49](#) <2.4 L engine> or GROUP 13B, Diagnosis [P.13B-50](#) <3.0 L engine>.

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

**YES <Set to the A/T.>** : Troubleshoot the A/T. Refer to GROUP 23C, Diagnosis [P.23C-27](#).

**YES <Set to the AWD.>** : Troubleshoot the AWD. Refer to GROUP 27C, Diagnosis [P.27C-11](#).

**YES <Set to the ABS.>** : Troubleshoot the ABS. Refer to GROUP 35B, Diagnosis [P.35B-15](#).

**YES <Set to the ASC.>** : Troubleshoot the ASC. Refer to GROUP 35C, Diagnosis [P.35C-18](#).

**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-35](#).

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

**YES <Set to the ETACS.>** : Troubleshoot the ETACS. (Refer to [P.54A-732](#).)

**YES <Set to the A/C.>** : Troubleshoot the A/C. Refer to GROUP 55A, Manual A/C Diagnosis [P.55A-11](#) or GROUP 55B, Automatic A/C Diagnosis [P.55B-8](#).

**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.

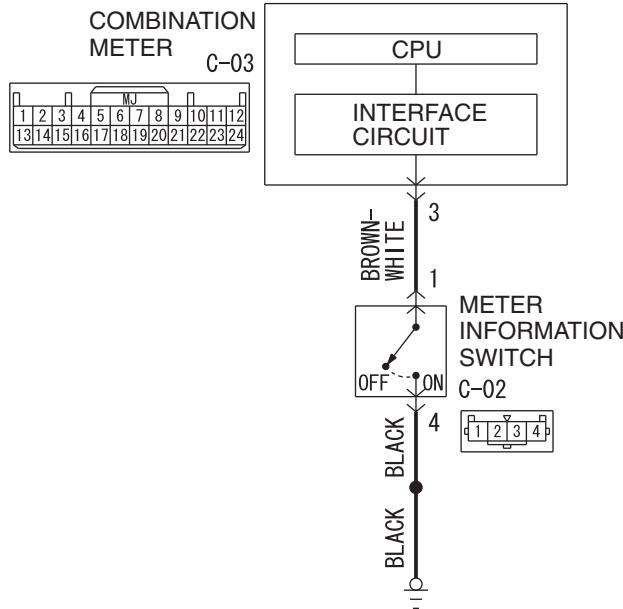
**Q: Is the check result normal?**

**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.00-15](#)).

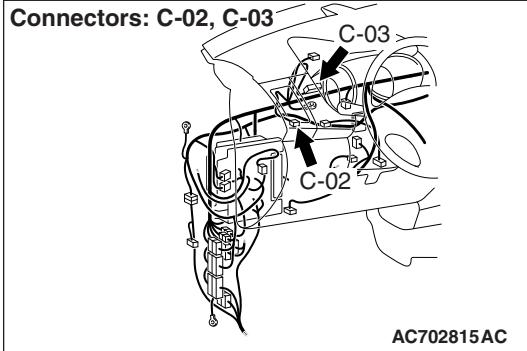
**NO** : Replace the combination meter.

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

#### Meter Information Switch Circuit



AC702819AC  
D7G54M068A00



#### CAUTION

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

#### TECHNICAL DESCRIPTION (COMMENT)

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

#### TROUBLESHOOTING HINTS

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

#### DIAGNOSIS

##### Required Special Tools:

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

---

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

Check if DTC is set to the combination meter.

**⚠ CAUTION**

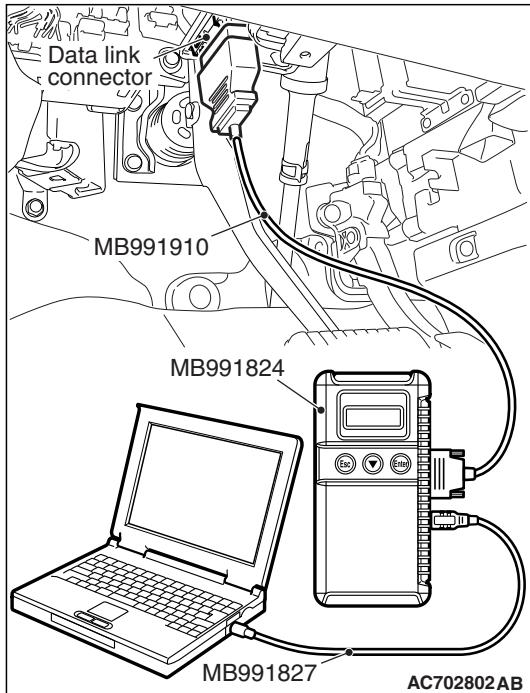
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-31](#)."
- (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** : Refer to [P.54A-34](#).

**NO** : Go to Step 2.



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**STEP 2. Check meter information switch connector C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is meter information switch connector C-02 in good condition?**

**YES** : Go to Step 3.

**NO** : Repair the defective connector.

---

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

Check the meter information switch. Refer to [P.54A-109](#).

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

**YES** : Go to Step 4.

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

---

**STEP 4. Check the wiring harness between meter information switch connector C-02 (terminal 4) and ground.**

- Check the ground wire for open circuit.

**Q: Is the wiring harness between fuel meter information switch connector C-02 (terminal 4) and ground in good condition?**

**YES** : Go to Step 5.

**NO** : Repair the wiring harness.

**STEP 5. Check combination meter connector C-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is combination meter connector C-03 in good condition?**

**YES** : Go to Step 6.

**NO** : Repair the defective connector.

---

**STEP 6. Check the wiring harness between meter information switch connector C-02 (terminal 1) and combination meter connector C-03 (terminal 3).**

- Check the output line for open circuit.

**Q: Are the wiring harness between meter information switch connector C-02 (terminal 1) and combination meter connector C-03 (terminal 3) in good condition?**

**YES** : Go to Step 7.

**NO** : Repair the wiring harness.

---

**STEP 7. 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.00-15](#)).

**NO** : Replace the combination meter.

## SERVICE DATA

M1540201000989

*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
80	Speed meter	Speedometer displayed value and M.U.T.-III displayed value agree with each other.	
87	Tachometer	Tachometer displayed value and M.U.T.-III displayed value agree with each other.	
89	Fuel gauge	Fuel gauge unit resistance value and M.U.T.-III displayed value agree with each other. (Tolerance is $\pm 2 \Omega$ )	
8A	Fuel gauge(Target)	Fuel gauge and M.U.T.-III displayed values agree with each other.	
90	Odometer	Odometer displayed value and M.U.T.-III displayed value agree with each other.	
91	Rheostat	Lighting change by rheostat switch operation and M.U.T.-III displayed change agree with each other.	
92	Trip meter A	Tripmeter displayed value and M.U.T.-III displayed value agree with each other.	5 – 20 V
93	Trip meter B		
94	Power source voltage	Always	5 – 20 V
A1	SRS warning light	Indicator illuminates	ON
		Indicator is extinguished	OFF
A2	ABS warning light	Indicator illuminates	ON
		Indicator is extinguished	OFF
A4	Charge indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
A5	Engine malfunction indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
A7	Brake warning light	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
B2	Turn signal indicator(Left)	Turn-signal light (LH): Illuminates	ON
		Turn-signal light (LH): OFF	OFF

Item No.	Check item	Check condition	Normal condition
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
		Fog light is not illuminated	OFF
BA	Position light indicator	Taillight switch: ON	ON
		Taillight switch: OFF	OFF
D6	Headlight 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 indicator	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 OFF indicator	Always	OFF
F27	Passenger seatbelt indicator	Always	OFF
F29	Inter cooler spray indicator	Always	OFF
F30	AS&G indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
F31	AS&G OFF indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF

## ACTUATOR TEST TABLE

M1540201100931

## 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 tone alarm 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 tone alarm sounds.

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

M1540201900603

**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.

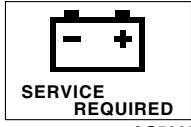
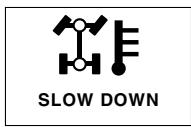
**WARNING SCREEN**

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 contents	Factor	Action procedure
 AC509825	Displayed with the sounding of tone alarm when the driver's door is opened with the key inserted in the ignition switch key cylinder.	If the ignition key reminder warning tone alarm is not being sounded, perform the troubleshooting for the ignition key reminder warning tone alarm (Refer to <a href="#">P.54A-79</a> ).
 AC509826	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 <a href="#">P.54A-79</a> ).
 AC505679	<ul style="list-style-type: none"> <li>Displayed while the theft alarm is in operation.</li> <li>Immobilizer is registered.</li> </ul>	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 <a href="#">P.54A-849</a> ) or immobilizer system (Refer to GROUP 42B, Trouble symptom chart <a href="#">P.42B-128</a> <vehicles with KOS> or Refer to GROUP 42C, Trouble symptom chart <a href="#">P.42C-80</a> <vehicles without KOS>.)

Display contents	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>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>	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-35</a> ).
<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. (except spare tire)</p> <p>b. Displayed when the TPMS is an abnormality.</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-35</a> ).
<p>a  CHECK</p> <p>AC509829AB</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-20</a>.</p> <p>b. Check the parking brake. Refer to GROUP 36, On-vehicle service <a href="#">P.36-10</a>.</p>

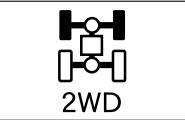
Display contents	Factor	Action procedure
 AC509831	Displayed when a malfunction occurs to the anti-lock braking system (ABS).	If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the ABS. Refer to GROUP 35B, Symptom Chart <a href="#">P.35B-149</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-79</a> .
a  AC709211AB	a. Displayed when the hood is open. b. Displayed when there is a malfunction to the hood.	If the warning screen is not displayed normally, or if the screen continues to be displayed, check the hood latch switch input signal. Refer to <a href="#">P.54A-813</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 13A, Symptom Chart <a href="#">P.13A-54 &lt;2.4 L engine&gt;</a> or GROUP 13B, Symptom Chart <a href="#">P.13B-55 &lt;3.0 L engine&gt;</a> .
a  AC509835AB	a. Displayed when the transmission oil temperature becomes high. b. Displayed when there is a malfunction to the CVT or automatic transaxle.	If the warning screen is not displayed normally or if the screen continues to be displayed, check the CVT or automatic transaxle diagnostic trouble code. Refer to GROUP 23A, Automatic Transaxle Diagnosis <a href="#">P.23A-29 &lt;CVT&gt;</a> or GROUP 23C, Automatic Transaxle Diagnosis <a href="#">P.23C-27 &lt;automatic transaxle&gt;</a> .
b  AC509836AB		
 AC509837	Displayed when the ignition switch is turned ON without the driver's seat belt fastened.	If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the seat belt reminder warning light. Refer to <a href="#">P.54A-82</a> .

Display contents	Factor	Action procedure
a  AC509838AD	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-82</a> . b. Immediately fill the fuel.
b  AC509839AB		
 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 13A, Trouble symptom chart <a href="#">P.13A-54 &lt;2.4 L engine&gt;</a> or GROUP 13B, Trouble symptom chart <a href="#">P.13B-55 &lt;3.0 L engine&gt;</a> .
 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, SRS Air Bag Diagnosis <a href="#">P.52B-31</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, Symptom Chart <a href="#">P.35C-216</a> .
a  AC509845AB	a. Displayed when there is a malfunction to the electronically-controlled AWD system or multi-select AWD. b. Displayed when there is a malfunction to the electronically-controlled AWD differential or when the multi-select AWD system temperature is high.	If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the electronically-controlled AWD system. Refer to GROUP 27C, Diagnosis <a href="#">P.27C-11</a> .
b  AC509846AB		

Display contents	Factor	Action procedure
 POSSIBLE ICY ROADS AC702844	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-79</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 contents	System operation state	Action procedure
 2WD AC505707	Displays the screen in accordance with operation state of the AWD selector switch.	If the AWD selector switch position and screen do not agree with each other, perform the troubleshooting for the AWD. Refer to GROUP 27C, Diagnosis <a href="#">P.27C-11</a> .
 4WD AUTO AC505708		
 4WD LOCK AC505709 AC507289		
 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, Symptom Chart <a href="#">P.35C-216</a> .
 PERIODIC INSPECTION AC509849	Displayed when the set period elapses.	–
 REST REMINDER AC613245	Displayed when the set time elapses.	–

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

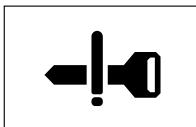
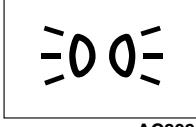
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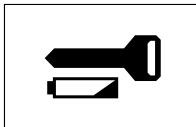
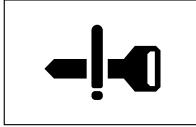
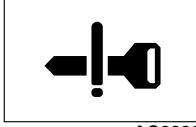
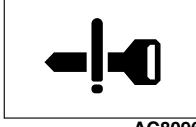
**CAUTION**

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.

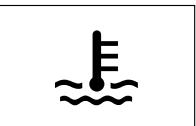
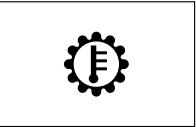
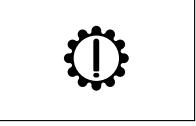
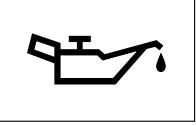
**WARNING SCREEN**

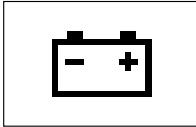
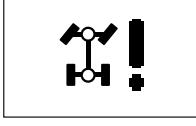
When malfunctions occur to the vehicle, the following warning screens are displayed. If these screens are not displayed normally or if they continue to be displayed even after the factor is eliminated, take measures according to the action procedure.

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-79).
 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-79).
 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-849.)

Display content	Message	Factor	Action procedure
 AC900961	—	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. <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>	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-35</a> ).
 AC809614	KEY BATTERY LOW	Displayed when the KOS key battery is running low.	
 AC809615	KEY NOT DETECTED	Displayed if carrying a KOS key with different ID code or the KOS key is outside the operative range.	
 AC809615	KEY STILL IN VEHICLE	Displayed when the KOS key take-out monitoring function or KOS key confinement prevention function is in operation.	
 AC809615	CHECK DOORS	Displayed when the door ajar prevention function is in operation.	
 AC809615	KEYLESS OPERATION SYSTEM SERVICE REQUIRED	Displayed when there is a malfunction to KOS.	

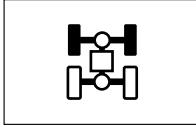
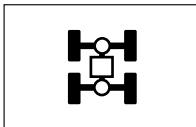
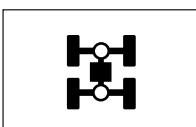
Display content	Message	Factor	Action procedure
 AC809643	LOW TIRE PRESSURE	Displayed when the tire air pressure is an abnormality. (except spare tire)	If the warning screen is not displayed normally or erased, carry out the troubleshooting for the TPMS (Refer to GROUP 42B, Diagnosis <a href="#">P.42B-35</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-20</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 35B, Symptom Chart <a href="#">P.35B-149</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-79</a> .
 AC809641	CLOSE HOOD	Displayed when the hood is open	If the warning screen is not displayed normally, or if the screen continues to be displayed, check the hood latch switch input signal. Refer to <a href="#">P.54A-813</a> .

Display content	Message	Factor	Action procedure
 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, Symptom Chart <a href="#">P.13A-54 &lt;2.4 L engine&gt;</a> or GROUP 13B, Symptom Chart <a href="#">P.13B-55 &lt;3.0 L engine&gt;</a> .
 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 automatic transaxle diagnostic trouble code. Refer to GROUP 23A, Automatic Transaxle Diagnosis <a href="#">P.23A-29 &lt;CVT&gt;</a> or GROUP 23C, Automatic Transaxle Diagnosis <a href="#">P.23C-27 &lt;automatic transaxle&gt;</a> .
 AC809621	TRANSMISSION SERVICE REQUIRED	Displayed when there is a malfunction to the CVT or automatic transaxle.	
 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-82</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 diagnosis code. Refer to <a href="#">P.54A-82</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-54 &lt;2.4 L engine&gt;</a> or GROUP 13B, Trouble symptom chart <a href="#">P.13B-55 &lt;3.0 L engine&gt;</a> .

Display content	Message	Factor	Action procedure
 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> .
 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-31</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-216</a> .
 AC809631	4WD SYSTEM SERVICE REQUIRED	Displayed when there is a malfunction to the electronically-controlled AWD system or multi-select AWD..	If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the electronically-controlled AWD system. Refer to GROUP 27C, Diagnosis <a href="#">P.27C-11</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-79</a> .

## OTHER SCREENS

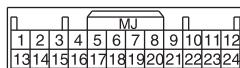
The screen displays the operation state of each system, periodic checkup timing, or timing for taking a rest during driving. If the screen display differs from the actual system operation state or if the screen is not displayed at the set timing, take measures according to the action procedure.

Display content	Message	System operation state	Action procedure
 AC809644	–	Displays the screen in accordance with operation state of the AWD selector switch.	If the AWD selector switch position and screen do not agree with each other, perform the troubleshooting for the AWD. Refer to GROUP 27C, Diagnosis <a href="#">P.27C-11</a> .
 AC809645	4WD AUTO		
 AC809646	4WD LOCK		
 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-216</a> .
 AC809637	ROUTINE MAINTENANCE REQUIRED	Displayed when the set period elapses.	–
 AC809638	REST REMINDER	Displayed when the set time elapses.	–

## CHECK AT ECU TERMINALS

M1540201200239

Connector: C-03



AC702848AB

Terminal No.	Check item	Check conditions	Normal conditions
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	Headlight leveling	During headlight leveling warning display	1 V or less
		Without headlight leveling warning display	Battery positive voltage
7 to 12	—	—	—
13	Ground (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 25 mph (40 km/h)	Approximately 28Hz
		Vehicle speed change	In accordance with the vehicle speed, a pulse is generated.
21	Ground (ECU)	Always	1 V or less

Terminal No.	Check item	Check conditions	Normal conditions
22	Illumination (-) output	With daytime lighting control	1 V or less
		With nighttime lighting control	In accordance with the rheostat switch operation, a pulse is generated.
23	Illumination (+) output	With lighting control	Battery positive voltage
24	Illumination (power supply)	Always	Battery positive voltage

## ON-VEHICLE SERVICE

### SPEEDOMETER CHECK

M1540201400299

#### CAUTION

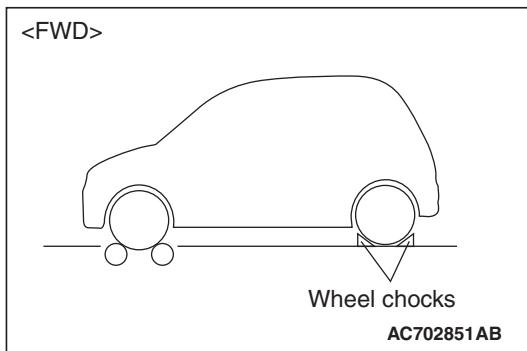
- Since the diagnostic trouble code may be stored in the ABS-ECU or ASC-ECU when checking the speedometer with speedometer tester, erase the diagnostic trouble code.
- Do not accelerate or decelerate suddenly during servicing work.

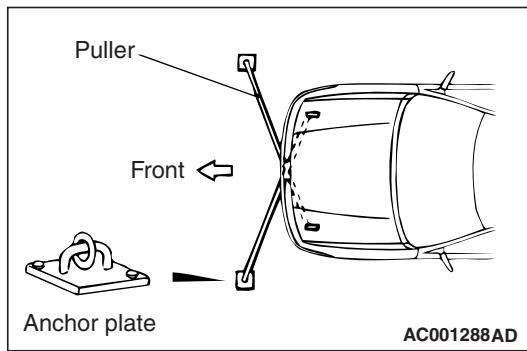
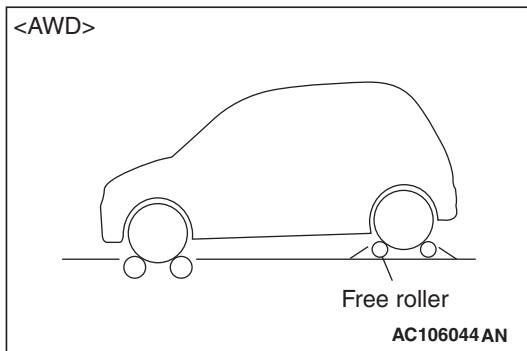
1. Adjust the pressure of tires to the specified level (Refer to GROUP 31, On-vehicle Service [P.31-8](#)).
2. Where applicable, ensure that the TPMS warning light is not illuminating or flashing.
3. <Vehicles with ASC> Press the ASC OFF switch for 3 seconds or more to stop the ASC operation.

#### CAUTION

**Set a free-roller on the rear tire for AWD.**

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





5. For AWD vehicles, set the vehicle onto a speedometer tester and place the rear wheels on a free roller.

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

**Standard value <Except vehicles for CANADA>:**

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

**Standard value <Vehicles for CANADA>:**

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

9. 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 ABS or ASC and the combination meter. Check the following items.

- ABS or ASC (refer to GROUP 35B, Diagnosis [P.35B-15](#) <ABS> or GROUP 35C, Diagnosis [P.35C-18](#) <ASC>).
- Combination meter (refer to [P.54A-34](#)).

## TACHOMETER CHECK

M1540201500230

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 GAUGE UNIT CHECK

M1540201600408

### VEHICLES FOR FWD

1. Remove the second seat (Refer to GROUP 52A – Seat Assembly [P.52A-25](#)).
2. Remove the floor inspection lid, and then remove the fuel pump module (Refer to GROUP 13C – Fuel Tank [P.13C-15](#)).

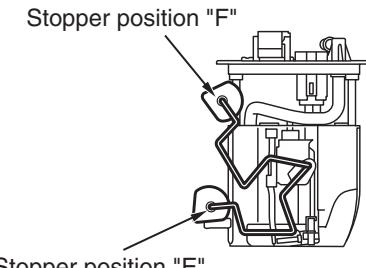
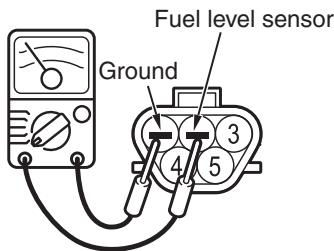
NOMINAL RESISTANCE OF THE FUEL LEVEL  
SENSOR

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

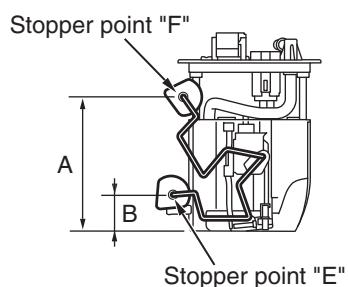
## Standard value:

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

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



AC609773AF



AC609774AD

## FUEL LEVEL SENSOR FLOAT HEIGHT

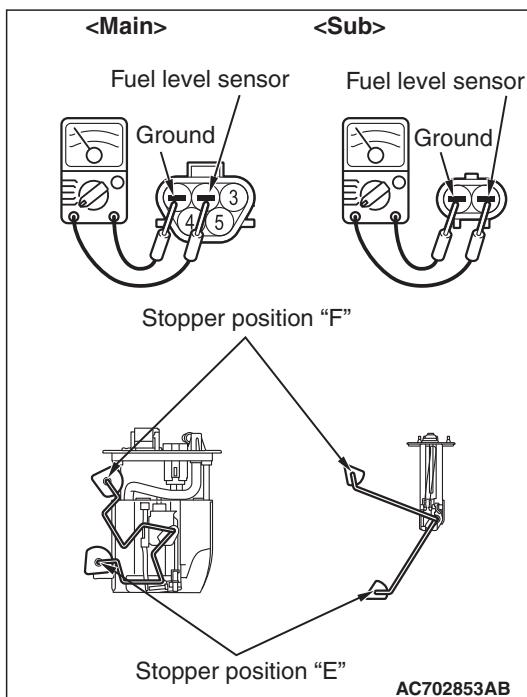
When float is moved to contact the float arm on the stopper, ensure that stopper positions "F" (height A) and "E" (height B) are within the standard value.

## Standard value:

Float position	Float height mm (in)
Stopper position "F" (height A)	201.6 (7.9)
Stopper position "E" (height B)	18.0 (0.7)

## VEHICLES FOR AWD

1. Remove the second seat (Refer to GROUP 52A – Seat Assembly [P.52A-25](#)).
2. Remove the floor inspection lid, and then remove the fuel pump module and fuel level sensor (sub) (Refer to GROUP 13C – Fuel Tank [P.13C-20](#)).

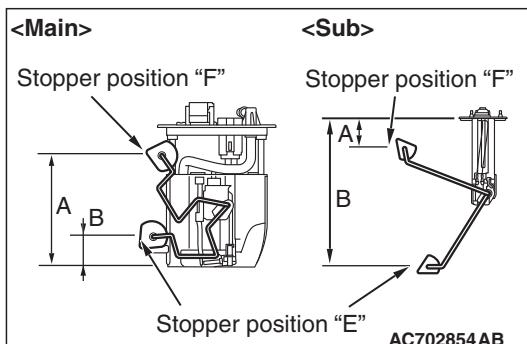
NOMINAL RESISTANCE OF THE FUEL LEVEL  
SENSOR

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

## 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"	$44.7 \pm 1.0$	$75.3 \pm 1.0$

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



## FUEL LEVEL SENSOR FLOAT HEIGHT

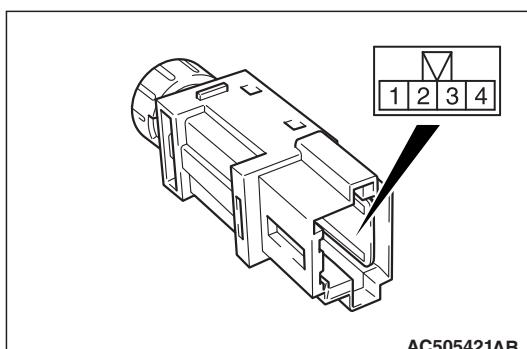
When float is moved to contact the float arm on the stopper, ensure that stopper positions "F" (height A) and "E" (height B) are within the standard value.

## Standard value:

Float position	Float height mm (in)	
	Main	Sub
Stopper position "F" (height A)	166.2 (6.5)	$48.8 \pm 3.0$ ( $1.9 \pm 0.1$ )
Stopper position "E" (height B)	38.8 (1.5)	$238.0 \pm 3.0$ ( $9.3 \pm 0.1$ )

## METER INFORMATION SWITCH CHECK

M1540202000119



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

## SERVICE REMINDER FUNCTION SET

HOW TO SET BY OPERATING THE SCAN  
TOOL MB991958

M1540208200229

**⚠ 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).

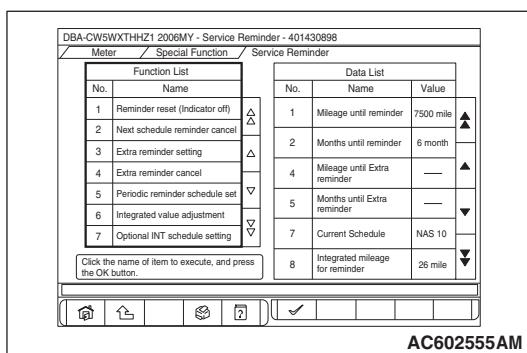
1. Reminder reset (Indicator off)
2. Next schedule reminder cancel
3. Extra reminder setting
4. Extra reminder cancel
5. Periodic reminder schedule set
6. Integrated value adjustment
7. Optional INT schedule setting

## 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-111](#)).
  - 2 Next schedule reminder cancel (Refer to [P.54A-111](#)).
  - 3 Extra reminder setting (Refer to [P.54A-112](#)).
  - 4 Extra reminder cancel (Refer to [P.54A-112](#)).
  - 5 Periodic reminder schedule set (Refer to [P.54A-113](#)).
  - 6 Integrated value adjustment (Refer to [P.54A-113](#)).
  - 7 Optional INT schedule setting (Refer to [P.54A-114](#)).

## 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.

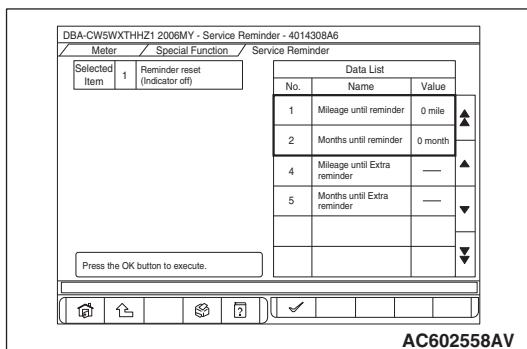
The service reminder warning indicator which is currently output can be cancelled.

