

GROUP 54A

CHASSIS ELECTRICAL

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WARNING

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

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

WARNING

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

NOTE

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

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BATTERY

GENERAL INFORMATION

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

M1541000100379

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	

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)

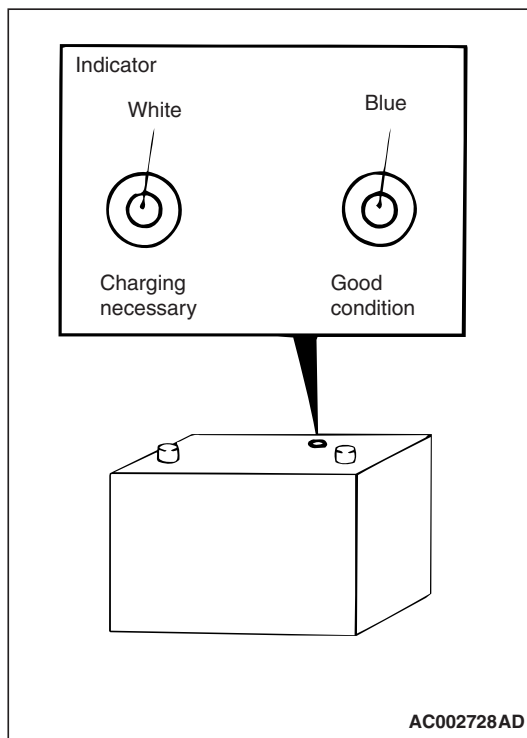
Make sure the ignition switch is in "LOCK" (OFF) position and all battery fed accessories are OFF.

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

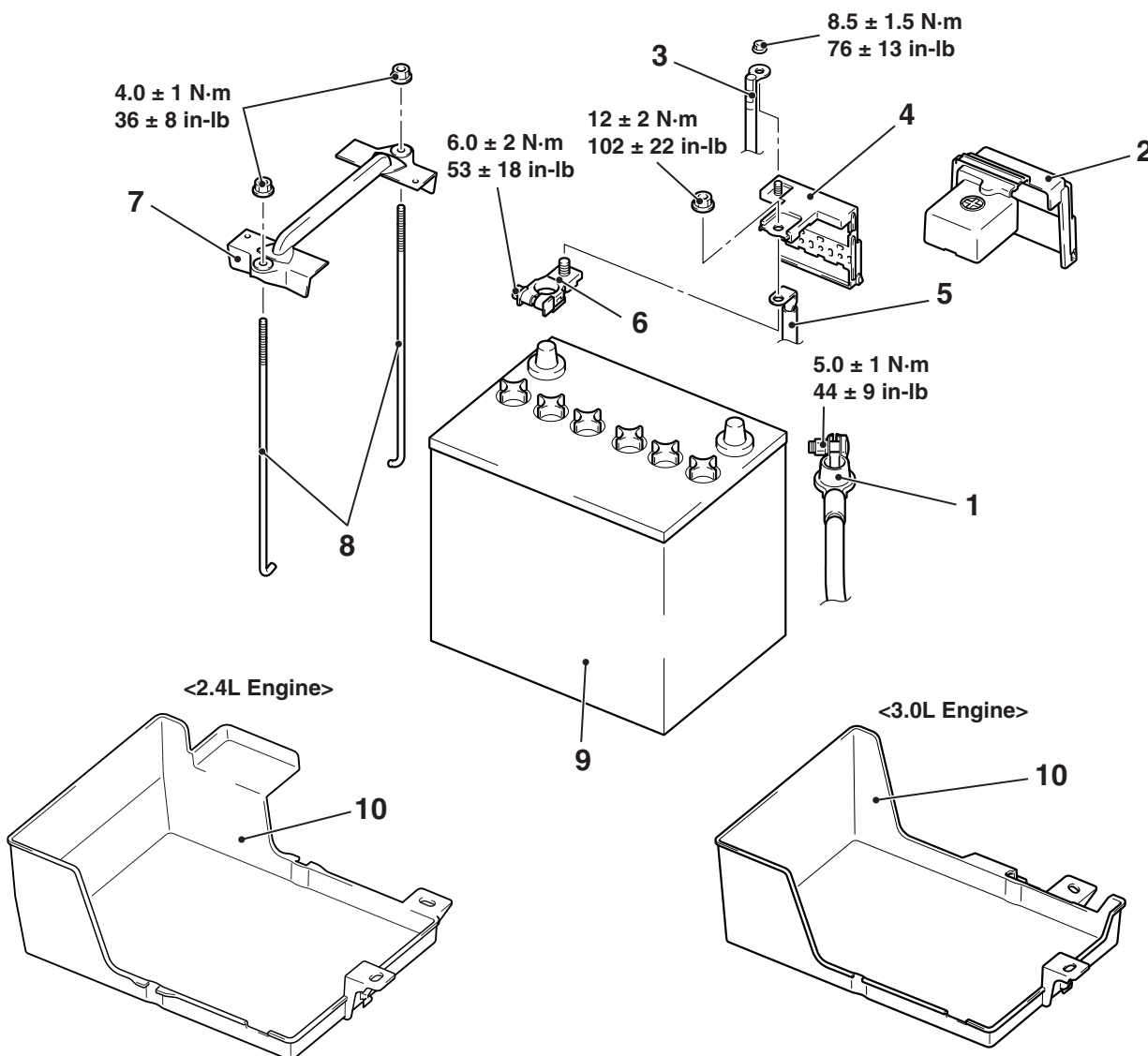
Condition	Load test	Cranking ratio [-18° C (0° F)]	Reserve capacity
75D23L	260 amps	520 amps	118 minutes
80D26L	290 amps	582 amps	133 minutes

LOAD TEST CHART

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

REMOVAL AND INSTALLATION

M1541001300752



AC709345AB

Removal steps

1. Battery (-) terminal connection harness
 - Air cleaner intake duct (Refer to GROUP 15 -Air Cleaner [P.15-4.](#)) <2.4L Engine>
2. Fusible link box cover
3. Battery (+) terminal connection harness
4. Fusible link box

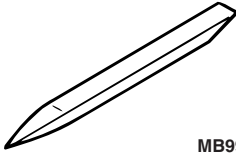
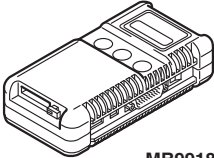
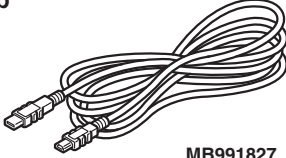
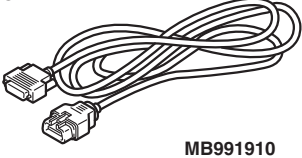
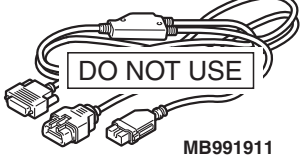
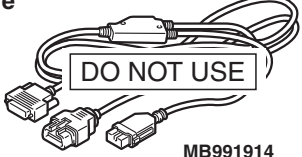
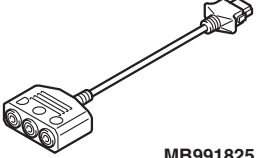
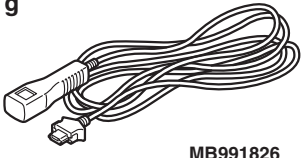
Removal steps (Continued)

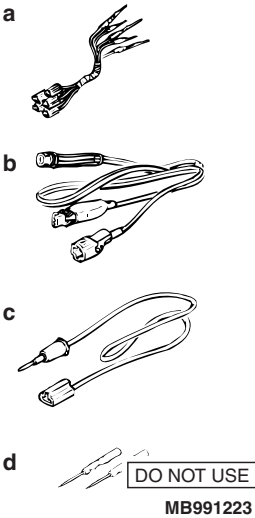
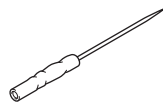
5. Battery (+) terminal connection harness
6. Battery terminal assembly
7. Battery holder
8. Battery bolt
9. Battery
10. Battery tray

IGNITION SWITCH

SPECIAL TOOLS

M1543000603476

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

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	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

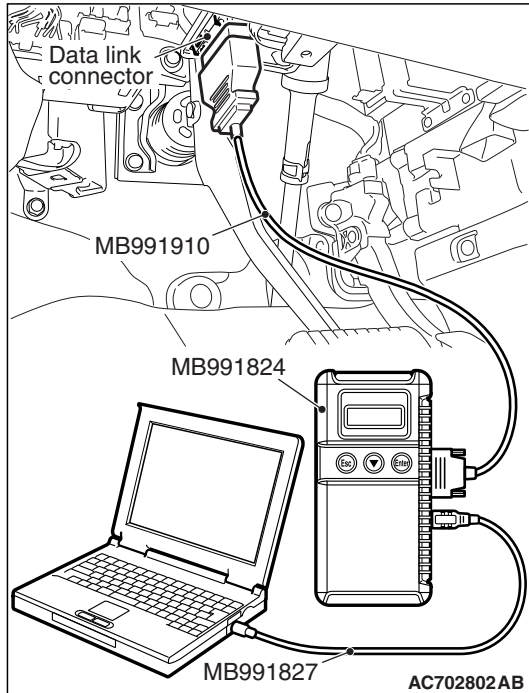
DIAGNOSIS FUNCTION

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

M1543007001101

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	P.54A-15
Defective power supply system of the ignition switch		2	P.54A-19

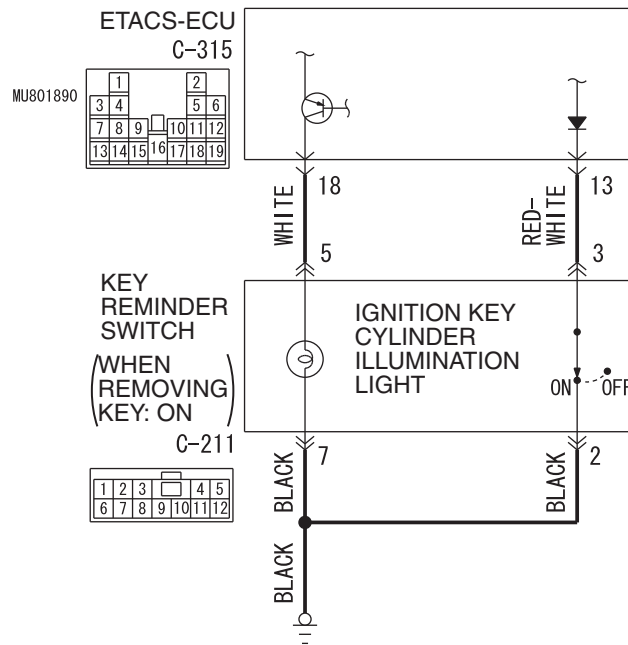
SYMPTOM PROCEDURES

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

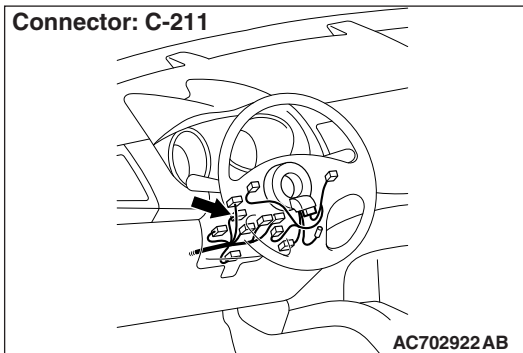
CAUTION

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

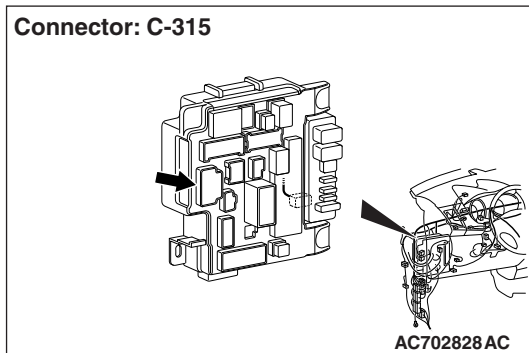
Ignition Key Cylinder Illumination Light Circuit

AC702921AB
D7G54M026A00

Connector: C-211



Connector: C-315



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

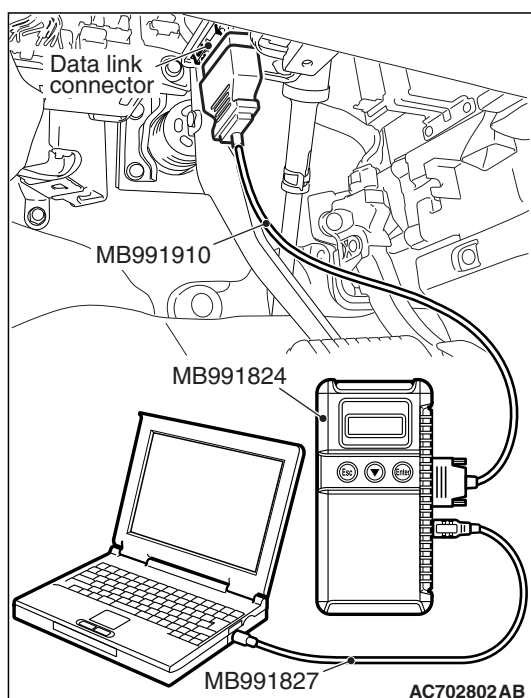
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-12](#)."
- (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-841](#).

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-806](#).

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-800](#).

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-816](#).

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-803](#).

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-806](#).

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.

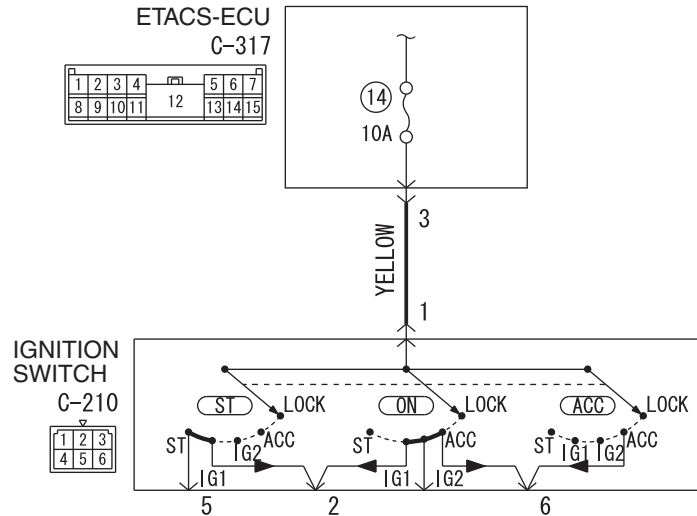
Q: Does the ignition key cylinder illumination light illuminate/extinguish in good condition?

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.

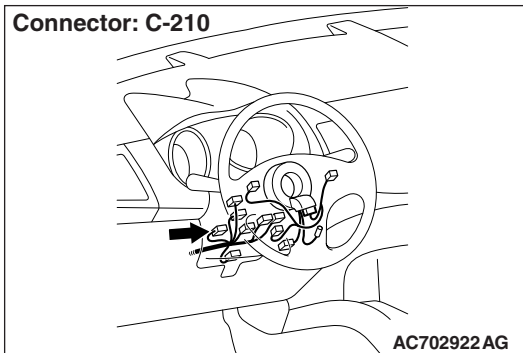
Inspection Procedure 2: Defective power supply system of the ignition switch

Ignition Switch Power Supply Circuit



WAG54M052A

Connector: C-210



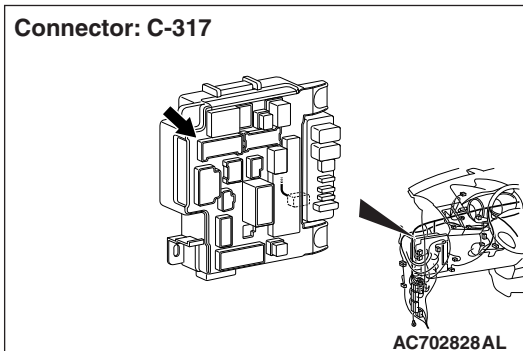
TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- The ignition switch may be defective
- The fuse No.14 may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

Connector: C-317



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.

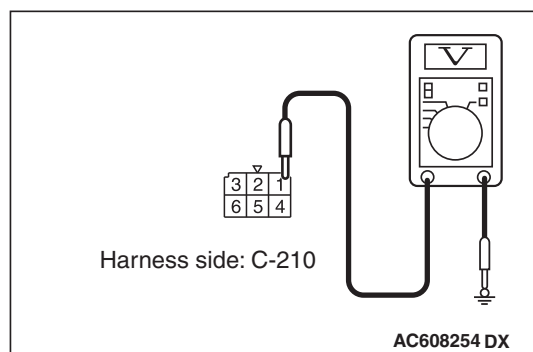
STEP 2. Check the battery power supply circuit to the ignition switch. Measure the voltage at ignition switch connector C-210.

- (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-70](#)).

REMOVAL AND INSTALLATION

M1541200300560

 CAUTION

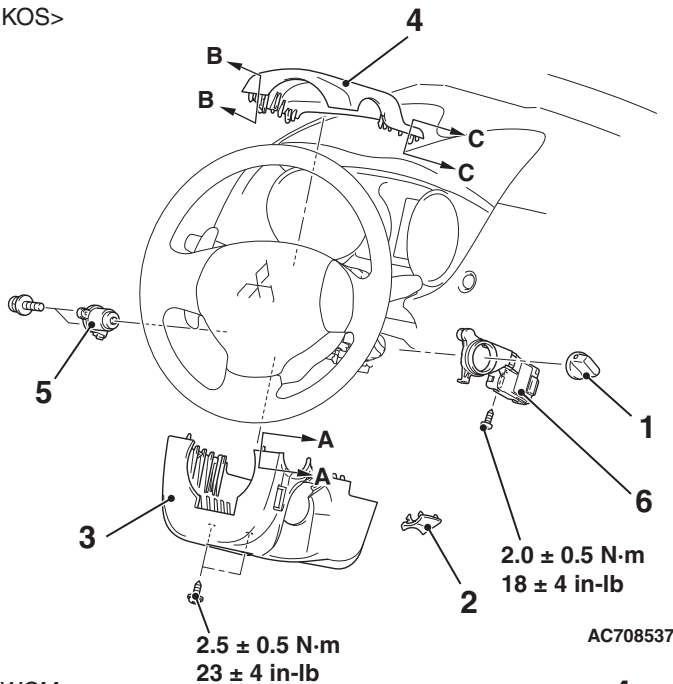
Before removing the steering wheel assembly, refer to GROUP 52B –Service Precautions [P.52B-24](#) and Air Bag Module and Clock Spring [P.52B-443](#) <Vehicles with WCM>.

 CAUTION

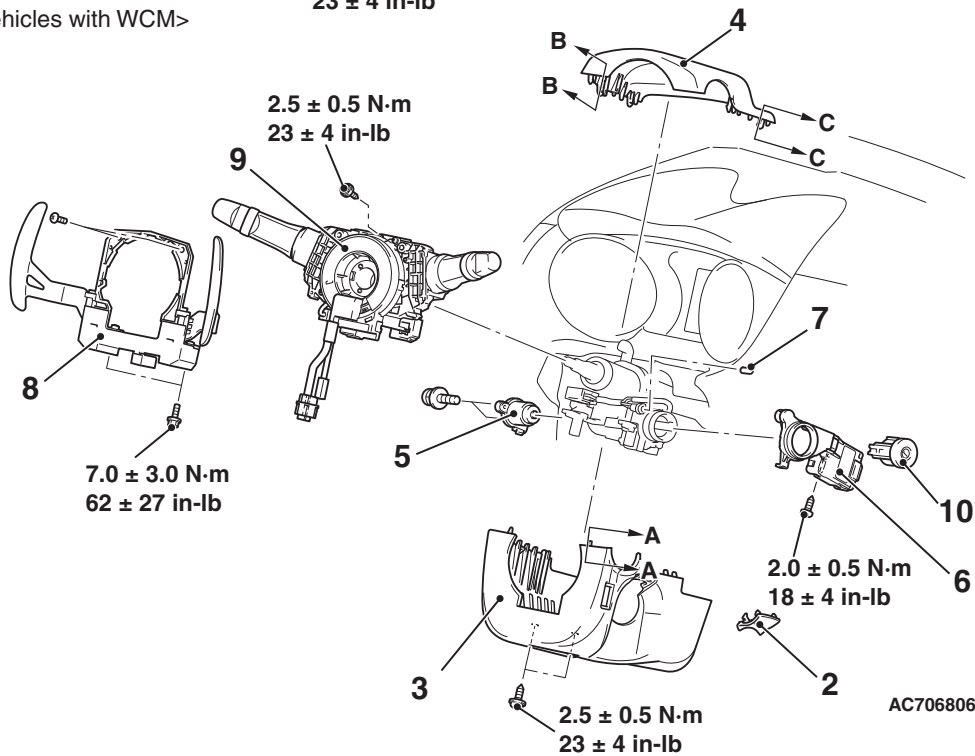
After the installation, perform a calibration for the ASC-ECU to learn the steering wheel sensor neutral point (Refer to GROUP 35C, On-vehicle Service –Steering Wheel Sensor Calibration [P.35C-286](#)). <Vehicles with WCM and ASC>

<p>Pre-removal Operation</p> <ul style="list-style-type: none">Steering wheel straight-ahead position check. <Vehicles with WCM>Removal of steering wheel assembly (Refer to GROUP 37 –Steering Wheel P.37-28). <Vehicles with WCM>	<p>Post-installation Operation</p> <ul style="list-style-type: none">Installation of steering wheel assembly (Refer to GROUP 37 –Steering Wheel P.37-28). <Vehicles with WCM>Steering wheel straight-ahead position check. <Vehicles with WCM>
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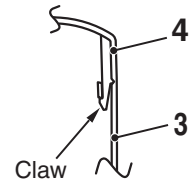
<Vehicles with KOS>



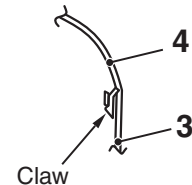
<Vehicles with WCM>



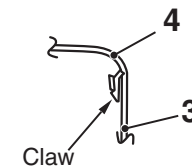
Section A-A



Section B-B



Section C-C



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
6. Wireless control module (WCM)
<Vehicles with WCM>/Receiver antenna module <Vehicles with KOS>

>>A<<

< <A> >

Removal Steps (Continued)

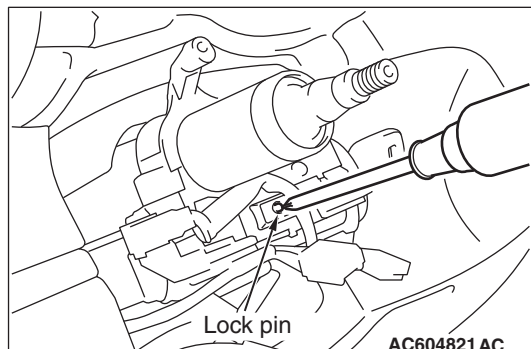
7. Key illumination bulb <Vehicles with WCM and paddle shift>
8. Paddle shift assembly <Vehicles with WCM and paddle shift>
9. Column switch assembly <Vehicles with WCM>
10. Steering lock cylinder <Vehicles with WCM>

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

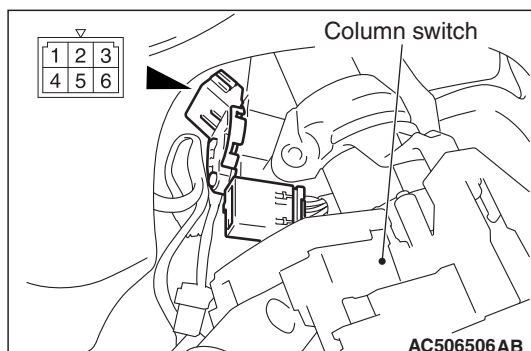
Check that the top claw of receiver antenna module is fixed securely to the boss of steering lock and the antenna is not floated on the key cylinder.

INSPECTION

IGNITION SWITCH CONTINUITY CHECK

M1541200400181

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

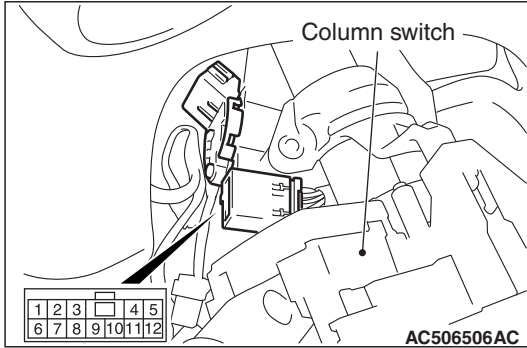


Ignition key position	Terminal number	Normal condition
LOCK	1 -2, 1 -4, 1 -5, 1 -6	No continuity
ACC	1 -6	Continuity exists (2 Ω or less)
ON	1 -2 -4 -6	Continuity exists (2 Ω or less)
START	1 -2 -5	Continuity exists (2 Ω or less)

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 Ω or less)
Key inserted	2 -3	No continuity

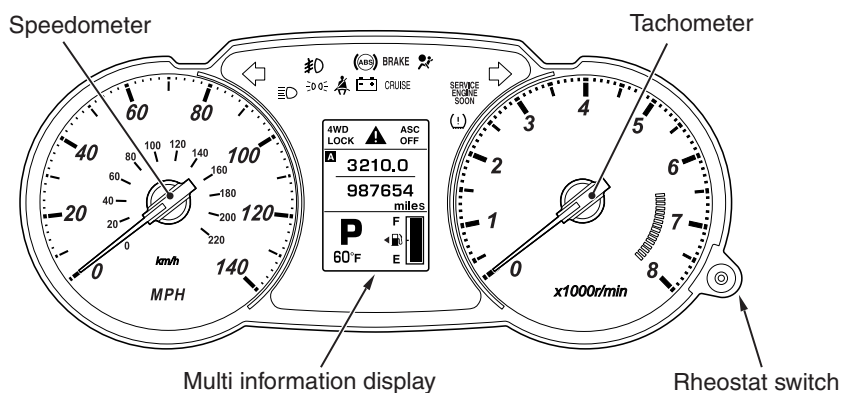
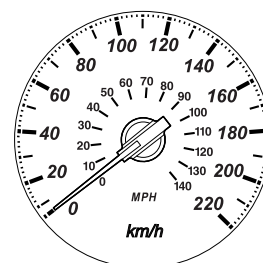
COMBINATION METER

GENERAL INFORMATION

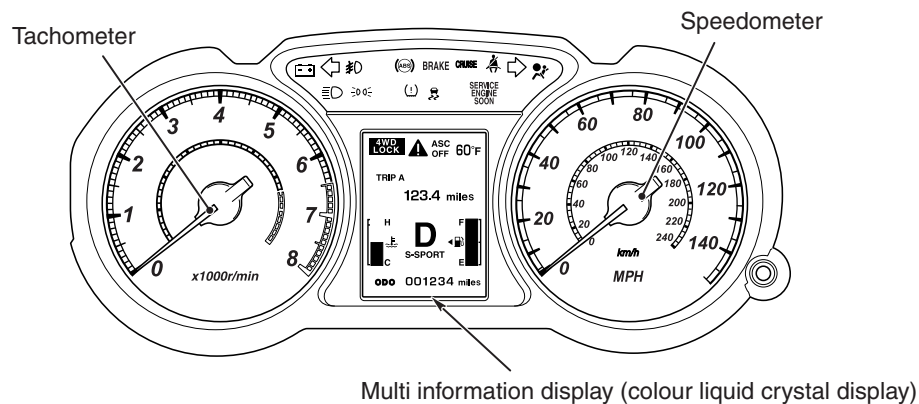
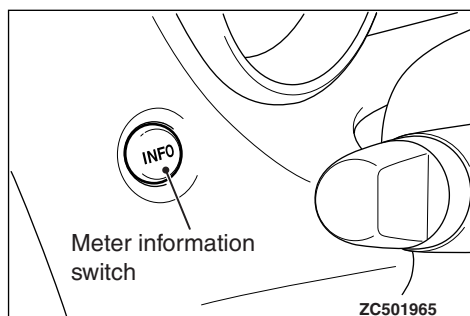
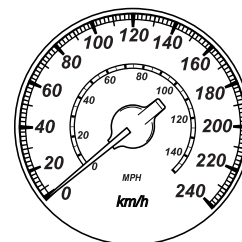
M1540208400353

CONSTRUCTION DIAGRAM

<Except colour liquid crystal display>

Speedometer (mile and km)
<Vehicles for CANADA>

<Colour liquid crystal display>

Speedometer (mile and km)
<Vehicles for CANADA>

AC901442 AB

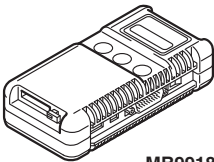
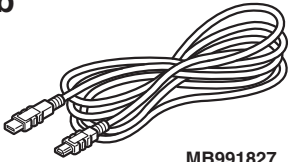
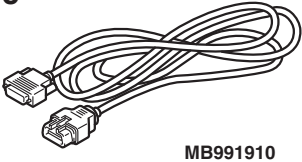
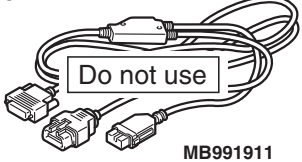
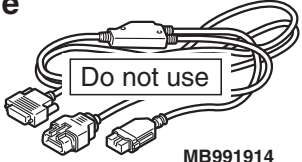
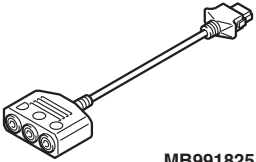
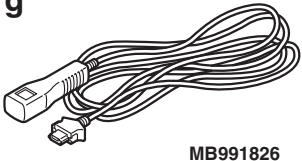
SERVICE SPECIFICATIONS

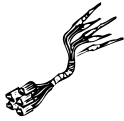
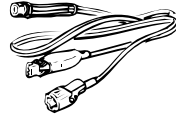
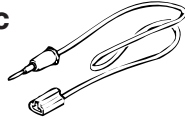

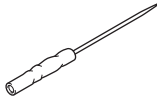
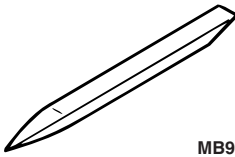
M1540200200300

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

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

COMBINATION METERS DIAGNOSTIC

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1540203800215

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

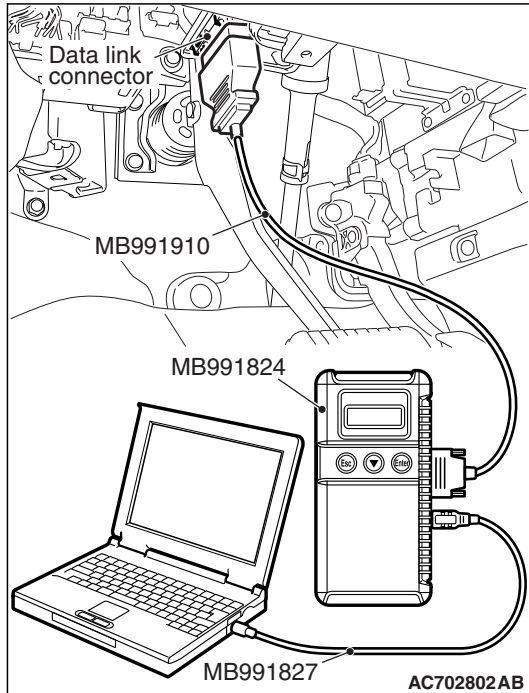
DIAGNOSTIC FUNCTION

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

M1540200600319

⚠ 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-114](#). If "Integrated mileage for reminder" or "Integrated days for reminder" cannot be read by the scan tool MB991958, follow the method described below.
 - a. For the driving distance for check warning, use the driving distance displayed on the multi information display.
 - b. For the elapsed days for check warning, calculate the number of elapsed days from the delivery date to the customer (service remainder function start date) and current date.

Diagnostic trouble code number	Diagnostic item	Reference page
B1200	Malfunction of odometer	P.54A-33
B1201	Abnormal fuel information	P.54A-35
B1208	Malfunction of LCD heater	P.54A-40
B1209	Test mode	P.54A-40
B2203	Chassis No. not programmed	P.54A-41
B2463	The sticking of rheostat switch	P.54A-42
B2464	The sticking of meter information switch	P.54A-44
B2465	Ignition switch signal error	P.54A-46
U0019	Bus off(CAN-B)	P.54A-48
U0100	Engine control module CAN timeout	P.54A-50
U0141	ETACS CAN timeout	P.54A-52
U0151	SRS-ECU CAN timeout	P.54A-54
U0154	Occupant classification-ECU CAN timeout	P.54A-56
U0164	A/C-ECU CAN timeout	P.54A-58
U0168	KOS-ECU or WCM CAN timeout	P.54A-60
U0184	Audio CAN timeout	P.54A-62
U0197	Hands free module CAN timeout	P.54A-64
U0245	Audio visual navigation unit CAN timeout	P.54A-66
U1415	Coding not completed/Data fail	P.54A-68

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

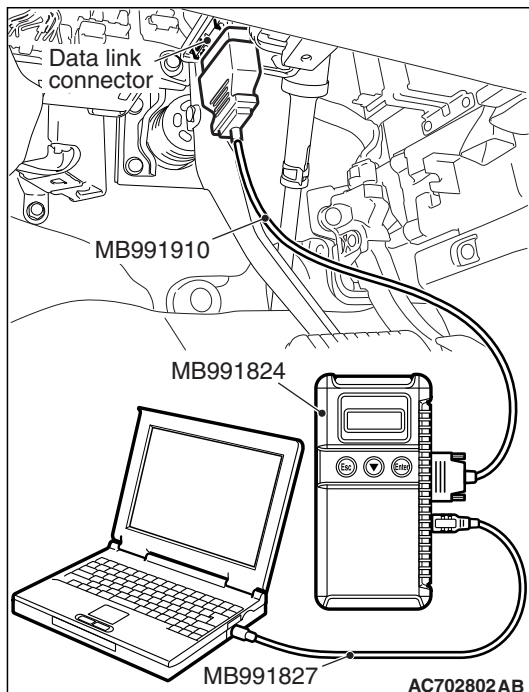
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (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.

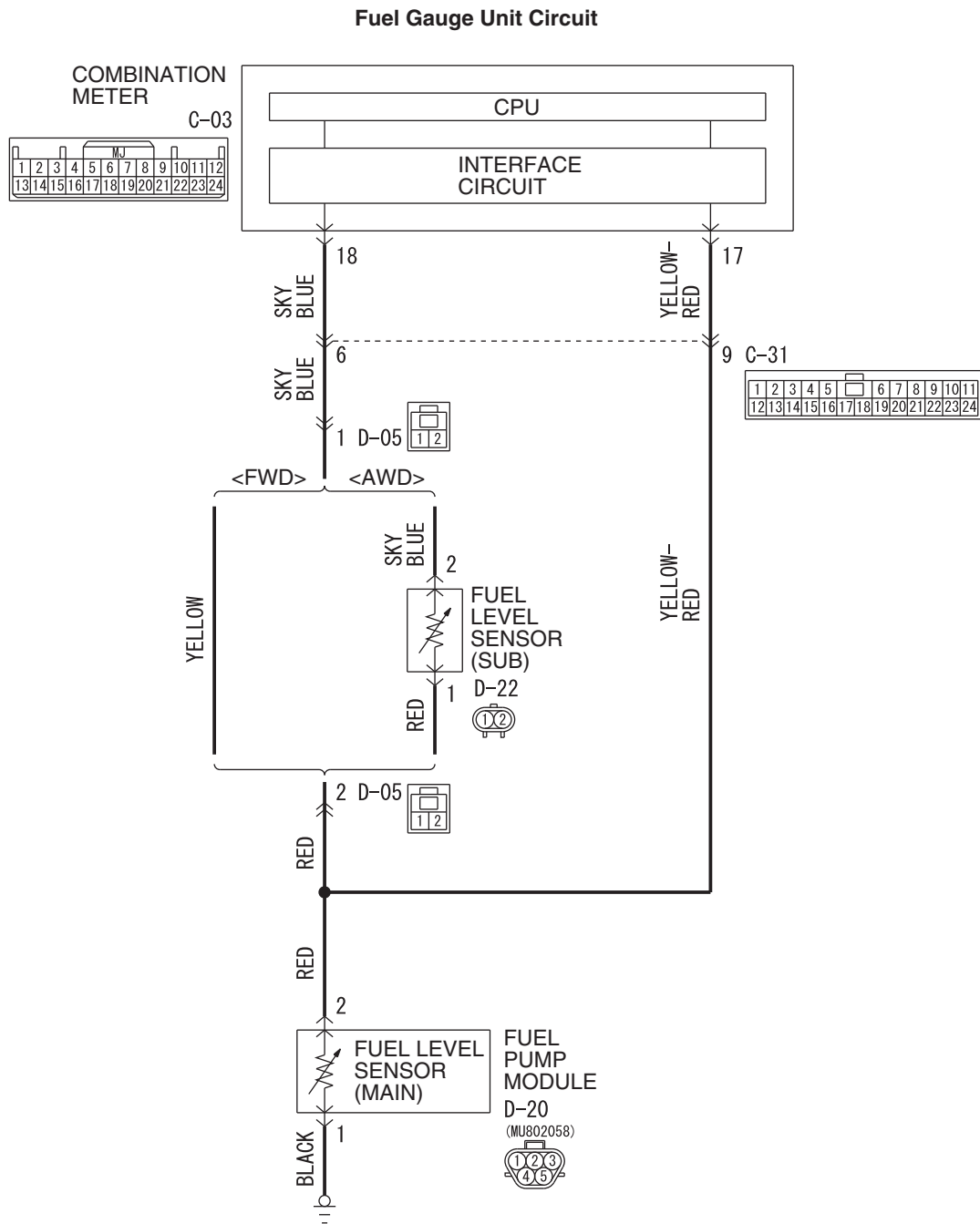
- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if diagnostic trouble code is set.

Q: Is the DTC set?

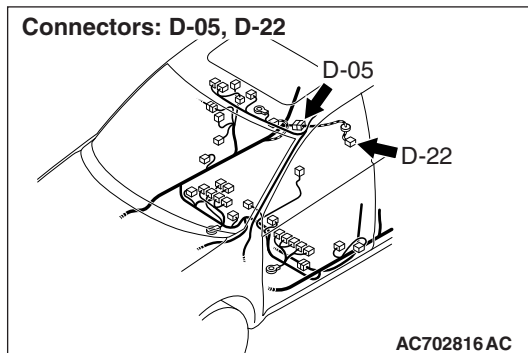
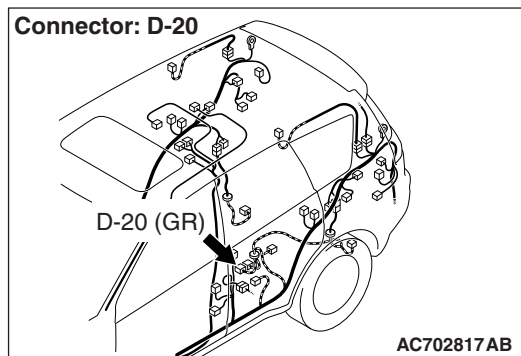
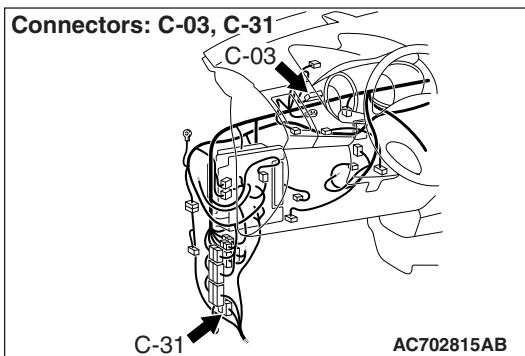
YES : Go to Step 1.

NO : The procedure is complete.

DTC B1201: Abnormal fuel information



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-111](#).

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the fuel level sensor (main).

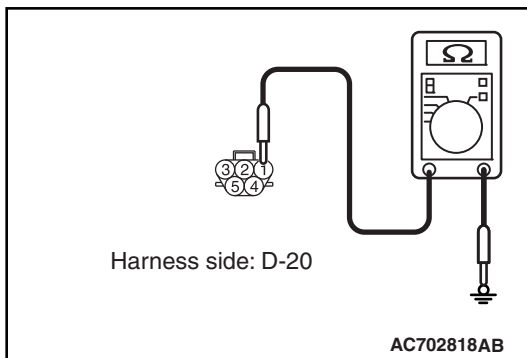
STEP 4. Measure the resistance at fuel pump module connector D-20.

- (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-111](#).

Q: Is the check result normal?

YES : Go to Step 10.

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

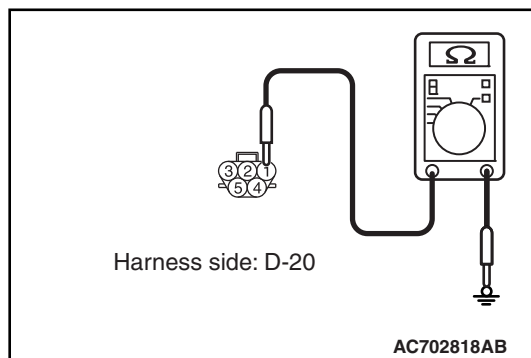
STEP 10. Measure the resistance at fuel pump module connector D-20.

- (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

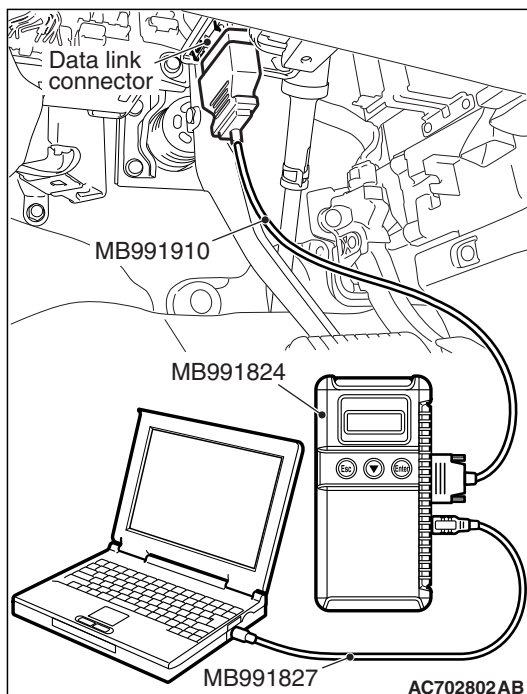
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (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**

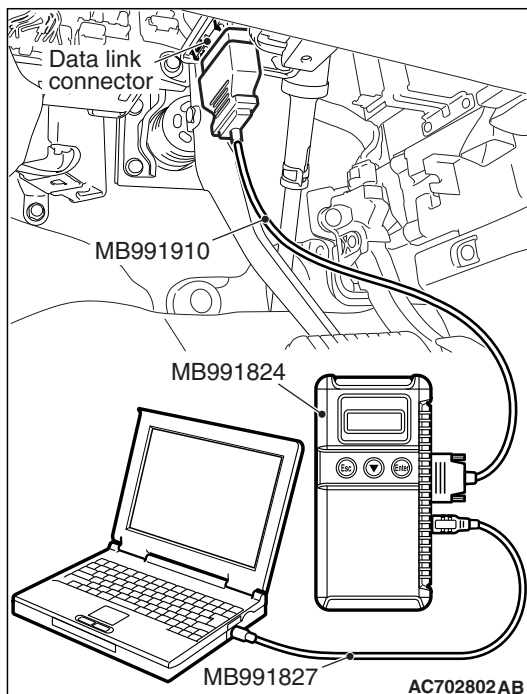
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (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-742](#).)

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)

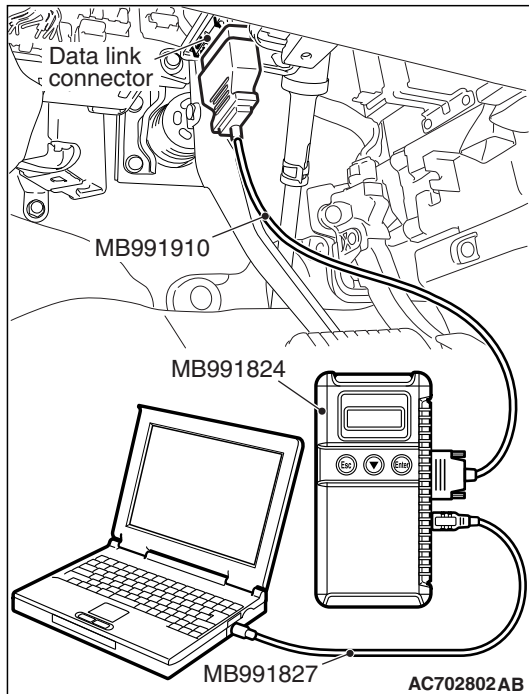
STEP 1. Check the rheostat switch.

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-29."
- (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.

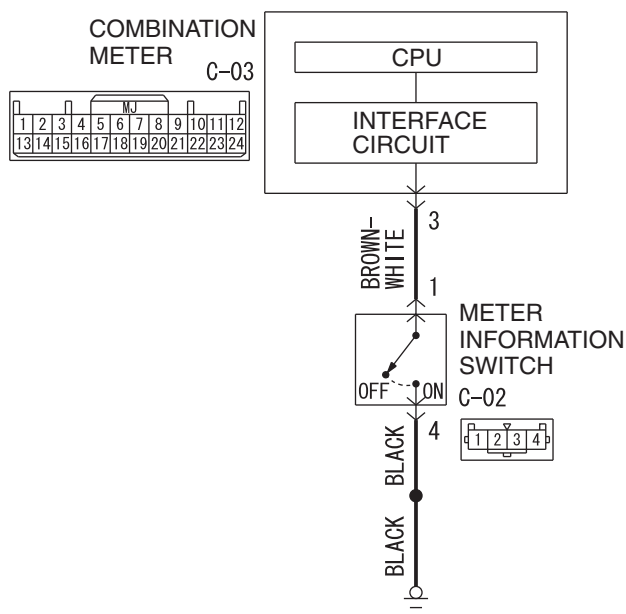
Q: Is the DTC set?

YES : Go to Step 1.

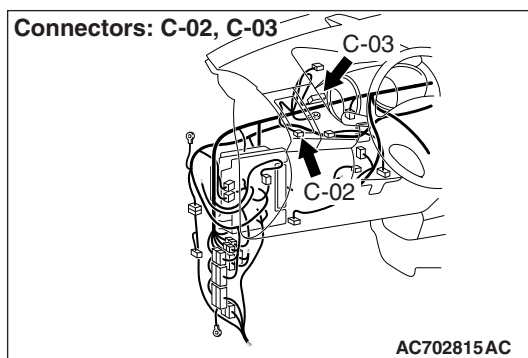
NO : The procedure is complete.

DTC B2464: The sticking of meter information switch

Meter Information Switch Circuit

AC702819AC
D7G54M068A00

Connectors: C-02, C-03



AC702815AC

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-113](#).

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the meter information switch.

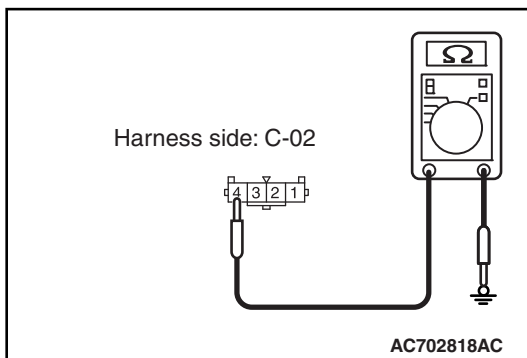
STEP 3. Measure at meter information switch connector C-02 in order to the ground circuit to the meter information switch.

- (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

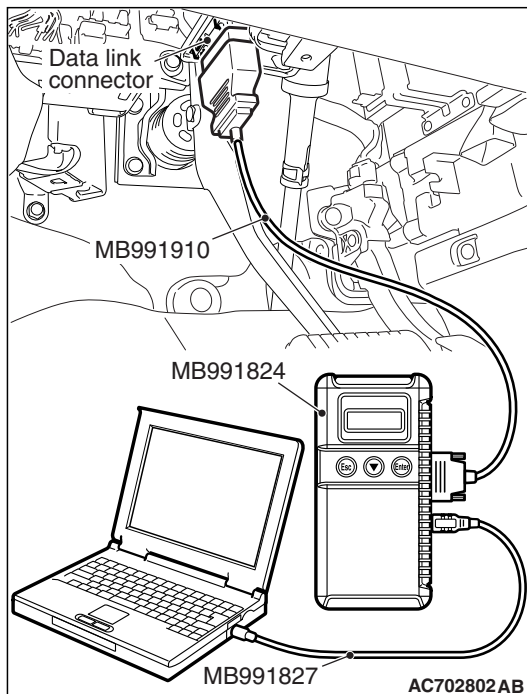
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-29."
- (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.

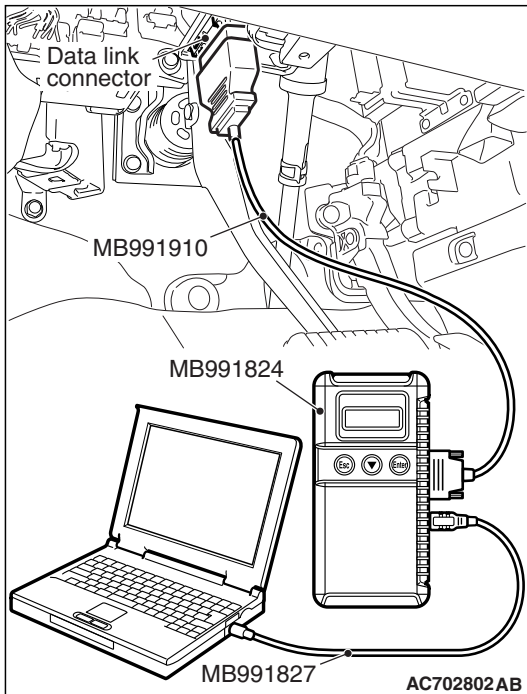
TROUBLESHOOTING HINTS

- 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-29](#)."
- (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-742](#).)

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-71](#).