*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 .*

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.

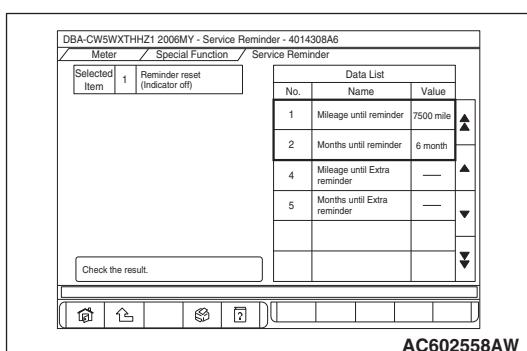
*NOTE: The screen indicates that the warning period (Nos. 1 and 2 in the data list) is "7,500 km" and "6 month."*

## 2. NEXT SCHEDULE REMINDER CANCEL

### ⚠ CAUTION

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

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



DBA-CW5WXTHZ1 2006MY - Service Reminder - 4014308A6

Meter	Special Function	Service Reminder
Selected Item	2	Next schedule reminder cancel

Data List

No.	Name	Value
1	Mileage until reminder	1000 mile
2	Months until reminder	1 month
4	Mileage until Extra reminder	—
5	Months until Extra reminder	—

Press the OK button to execute.

AC602558AX

DBA-CW5WXTHZ1 2006MY - Service Reminder - 4014308A6

Meter	Special Function	Service Reminder
Selected Item	2	Next schedule reminder cancel

Data List

No.	Name	Value
1	Mileage until reminder	8500 mile
2	Months until reminder	7 month
4	Mileage until Extra reminder	—
5	Months until Extra reminder	—

Check the result.

AC602558AY

DBA-CW5WXTHZ1 2006MY - Service Reminder - 4014308A4

Meter	Special Function	Service Reminder
Selected Item	3	Extra service reminder setting

Set value

Name	Value
Distance to setting point	-Input the value-
Months to setting point	-Input the value-

Input the value for the item that you want to set up, and press the OK button.

AC602556AG

DBA-CW5WXTHZ1 2006MY - Service Reminder - 4014308A5

Meter	Special Function	Service Reminder
Selected Item	3	Extra service reminder setting

Set value

Name	Value
Distance to setting point	-Input the value-
Months to setting point	2

Input the value for the item that you want to set up, and press the OK button.

Range: 0-254, Unit: month,

AC602557AE

DBA-CWSWXTHZ1 2006MY - Service Reminder - 4014308A6

Meter	Special Function	Service Reminder
Selected Item	3	Extra service reminder setting

Data List

No.	Name	Value
1	Mileage until reminder	7500 mile
2	Months until reminder	6 month
4	Mileage until Extra reminder	—
5	Months until Extra reminder	2 month

Check the result.

AC602558AO

- 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."*

- Press the "OK" button.

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

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

### 3. EXTRA REMINDER SETTING

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

- 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.*

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

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

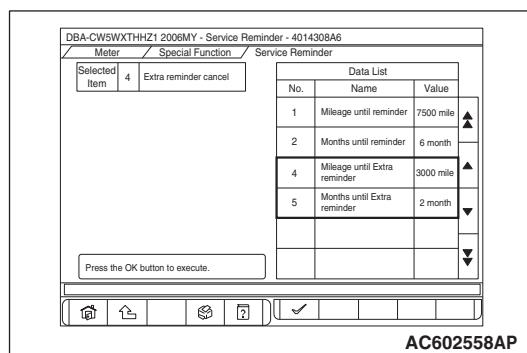
- Press the "OK" button.

- The temporary warning period is set.

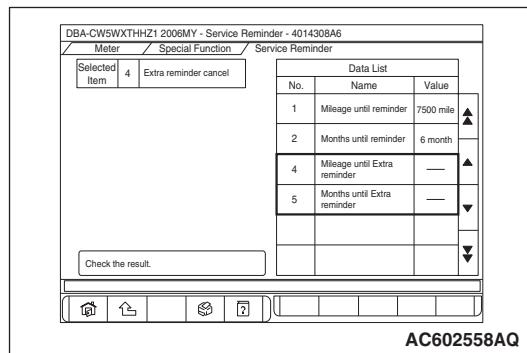
*NOTE: The screen indicates that "2 month" has been added to the temporary warning period (No. 5 in the data list). (The distance of No. 4 in the data list has not been set).*

### 4. EXTRA REMINDER CANCEL

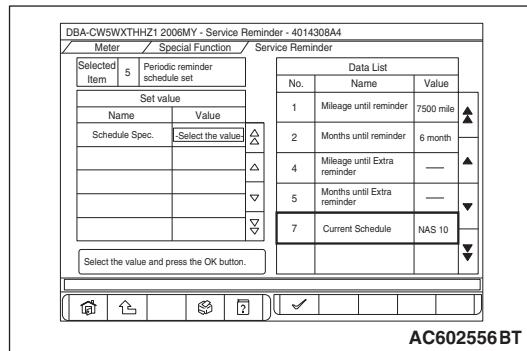
The temporary service reminder warning period which has been set can be cancelled.



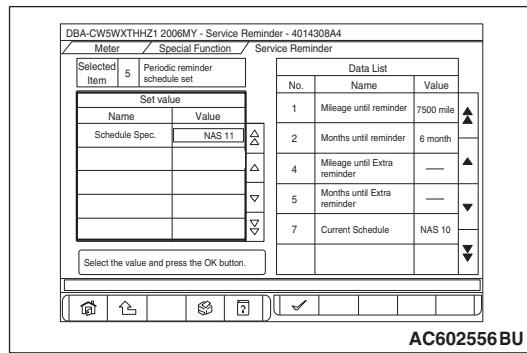
AC602558AP



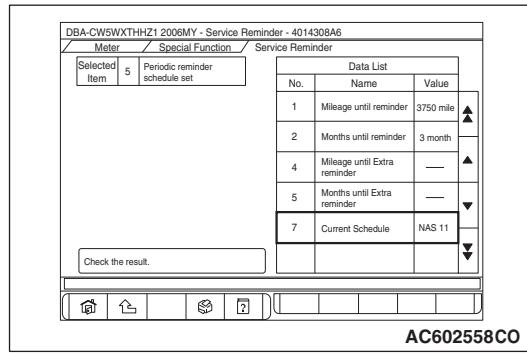
AC602558AQ



AC602556BT



AC602556BU



AC602558CO

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 .*

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 10."*

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 11."*

## 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.

DBA-CW5WXTHHZ1 2006MY - Service Reminder - 4014308A4

Meter	Special Function	Service Reminder																					
Selected Item	6 Integrated value adjustment																						
Set value																							
<table border="1"> <tr> <td>Name</td> <td>Value</td> </tr> <tr> <td>Running Distance</td> <td>-Input the value-</td> </tr> <tr> <td>Elapsed Days</td> <td>-Input the value-</td> </tr> <tr> <td colspan="2">Input the value to both items, and press the OK button.</td> </tr> </table>			Name	Value	Running Distance	-Input the value-	Elapsed Days	-Input the value-	Input the value to both items, and press the OK button.														
Name	Value																						
Running Distance	-Input the value-																						
Elapsed Days	-Input the value-																						
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<table border="1"> <thead> <tr> <th>No.</th> <th>Name</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Mileage until reminder</td> <td>7500 mile</td> </tr> <tr> <td>2</td> <td>Months until reminder</td> <td>6 month</td> </tr> <tr> <td>4</td> <td>Mileage until Extra reminder</td> <td>—</td> </tr> <tr> <td>5</td> <td>Months until Extra reminder</td> <td>—</td> </tr> <tr> <td>8</td> <td>Integrated mileage for reminder</td> <td>26 mile</td> </tr> <tr> <td>9</td> <td>Integrated days for reminder</td> <td>0 day</td> </tr> </tbody> </table>			No.	Name	Value	1	Mileage until reminder	7500 mile	2	Months until reminder	6 month	4	Mileage until Extra reminder	—	5	Months until Extra reminder	—	8	Integrated mileage for reminder	26 mile	9	Integrated days for reminder	0 day
No.	Name	Value																					
1	Mileage until reminder	7500 mile																					
2	Months until reminder	6 month																					
4	Mileage until Extra reminder	—																					
5	Months until Extra reminder	—																					
8	Integrated mileage for reminder	26 mile																					
9	Integrated days for reminder	0 day																					
<input type="button" value="OK"/> <input type="button" value="Up"/> <input type="button" value="Down"/> <input type="button" value="Clear"/> <input type="button" value="?"/> <input type="button" value="Tab"/> <input type="button" value="Back Space"/> <input type="button" value="Clear"/>																							

AC602556AP

DBA-CW5WXTHHZ1 2006MY - Service Reminder - 4014308A5

Meter	Special Function	Service Reminder								
Selected Item	6 Integrated value adjustment									
Set value										
<table border="1"> <tr> <td>Name</td> <td>Value</td> </tr> <tr> <td>Running Distance</td> <td>100</td> </tr> <tr> <td>Elapsed Days</td> <td>30</td> </tr> <tr> <td colspan="2">Input the value to both items, and press the OK button.</td> </tr> </table>			Name	Value	Running Distance	100	Elapsed Days	30	Input the value to both items, and press the OK button.	
Name	Value									
Running Distance	100									
Elapsed Days	30									
Input the value to both items, and press the OK button.										
<table border="1"> <tr> <td>Range: 0-32767, Unit: day.</td> </tr> <tr> <td> <input type="button" value="OK"/> <input type="button" value="Up"/> <input type="button" value="Down"/> <input type="button" value="Clear"/> <input type="button" value="?"/> <input type="button" value="Tab"/> <input type="button" value="Back Space"/> <input type="button" value="Clear"/> </td> </tr> </table>			Range: 0-32767, Unit: day.	<input type="button" value="OK"/> <input type="button" value="Up"/> <input type="button" value="Down"/> <input type="button" value="Clear"/> <input type="button" value="?"/> <input type="button" value="Tab"/> <input type="button" value="Back Space"/> <input type="button" value="Clear"/>						
Range: 0-32767, Unit: day.										
<input type="button" value="OK"/> <input type="button" value="Up"/> <input type="button" value="Down"/> <input type="button" value="Clear"/> <input type="button" value="?"/> <input type="button" value="Tab"/> <input type="button" value="Back Space"/> <input type="button" value="Clear"/>										

AC602557AF

DBA-CW5WXTHHZ1 2006MY - Service Reminder - 4014308A4

Meter	Special Function	Service Reminder
Selected Item	6 Integrated value adjustment	
Data List		
No.	Name	Value
1	Mileage until reminder	7400 mile
2	Months until reminder	5 month
4	Mileage until Extra reminder	—
5	Months until Extra reminder	—
8	Integrated mileage for reminder	100 mile
9	Integrated days for reminder	30 day

Check the result.

AC602558BA

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.

DBA-CW5WXTHH21 2006MY - Service Reminder - 4014308A4

Meter	Special Function	Service Reminder												
Selected Item	7 Optional INT schedule setting													
Set value														
<table border="1"> <tr> <td>Name</td> <td>Value</td> </tr> <tr> <td>Optional INT for mileage</td> <td>-Input the value-</td> </tr> <tr> <td>Optional INT for month</td> <td>-Input the value-</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td colspan="2">Input the value for the item that you want to set up, and press the OK button.</td> </tr> </table>			Name	Value	Optional INT for mileage	-Input the value-	Optional INT for month	-Input the value-					Input the value for the item that you want to set up, and press the OK button.	
Name	Value													
Optional INT for mileage	-Input the value-													
Optional INT for month	-Input the value-													
Input the value for the item that you want to set up, and press the OK button.														
<input type="button" value="OK"/> <input type="button" value="Up"/> <input type="button" value="Down"/> <input type="button" value="Home"/> <input type="button" value="Help"/>														

AC602556AK

DBA-CW5WXTHH21 2006MY - Service Reminder - 4014308A5

Meter	Special Function	Service Reminder												
Selected Item	7 Optional INT schedule setting													
Set value														
<table border="1"> <tr> <td>Name</td> <td>Value</td> </tr> <tr> <td>Optional INT for mileage</td> <td>-Input the value-</td> </tr> <tr> <td>Optional INT for month</td> <td>2</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td colspan="2">Input the value for the item that you want to set up, and press the OK button.</td> </tr> </table>			Name	Value	Optional INT for mileage	-Input the value-	Optional INT for month	2					Input the value for the item that you want to set up, and press the OK button.	
Name	Value													
Optional INT for mileage	-Input the value-													
Optional INT for month	2													
Input the value for the item that you want to set up, and press the OK button.														
<input type="button" value="OK"/> <input type="button" value="Up"/> <input type="button" value="Down"/> <input type="button" value="Home"/> <input type="button" value="Help"/>														

AC602557AG

DBA-CW5WXTHH21 2006MY - Service Reminder - 4014308A4

Meter	Special Function	Service Reminder																					
Selected Item	7 Optional INT schedule setting																						
<p>Check the result. Please set up "Optional INT" in "Periodic inspection schedule set" function. When you start the service reminder at this interval setting.</p>																							
<table border="1"> <tr> <td>No.</td> <td>Name</td> <td>Value</td> </tr> <tr> <td>1</td> <td>Mileage until reminder</td> <td>—</td> </tr> <tr> <td>2</td> <td>Months until reminder</td> <td>2 month</td> </tr> <tr> <td>8</td> <td>Integrated mileage for reminder</td> <td>26 mile</td> </tr> <tr> <td>9</td> <td>Integrated days for reminder</td> <td>0 day</td> </tr> <tr> <td>12</td> <td>Optional interval for mileage</td> <td>—</td> </tr> <tr> <td>13</td> <td>Optional interval for month</td> <td>2 month</td> </tr> </table>			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
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																					
<input type="button" value="OK"/> <input type="button" value="Up"/> <input type="button" value="Down"/> <input type="button" value="Home"/> <input type="button" value="Help"/>																							

AC604401AC

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.*

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.

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).*

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

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", "EU" and "AUS" can also be selected. However, the setting shall be for "NAS" only.*

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

### SCHEDULE TABLE

Schedule	Contents of schedule	
NAS 10 (initial setting)	Elapsed time (month)	Every 6 elapsed months
	Driving distance (miles)	Every 7,500 miles of driving distance
	Driving distance (km)	Every 12,000 km of driving distance
NAS 11	Elapsed time (month)	Every 3 elapsed months
	Driving distance (miles)	Every 3,750 miles of driving distance
	Driving distance (km)	Every 6,000 km of driving distance
NAS 20	Elapsed time (month)	Every 5 elapsed months
	Driving distance (miles)	Every 5,000 miles of driving distance
	Driving distance (km)	Every 8,000 km of driving distance
NAS 21	Elapsed time (month)	Every 4 elapsed months
	Driving distance (miles)	Every 3,750 miles of driving distance
	Driving distance (km)	Every 6,000 km of driving distance
Optional INT	The optional schedule can be set. (Only 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/EXP", "EU" and "AUS" can also be selected. However, the setting shall be for "NAS" only.*

### HOW TO INACTIVATE THE SERVICE REMINDER FUNCTION

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

#### When "OFF Display" is selected

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

#### When "Function OFF" is selected

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

## COMBINATION METER

## REMOVAL AND INSTALLATION

M1540201700212

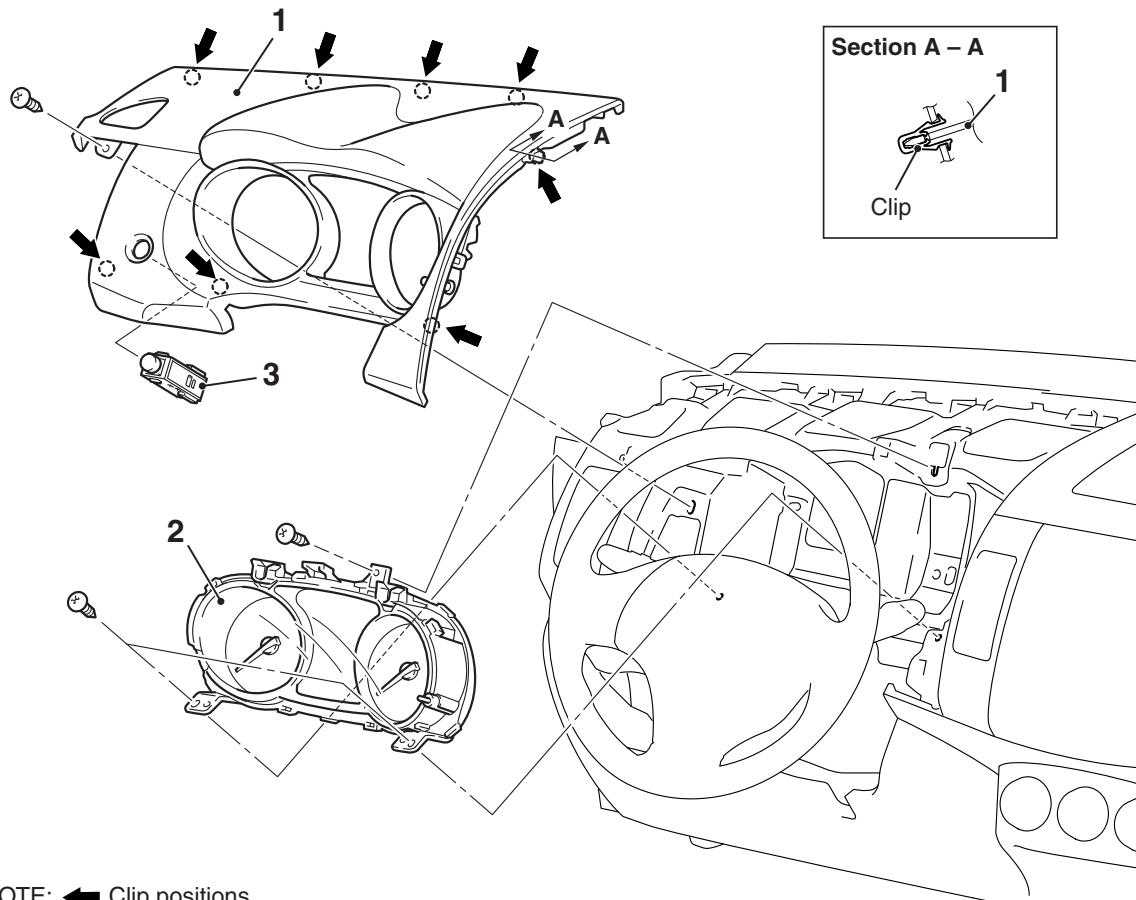
**CAUTION**

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-110](#). 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**

- Side air outlet (Refer to GROUP 52A, Instrument Panel Assembly [P.52A-2](#).)



NOTE: ← Clip positions

AC702877AB

**Removal Steps**

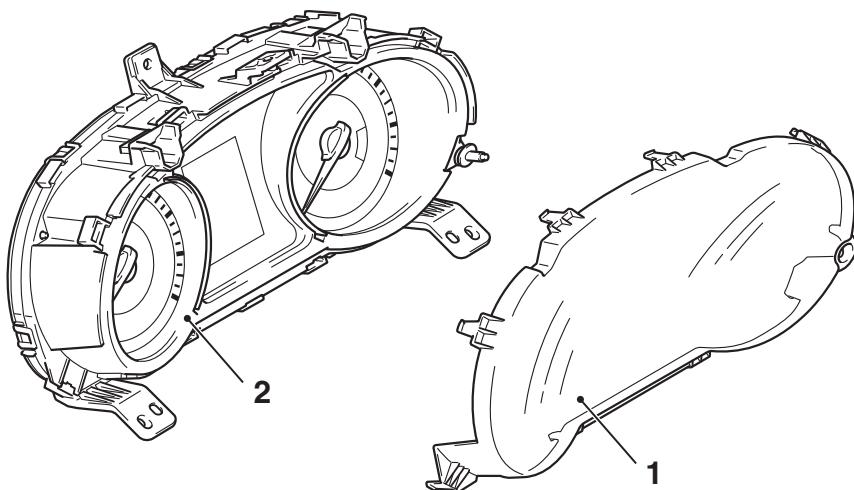
1. Meter hood assembly

**Removal Steps (Continued)**

2. Combination meter
3. Meter information switch

## DISASSEMBLY AND ASSEMBLY

M1540201800178



AC506448AB

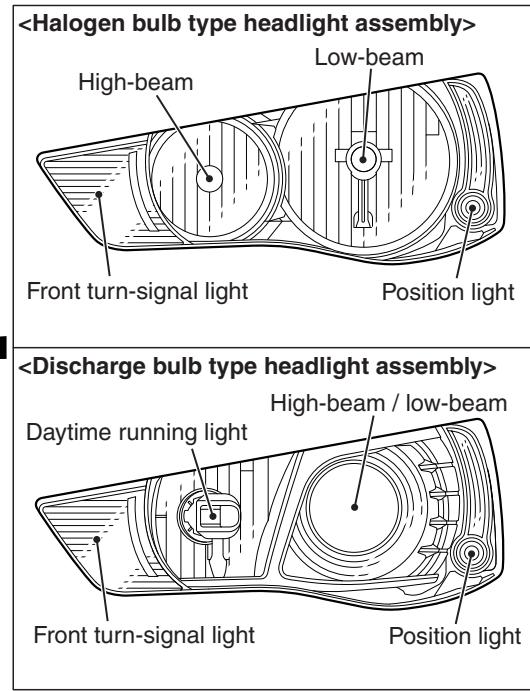
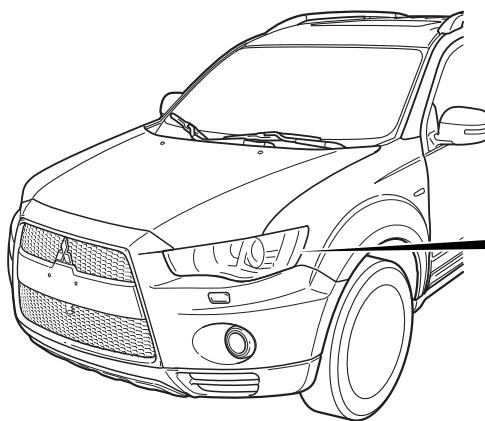
## Disassembly steps

1. Combination meter glass
2. Combination meter

## HEADLIGHT

## GENERAL INFORMATION

M1542000100662



AC809368AE

- 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.

- 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

M1540100200370

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}	

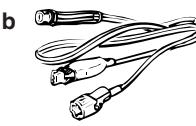
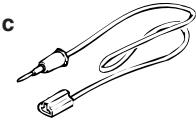
## PRECAUTIONS ON HOW TO USE THE HEADLIGHT ASSEMBLY

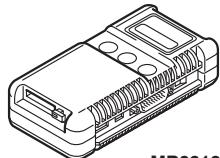
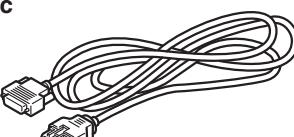
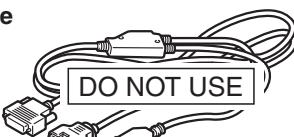
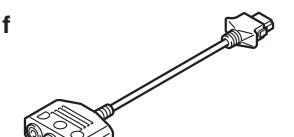
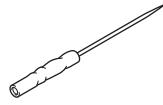
Be careful with the following items as resin lenses are used in the headlight assembly.

- 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

M1540104400309

Tool	Tool number and name	Supersession	Application
   	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222 Harness set a. Test harness b. LED harness c. LED harness adaptor d. Probe	General service tools	Continuity check and voltage measurement at harness wire or connector a. Connector pin contact pressure inspection b. Power circuit inspection c. Power circuit inspection d. Commercial tester connection

Tool	Tool number and name	Supersession	Application
a  MB991824	MB991958 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826	MB991824-KIT <i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i>	<b>CAUTION</b> <b>M.U.T.-III main harness B (MB991911) should be used. M.U.T.-III main harness A and C should not be used for this vehicle.</b> Diagnostic code, service data and actuator test check.
b  MB991827	M.U.T.-III sub assembly		
c  MB991910	a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable		
d  MB991911	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  MB991914	e. M.U.T.-III main harness C (for Chrysler models only)		
f  MB991825	f. M.U.T.-III measurement adapter		
g  MB991826 MB991958	g. M.U.T.-III trigger harness		
 MB992006	MB992006 Extra fine probe	—	Continuity check and voltage measurement at harness wire or connector.

## DIAGNOSIS

### STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 – Contents of troubleshooting  
P.00-7.

M1540104200316

### DIAGNOSTIC FUNCTION

M1540104300175

### 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

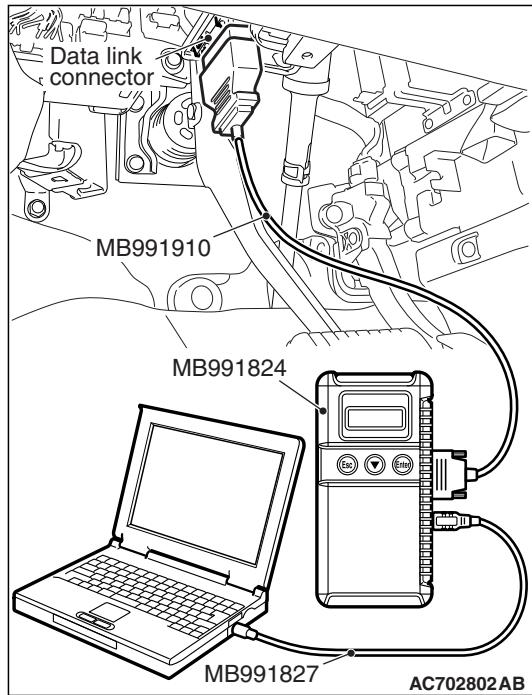
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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.

## HOW TO DIAGNOSE THE CAN BUS LINES

### Required Special Tools:

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

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

## SERVICE PRECAUTIONS DISCHARGE HEADLIGHT

M1540100300162

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 five minutes after switching them on). Check that the headlights do not flash or flicker.
Turn on the headlights for thirty minutes. Check that the brightness is the same between right and left lights.
Turn on the headlights for thirty minutes. Check that the headlights do not flash or flicker for thirty 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-153](#).
3. If ETACS-ECU fails, only the low-beam headlights will illuminate as a fail-safe measure.