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

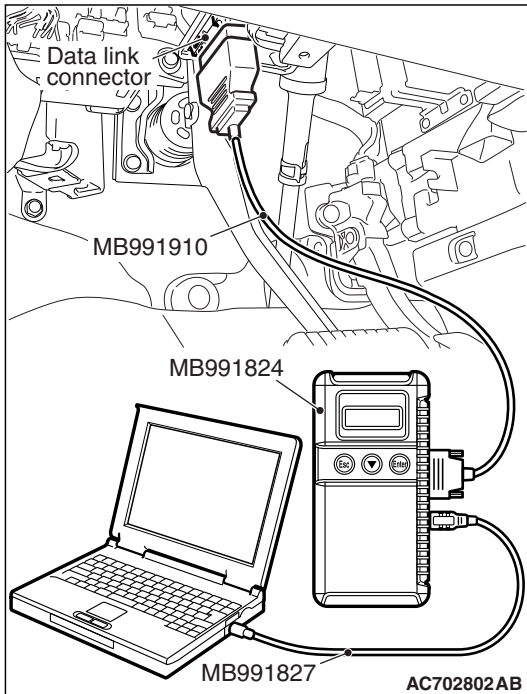
With the ignition switch at the ON position and the system voltage at 10 –16 volts (data from ETACS-ECU), if the combination meter becomes unable to transmit data normally due to the CAN-B bus circuit malfunction, the combination meter determines that a problem has occurred.

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-29."
- (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**

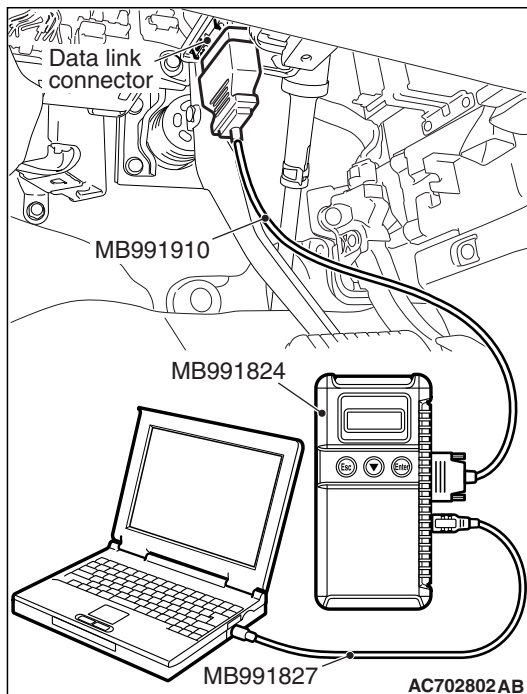
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (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 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-51](#) <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](#)).

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**

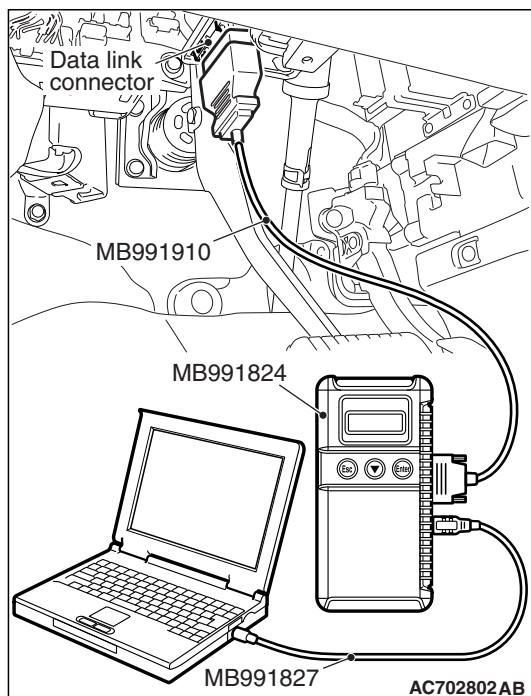
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (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-742](#)).

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](#)).

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

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

DIAGNOSTIC FUNCTION

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

JUDGMENT CRITERIA

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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

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

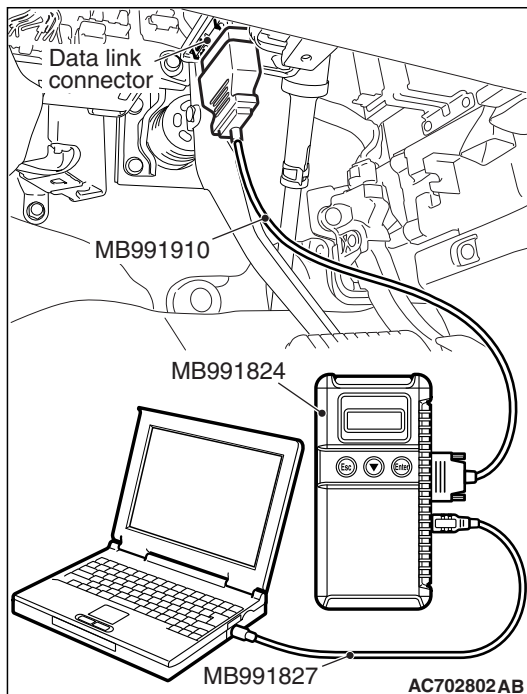
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.

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



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

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

Q: Is the DTC set?

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

NO : Go to Step 3.

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

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

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

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

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

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

DIAGNOSTIC FUNCTION

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

JUDGMENT CRITERIA

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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

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

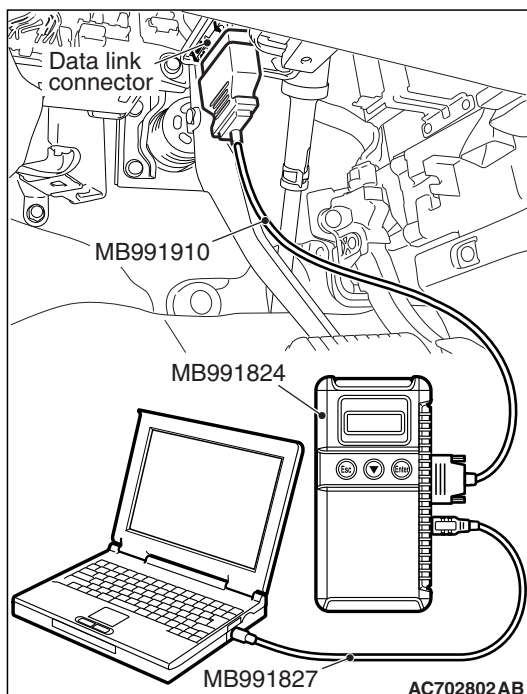
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (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-346](#).)

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](#)).

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

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

DIAGNOSTIC FUNCTION

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

JUDGMENT CRITERIA

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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

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

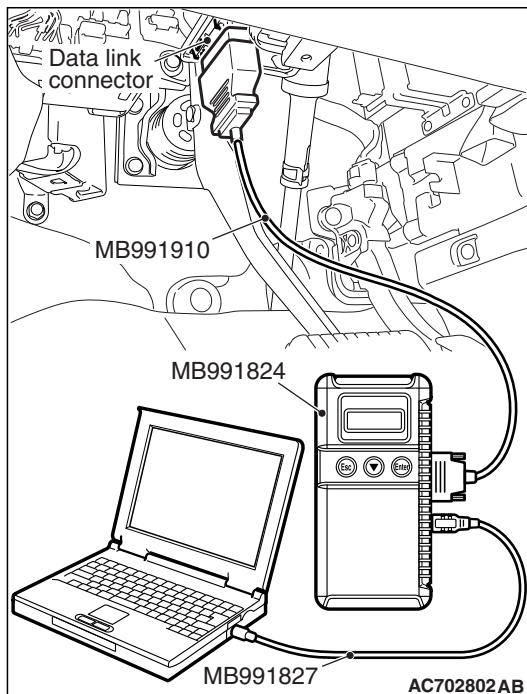
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (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](#)).

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**

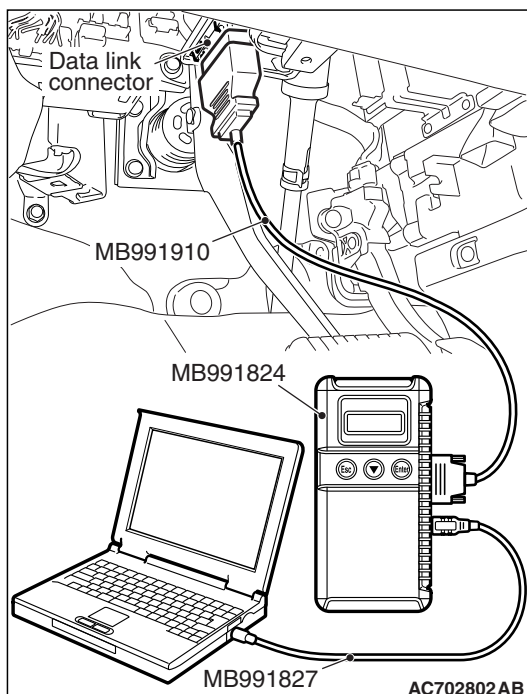
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (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-31](#) <KOS> or 42C, Troubleshooting [P.42C-18](#) <WCM>).

NO : Go to Step 3.

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

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

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

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

(1) Erase the DTC.

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

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the WCM or KOS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the combination meter (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

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](#)).

DTC U0184: Audio CAN timeout**CAUTION**

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

DIAGNOSTIC FUNCTION

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

JUDGMENT CRITERIA

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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

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

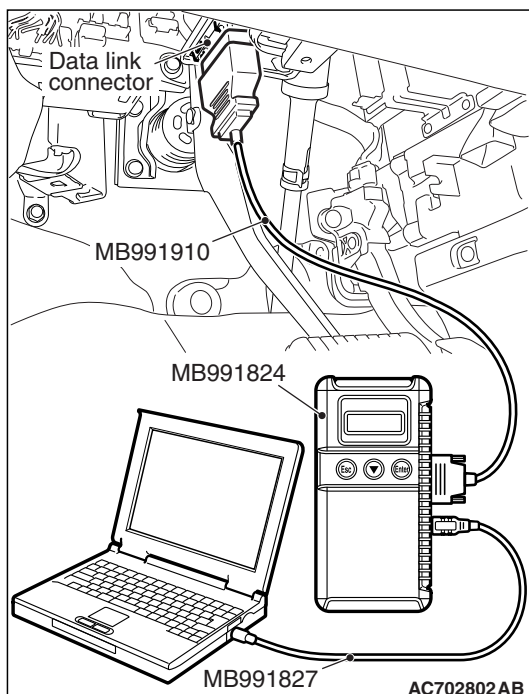
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (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-338.](#))

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](#)).

DTC U0197: Hands free module CAN timeout**⚠ CAUTION**

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

DIAGNOSTIC FUNCTION

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

JUDGMENT CRITERIA

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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

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

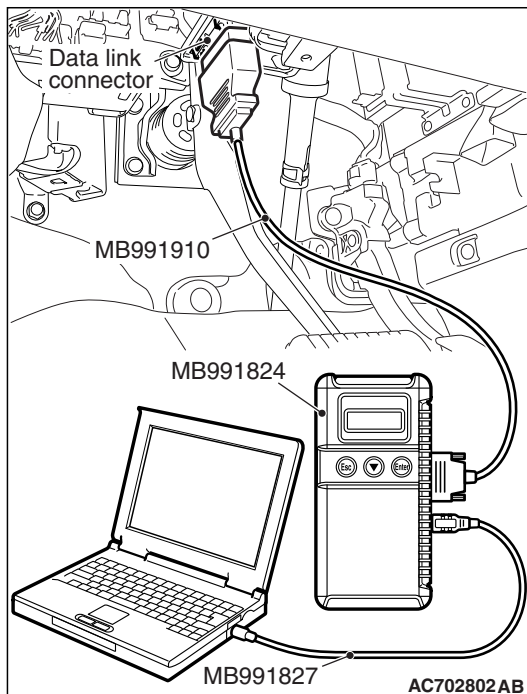
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.

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



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

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

Q: Is the DTC set?

YES : Troubleshoot the hands-free cellular phone system.
Refer to [P.54A-592](#).

NO : Go to Step 3.

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

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

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

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

(1) Erase the DTC.

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

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the hands free module.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the combination meter (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

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 hands free module and the combination meter (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

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

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

DIAGNOSTIC FUNCTION

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

JUDGMENT CRITERIA

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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

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

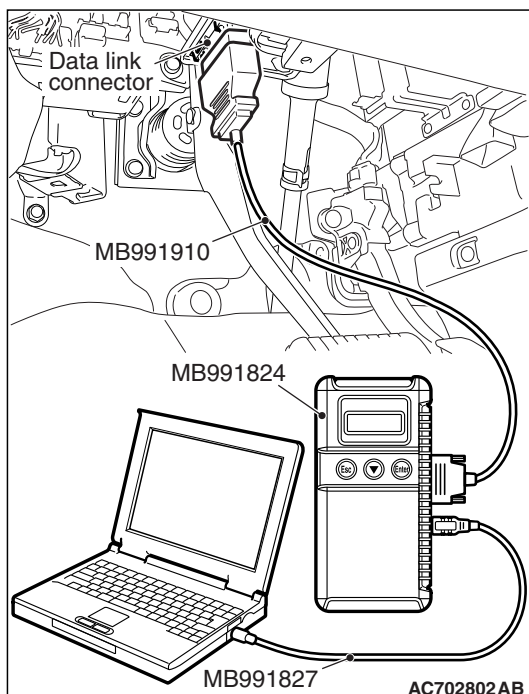
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (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-467](#).)

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)

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

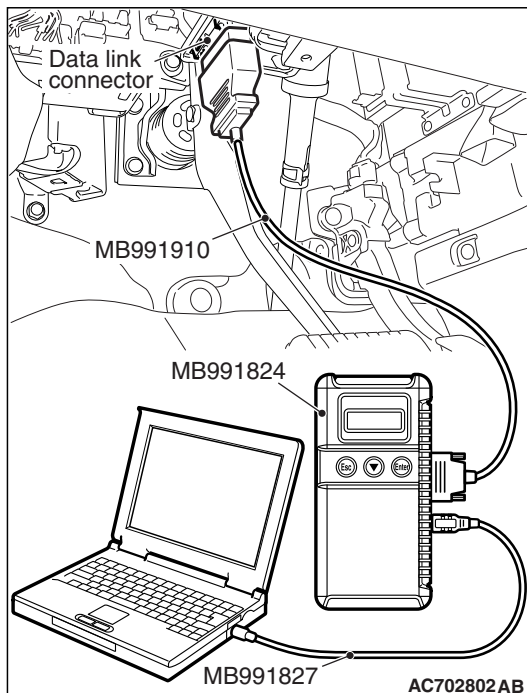
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (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-742.](#))

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

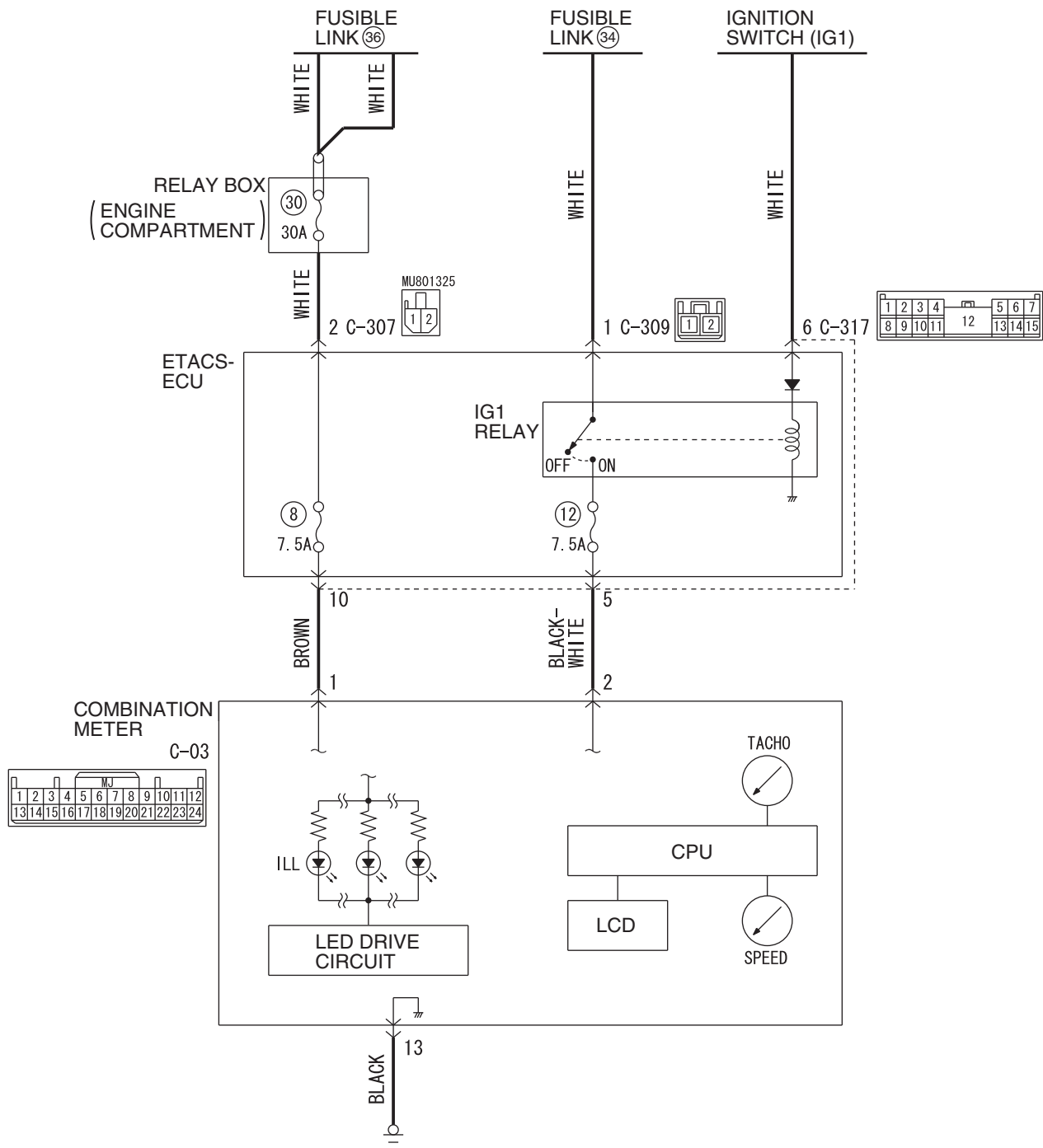
- During troubleshooting, a DTC code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, confirm all systems for DTC code(s). If DTC code(s) are set, erase them all.
- When the combination meter is required to be replaced as a result 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-114](#). If "Integrated mileage for reminder" or "Integrated days for reminder" cannot be read by the scan tool MB991958, follow the method described below.
 - a. For the driving distance for check warning, use the driving distance displayed on the multi information display.
 - b. For the elapsed days for check warning, calculate the number of elapsed days from the delivery date to the customer (service remainder function start date) and current date.

Trouble symptom	Inspection Procedure No.	Reference page
Power supply circuit check.	1	P.54A-71
The speedometer does not work (the other meters work).	2	P.54A-76
The tachometer does not work (the other meters work).	3	P.54A-78
Tone alarm does not sound normally.	4	P.54A-80
The combination meter light does not illuminate normally or the multi information display is not displayed normally.	5	P.54A-83
The multi information display screen cannot be changed with the operation of the meter information switch.	6	P.54A-87

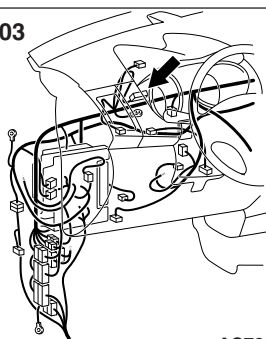
SYMPTOM PROCEDURES

Inspection Procedure 1: Power supply circuit check.

Combination Meter Power Supply Circuit



Connector: C-03



AC702815 AD

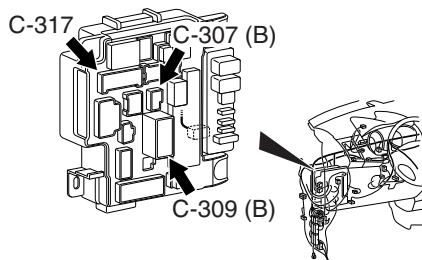
TECHNICAL DESCRIPTION (COMMENT)

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

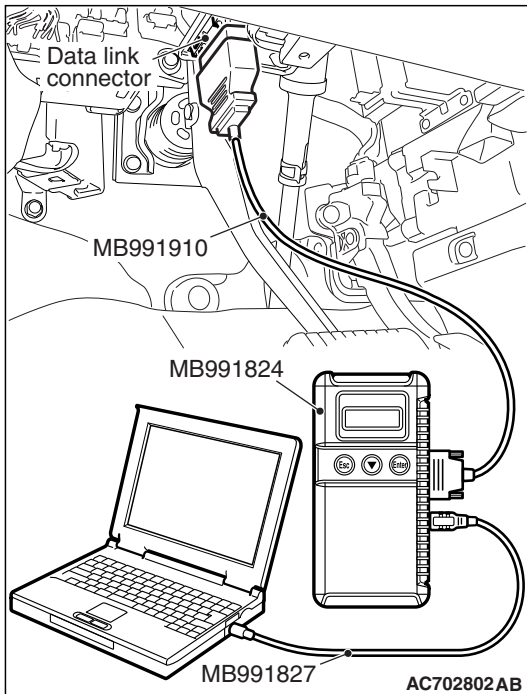
Connectors: C-307, C-309, C-317



AC702828 AB

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-29.](#)"
- (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-32.](#))

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.

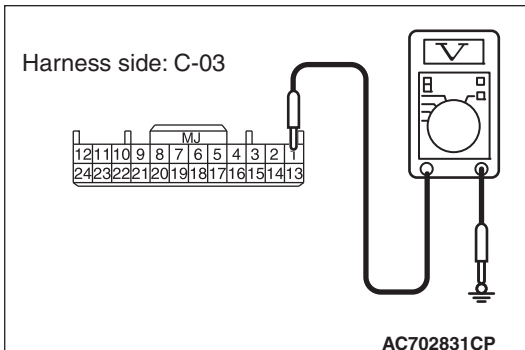
STEP 3. Check the battery power supply circuit to the combination meter. Measure the voltage at combination meter connector C-03.

- (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.

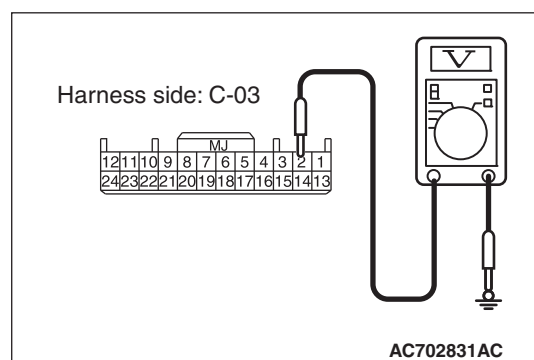
STEP 5. Check the battery power supply circuit to the combination meter. Measure the voltage at combination meter connector C-03.

- (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-800](#)."

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

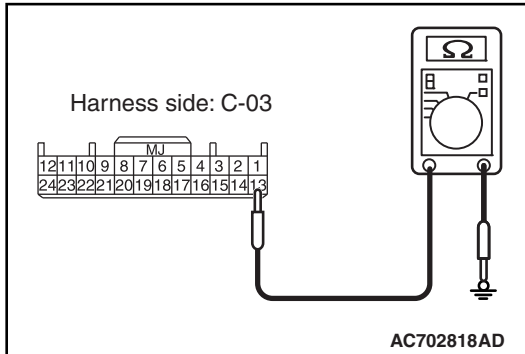
- Check the power supply line (battery supply) for open circuit and short circuit.

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**

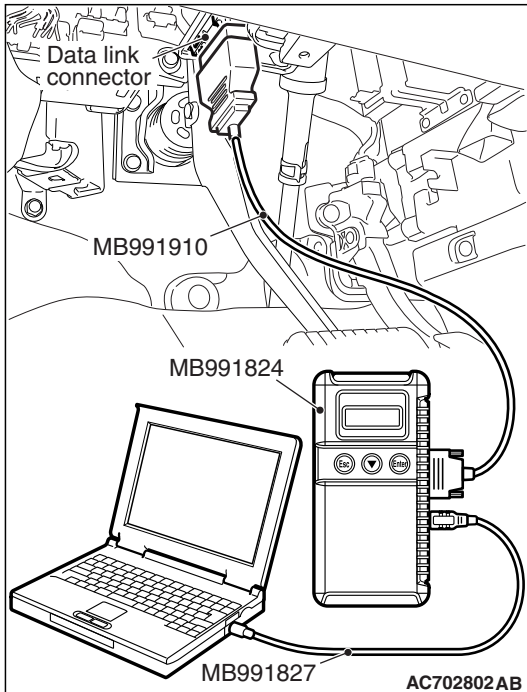
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (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-32](#)).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the ABS-ECU <Vehicles without ASC> or ASC-ECU <Vehicles with ASC> 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-24](#) <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)

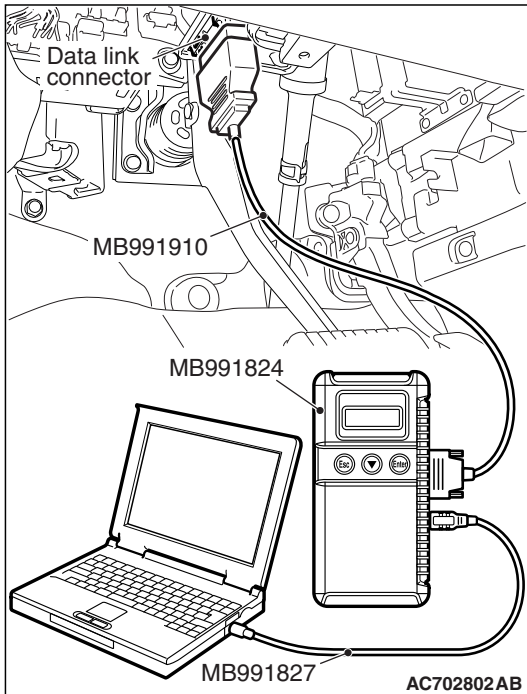
If only the tachometer does not operate, the ignition signal from the engine ECU may not be received or the combination meter may have a problem.

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-29](#)."
- (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-32](#).)

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-51](#) <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-51](#) <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**

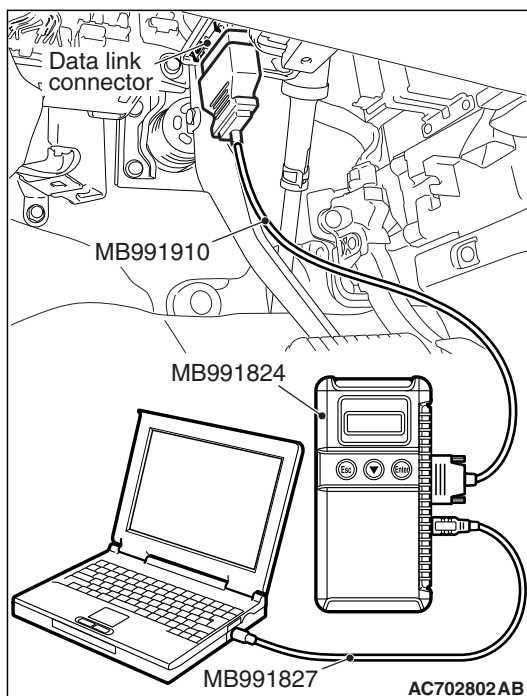
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (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-32](#).

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-28](#).

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

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-24](#).

YES <Set to the ETACS.> : Troubleshoot the ETACS. Refer to [P.54A-742](#).

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

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

YES <Set to the AUDIO.> : Troubleshoot the AUDIO. (Refer to [P.54A-338](#).)

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.

TECHNICAL DESCRIPTION (COMMENT)

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

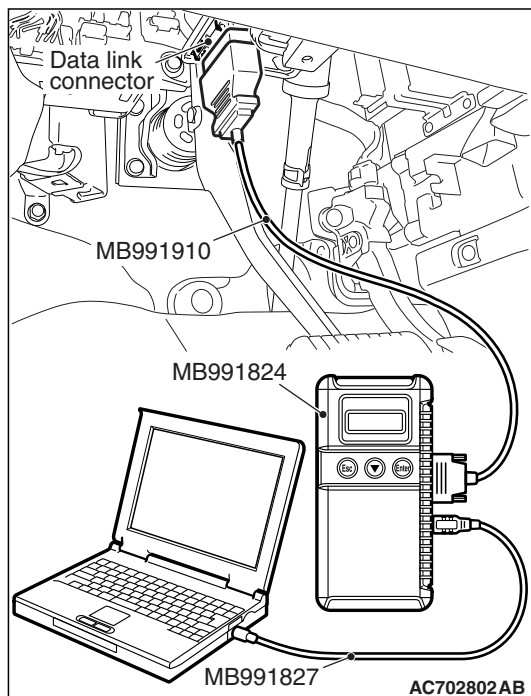
If the lights do not illuminate or the multi information display does not display normally, the wiring harness and connector(s) in the CAN bus lines, or the each ECU or the combination meter may have a problem.

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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



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

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-29](#)."
- (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-32](#).

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-51](#) <3.0 L engine>.

YES <Set to the CVT.> : Troubleshoot the CVT. Refer to GROUP 23A, Diagnosis [P.23A-28](#).

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

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-24](#).

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

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

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

YES <Set to the ETACS.> : Troubleshoot the ETACS.
(Refer to [P.54A-742](#).)

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.

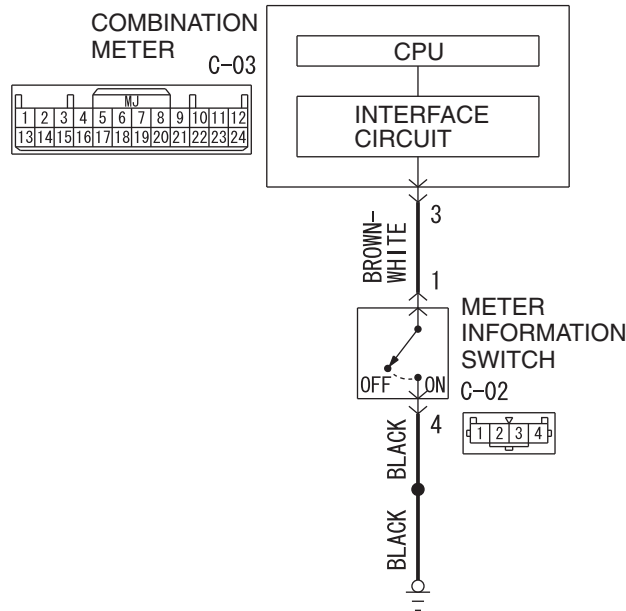
Q: Is the check result normal?

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.

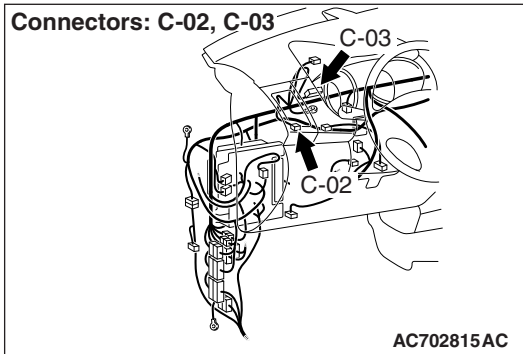
Inspection Procedure 6: The multi information display screen cannot be changed with the operation of the meter information switch.

Meter Information Switch Circuit



AC702819AC
D7G54M068A00

Connectors: C-02, C-03



AC702815AC

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.

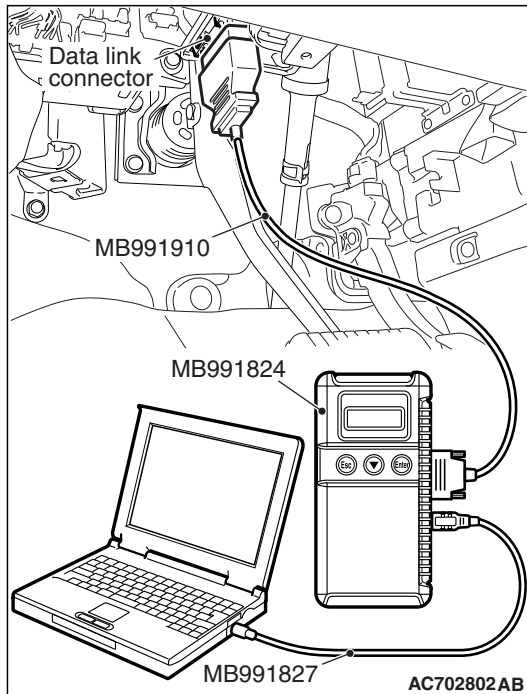
TROUBLESHOOTING HINTS

- 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-29](#)."
- (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-32](#).

NO : Go to Step 2.

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-113](#).

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 <VEHICLES WITHOUT COLOR LIQUID CRYSTAL DISPLAY>

M1540201000570

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

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

Item No.	Display on scan tool	Check condition	Normal condition
36	F.A.S.T.indicator8(Lock disable)	With warning display	ON
		Without warning display	OFF
37	F.A.S.T.indicator9(System error)	With warning display	ON
		Without warning display	OFF
69	Security alarm tone alarm	Exterior protection is operating	ON
		Exterior protection is not operating	OFF
70	Presecurity alarm tone alarm	Interior alarm is operating	ON
		Interior alarm is not operating	OFF
80	Speed meter	Speedometer displayed value and scan tool displayed value agree with each other.	
87	Tachometer	Tachometer displayed value and scan tool displayed value agree with each other.	
89	Fuel gauge	The resistance value of the fuel gauge unit and scan tool displayed value agree with each other. (The allowance shall be defined as $\pm 2 \Omega$)	
8A	Fuel gauge(Target)	The remaining fuel level is displayed by %.	
8C	Engine coolant temperature gauge	Coolant temperature and scan tool displayed value agree with each other.	
90	Odometer	Odometer displayed value and scan tool displayed value agree with each other.	
91	Rheostat	Lighting change by rheostat switch operation and change of scan tool displayed value agree with each other.	
92	Trip meter A	Trip meter displayed value and scan tool displayed value agree with each other.	
93	Trip meter B		
94	Power source voltage	Always	5 –20 V
A1	SRS warning light	With warning display	ON
		Without warning display	OFF
A2	ABS warning light	With warning display	ON
		Without warning display	OFF
A3	Oil pressure indicator	With warning display	ON
		Without warning display	OFF
A4	Charge indicator	With warning display	ON
		Without warning display	OFF
A5	Engine malfunction indicator	With warning display	ON
		Without warning display	OFF
A6	Fuel Warning (step1)	With warning display	ON
		Without warning display	OFF
A7	Brake warning light	With warning display	ON
		Without warning display	OFF
A8	Driver seatbelt indicator	With warning display	ON
		Without warning display	OFF

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

Item No.	Display on scan tool	Check condition	Normal condition
C7	A/T position indicator:5	Sport mode: 5th	ON
		Sport mode: Other than 5th	OFF
C8	A/T position indicator:4	Sport mode: 4th	ON
		Sport mode: Other than 4th	OFF
C9	A/T position indicator:3	Sport mode: 3rd	ON
		Sport mode: Other than 3rd	OFF
CA	A/T position indicator:2	Sport mode: 2nd	ON
		Sport mode: Other than 2nd	OFF
CB	A/T position indicator:1	Sport mode: 1st	ON
		Sport mode: Other than 1st	OFF
CE	Shift indicator:D1	Always	OFF
CF	Shift indicator:D2	Always	OFF
D1	Shift indicator:D3	Always	OFF
D2	Shift indicator:D4	Always	OFF
D3	Shift indicator:D5	Always	OFF
D4	Shift indicator:D6	Always	OFF
D6	Headlight auto leveling warning	With warning display	ON
		Without warning display	OFF
D8	Car symbol	When a door or the liftgate is opened	ON
		When the vehicle mark is off	OFF
E1	Tire Pressure indicator	With warning display	ON
		Without warning display	OFF
E2	A/T Oil TEMP.indicator	With warning display	ON
		Without warning display	OFF
E6	Rest reminder indicator	With warning display	ON
		Without warning display	OFF
E7	Service reminder indicator	With warning display	ON
		Without warning display	OFF
100	Distance to empty	Displayed values and scan tool displayed values agree with each other.	
102	Average fuel consumption		
103	Instant fuel consumption		
104	Average speed		
108	Fuel Warning (step2)	With warning display	ON
		Without warning display	OFF
113	Rest reminder time(Hour)	Displayed values and scan tool displayed values agree with each other.	
114	Rest reminder time(Minute)		
F7	Cruise control indicator	When the indicator illuminates	ON
		When the indicator is extinguished	OFF

SERVICE DATA <VEHICLES WITH COLOR LIQUID CRYSTAL DISPLAY>

M1540201000581

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	Taillamp: Illuminates	ON
		Taillamp: OFF	OFF
25	ASC/TCL failure indicator	Indicator illuminates	ON
		Indicator is extinguished	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.	
93	Trip meter B		
94	Power source voltage	Always	5 -20 V
A1	SRS indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
A2	ABS indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
A4	Charge indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
A5	Check Engine indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
A7	Brake indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
A8	Driver seatbelt indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
AA	ASC/TCL Operation indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
AB	ASC/TCL OFF indicator	Indicator illuminates	ON
		Indicator is extinguished	OFF
B1	Turn signal indicator(Right)	Turn-signal lamp (RH): Illuminates	ON
		Turn-signal lamp (RH): OFF	OFF

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

ACTUATOR TEST TABLE <VEHICLES WITHOUT COLOR LIQUID CRYSTAL DISPLAY>

M1540201100544

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

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

ACTUATOR TEST TABLE <VEHICLES WITH COLOR LIQUID CRYSTAL DISPLAY>

M1540201100555

ACTUATOR TEST

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

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

TEST (SPECIAL FUNCTION)

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

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




M1540201900603


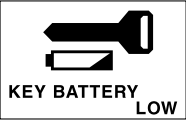








⚠ CAUTION



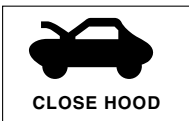


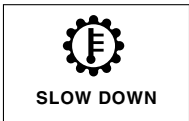


When there are TV towers, substations, or broadcasting stations which emit strong radio waves in proximity, on rare occasions, a warning is displayed on the multi information screen for a few seconds. This is caused by the reception of strong radio waves, and there is no functional problem.


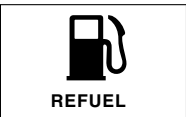
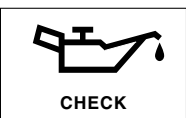
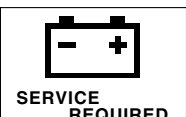



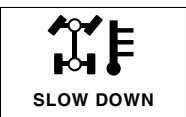
WARNING SCREEN


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 P.54A-80).
 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 P.54A-80).
 AC505679	<ul style="list-style-type: none">• Displayed while the theft alarm is in operation.• Immobilizer is registered.	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-860) or immobilizer system (Refer to GROUP 42B, Trouble symptom chart P.42B-131 <vehicles with KOS> or Refer to GROUP 42C, Trouble symptom chart P.42C-82 <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>AC606877AB</p>	<p>Displayed when a malfunction occurs to KOS. Refer to GROUP 42B, Diagnosis .</p> <p>a. Displayed when the following operations are carried out with the ignition switch at positions other than the LOCK (PUSH OFF) position after the engine is stopped.</p> <ul style="list-style-type: none"> When the driver's door is opened When the doors are closed and locked <p>b. Displayed when the KOS key battery is running low.</p> <p>c. Displayed if carrying a KOS key with different ID code or the KOS key is outside the operative range.</p> <p>d. Displayed when the KOS key removal monitoring function or KOS key confinement prevention function is in operation.</p> <p>e. Displayed when the door ajar prevention function is in operation.</p> <p>f. Displayed when there is a malfunction to KOS.</p>	<p>If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the KOS (Refer to GROUP 42B, Diagnostic trouble code chart P.42B-31).</p>
<p>a  LOW TIRE PRESSURE</p> <p>AC609827AB</p> <p>b  SERVICE REQUIRED</p> <p>AC609828AB</p>	<p>a. Displayed when the tire air pressure is an abnormality. (except spare tire)</p> <p>b. Displayed when the TPMS is an abnormality.</p>	<p>If the warning screen is not displayed normally or erased, carry out the troubleshooting for the TPMS (Refer to GROUP 42B, Diagnosis P.42B-31).</p>
<p>a  CHECK</p> <p>AC509829 AB</p> <p>b  RELEASE PARKING BRAKE</p> <p>AC509830AB</p>	<p>a. Displayed when the brake fluid amount is insufficient or a malfunction occurs to the brake device.</p> <p>b. Displayed if vehicle is driven with the parking brake engaged.</p>	<p>If the warning screen is not displayed normally or if the screen continues to be displayed, take the following measures for each displayed item.</p> <p>a. Check the brake fluid or brake device. Refer to GROUP 35A, On-vehicle service P.35A-18.</p> <p>b. Check the parking brake. Refer to GROUP 36, On-vehicle service P.36-10.</p>

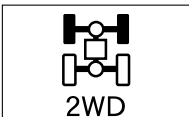





Display contents	Factor	Action procedure
 AC509831	Displayed when a malfunction occurs to the anti-lock braking system (ABS).	If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the ABS. Refer to GROUP 35B, Symptom Chart P.35B-153 .
 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 P.54A-80 .
a  CLOSE HOOD b  SERVICE REQUIRED 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 P.54A-826 .
 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 P.13A-54 <2.4 L engine> or GROUP 13B, Symptom Chart P.13B-56 <3.0 L engine>.
a  SLOW DOWN AC509835AB b  SERVICE REQUIRED AC509836AB	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 P.23A-28 <CVT> or GROUP 23C, Automatic Transaxle Diagnosis P.23C-26 <automatic transaxle>.
 FASTEN SEAT BELT 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 P.54A-83 .

Display contents	Factor	Action procedure
<p>a</p>  <p>AC509838AD</p> <p>b</p>  <p>AC509839AB</p>	<p>a. Displayed when there is a malfunction to the fuel system.</p> <p>b. Displayed when the remaining fuel amount is small.</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 combination meter diagnostic trouble code. Refer to P.54A-83.</p> <p>b. Immediately fill the fuel.</p>
 <p>AC509840</p>	<p>Displayed when there is a malfunction to the engine oil circulation system.</p>	<p>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 P.13A-54 <2.4 L engine> or GROUP 13B, Trouble symptom chart P.13B-56 <3.0 L engine>.</p>
 <p>AC509841</p>	<p>Displayed when there is a malfunction to the charging system.</p>	<p>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 P.16-8 and Regulated voltage test P.16-10.</p>
 <p>AC509842</p>	<p>Displayed when there is a malfunction to the SRS air bag or to the pre-tensioner mechanism.</p>	<p>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 P.52B-32.</p>
 <p>AC509844</p>	<p>Displayed when there is a malfunction to the ASC.</p>	<p>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 P.35C-223.</p>
<p>a</p>  <p>AC509845 AB</p> <p>b</p>  <p>AC509846 AB</p>	<p>a. Displayed when there is a malfunction to the electronically-controlled AWD system or multi-select AWD.</p> <p>b. Displayed when there is a malfunction to the electronically-controlled AWD differential or when the multi-select AWD system temperature is high.</p>	<p>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 P.27C-11.</p>

Display contents	Factor	Action procedure
 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 P.54A-80 .

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
 AC505707  AC505708  AC505709 AC507289	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 P.27C-11 .
 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 P.35C-223 .
 AC509849	Displayed when the set period elapses.	–
 AC613245	Displayed when the set time elapses.	–

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

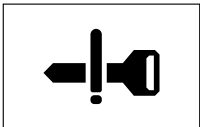
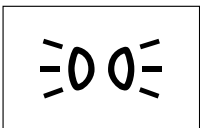

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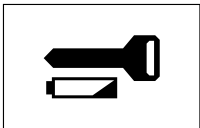
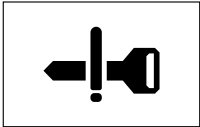
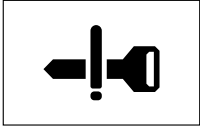
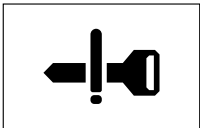
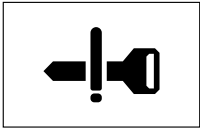
⚠ CAUTION








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

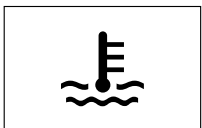
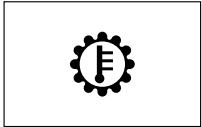
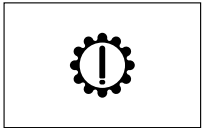



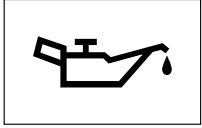
WARNING SCREEN

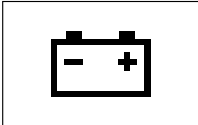


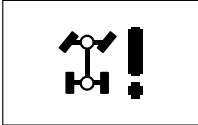

When malfunctions occur to the vehicle, the following warning screens are displayed. If these screens are not displayed normally or if they continue to be displayed even after the factor is eliminated, take measures according to the action procedure.

Display content	Message	Factor	Action procedure
 AC809615	REMOVE KEY	Displayed with the sounding of tone alarm when the driver's door is opened with the key inserted in the ignition switch key cylinder.	If the ignition key reminder warning tone alarm is not being sounded, perform the troubleshooting for the ignition key reminder warning tone alarm (Refer to P.54A-80).
 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-80).
 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-860 .)

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"> • When the driver's door is opened • When the doors are closed and locked 	If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the KOS (Refer to GROUP 42B, Diagnostic trouble code chart P.42B-31).
 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.	

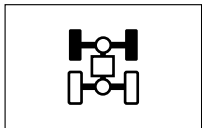
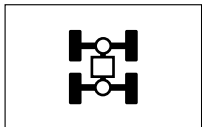
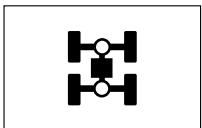

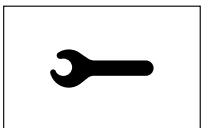

Display content	Message	Factor	Action procedure
 AC809643	LOW TIRE PRESSURE	Displayed when the tire air pressure is an abnormality. (except spare tire)	If the warning screen is not displayed normally or erased, carry out the troubleshooting for the TPMS (Refer to GROUP 42B, Diagnosis P.42B-31).
 AC809643	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 P.35A-18 .
 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 P.36-10 .
 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 P.35B-153 .
 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 P.54A-80 .
 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 P.54A-826 .

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 P.13A-54 <2.4 L engine> or GROUP 13B, Symptom Chart P.13B-56 <3.0 L engine>.
 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
 AC809621	TRANSMISSION SERVICE REQUIRED	Displayed when there is a malfunction to the CVT or automatic transaxle.	Transaxle Diagnosis P.23A-28 <CVT> or GROUP 23C, Automatic Transaxle Diagnosis P.23C-26 <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 P.54A-83 .
 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 P.54A-83 .
 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 P.13A-54 <2.4 L engine> or GROUP 13B, Trouble symptom chart P.13B-56 <3.0 L engine>.

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 P.16-8 and Regulated voltage test P.16-10 .
 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 P.52B-32 .
 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 P.35C-223 .
 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 P.27C-11 .
 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 P.54A-80 .

OTHER SCREENS

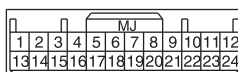
The screen displays the operation state of each system, periodic checkup timing, or timing for taking a rest during driving. If the screen display differs from the actual system operation state or if the screen is not displayed at the set timing, take measures according to the action procedure.

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 P.27C-11 .
 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 P.35C-223 .
 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

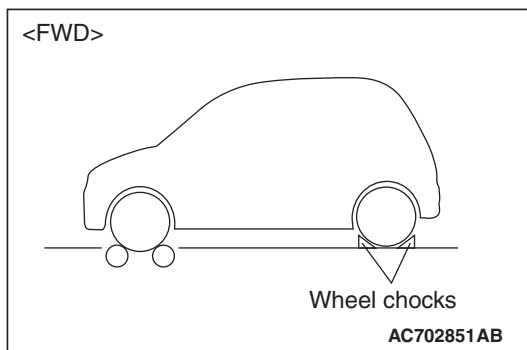
CAUTION

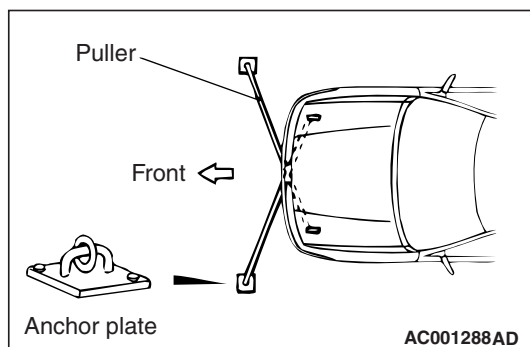
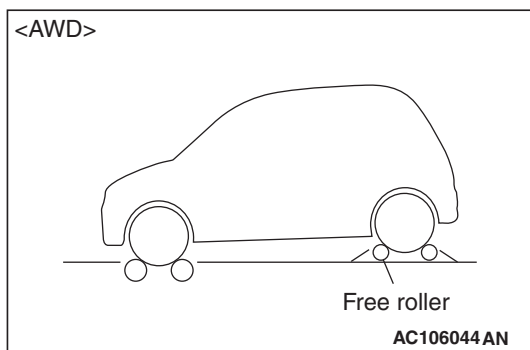
- Since the diagnostic trouble code may be stored in the ABS-ECU or ASC-ECU when checking the speedometer with speedometer tester, erase the diagnostic trouble code.
 - Do not accelerate or decelerate suddenly during servicing work.
1. Adjust the pressure of tires to the specified level (Refer to GROUP 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-24](#) <ASC>).
 - Combination meter (refer to [P.54A-32](#)).