### DIAGNOSTIC TROUBLE CODE CHART

M1540101400429

#### 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

Diagnostic trouble code No.	Diagnostic item	Reference page
B16A2	Blown turn-signal light (LH) bulb	<a href="#">P.54A-128</a>
B16A3	Turn-signal light (LH) short circuit	<a href="#">P.54A-135</a>
B16A4	Blown turn-signal light (RH) bulb	<a href="#">P.54A-139</a>
B16A5	Turn-signal light (RH) short circuit	<a href="#">P.54A-146</a>

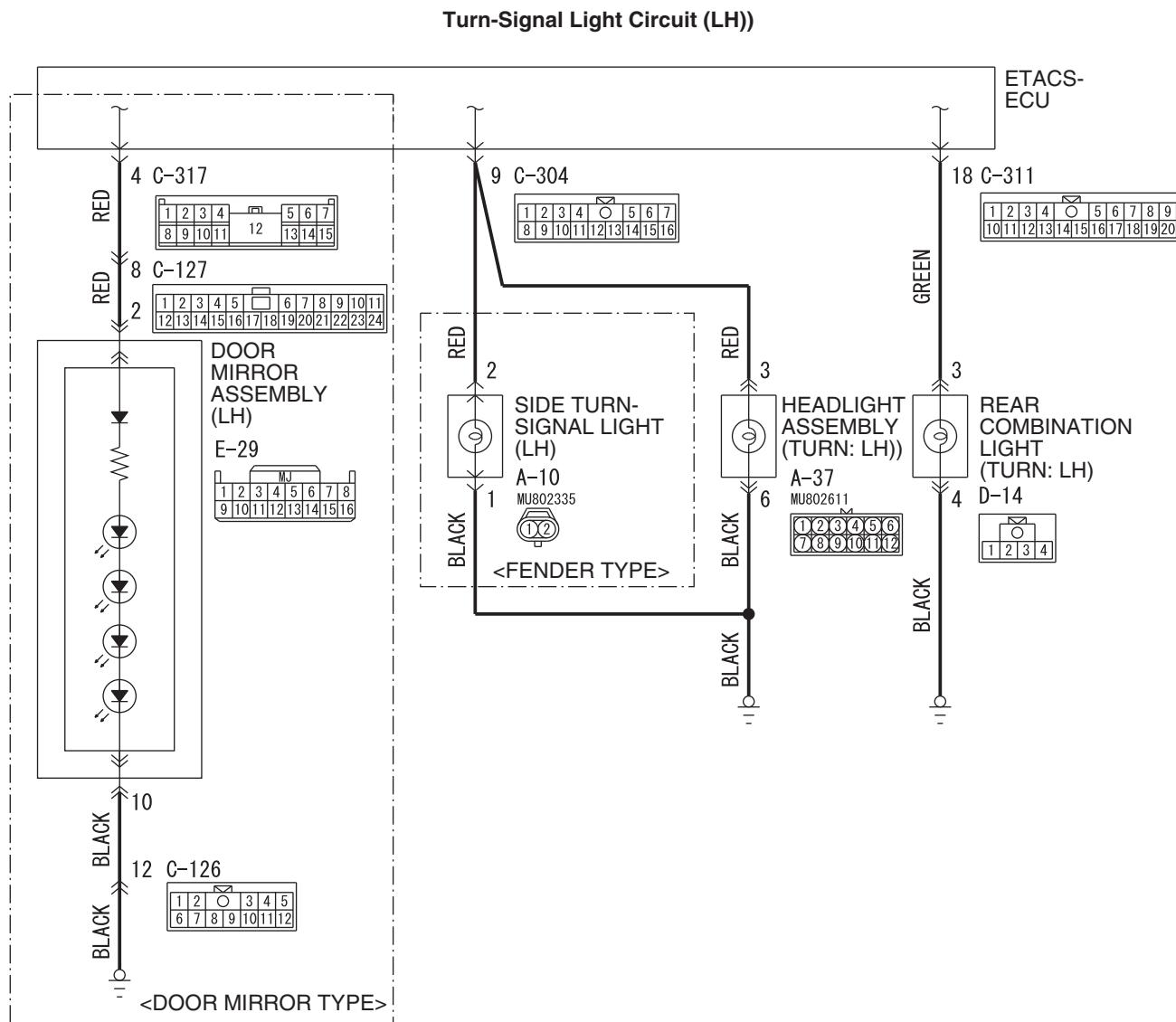
#### LIN

Diagnostic trouble code No.	Diagnostic item	Reference page
L0432	RLS* RS adaptation error	<a href="#">P.54A-149</a>
L0434	RLS* rain sensor error	<a href="#">P.54A-151</a>
L0436	RLS* light sensor error	

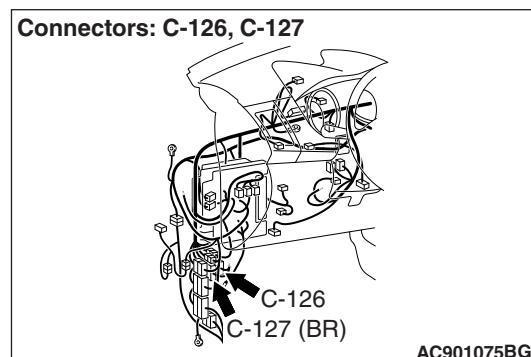
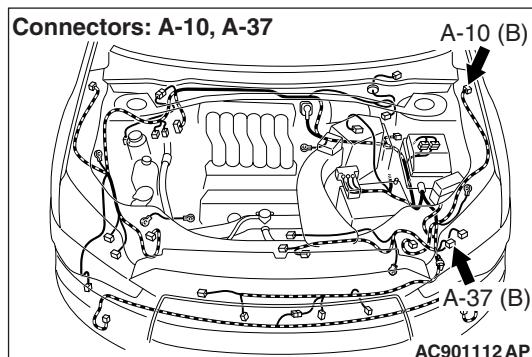
NOTE: \*: Rain light sensor (Lighting control sensor)

## DIAGNOSTIC TROUBLE CODE PROCEDURES

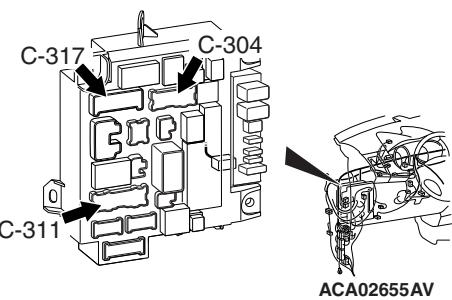
## DTC B16A2: Blown turn-signal light (LH) bulb



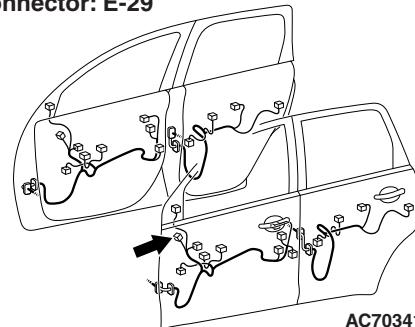
WAG54E009A



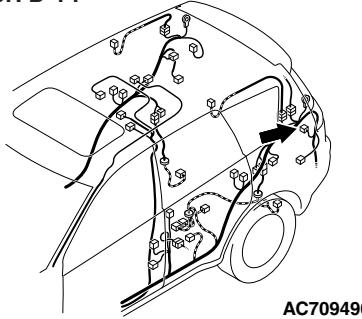
Connectors: C-304, C-311, C-317



Connector: E-29



Connector: D-14



## 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-37, side turn-signal light (LH) connector A-10 <fender type>, door mirror assembly (LH) connector E-29 <door mirror type>, rear combination light (LH) connector D-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

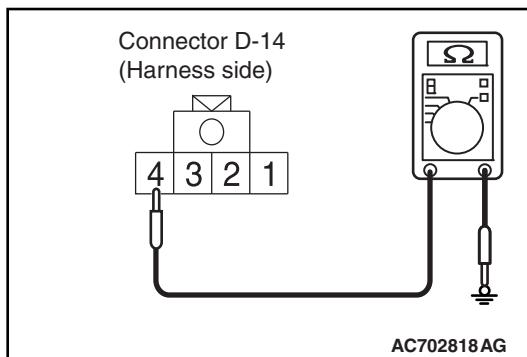
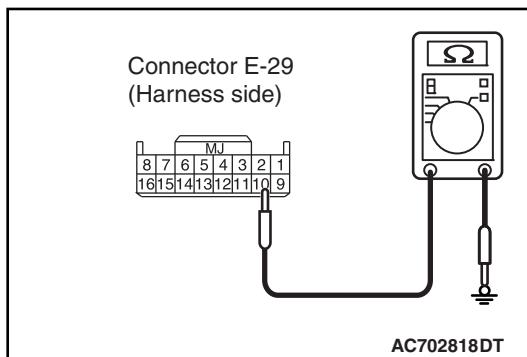
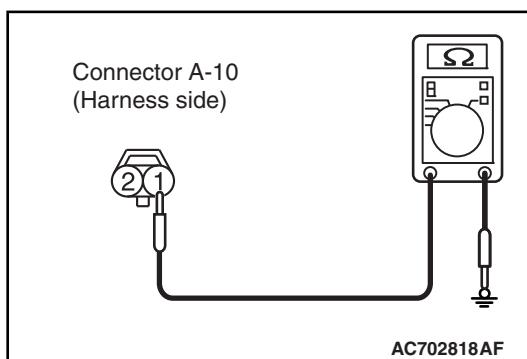
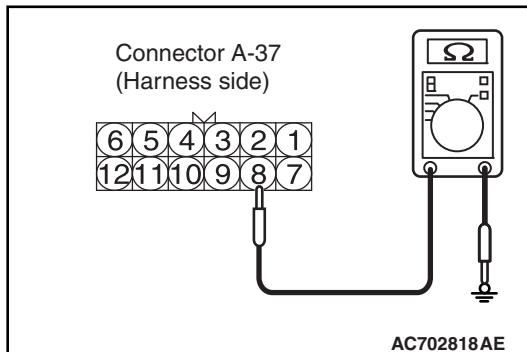
#### Q: Are headlight assembly (LH) connector A-37, side turn-signal light (LH) connector A-10 <fender type>, door mirror assembly (LH) connector E-29 <door mirror type>, rear combination light (LH) connector D-14 in good condition?

YES : Go to Step 3.

NO : Repair the damaged parts.

**STEP 3. Resistance measurement at headlight assembly  
(LH) connector A-37, side turn-signal light (LH) connector  
A-10 <fender type>, door mirror assembly (LH) connector  
E-29 <door mirror type>, rear combination light (LH)  
connector D-14.**

- (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-37 (terminal No. 6) and body ground.



- Measure the resistance between side turn-signal light (LH) connector A-10 (terminal No. 1) and body ground. <fender type>
- Measure the resistance between door mirror assembly (LH) connector E-29 (terminal No. 10) and body ground. <door mirror type>
- Measure the resistance between rear combination light (LH) connector D-14 (terminal No. 4) and body ground. **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.

**STEP 4. Check the wiring harness between headlight assembly (LH) connector A-37 (terminal No. 6), side turn-signal light (LH) connector A-10 (terminal No. 1) <fender type>, door mirror assembly (LH) connector E-29 (terminal No. 10) <door mirror type>, rear combination light (LH) connector D-14 (terminal No. 4) and ground. Check the ground wires for open circuit.**

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

**Q: Are the wiring harness between headlight assembly (LH) connector A-37 (terminal No. 6), side turn-signal light (LH) connector A-10 (terminal No. 1) <fender type>, door mirror assembly (LH) connector E-29 (terminal No. 10) <door mirror type>, rear combination light (LH) connector D-14 (terminal No. 4) and ground in good condition?**

**YES** : Go to Step 7.

**NO** : Repair the wiring harness.

---

**STEP 5. Check ETACS-ECU connectors C-304, C-311 and C-317 <door mirror type> for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are ETACS-ECU connectors C-304, C-311 and C-317 in good condition?**

**YES** : Go to Step 6.

**NO** : Repair the damaged parts.

---

**STEP 6. Check the wiring harness between headlight assembly (LH) connector A-37 (terminal No. 3), side turn-signal light (LH) connector A-10 (terminal No. 2) <fender type>, door mirror assembly (LH) connector E-29 (terminal No. 2) <door mirror type>, rear combination light (LH) connector D-14 (terminal No. 3) and ETACS-ECU connector C-304 (terminal No. 9), ETACS-ECU connector C-311 (terminal No. 18) or ETACS-ECU connector C-317 (terminal No. 4).**

Check the communication line for open circuit.

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

**Q: Are the wiring harness between headlight assembly (LH) connector A-37 (terminal No. 3), side turn-signal light (LH) connector A-10 (terminal No. 2) <fender type>, door mirror assembly (LH) connector E-29 (terminal No. 2) <door mirror type>, rear combination light (LH) connector D-14 (terminal No. 3) and ETACS-ECU connector C-304 (terminal No. 9), ETACS-ECU connector C-311 (terminal No. 18) or ETACS-ECU connector C-317 (terminal No. 4) in good condition?**

**YES** : Go to Step 7.

**NO** : Repair the wiring harness.

---

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

**⚠ CAUTION**

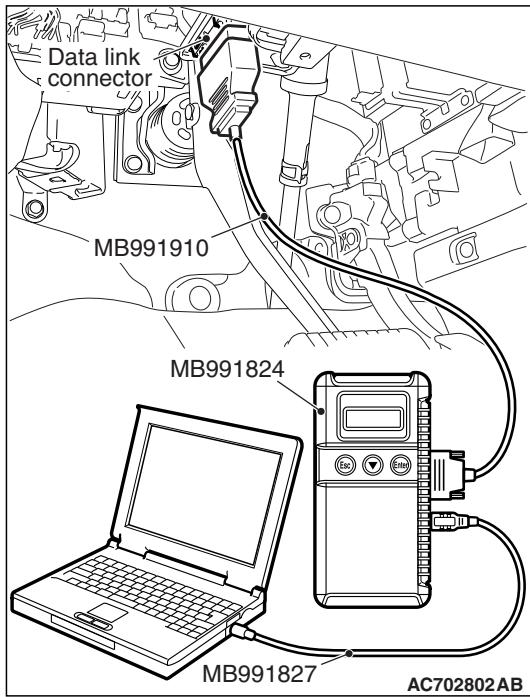
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-123](#)."
- (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?**

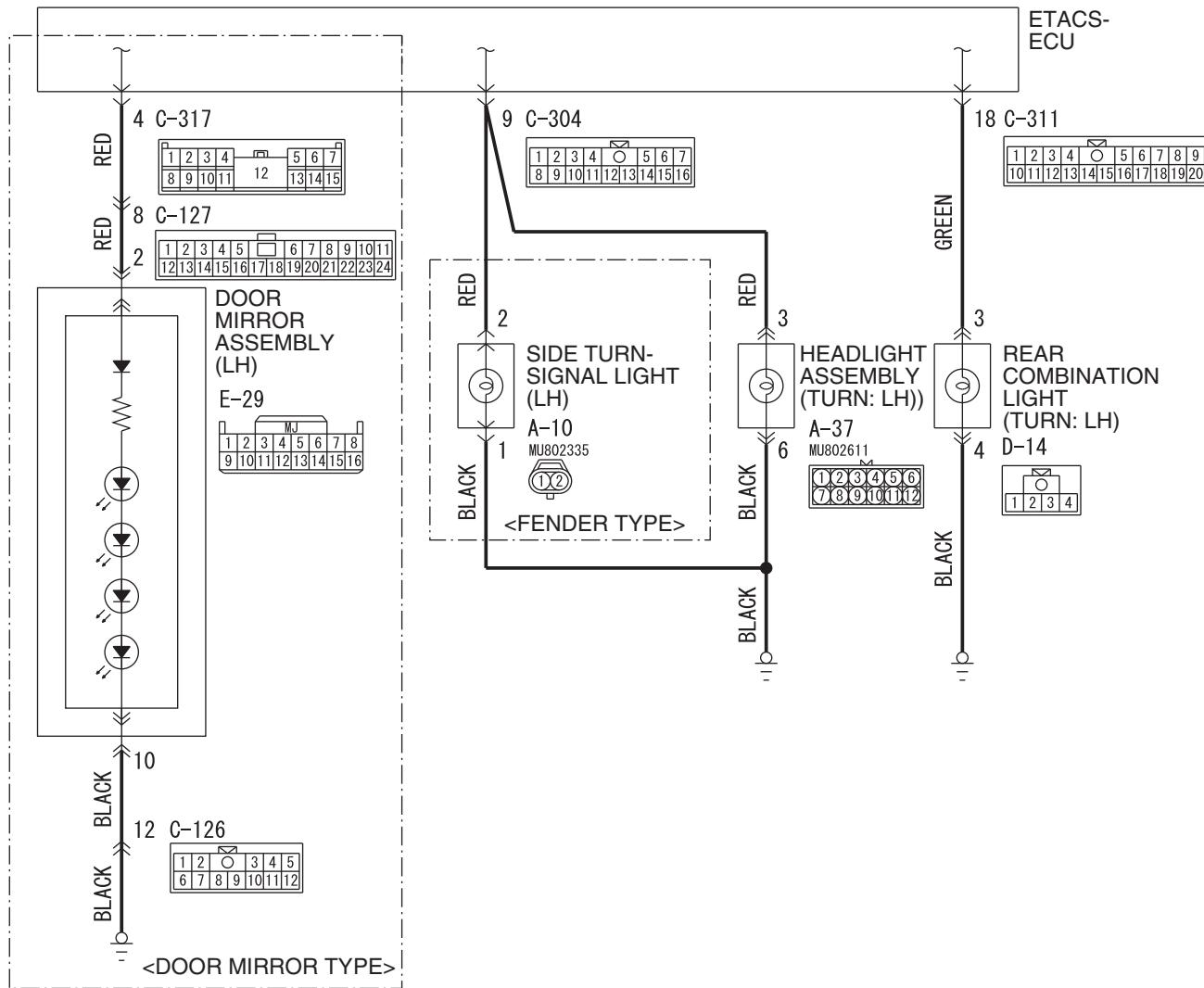
**YES** : Replace the ETACS-ECU.

**NO** : The procedure is complete.



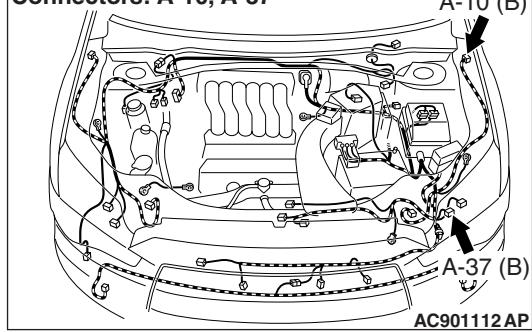
## DTC B16A3: Turn-signal light (LH) short circuit

## Turn-Signal Light Circuit (LH))

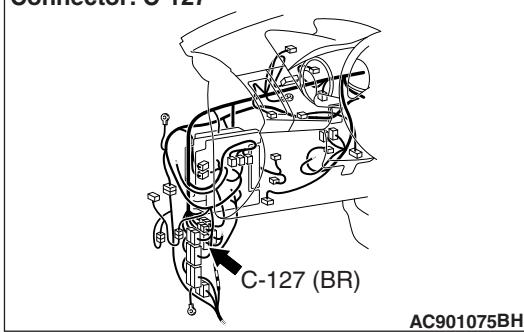


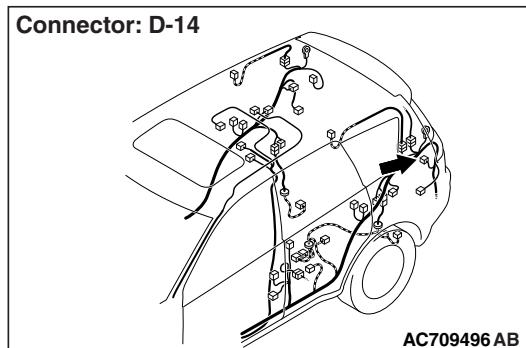
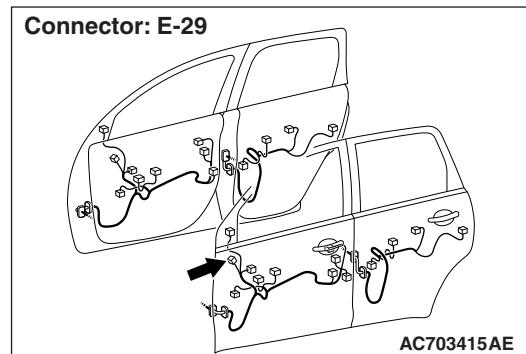
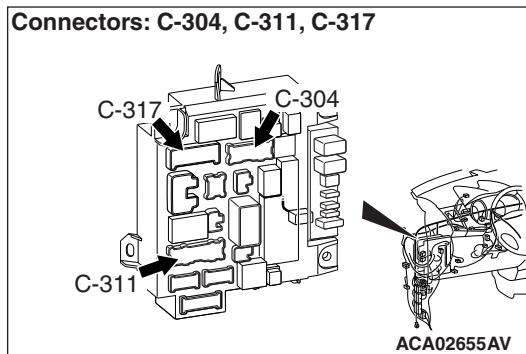
WAG54E009A

## Connectors: A-10, A-37



### Connector: C-127





## TROUBLE JUDGMENT

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

## TECHNICAL DESCRIPTION (COMMENT)

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

## TROUBLESHOOTING HINTS

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

## DIAGNOSIS

### Required Special Tools:

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

**STEP 1. Check headlight assembly (LH) connector A-37, side turn-signal light (LH) connector A-10 <fender type>, door mirror assembly (LH) connector E-29 <door mirror type>, rear combination light (LH) connector D-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are headlight assembly (LH) connector A-37, side turn-signal light (LH) connector A-10 <fender type>, door mirror assembly (LH) connector E-29 <door mirror type>, rear combination light (LH) connector D-14 in good condition?**

**YES** : Go to Step 2.

**NO** : Repair the damaged parts.

---

**STEP 2. Check ETACS-ECU connectors C-304, C-311 and C-317 <door mirror type> for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are ETACS-ECU connectors C-304, C-311 and C-317 <door mirror type> in good condition?**

**YES** : Go to Step 3.

**NO** : Repair the damaged parts.

---

**STEP 3. Check the wiring harness between headlight assembly (LH) connector A-37 (terminal No. 3), side turn-signal light (LH) connector A-10 (terminal No. 2) <fender>, door mirror assembly (LH) connector E-29 (terminal No. 2) <door mirror type>, rear combination light (LH) connector D-14 (terminal No. 3) and ETACS-ECU connector C-304 (terminal No. 9), ETACS-ECU connector C-311 (terminal No. 18) or ETACS-ECU connector C-317 (terminal No. 4).**

Check the communication line for short circuit.

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

**Q: Are the wiring harness between headlight assembly (LH) connector A-37 (terminal No. 3), side turn-signal light (LH) connector A-10 (terminal No. 2) <fender>, door mirror assembly (LH) connector E-29 (terminal No. 2) <door mirror type>, rear combination light (LH) connector D-14 (terminal No. 3) and ETACS-ECU connector C-304 (terminal No. 9), ETACS-ECU connector C-311 (terminal No. 18) or ETACS-ECU connector C-317 (terminal No. 4) in good condition?**

**YES** : Go to Step 4.

**NO** : Repair the wiring harness.

---

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

**⚠ CAUTION**

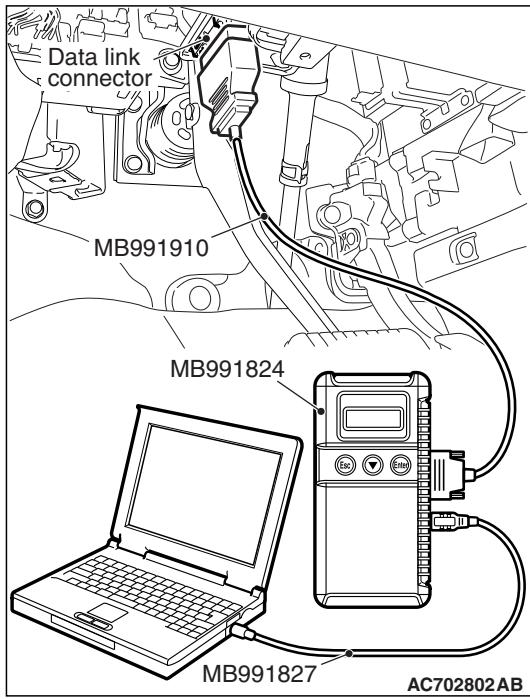
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-123](#)."
- (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?**

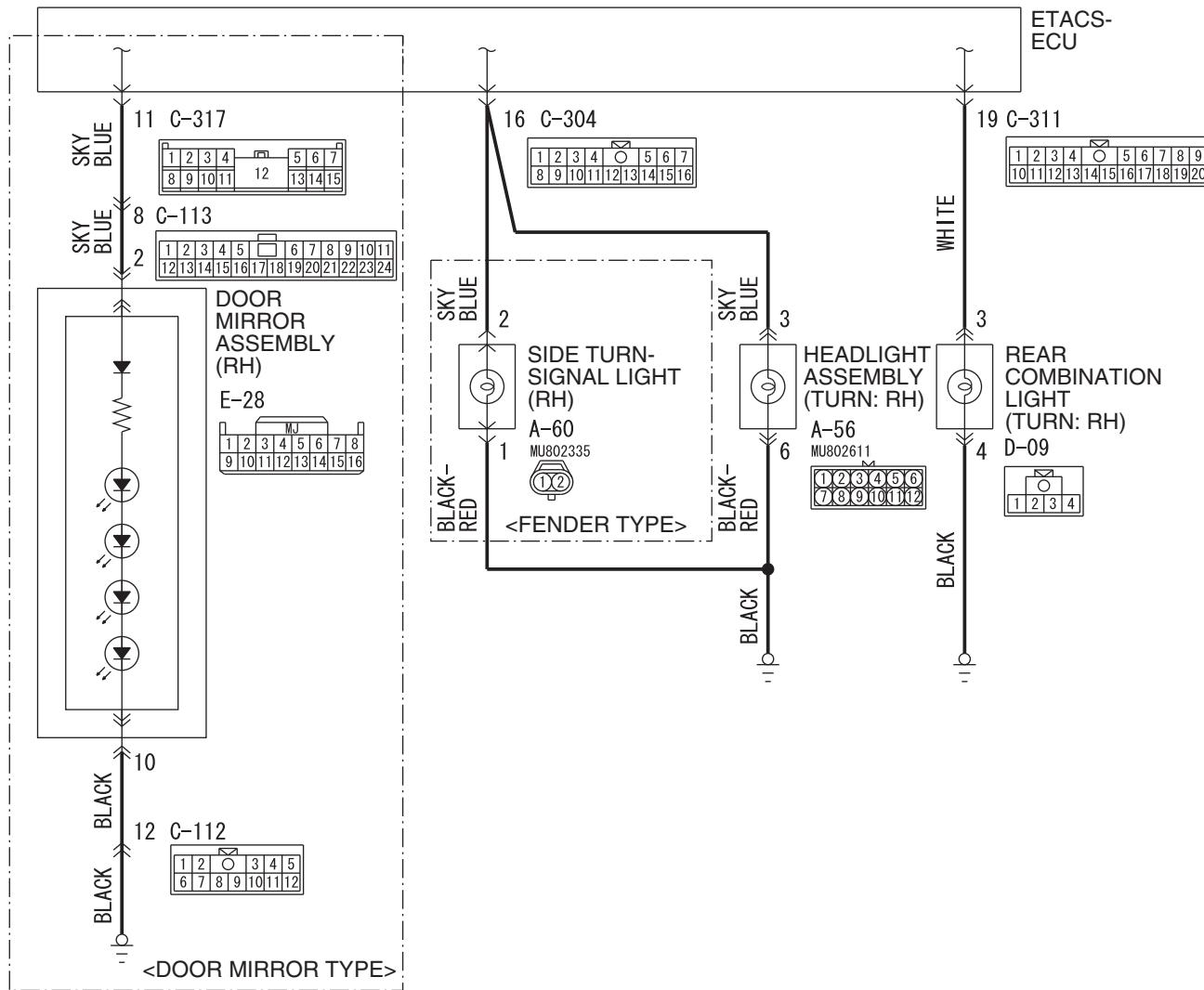
**YES** : Replace the ETACS-ECU.

**NO** : The procedure is complete.

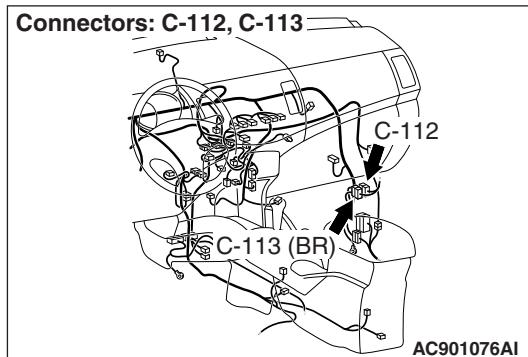
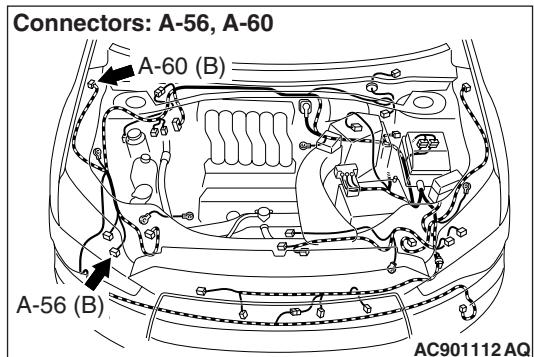


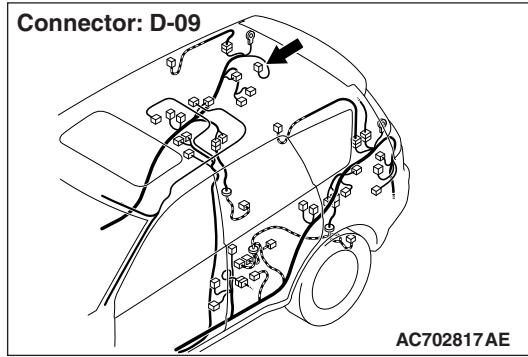
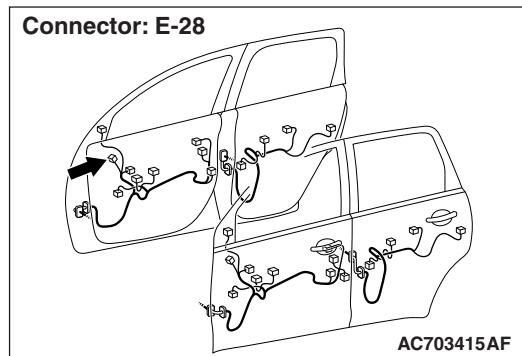
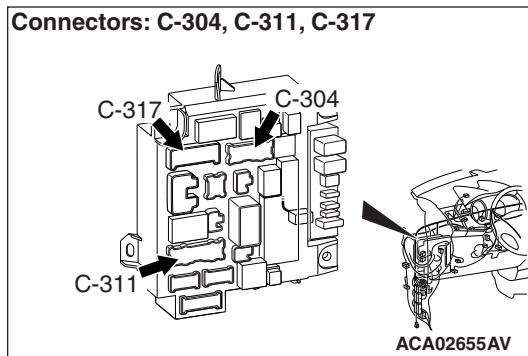
DTC B16A4: Blown turn-signal light (RH) bulb

Turn-Signal Light Circuit (RH)



WAG54E010A





## 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-56, side turn-signal light (RH) connector A-60 <fender type>, door mirror assembly (RH) connector E-28 <door mirror type>, rear combination light (RH) connector D-09 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

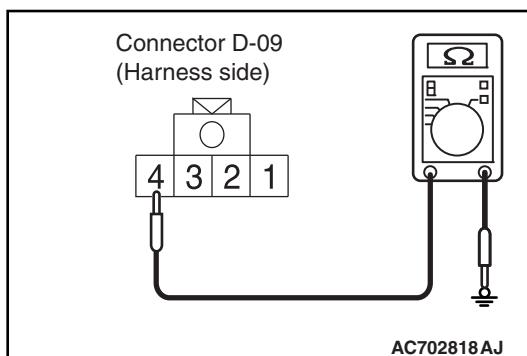
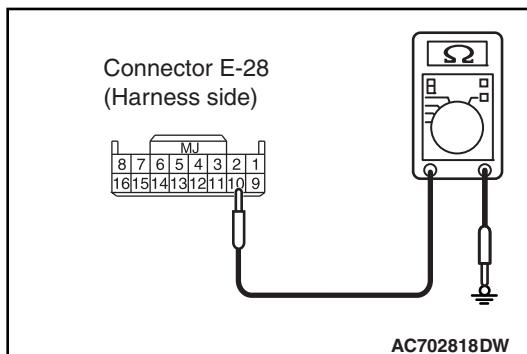
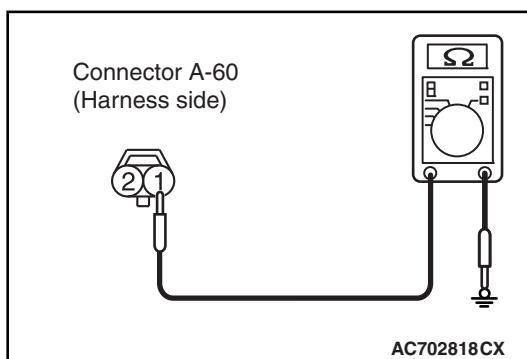
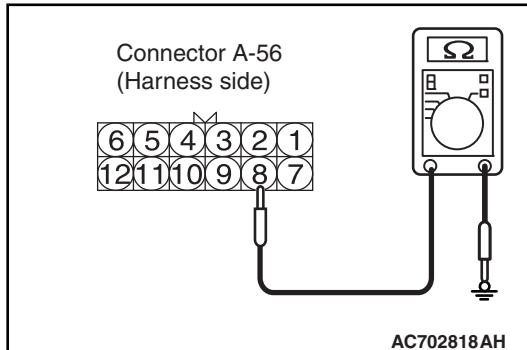
**Q: Are headlight assembly (RH) connector A-56, side turn-signal light (RH) connector A-60 <fender type>, door mirror assembly (RH) connector E-28 <door mirror type>, rear combination light (RH) connector D-09 in good condition?**

**YES** : Go to Step 3.

**NO** : Repair the damaged parts.

**STEP 3. Resistance measurement at headlight assembly (RH) connector A-56, side turn-signal light (RH) connector A-60 <fender type>, door mirror assembly (RH) connector E-28 <door mirror type>, rear combination light (RH) connector D-09.**

- (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-56 (terminal No. 6) and body ground.



- Measure the resistance between the side turn-signal light (RH) connector A-60 (terminal No. 1) and body ground.

- Measure the resistance between door mirror assembly (RH) connector E-28 (terminal No. 10) and body ground. <door mirror type>

- Measure the resistance between the rear combination light (RH) connector D-09 (terminal No. 4) and body ground.

**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 (RH) connector A-56 (terminal No. 6), side turn-signal light (RH) connector A-60 (terminal No. 1) <fender type>, door mirror assembly (RH) connector E-28 (terminal No. 10) <door mirror type>, rear combination light (LH) connector D-09 (terminal No. 4) and ground. Check the ground wires for open circuit.**

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

**Q: Are the wiring harness between headlight assembly (RH) connector A-56 (terminal No. 6), side turn-signal light (RH) connector A-60 (terminal No. 1) <fender type>, door mirror assembly (RH) connector E-28 (terminal No. 10) <door mirror type>, rear combination light (LH) connector D-09 (terminal No. 4) and ground in good condition?**

**YES** : Go to Step 7.

**NO** : Repair the wiring harness.

---

**STEP 5. Check ETACS-ECU connectors C-304, C-311 and C-317 <door mirror type> for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are ETACS-ECU connectors C-304, C-311 and C-317 in good condition?**

**YES** : Go to Step 6.

**NO** : Repair the damaged parts.

**STEP 6. Check the wiring harness between headlight assembly (RH) connector A-56 (terminal No. 3), side turn-signal light (RH) connector A-60 (terminal No. 2) <fender type>, door mirror assembly (RH) connector E-28 (terminal No. 2) <door mirror type>, rear combination light (RH) connector D-09 (terminal No. 3) and ETACS-ECU connector C-304 (terminal No. 16), ETACS-ECU connector C-311 (terminal No. 19) or ETACS-ECU connector C-317 (terminal No. 11).**

Check the communication line for open circuit.

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

**Q: Are the wiring harness between headlight assembly (RH) connector A-56 (terminal No. 3), side turn-signal light (RH) connector A-60 (terminal No. 2) <fender type>, door mirror assembly (RH) connector E-28 (terminal No. 2) <door mirror type>, rear combination light (RH) connector D-09 (terminal No. 3) and ETACS-ECU connector C-304 (terminal No. 16), ETACS-ECU connector C-311 (terminal No. 19) or ETACS-ECU connector C-317 (terminal No. 11) in good condition?**

**YES** : Go to Step 7.

**NO** : Repair the wiring harness.

---

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

**⚠ CAUTION**

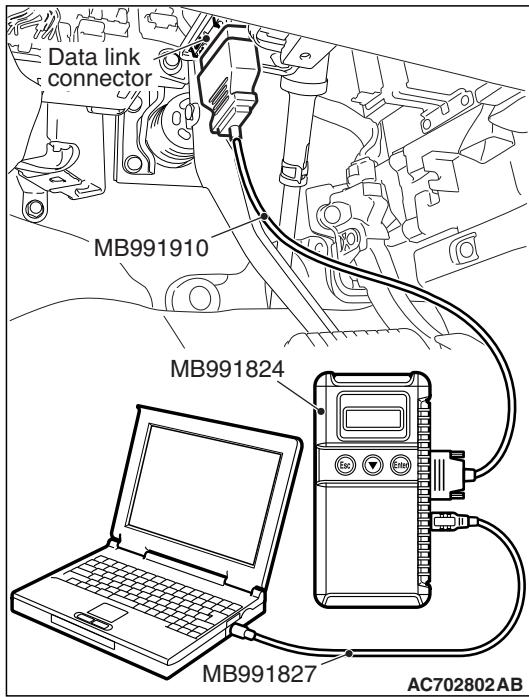
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-123](#)."
- (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?**

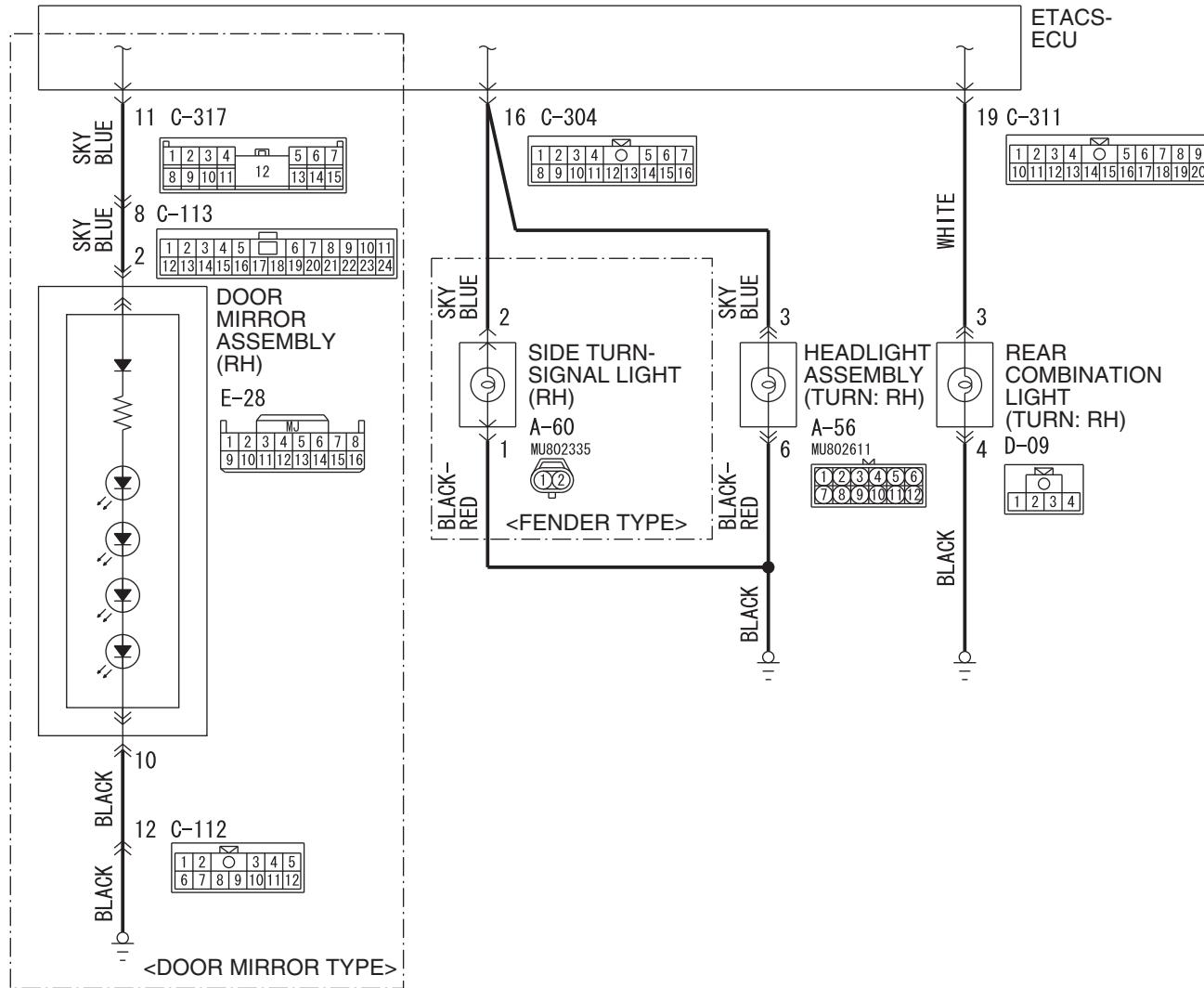
**YES** : Replace the ETACS-ECU.

**NO** : The procedure is complete.

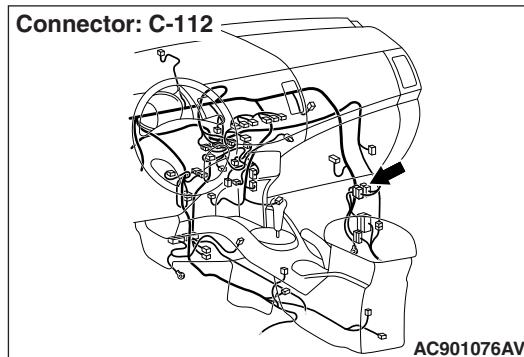
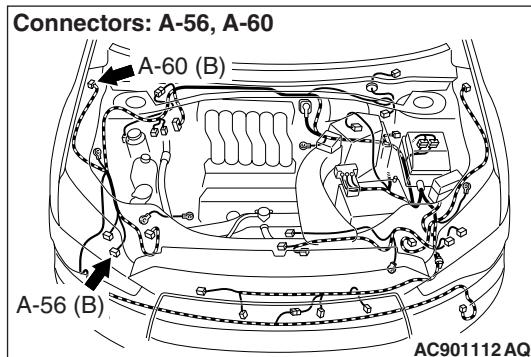


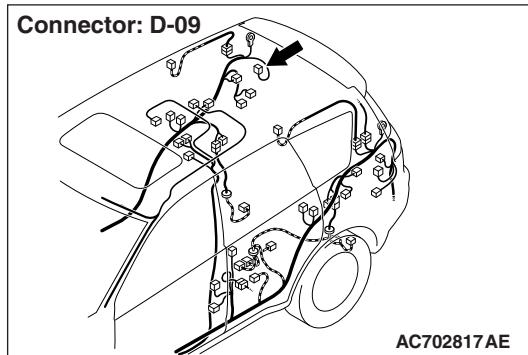
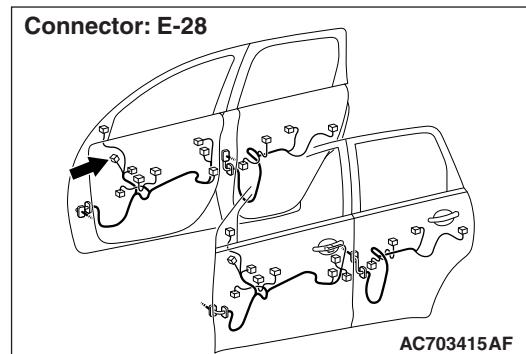
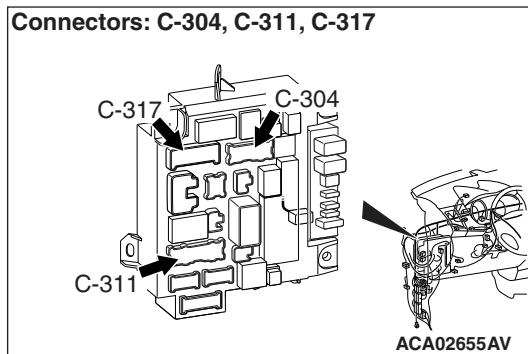
## DTC B16A5: Turn-signal light (RH) short circuit

Turn-Signal Light Circuit (RH)



WAG54E010A





## 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)

**STEP 1. Check headlight assembly (RH) connector A-56, side turn-signal light (RH) connector A-60 <fender type>, door mirror assembly (RH) connector E-28 <door mirror type>, rear combination light (RH) connector D-09 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are headlight assembly (RH) connector A-56, side turn-signal light (RH) connector A-60 <fender type>, door mirror assembly (RH) connector E-28 <door mirror type>, rear combination light (RH) connector D-09 in good condition?**

**YES** : Go to Step 2.

**NO** : Repair the damaged parts.

**STEP 2. Check ETACS-ECU connectors C-304, C-311 and C-317 <door mirror type> for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are ETACS-ECU connectors C-304, C-311 and C-317 <door mirror type> in good condition?**

**YES** : Go to Step 3.

**NO** : Repair the damaged parts.

---

**STEP 3. Check the wiring harness between headlight assembly (RH) connector A-56 (terminal No. 3), side turn-signal light (RH) connector A-60 (terminal No. 2) <fender>, door mirror assembly (RH) connector E-28 (terminal No. 2) <door mirror type>, rear combination light (RH) connector D-09 (terminal No. 3) and ETACS-ECU connector C-304 (terminal No. 16), ETACS-ECU connector C-311 (terminal No. 19) or ETACS-ECU connector C-317 (terminal No. 11).**

Check the communication line for short circuit.

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

**Q: Are the wiring harness between headlight assembly (RH) connector A-56 (terminal No. 3), side turn-signal light (RH) connector A-60 (terminal No. 2) <fender>, door mirror assembly (RH) connector E-28 (terminal No. 2) <door mirror type>, rear combination light (RH) connector D-09 (terminal No. 3) and ETACS-ECU connector C-304 (terminal No. 16), ETACS-ECU connector C-311 (terminal No. 19) or ETACS-ECU connector C-317 (terminal No. 11) in good condition?**

**YES** : Go to Step 4.

**NO** : Repair the wiring harness.

---

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

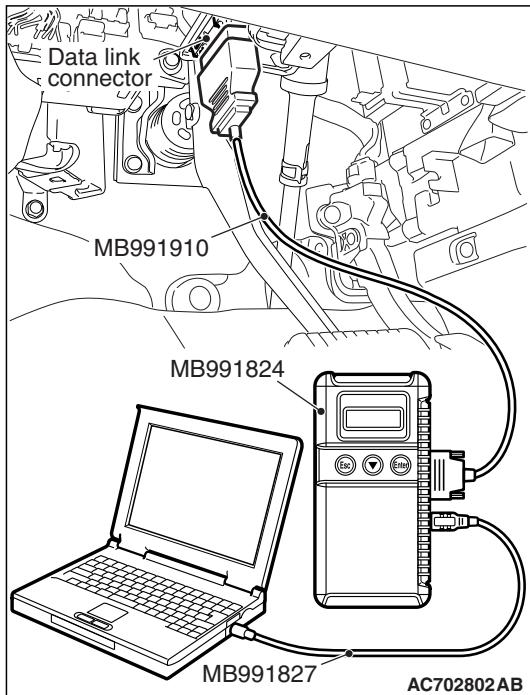
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-123](#)."
- (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-123](#)."
- (2) Disconnect the connector of lighting control sensor, and connect it again.

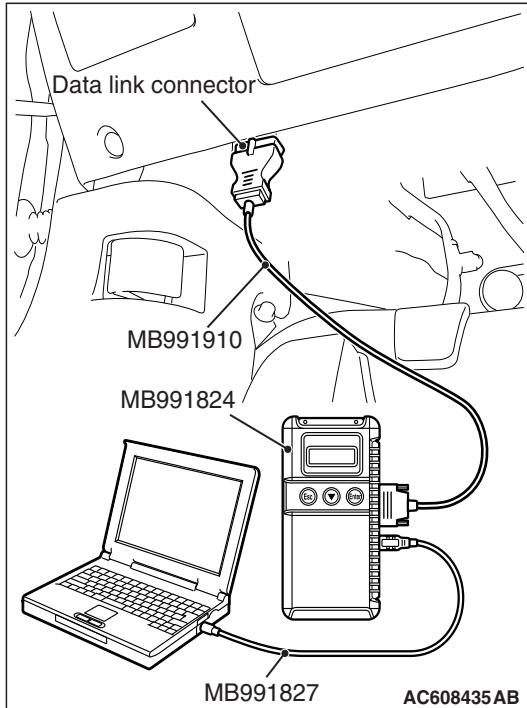
*NOTE: When connecting the connector, follow the correct installation procedure.*

- (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-17](#))

---

**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.51-85](#)>.
- (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.00-15](#)).

---

**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**

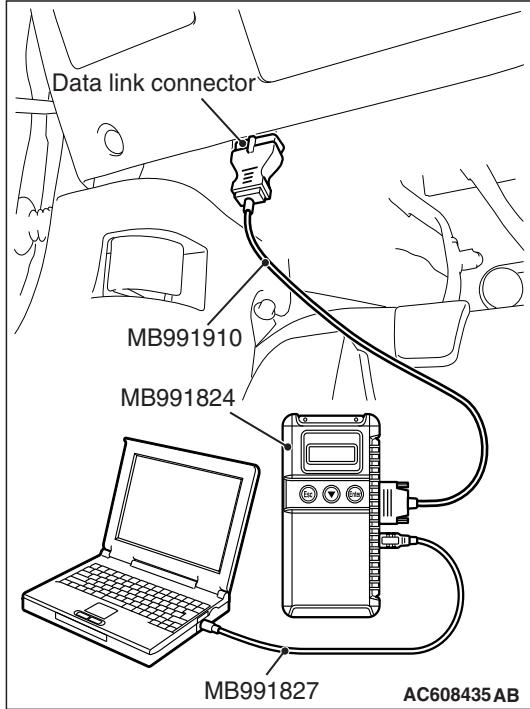
**To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.**

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-123](#)."
- (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.00-15](#)).



## TROUBLE SYMPTOM CHART

M1540102100625

Trouble symptom		Inspection Procedure No.	Reference page
Headlight and taillight	None of headlights (low-beam) illuminates.	1	<a href="#">P.54A-154</a>
	None of headlights (high-beam) illuminates.	2	<a href="#">P.54A-159</a>
	The headlights illuminate at low-beam (high-beam does not illuminate) regardless of the lighting switch positions.	3	<a href="#">P.54A-163</a>
	Headlights do not illuminate when the passing switch is operate.	4	<a href="#">P.54A-165</a>
	One of the headlights does not illuminate.	5	<a href="#">P.54A-167</a>
	High-beam indicator light does not illuminate normally.	6	<a href="#">P.54A-171</a>
	The headlight automatic shutdown function does not work normally.	7	<a href="#">P.54A-173</a>
	Daytime running light function does not work normally. <Halogen type headlight>	8	<a href="#">P.54A-176</a>
	Daytime running light function does not work normally. <Discharge type headlight>		<a href="#">P.54A-180</a>
	One of the position lights, side marker lights or the license plate lights does not illuminate.	9	<a href="#">P.54A-187</a>
Turn-signal light	None of turn-signal lights illuminates.	10	<a href="#">P.54A-195</a>
	The comfort flashing function does not work normally.	11	<a href="#">P.54A-196</a>
	The turn-signal indicator lights do not illuminate.	12	<a href="#">P.54A-198</a>
The welcome light function does not work normally.		13	<a href="#">P.54A-200</a>
The coming home light function does not work normally.		14	<a href="#">P.54A-201</a>

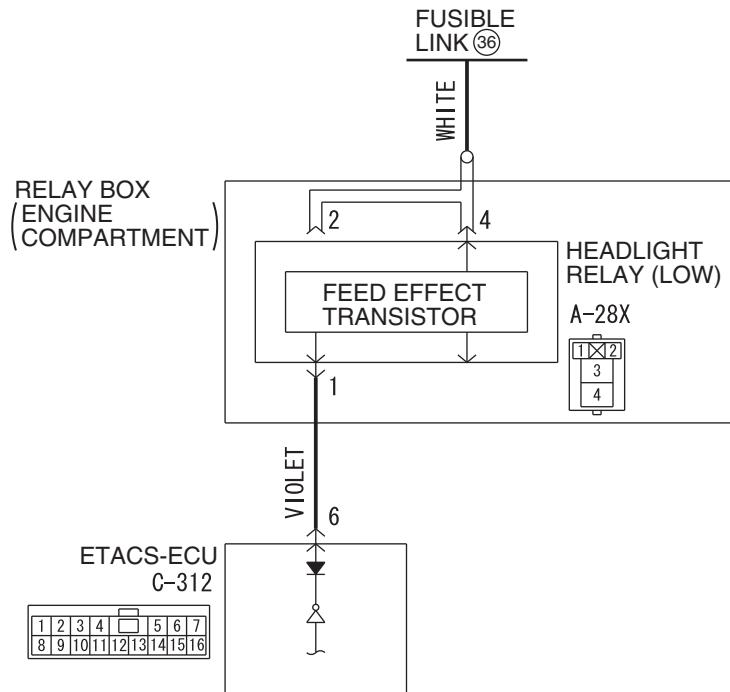
## SYMPTOM PROCEDURES

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

**⚠ CAUTION**

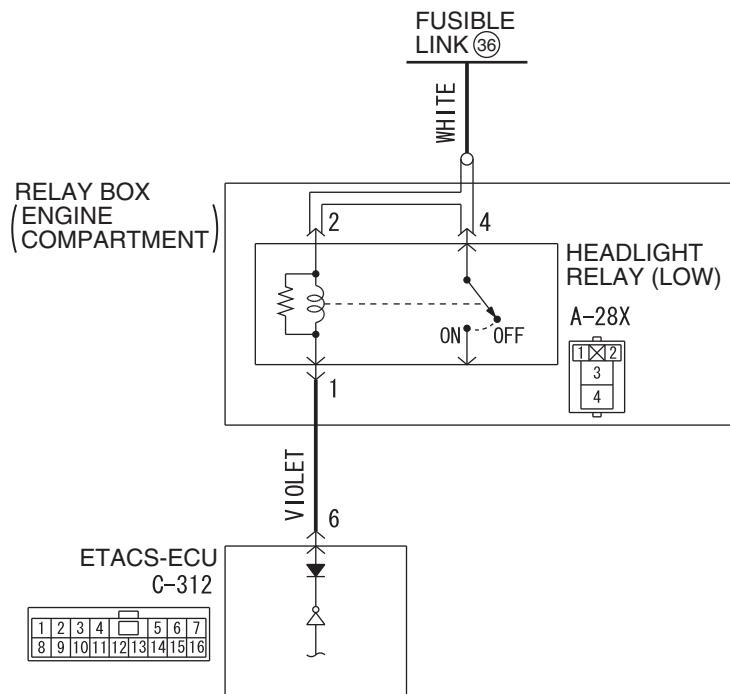
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Headlight Relay (Low-Beam) Circuit &lt;Halogen Type&gt;

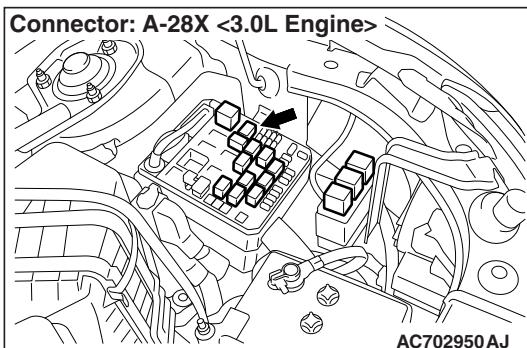
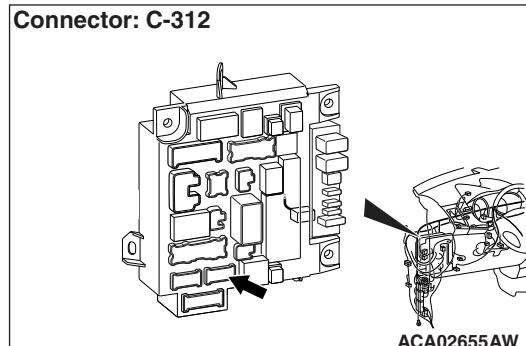
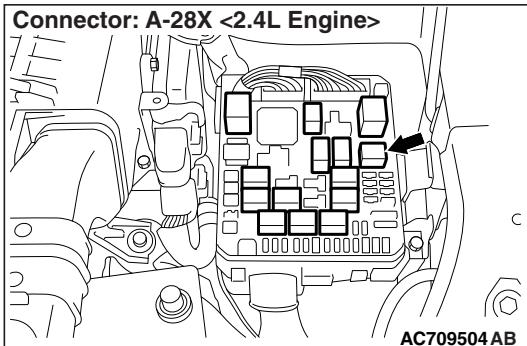


WAG54M011A

## Headlight Relay (Low-Beam) Circuit &lt;Discharge Type&gt;



WAG54M012A



## 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.**

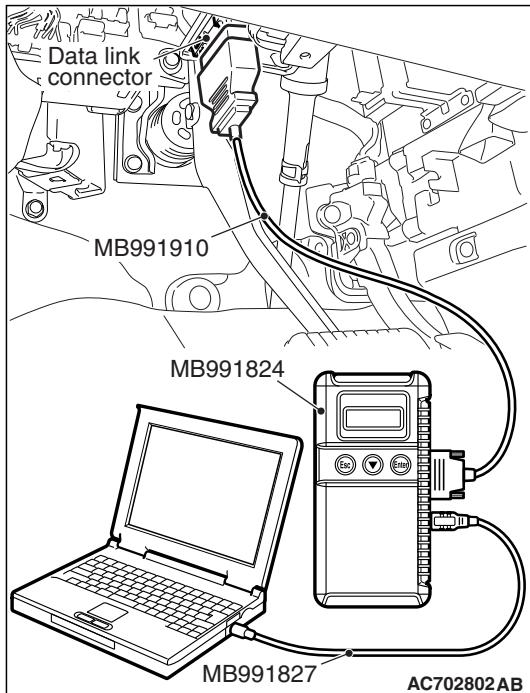
**⚠ CAUTION**

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-123](#)."
- (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-732](#).)  
**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: Does 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-785](#).