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-24](#)).
2. Remove the floor inspection lid, and then remove the fuel pump module (Refer to GROUP 13C –Fuel Tank [P.13C-15](#)).

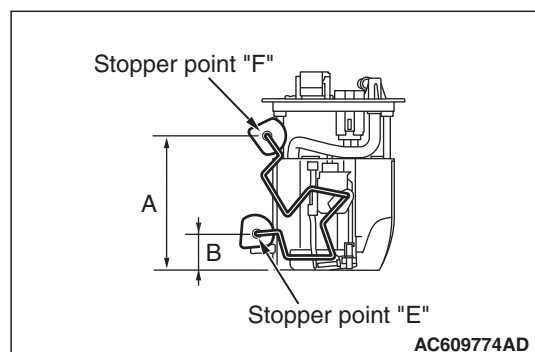
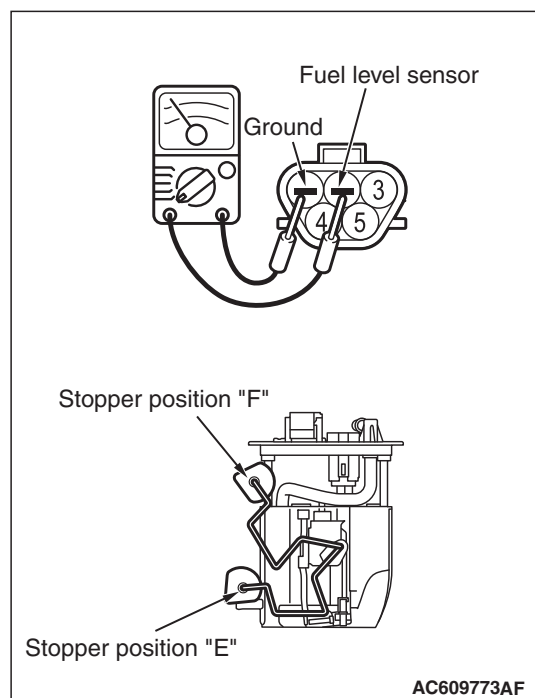
NOMINAL RESISTANCE OF THE FUEL LEVEL SENSOR

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 (Ω)
Stopper position "F"	13.0 ± 1.0
Stopper position "E"	120.0 ± 1.0

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

**FUEL LEVEL SENSOR FLOAT HEIGHT**

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

Standard value:

Float position	Float height mm (in)
Stopper position "F" (height A)	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-24](#)).
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](#)).

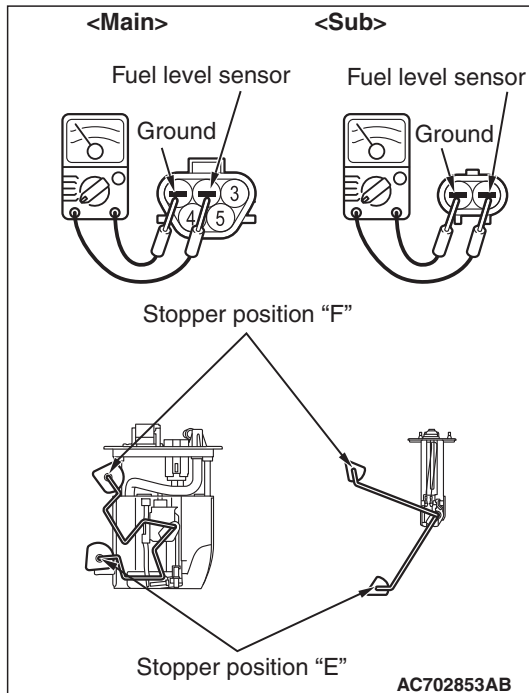
NOMINAL RESISTANCE OF THE FUEL LEVEL SENSOR

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 (Ω)	
	Main	Sub
Stopper position "F"	6.5 ± 1.0	6.5 ± 1.0
Stopper position "E"	44.7 ± 1.0	75.3 ± 1.0

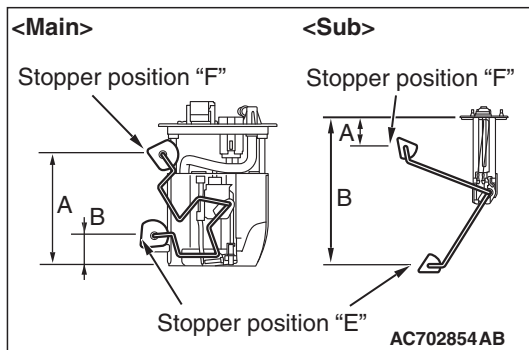
When the float is moved slowly between stopper positions "F" and "E", ensure that the resistance is smoothly changing.

**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.

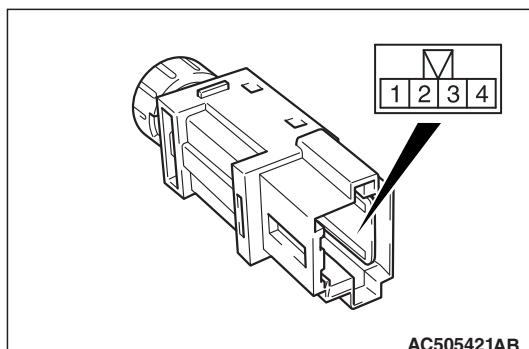
Standard value:

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

M1540208200229

HOW TO SET BY OPERATING THE SCAN TOOL MB991958

⚠ CAUTION

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

- After the service reminder function has started, when the elapsed days for check warning is reset for the vehicle whose battery is removed for a long period (15 days or more), calculate the elapsed days from the delivery date to the customer (service reminder function start date) and the current date, and then input it.

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

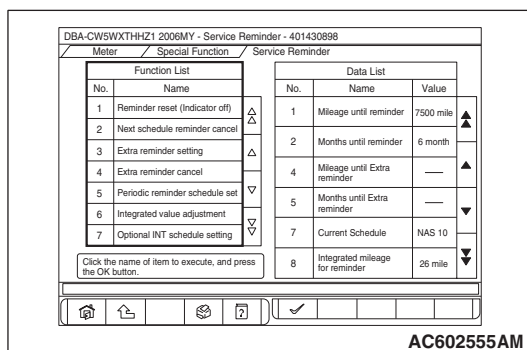
1. Reminder reset (Indicator off)
2. Next schedule reminder cancel
3. Extra reminder setting
4. Extra reminder cancel
5. Periodic reminder schedule set
6. Integrated value adjustment
7. Optional INT schedule setting

HOW TO OPERATE THE SCAN TOOL MB991958

⚠ CAUTION

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

1. Connect the scan tool MB991958 to the data link connector.
2. Start the M.U.T.-III system on the PC and turn the ignition switch to the "ON" position.
3. Select "Meter" on the "System Select" screen, and press the "OK" button.
4. Select "Special Function" on the next screen.
5. Select "Service Reminder" on the "Special function" screen.
6. Select the function to be executed from "Function List."
 - 1 Reminder reset (Indicator off) (Refer to [P.54A-114](#)).
 - 2 Next schedule reminder cancel (Refer to [P.54A-115](#)).
 - 3 Extra reminder setting (Refer to [P.54A-116](#)).
 - 4 Extra reminder cancel (Refer to [P.54A-117](#)).
 - 5 Periodic reminder schedule set (Refer to [P.54A-117](#)).
 - 6 Integrated value adjustment (Refer to [P.54A-118](#)).
 - 7 Optional INT schedule setting (Refer to [P.54A-119](#)).



1. REMINDER RESET (INDICATOR OFF)

⚠ CAUTION

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

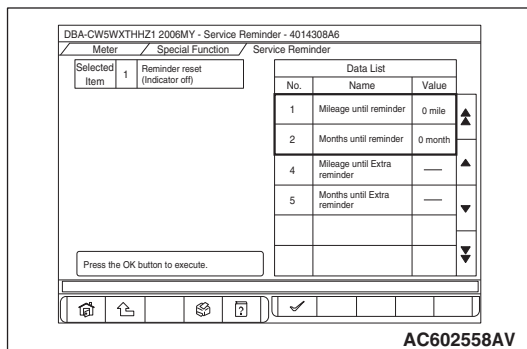
The service reminder warning indicator which is currently output can be cancelled.

NOTE: In addition to the operation of the scan tool MB991958, the service reminder warning indicator can be cancelled by operating the meter information switch on the combination meter. Refer to P.54A-121.

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

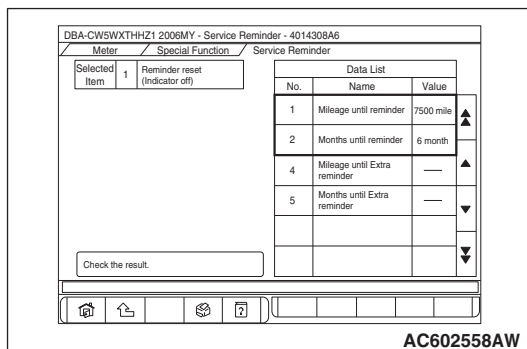
NOTE: The screen indicates that the warning period (Nos. 1 and 2 in the data list) is "0 mile." and "0 month."

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-CW5WXTTHZ1 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

- 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.

DBA-CW5WXTTHZ1 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

- 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.

DBA-CW5WXTTHZ1 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.

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	—

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

AC602556AG

- 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.

DBA-CW5WXTTHZ1 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

Data List

7	8	9	→
4	5	6	Tab
1	2	3	Back Space
0	—		Clear

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

Range: 0-254, Unit: month.

AC602557AE

DBA-CW5WXTHHZ1 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

4. The temporary warning period is set.

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

4. EXTRA REMINDER CANCEL

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

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.

DBA-CW5WXTHHZ1 2006MY - Service Reminder - 4014308A6

Meter		Special Function		Service Reminder	
Selected Item	4	Extra reminder cancel	Data List		
No.	Name	Value			
1	Mileage until reminder	7500 mile	▲		
2	Months until reminder	6 month	▲		
4	Mileage until Extra reminder	3000 mile	▲		
5	Months until Extra reminder	2 month	▼		
Press the OK button to execute.					

AC602558AP

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.

DBA-CW5WXTHHZ1 2006MY - Service Reminder - 4014308A6

Meter		Special Function		Service Reminder	
Selected Item	4	Extra reminder cancel	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	—	▼		
Check the result.					

AC602558AQ

5. PERIODIC REMINDER SCHEDULE SET

The service reminder schedule can be changed.

NOTE: In addition to the operation of the scan tool MB991958, the schedule can be changed by operating the meter information switch on the combination meter. Refer to [P.54A-121](#).

DBA-CW5WXTHHZ1 2006MY - Service Reminder - 4014308A4

Meter	Special Function	Service Reminder
Selected Item	5	Periodic reminder schedule set

Set value

Name	Value
Schedule Spec.	Select the value.

Select the value and press the OK button.

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	—
7	Current Schedule	NAS 10

AC602556BT

- 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."

DBA-CW5WXTHHZ1 2006MY - Service Reminder - 4014308A4

Meter	Special Function	Service Reminder
Selected Item	5	Periodic reminder schedule set

Set value

Name	Value
Schedule Spec.	NAS 11

Select the value and press the OK button.

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	—
7	Current Schedule	NAS 10

AC602556BU

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

DBA-CW5WXTHHZ1 2006MY - Service Reminder - 4014308A6

Meter	Special Function	Service Reminder
Selected Item	5	Periodic reminder schedule set

Check the result.

No.	Name	Value
1	Mileage until reminder	3750 mile
2	Months until reminder	3 month
4	Mileage until Extra reminder	—
5	Months until Extra reminder	—
7	Current Schedule	NAS 11

AC602558CO

- 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.

- 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."

DBA-CW5WXTHHZ1 2006MY - Service Reminder - 4014308A4

Meter	Special Function	Service Reminder
Selected Item	6	Integrated value adjustment

Set value

Name	Value
Running Distance	Input the value.
Elapsed Days	Input the value.

Input the value to both items, and press the OK button.

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

AC602556AP

DBA-CW5WXTTHZ1 2006MY - Service Reminder - 4014308A5

Meter	Special Function	Service Reminder
Selected Item 6	Integrated value adjustment	
Set value		
Name	Value	
Running Distance	100	
Elapsed Days	30	
Input the value to both items, and press the OK button.		
Range: 0-32767, Unit: day.		

AC602557AF

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

NOTE: Always input both the mileage and elapsed days.

- Press the "OK" button.

DBA-CW5WXTTHZ1 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

- 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.

- 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.

DBA-CW5WXTTHZ1 2006MY - Service Reminder - 4014308A4

Meter	Special Function	Service Reminder
Selected Item 7	Optional INT schedule setting	
Set value		
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.		
Data List		
No.	Name	Value
1	Mileage until reminder	7500 mile
2	Months until reminder	6 month
8	Integrated mileage for reminder	26 mile
9	Integrated days for reminder	0 day
12	Optional interval for mileage	—
13	Optional interval for month	—

AC602556AK

DBA-CW5WXTTHZ1 2006MY - Service Reminder - 4014308A5

Meter Special Function Service Reminder

Selected Item 7 Optional INT schedule setting

Set value

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.

Range: 0-254 Unit: month

AC602557AG

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

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

- Press the "OK" button.

DBA-CW5WXTTHZ1 2006MY - Service Reminder - 4014308A4

Meter Special Function Service Reminder

Selected Item 7 Optional INT schedule setting

Data List

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

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

AC604401AC

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

NOTE:

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

HOW TO SET BY SPECIAL OPERATION OF SWITCH

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

HOW TO CANCEL THE SERVICE REMINDER WARNING

CAUTION

- **Be careful not to execute the service reminder warning cancellation by operating the switch again after erasing the service reminder warning indicator which is currently output, because the next warning period will be cancelled.**
 - **If the next warning period is cancelled by mistake, the cancelled warning period can be restored by setting a schedule different from the current one once, and then returning it to the previous schedule.**
1. Turn the ignition switch to the "OFF" position.
 2. By operating the meter information switch, the warning period is displayed on the multi information display.
 3. Press the meter information switch once for 1.2 seconds or longer.
 4. The service reminder indicator flashes.
 5. While the service reminder indicator flashes, press the meter information switch once for less than 1.2 seconds.
 6. The service reminder indicator is turned ON, and "CLEAR" is displayed on the multi information display for 3 seconds.

7. After "CLEAR" is displayed for 3 seconds, the warning period to the next time is displayed.

HOW TO SET THE SCHEDULE

1. Turn the ignition switch to the "OFF" position.
2. By operating the meter information switch, the warning period is displayed on the multi information display.
3. Press the meter information switch once for 1.2 seconds or longer.
4. The service reminder indicator flashes.
5. While the service reminder indicator flashes, press the meter information switch for 1.2 seconds or longer and 3 times consecutively.
6. The service reminder indicator is turned ON, and the current schedule is displayed on the multi information display.
7. While the current schedule is displayed, press the meter information switch for less than 1.2 seconds and 3 times consecutively.
8. The multi information display is shifted to the schedule selection mode.
9. When the meter information switch is pressed for less than 1.2 seconds, the schedule is shifted, and when the meter information switch is pressed for 1.2 seconds or longer, the displayed schedule is set.
NOTE: For schedule, "JPN", "GCC", "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

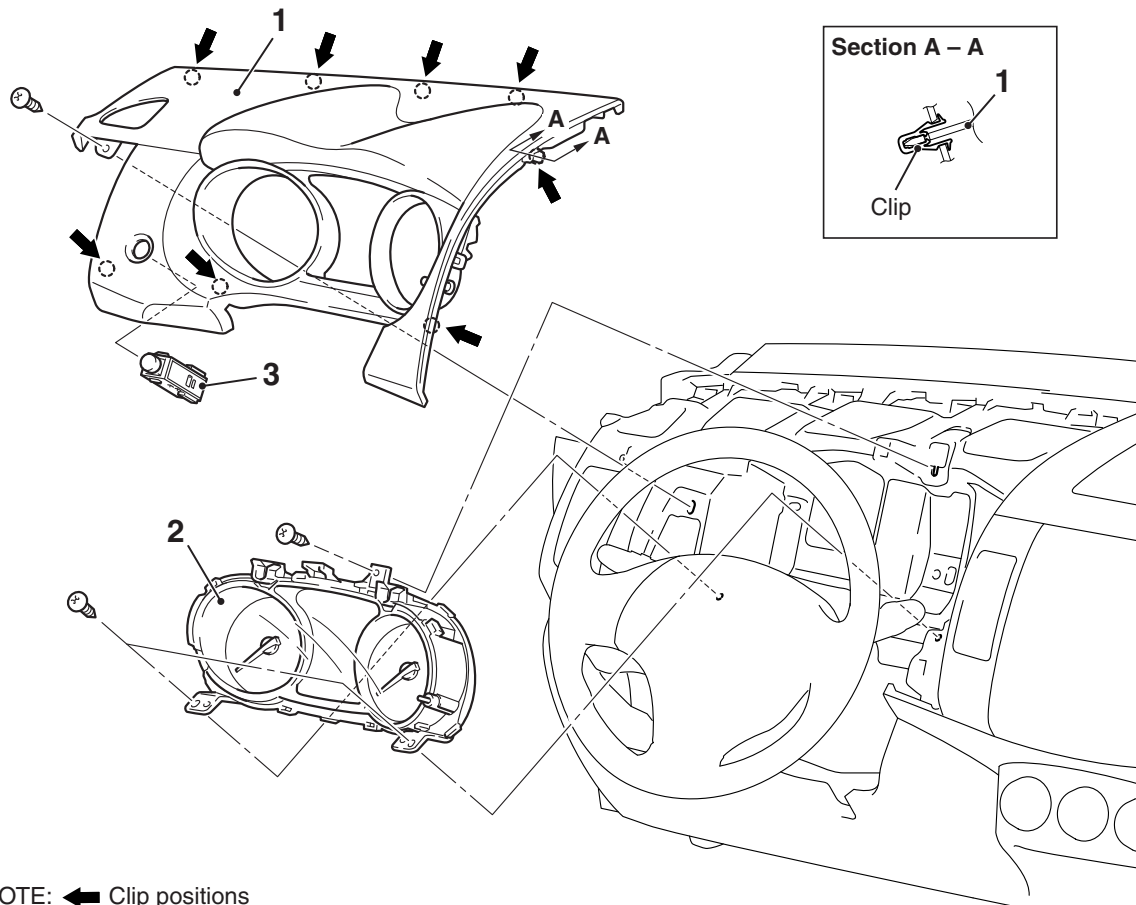
⚠ CAUTION

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-114](#). 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

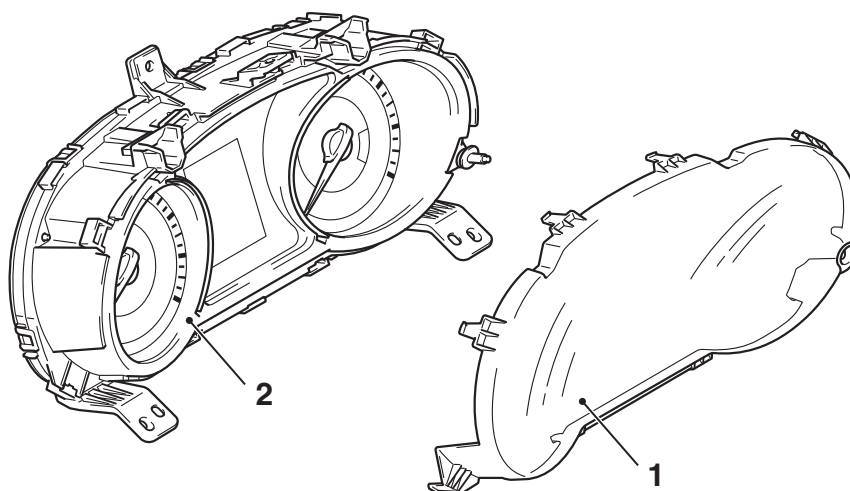
1. Meter hood assembly

Removal Steps (Continued)

2. Combination meter
3. Meter information switch

DISASSEMBLY AND ASSEMBLY

M1540201800178



AC506448AB

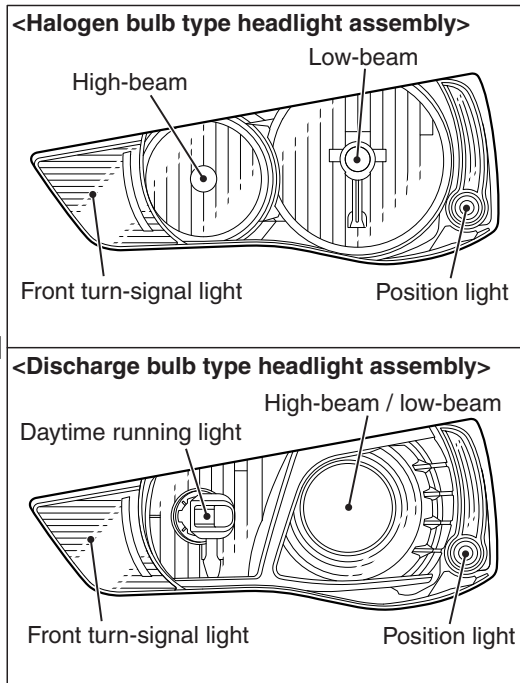
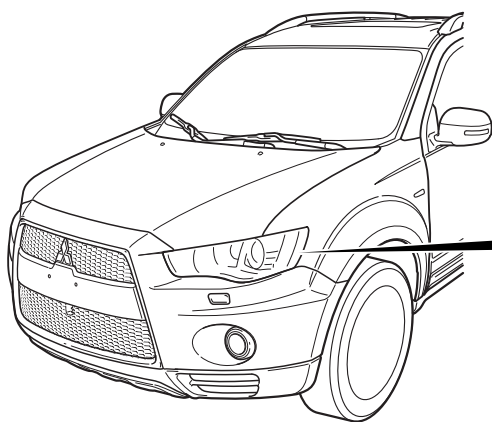
Disassembly steps

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) ± 50.5 mm (± 2.0 inches) (± 0.38 degrees angle)	–
		Horizontal direction	± 126.4 mm (± 5.0 inches) (± 0.95 degrees angle) from the axis, which is 266.1 mm (10.5 inches) (2 degrees angle) rightward from the vertical line (V)	–
	Low-beam <Vehicles with discharge headlight>	Vertical direction	53.2 mm (2.1 inches) (0.4 degrees) below horizontal line (H). ± 50.5 mm (± 2.0 inches) (± 0.38 degrees angle)	–
		Horizontal direction	Elbow point intersects the vertical line (V). ± 126.4 mm (± 5.0 inches) (± 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}



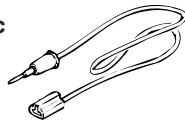
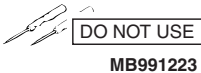
PRECAUTIONS ON HOW TO USE THE HEADLIGHT ASSEMBLY

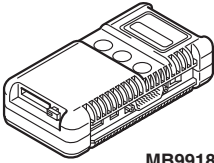
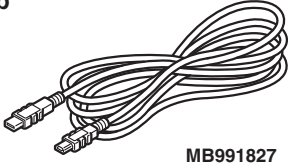
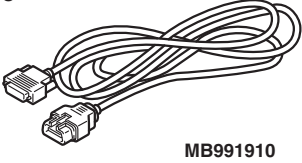
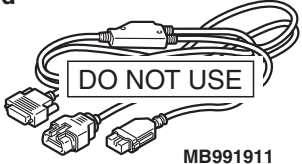
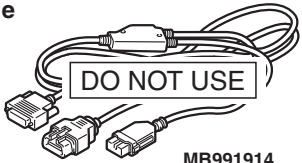
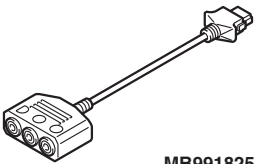
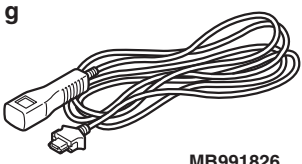
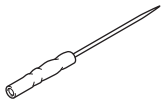
Be careful with the following items as resin lenses are used in the headlight assembly.

- 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
<p>a</p>  <p>b</p>  <p>c</p>  <p>d</p> 	<p>MB991223</p> <p>a. MB991219</p> <p>b. MB991220</p> <p>c. MB991221</p> <p>d. MB991222</p> <p>Harness set</p> <p>a. Test harness</p> <p>b. LED harness</p> <p>c. LED harness adaptor</p> <p>d. Probe</p>	<p>General service tools</p>	<p>Continuity check and voltage measurement at harness wire or connector</p> <p>a. Connector pin contact pressure inspection</p> <p>b. Power circuit inspection</p> <p>c. Power circuit inspection</p> <p>d. Commercial tester connection</p>

Tool	Tool number and name	Supersession	Application
<p>a</p>  <p>MB991824</p> <p>b</p>  <p>MB991827</p> <p>c</p>  <p>MB991910</p> <p>d</p>  <p>MB991911</p> <p>e</p>  <p>MB991914</p> <p>f</p>  <p>MB991825</p> <p>g</p>  <p>MB991826 MB991958</p>	<p>MB991958</p> <p>a. MB991824</p> <p>b. MB991827</p> <p>c. MB991910</p> <p>d. MB991911</p> <p>e. MB991914</p> <p>f. MB991825</p> <p>g. MB991826</p> <p>M.U.T.-III sub assembly</p> <p>a. Vehicle communication interface (V.C.I.)</p> <p>b. M.U.T.-III USB cable</p> <p>c. M.U.T.-III main harness A (Vehicles with CAN communication system)</p> <p>d. M.U.T.-III main harness B (Vehicles without CAN communication system)</p> <p>e. M.U.T.-III main harness C (for Chrysler models only)</p> <p>f. M.U.T.-III measurement adapter</p> <p>g. M.U.T.-III trigger harness</p>	<p>MB991824-KIT</p> <p><i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i></p>	<p>⚠ CAUTION</p> <p>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.</p> <p>Diagnostic code, service data and actuator test check.</p>
 <p>MB992006</p>	<p>MB992006</p> <p>Extra fine probe</p>	<p>–</p>	<p>Continuity check and voltage measurement at harness wire or connector.</p>

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

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

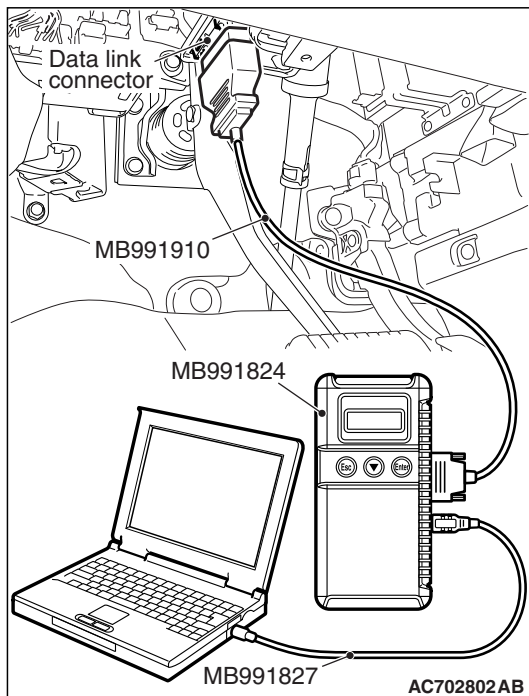
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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-158](#).

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	P.54A-133
B16A3	Turn-signal light (LH) short circuit	P.54A-140
B16A4	Blown turn-signal light (RH) bulb	P.54A-144
B16A5	Turn-signal light (RH) short circuit	P.54A-151

LIN

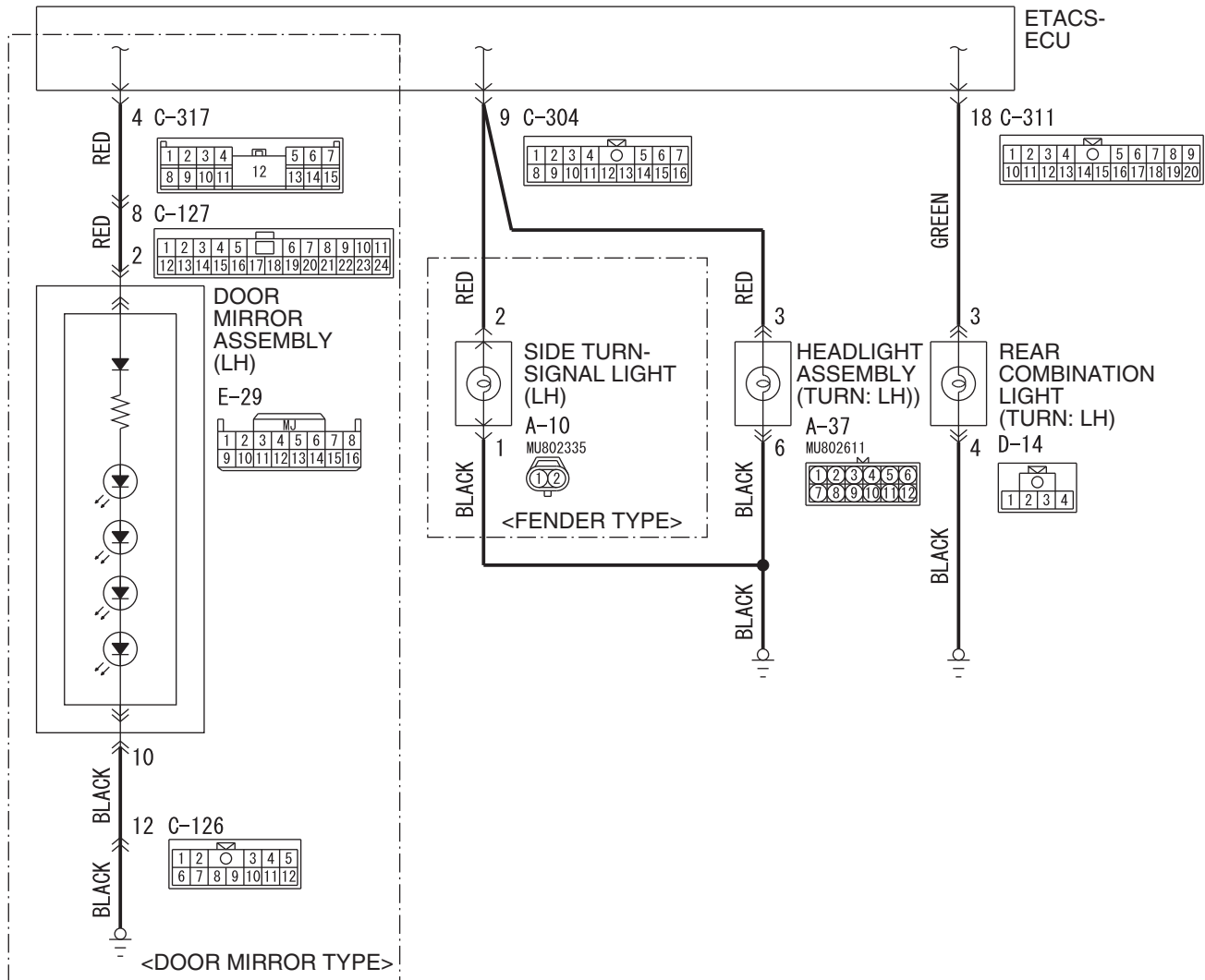
Diagnostic trouble code No.	Diagnostic item	Reference page
L0432	RLS* RS adaptation error	P.54A-154
L0434	RLS* rain sensor error	P.54A-156
L0436	RLS* light sensor error	

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

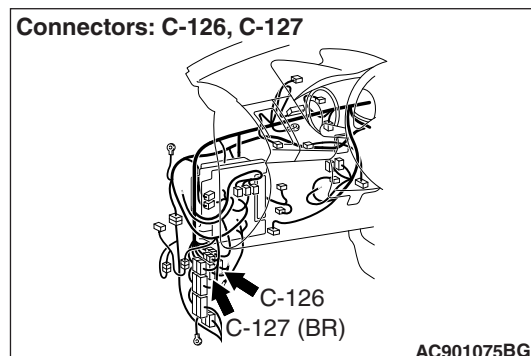
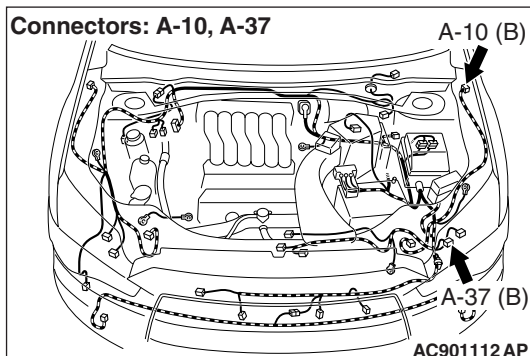
DIAGNOSTIC TROUBLE CODE PROCEDURES

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

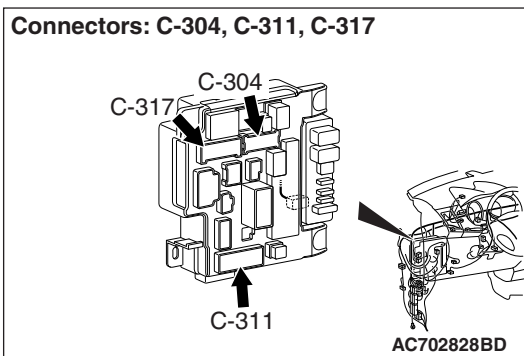
Turn-Signal Light Circuit (LH))



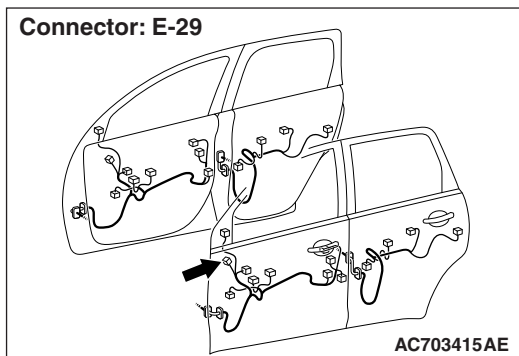
WAG54E009A



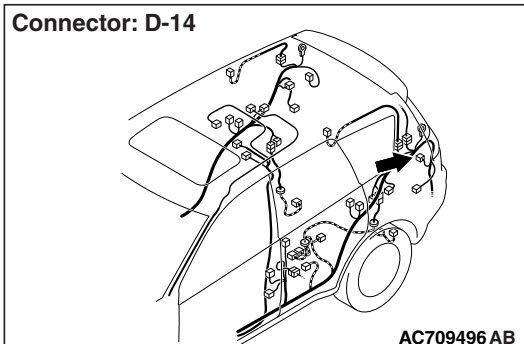
Connectors: C-304, C-311, C-317



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?

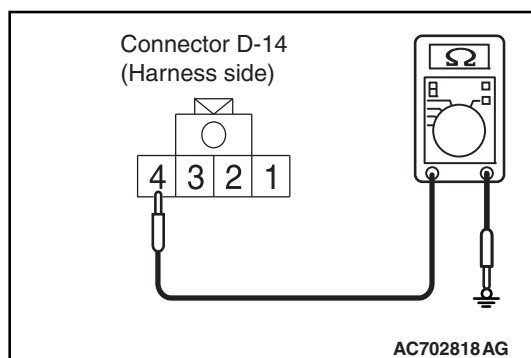
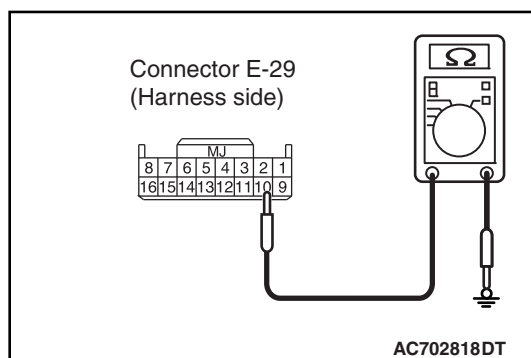
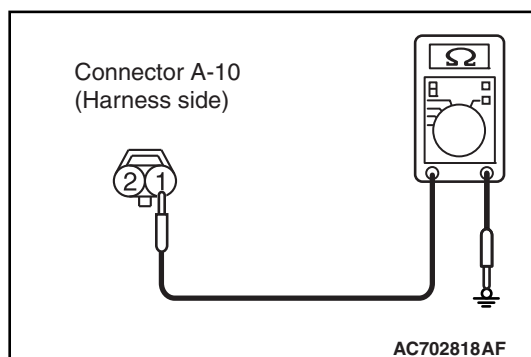
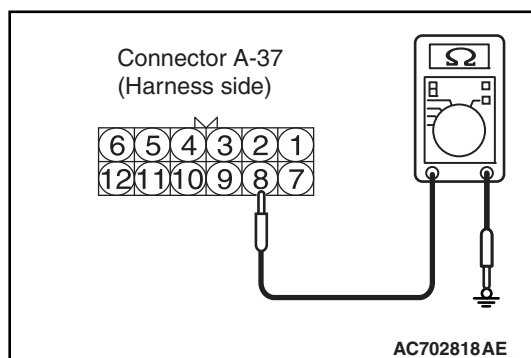
YES : Go to Step 3.

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 Ω 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

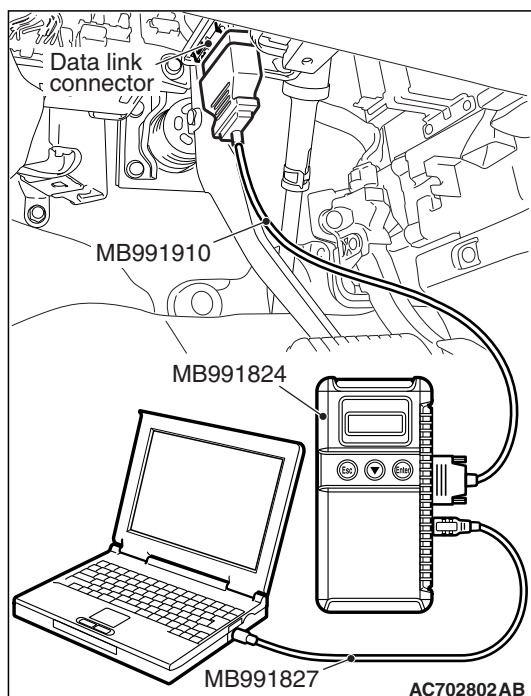
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-128](#)."
- (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?

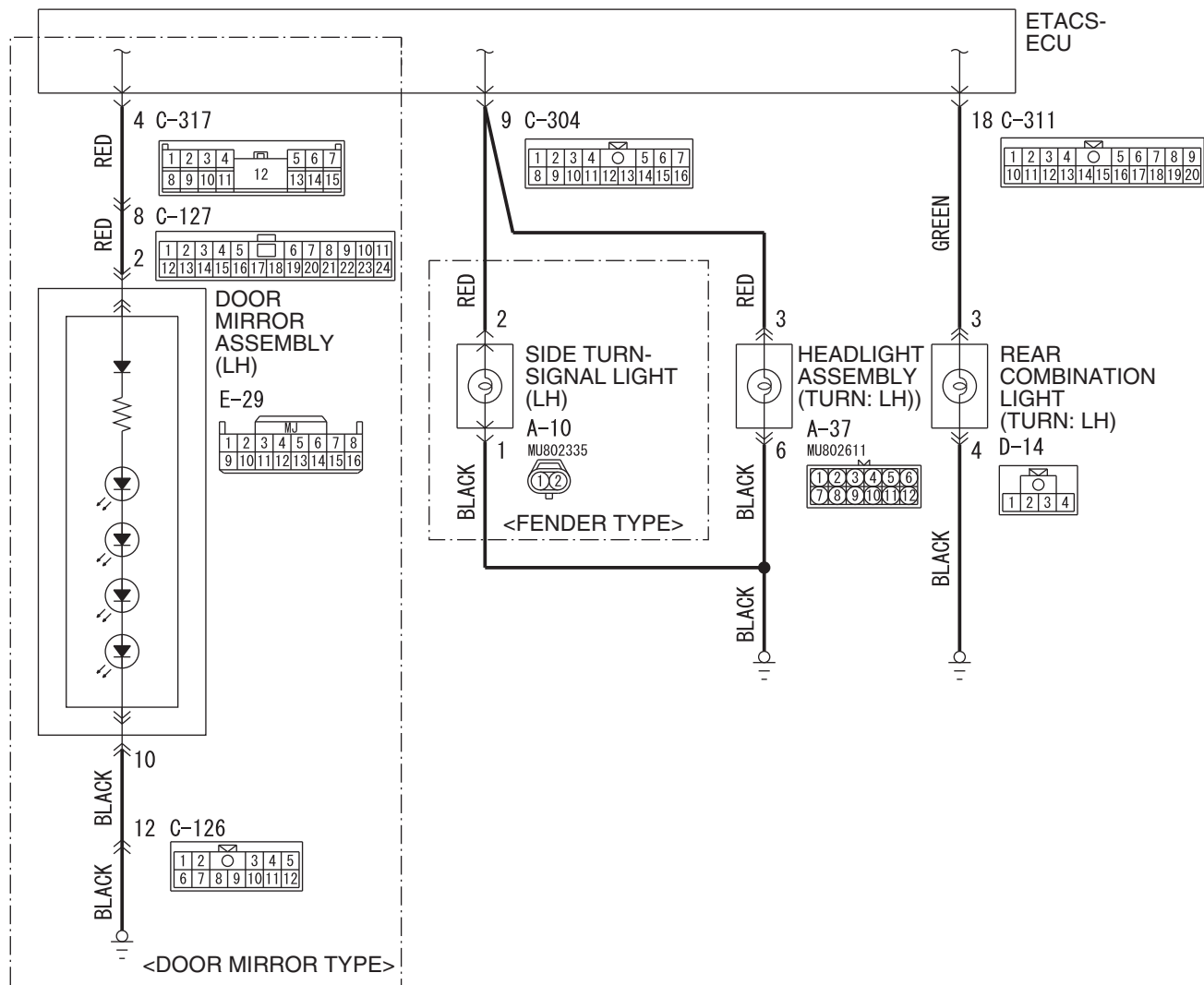
YES : Replace the ETACS-ECU.

NO : The procedure is complete.



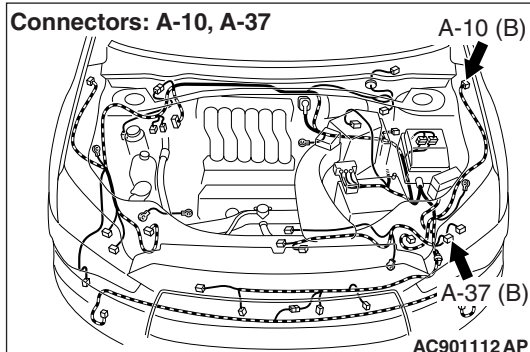
DTC B16A3: Turn-signal light (LH) short circuit

Turn-Signal Light Circuit (LH))

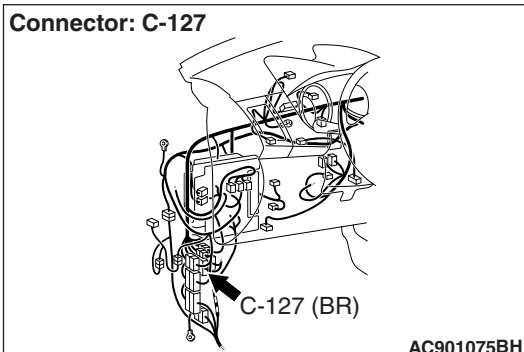


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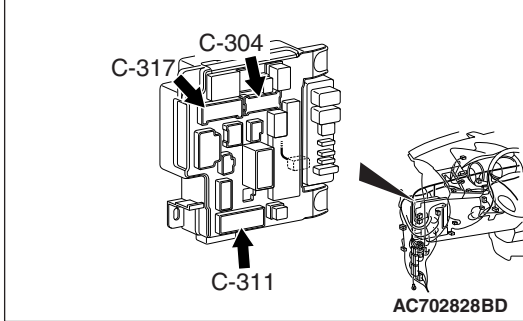
Connectors: A-10, A-37



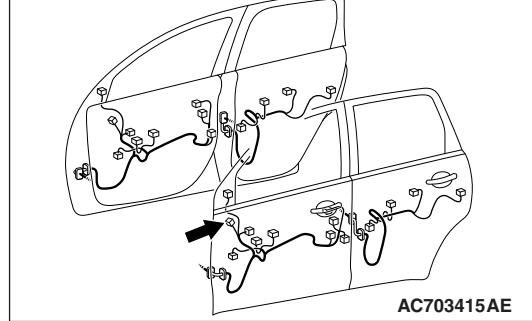
Connector: C-127



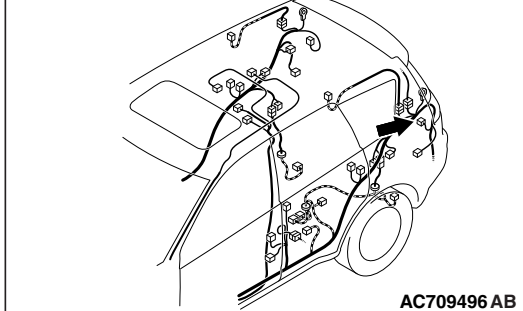
Connectors: C-304, C-311, C-317



Connector: E-29



Connector: D-14



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

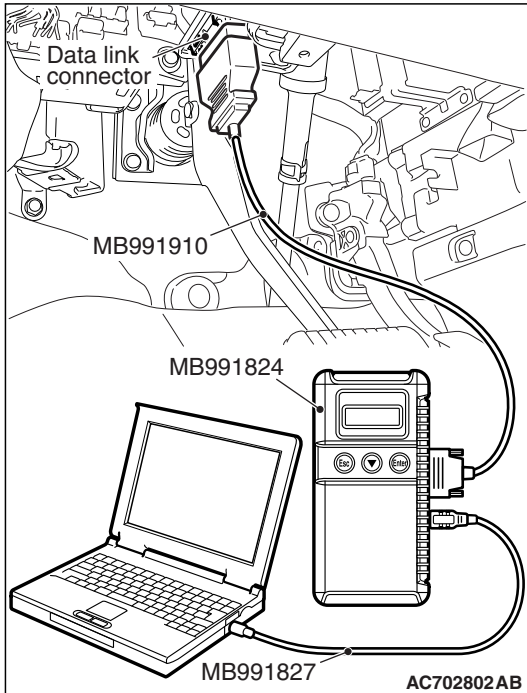
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-128](#)."
- (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?

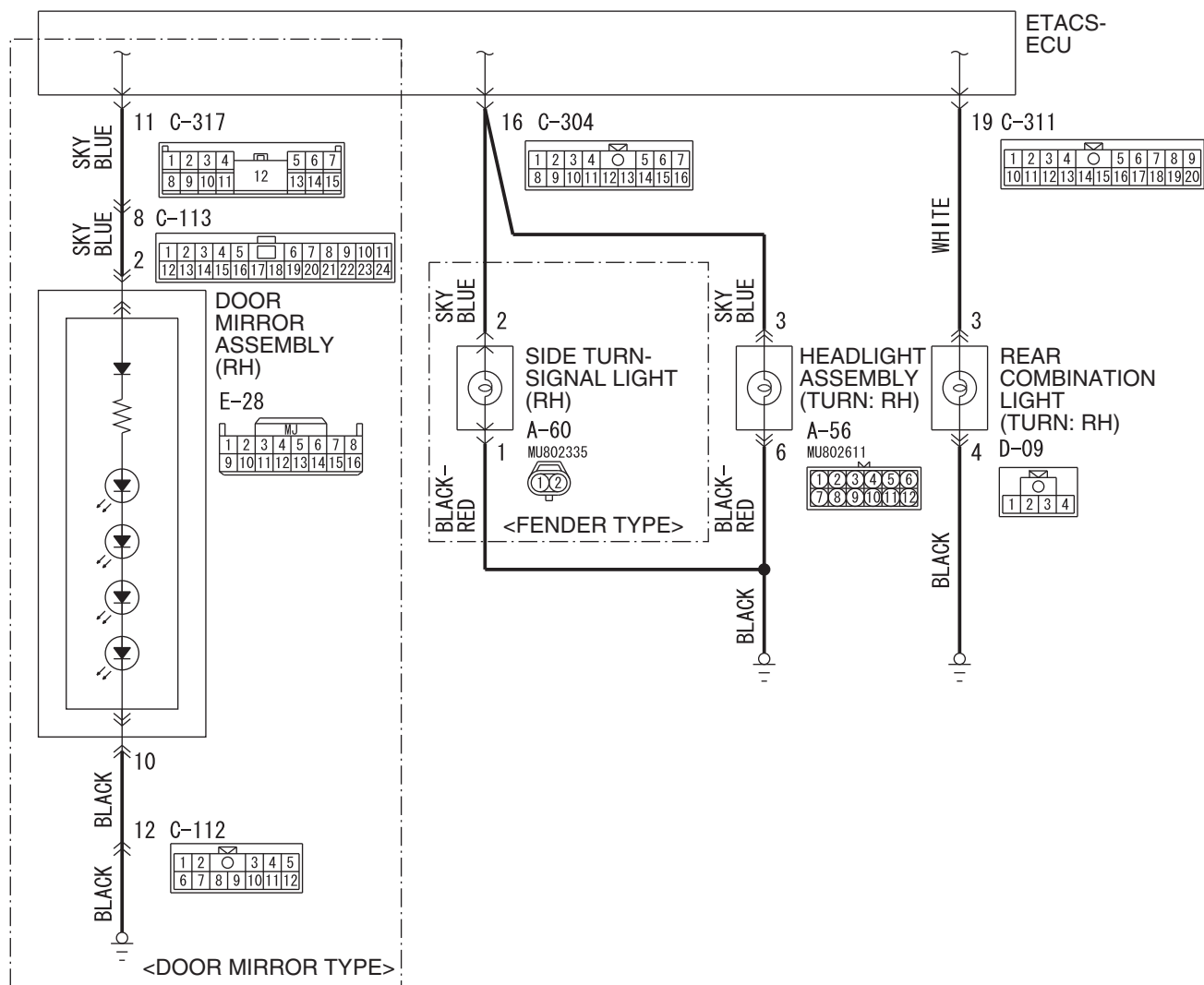
YES : Replace the ETACS-ECU.