---

**STEP 3. Check headlight relay (LOW) connector A-28X for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is headlight relay (LOW) connector A-28X in good condition?**

**YES** : Go to Step 4.

**NO** : Repair the damaged parts.

---

**STEP 4. Check the battery power supply circuit to the headlight relay (LOW). Measure the voltage at headlight relay (LOW) connector A-28X.**

**⚠ CAUTION**

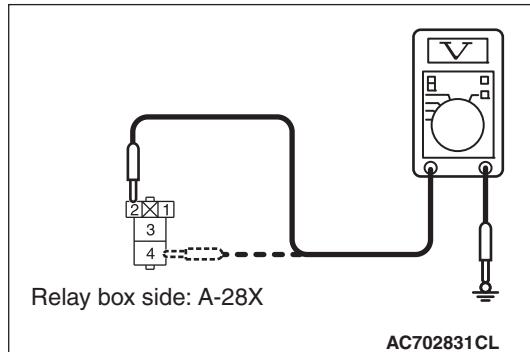
The top and bottom of the headlight relay (LOW) are difficult to identify. Prior to inspection, confirm the triangle mark on the relay box.

- (1) Disconnect headlight relay (LOW) connector A-28X and measure the voltage available at the relay box side of the connector.
- (2) Measure the voltage between terminal 2/4 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 5.

**NO** : Go to Step 7.



---

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

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

**YES** : Go to Step 6.

**NO** : Repair the damaged parts.

---

**STEP 6. Check the wiring harness between headlight relay (LOW) connector A-28X (terminal 1) and ETACS-ECU connector C-312 (terminal 6).**

- Check the ground wires for open circuit.

**Q: Is the wiring harness between headlight relay (LOW) connector A-28X (terminal 1) and ETACS-ECU connector C-312 (terminal 6) in good condition?**

**YES (Vehicles without discharge headlight) :** Go to Step 8.

**YES (Vehicles with discharge headlight) :** 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 7. Check the wiring harness between headlight relay (LOW) connector A-28X (terminal 2/4) and the fusible link (36).**

- Check the power supply line for open circuit.

**Q: Is the wiring harness between headlight relay (LOW) connector A-28X (terminal 2/4) and fusible link (36) in good condition?**

**YES (Vehicles without discharge headlight) :** Go to Step 8.

**YES (Vehicles with discharge headlight) :** 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. Substitute a known good headlight relay (LOW), and check the trouble symptom.**

**Q: Do the headlights (low-beam) illuminate in good condition?**

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

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

---

**STEP 9. Check of headlight relay (LOW).**

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

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

**YES :** Go to Step 10.

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

## **STEP 10. Retest the system**

**Q: Do the headlights (low-beam) 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. 00-15](#))

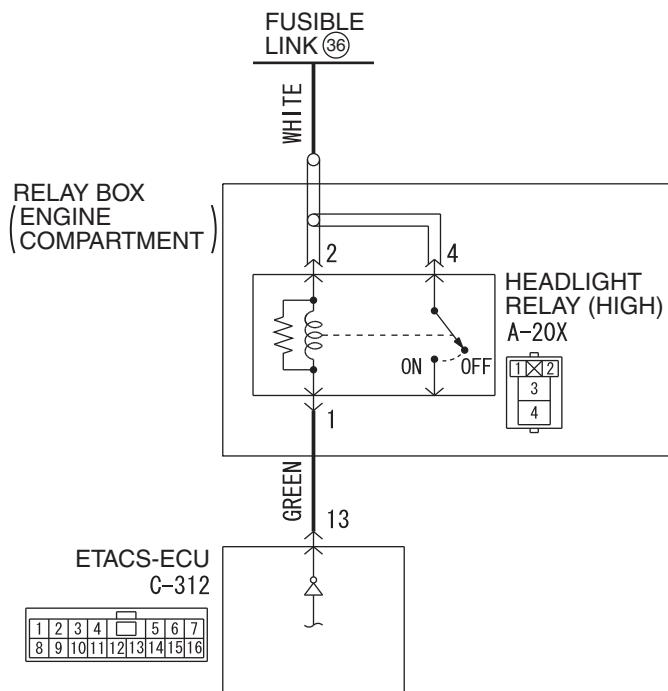
**NO :** Replace the ETACS-ECU.

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

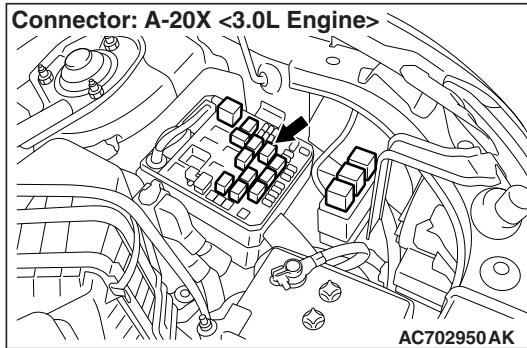
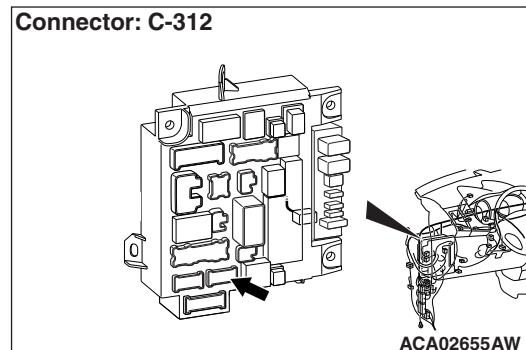
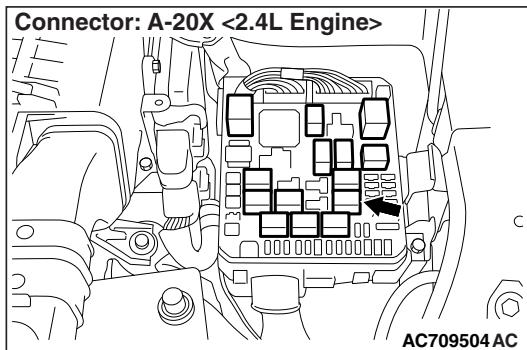
**! CAUTION**

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



AC702957AB  
D7G54M030A00



## 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**

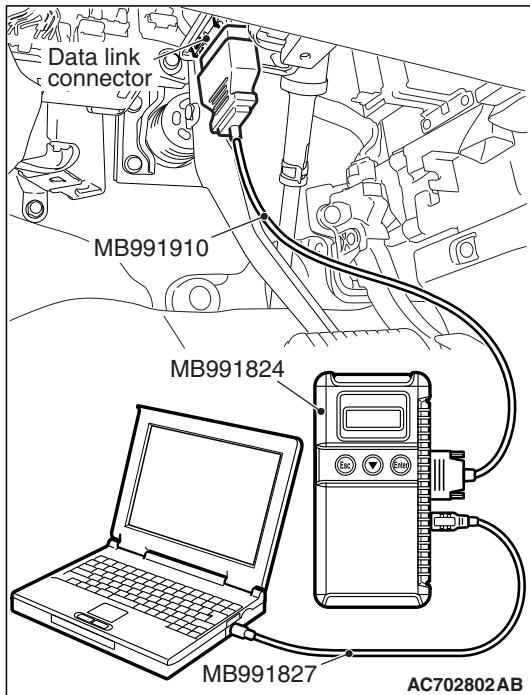
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-123](#)."
- (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-732](#)

**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-785](#).

---

**STEP 3. Check headlight relay (HIGH) connector A-20X for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is headlight relay (HIGH) connector A-20X 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-20X**

**⚠ CAUTION**

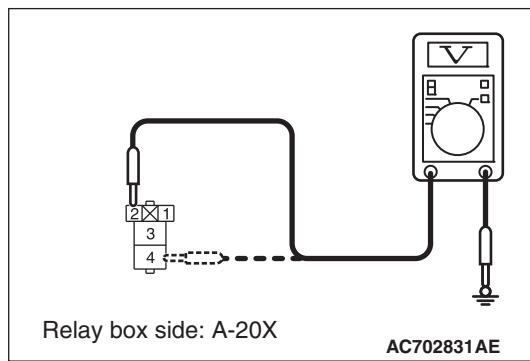
The top and bottom of the headlight relay (HIGH) are difficult to identify. Prior to inspection, confirm the triangle mark on the relay box.

- (1) Disconnect headlight relay (HIGH) connector A-20X and measure the voltage available at the relay box side of the connector.
- (2) Measure the voltage between terminal 2/4 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 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-20X (terminal 1) and ETACS-ECU connector C-312 (terminal 13).**

- Check the ground wires for open circuit.

**Q: Is the wiring harness between headlight relay (HIGH) connector A-20X (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-20X (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-20X (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: Do the headlights (high-beam) 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.00-15](#)).

**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 ETACS-ECU diagnostic trouble code.

**CAUTION**

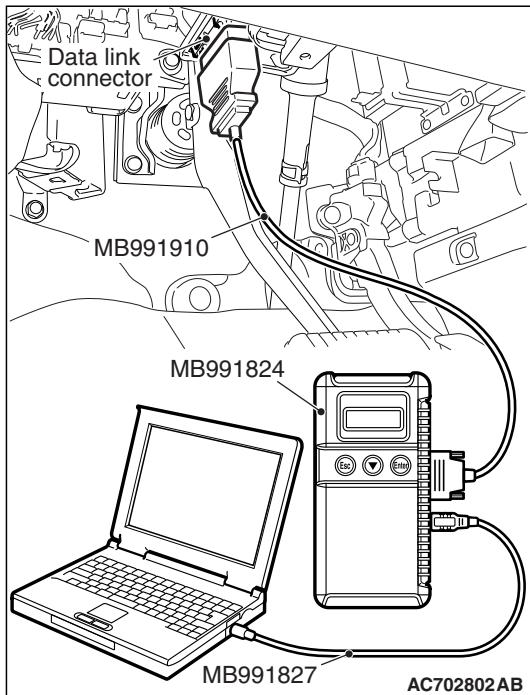
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-123](#)."
- (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-732](#).

**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.00-15](#)).

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

---

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

---

**⚠ CAUTION**

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

**TECHNICAL DESCRIPTION (COMMENT)**

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

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS**

**Required Special Tools:**

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

---

**STEP 1. Check that the headlights operate.**

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

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

**YES** : Go to Step 2.

**NO** : Refer to Inspection Procedure 1 "None of headlights (low-beam) illuminates" [P.54A-154](#) and Inspection Procedure 2 "None of headlights (high-beam) illuminates" [P.54A-159](#).

---

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

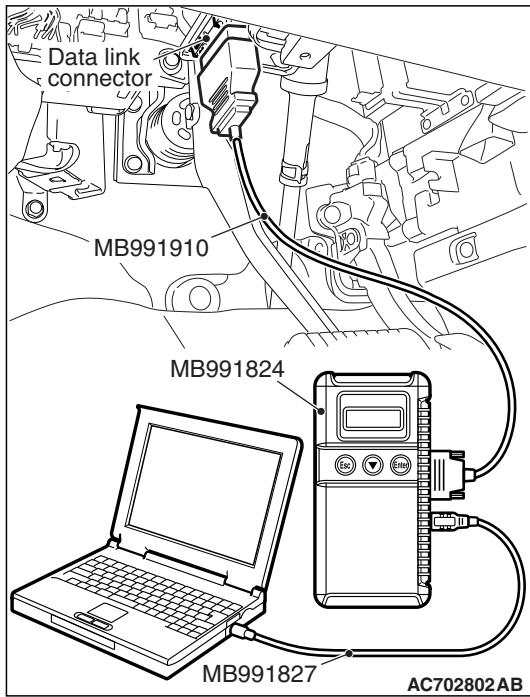
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-123](#)."
- (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-732](#).

**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.00-15](#)).

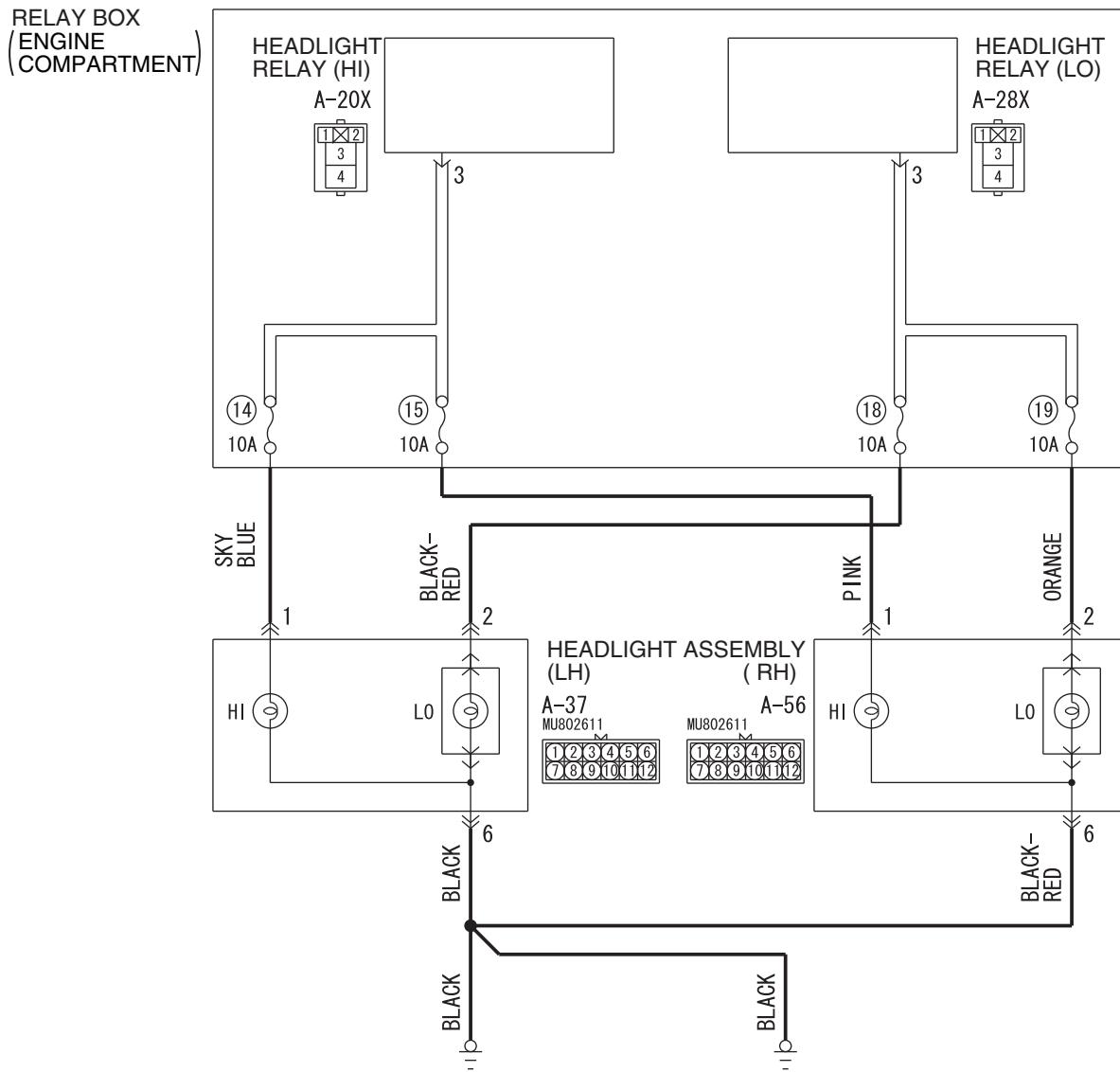
**NO** : Replace the ETACS-ECU.

## Inspection Procedure 5: One of the headlights does not illuminate.

**CAUTION**

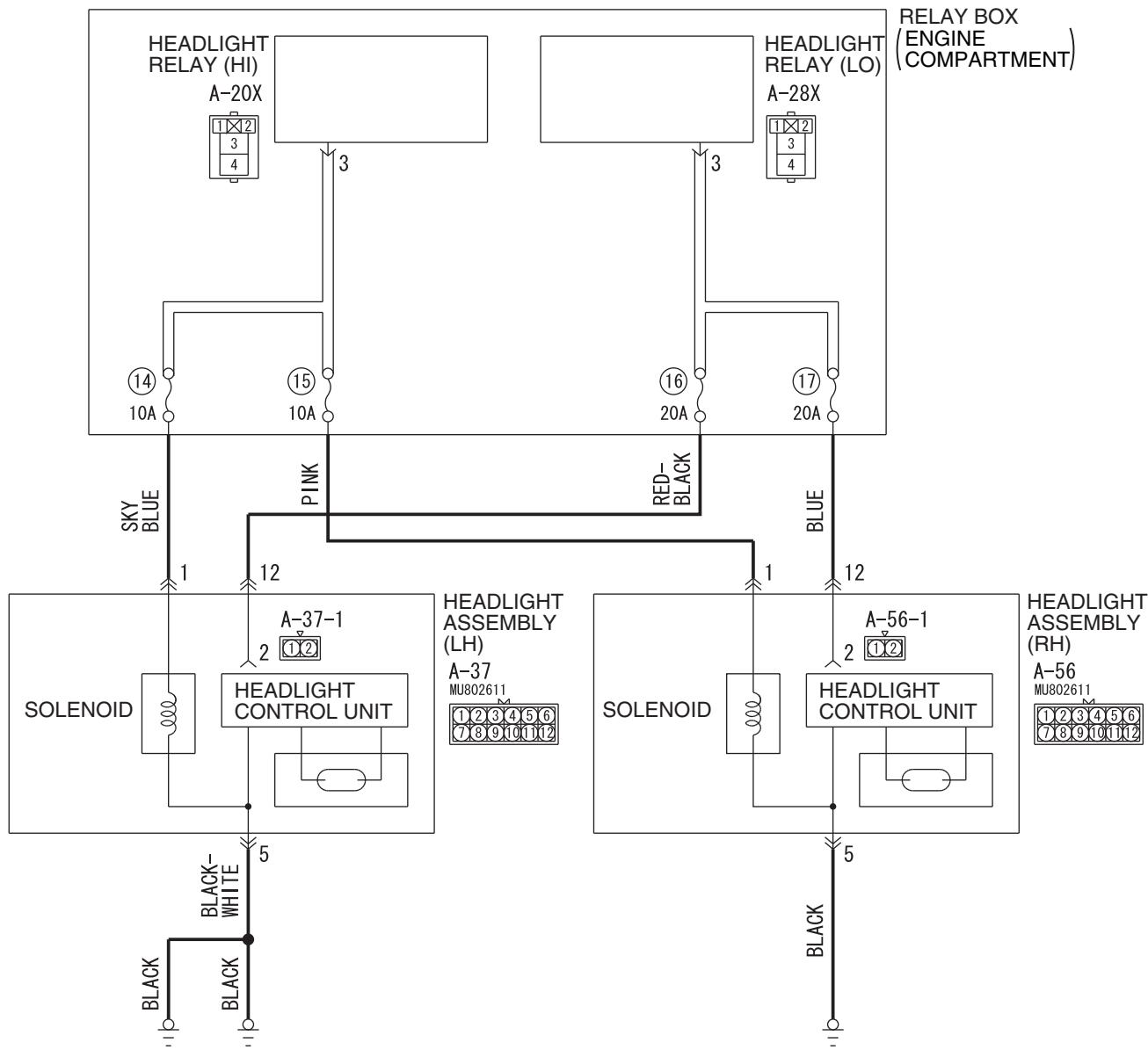
If the discharge type headlights do not illuminate, fully understand the precautions in "Service precautions for discharge headlight" before proceeding with the troubleshooting. Refer to P.54A-127.

Headlight Circuit &lt;Halogen Type&gt;

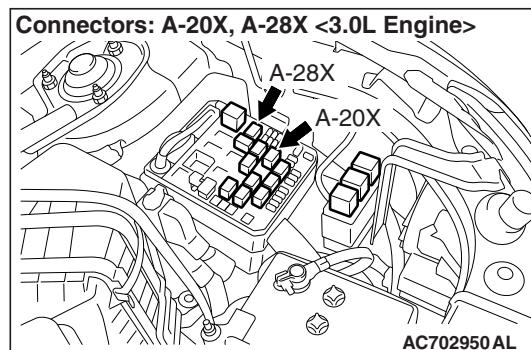
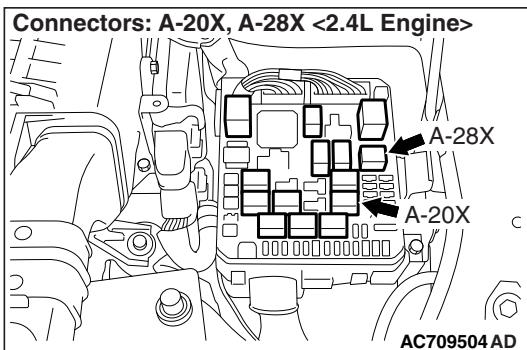


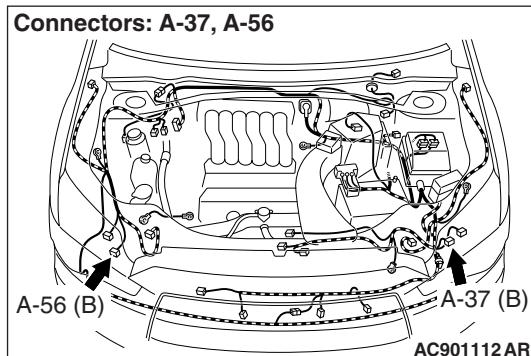
WAG54M013A

## Headlight Circuit &lt;Discharge Type&gt;



WAG54M014A





## TROUBLESHOOTING HINTS

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

## 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.

## DIAGNOSIS

### Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set

---

**STEP 1. Check headlight (LOW) connector A-37 <LH>, A-56 <RH> for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is headlight (LOW) assembly connector A-37 <LH>, A-56 <RH> in good condition?**

**YES** : Go to Step 2.

**NO** : Repair the defective connector.

---

**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.

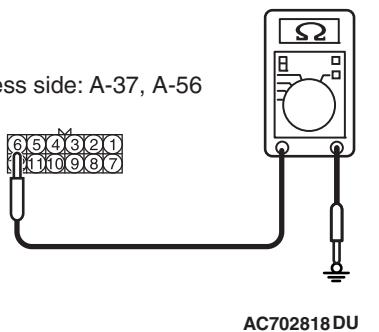
---

**STEP 3. Check the ground circuit to the headlight assembly (LOW). Measure the resistance at headlight assembly (LOW) connector A-37 <LH>, A-56 <RH>.**

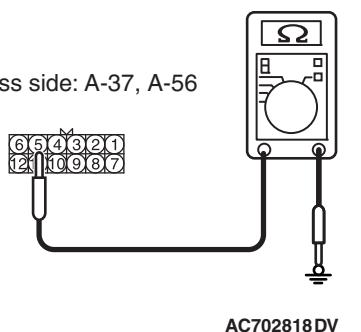
- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Resistance between the connector of light which does not illuminate and ground.

- Resistance between the A-37 (LH), A-56 (RH) headlight assembly connector terminal 6 and ground. <Halogen headlight (LOW)>

Harness side: A-37, A-56



Harness side: A-37, A-56



- Resistance between the A-37 (LH), A-56 (RH) headlight assembly connector terminal 5 and ground. <Discharge headlight (LOW)>

**OK: The resistance should be 2 Ω or less.**

**Q: Is the measured resistance 2 Ω or less?**

**YES** : Go to Step 5.

**NO** : Go to Step 4.

---

**STEP 4. Check the wiring harness between headlight assembly (LOW) connector A-37 <LH>, A-56 <RH> (terminal 6 <halogen headlight> or 5 <discharge headlight>) and ground.**

- Check the ground wires for open circuit.

**Q: Is the wiring harness between headlight assembly (LOW) connector A-37 <LH>, A-56 <RH> (terminal 6 <halogen headlight> or 5 <discharge headlight>) and ground in good condition?**

**YES** : The trouble can be an intermittent malfunction (Refer to GROUP 00 - How to Cope with Intermittent Malfunction [P.00-15](#)).

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

---

**STEP 5. Check the wiring harness between headlight assembly (LOW) connector A-37 <LH>, A-56 <RH> (terminal 1 and 2 <halogen headlight> or 1 and 12 <discharge headlight>) and headlight relay (LOW) connector A-28X or headlight relay (HIGH) connector A-20X (terminal 3).**

- Check the power supply line for open circuit.

**Q: Is the wiring harness between headlight assembly (LOW) connector A-37 <LH>, A-56 <RH> (terminal 1 and 2 <halogen headlight> or 1 and 12 <discharge headlight>) and headlight relay (LOW) connector A-28X or headlight relay (HIGH) connector A-20X (terminal 3) 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.

#### 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-159](#).

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

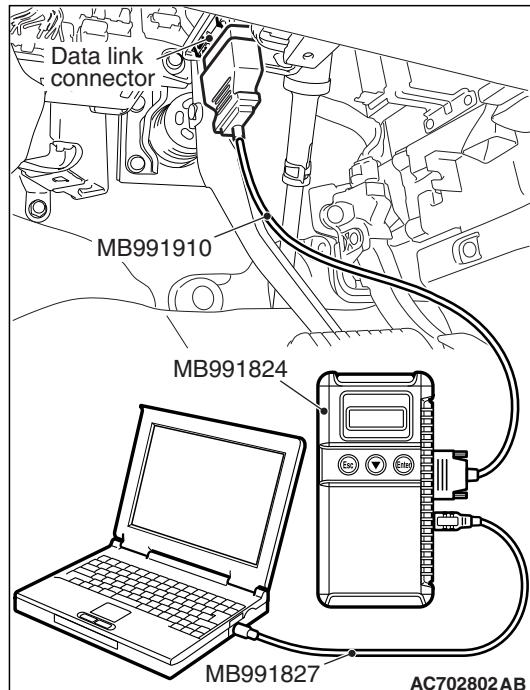
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-123](#)."
- (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-17](#)).

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-123](#)."
- (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-732](#).

**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-91](#)).
- (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**

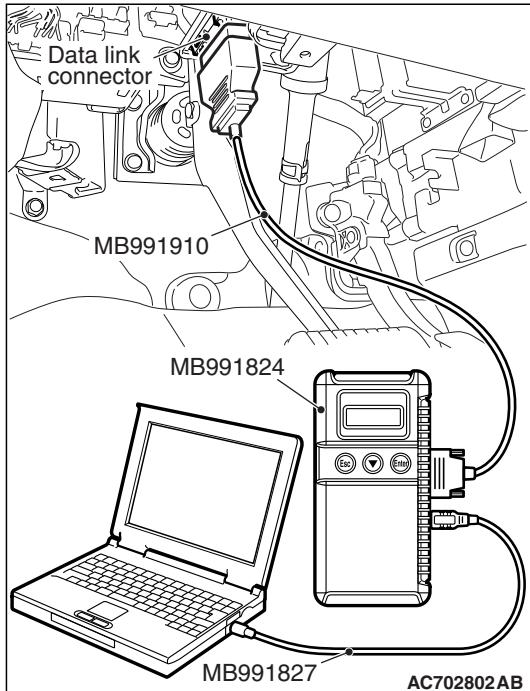
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the scan tool (M.U.T.-III) [P.54A-123](#)."
- (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 "Enable (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-210](#)).



---

**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-732](#).

**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 conditions
Item 206	Headlight LO ON duty	100%
Item 254	IG voltage	1 V or less

- Open the driver's door.

Item No.	Item name	Normal conditions
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 <Normal conditions are displayed for all items.> :**  
Go to Step 4.

**NO <Normal condition is not displayed for item No.**

**206.>** : Troubleshoot the ETACS-ECU. Refer to Diagnosis - Inspection Procedure 12 "ETACS-ECU does not receive any signal from the column switch signal"  
[P.54A-818](#).

**NO <Normal condition is not displayed for item No.**

**254.>** : Troubleshoot the ETACS-ECU. Refer to Diagnosis - Inspection Procedure 2 "ETACS-ECU does not receive any signal from the ignition switch (IG1)"  
[P.54A-788](#).