NO : The procedure is complete.



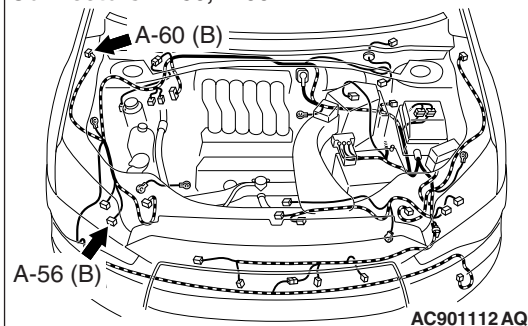
DTC B16A4: Blown turn-signal light (RH) bulb

Turn-Signal Light Circuit (RH)

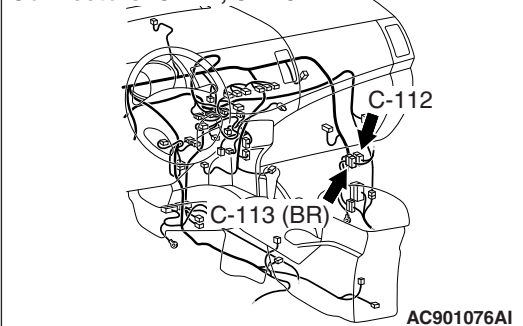


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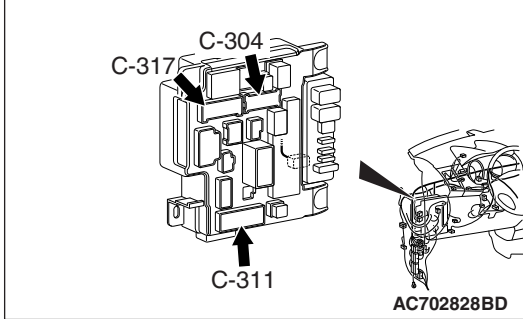
Connectors: A-56, A-60



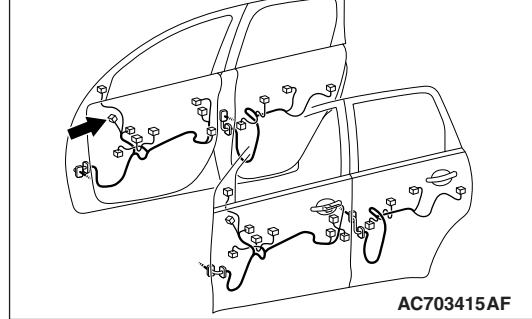
Connectors: C-112, C-113



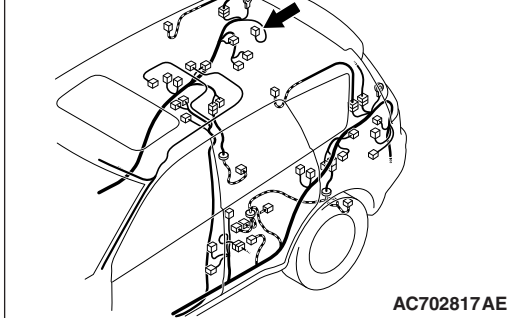
Connectors: C-304, C-311, C-317



Connector: E-28



Connector: D-09



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?

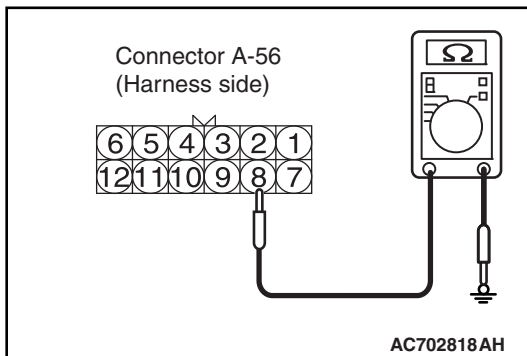
YES : Go to Step 3.

NO : Repair the damaged parts.

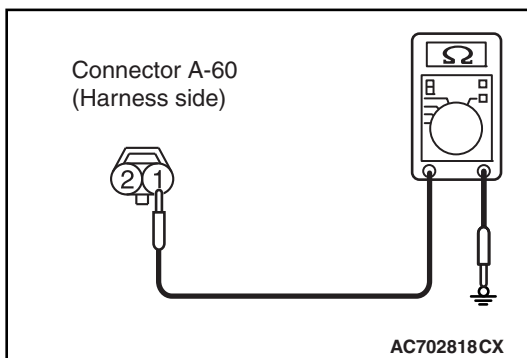
STEP 3. Resistance measurement at headlight assembly (RH) connector A-56, side turn-signal light (RH) connector A-60 <fender type>, door mirror assembly (RH) connector E-28 <door mirror type>, rear combination light (RH) connector D-09.

- (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.

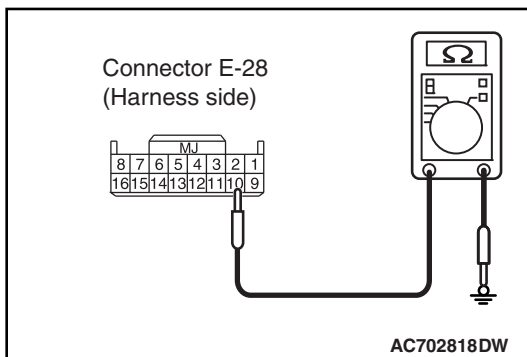
- Measure the resistance between the headlight assembly (RH) connector A-56 (terminal No. 6) and body ground.



- 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>



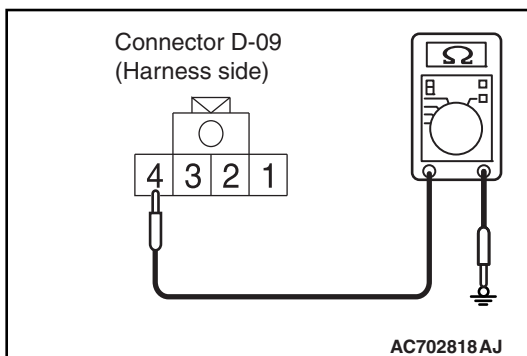
- Measure the resistance between the rear combination light (RH) connector D-09 (terminal No. 4) and body ground.

The measured value should be continuity exists (2 Ω 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

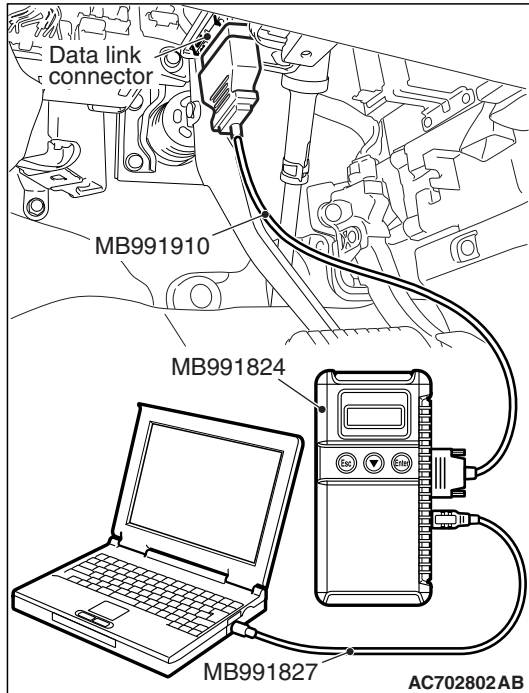
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-128](#)."
- (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?

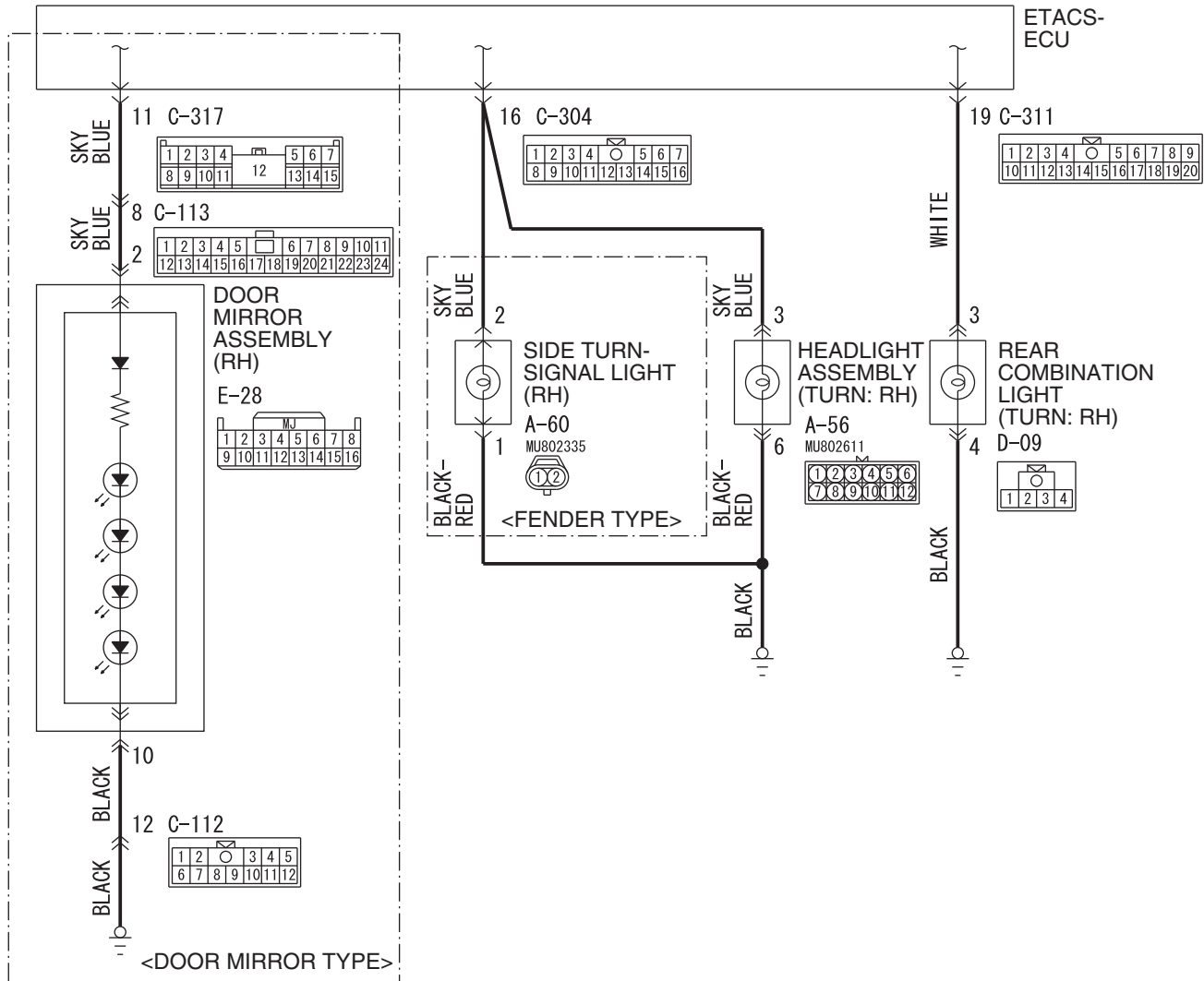
YES : Replace the ETACS-ECU.

NO : The procedure is complete.



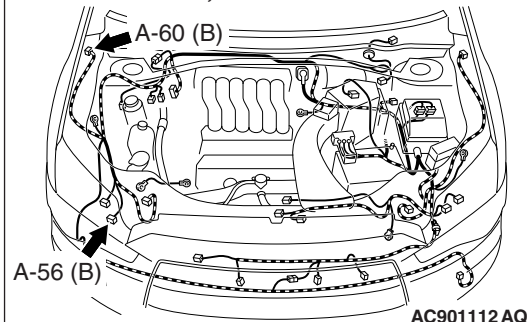
DTC B16A5: Turn-signal light (RH) short circuit

Turn-Signal Light Circuit (RH)

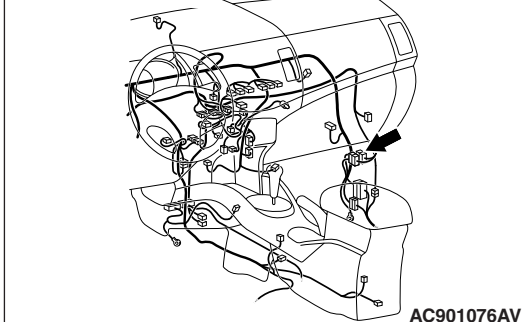


WAG54E010A

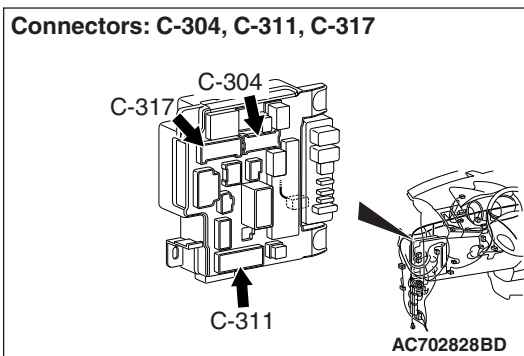
Connectors: A-56, A-60



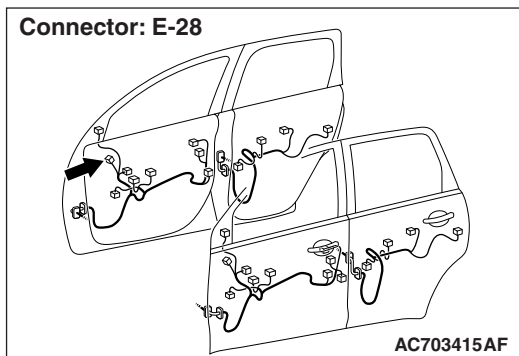
Connector: C-112



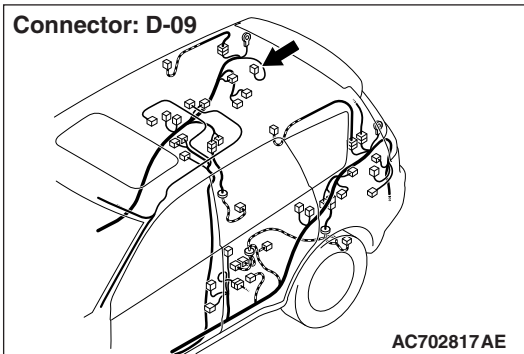
Connectors: C-304, C-311, C-317



Connector: E-28



Connector: D-09

**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

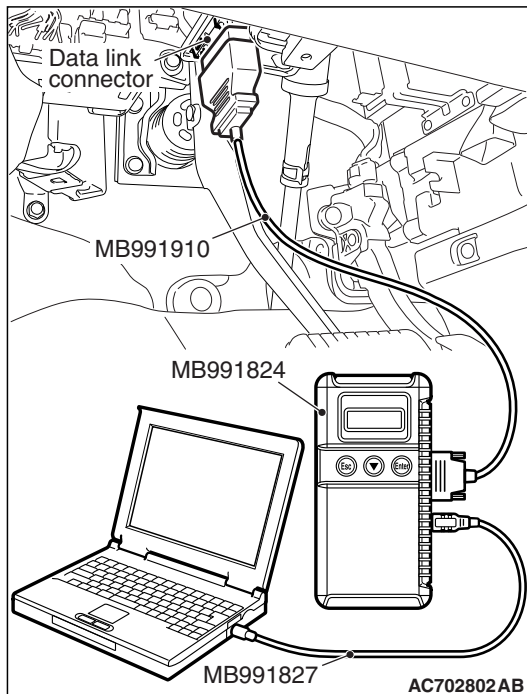
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-128](#)."
- (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-128](#)."

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

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

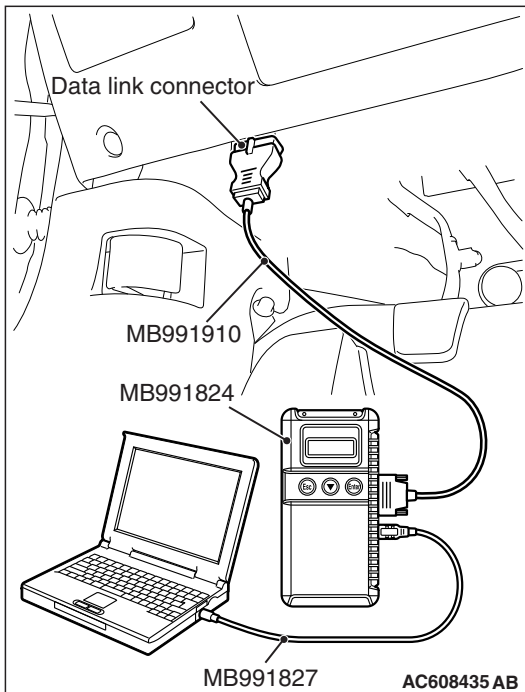
(3) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(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-15](#))

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.51-84](#)>.
- (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

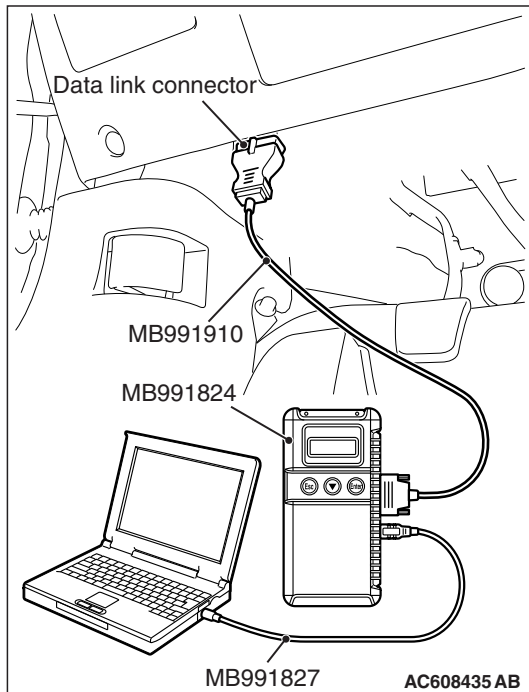
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-128](#)."
- (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	P.54A-159
	None of headlights (high-beam) illuminates.	2	P.54A-164
	The headlights illuminate at low-beam (high-beam does not illuminate) regardless of the lighting switch positions.	3	P.54A-168
	Headlights do not illuminate when the passing switch is operate.	4	P.54A-170
	One of the headlights does not illuminate.	5	P.54A-172
	High-beam indicator light does not illuminate normally.	6	P.54A-176
	The headlight automatic shutdown function does not work normally.	7	P.54A-178
	Daytime running light function does not work normally. <Halogen type headlight>	8	P.54A-181
	Daytime running light function does not work normally. <Discharge type headlight>		P.54A-185
	One of the position lights, side marker lights or the license plate lights does not illuminate.	9	P.54A-192
Turn-signal light	None of turn-signal lights illuminates.	10	P.54A-200
	The comfort flashing function does not work normally.	11	P.54A-201
	The turn-signal indicator lights do not illuminate.	12	P.54A-203
The welcome light function does not work normally.		13	P.54A-205
The coming home light function does not work normally.		14	P.54A-206

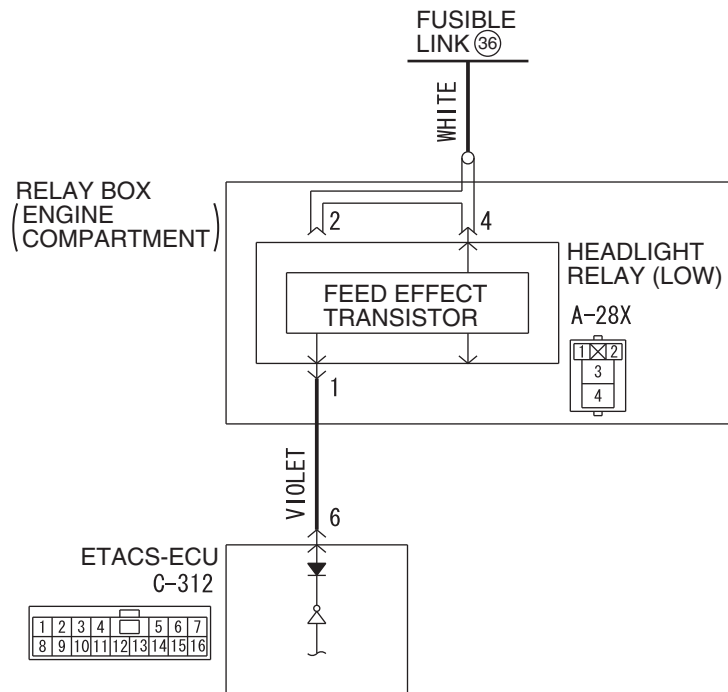
SYMPTOM PROCEDURES

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

⚠ CAUTION

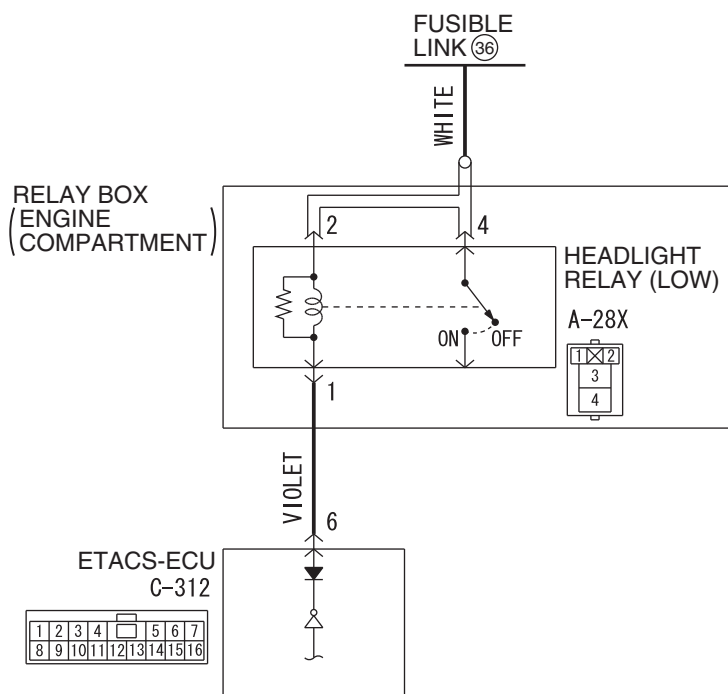
Whenever the ECU is replaced, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

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

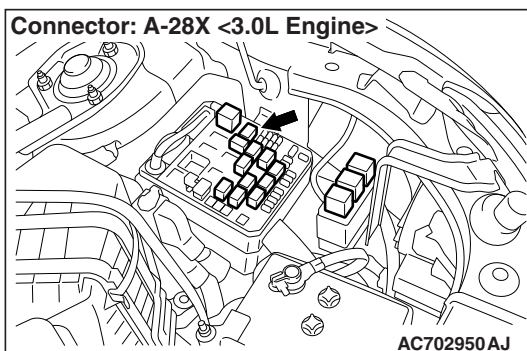
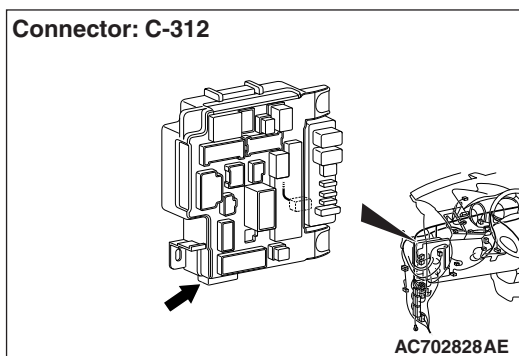
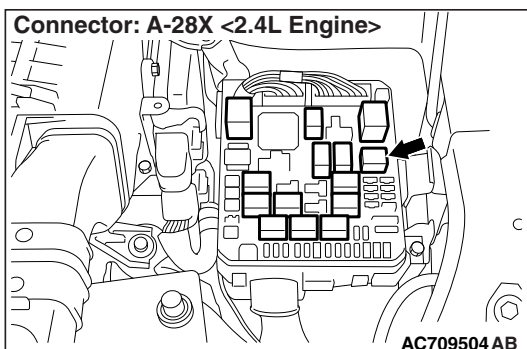


WAG54M011A

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



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

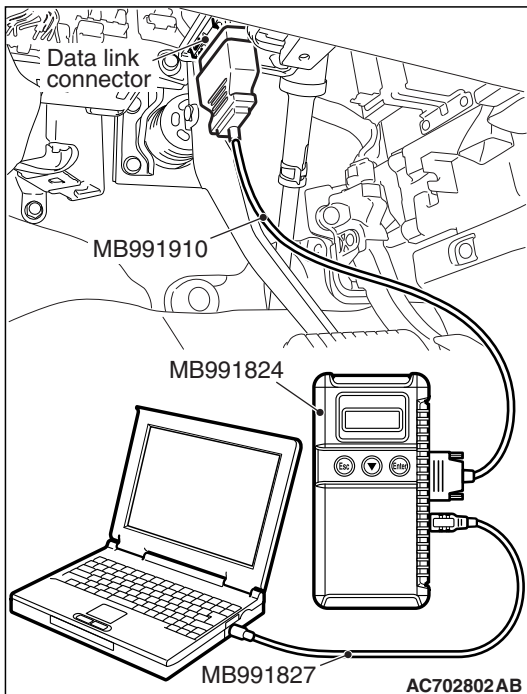
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III)" [P.54A-128](#).
- (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-742](#).)

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-796](#).

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

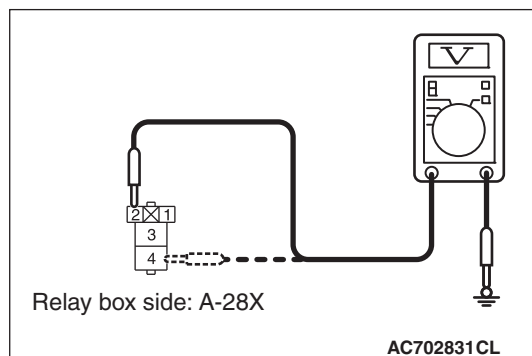
The top and bottom of the headlight relay (LOW) are difficult to identify. Prior to inspection, confirm the triangle mark on the relay box.

- (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-224](#).

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?

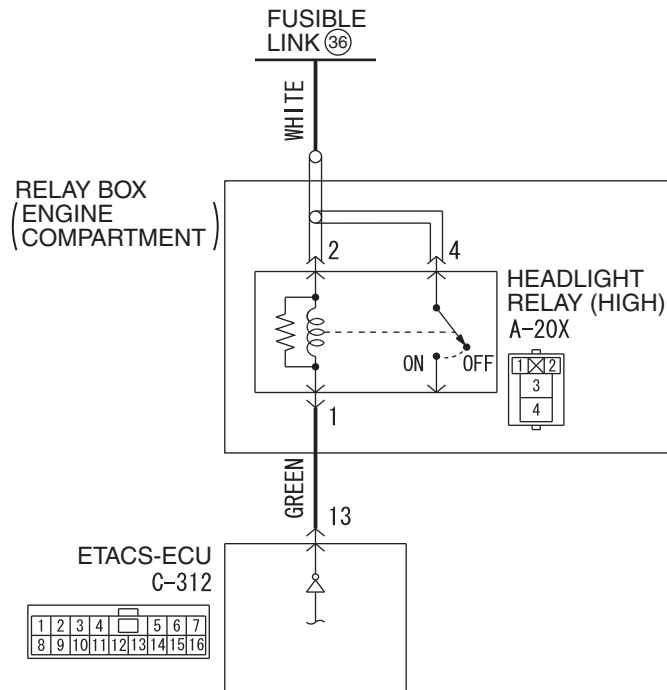
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-15).

NO : Replace the ETACS-ECU.

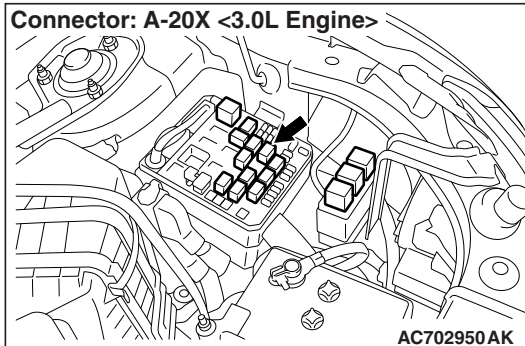
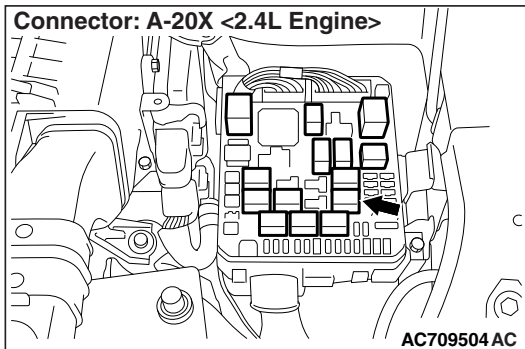
Inspection Procedure 2: None of headlights (high-beam) illuminates.**⚠ CAUTION**

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

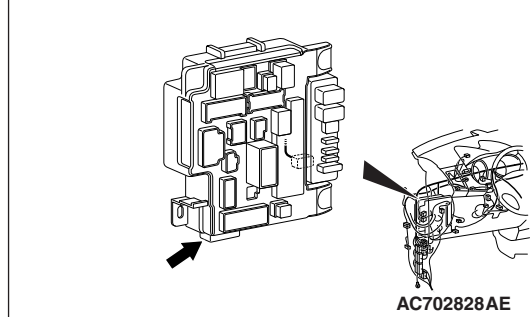
Headlight Relay (High-Beam) Circuit



AC702957AB
D7G54M030A00



Connector: C-312



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.

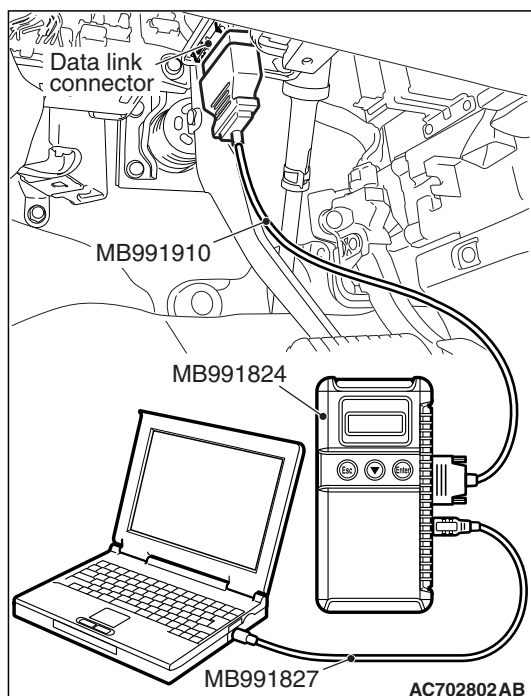
TROUBLESHOOTING HINTS

- 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-128](#).
- (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-742](#)

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-796](#).

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-224](#).

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

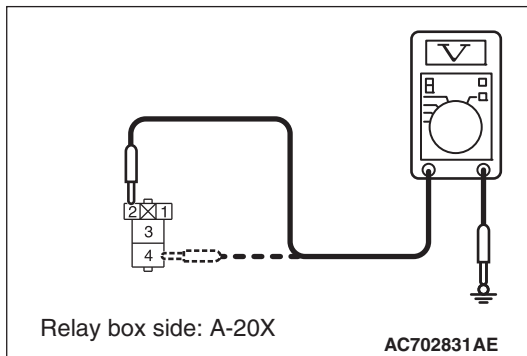
The top and bottom of the headlight relay (HIGH) are difficult to identify. Prior to inspection, confirm the triangle mark on the relay box.

- (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

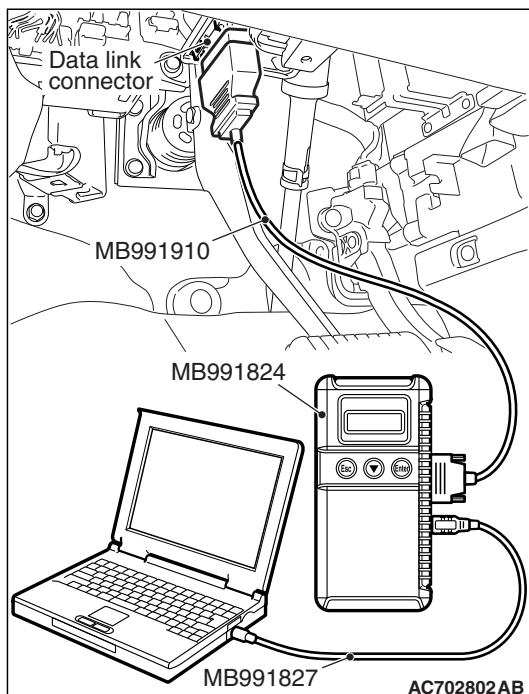
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-128](#)."
- (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-742](#).

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-159](#) and Inspection Procedure 2 "None of headlights (high-beam) illuminates" [P.54A-164](#).

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

⚠ CAUTION

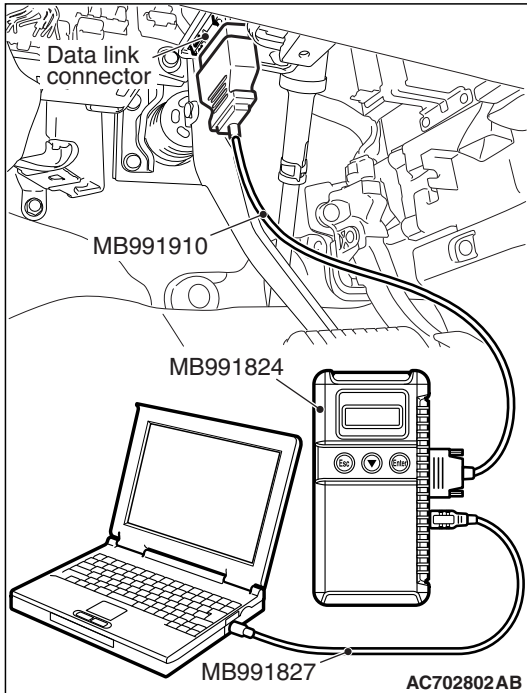
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-128](#)."
- (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-742](#).

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.

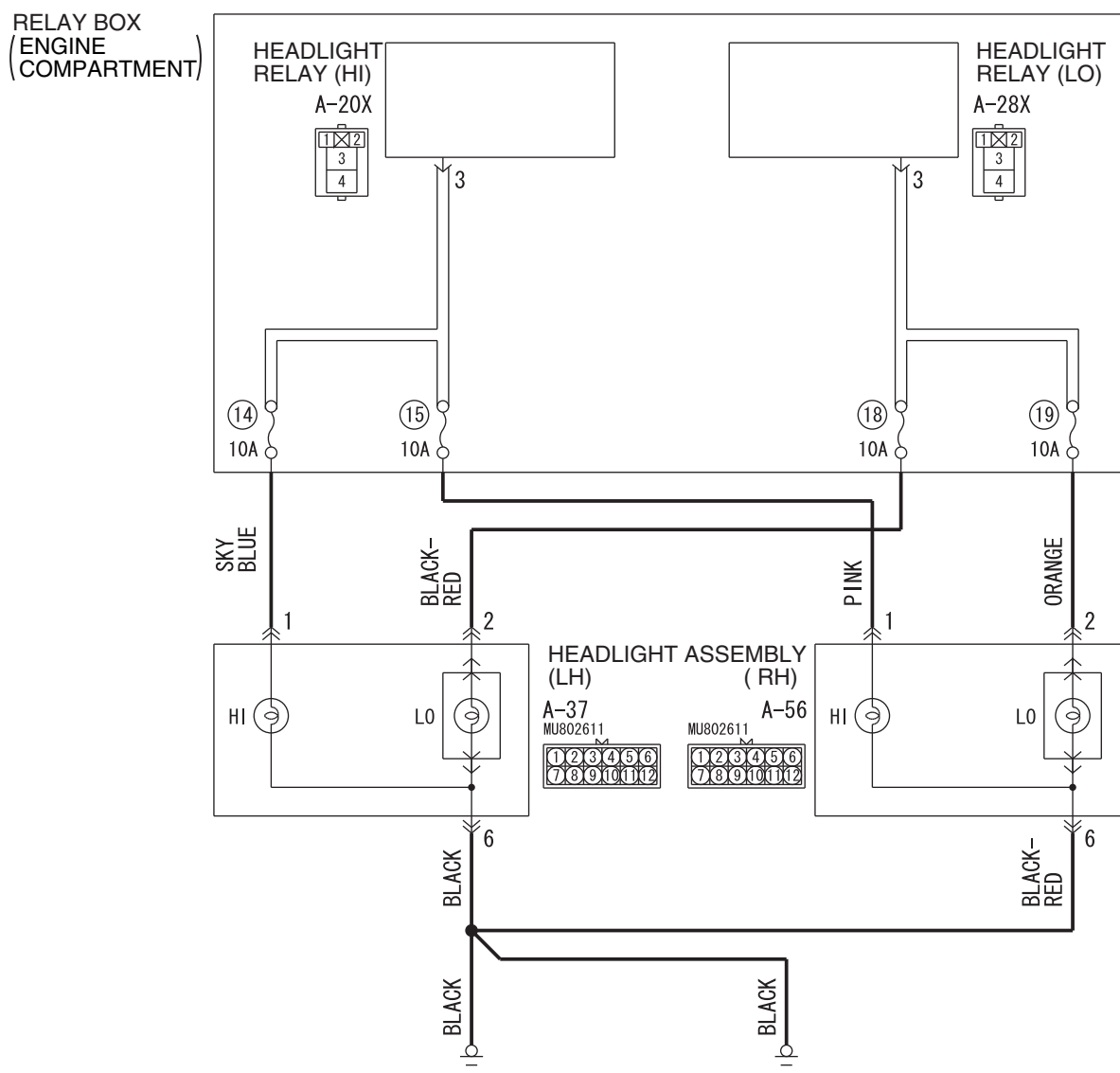
Inspection Procedure 5: One of the headlights does not illuminate.

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

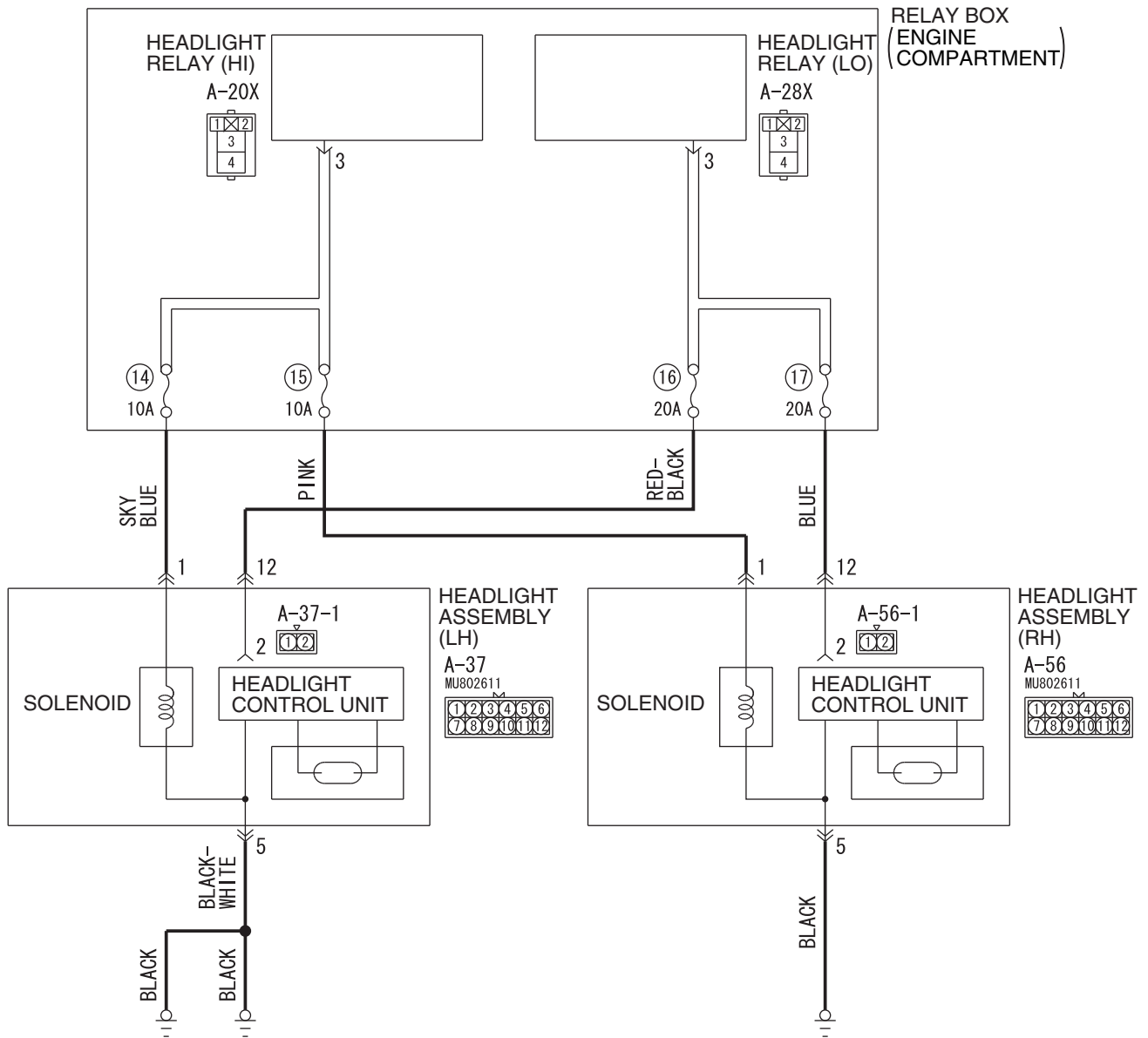
[P.54A-132.](#)

Headlight Circuit <Halogen Type>

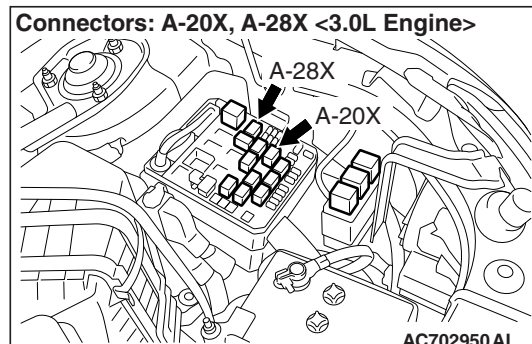
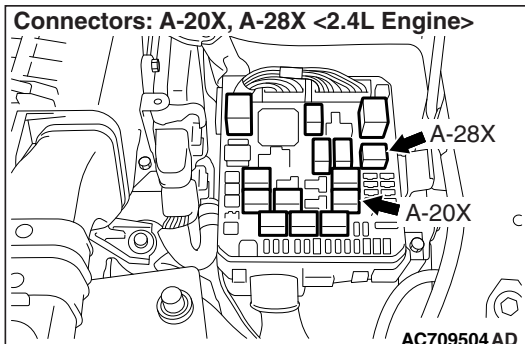


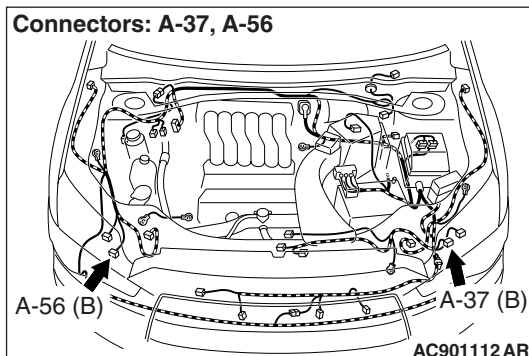
WAG54M013A

Headlight Circuit <Discharge Type>



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?

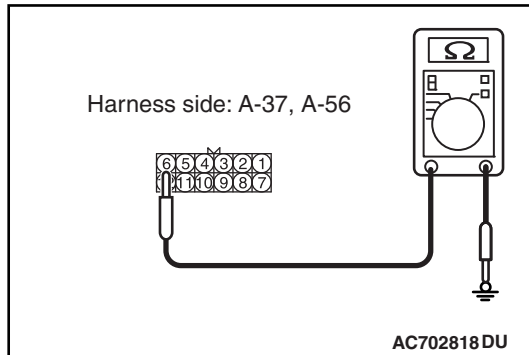
YES : Go to Step 3.

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)>



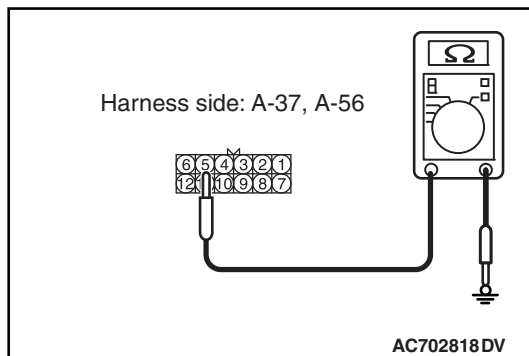
- Resistance between the A-37 (LH), A-56 (RH) headlight assembly connector terminal 5 and ground. <Discharge headlight (LOW)>

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-164](#).

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

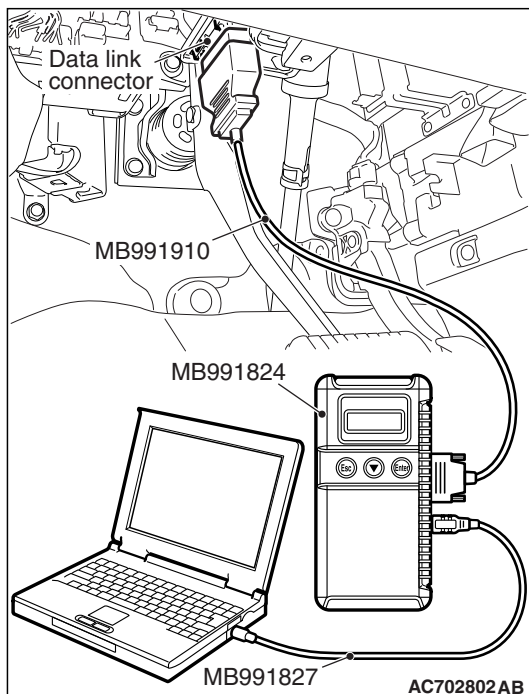
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III)" [P.54A-128](#)."
- (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 scan tool (M.U.T.-III)" [P.54A-128](#)."
- (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-742](#).

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-96](#)).
- (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

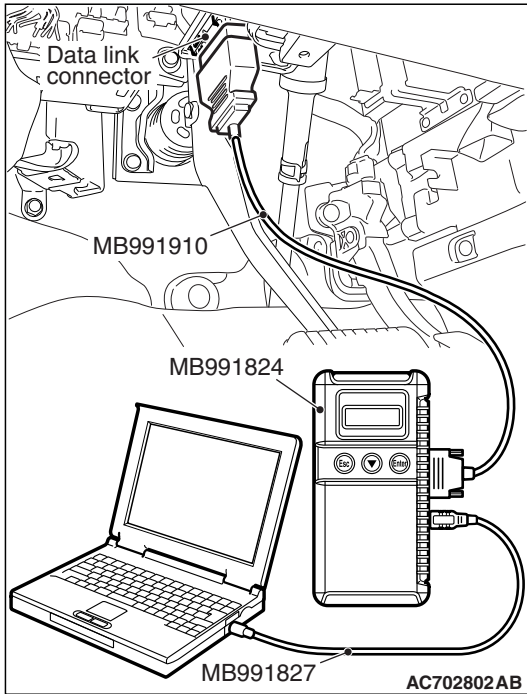
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the scan tool (M.U.T.-III) [P.54A-128](#)."
- (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-216](#)).

**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-742](#).

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-834](#).

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-800](#).

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-813](#).

STEP 4. Retest the system

Check that the headlight automatic shutdown function works normally.

Q: Is the check result normal?

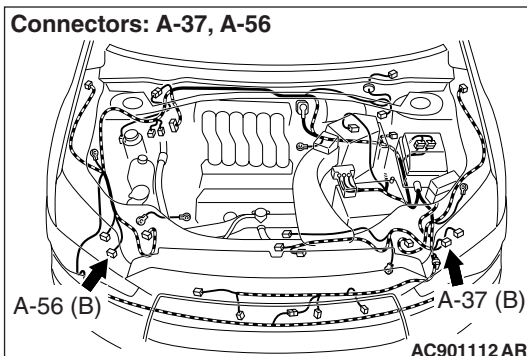
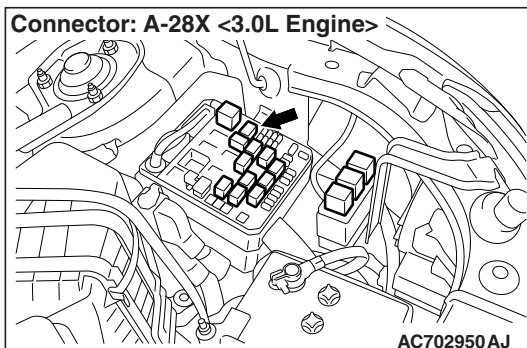
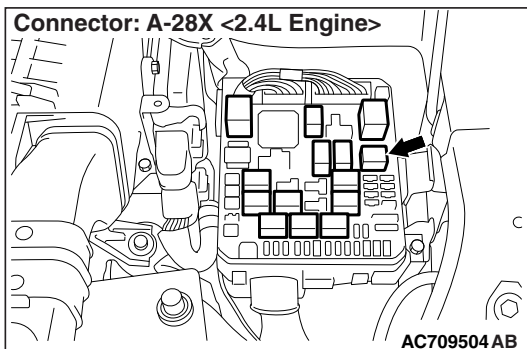
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction [P.00-15](#)).

NO : Replace the ETACS-ECU.

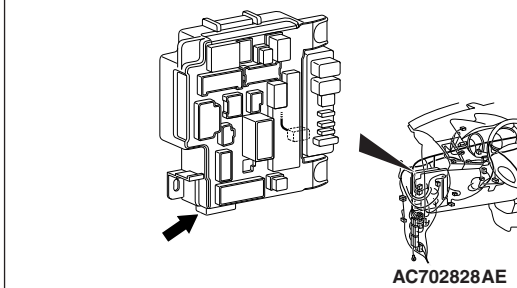
⚠ CAUTION

Daytime Running Light Circuit





Connector: C-312

**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

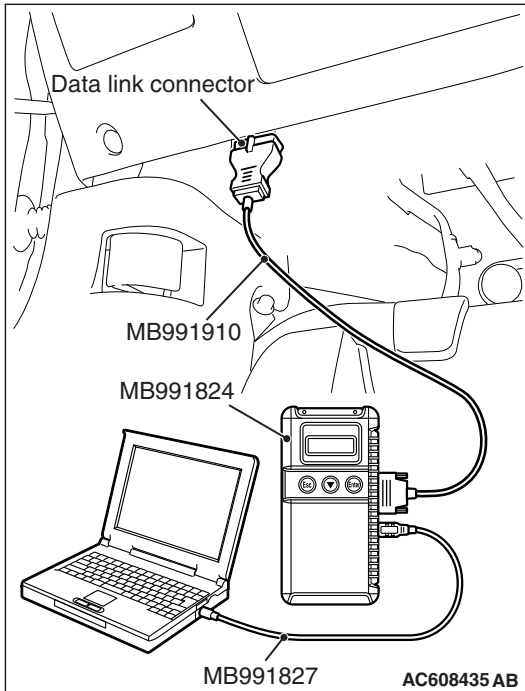
STEP 1. Verify the headlight (low-beam) operation.

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-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 scan tool (M.U.T.-III) [P.54A-128](#)."
- (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-742](#).

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-51](#). <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).

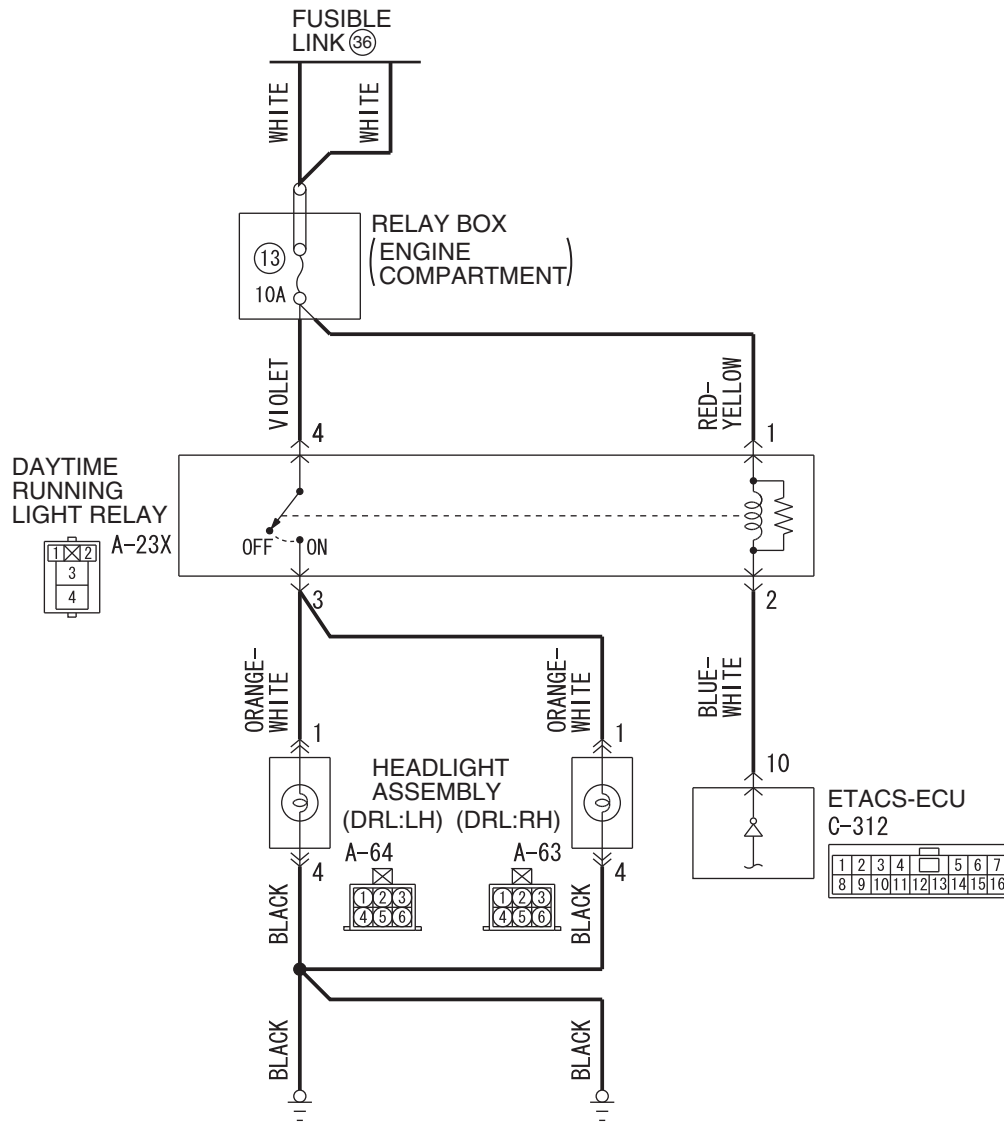
NO : Replace the ETACS-ECU.

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

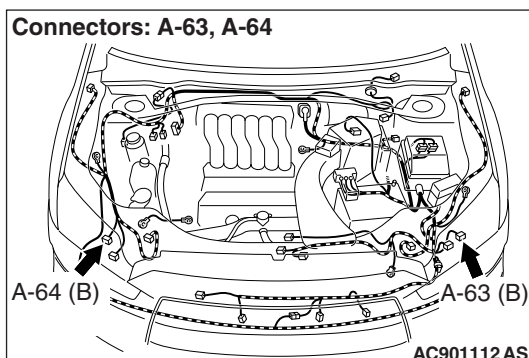
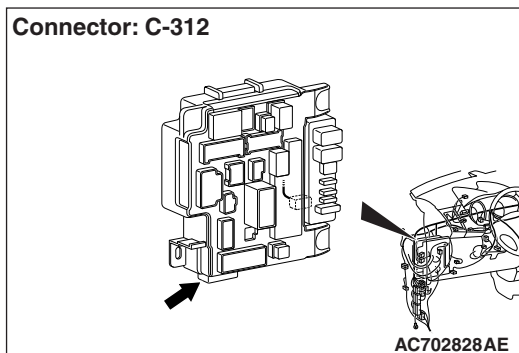
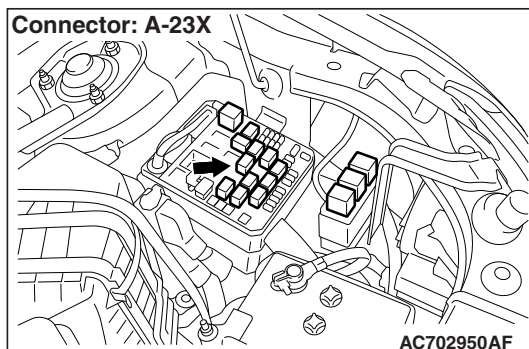
CAUTION

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-158](#)).

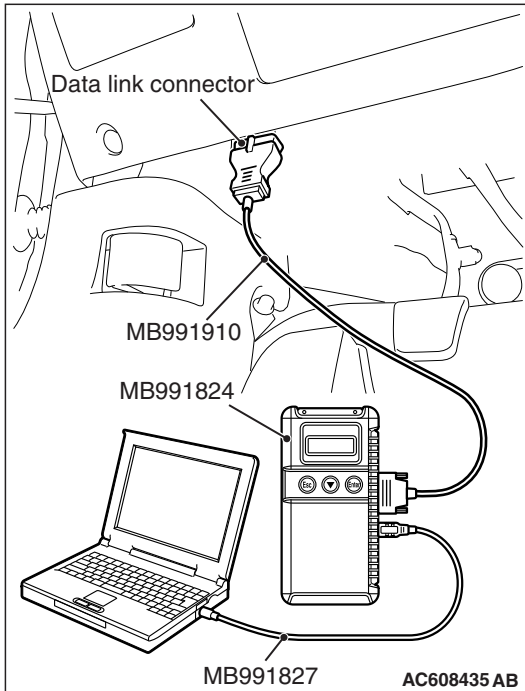
STEP 2. Check the daytime running light bulb.

- (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-128](#)."
- (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-742](#).

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-51](#).

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.

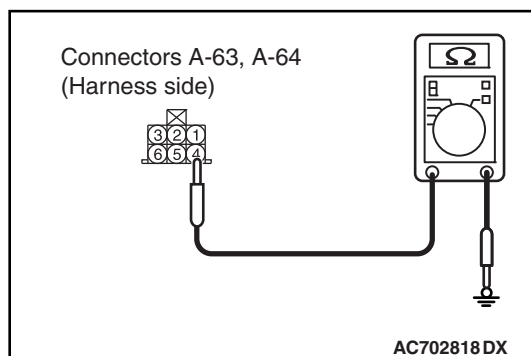
- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Check the resistance between the headlight assembly connector and ground.
 - Resistance between A-64 headlight assembly (DRL:LH) connector terminal No.4 and ground
 - Resistance between A-63 headlight assembly (DRL:RH) connector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

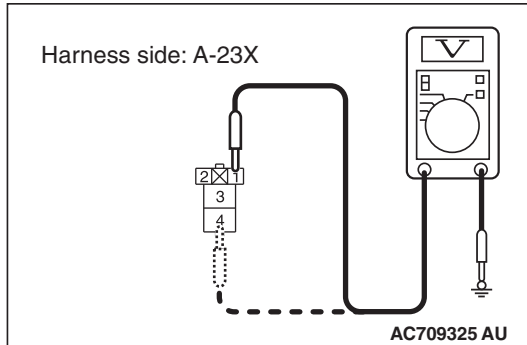
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).

STEP 11. Check the daytime running light relay.
Refer to [P.54A-282](#).

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?

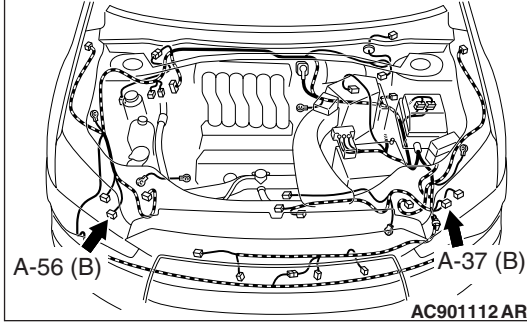
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction [P.00-15](#)).

NO : Replace the ETACS-ECU.

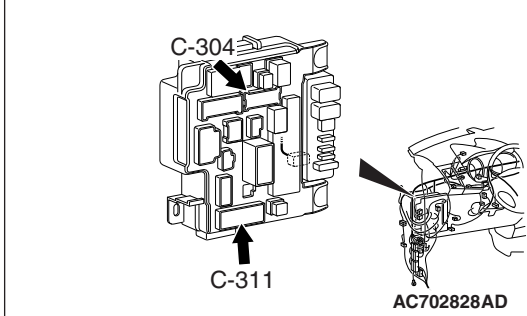
Position Lights, Licence Plate Lights and Rear Side Marker Lights Circuit



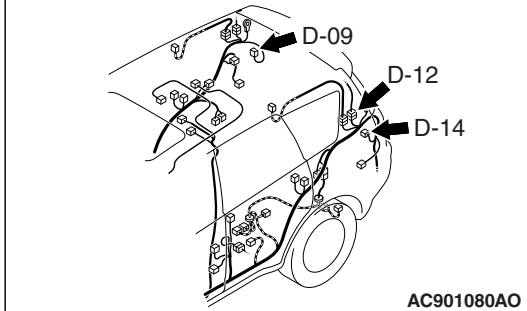
Connectors: A-37, A-56



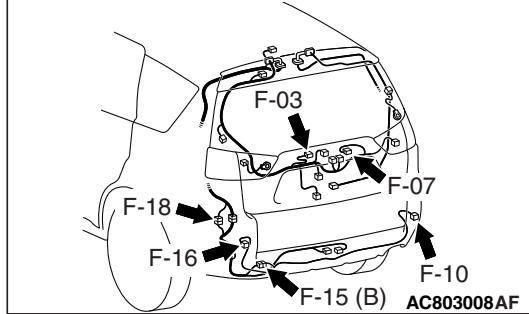
Connectors: C-304, C-311



Connectors: D-09, D-12, D-14



Connectors: F-03, F-07, F-10, F-15, F-16, F-18



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-247](#).

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.

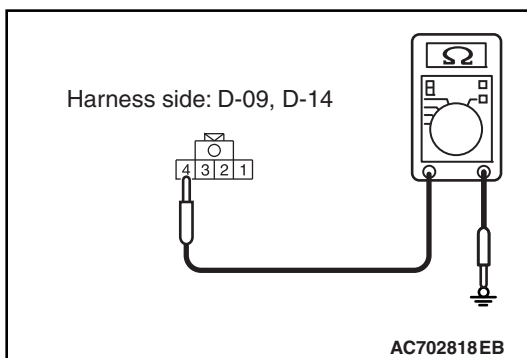
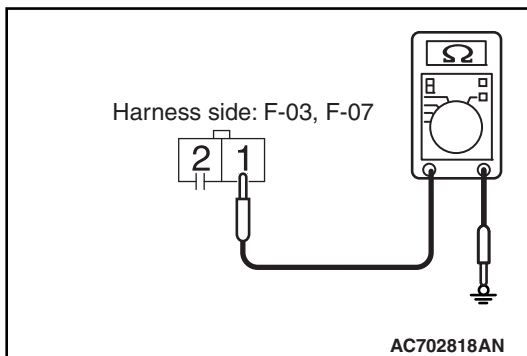
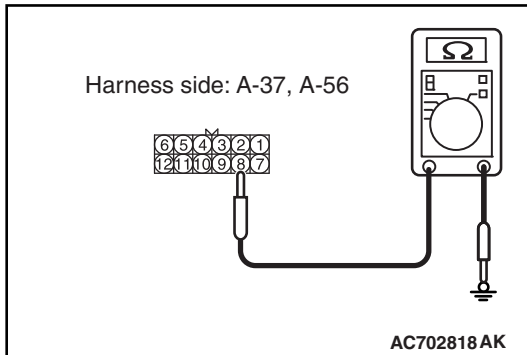
NO : Replace the bulb(s) of the light that does not illuminate.

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).

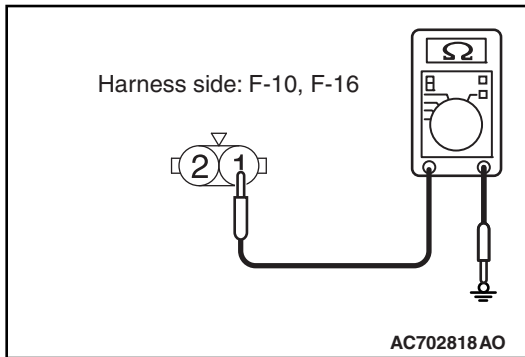
(1) Disconnect the connector, and measure at the wiring harness side.

(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.



- 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.

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

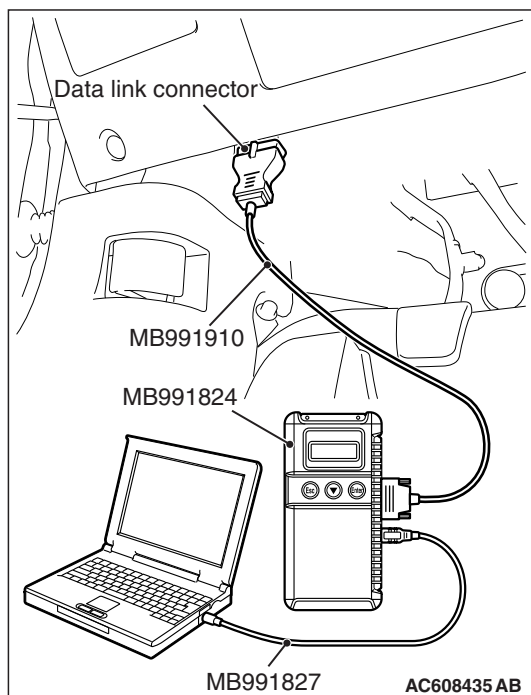
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-128](#)."
- (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-132](#).

NO : Go to Step 3.

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

Check if DTC is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the ETACS (Refer to [P.54A-742](#)).

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-159](#).

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-796](#).

STEP 6. Lighting control sensor check

Check the lighting control sensor. Refer to [P.54A-225](#).

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

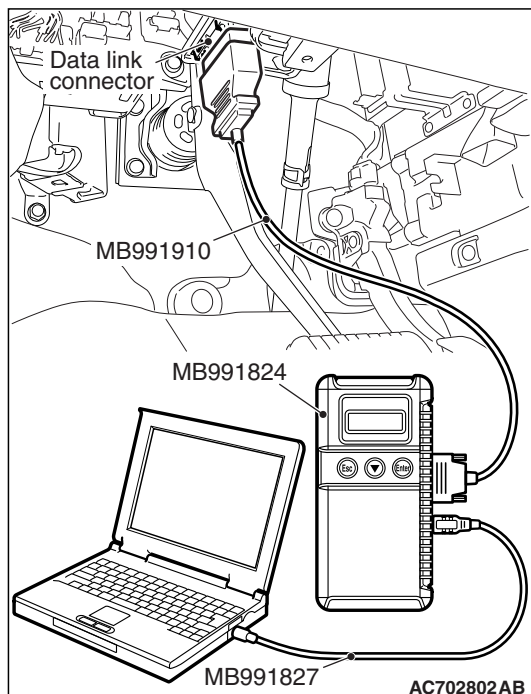
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-128](#)."
- (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-742](#).)

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-796](#).

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)**

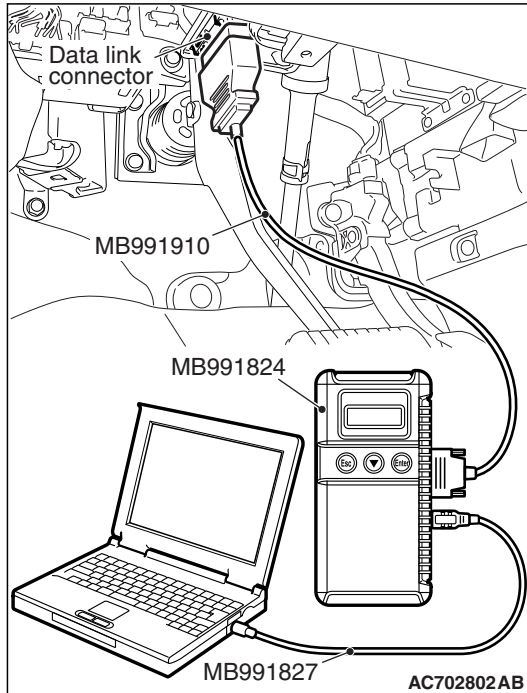
If the comfort flashing function does not work normally, the turn-signal light switch input circuit(s) and ETACS-ECU may have a problem.

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-128](#)."
- (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-216](#)).

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-742](#))

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-200](#).

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)

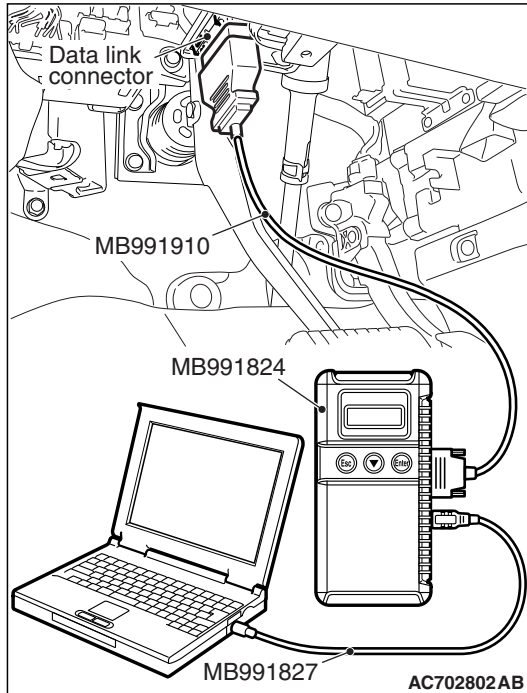
STEP 1. Check turn-signal light.

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-200](#).



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-128](#)."
- (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-742](#).

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**

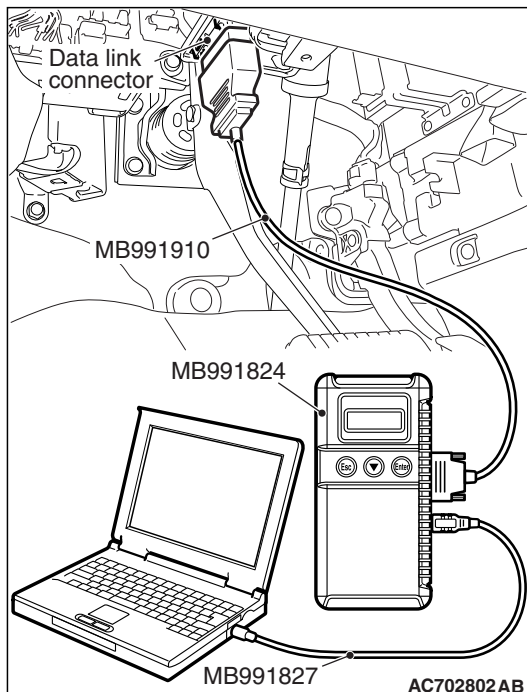
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-128](#)."
- (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-216](#)).



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-742](#))

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-131](#) <KOS> or GROUP 42C, Troubleshooting [P.42C-82](#) <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-158](#).

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**

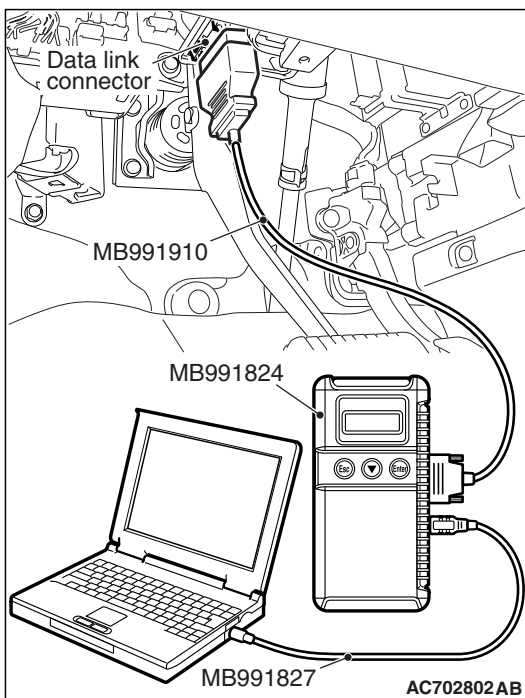
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-128](#)."
- (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-216](#)).

**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-742](#))

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-800](#).

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-158](#).

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 <LIGHTING CONTROL SENSOR (LIGHT SENSOR)>

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

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

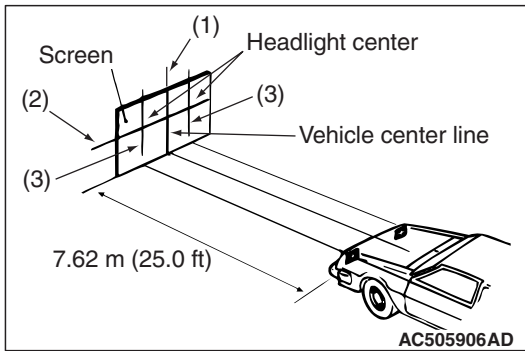
ON-VEHICLE SERVICE

HEADLIGHT AIMING

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.

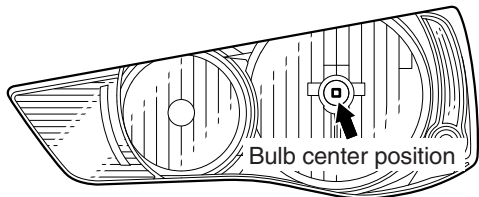


11. Set the distance between the screen and the bulb center marks of the headlight as shown in the illustration.

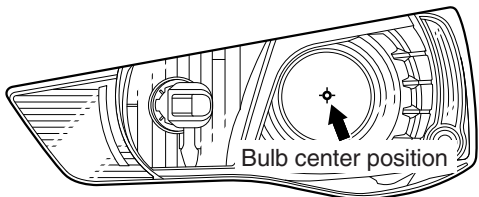
12. Four lines of adhesive tape (or equivalent markings) are required on screen or wall:

- (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.

Vehicles without discharge headlight



Vehicles with discharge headlight

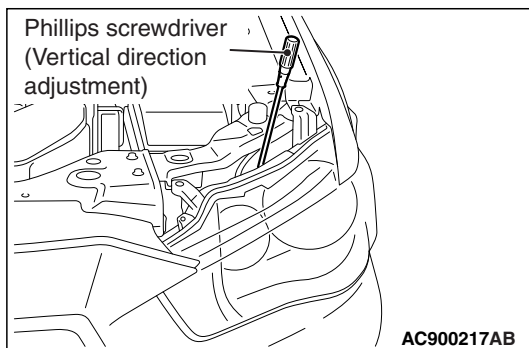


HEADLIGHT ADJUSTMENT (LOW-BEAM)

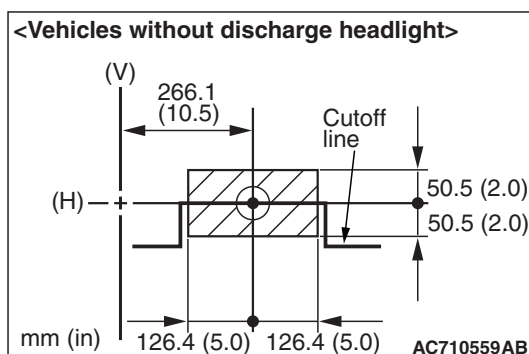
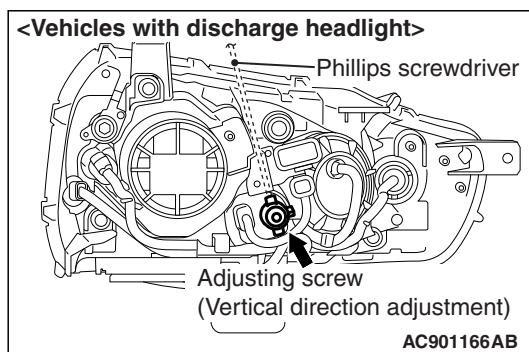
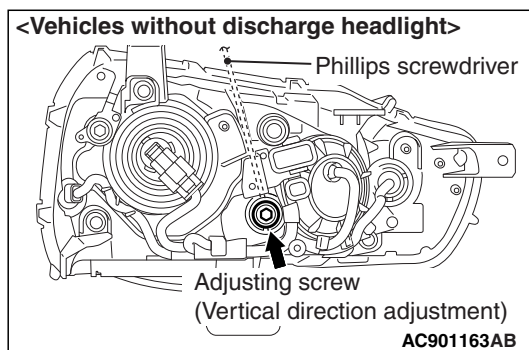
⚠ CAUTION

- 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).



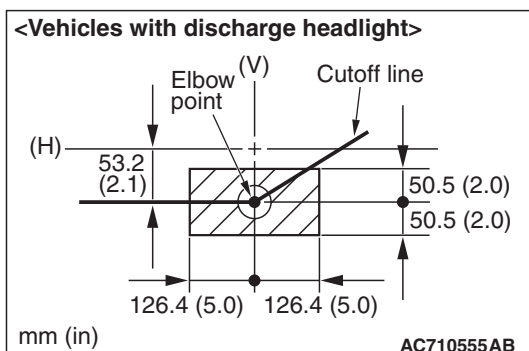
- Turn the adjusting screw to achieve the specified low-beam cut-off location on the aiming screen.



Standard value <Vehicles without discharge headlight>:

(Vertical direction) Horizontal line (H) ± 50.5 mm (± 2.0 inches) (± 0.38 degrees angle)

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



Standard value <Vehicles with discharge headlight>:

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

(Horizontal direction): Elbow point intersects the vertical line (V). ± 126.4 mm (± 5.0 inches) (± 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

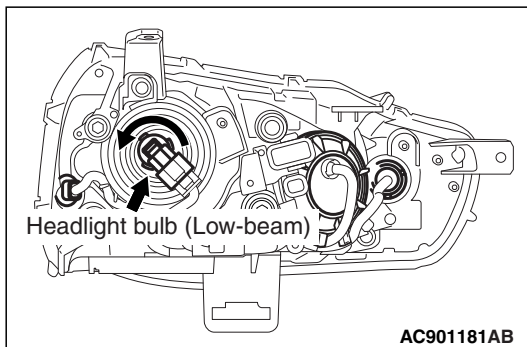
REPLACE THE BULB

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.

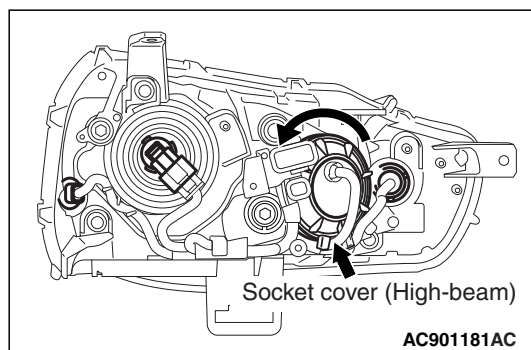
Disconnect the connector, and twist the headlight bulb (low-beam) to remove.



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

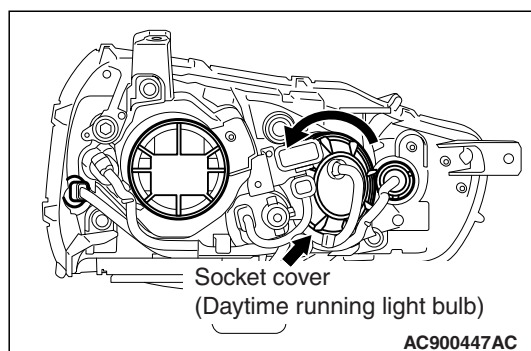
Do not touch the bulb surface with bare hands or dirty gloves. If the bulb surface (glass part) gets dirty, immediately clean it with alcohol or thinner. After drying completely, install the bulb.

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

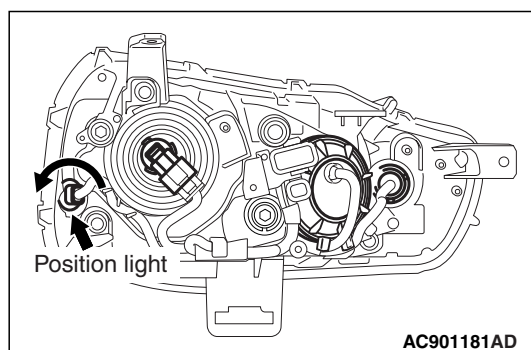
**DAYTIME RUNNING LIGHT BULB REPLACEMENT
<VEHICLES WITH DISCHARGE HEADLIGHT>****⚠ CAUTION**

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.

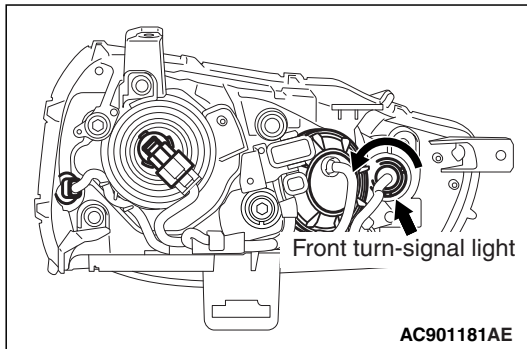
**POSITION LIGHT BULB REPLACEMENT**

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-158](#)).

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-158](#).)

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)
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

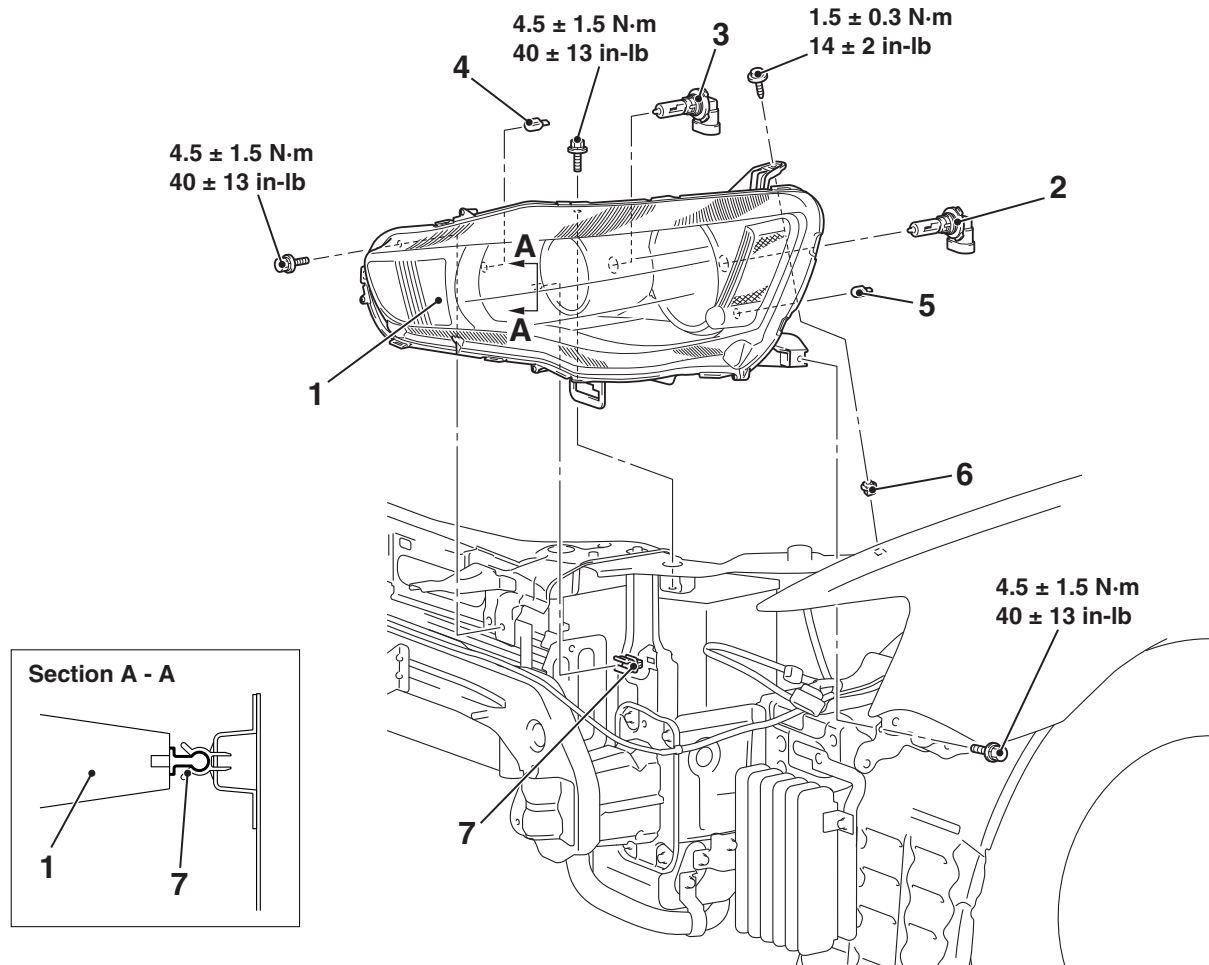
<VEHICLES WITHOUT DISCHARGE HEADLIGHT>

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-210).

**Removal Steps**

1. Headlight assembly
2. Headlight bulb (low-beam)
3. Headlight bulb (high-beam)
4. Front turn-signal light bulb

Removal Steps (Continued)

5. Position light bulb
6. Grommet
7. Grommet

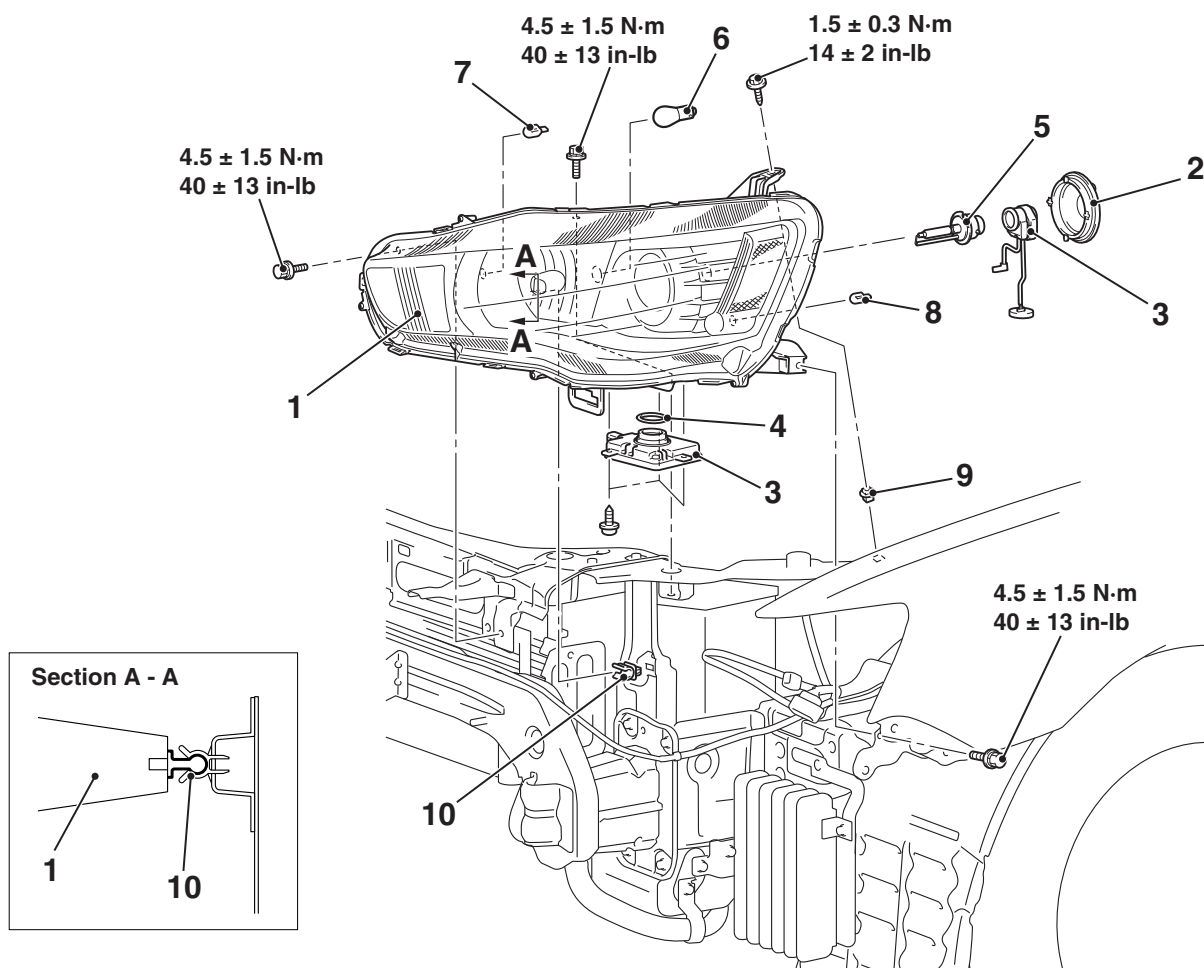
<VEHICLES WITH DISCHARGE HEADLIGHT>

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-210).



AC901199AB

Removal Steps

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

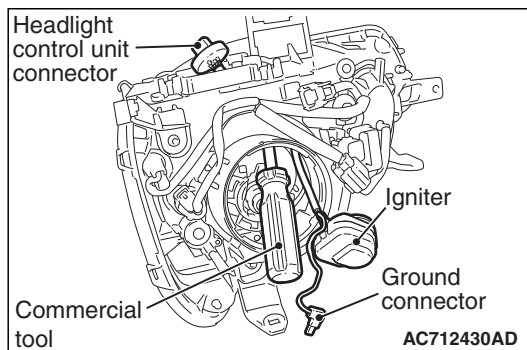
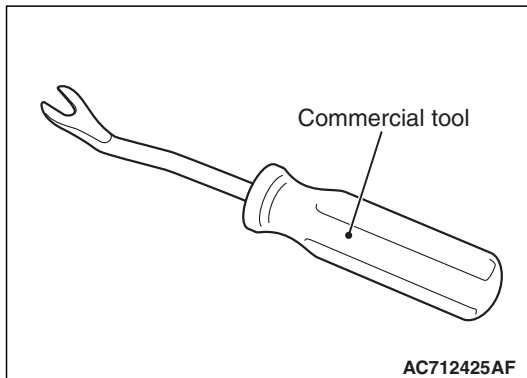
Removal Steps (Continued)

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

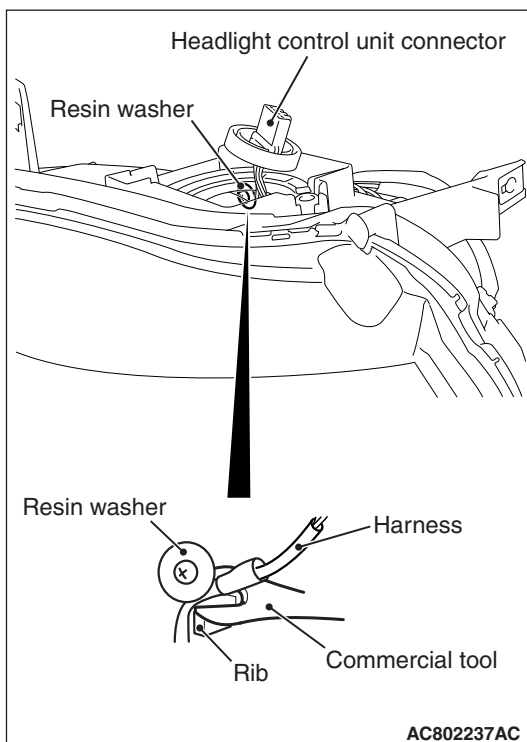
REMOVAL SERVICE POINTS

<<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.

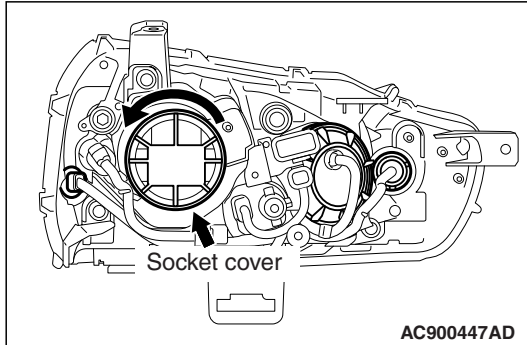


3. Using the commercial tool, make the resin washer sag to push up the harness above the resin washer.
4. Pull out the harness from the headlight assembly.

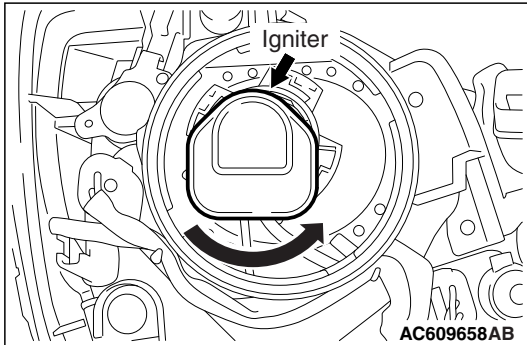
<> HEADLIGHT BULB REMOVAL <VEHICLES
WITH DISCHARGE HEADLIGHT>**⚠ CAUTION**

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.

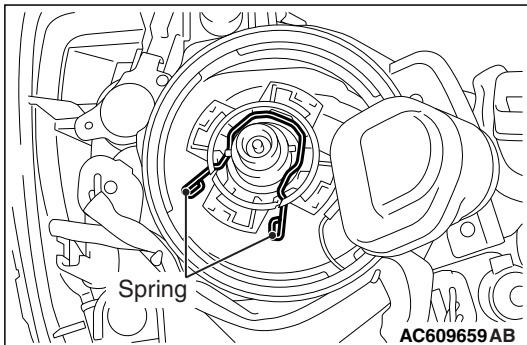
1. Twist the socket cover to remove.



2. Disconnect the igniter.

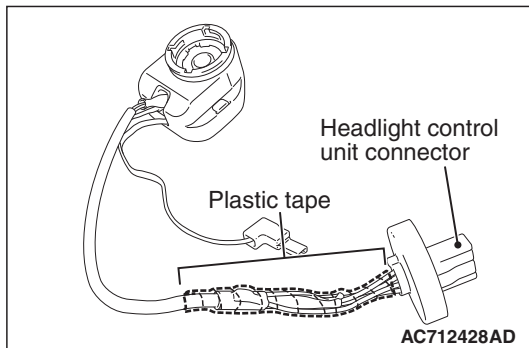


3. Release the bulb securing spring, and remove the bulb.

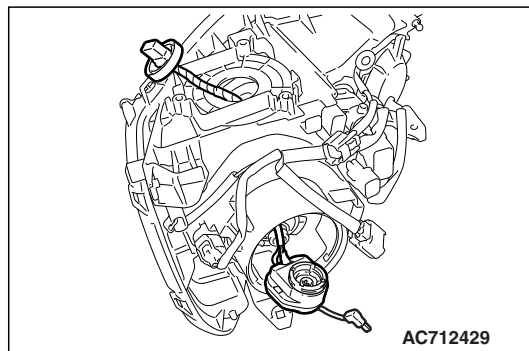


INSTALLATION SERVICE POINT

>>A<< HEADLIGHT CONTROL UNIT INSTALLATION <VEHICLES WITH DISCHARGE HEADLIGHT>



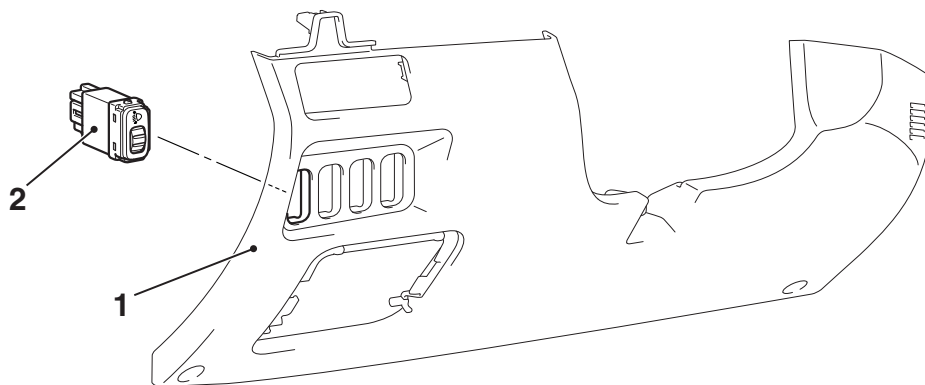
1. As shown in the figure, doubly wrap the portion in the vinyl tape, from the headlight control unit connector root to the point where the harness separation is hidden.