**NO <Normal condition is not displayed for item No.**

**256.>** : Troubleshoot the ETACS-ECU. Refer to Diagnosis - Inspection Procedure 5 "ETACS-ECU does not receive any signal from the front door switch (LH)"  
[P.54A-801](#).

---

**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.00-15](#)).

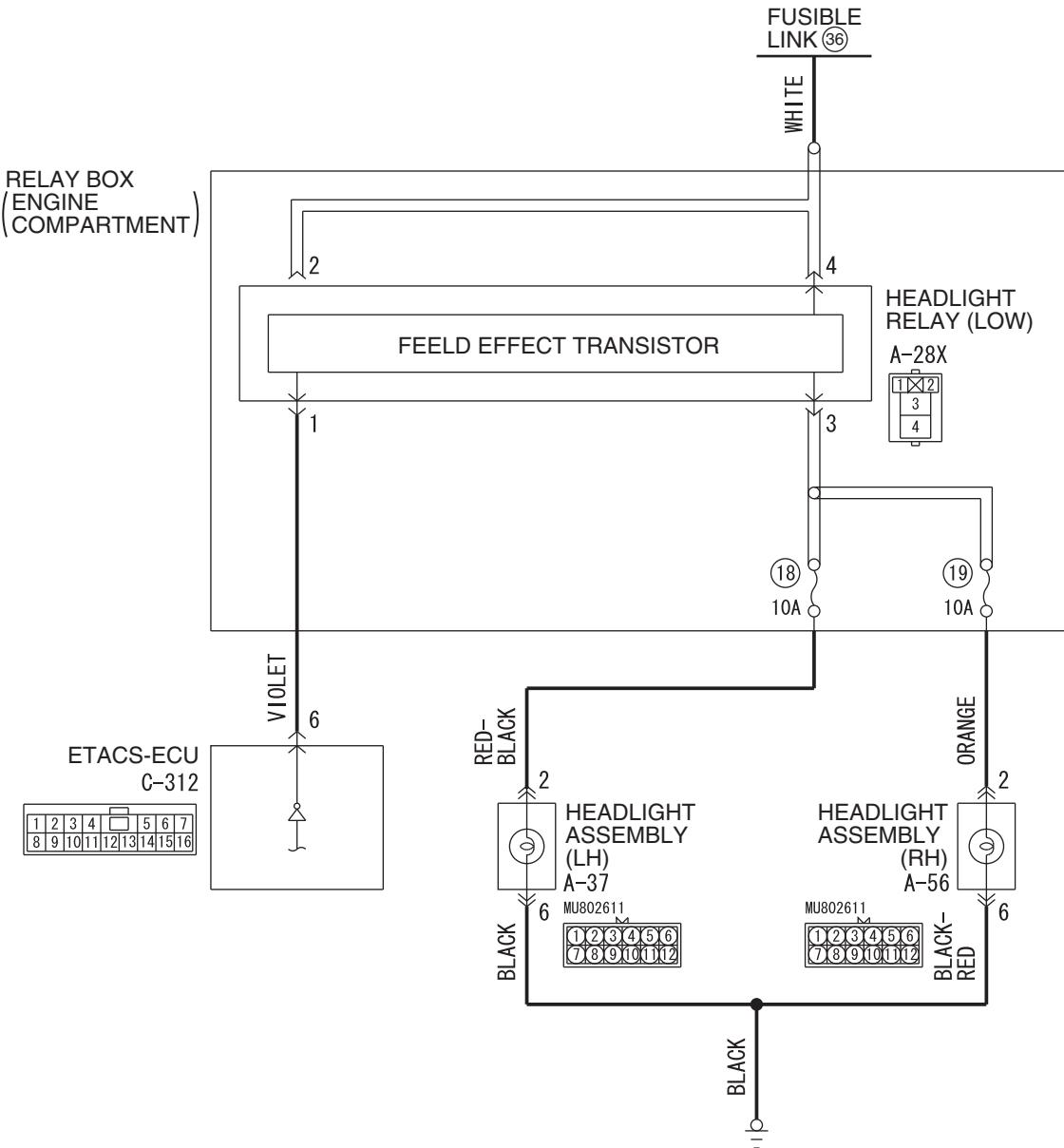
**NO :** Replace the ETACS-ECU.

## Inspection Procedure 8: Daytime running light function does not work normally. &lt;Halogen type headlight&gt;

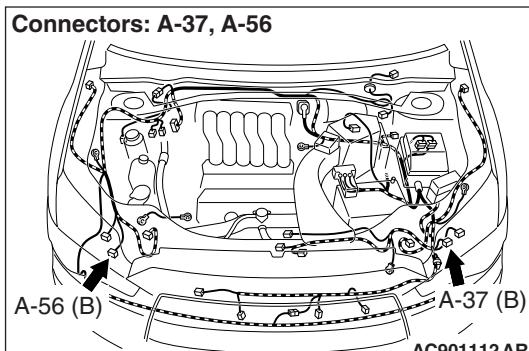
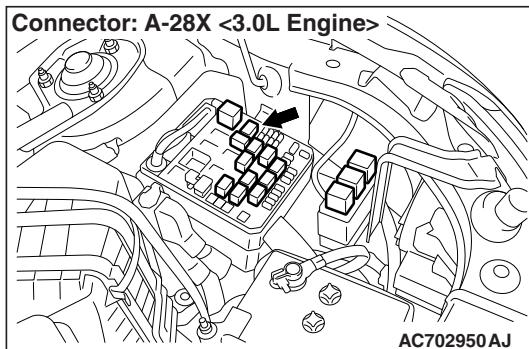
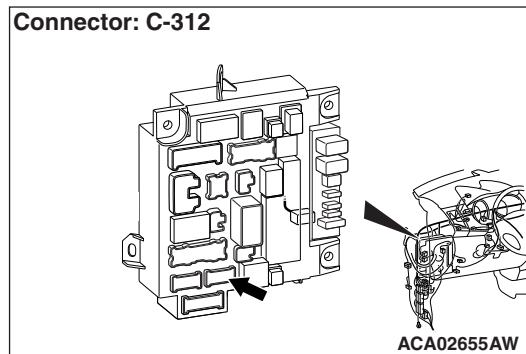
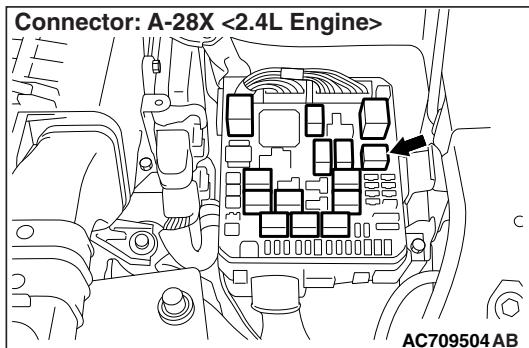
**CAUTION**

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

Daytime Running Light Circuit



WAG54M015A



## 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 headlight relay (LOW), 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-154](#)."

---

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

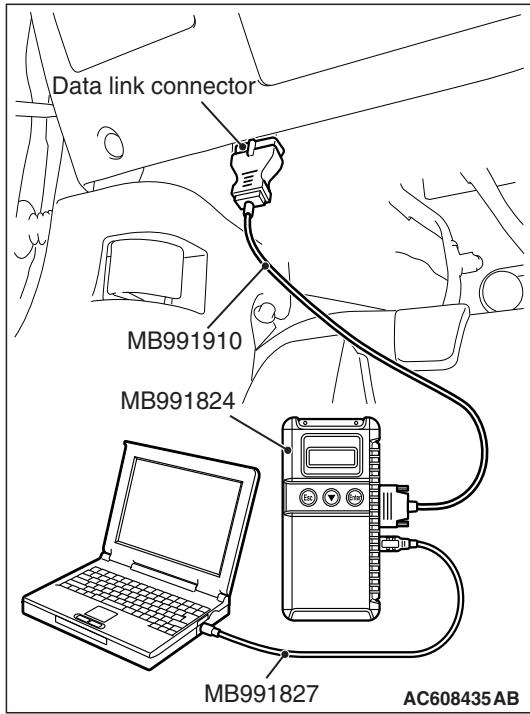
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-123](#)."
- (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-17](#)).



---

**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-732](#).

**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-49](#). <2.4 L Engine>, GROUP 13B, Diagnosis [P.13B-50](#). <3.0 L 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: Do the headlights (low-beam) illuminate in good condition?**

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

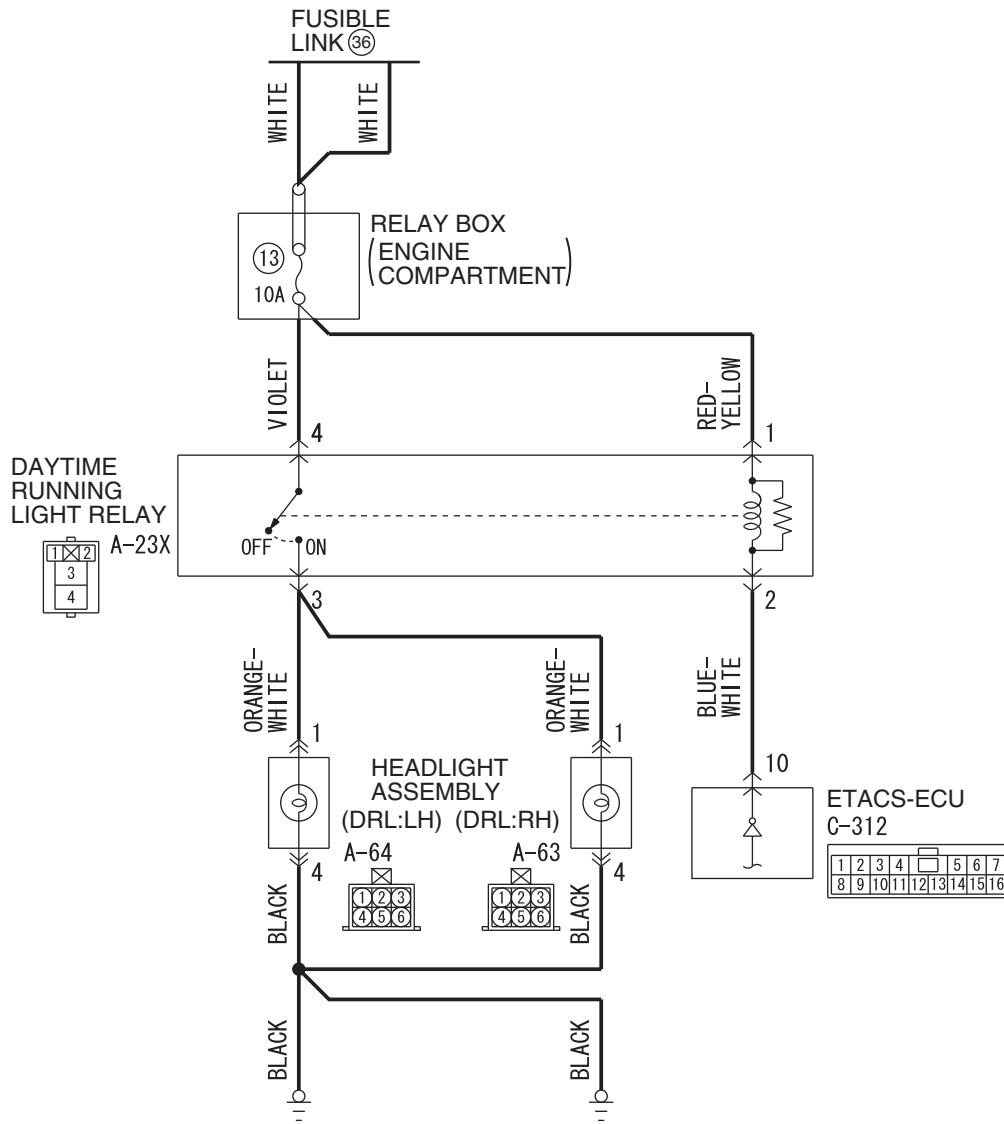
**NO** : Replace the ETACS-ECU.

## Inspection Procedure 8: Daytime running light function does not work normally. &lt;Discharge type headlight&gt;

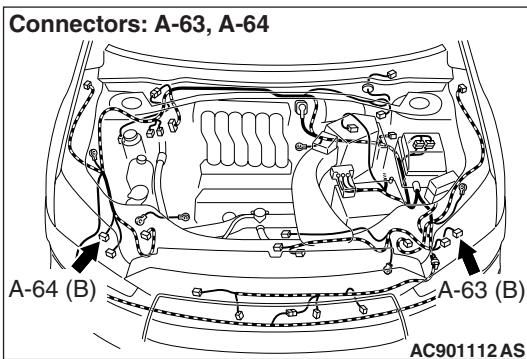
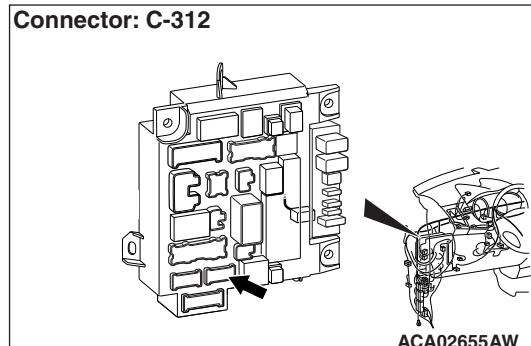
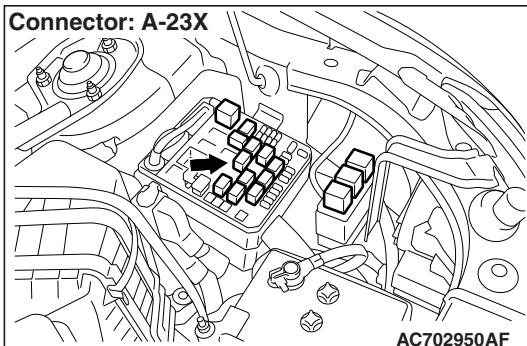
**CAUTION**

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

Daytime Running Light Circuit



WAG54M016A



## 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-153](#)).

### 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**

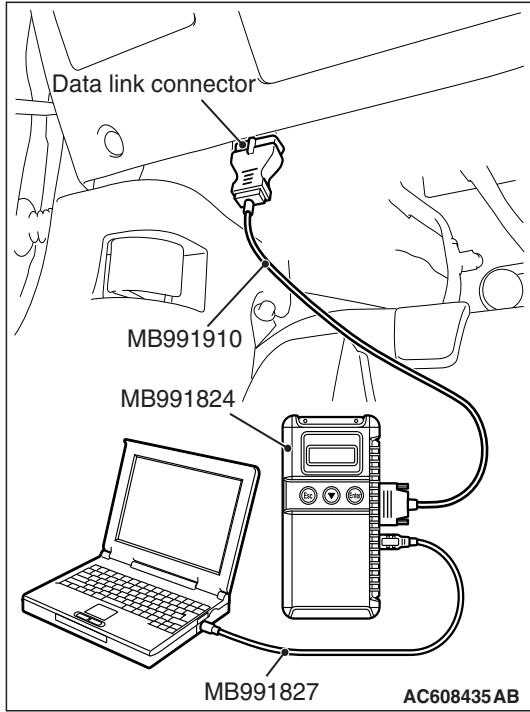
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-123](#)."
- (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-17](#)).



---

**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-732](#).

**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 13B, Diagnosis [P.13B-50](#).

**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 headlight assembly (DRL:LH) connector A-64, headlight assembly (DRL:RH) A-63 for loose, corroded or damaged terminals, or terminals pushed back in the connector.****Q: Is headlight assembly (DRL:LH) connector A-64, headlight assembly (DRL:RH) A-63 in good condition?**

**YES** : Go to Step 8.

**NO** : Repair the damaged parts.

---

**STEP 8. Check the ground circuit to the headlight assembly (DRL:LH) or headlight assembly (DRL:RH). Measure the resistance at headlight assembly (DRL:LH) connector A-64 or headlight assembly (DRL:RH) connector A-63.**

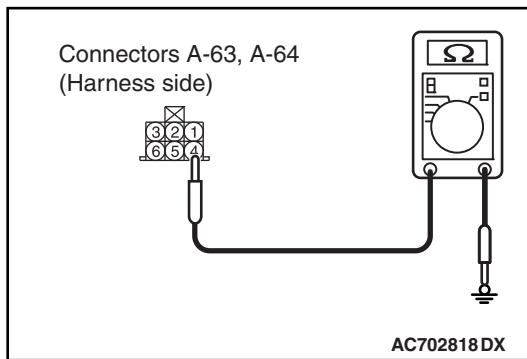
- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Check the resistance between the headlight assembly connector and ground.
  - Resistance between A-64 headlight assembly (DRL:LH) connector terminal No.4 and ground
  - Resistance between A-63 headlight assembly (DRL:RH) connector terminal No.4 and ground

**OK: The resistance should be 2 ohm 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 headlight assembly (DRL:LH) connector A-64 (terminal 4) or headlight assembly (DRL:RH) connector A-63 (terminal 4) and ground.**

- Check the ground wires for open circuit.

**Q: Is the wiring harness between headlight assembly (DRL:LH) connector A-64 (terminal 4) or headlight assembly (DRL:RH) connector A-63 (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.00-15](#)).

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

---

**STEP 10. Check daytime running light relay connector A-23X for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is daytime running light relay connector A-23X 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-220](#).

**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-23X.**

**⚠ 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.**

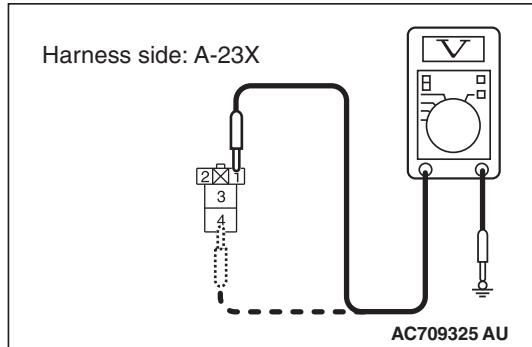
- (1) Disconnect daytime running light relay connector A-23X and measure the voltage available at the relay box side of the connector.
- (2) Measure the voltage between terminal 1 and ground, and also between terminal 4 and ground.

**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-23X (terminal 1 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-23X (terminal 1 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.00-15](#)).

**NO** : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. 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-23X (terminal 2) and ETACS-ECU connector C-312 (terminal 10).**

- Check the communication wires for open circuit.

**Q: Is the wiring harness between daytime running light relay connector A-23X (terminal 2) and ETACS-ECU connector C-312 (terminal 10) 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.**

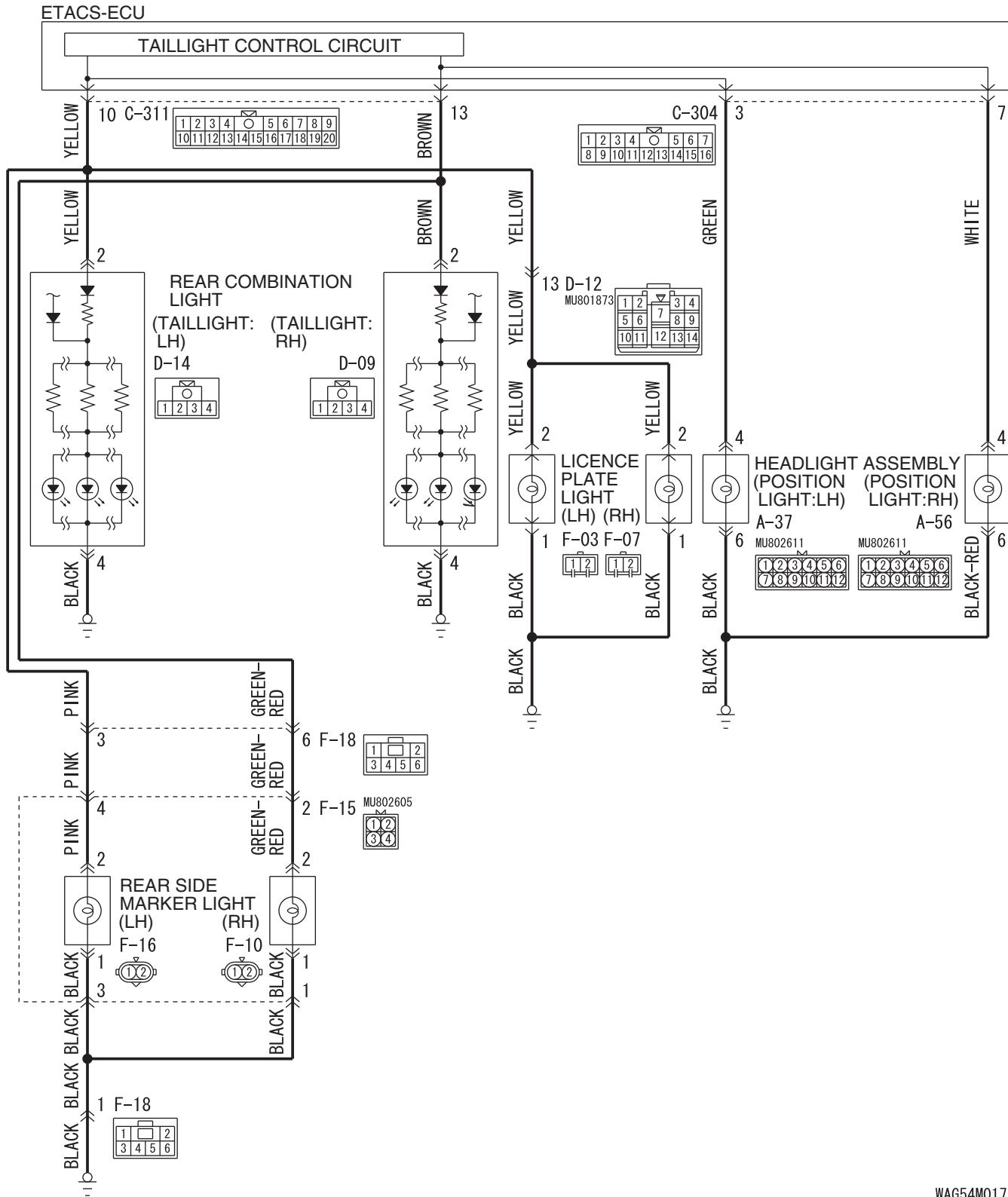
**Q: Does the daytime running lights illuminate in good condition?**

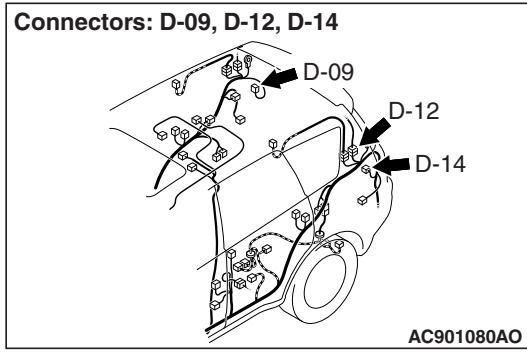
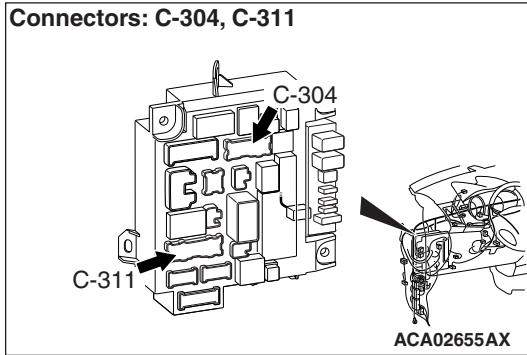
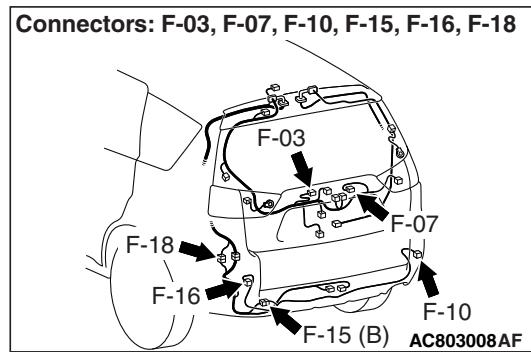
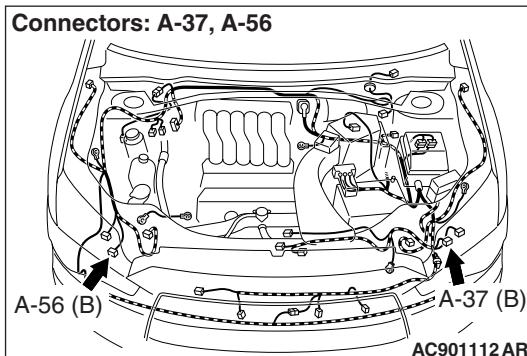
**YES** : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-15](#)).

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

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

Position Lights, Licence Plate Lights and Rear Side Marker Lights Circuit





## TECHNICAL DESCRIPTION (COMMENT)

When one of the position light, side marker light or license plate light does not illuminate, the harness, connector(s), or bulb(s) may have a problem, or the fuse may be burned out.

## TROUBLESHOOTING HINTS

- Malfunction of bulbs
- Malfunction of rear combination light
- Malfunction of rear combination light harness
- Malfunction of license plate light
- Malfunction of headlight
- Malfunction of rear side marker light
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

## DIAGNOSIS

### Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set

### STEP 1. Rear combination light check.

**Q: Does the rear combination light illuminate normally?**

**YES** : Go to Step 2.

**NO** : Refer to [P.54A-243](#).

---

**STEP 2. Check headlight assembly connector A-56 (position light:RH) or A-37 (position light:LH), license plate light connector F-07 (RH) or F-03 (LH), rear combination light connector D-14 (LH) or D-09 (RH), or rear side marker light connector F-10 (RH) or F-16 (LH) for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is headlight assembly connector A-56 (position light:RH) or A-37 (position light:LH), license plate light connector F-07 (RH) or F-03 (LH), rear combination light connector D-14 (LH) or D-09 (RH), or rear side marker light connector F-10 (RH) or F-16 (LH) in good condition?**

**YES** : Go to Step 3.

**NO** : Repair the damaged parts.

---

**STEP 3. Bulb check.**

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

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

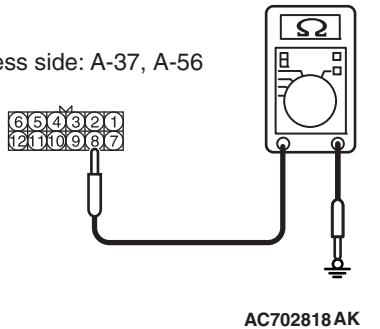
**YES** : Go to Step 4.

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

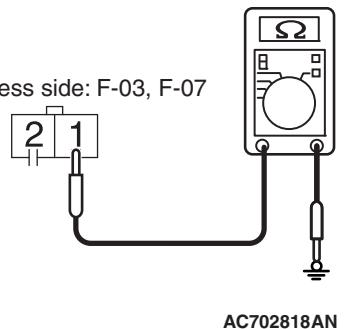
**STEP 4. Resistance measurement at headlight assembly connector A-56 (position light:RH) or A-37 (position light:LH), license plate light connector F-07 (RH) or F-03 (LH), rear combination light connector D-14 (LH) or D-09 (RH), or rear side marker light connector F-10 (RH) or F-16 (LH).**

- (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-37 (position:LH), A-56 (position:RH) (terminal No. 6) and body ground.

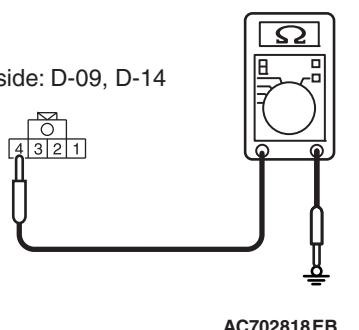
Harness side: A-37, A-56



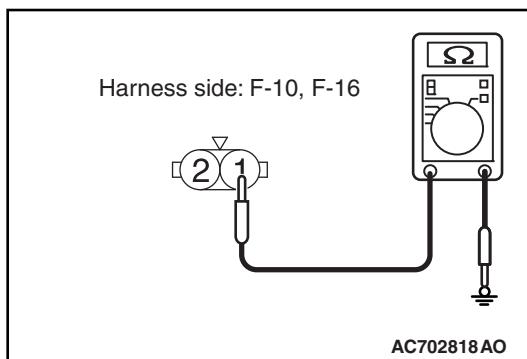
Harness side: F-03, F-07



Harness side: D-09, D-14



- Measure the resistance between license plate light connector F-03 (LH), F-07 (RH) (terminal No. 1) and body ground.
- Measure the resistance between rear combination light connector D-14 (LH), D-09 (RH) (terminal No. 4) and body ground.