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



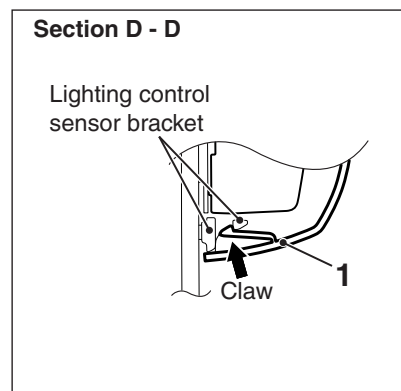
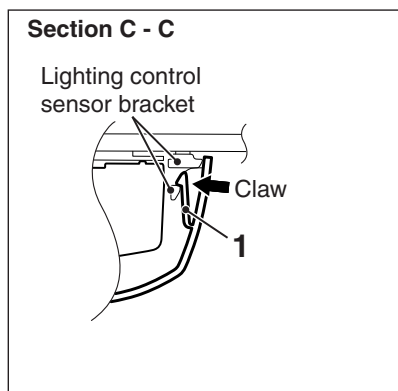
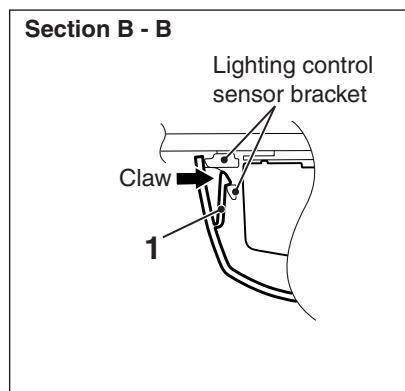
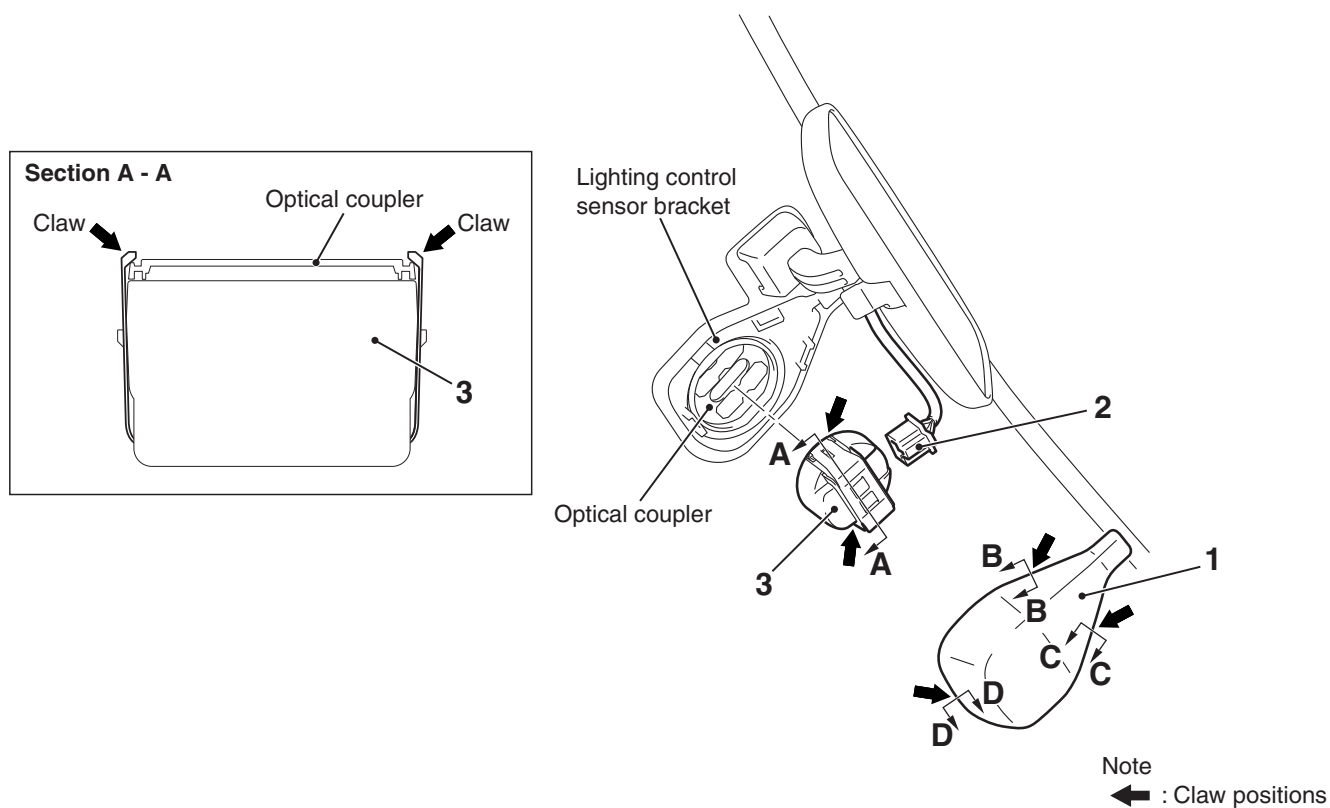
AC900081AB

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



AC709252AB

Removal Steps

1. Lighting control sensor cover

<<A>> >>A<<

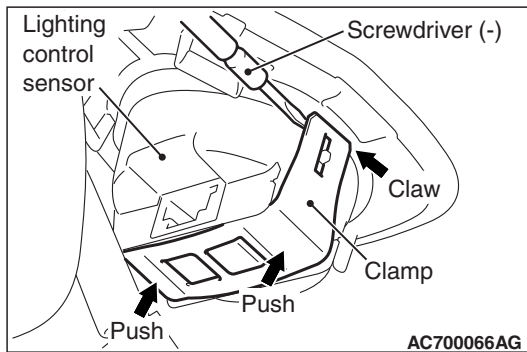
Removal Steps (Continued)

2. Connector
3. Lighting control sensor

REMOVAL SERVICE POINT

<<A>> LIGHTING CONTROL SENSOR REMOVAL

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



INSTALLATION SERVICE POINT

>>A<< 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.51-84](#)>.

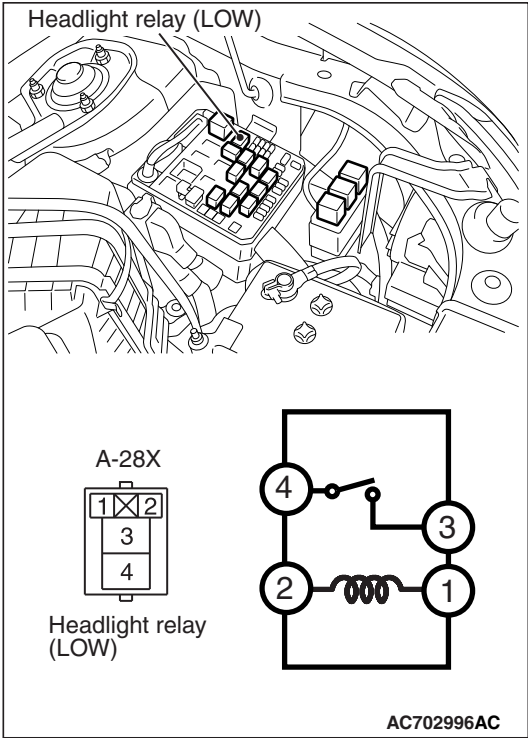
NOTE: Be careful not to touch the lighting control sensor receiver. (The lighting control sensor receiver has limited resistance to oil.)

INSPECTION

HEADLIGHT RELAY CHECK

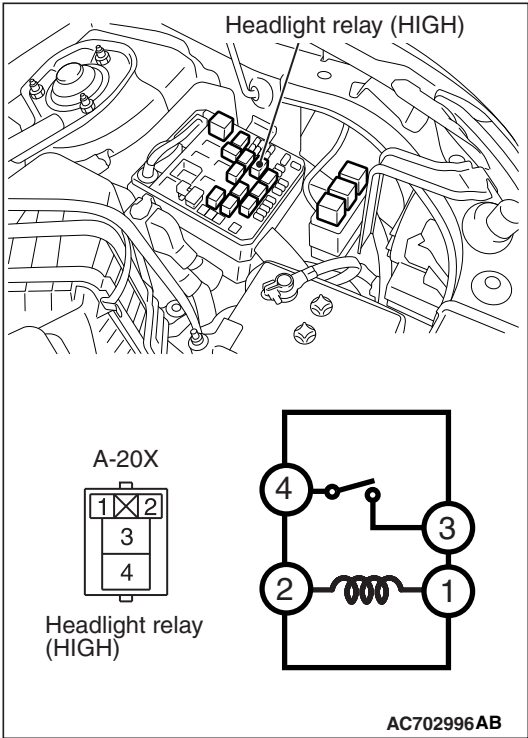
M1540104000196

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)

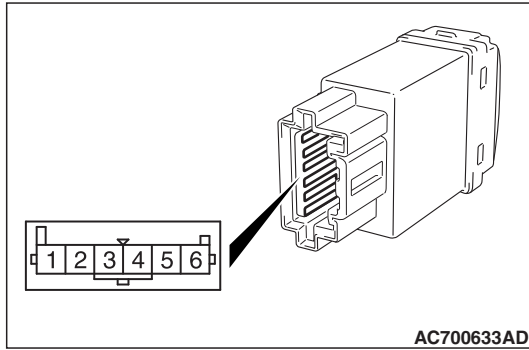
HEADLIGHT RELAY (HIGH) CHECK



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)

HEADLIGHT LEVELING SWITCH CHECK

M1540101300325



Measured terminals	Switch position	Resistance value Ω
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.

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

NOTE:

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

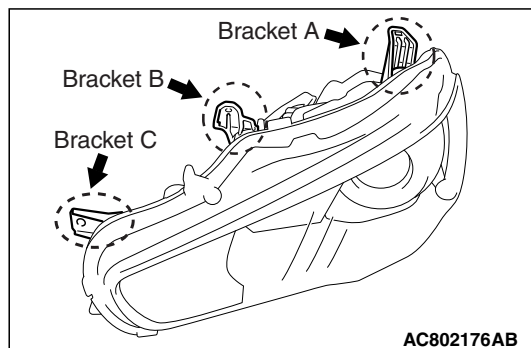
BRACKET REPAIR OF HEADLIGHT ASSEMBLY

M1540104500113

CAUTION

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

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

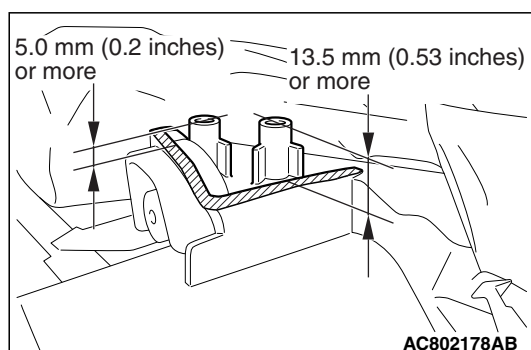
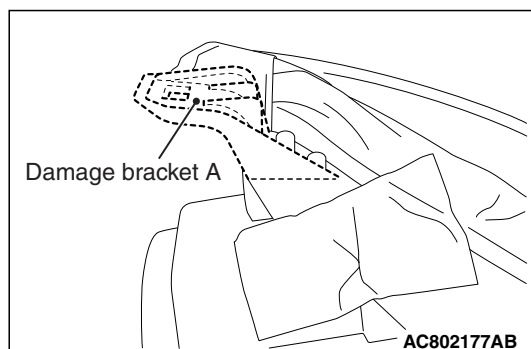


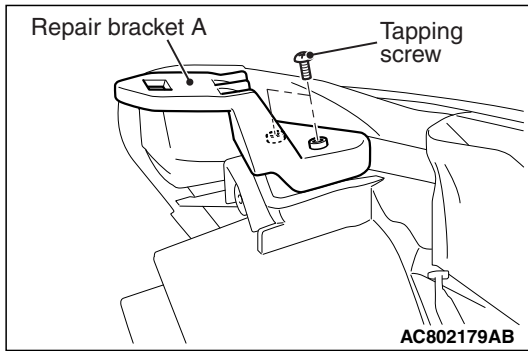
OPERATIONS BEFORE REPAIRING BRACKET

Remove the headlight assembly.

REPAIR PROCEDURE OF BRACKET A

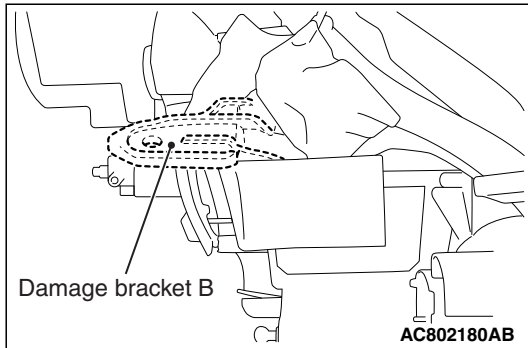
1. Cut the damaged bracket A so that it has the larger dimension than the dimension shown in the figure from the mounting boss seating face.
2. Smoothen the bracket cut surface using the sandpaper.



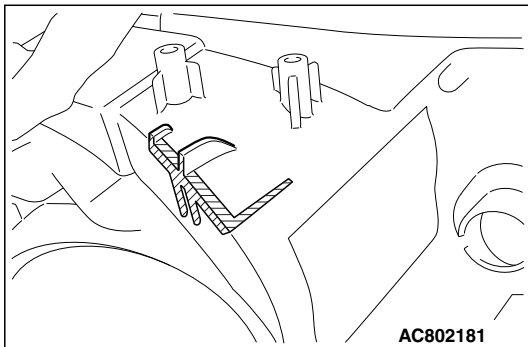


3. Fix the repair bracket A to the headlight assembly using the tapping screw.

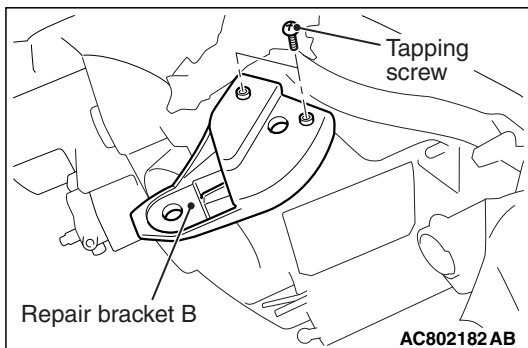
REPAIR PROCEDURE OF BRACKET B



1. Cut off the damaged bracket B.



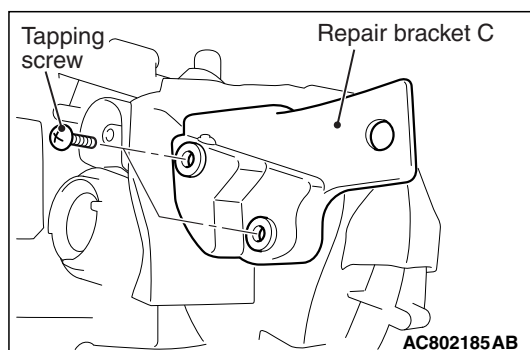
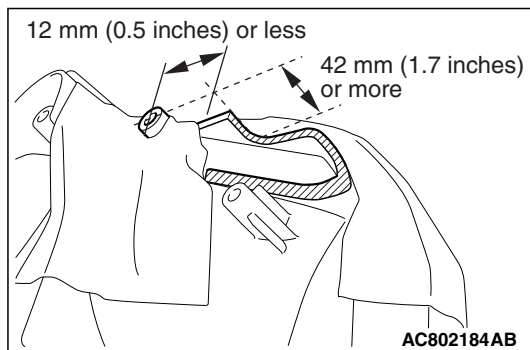
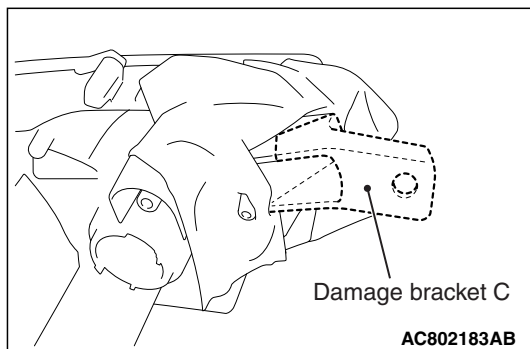
2. Remove the remaining bracket cut surface using the sandpaper.



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

REPAIR PROCEDURE OF BRACKET C

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



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

OPERATIONS AFTER REPAIRING BRACKET

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

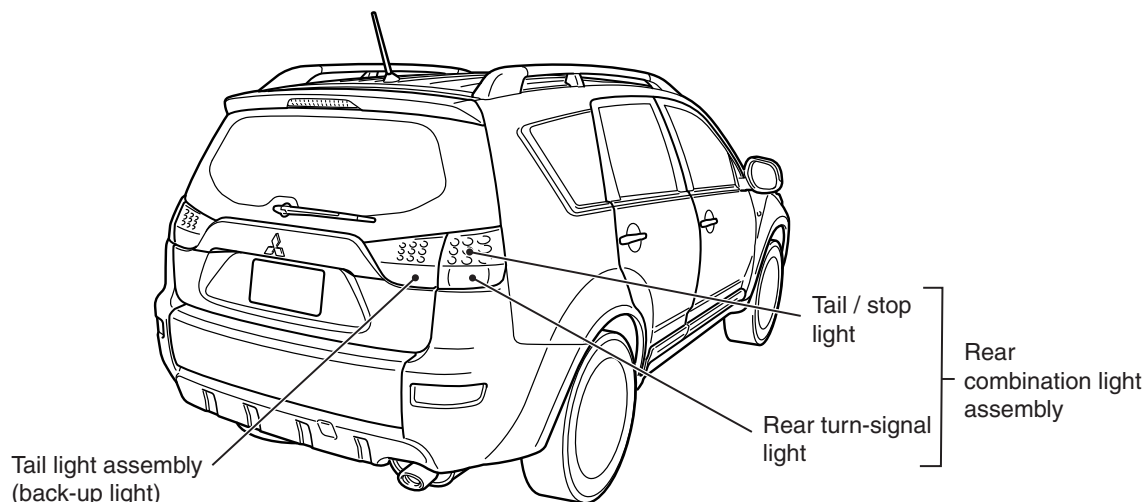
REPAIR BRACKET PART NUMBER

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

REAR COMBINATION LIGHT

GENERAL INFORMATION

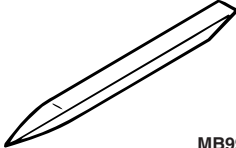
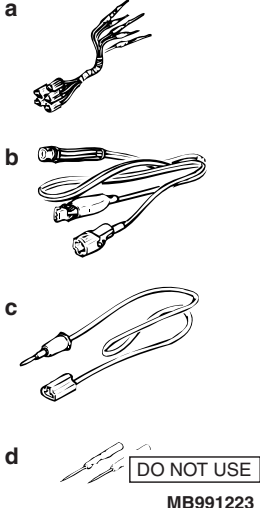
M1542000100372

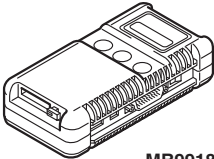
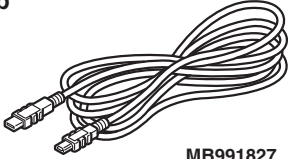
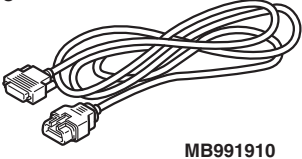
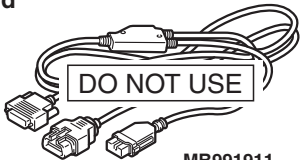
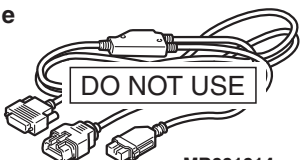
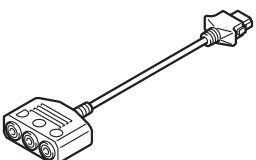
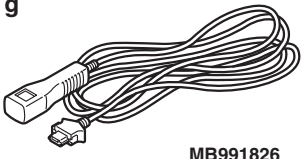
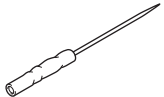


AC703004AB

SPECIAL TOOLS

M1541400100281

Tool	Tool number and name	Supersession	Application
 MB990784	MB990784 Ornament remover	General service tool	Removal of liftgate garnish, rear combination light assembly, tail light assembly
 a b c d DO NOT USE 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 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
<p>a</p>  <p>MB991824</p> <p>b</p>  <p>MB991827</p> <p>c</p>  <p>MB991910</p> <p>d</p>  <p>MB991911</p> <p>e</p>  <p>MB991914</p> <p>f</p>  <p>MB991825</p> <p>g</p>  <p>MB991826 MB991958</p>	<p>MB991958</p> <p>a. MB991824</p> <p>b. MB991827</p> <p>c. MB991910</p> <p>d. MB991911</p> <p>e. MB991914</p> <p>f. MB991825</p> <p>g. MB991826</p> <p>M.U.T.-III sub assembly</p> <p>a. Vehicle communication interface (V.C.I.)</p> <p>b. M.U.T.-III USB cable</p> <p>c. M.U.T.-III main harness A (Vehicles with CAN communication system)</p> <p>d. M.U.T.-III main harness B (Vehicles without CAN communication system)</p> <p>e. M.U.T.-III main harness C (for Chrysler models only)</p> <p>f. M.U.T.-III measurement adapter</p> <p>g. M.U.T.-III trigger harness</p>	<p>MB991824-KIT</p> <p><i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i></p>	<p>⚠ CAUTION</p> <p>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.</p> <p>Diagnostic code, service data and actuator test check.</p>
 <p>MB992006</p>	<p>MB992006</p> <p>Extra fine probe</p>	<p>–</p>	<p>Continuity check and voltage measurement at harness wire or connector.</p>

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 –Contents of troubleshooting

P.00-7.

M1541402500144

DIAGNOSTIC FUNCTION

M1541400900094

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

Required Special Tools:

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

⚠ CAUTION

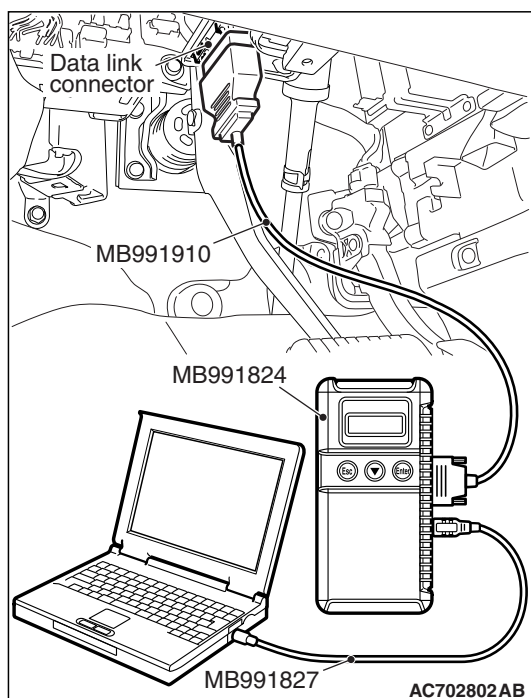
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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

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

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

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



HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

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

⚠ CAUTION

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

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

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

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

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

DIAGNOSTIC TROUBLE CODE CHART

M1541400200084

⚠ CAUTION

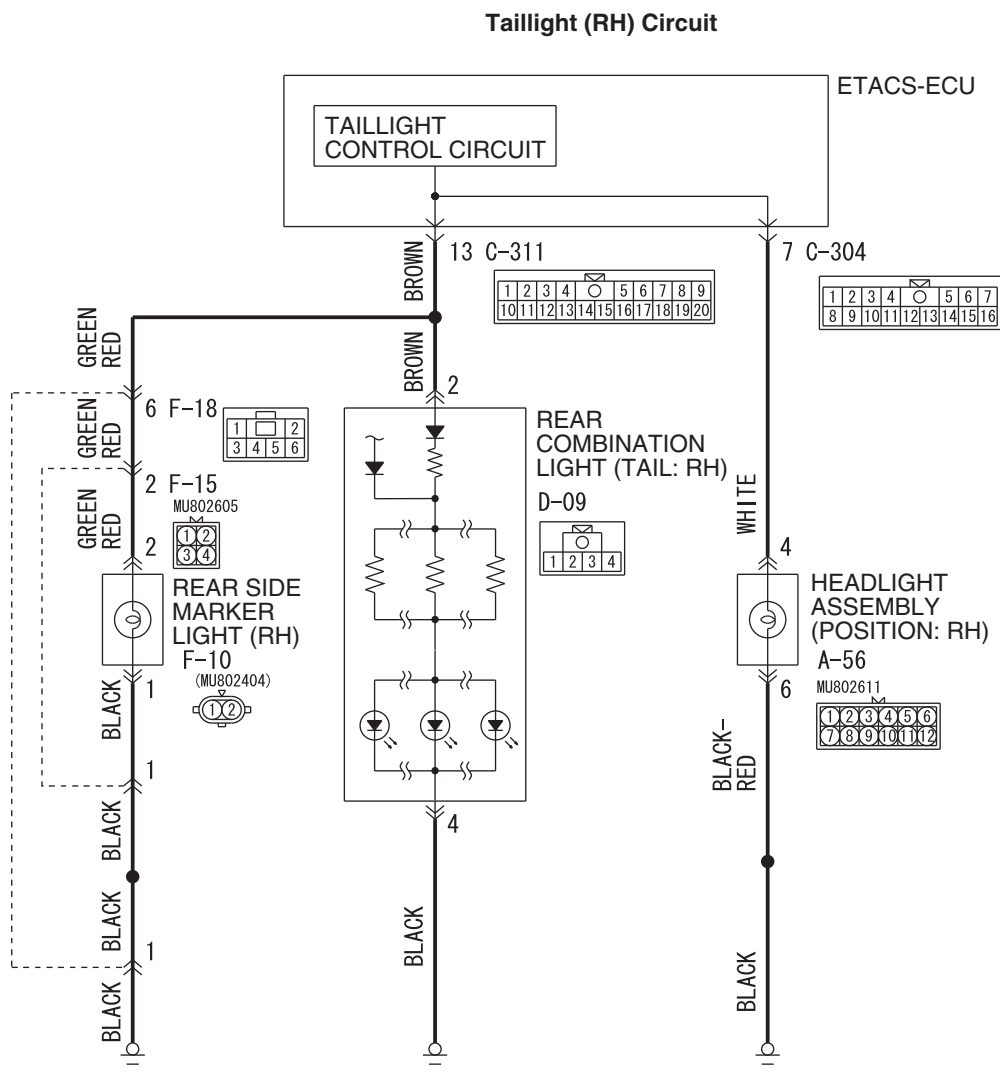
On troubleshooting, if the ignition switch is turned ON while disconnecting connector(s), diagnostic trouble code(s) associated with other system may be set. On completion, confirm all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

Diagnostic trouble code No.	Diagnostic item	Reference page
B16A0	Taillight (RH) circuit open <Open circuit in the position light (RH) circuit, rear side marker light (RH) circuit and the taillight (RH) circuit>	P.54A-233
B16A7	Taillight (RH) circuit short <Short circuit in the position light (RH) circuit, rear side marker light (RH) circuit or the taillight (RH) circuit>	
B16A1	Taillight (LH) circuit open <Open circuit in the position light (LH) circuit, rear side marker light (LH) circuit, taillight (LH) circuit and the license plate light circuit>	P.54A-240
B16A8	Taillight (LH) circuit short <Short circuit in the position light (LH) circuit, rear side marker light (LH) circuit, taillight (LH) circuit or the license plate light circuit>	

DIAGNOSTIC TROUBLE CODE PROCEDURES

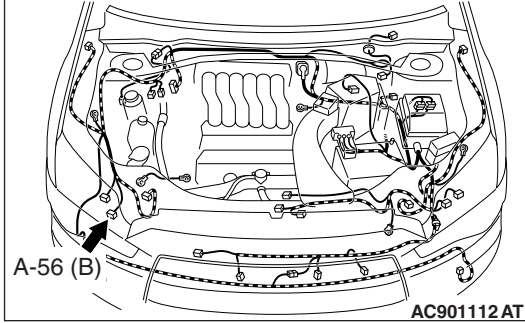
DTC B16A0: Taillight (RH) circuit open <Open circuit in the position light (RH) circuit, rear side marker light (RH) circuit and the taillight (RH) circuit>

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

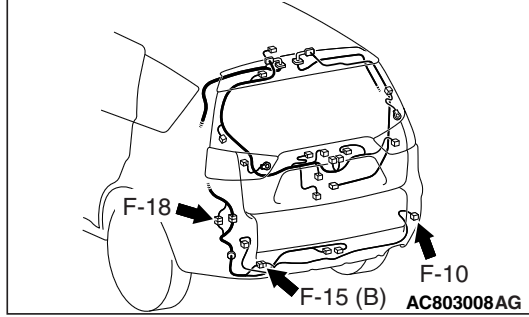


WAG54M018A

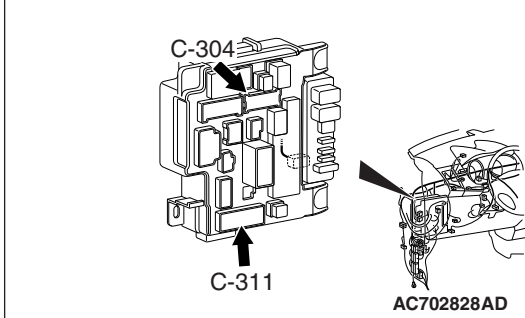
Connector: A-56



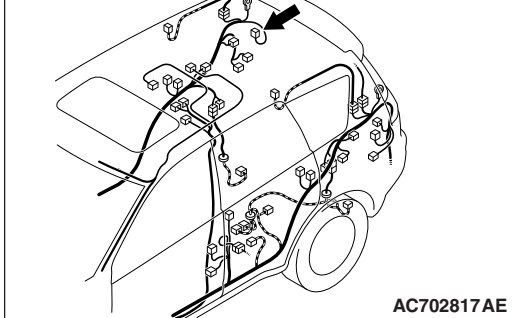
Connectors: F-10, F-15, F-18



Connectors: C-304, C-311



Connector: D-09

**TROUBLE JUDGMENT**

When an open circuit is detected in the taillight circuit, the ETACS-ECU sets DTC B16A0. If a short circuit is detected, DTC B16A7 is set.

TECHNICAL DESCRIPTION (COMMENT)

The problem detection of taillight is made based on the digital feed back signal (input signal to ETACS-ECU) which operates the taillight. When the ignition switch is "ON", the ETACS-ECU determines the taillight circuit state from the load placed on the line. After 100 ms has elapsed since the start of the check, the ETACS-ECU performs a sampling with each 10 ms. If an abnormality is detected, it increases the counter by 2, and when no abnormality is detected, it decreases the counter by 1. Once the counter reaches "10", the ETACS-ECU sets the DTC B16A0 if the load is detected on the line, and sets the DTC B16A7 if no load is detected.

TROUBLESHOOTING HINTS

- Malfunction of bulbs
- Malfunction of rear combination light unit (RH)
- 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. Bulb check.

Check the bulb of the light that does not illuminate.

Q: Is the check result normal?

YES : Go to Step 2.

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

STEP 2. Check headlight assembly (RH) connector A-56 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is headlight assembly (RH) connector A-56 in good condition?

YES : Go to Step 3.

NO : Repair the damaged parts.

STEP 3. Resistance measurement at headlight assembly (RH) connector A-56.

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

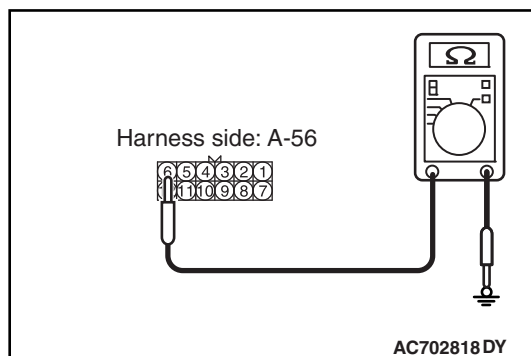
(2) Measure the resistance between headlight assembly (RH) connector A-56 (terminal No. 6) and the body ground.

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 5.

NO : Go to Step 4.



STEP 4. Check the wiring harness between headlight assembly (RH) connector A-56 (terminal No. 6) and ground.

Check the ground line for open circuit.

Q: Is the wiring harness between headlight assembly (RH) connector A-56 (terminal No. 6) and ground in good condition?

YES : Go to Step 17.

NO : Repair the wiring harness.

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

Q: Is ETACS-ECU connectors C-304 in good condition?

YES : Go to Step 6.

NO : Repair the damaged parts.

STEP 6. Check the wiring harness between headlight assembly (RH) A-56 connector (terminal No. 4) and ETACS-ECU connector C-304 (terminal No. 7).

Check the communication line for open or short circuit.

Q: Is the wiring harness between headlight assembly (RH) A-56 connector (terminal No. 4) and ETACS-ECU connector C-304 (terminal No. 7) in good condition?

YES : Go to Step 7.

NO : Repair the wiring harness.

STEP 7. Check rear side marker light (RH) connector F-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear side marker light (RH) connector F-10 in good condition?

YES : Go to Step 8.

NO : Repair the damaged parts.

STEP 8. Resistance measurement at rear side marker light (RH) connector F-10.

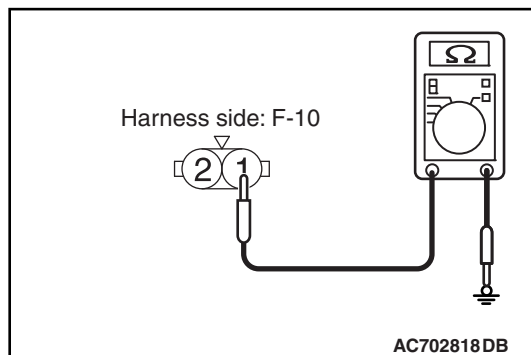
- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between rear side marker light (RH) connector F-10 (terminal No. 1) and the body ground.

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 10.

NO : Go to Step 9.



STEP 9. Check the wiring harness between rear side marker light (RH) connector F-10 (terminal No. 1) and ground.

Check the ground line for open circuit.

NOTE: Before the wiring harness check, check the F-15, F-18 and repair that if necessary.

Q: Is the wiring harness between rear side marker light (RH) connector F-10 (terminal No. 1) and ground in good condition?

YES : Go to Step 17.

NO : Repair the wiring harness.

STEP 10. Check ETACS-ECU connectors C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-311 in good condition?

YES : Go to Step 11.

NO : Repair the damaged parts.

STEP 11. Check the wiring harness between rear side marker light (RH) F-10 connector (terminal No. 2) and ETACS-ECU connector C-311 (terminal No. 13).

Check the communication line for open or short circuit.

NOTE: Before the wiring harness check, check the F-15, F-18 and repair that if necessary.

Q: Is the wiring harness between rear side marker light (RH) F-10 connector (terminal No. 2) and ETACS-ECU connector C-311 (terminal No. 13) in good condition?

YES : Go to Step 12.

NO : Repair the wiring harness.

STEP 12. Check rear combination light (RH) connector D-09 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination light (RH) connector D-09 in good condition?

YES : Go to Step 13.

NO : Repair the damaged parts.

STEP 13. Resistance measurement at rear combination light (RH) connector D-09.

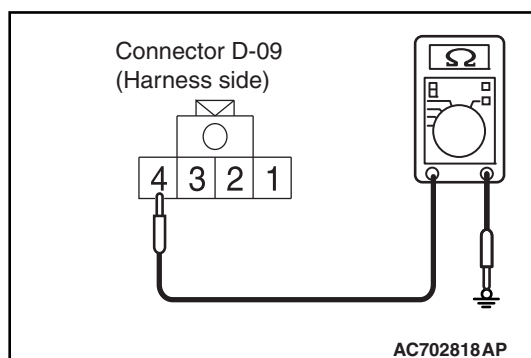
- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between rear combination light (RH) connector D-09 (terminal No. 4) and the body ground.

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 15.

NO : Go to Step 14.



STEP 14. Check the wiring harness between rear combination light (RH) connector D-09 (terminal No. 4) and ground.

Check the ground line for open circuit.

Q: Is the wiring harness between rear combination light (RH) connector D-09 (terminal No. 4) and ground in good condition?

YES : Go to Step 17.

NO : Repair the wiring harness.

STEP 15. Check ETACS-ECU connectors C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-311 in good condition?

YES : Go to Step 16.

NO : Repair the damaged parts.

STEP 16. Check the wiring harness between rear combination light (RH) D-09 connector (terminal No. 2) and ETACS-ECU connector C-311 (terminal No. 13).

Check the communication line for open or short circuit.

Q: Is the wiring harness between rear combination light (RH) D-09 connector (terminal No. 2) and ETACS-ECU connector C-311 (terminal No. 13) in good condition?

YES : Go to Step 17.

NO : Repair the wiring harness.

STEP 17. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

⚠ CAUTION

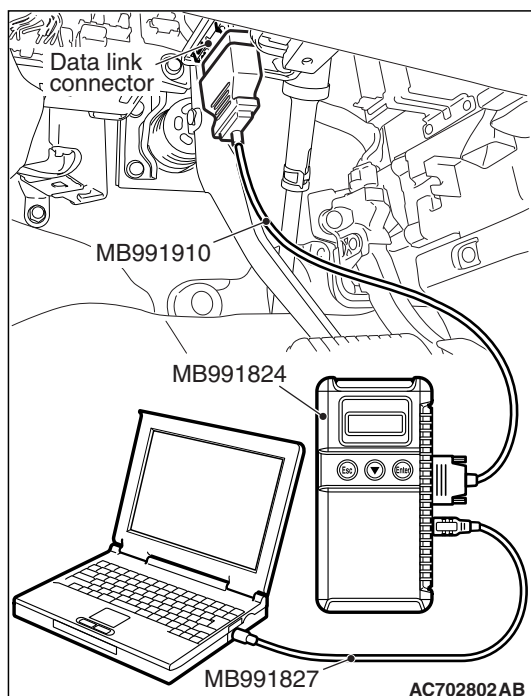
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-231](#)."
- (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 18.

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 18. Substitute a known good rear combination light unit (RH), and Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

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

NO : Replace the rear combination light unit (RH).

DTC B16A8: Taillight (LH) circuit short <Short circuit in the position light (LH) circuit, rear side marker light (LH) circuit, taillight (LH) circuit or the license plate light circuit>

The diagram illustrates the electrical system for the rear of the vehicle, showing the connection of the ETACS-ECU to various lighting components. The main power source is the ETACS-ECU, which provides power to the Taillight Control Circuit. This circuit then distributes power to the Rear Combination Light (Tail: LH), Rear Side Marker Light (LH), and Headlight Assembly (Position: LH).

Key Components and Connections:

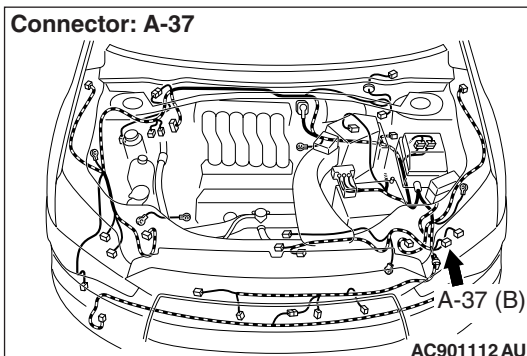
- ETACS-ECU:** The central control unit, connected to the Taillight Control Circuit.
- Taillight Control Circuit:** Receives power from the ETACS-ECU and distributes it to the rear lights.
- Rear Combination Light (Tail: LH):** Labeled D-14, it includes a bulb and a relay. It is connected to the Taillight Control Circuit via a yellow wire (pin 10 of C-311) and to ground via a black wire (pin 4 of D-14).
- Rear Side Marker Light (LH):** Labeled F-16 (MU802404), it is connected to the Taillight Control Circuit via a pink wire (pin 3 of F-18) and to ground via a black wire (pin 1 of F-16).
- Headlight Assembly (Position: LH):** Labeled A-37 (MU802611), it is connected to the Taillight Control Circuit via a green wire (pin 3 of C-304) and to ground via a black wire (pin 6 of A-37).

Connectors and Pinouts:

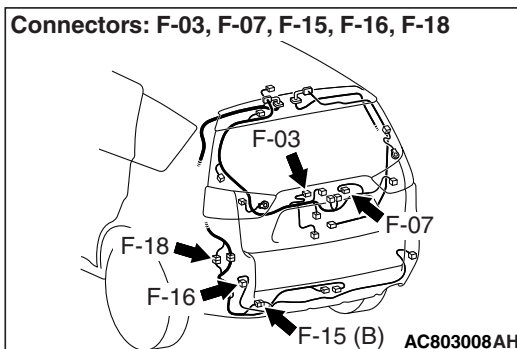
- C-311:** 20-pin connector. Pin 10 (Yellow) is connected to the Taillight Control Circuit. Pin 3 (Pink) is connected to the Rear Side Marker Light. Pin 4 (Black) is connected to ground.
- C-304:** 16-pin connector. Pin 3 (Green) is connected to the Headlight Assembly. Pin 4 (Black) is connected to ground.
- D-12:** 13-pin connector. Pin 13 (Yellow) is connected to the Taillight Control Circuit. Pin 2 (Yellow) is connected to the Rear Combination Light. Pin 1 (Black) is connected to ground.
- D-14:** 4-pin connector. Pin 4 (Black) is connected to ground.
- F-18:** 6-pin connector. Pin 3 (Pink) is connected to the Rear Side Marker Light. Pin 4 (Black) is connected to ground.
- F-15:** 4-pin connector. Pin 4 (Black) is connected to ground.
- F-16:** 2-pin connector. Pin 1 (Black) is connected to ground.
- A-37:** 12-pin connector. Pin 6 (Black) is connected to ground.

TSB Revision

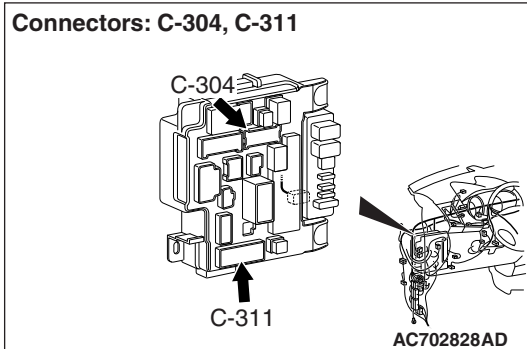
Connector: A-37



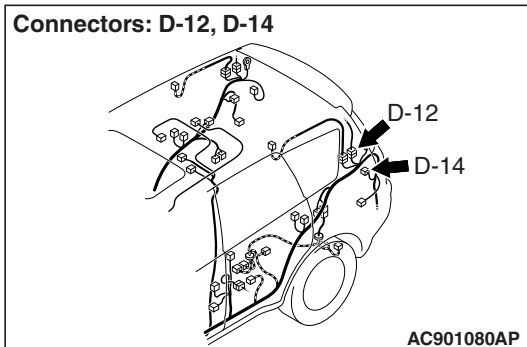
Connectors: F-03, F-07, F-15, F-16, F-18



Connectors: C-304, C-311



Connectors: D-12, D-14



TROUBLE JUDGMENT

When an open circuit is detected in the taillight circuit, the ETACS-ECU sets DTC B16A1. If a short circuit is detected, DTC B16A8 is set.

TECHNICAL DESCRIPTION (COMMENT)

The problem detection of taillight is made based on the digital feed back signal (input signal to ETACS-ECU) which operates the taillight. When the ignition switch is "ON", the ETACS-ECU determines the taillight circuit state from the load placed on the line. After 100 ms has elapsed since the start of the check, the ETACS-ECU performs a sampling with each 10 ms. If an abnormality is detected, it increases the counter by 2, and when no abnormality is detected, it decreases the counter by 1. Once the counter reaches "10", the ETACS-ECU sets the DTC B16A1 if the load is detected on the line, and sets the DTC B16A8 if no load is detected.

TROUBLESHOOTING HINTS

- Malfunction of bulbs
- Malfunction of rear combination light unit (LH)
- 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. Bulb check.

Check the bulb of the light that does not illuminate.

Q: Is the check result normal?

YES : Go to Step 2.

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

STEP 2. Check headlight assembly (LH) connector A-37 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q: Is headlight assembly (LH) connector A-37 in good condition?**

YES : Go to Step 3.

NO : Repair the damaged parts.

STEP 3. Resistance measurement at headlight assembly (LH) connector A-37.

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

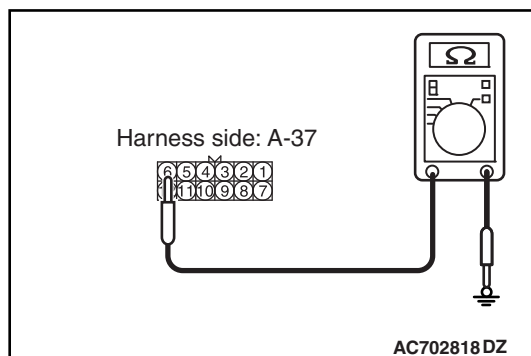
(2) Measure the resistance between headlight assembly (LH) connector A-37 (terminal No. 6) and the body ground.

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 5.

NO : Go to Step 4.

**STEP 4. Check the wiring harness between headlight assembly (LH) connector A-37 (terminal No. 6) and ground.**
Check the ground line for open circuit.**Q: Is the wiring harness between headlight assembly (LH) connector A-37 (terminal No. 6) and ground in good condition?**

YES : Go to Step 22.

NO : Repair the wiring harness.

STEP 5. Check ETACS-ECU connectors C-304 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q: Is ETACS-ECU connectors C-304 in good condition?**

YES : Go to Step 6.

NO : Repair the damaged parts.

STEP 6. Check the wiring harness between headlight assembly (LH) A-37 connector (terminal No. 4) and ETACS-ECU connector C-304 (terminal No. 3).

Check the communication line for open or short circuit.

Q: Is the wiring harness between headlight assembly (LH) A-37 connector (terminal No. 4) and ETACS-ECU connector C-304 (terminal No. 3) in good condition?

YES : Go to Step 7.

NO : Repair the wiring harness.

STEP 7. Check rear side marker light (LH) connector F-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear side marker light (LH) connector F-16 in good condition?

YES : Go to Step 8.

NO : Repair the damaged parts.

STEP 8. Resistance measurement at rear side marker light (LH) connector F-16.

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

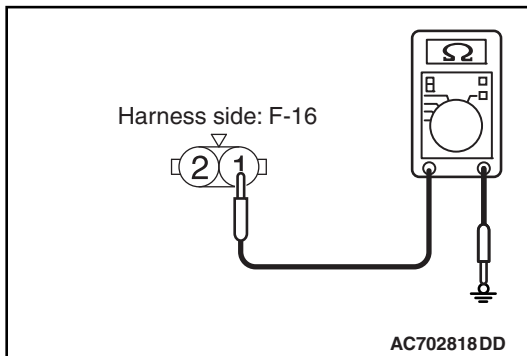
(2) Measure the resistance between rear side marker light (LH) connector F-16 (terminal No. 1) and the body ground.

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 10.

NO : Go to Step 9.



STEP 9. Check the wiring harness between rear side marker light (LH) connector F-16 (terminal No. 1) and ground.

Check the ground line for open circuit.

NOTE: Before the wiring harness check, check the F-15, F-18 and repair that if necessary.

Q: Is the wiring harness between rear side marker light (LH) connector F-16 (terminal No. 1) and ground in good condition?

YES : Go to Step 22.

NO : Repair the wiring harness.

STEP 10. Check ETACS-ECU connectors C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-311 in good condition?

YES : Go to Step 11.

NO : Repair the damaged parts.

STEP 11. Check the wiring harness between rear side marker light (LH) F-16 connector (terminal No. 2) and ETACS-ECU connector C-311 (terminal No. 10).

Check the communication line for open or short circuit.

NOTE: Before the wiring harness check, check the F-15, F-18 and repair that if necessary.

Q: Is the wiring harness between rear side marker light (LH) F-16 connector (terminal No. 2) and ETACS-ECU connector C-311 (terminal No. 10) in good condition?

YES : Go to Step 12.

NO : Repair the wiring harness.

STEP 12. Check license plate light (LH) connector F-03 and license plate light (RH) connector F-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is license plate light (LH) connector F-03 and license plate light (RH) connector F-07 in good condition?

YES : Go to Step 13.

NO : Repair the damaged parts.

STEP 13. Resistance measurement at license plate light (LH) connector F-03 and license plate light (RH) connector F-07.

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

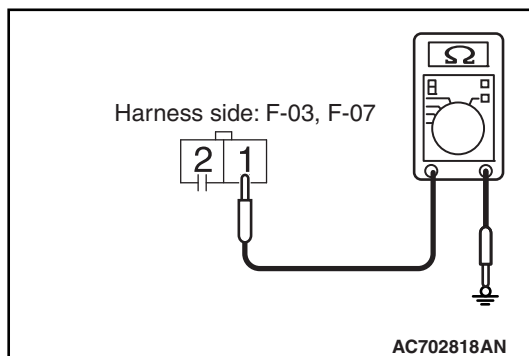
(2) Measure the resistance between license plate light connector F-03 (LH), F-07 (RH) (terminal No. 1) and the body ground.

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 15.

NO : Go to Step 14.



STEP 14. Check the wiring harness between license plate light connector F-03 (LH) or F-07 (RH) (terminal No. 1) and ground.

Check the ground line for open circuit.

Q: Is the wiring harness between license plate light connector F-03 (LH) or F-07 (terminal No. 1) and ground in good condition?

YES : Go to Step 22.

NO : Repair the wiring harness.

STEP 15. Check ETACS-ECU connectors C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-311 in good condition?

YES : Go to Step 16.

NO : Repair the damaged parts.

STEP 16. Check the wiring harness between license plate light connector F-03 (LH), F-07 (RH) (terminal No. 2) and ETACS-ECU connector C-311 (terminal No. 10).

Check the communication line for open or short circuit.

NOTE: Before the wiring harness check, check the D-12 and repair that if necessary.

Q: Is the wiring harness between license plate light connector F-03 (LH), F-07 (RH) (terminal No. 2) and ETACS-ECU connector C-311 (terminal No. 10) in good condition?

YES : Go to Step 17.

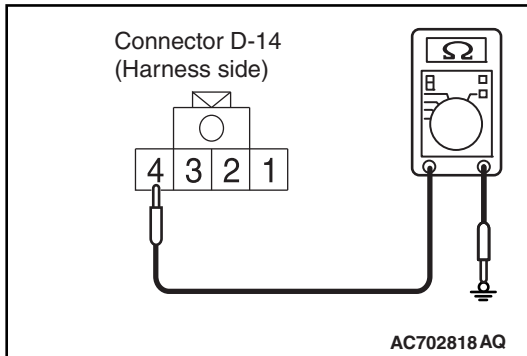
NO : Repair the wiring harness.

STEP 17. Check rear combination light (LH) connector D-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination light (LH) connector D-14 in good condition?

YES : Go to Step 18.

NO : Repair the damaged parts.

**STEP 18. Resistance measurement at rear combination light (LH) connector D-14.**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between rear combination light (LH) connector D-14 (terminal No. 4) and the 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 20.

NO : Go to Step 19.

STEP 19. Check the wiring harness between rear combination light (LH) connector D-14 (terminal No. 4) and ground.

Check the ground line for open circuit.

Q: Is the wiring harness between rear combination light (LH) connector D-14 (terminal No. 4) and ground in good condition?

YES : Go to Step 22.

NO : Repair the wiring harness.

STEP 20. Check ETACS-ECU connectors C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-311 in good condition?

YES : Go to Step 21.

NO : Repair the damaged parts.

STEP 21. Check the wiring harness between rear combination light (LH) D-14 connector (terminal No. 2) and ETACS-ECU connector C-311 (terminal No. 10).

Check the communication line for open or short circuit.

Q: Is the wiring harness between rear combination light (LH) D-14 connector (terminal No. 2) and ETACS-ECU connector C-311 (terminal No. 10) in good condition?

YES : Go to Step 22.

NO : Repair the wiring harness.

STEP 22. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

⚠ CAUTION

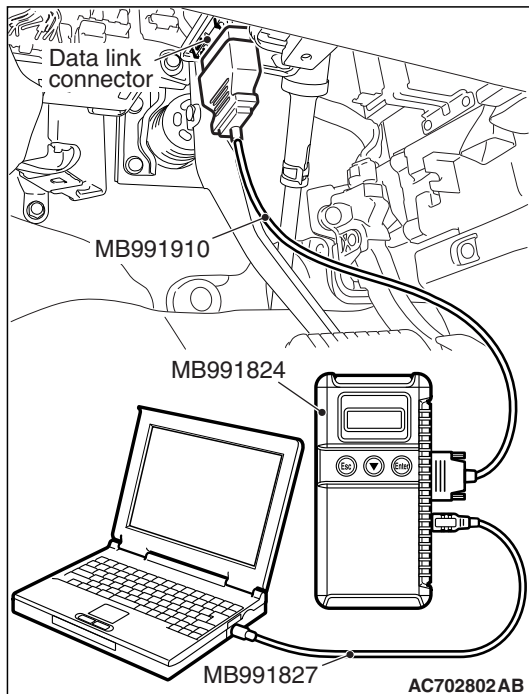
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool [P.54A-231](#)."
- (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 23.

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 23. Substitute a known good rear combination light unit (LH), and Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

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

NO : Replace the rear combination light unit (LH).

TROUBLE SYMPTOM CHART

M1541401000362

Trouble symptom	Inspection Procedure No.	Reference page
None of taillights illuminates.	1	P.54A-248
One of the taillights does not illuminate.	2	P.54A-250
Stoplight does not illuminate or go out normally.	3	P.54A-253

SYMPTOM PROCEDURES

Inspection Procedure 1: None of taillights illuminates.

CAUTION

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

TECHNICAL DESCRIPTION (COMMENT)

If none of taillights illuminates, the taillight switch input circuit or ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

STEP 1. License plate light operation check

Check that the license plate light illuminates normally.

Q: Does license plate light work normally?

YES : Go to Step 2.

NO : Replace the ETACS-ECU.

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

⚠ CAUTION

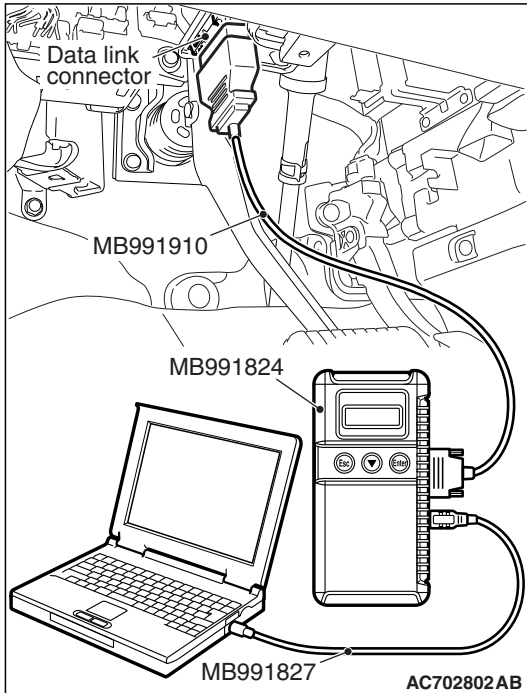
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III)" [P.54A-231](#)."
- (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-742](#).

NO : Go to Step 3.



STEP 3. Using scan tool MB991958, check data list.

Use the ETACS-ECU data list to check the signals related to the taillight illumination.

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

Item No.	Item name	Normal conditions
Item 218	Taillight	ON

Q: Does scan tool MB991958 display the items "Taillight" as normal condition?

YES <Normal condition is displayed for item.> : Go to Step 4.

NO <Normal condition is not displayed for item No.

218.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 12 "ETACS-ECU does not receive any signal from the column switch signal" [P.54A-834](#).

STEP 4. Retest the system

Check that the taillight illuminates normally.

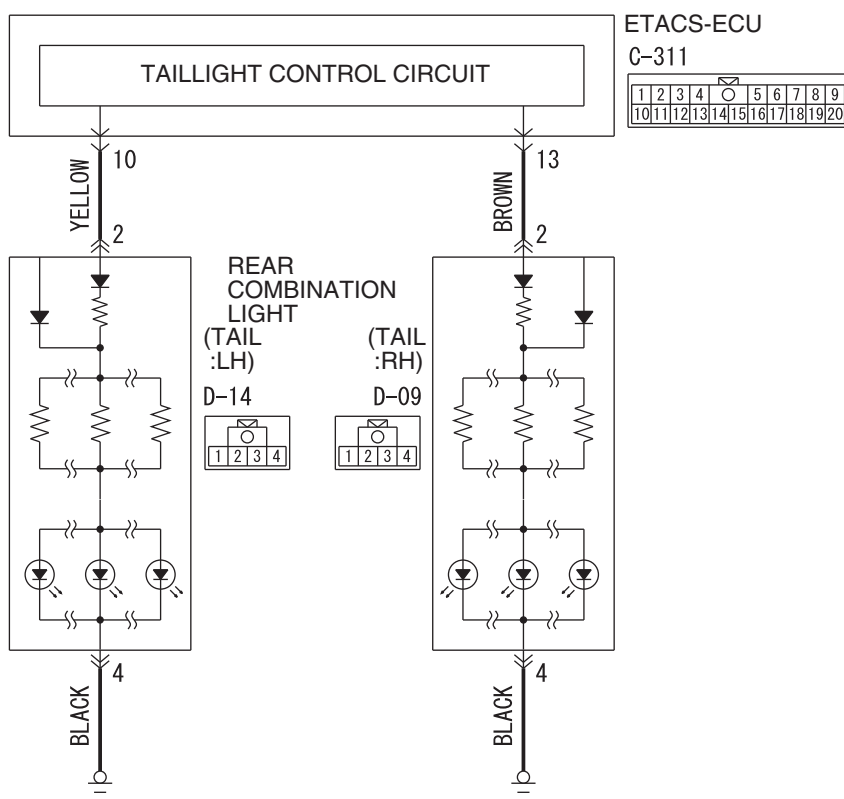
Q: Does the taillight work normally?

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

NO : Replace the ETACS-ECU.

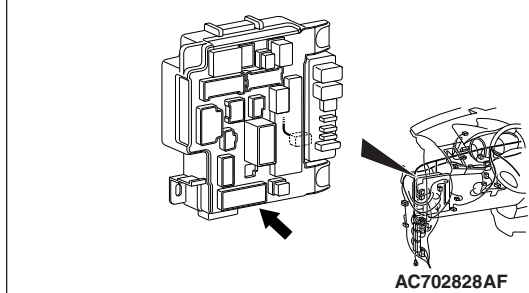
Inspection Procedure 2: One of the taillights does not illuminate.

Taillight Circuit

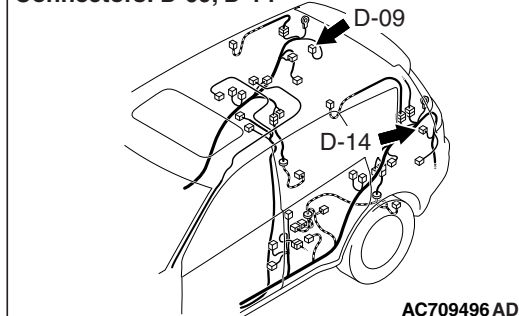


WAG54M020A

Connector: C-311



Connectors: D-09, D-14



TECHNICAL DESCRIPTION (COMMENT)

When one of the taillights does not illuminate, the wiring harness, connector(s), or rear combination light unit may have a problem, or the fuse may be burned out.

TROUBLESHOOTING HINTS

- Malfunction of rear combination light unit
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

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

STEP 1. Check rear combination light connectors D-09 (RH) and D-14 (LH) for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear combination light connectors D-09 (RH) and D-14 (LH) in good condition?

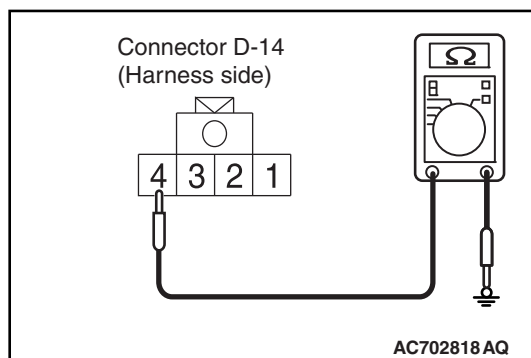
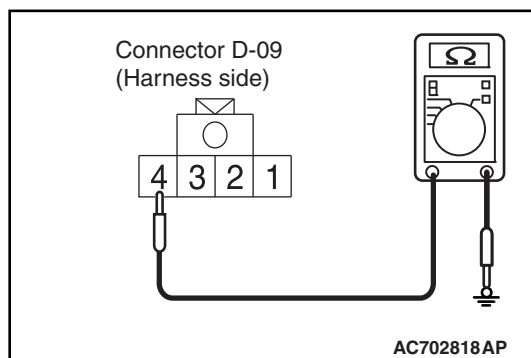
YES : Go to Step 2.

NO : Repair the damaged parts

STEP 2. Resistance measurement at rear combination light connectors D-09 (RH) and D-14 (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 body ground.

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



- Measure the resistance between rear combination light connector D-14 (LH) (terminal No. 4) 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 4.

NO : Go to Step 3.

STEP 3. Check the wiring harness between rear combination light connectors D-09 (RH) and D-14 (LH) (terminal No. 4) and ground.

Check the ground line for open circuit.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the wiring harness.

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

Q: Is ETACS-ECU connectors C-311 in good condition?

YES : Go to Step 5.

NO : Repair the damaged parts.

STEP 5. Check the wiring harness between rear combination light connector D-09 (RH), D-14 (LH) and ETACS-ECU connector C-311 (terminal No. 13) (RH), (terminal No. 10) (LH).

Check the communication line for open or short circuit.

Q: Is the wiring harness between rear combination light connector D-09 (RH), D-14 (LH) and ETACS-ECU connector C-311 (terminal No. 13) (RH), (terminal No. 10) (LH) in good condition?

YES : Go to Step 6.

NO : Repair the wiring harness.

STEP 6. Retest the system.

Check that the taillight illuminates normally.

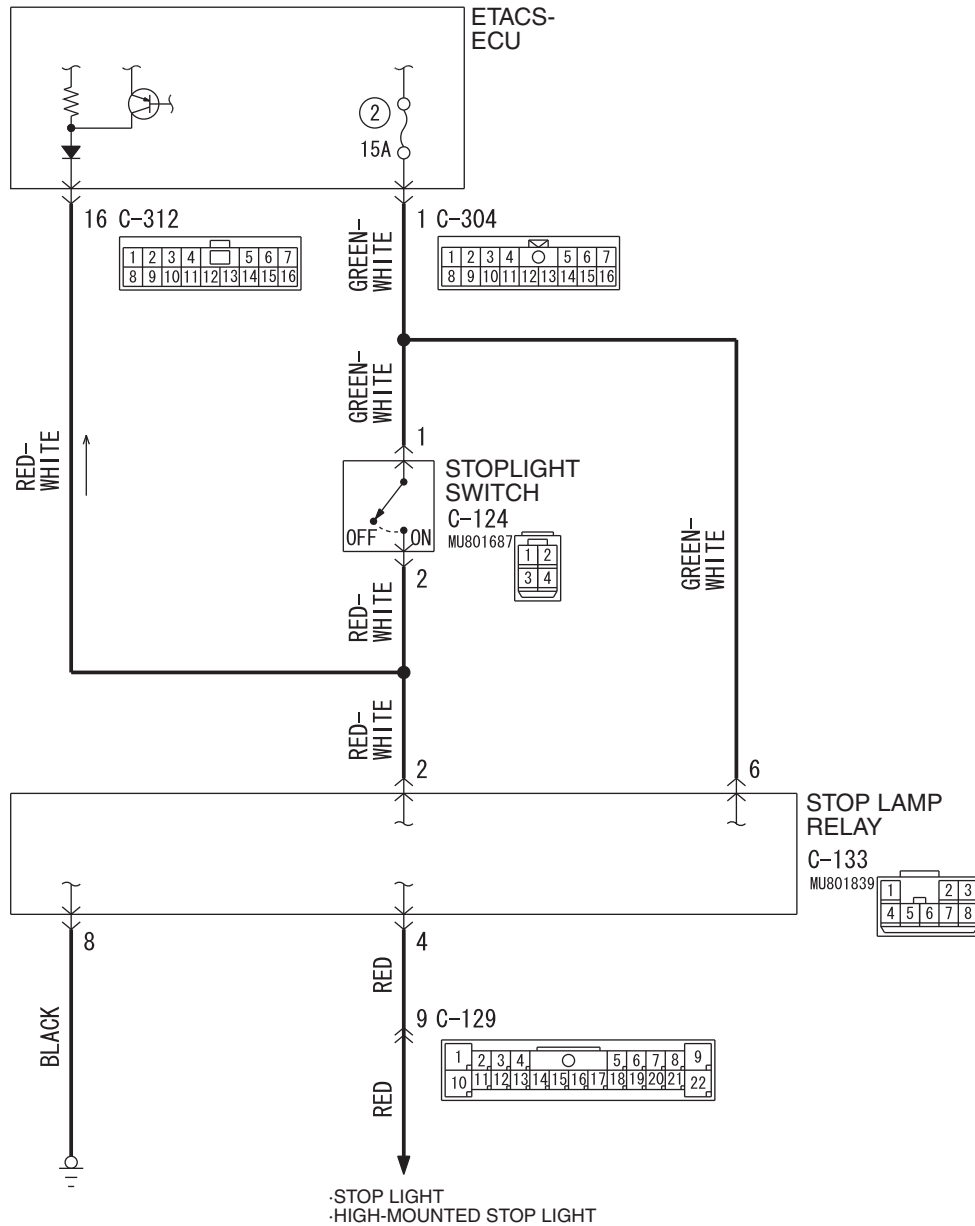
Q: Does the taillight work normally?

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

NO : Replace the rear combination light unit.

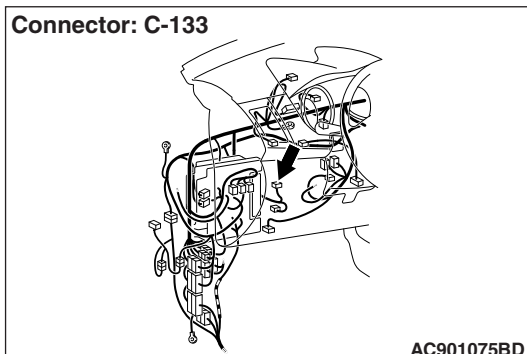
Inspection Procedure 3: Stoplight does not illuminate or go out normally.

Stoplight Circuit



WAG54M051A

Connector: C-133

**COMMENTS ON TROUBLE SYMPTOM**

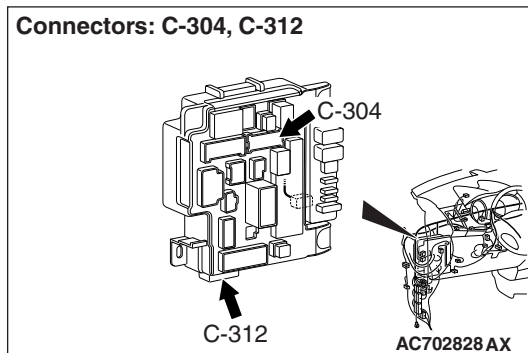
If the stoplights do not illuminate or go out normally, the stoplight relay power supply, earth circuit system, stoplight switch, or the stoplight relay * may be defective.

*NOTE: *: The stoplight relay cannot be inspected because it is a semiconductor relay.*

PROBABLE CAUSES

- Malfunction of stoplight switch
- Malfunction of stoplight relay
- Damaged harness wires and connectors

Connectors: C-304, C-312

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

- MB992006: Extra fine probe
- MB991223: Harness set

STEP 1. Check stoplight relay connector C-133 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is stoplight relay connector C-133 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts

STEP 2. Resistance measurement at stoplight relay connector C-133.

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between stoplight relay connector C-133 (terminal No. 8) and the body ground.

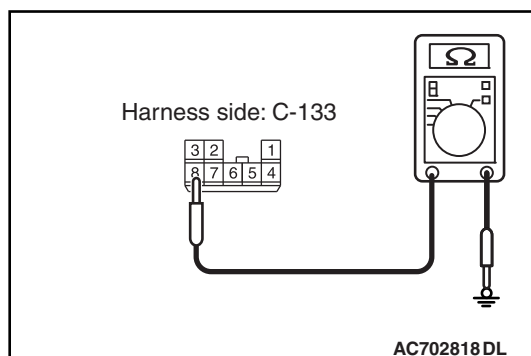
The measured value should be continuity exists (2 Ω or less).

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

YES : Go to Step 4.

NO : Go to Step 3.

Harness side: C-133



STEP 3. Check the wiring harness between stoplight relay connector C-133 (terminal No. 8) and ground.

Check the ground line for open circuit.

Q: Is the wiring harness between stoplight relay connector C-133 (terminal No. 8) and ground in good condition?

YES : Go to Step 4.

NO : Repair the wiring harness.

STEP 4. Check the stoplight switch.

Remove the stoplight switch.

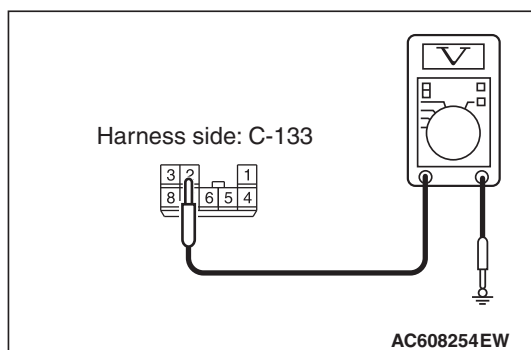
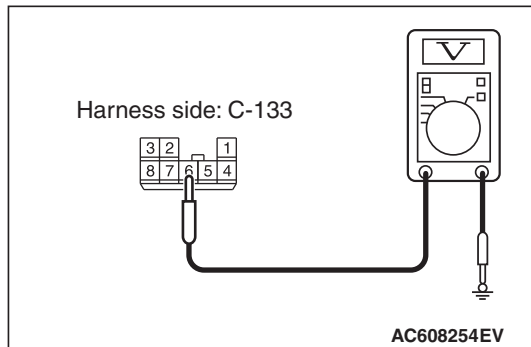
- Check for continuity between the terminals of the switch.

Check condition	Terminal connector of tester	Normal condition
At free position	1 -2 (for stoplight switch)	Continuity exists (2 Ω or less)
	3 -4 (for cruise control)	No continuity
Press the plunger from the edge of the outer case by the dimension shown in the figure.	1 -2 (for stoplight switch)	No continuity
	3 -4 (for cruise control)	Continuity exists (2 Ω or less)

Q: Is the stoplight switch in good condition?

YES : Go to Step 5.

NO : Replace the stoplight switch.



STEP 5. Check the battery power supply circuit to the stoplight relay. Measure the voltage at stoplight relay connector C-133.

- (1) Disconnect stoplight relay connector C-133 measure the voltage available at the wiring harness side of the connector.
- (2) Measure the voltage between stoplight relay connector C-133 terminal 6 and ground.
 - The voltage should measure approximately 12 volts (battery positive voltage).
- (3) Stoplight switch: ON

- (4) Measure the voltage between stoplight relay connector terminal No. 2 and the body earth.
 - The voltage should measure approximately 12 volts (battery positive voltage).

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

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check ETACS-ECU connector C-304 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 7.

NO : Repair the damaged parts

STEP 7. Check the wiring harness between stoplight relay connector C-133 (terminal No. 2/6) and ETACS-ECU connector C-304 (terminal No. 1).

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

Q: Is the wiring harness between stoplight relay connector C-133 (terminal No. 2/6) and ETACS-ECU connector C-304 (terminal No. 1) in good condition?

YES : Go to Step 8.

NO : Repair the wiring harness.

STEP 8. Check ETACS-ECU connectors C-312 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 9.

NO : Repair the damaged parts.

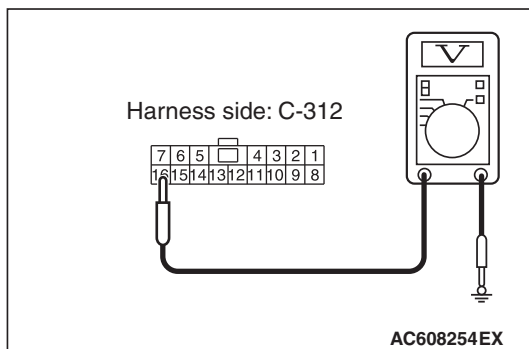
STEP 9. Check the battery power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-312.

- (1) Disconnect connector measure the voltage available at the wiring harness side of the connector.
- (2) Disconnecting the ETACS-ECU connector C-312.
- (3) Stoplight switch: ON
- (4) Measure the voltage between ETACS-ECU connector C-312 terminal No. 16 and the body earth.
 - 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 11.

NO : Go to Step 10.



STEP 10. Check the wiring harness between ETACS-ECU connector C-312 (terminal No. 16) and stoplight relay connector C-133 (terminal No. 2).

- Check the signal line for short circuit.

Q: Is the wiring harness between ETACS-ECU connector C-312 (terminal No. 16) and stoplight relay connector C-133 (terminal No. 2) in good condition?

YES : Go to Step 11.

NO : Repair the wiring harness.

STEP 11. Check the wiring harness between stoplight relay connector C-133 (terminal No. 4) and intermediate connector C-131 (terminal No. 9).

Check the communication line for open or short circuit.

Q: Is the wiring harness between stoplight relay connector C-133 (terminal No. 4) and intermediate connector C-131 (terminal No. 9) in good condition?

YES : Go to Step 12.

NO : Repair the wiring harness.

STEP 12. Retest the system

Check that the stoplight illuminates normally.

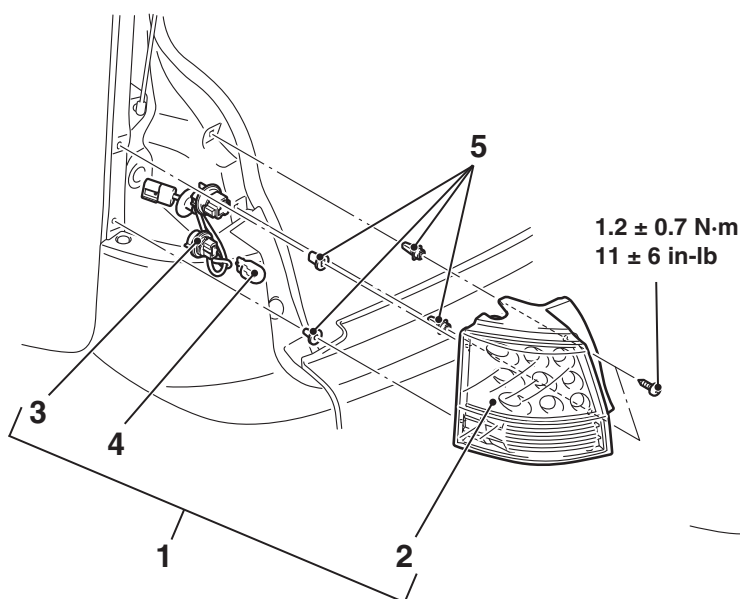
Q: Does the stoplight relay work normally?

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](#)).

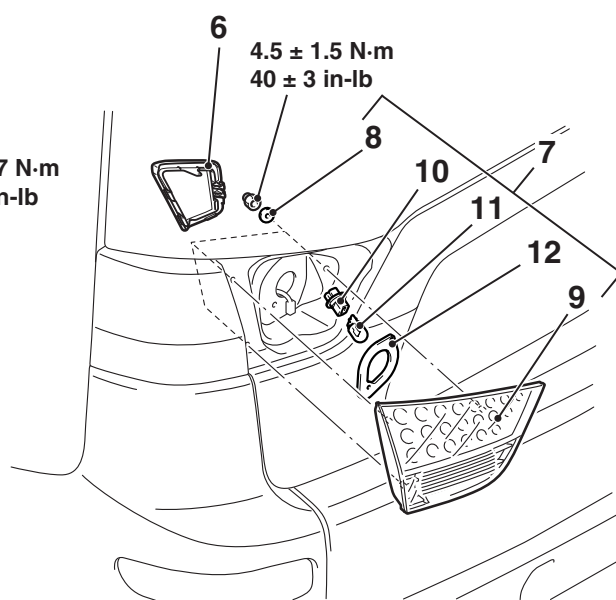
NO : Replace the stoplight relay.

REAR COMBINATION LIGHT REMOVAL AND INSTALLATION

M1541402200239

**Removal Steps**

1. Rear combination light assembly
2. Rear combination light unit
3. Socket
4. Bulb
5. Grommet
6. Liftgate cover garnish (Refer to GROUP 52A –Liftgate Trim [P.52A-14](#))



AC703021AB

Removal Steps (Continued)

7. Taillight assembly
8. Gasket
9. Taillight unit
10. Socket
11. Bulb
12. Gasket

FOG LIGHT

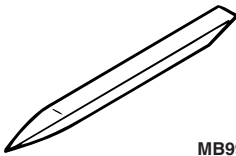
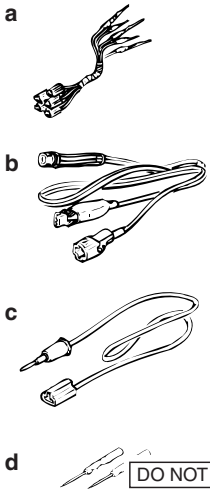
SERVICE SPECIFICATIONS

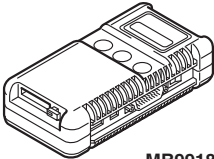
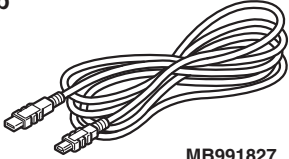
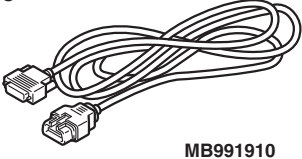
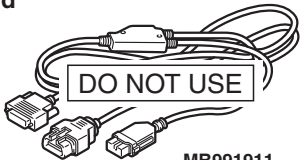
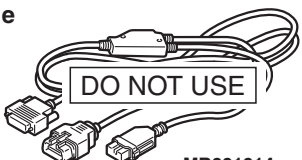
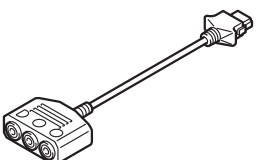

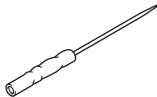
M1540400900187

Item	Standard value	Limit
Fog light aiming (cutoff line direction) [at 7.62 m (25.0 ft)]	The horizontal line 153.0 mm (6.02 inches) (1.15 degrees angle) below the horizontal line (H)	–
Fog light aiming (vertical direction) [at 7.62 m (25.0 ft)]	–	Area from 53.2 mm (2.09 inches) (0.4 degrees angle) above the cutoff line to 99.8 mm (3.93 inches) (0.75 degrees angle) below the cutoff line
Fog light aiming (horizontal direction) [at 7.62 m (25.0 ft)]	–	Vertical line (V) ± 599.7 mm (± 23.6 inches) (± 4.5 degrees angle).

SPECIAL TOOLS

M1540401800309

Tool	Tool number and name	Supersession	Application
 MB990784	MB990784 Ornament remover	General service tool	Removal of fog light bezel
 <p>a</p> <p>b</p> <p>c</p> <p>d</p> <p>DO NOT USE</p> <p>MB991223</p>	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
<p>a</p>  <p>MB991824</p> <p>b</p>  <p>MB991827</p> <p>c</p>  <p>MB991910</p> <p>d</p>  <p>MB991911</p> <p>e</p>  <p>MB991914</p> <p>f</p>  <p>MB991825</p> <p>g</p>  <p>MB991826</p> <p>MB991958</p>	<p>MB991958</p> <p>a. MB991824</p> <p>b. MB991827</p> <p>c. MB991910</p> <p>d. MB991911</p> <p>e. MB991914</p> <p>f. MB991825</p> <p>g. MB991826</p> <p>M.U.T.-III sub assembly</p> <p>a. Vehicle communication interface (V.C.I.)</p> <p>b. M.U.T.-III USB cable</p> <p>c. M.U.T.-III main harness A (Vehicles with CAN communication system)</p> <p>d. M.U.T.-III main harness B (Vehicles without CAN communication system)</p> <p>e. M.U.T.-III main harness C (for Chrysler models only)</p> <p>f. M.U.T.-III measurement adapter</p> <p>g. M.U.T.-III trigger harness</p>	<p>MB991824-KIT</p> <p><i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i></p>	<p>⚠ CAUTION</p> <p>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.</p> <p>Diagnostic code, service data and actuator test check.</p>
 <p>MB992006</p>	<p>MB992006</p> <p>Extra fine probe</p>	<p>–</p>	<p>Continuity check and voltage measurement at harness wire or connector.</p>

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 –Contents of troubleshooting

P.00-7.

M1540401700153

DIAGNOSTIC FUNCTION

M1540403000019

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

Required Special Tools:

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

⚠ CAUTION

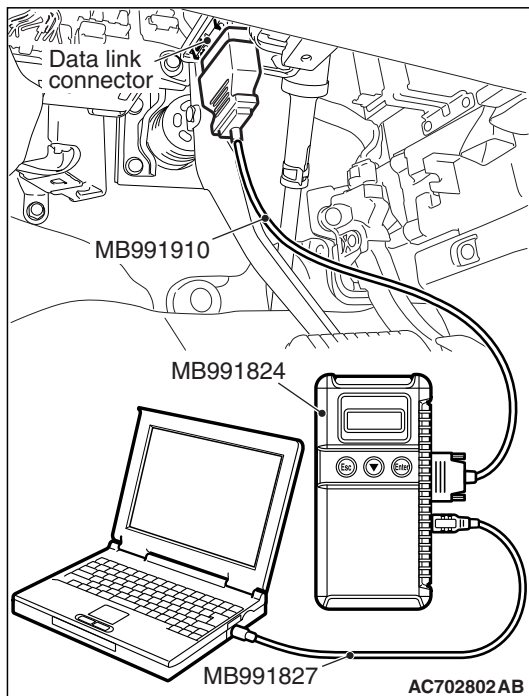
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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

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

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

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



HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

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

⚠ CAUTION

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

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

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

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

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

TROUBLE SYMPTOM CHART

M1540401000284

Trouble symptom	Inspection Procedure No.	Reference page
None of the front fog lights illuminates.	1	P.54A-263
One of the front fog lights does not illuminate.	2	P.54A-270
Fog light indicator does not illuminate/go out normally.	3	P.54A-274

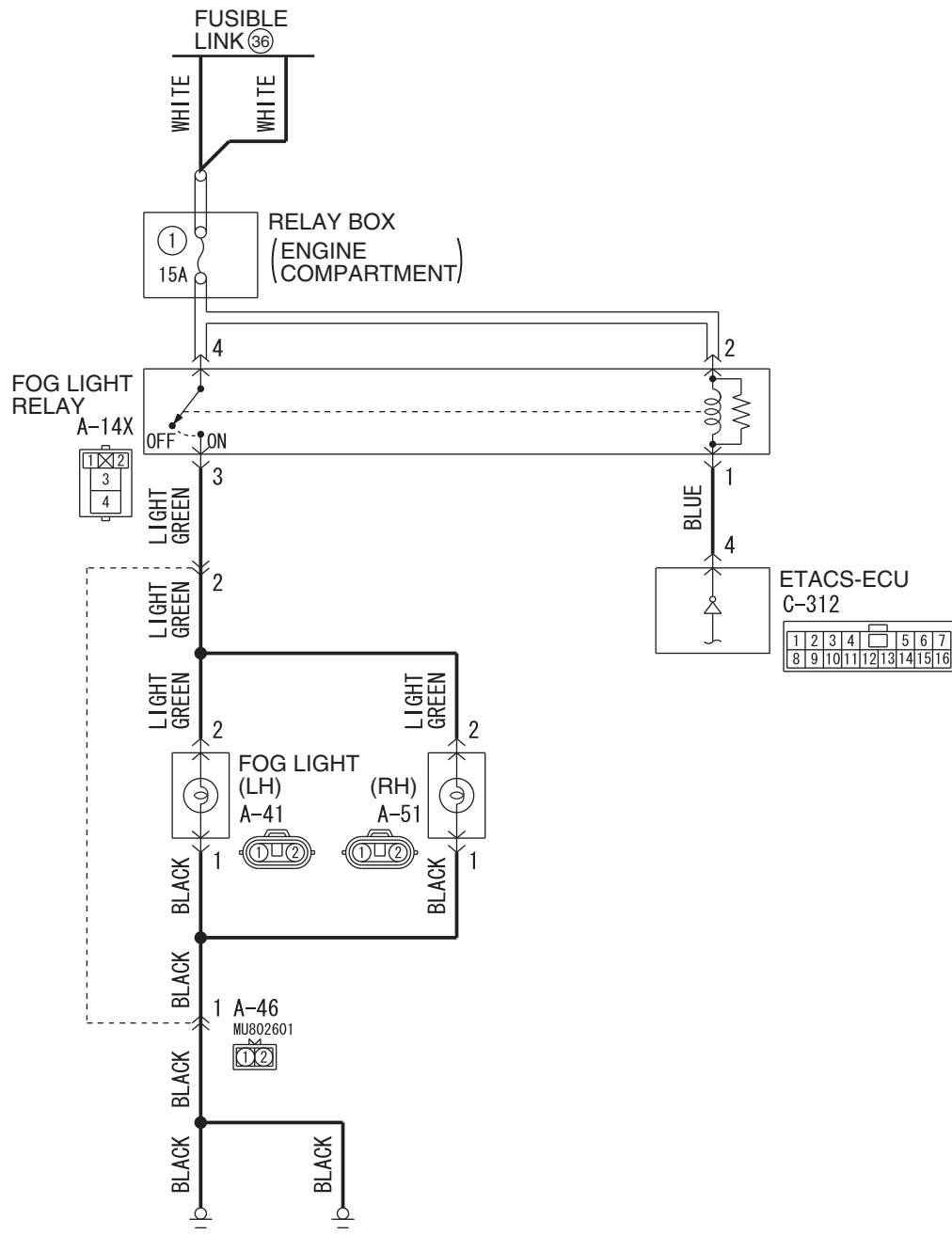
SYMPTOM PROCEDURES

Inspection Procedure 1: None of the front fog lights illuminates.

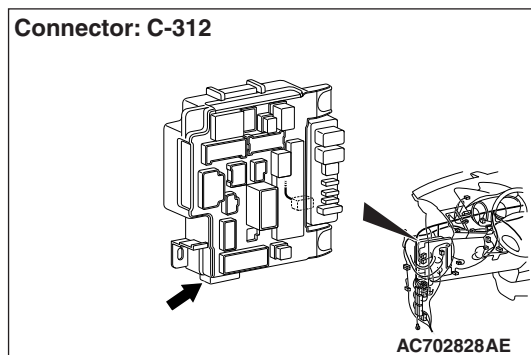
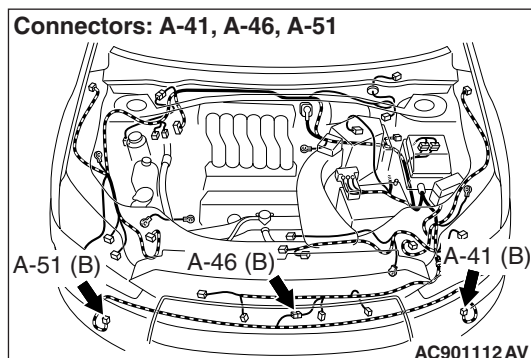
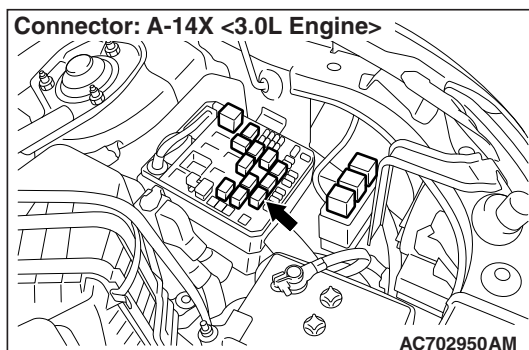
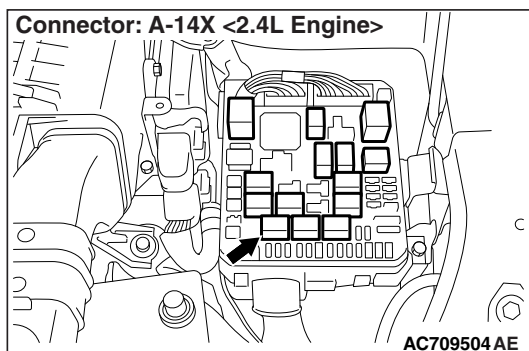
⚠ CAUTION

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

Fog Light and ETACS-ECU Communication Circuit



W8G54M197A



CIRCUIT OPERATION

If none of front fog lights illuminates, the input signal circuit(s) below or the ETACS-ECU may be defective.

- Tail light switch
- Headlight switch
- Fog light switch
- Option coding information

TECHNICAL DESCRIPTION (COMMENT)

When the fog lights do not illuminate normally, the mentioned input signal circuit(s) or ETACS-ECU may be defective.

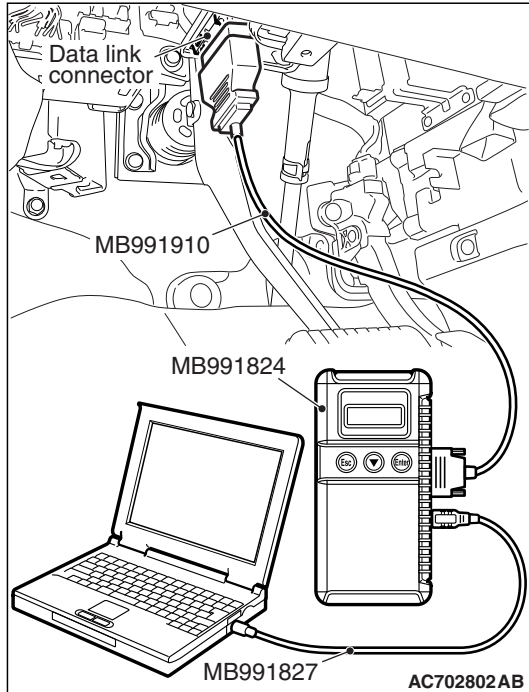
TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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



STEP 1. ETACS-ECU coding data check.

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the scan tool (M.U.T.-III) [P.54A-261](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Read out the option coding information in ETACS-ECU. (Refer to GROUP 00, Coding Table.)
- (4) Check that the "Front fog light" is set to "YES."
- (5) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the ETACS-ECU coding data normal?

YES : Go to Step 2.

NO : Operate scan tool MB991958 to set the option coding "Front fog light" to "Yes," and check the trouble symptom.

STEP 2. Check that the tail/stop lights and headlights operate.

Check that the tail/stop lights and headlights illuminate normally.

Q: Do the tail/stop lights and headlights operate normally?

YES : Go to Step 3.

NO : Check the tail/stop lights and the headlights (Refer to trouble symptom chart [P.54A-158](#)).

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

Check if DTC is set to the ETACS-ECU.

- (1) Turn the ignition switch to the "ON" position.
- (2) Check whether the ETACS-ECU related DTC is set.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to [P.54A-742](#)).

NO : Go to Step 4.

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

Use the ETACS-ECU data list to check the signals related to the fog light function.

- Turn the ignition switch to the "ACC" position.
- Turn the fog light switch to ON.

Item No.	Item name	Normal condition
Item 212	Front fog light	ON

Q: Does scan tool MB991958 display the items "Front fog light" as normal condition?

YES : Go to Step 5.

NO : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 12 "ETACS-ECU does not receive any signal from the column switch signal." [P.54A-834](#).

STEP 5. Check fog light relay connector A-14X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fog light relay connector A-14X in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the fog lights illuminate normally.

STEP 6. Check the fog light relay.

Refer to [P.54A-279](#).

Q: Is the fog light relay in good condition?

YES : Go to Step 7.

NO : Replace the fog light relay. Verify that the fog lights illuminate normally.

STEP 7. Check the battery power supply circuit to the fog light relay. Measure the voltage at fog light relay connector A-14X.

⚠ CAUTION

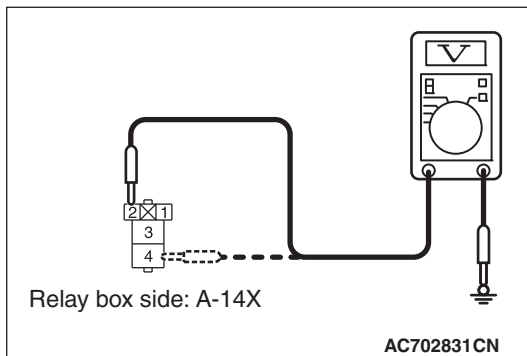
The top and bottom of the fog light relay are difficult to identify. Prior to inspection, confirm the triangle mark on the relay box.

- (1) Disconnect fog light relay connector A-14X and measure the voltage available at the relay box side of the connector.
- (2) Measure the voltage between terminal 2 and ground, and between terminal 4 and ground.
 - The voltage should measure approximately 12 volts (battery positive voltage).

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

YES : Go to Step 9.

NO : Go to Step 8.



STEP 8. Check the wiring harness between fog light relay connector A-14X (terminal 2 and 4) and fusible link (36).

- Check the power supply line for open circuit.

Q: Is the wiring harness between fog light relay connector A-14X (terminal 2 and 4) and fusible link (36) in good condition?

YES : Go to Step 13.

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

STEP 9. Check ETACS-ECU connector C-312 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 10.

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

[P.00E-2](#). Verify that the fog lights illuminate normally.

STEP 10. Check the wiring harness between fog light relay connector A-14X (terminal 1) and ETACS-ECU connector C-312 (terminal 4).

Check the communication line for open circuit.

Q: Is the wiring harness between fog light relay connector A-14X (terminal 1) and ETACS-ECU connector C-312 (terminal 4) in good condition?

YES : Go to Step 11.

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

STEP 11. Check the wiring harness between fog light relay connector A-14X (terminal 3) and fog light (LH) connector A-41 or fog light (RH) connector A-51 (terminal 2).

NOTE: Also check intermediate connector A-46 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-46 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

- Check the power supply line for open circuit.

Q: Is the wiring harness between fog light relay connector A-14X (terminal 3) and fog light (LH) connector A-41 (terminal 2) or fog light (RH) connector A-51 (terminal 2) in good condition?

YES : Go to Step 12.

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

STEP 12. Check the wiring harness between fog light (LH) connector A-41 or fog light (RH) connector A-51 (terminal 1) and ground.

NOTE: Also check intermediate connector A-46 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-46 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

- Check the ground wires for open circuit.

Q: Is the wiring harness between fog light (LH) connector A-41 or fog light (RH) connector A-51 (terminal 1) and ground in good condition?

YES : Go to Step 13.

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

STEP 13. Retest the system.

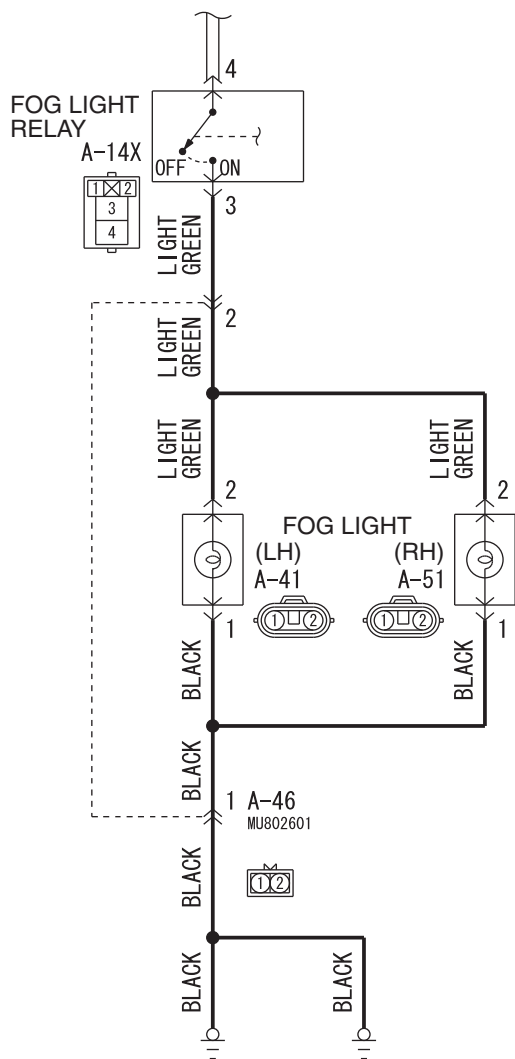
Q: Does the fog lights illuminate in good condition?

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

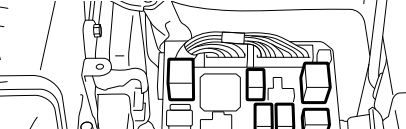
NO : Replace the ETACS-ECU.

CAUTION

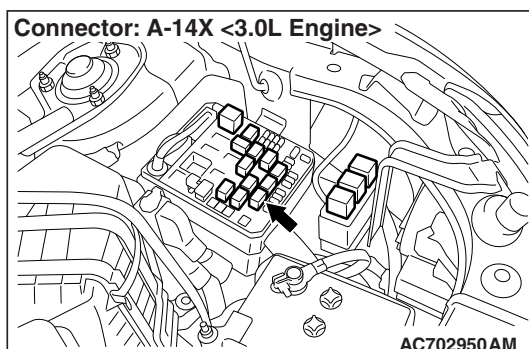
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

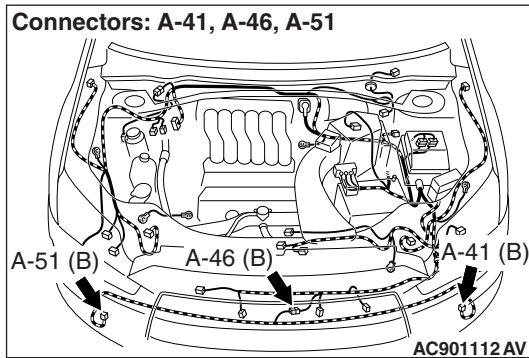


Connector: A-14X <2.4L Engine>



AC709504 AE





TECHNICAL DESCRIPTION (COMMENT)

When one of the fog lights does not illuminate, the wiring harness connector(s), the bulb may be defective.

TROUBLESHOOTING HINTS

- Burned-out fog light bulb
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set

STEP 1. Check fog light (LH) connector A-41, fog light (RH) A-51 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fog light (LH) connector A-41, fog light (RH) A-51 in good condition?

YES : Go to Step 2.

NO : Repair the damaged parts.

STEP 2. Check the fog light bulb.

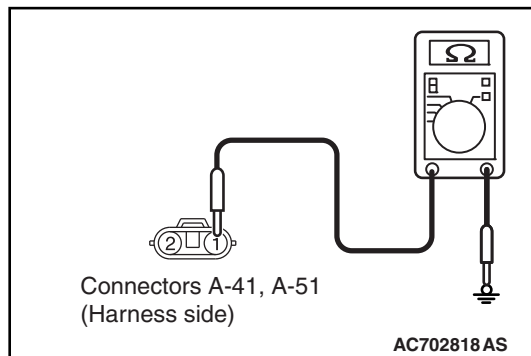
(1) Remove the fog light bulb.

(2) Verify that the fog light bulb is not damaged or burned out.

Q: Is the fog light bulb in good condition?

YES : Go to Step 3.

NO : Replace the fog light bulb. Verify that the fog lights illuminate normally.



Step 3. Check the ground circuit to the fog light (LH) or fog light (RH). Measure the resistance at fog light (LH) connector A-41 or fog light (RH) connector A-51.

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Check the resistance between the fog light connector and ground.
 - Resistance between A-41 fog light (LH) connector terminal No.1 and ground
 - Resistance between A-51 front fog light (RH) connector terminal No.1 and ground

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 fog light (LH) connector A-41 or fog light (RH) connector A-51 (terminal 1) and ground.

NOTE: Also check intermediate connector A-46 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-46 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

- Check the ground wires for open circuit.

Q: Is the wiring harness between fog light (LH) connector A-41 or fog light (RH) connector A-51 (terminal 1) and ground in good condition?

YES : Go to Step 7.

NO : Repair the wiring harness.

STEP 5. Check fog light relay connector A-14X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fog light relay connector A-14X in good condition?

YES : Go to Step 6.

NO : Repair the damaged parts.

STEP 6. Check the wiring harness between fog light (LH) connector A-41 or fog light (RH) connector A-51 (terminal 2) and fog light relay connector A-14X (terminal 3).

NOTE: Also check intermediate connector A-46 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-46 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

- Check the power supply line for open circuit.

Q: Is the wiring harness between fog light (LH) connector A-41 or fog light (RH) connector A-51 (terminal 2) and fog light relay connector A-14X (terminal 3) in good condition?

YES : Go to Step 7.

NO : Repair the wiring harness.

STEP 7. Retest the system.

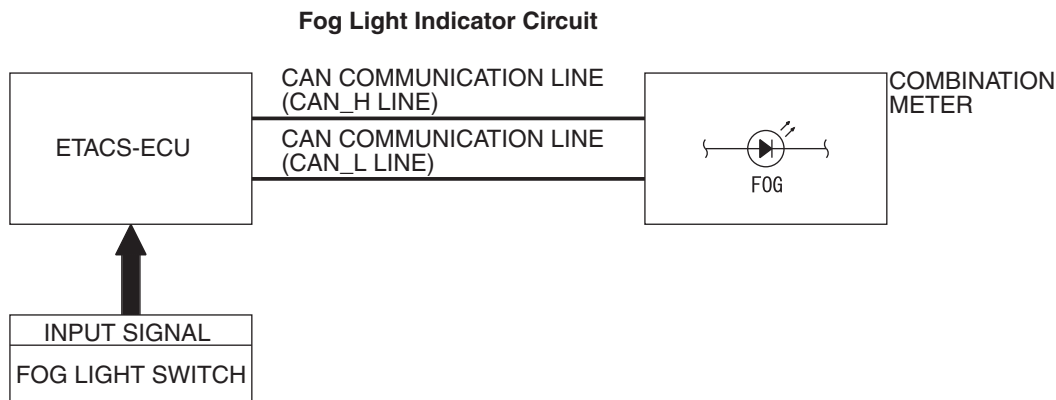
Q: Does the right or left fog light illuminate in good condition?

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 : Go to Step 1.

Inspection Procedure 3: Fog light indicator does not illuminate/go out normally.**⚠ CAUTION**

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



AC703271AB
D7G54M074A00

TECHNICAL DESCRIPTION (COMMENT)

If the fog light indicator does not illuminate normally, connector(s), wiring harness in the CAN bus lines, the ETACS-ECU or the combination meter may be defective.