- Measure the resistance between rear side marker light connector F-16 (LH), F-10 (RH) (terminal No. 1) and body ground.

**The measured value should be continuity exists (2 Ω or less).**

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

**YES** : Go to Step 6.

**NO** : Go to Step 5.

---

**STEP 5. Check wiring harness between headlight assembly connector A-56 (position light:RH) or A-37 (position light:LH) (terminal No. 6), license plate light connector F-07 (RH) or F-03 (LH) (terminal No. 1), rear combination light connector D-14 (LH) or D-09 (RH) (terminal No. 4), or rear side marker light connector F-10 (RH) or F-16 (LH) (terminal No. 1) and the body ground. Check the ground wires for open circuit.**

*NOTE: Before the wiring harness check, check the intermediate connectors F-15 and F-18 <rear side marker light>, or and repair that if necessary.*

**Q: Is the wiring harness between headlight assembly connector A-56 (position light:RH) or A-37 (position light:LH) (terminal No. 6), license plate light connector F-07 (RH) or F-03 (LH) (terminal No. 1), rear combination light connector D-14 (LH) or D-09 (RH) (terminal No. 4), or rear side marker light connector F-10 (RH) or F-16 (LH) (terminal No. 1) and the body ground in good condition?**

**YES** : Go to Step 8.

**NO** : Repair the wiring harness.

---

**STEP 6. Check ETACS-ECU connector C-304 <headlight assembly> or C-311 <license plate light and rear side marker light> for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is ETACS-ECU connector C-304 <headlight assembly> or C-311 <license plate light and rear side marker light> in good condition?**

**YES** : Go to Step 7.

**NO** : Repair the damaged parts.

**STEP 7. Check Wiring harness between headlight assembly connector A-56 (position light:RH) or A-37 (position light:LH) (terminal No. 4), license plate light connector F-07 (RH) or F-03 (LH) (terminal No. 2), rear combination light connector D-14 (LH) or D-09 (RH) (terminal No. 2), or rear side marker light connector F-10 (RH) or F-16 (LH) (terminal No. 2) and ETACS-ECU connector C-304 (terminal No. 7, 6) <headlight assembly>, C-311 (terminal No. 10, 13) <license plate light and rear side marker light>.**

Check the output lines for open circuit.

*NOTE: Before the wiring harness check, check the intermediate connectors D-12 <license plate light>, F-15 and F-18 <rear side marker light> and repair that if necessary.*

**Q: Is the wiring harness between headlight assembly connector A-56 (position light:RH) or A-37 (position light:LH) (terminal No. 4), license plate light connector F-07 (RH) or F-03 (LH) (terminal No. 2), rear combination light connector D-14 (LH) or D-09 (RH) (terminal No. 2), or rear side marker light connector F-10 (RH) or F-16 (LH) (terminal No. 2) and ETACS-ECU connector C-304 (terminal No. 7, 6) <headlight assembly>, C-311 (terminal No. 10, 13) <license plate light and rear side marker light> in good condition?**

**YES** : Go to Step 8.

**NO** : Repair the wiring harness.

---

#### **STEP 8. Retest the system.**

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

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

**YES <The light illuminate normally at both high and low beams.>** : The trouble can be an intermittent malfunction

(Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction [P.00-15](#)).

**NO <When the position light does not illuminate>** :

Replace the position light socket.

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

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

Replace the license plate light socket.

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

**Inspection Procedure 10: The 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**

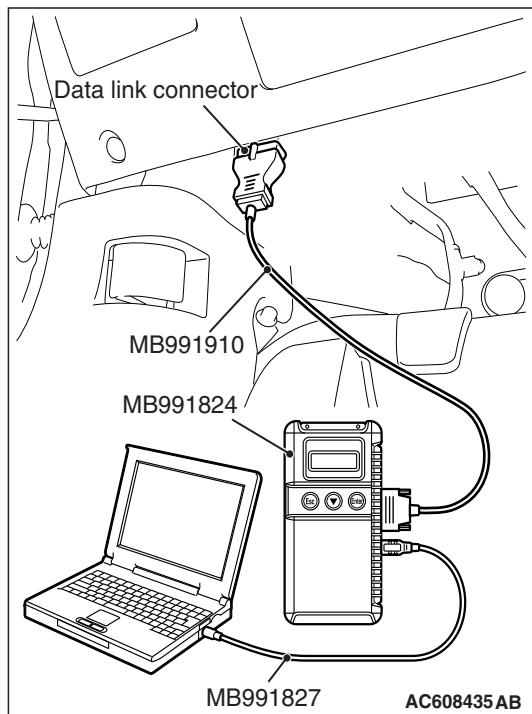
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-123](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis [P.54C-17](#)).



---

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

Check if DTC is set to the LIN.

**Q: Is the DTC set?**

**YES** : Refer to DTC chart [P.54A-127](#).

**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-732](#)).

**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-154](#).

---

**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: Does 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-785](#).

---

**STEP 6. Lighting control sensor check**

Check the lighting control sensor. Refer to [P.54A-220](#).

**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.00-15](#)).

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

## Inspection Procedure 10: 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**

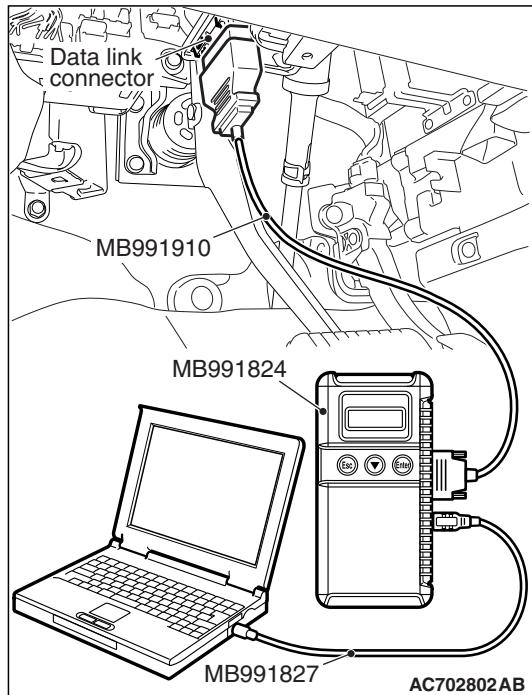
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-123](#)."
- (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-732](#).)

NO : Go to Step 2.



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

Using the ETACS-ECU service data, check the signals related to the illumination of turn-signal light.

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

Item No.	Item name	Normal conditions
Item 254	IG voltage	Battery 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 Diagnosis - Inspection Procedure 2 "ETACS-ECU does not receive any signal from the ignition switch (IG1)"

[P.54A-785.](#)

**STEP 3. Retest the system.**

Check that turn-signal lights illuminate.

**Q: Do turn-signal lights 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.00-15](#)).

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

---

**Inspection Procedure 11: The comfort flashing function does not work normally.**

---

**TECHNICAL DESCRIPTION (COMMENT)**

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

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS****Required Special Tools:**

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

---

**STEP 1. Using scan tool MB991958, Check the configuration function.****⚠ CAUTION**

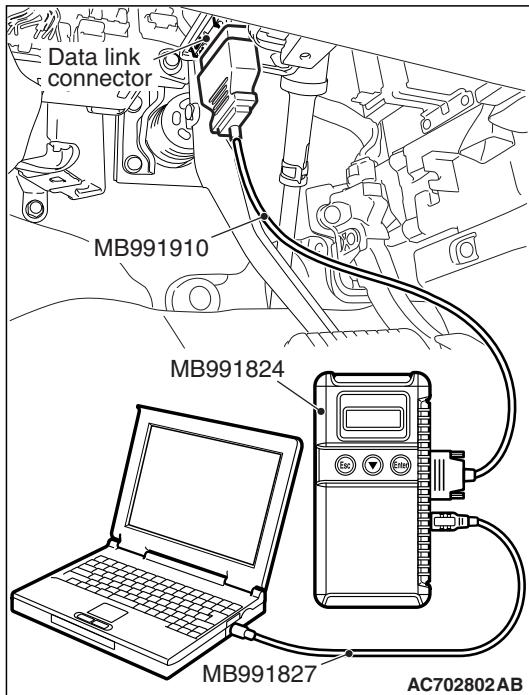
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-123](#)."
- (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-210](#)).



---

**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-732](#))

**NO** : Go to Step 3.

---

**STEP 3. Check that the turn-signal light operate.**

Check that the turn-signal light work normally when the ignition switch is in the "ON" position.

**Q: Do turn-signal lights work normally?**

**YES** : Go to Step 4.

**NO** : Refer to Inspection Procedure 10 "None of turn-signal lights illuminates" [P.54A-195](#).

---

**STEP 4. Retest the system**

Check that the comfort flashing function works normally.

**Q: Does comfort flashing function 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.00-15](#)).

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

---

**Inspection Procedure 12: The turn-signal indicator light do not illuminate.**

---

**⚠ CAUTION**

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

**TECHNICAL DESCRIPTION (COMMENT)**

If the turn-signal light indicator does not illuminate normally, the harness in the CAN bus lines, connector(s), ETACS-ECU, or combination meter may have a problem.

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS****Required Special Tools:**

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

---

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

Check that the turn-signal light flashes normally when the turn-signal switch is operated.

**Q: Do Turn-signal light work normally?**

**YES** : Go to Step 2.

**NO** : Refer to Inspection Procedure 10 "All the turn-signal lights do not illuminate" [P.54A-195](#).

---

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

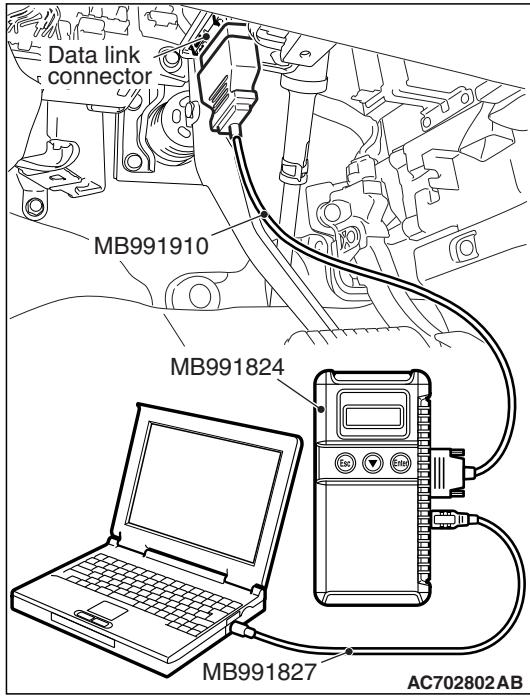
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the scan tool (M.U.T.-III) [P.54A-123](#)."
- (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-17](#)).



---

**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-732](#).

**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 13: 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**

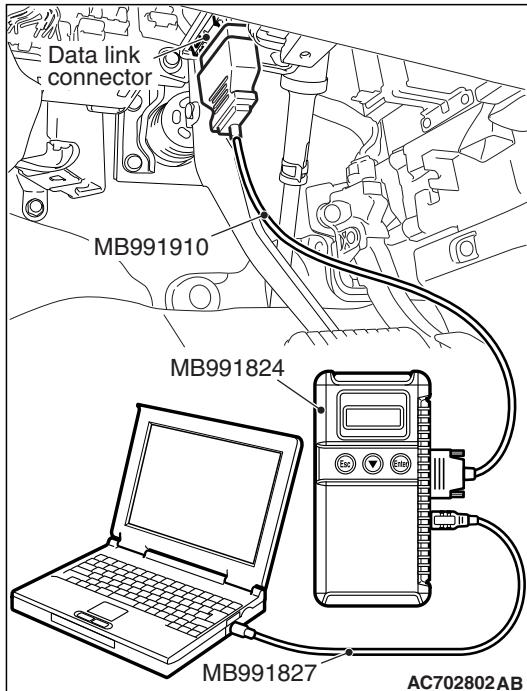
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-123](#)."
- (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-210](#)).



---

**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-732](#))

**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-128 <KOS>](#) or GROUP 42C, Troubleshooting [P.42C-80 <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-153](#).

---

**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.00-15](#)).

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

---

**Inspection Procedure 14: 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 keyless entry system or 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 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.

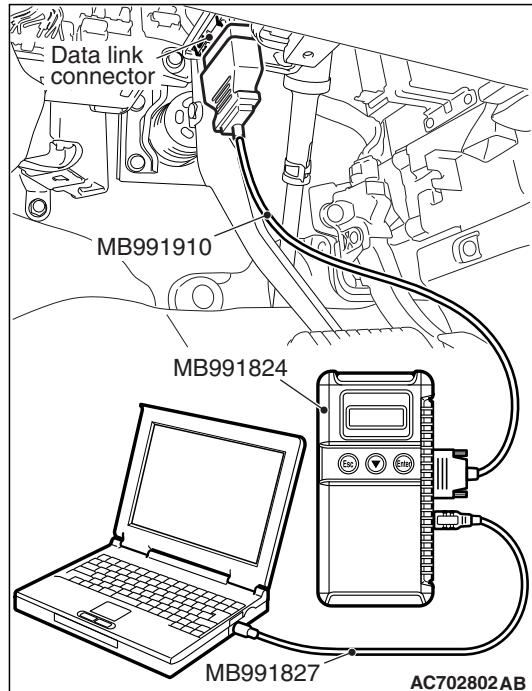
- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-123](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Check that any one of the followings other than "Disabled" is set for "Coming home light" with a customization function.
  - 15 sec
  - 30 sec
  - 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-210](#)).



## 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-732](#))

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-788](#).

---

**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-153](#).

---

**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.00-15](#)).

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

## DATA LIST REFERENCE TABLE

M1540103800229

## LIN &lt;LIGHTING CONTROL SENSOR (LIGHT SENSOR)&gt;

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	—	—

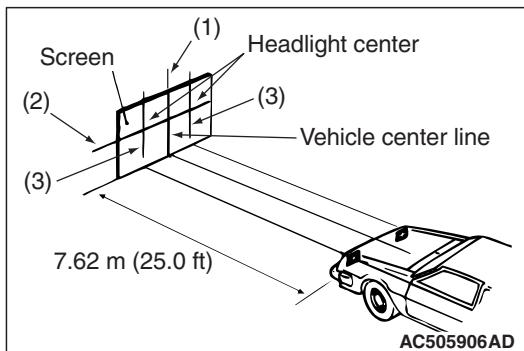
## ON-VEHICLE SERVICE

### HEADLIGHT AIMING

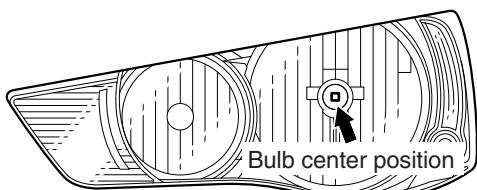
M1540100500490

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

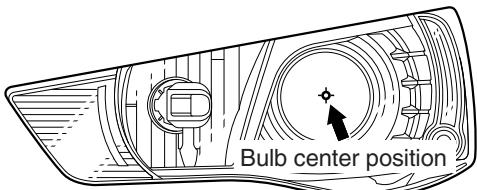
1. Inspect for rusted or faulty headlight assemblies.
2. These conditions must be corrected before a satisfactory adjustment can be made.
3. Inspect tire inflation, and adjust if necessary.
4. If the fuel tank is not full, place a weight in the trunk of the vehicle to simulate weight of a full tank [3 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.



Vehicles without discharge headlight



Vehicles with discharge headlight



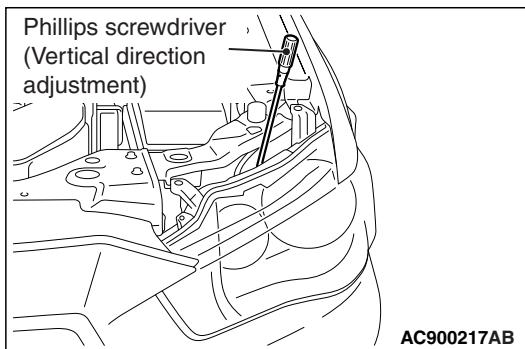
11. Set the distance between the screen and the bulb center marks of the headlight as shown in the illustration.
12. Four lines of adhesive tape (or equivalent markings) are required on screen or wall:
  - (1) Position a vertical tape or mark so that it is aligned with the vehicle center line.
  - (2)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

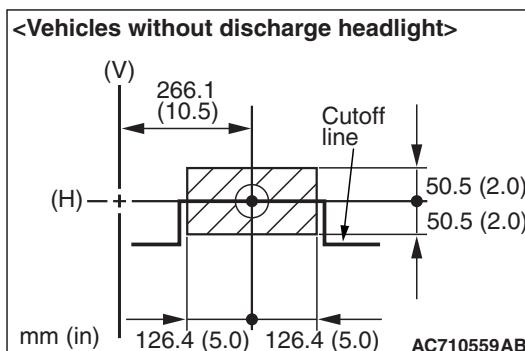
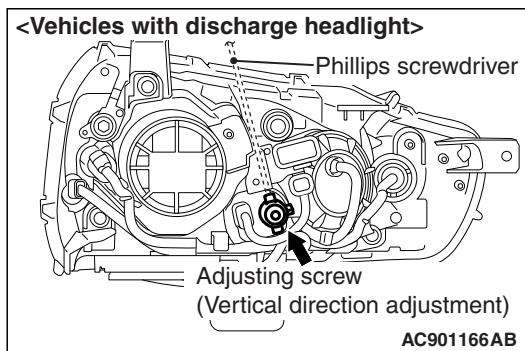
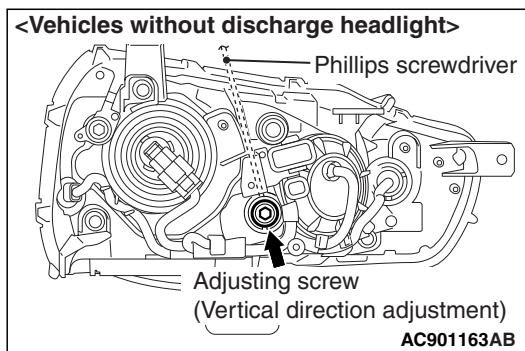
### **⚠ CAUTION**

- Do not cover a headlight for more than three minutes to prevent the plastic headlight lens deformation.
- Be sure to adjust the aiming adjustment screw in the tightening direction.

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

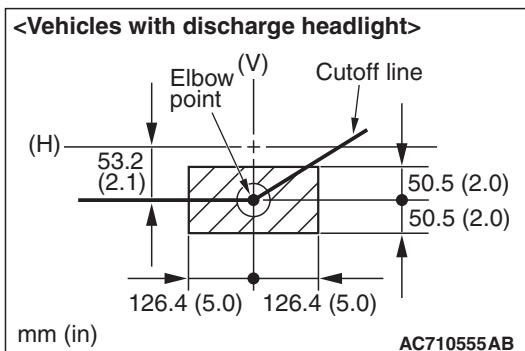


- Turn the adjusting screw to achieve the specified low-beam cut-off location on the aiming screen.



**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)



**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)

*NOTE: High-beam pattern should be correct when the low-beams are adjusted properly.*

## LUMINOUS INTENSITY MEASUREMENT

M1540100600174

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

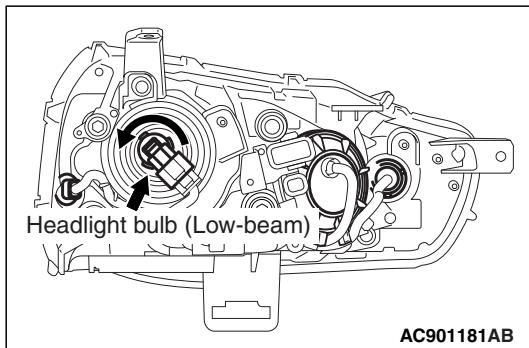
M1540100700449

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.**

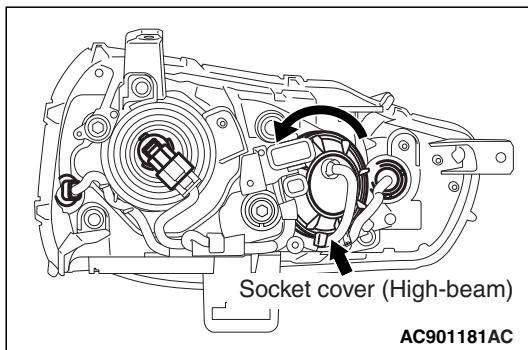
Disconnect the connector, and twist the headlight bulb (low-beam) to remove.



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

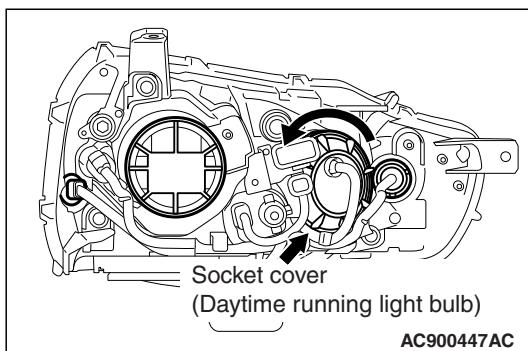
Do not touch the bulb surface with bare hands or dirty gloves. If the bulb surface (glass part) gets dirty, immediately clean it with alcohol or thinner. After drying completely, install the bulb.

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>**⚠ CAUTION**

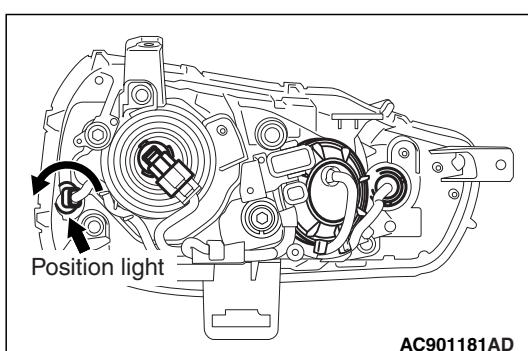
Do not touch the bulb surface with bare hands or dirty gloves. If the bulb surface (glass part) gets dirty, immediately clean it with alcohol or thinner. After drying completely, install the bulb.

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



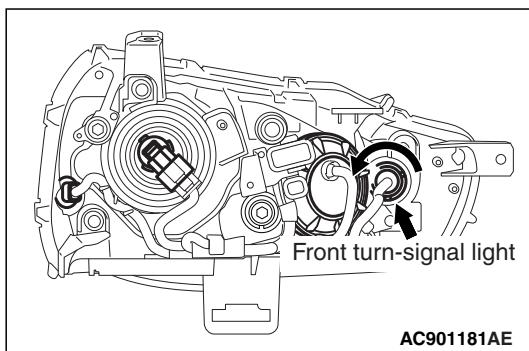
## POSITION LIGHT BULB REPLACEMENT

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

M1540100800167

Confirm that the headlights turn OFF in one second if the ignition key is pulled out and the driver's door is opened when the ignition switch is ON and the lighting switch is ON (HEAD position). If there is a malfunction, perform the troubleshooting (Refer to [P.54A-153](#).)

## HEADLIGHT AUTO LIGHT FUNCTION CHECK

M1540100900238

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-153](#).)

*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.)*

## CUSTOMIZATION FUNCTION

M1540103700783

With the scan tool MB991958 operation, the following functions can be programmed. The programmed information is held even when the battery is disconnected.

Adjustment item (scan tool display)	Adjustment item	Adjustment contents (scan tool display)	Adjusting contents
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 function	Disable	Without function
		Enable	With function (initial condition)

Adjustment item (scan tool display)	Adjustment item	Adjustment contents (scan tool display)	Adjusting contents
Comfort flasher switch time	Switch operation time to activate the comfort flasher function	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	Without 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	Without 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

M1540101000744

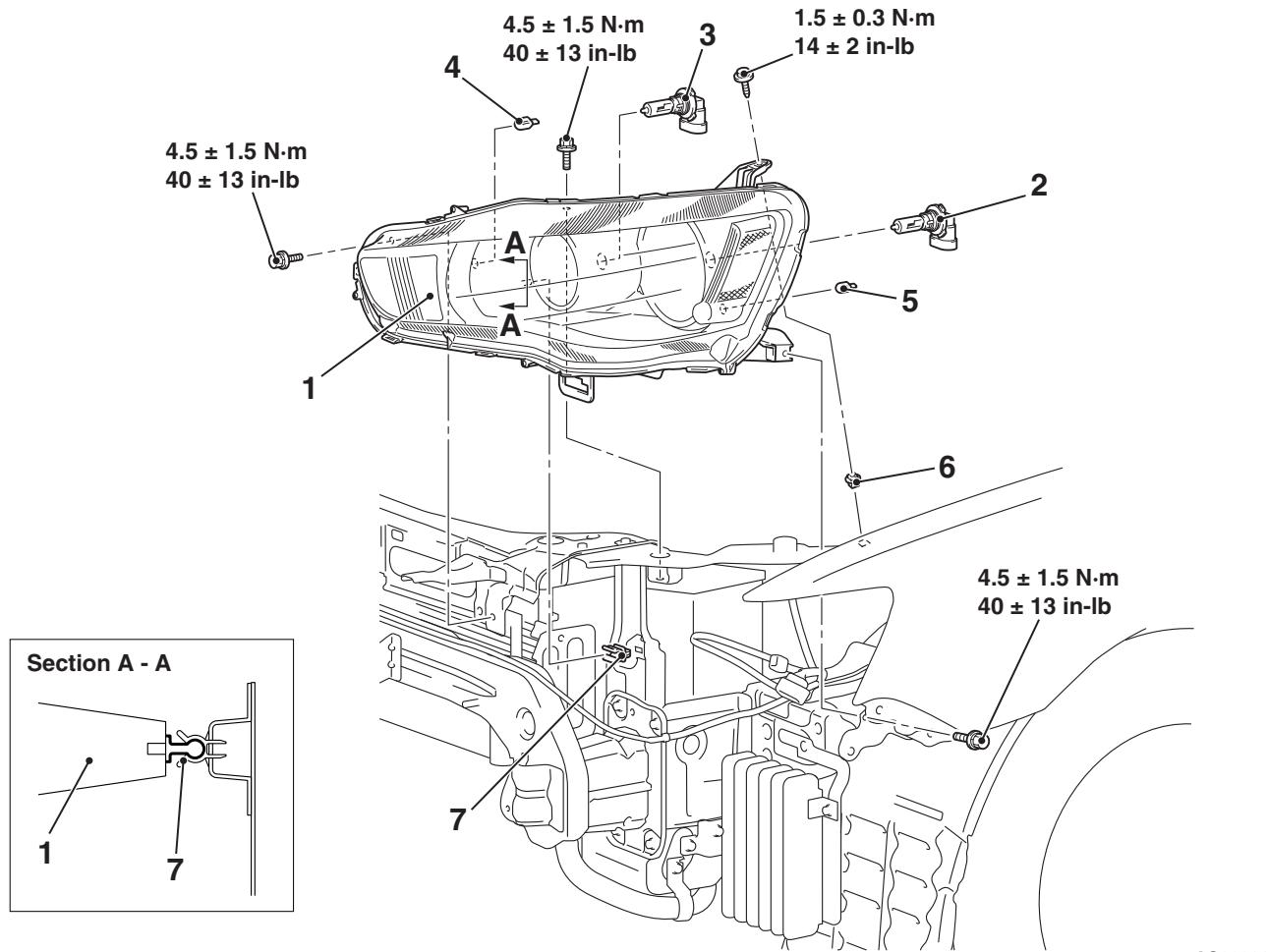
## &lt;VEHICLES WITHOUT DISCHARGE HEADLIGHT&gt;

## Pre-removal operation

Front bumper assembly removal (Refer to GROUP 51 – Front Bumper Assembly [P.51-4](#).)

## Post-installation operation

- Front bumper assembly installation (Refer to GROUP 51 – Front Bumper Assembly [P.51-4](#)).
- Check the beam direction of the headlight (Refer to Headlight Aiming [P.54A-205](#)).



## Removal Steps

- Headlight assembly
- Headlight bulb (low-beam)
- Headlight bulb (high-beam)
- Front turn-signal light bulb

## Removal Steps (Continued)

- Position light bulb
- Grommet
- Grommet

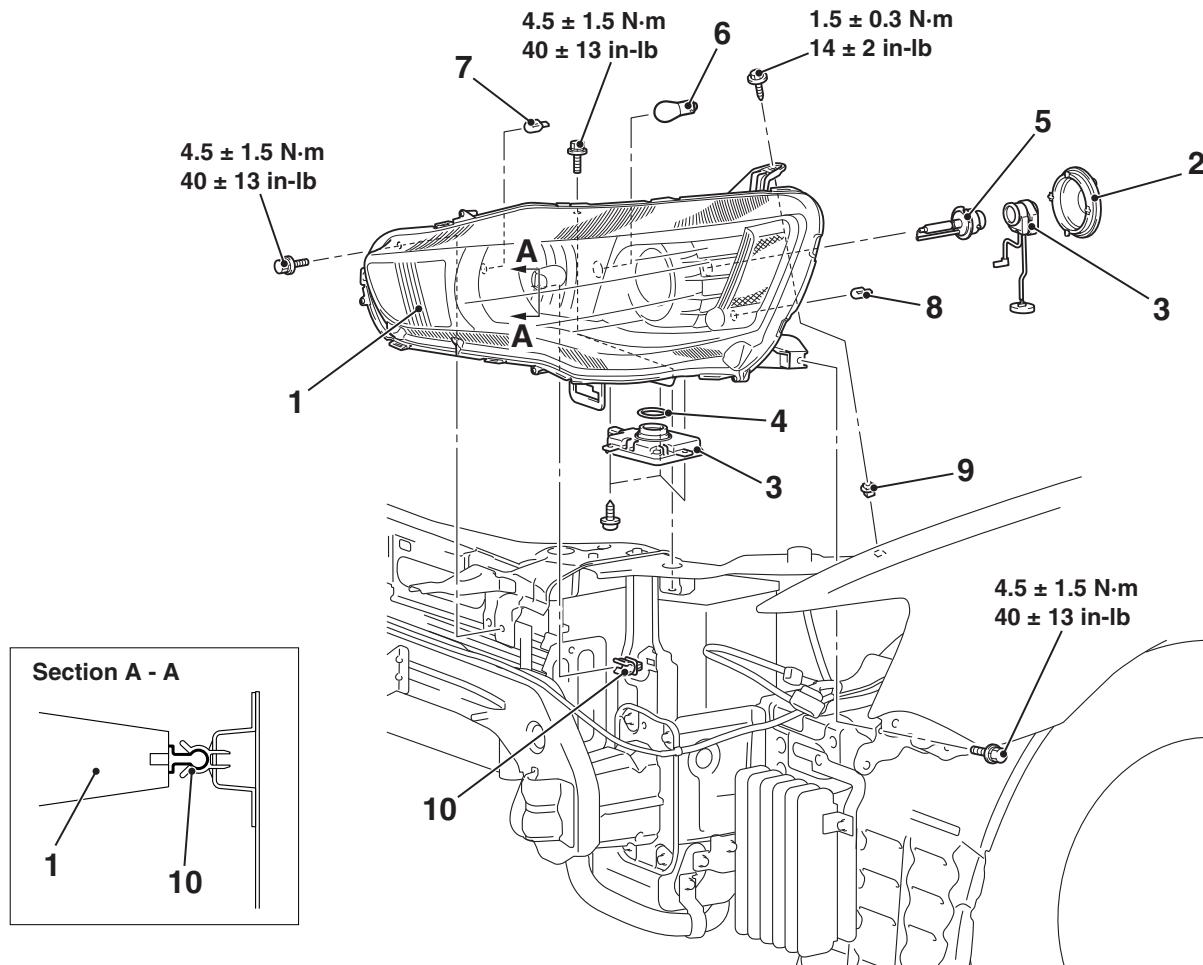
## &lt;VEHICLES WITH DISCHARGE HEADLIGHT&gt;

**Pre-removal operation**

Front bumper assembly removal (Refer to GROUP 51 – Front Bumper Assembly [P.51-4](#).)

**Post-installation operation**

- Front bumper assembly installation (Refer to GROUP 51 – Front Bumper Assembly [P.51-4](#)).
- Check the beam direction of the headlight (Refer to Headlight Aiming [P.54A-205](#)).



AC901199AB

**Removal Steps**

1. Headlight assembly  
 2. Headlight bulb socket cover  
 <<A>> >>A<< 3. Headlight control unit  
 <<B>> 4. Headlight gasket  
 5. Headlight bulb

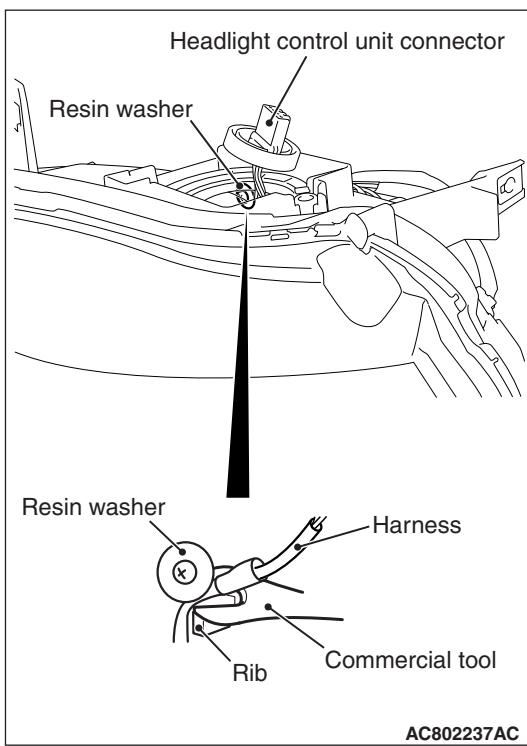
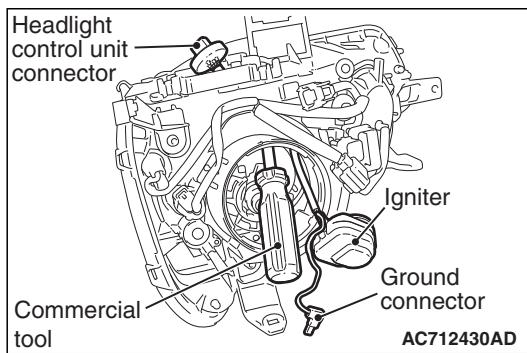
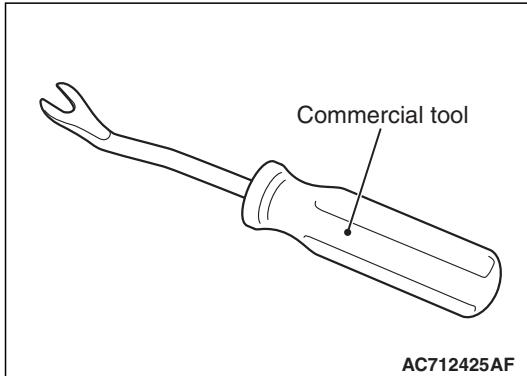
**Removal Steps (Continued)**

6. Daytime running light bulb  
 7. Front turn-signal light bulb  
 8. Position light bulb  
 9. Grommet  
 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.

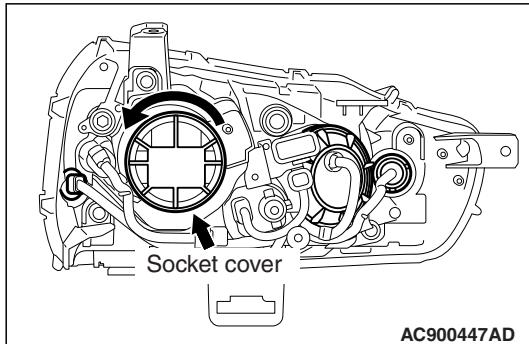


2. To insert the tool available in the market into the headlight assembly from the opening at the ignitor side, firstly remove the headlight control unit, the socket cover, the ignitor and the ground connector.
3. Using the commercial tool, make the resin washer sag to push up the harness above the resin washer.
4. Pull out the harness from the headlight assembly.

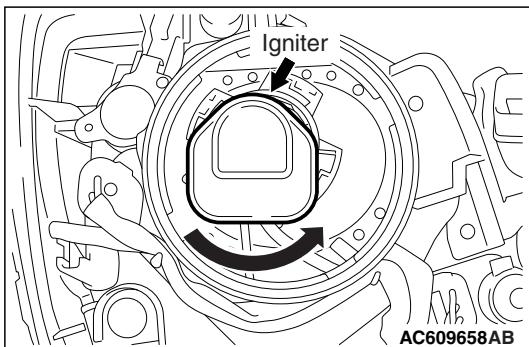
<<B>> HEADLIGHT BULB REMOVAL <VEHICLES  
WITH DISCHARGE HEADLIGHT>**⚠ CAUTION**

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.

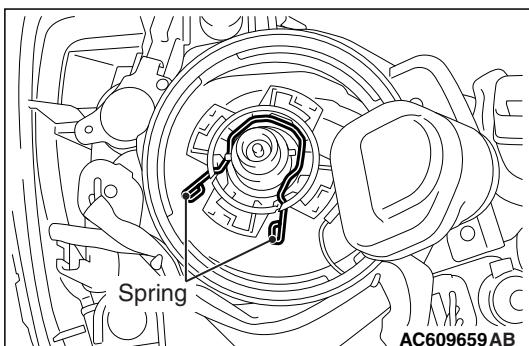
1. Twist the socket cover to remove.



2. Disconnect the igniter.

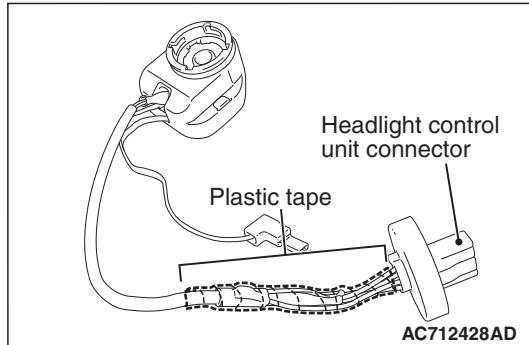


3. Release the bulb securing spring, and remove the bulb.

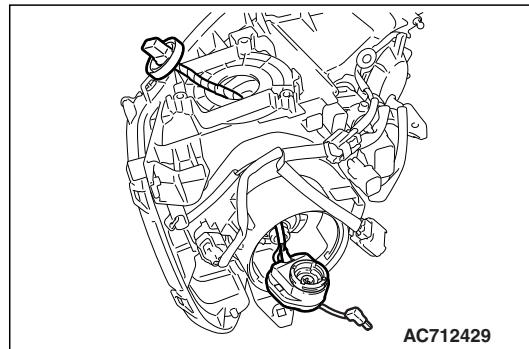


## INSTALLATION SERVICE POINT

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



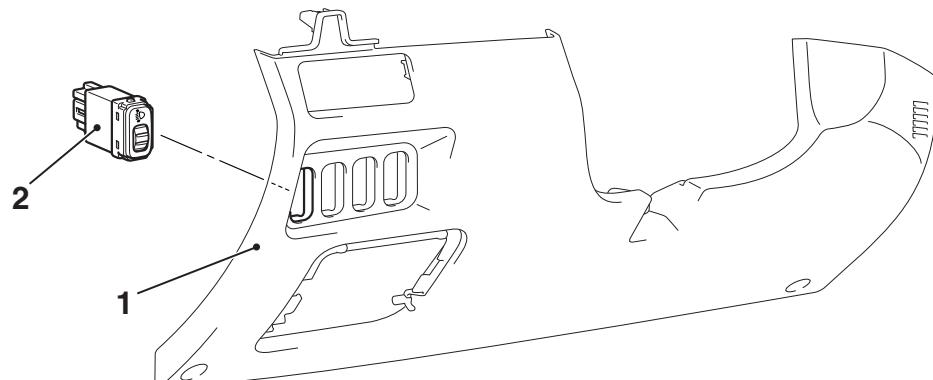
1. As shown in the figure, doubly wrap the portion in the vinyl tape, from the headlight control unit connector root to the point where the harness separation is hidden.



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

M1540105200212



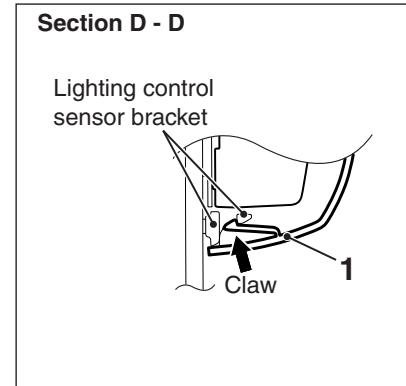
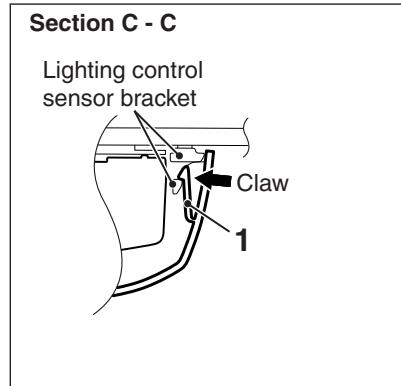
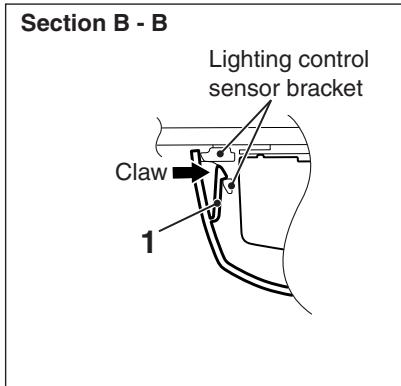
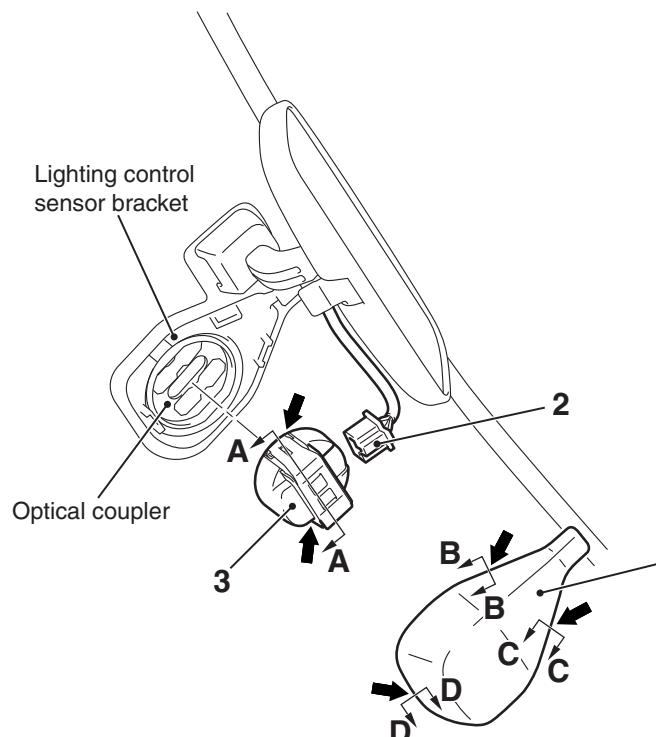
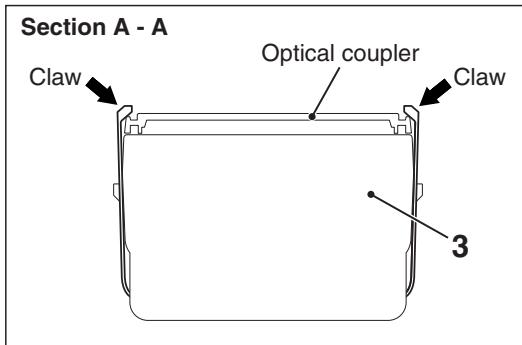
AC900081AB

**Removal Steps**

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

## LIGHTING CONTROL SENSOR REMOVAL AND INSTALLATION

M1540108500223



**Removal Steps**

1. Lighting control sensor cover

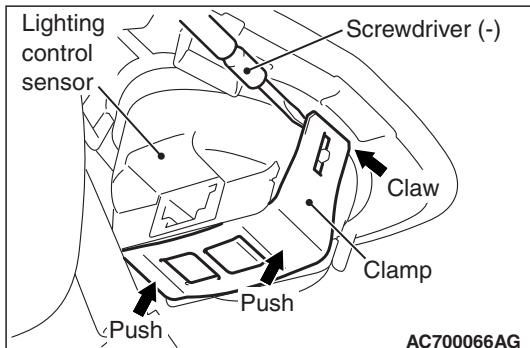
<<A>> >>A<<

**Removal Steps (Continued)**

2. Connector
3. Lighting control sensor

## REMOVAL SERVICE POINT

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



## 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).

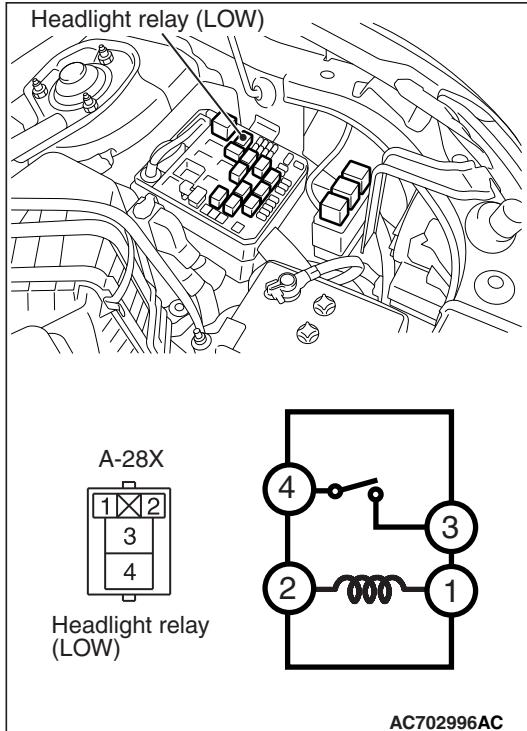
- Mount the lighting control sensor onto the optical coupler, and then connect the connector.
- When reusing the lighting control sensor or when the lighting control sensor is pushed to check the installation condition, install the connector and the lighting control sensor cover and wipe the windshield 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.51-85>.

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

## INSPECTION

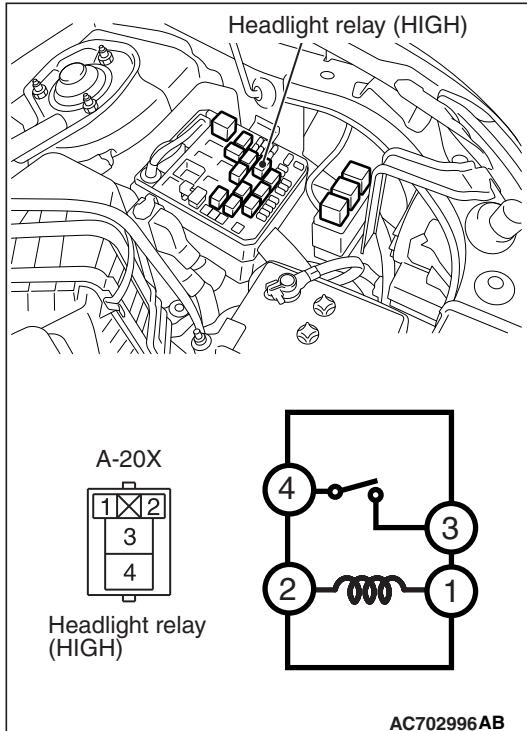
## HEADLIGHT RELAY CHECK

M1540104000196

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)

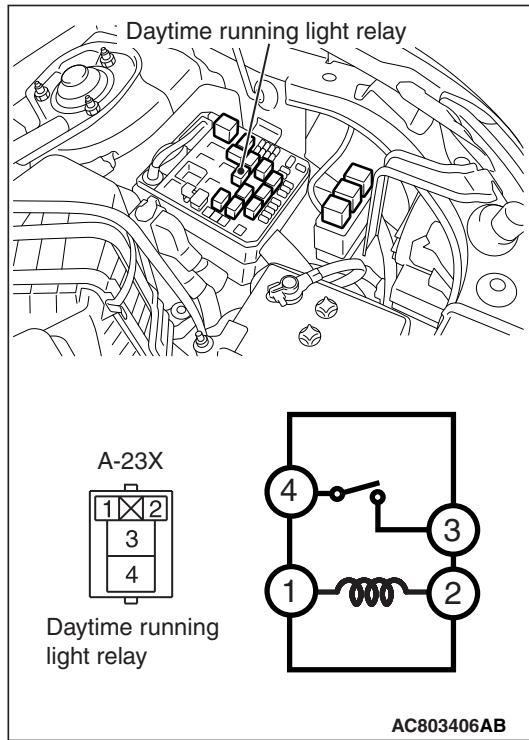
## HEADLIGHT RELAY (HIGH) CHECK



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>

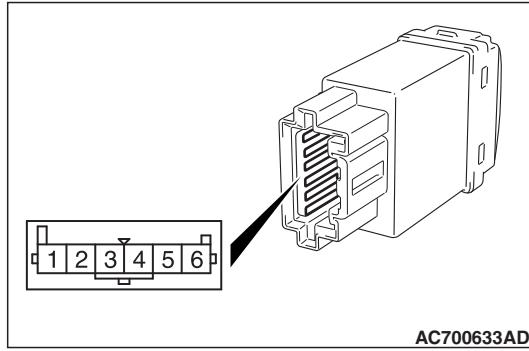
M1540113400017



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

## HEADLIGHT LEVELING SWITCH CHECK

M1540101300325



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

## LIGHTING CONTROL SENSOR (LIGHT SENSOR) CHECK

M1540109000180

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

- Under the direct sunlight, turn the ignition switch to the ON position and the lighting switch to the AUTO position.
- 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.)

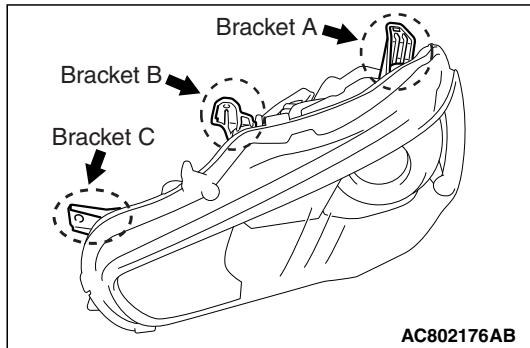
## BRACKET REPAIR OF HEADLIGHT ASSEMBLY

M1540104500113

### ⚠ CAUTION

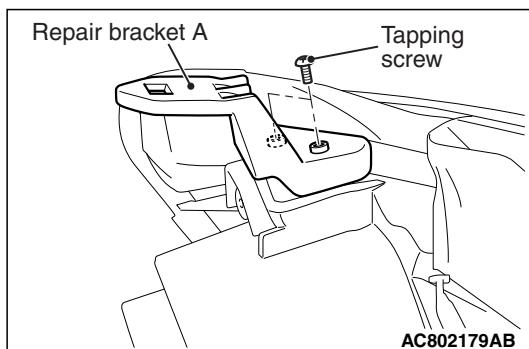
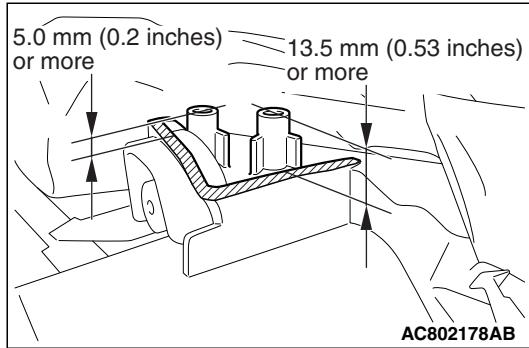
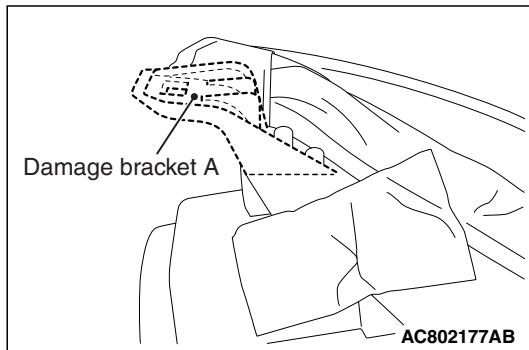
- If damage is present to locations other than the repairable bracket, replace the assembly.
- Apply a tape to the area around the damaged bracket to prevent damage.
- During repair work, be careful not to damage the repair bracket installation bosses.

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

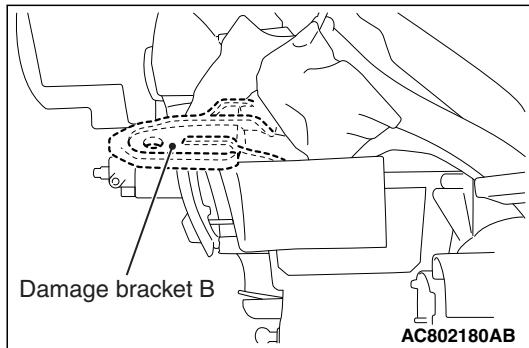


## OPERATIONS BEFORE REPAIRING BRACKET

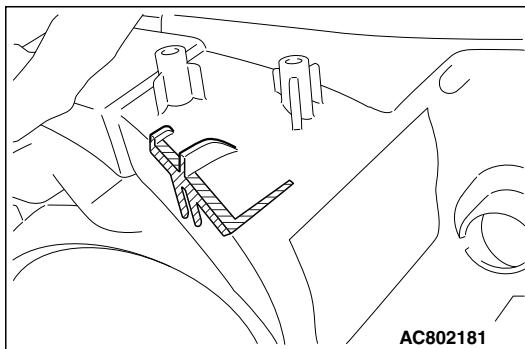
Remove the headlight assembly.

**REPAIR PROCEDURE OF BRACKET A**

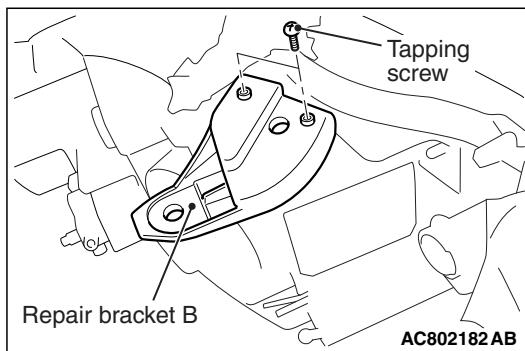
1. Cut the damaged bracket A so that it has the larger dimension than the dimension shown in the figure from the mounting boss seating face.
2. Smoothen the bracket cut surface using the sandpaper.

**REPAIR PROCEDURE OF BRACKET B**

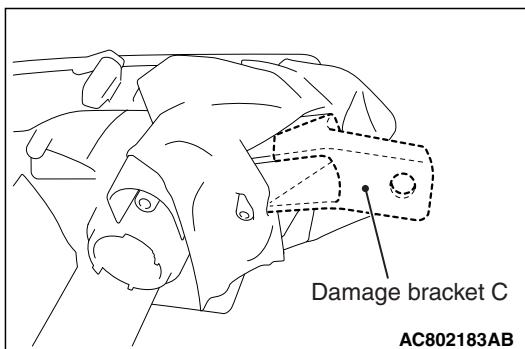
1. Cut off the damaged bracket B.



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

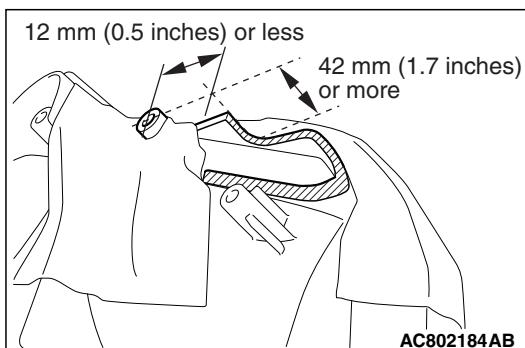


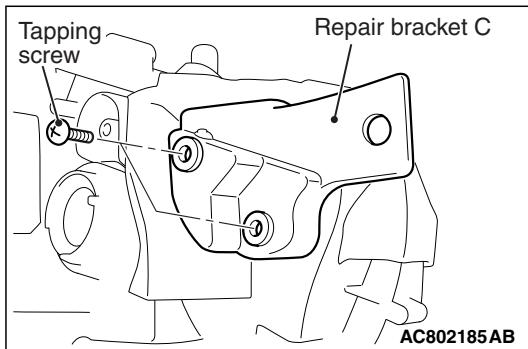
3. Fix the repair bracket B to the headlight assembly using the tapping screw.



### 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