TROUBLESHOOTING HINTS

- The ETACS-ECU may be defective
- The combination meter may be defective
- Damaged harness wires and connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A

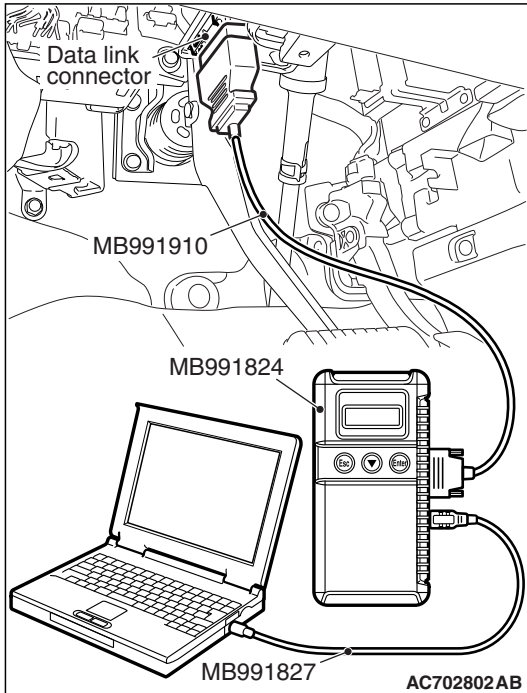
STEP 1. Check the fog lights.

When the fog light switch is operated, check that the fog lights illuminate/go off normally.

Q: Is the fog lights normal?

YES : Go to Step 2.

NO : First, repair the fog lights. Refer to Inspection Procedure 2 "One of the front fog lights does not illuminate [P.54A-270](#)."



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-261](#)."
- (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 combination meter diagnostic trouble code.

- (1) Check whether a combination meter-related DTC is set.
- (2) Turn the ignition switch to the "ON" position.
Check whether the combination meter-related DTC is set.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the combination meter (Refer to Diagnosis [P.54A-32](#)).

NO : Go to Step 4.

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

- (1) Turn the ignition switch to the "ON" position.
- (2) Perform the actuator test for the combination meter, and check that the fog light indicator illuminates (Refer to [P.54A-96](#)).
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Replace the ETACS-ECU.

NO : Replace the combination meter.

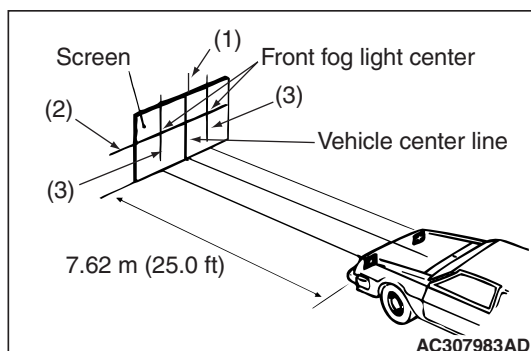
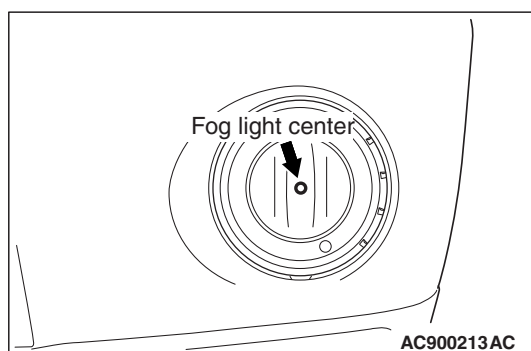
ON-VEHICLE SERVICE

FRONT FOG LIGHT AIMING

M1540400300635

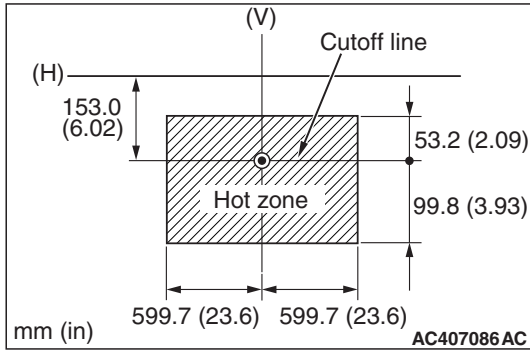
PRE-AIMING INSTRUCTIONS

1. Inspect for rusted or faulty front fog light assemblies.
2. These conditions must be corrected before a satisfactory adjustment can be made.
3. Inspect tire inflation, and adjust if necessary.
4. If the fuel tank is not full, place a weight in the trunk of the vehicle to simulate weight of a full tank [3 kg (6.5 pounds) per gallon].
5. There should be no other load in the vehicle other than driver or substituted weight of approximately 68 kg (150 pounds) placed in driver's position.
6. Thoroughly clean the front fog light lenses.
7. Place the vehicle on a level floor, perpendicular to a flat screen 7.62 meters (25.0 ft) away from the bulb center-marks on the fog light lens.
8. Rock the vehicle sideways to allow the vehicle to assume its normal position.
9. Bounce the front suspension through three (3) oscillations by applying the body weight to the hood or bumper.
10. Measure the center of the front fog lights as shown in the illustration.



11. Four lines of adhesive tape (or equivalent markings) are required on screen or wall:
 - (1) Position a vertical tape or mark so that it is aligned with the vehicle center line.
 - (2) Measure the distance from the center of the front fog light lens to the floor. Transfer the measurement to the screen. Horizontal tape or mark on the screen is for reference of vertical adjustment.
 - (3) Measure the distance from the center line of the vehicle to the center of each front fog light. Transfer the measurement to the screen. Vertical tape or mark on the screen is for reference to the center line of each front fog light.

FOG LIGHT ADJUSTMENT



1. Check if the beam shining onto the screen is at the standard value.

Standard value:

(Cutoff line direction): The horizontal line (H) 153.0 mm (6.02 inches) (1.15 degrees angle) below the horizontal line (H)

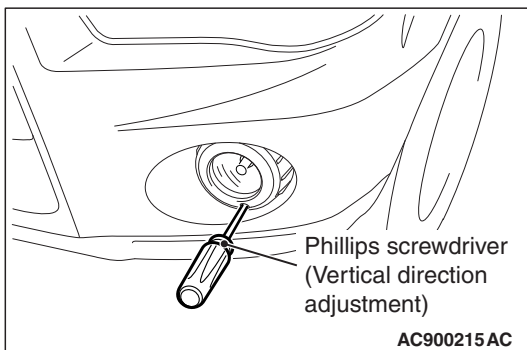
Limit:

(Vertical direction): Area from 53.2 mm (2.09 inches) (0.4 degrees angle) above the cutoff line to 99.8 mm (3.93 inches) (0.75 degrees angle) below the cutoff line

(Horizontal direction): Vertical line (V) ± 599.7 mm (± 23.6 inches) (± 4.5 degrees angle)

2. If it is not within the standard value range, adjust by turning the adjusting screw.

NOTE: The horizontal direction is non-adjustable. If deviation of the light beam axis exceeds the standard value, check that the mounting location or some other points are not faulty.



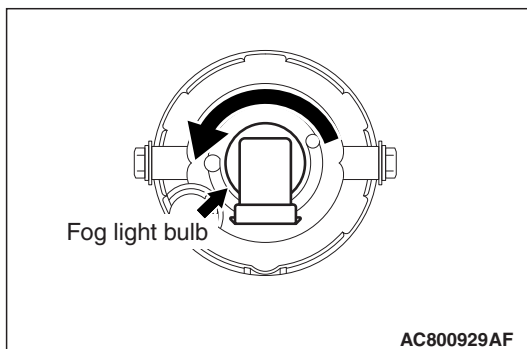
BULB REPLACEMENT

M1540400400643

⚠ CAUTION

Don't touch the bulb surface with bare hands or dirty gloves. If the bulb surface (glass part) gets dirty, clean it with alcohol or thinner immediately and dry well, and then install it.

1. Remove the front fog light bezel and the front fog light assembly. (Refer to [P.54A-278](#).)
2. Disconnect the connector and withdraw the bulb.
3. After replacing the bulb, securely connect the connector, and install the front fog light assembly and the front fog light bezel.

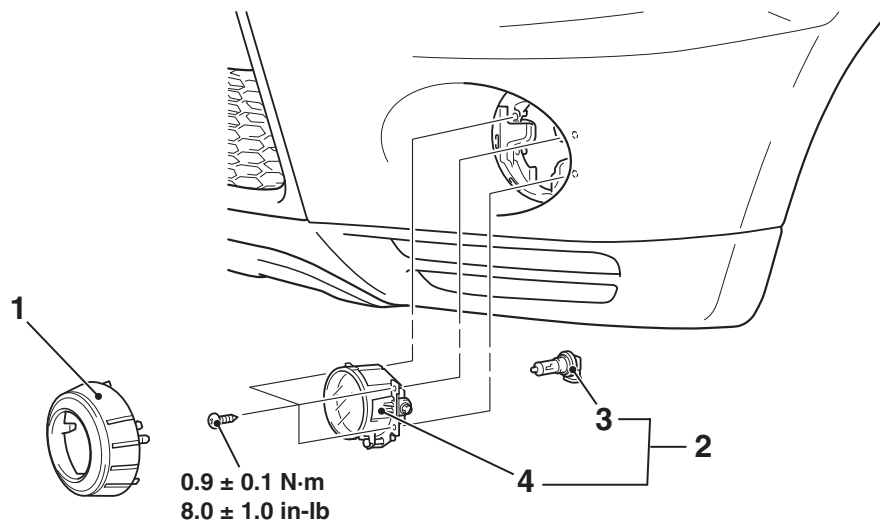


REMOVAL AND INSTALLATION

M1540400500338

Post-installation operation

Check the beam direction of the fog light (Refer to Front Fog Light Aiming [P.54A-276](#)).



AC900461AC

<<A>>

Removal steps

1. Fog light bezel
2. Fog light assembly

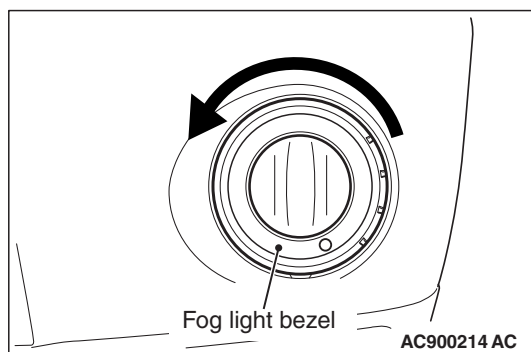
Removal steps (Continued)

3. Bulb
4. Fog light unit

REMOVAL SERVICE POINT

<<A>> FOG LIGHT BEZEL REMOVAL

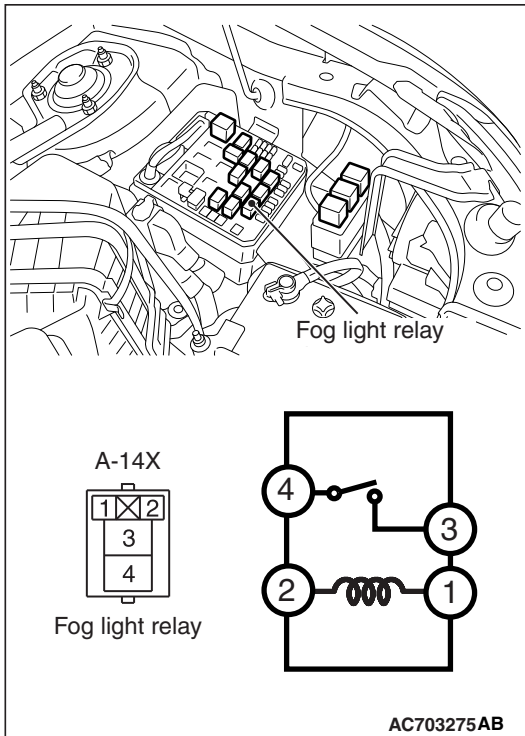
1. Turn the fog light bezel until it is locked.
2. Remove the fog light bezel from the front bumper.



INSPECTION

FOG LIGHT RELAY CHECK

M1540400700097



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

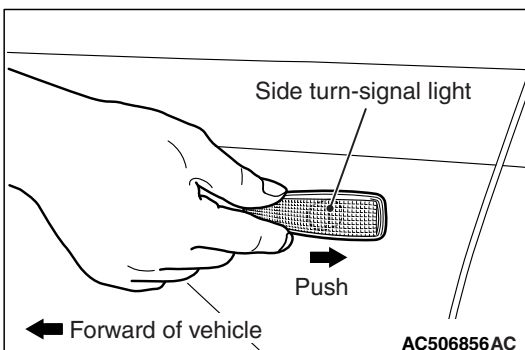
SIDE TURN-SIGNAL LIGHT

REMOVAL AND INSTALLATION

M1541800200394

<SIDE TURN-SIGNAL LIGHT
INTEGRATED IN DOOR MIRROR TYPE>

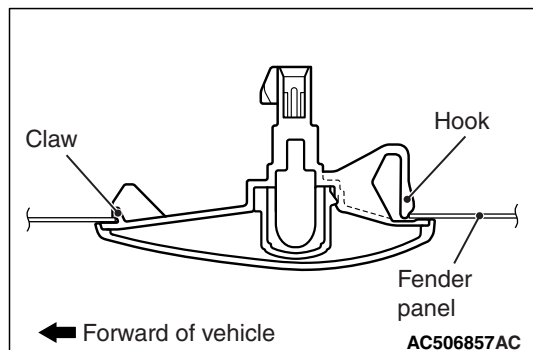
Refer to GROUP 51 -Outside Mirror P.51-122.

REMOVAL SERVICE POINT <FENDER PANEL
ATTACHMENT TYPE SIDE TURN-SIGNAL LIGHT>

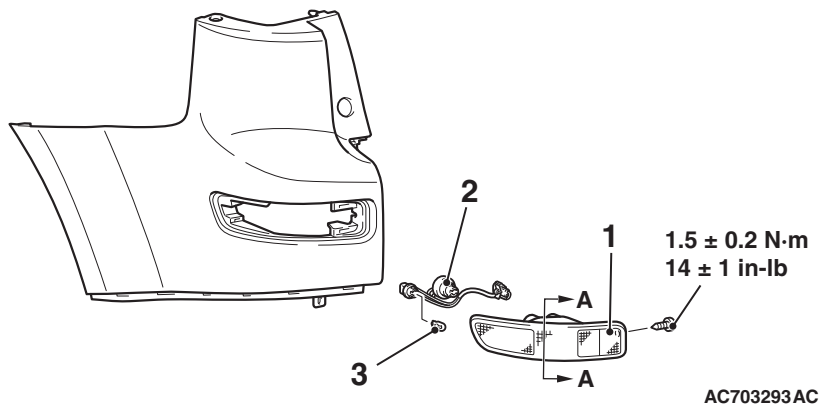
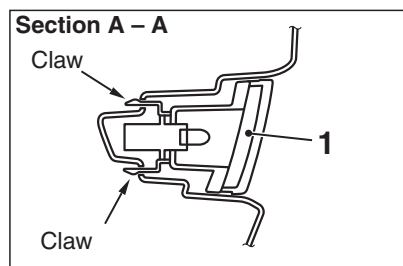
Push the side turn-signal light toward the vehicle rear to bend the hook, and then remove by disengaging the tab from the fender panel.

**INSTALLATION SERVICE POINT <FENDER
PANEL ATTACHMENT TYPE SIDE TURN-SIGNAL
LIGHT>**

Engage the claw to the fender panel to install the side turn signal light.

**REAR SIDE-MARKER LIGHT****REMOVAL AND INSTALLATION**

M1544600100013

**Removal Steps**

- Rear corner bumper (Refer to GROUP 51, Rear Bumper Assembly P.51-7.)
1. Rear side-marker light unit

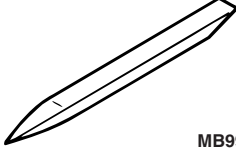
Removal Steps (Continued)

2. Socket assembly
3. Bulb

DAYTIME RUNNING LIGHT <VEHICLES WITH DISCHARGE HEADLIGHT>

SPECIAL TOOL

M1540401800194

Tool	Tool number and name	Supersession	Application
 MB990784	MB990784 Ornament remover	General service tool	Removal of fog light bezel

ON-VEHICLE SERVICE

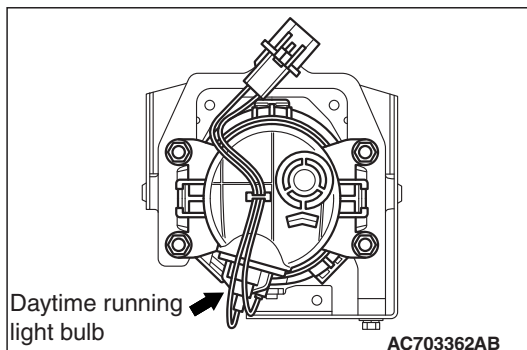
BULB REPLACEMENT

M1545400900018

CAUTION

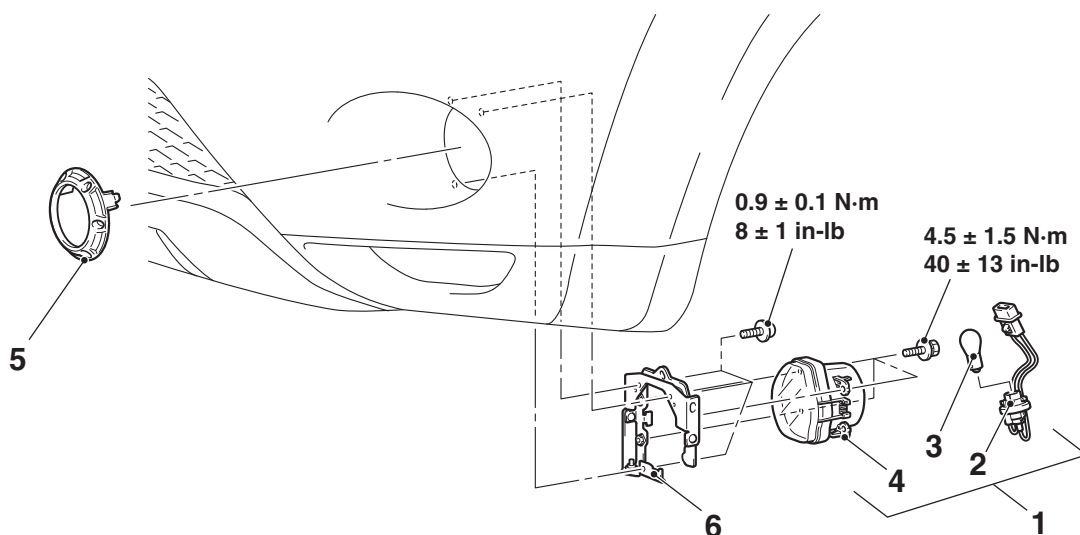
Don't touch the bulb surface with bare hands or dirty gloves. If the bulb surface (glass part) gets dirty, clean it with alcohol or thinner immediately and dry well, and then install it.

1. Disconnect the daytime running light code and withdraw the bulb.
2. Replace the bulb, and connect securely the daytime running light code.



REMOVAL AND INSTALLATION <VEHICLES WITH DISCHARGE HEADLIGHT>

M1545402000022



AC710038AB

Removal steps

- Engine room under cover front (Refer to GROUP 51 - Under Cover P.51-22.)
- Daytime running light assembly

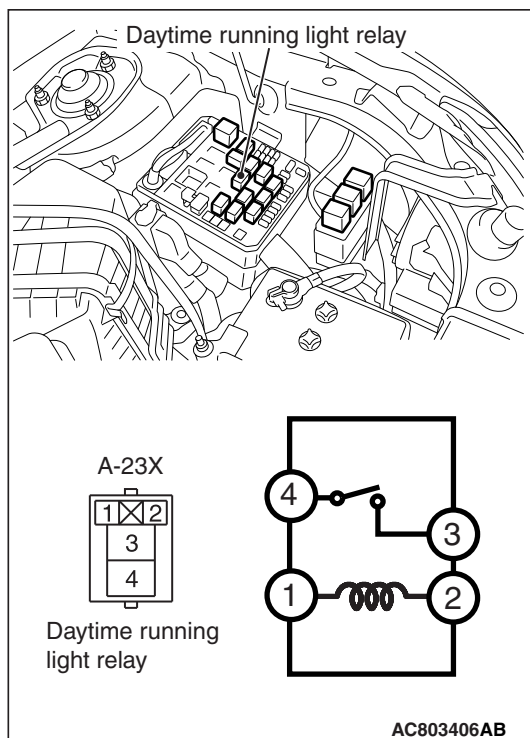
Removal steps (Continued)

- Daytime running light cord
- Bulb
- Daytime running light unit
- Fog light bezel
- Fog light bracket

INSPECTION

DAYTIME RUNNING LIGHT RELAY CHECK

M1545401300019

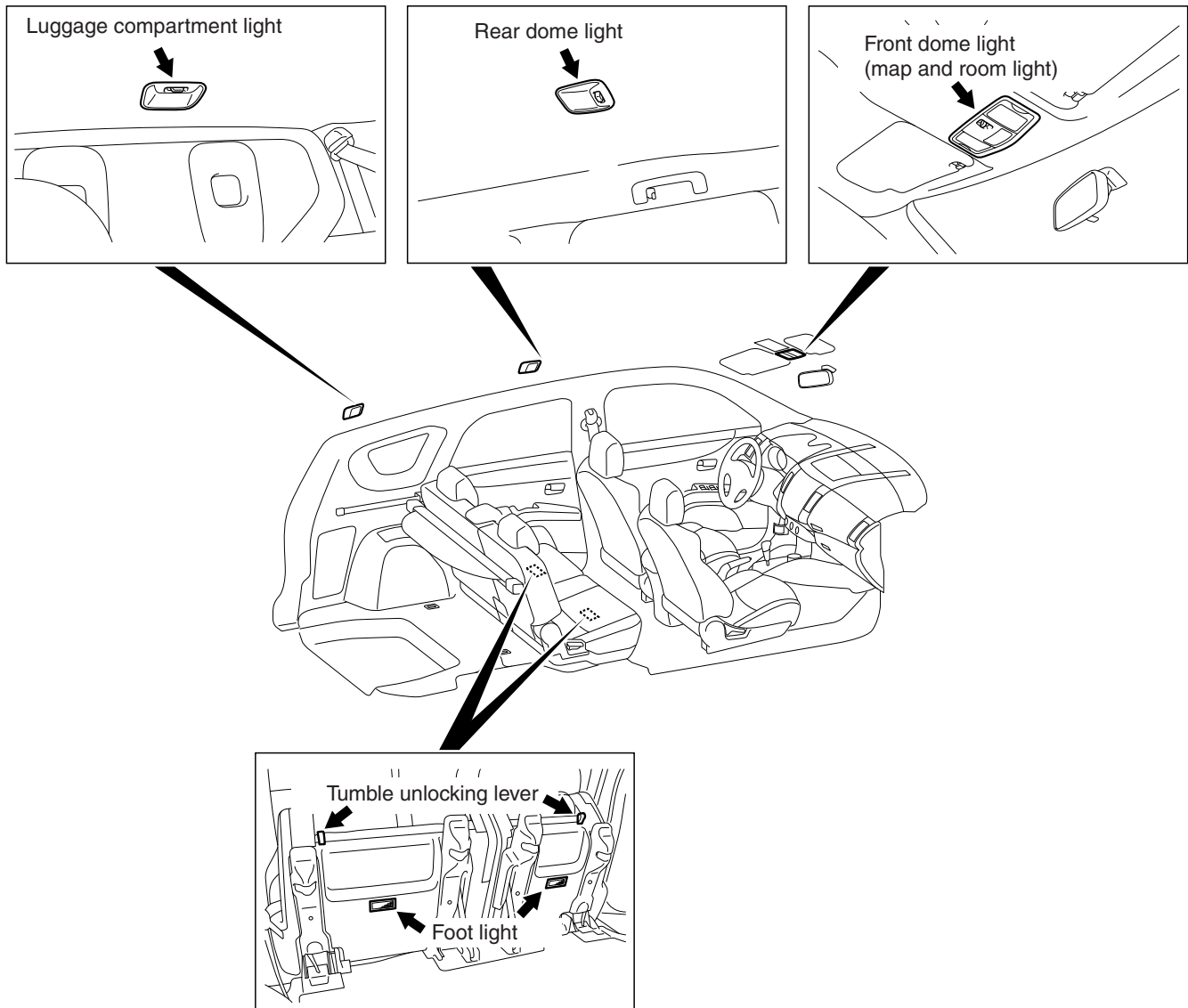


Battery voltage	Terminal number	Normal conditions
Not energized	3 -4	No continuity
With current supply [terminal 1 (+), terminal 2 (-)]		Continuity exists (2 ohms or less)

DOME LIGHT

GENERAL INFORMATION



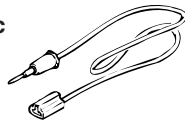
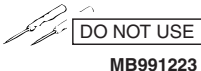
M1542000100394

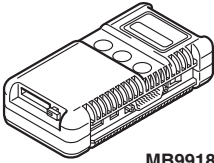
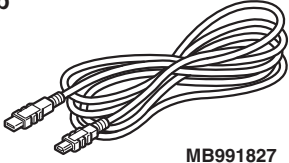
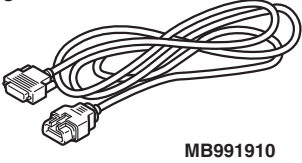
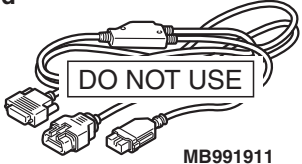
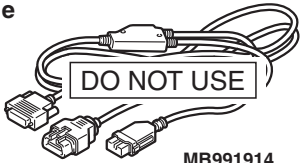
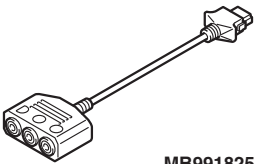
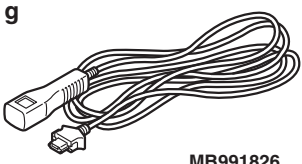
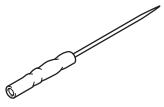


AC703367AB

SPECIAL TOOLS

M1541301600282

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

Tool	Tool number and name	Supersession	Application
<p>a</p>  <p>MB991824</p> <p>b</p>  <p>MB991827</p> <p>c</p>  <p>MB991910</p> <p>d</p>  <p>MB991911</p> <p>e</p>  <p>MB991914</p> <p>f</p>  <p>MB991825</p> <p>g</p>  <p>MB991826 MB991958</p>	<p>MB991958</p> <p>a. MB991824</p> <p>b. MB991827</p> <p>c. MB991910</p> <p>d. MB991911</p> <p>e. MB991914</p> <p>f. MB991825</p> <p>g. MB991826</p> <p>M.U.T.-III sub assembly</p> <p>a. Vehicle communication interface (V.C.I.)</p> <p>b. M.U.T.-III USB cable</p> <p>c. M.U.T.-III main harness A (Vehicles with CAN communication system)</p> <p>d. M.U.T.-III main harness B (Vehicles without CAN communication system)</p> <p>e. M.U.T.-III main harness C (for Chrysler models only)</p> <p>f. M.U.T.-III measurement adapter</p> <p>g. M.U.T.-III trigger harness</p>	<p>MB991824-KIT</p> <p><i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i></p>	<p>⚠ CAUTION</p> <p>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.</p> <p>Diagnostic code, service data and actuator test check.</p>
 <p>MB992006</p>	<p>MB992006</p> <p>Extra fine probe</p>	<p>–</p>	<p>Continuity check and voltage measurement at harness wire or connector.</p>

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 –Contents of troubleshooting

P.00-7.

M1541301500177

DIAGNOSTIC FUNCTION

M1541302100042

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

Required Special Tools:

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

⚠ CAUTION

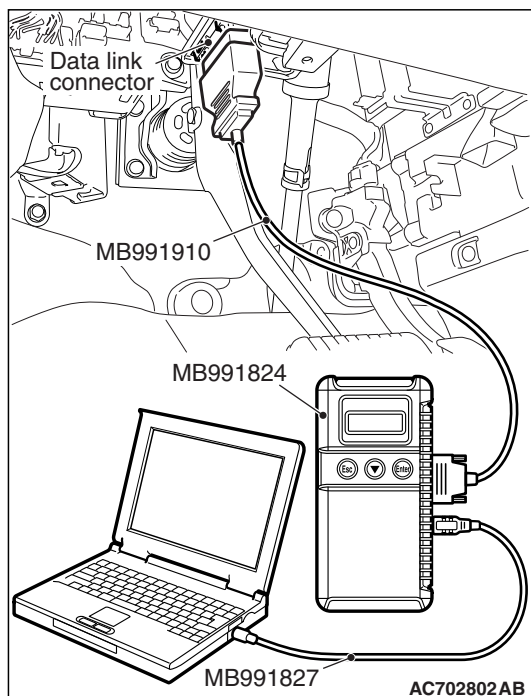
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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

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

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

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



HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

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

⚠ CAUTION

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

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

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

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

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

TROUBLE SYMPTOM CHART

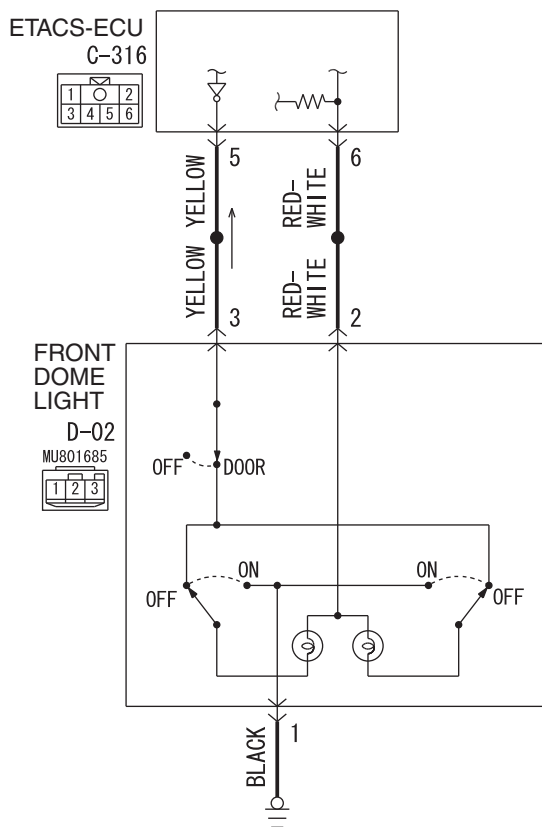
M1541300200184

Trouble symptom	Inspection Procedure No.	Reference page
The front dome light does not illuminate normally.	1	P.54A-288
The rear dome light does not illuminate normally.	2	P.54A-292
The luggage compartment light does not illuminate normally.	3	P.54A-297
The foot light does not illuminate normally.	4	P.54A-302
The interior light auto-cut function does not operate correctly.	5	P.54A-305

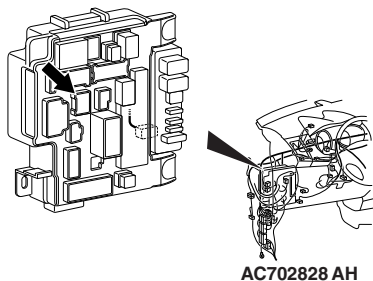
SYMPTOM PROCEDURES

Inspection Procedure 1: The front dome light does not illuminate normally.

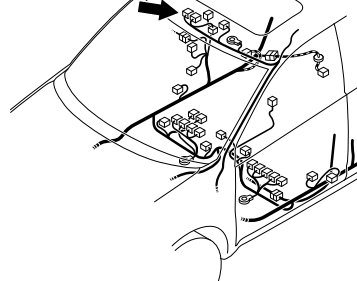
Front Dome Light Circuit

AC703368AB
D7G54M039A00

Connector: C-316



Connector: D-02



TROUBLE JUDGMENT

The ETACS-ECU illuminates and extinguishes the front room light in accordance with the input signals below.

- Ignition switch (IG1)
- Key reminder switch

- Door switches
- Liftgate latch switch
- Front door lock actuator

TECHNICAL DESCRIPTION (COMMENT)

If this does not work normally, the above switch input circuit(s), front dome light, or ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

- Malfunction of the key reminder switch
- Malfunction of door switch

- Malfunction of liftgate latch switch
- Malfunction of the front door lock actuator
- Malfunction of front dome light
- Malfunction of the ETACS-ECU
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

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

STEP 1. Rear dome light operation check.

Check that the rear dome light illuminates and extinguishes normally.

Q: Does rear dome light work normally?

YES : Go to Step 2.

NO : Replace the ETACS-ECU.

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

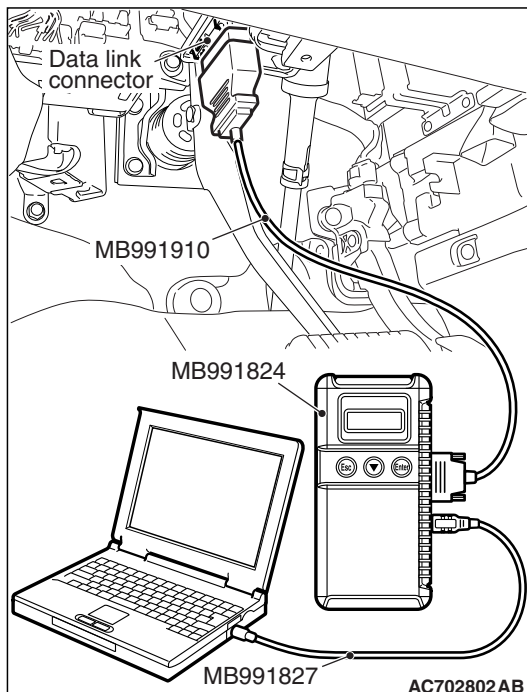
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-286](#)."
- (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 Diagnosis [P.54A-742](#).

NO : Go to Step 3.



STEP 3. Using scan tool MB991958, check data list.

Use the ETACS-ECU data list to check the signals related to the front dome light.

- Turn the ignition switch to the "LOCK" (OFF) position.
- Remove the ignition key from the ignition key cylinder.
- Open each door.
- Open the liftgate.

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 257	As door ajar switch	Open
Item 258	RR door ajar switch	Open
Item 259	RL door ajar switch	Open
Item 260	Trunk/gate trunk ajar switch	Open
Item 264	Handle lock switch	Key in →Key out

Q: Does scan tool MB991958 display the items "Dr door unlock", "IG voltage", "Dr door ajar switch", "As door ajar switch", "RR door ajar switch", "RL door ajar switch", "Trunk/gate trunk ajar switch" and "Handle lock switch" as normal condition?

YES <Normal conditions are displayed for all items.> :
Go to Step 4.

NO <Normal condition is not displayed for item No. 228.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 4 "ETACS-ECU does not receive any signal from the front door lock actuator" [P.54A-806](#).

NO <Normal condition is not displayed for item No. 254.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 2 "ETACS-ECU does not receive any signal from the ignition switch (IG1)" [P.54A-800](#).

NO <Normal condition is not displayed for item No. 256.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 5 "ETACS-ECU does not receive any signal from the front door switch (LH)" [P.54A-813](#).

NO <Normal condition is not displayed for item No. 257.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 6 "ETACS-ECU does not receive any signal from the front door switch (RH)" [P.54A-816](#).

NO <Normal condition is not displayed for item No. 258.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 7 "ETACS-ECU does not receive any signal from the rear door switch (LH)" [P.54A-818](#).

- NO <Normal condition is not displayed for item No. 259.>** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 8 "ETACS-ECU does not receive any signal from the rear door switch (RH)" [P.54A-820](#).
- NO <Normal condition is not displayed for item No. 260.>** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 9 "ETACS-ECU does not receive any signal from the liftgate switch" [P.54A-823](#).
- NO <Normal condition is not displayed for item No. 264.>** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 3 "ETACS-ECU does not receive any signal from the key reminder switch" [P.54A-803](#).

STEP 4. Check front dome light connector D-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front dome light connector D-02 in good condition?

YES : Go to Step 5.

NO : Repair the damaged parts.

STEP 5. Front dome light bulb check

Check that the front dome light bulb is normal.

Q: Does front dome light work normally?

YES : Go to Step 6.

NO : Replace the front dome light bulb.

STEP 6. Check ETACS-ECU connector C-316 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-316 in good condition?

YES : Go to Step 7.

NO : Repair the damaged parts.

STEP 7. Check the wiring harness between front dome light connector D-02 (terminal No. 2/3) and ETACS-ECU connector C-316 (terminal No. 6/5)

Check the communication line for open or short circuit.

Q: Are wiring harness between front dome light connector D-02 (terminal No. 2/3) and ETACS-ECU connector C-316 (terminal No. 6/5) in good condition?

YES : Go to Step 8.

NO : Repair the wiring harness.

STEP 8. Check front dome light connector D-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front dome light connector D-02 in good condition?

YES : Go to Step 9.

NO : Repair the damaged parts.

STEP 9. Check the wiring harness between D-02 front dome light connector (terminal No. 1) and body ground.
Check the ground lines for open circuit.

Q: Is wiring harness between front dome light connector D-02 (terminal No. 1) and body ground in good condition?

YES : Replace the front dome light, and then go to Step 10.

NO : Repair the wiring harness.

STEP 10. Retest the system

Check that the front dome light illuminates/extinguishes normally.

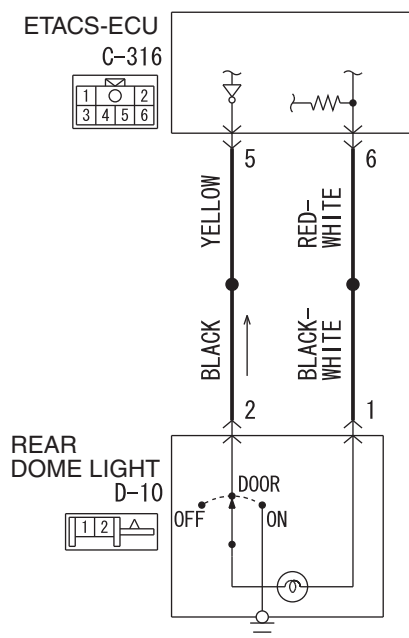
Q: Does the front dome light work normally?

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.

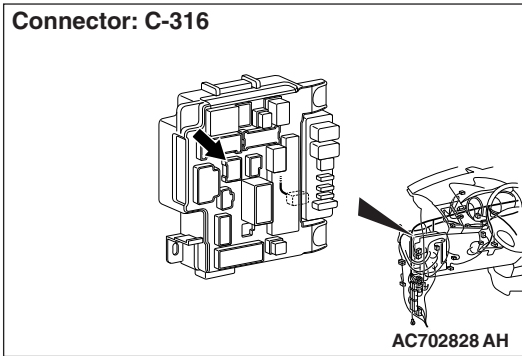
Inspection Procedure 2: The rear dome light does not illuminate normally.

Rear Dome Light Circuit

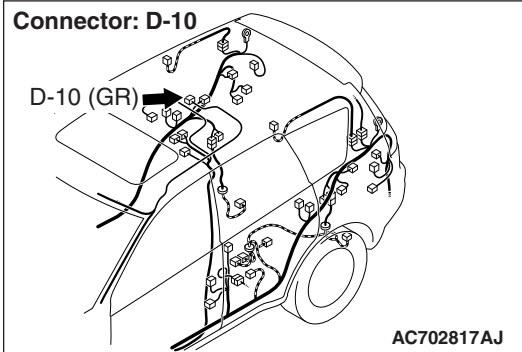


W9G54M006A

Connector: C-316



Connector: D-10



TROUBLE JUDGMENT

The ETACS-ECU illuminates and extinguishes the rear dome light in accordance with the input signals below.

- Ignition switch (IG1)
- Key reminder switch
- Door switches
- Liftgate latch switch
- Front door lock actuator

TECHNICAL DESCRIPTION (COMMENT)

If this does not work normally, the above switch input circuit(s), rear dome light, or ETACS-ECU may have a problem.

PROBABLE CAUSES

- Malfunction of the key reminder switch
- Malfunction of door switch
- Malfunction of liftgate latch switch
- Malfunction of the front door lock actuator (RH)
- Malfunction of rear dome light
- Malfunction of the ETACS-ECU
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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

STEP 1. Front dome light operation check

Check that the front dome light illuminates and extinguishes normally.

Q: Does rear dome light work normally?

YES : Go to Step 2.

NO : Replace the ETACS-ECU.

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

⚠ CAUTION

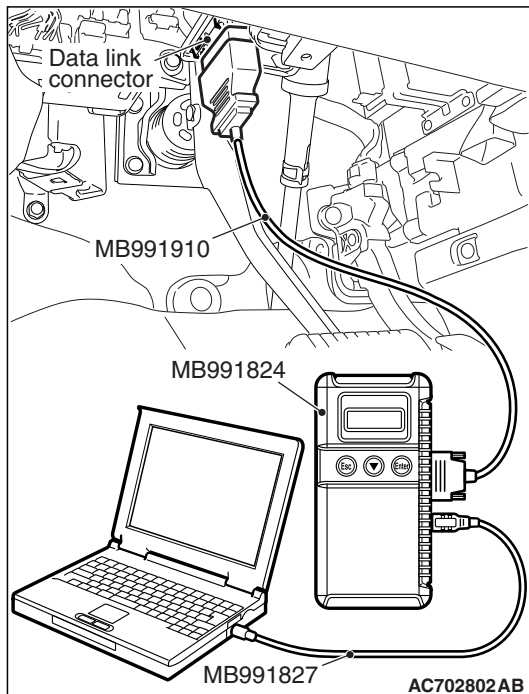
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-286](#)."
- (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-742](#).

NO : Go to Step 3.



STEP 3. Using scan tool MB991958, check data list.

Use the ETACS-ECU data list to check the signals related to the rear dome light.

- Turn the ignition switch to the "LOCK" (OFF) position.
- Remove the ignition key from the ignition key cylinder.
- Open each door.
- Open the liftgate.

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 257	As door ajar switch	Open
Item 258	RR door ajar switch	Open
Item 259	RL door ajar switch	Open
Item 260	Trunk/gate trunk ajar switch	Open
Item 264	Handle lock switch	Key in →Key out

Q: Does scan tool MB991958 display the items "Dr door unlock", "IG voltage", "Dr door ajar switch", "As door ajar switch", "RR door ajar switch", "RL door ajar switch", "Trunk/gate trunk ajar switch" and "Handle lock switch" as normal condition?

YES <Normal conditions are displayed for all items.> :
Go to Step 4.

NO <Normal condition is not displayed for item No. 228.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 4 "ETACS-ECU does not receive any signal from the front door lock actuator" [P.54A-806](#).

NO <Normal condition is not displayed for item No. 254.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 2 "ETACS-ECU does not receive any signal from the ignition switch (IG1)" [P.54A-800](#).

NO <Normal condition is not displayed for item No. 256.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 5 "ETACS-ECU does not receive any signal from the front door switch (LH)" [P.54A-813](#).

NO <Normal condition is not displayed for item No. 257.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 6 "ETACS-ECU does not receive any signal from the front door switch (RH)" [P.54A-816](#).

NO <Normal condition is not displayed for item No. 258.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 7 "ETACS-ECU does not receive any signal from the rear door switch (LH)" [P.54A-818](#).

- NO <Normal condition is not displayed for item No. 259.>** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 8 "ETACS-ECU does not receive any signal from the rear door switch (RH)" [P.54A-820](#).
- NO <Normal condition is not displayed for item No. 260.>** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 9 "ETACS-ECU does not receive any signal from the liftgate switch" [P.54A-823](#).
- NO <Normal condition is not displayed for item No. 264.>** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 3 "ETACS-ECU does not receive any signal from the key reminder switch" [P.54A-803](#).

STEP 4. Check rear dome light connector D-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear dome light connector D-10 in good condition?

- YES** : Go to Step 5.
NO : Repair the damaged parts.

STEP 5. Rear dome light bulb check
Check that the rear dome light bulb is normal.

Q: Does rear dome light work normally?

- YES** : Go to Step 6.
NO : Replace the rear dome light bulb.

STEP 6. Check ETACS-ECU connector C-316 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-316 in good condition?

- YES** : Go to Step 7.
NO : Repair the damaged parts.

STEP 7. Check the wiring harness between rear dome light D-10 connector terminal (No. 1/2) and ETACS-ECU connector C-316 (terminal No. 6/5)
Check the communication line for open or short circuit.

Q: Is wiring harness between rear dome light connector D-10 (terminal No. 1/2) and ETACS-ECU connector C-316 (terminal No. 6/5) in good condition?

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

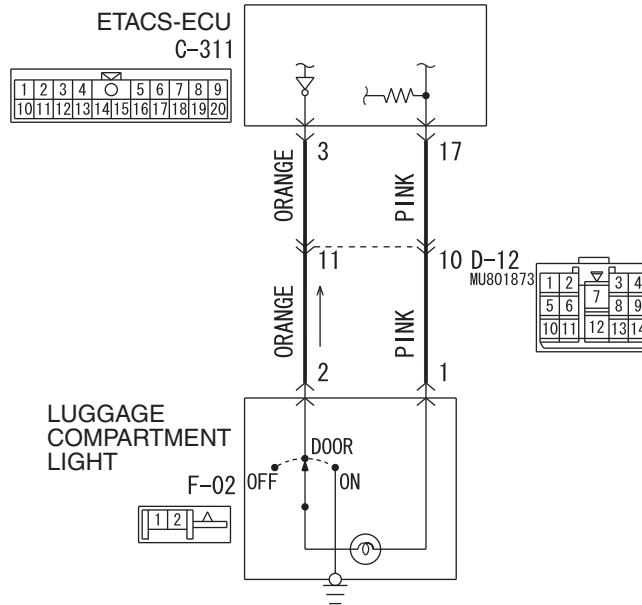
STEP 8. Retest the system
Check that the rear dome light illuminates/extinguishes normally.

Q: Does rear dome light 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.

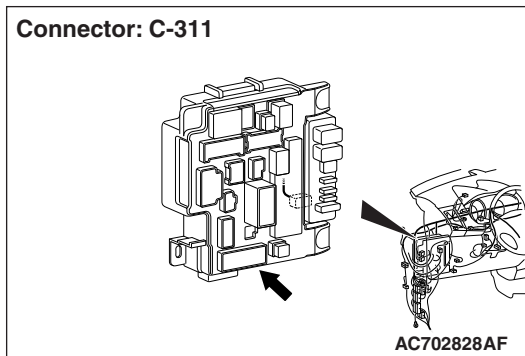
Inspection Procedure 3: The luggage compartment light does not illuminate normally.

Luggage Compartment Light Circuit

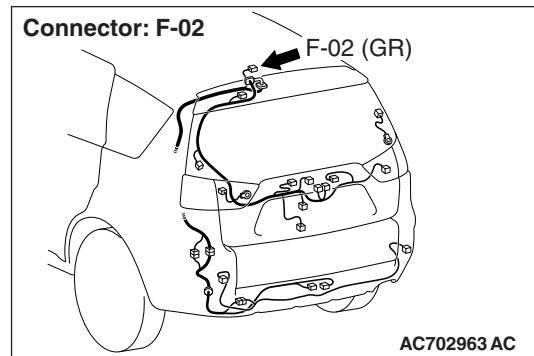


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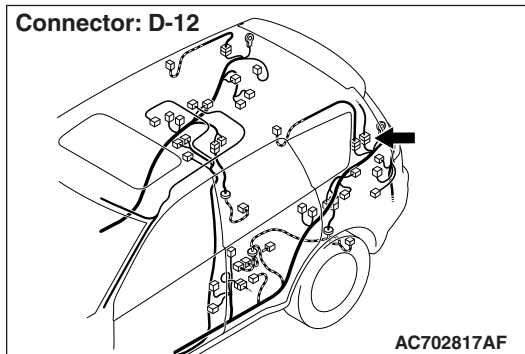
Connector: C-311



Connector: F-02



Connector: D-12



TROUBLE JUDGMENT

The ETACS-ECU illuminates and extinguishes the luggage compartment light in accordance with the input signals below.

- Ignition switch (IG1)
- Key reminder switch
- Door switches
- Liftgate latch switch
- Front door lock actuator

TECHNICAL DESCRIPTION (COMMENT)

If this does not work normally, the above switch input circuit(s), luggage compartment light, or ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

- Malfunction of the key reminder switch
- Malfunction of door switch
- Malfunction of liftgate latch switch
- Malfunction of the front door lock actuator
- Malfunction of luggage compartment light
- Malfunction of the ETACS-ECU
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

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

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

⚠ CAUTION

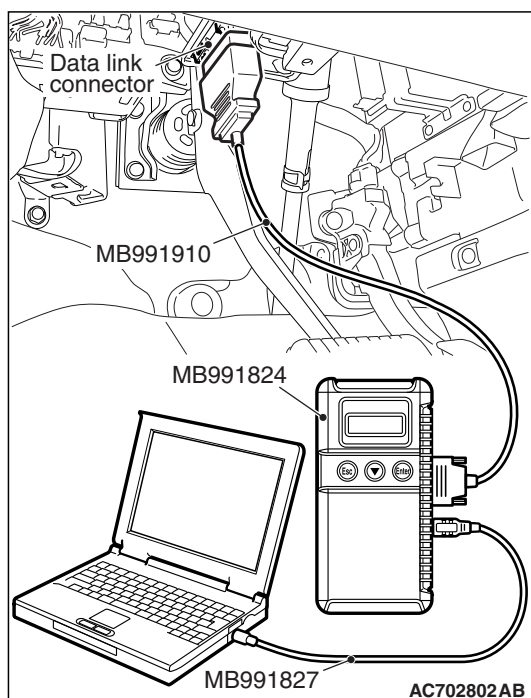
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-286](#)."
- (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-742](#).

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 luggage compartment light.

- Turn the ignition switch to the "LOCK" (OFF) position.
- Remove the ignition key from the ignition key cylinder.
- Open each door.
- Open the liftgate.

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 257	As door ajar switch	Open
Item 258	RR door ajar switch	Open
Item 259	RL door ajar switch	Open
Item 260	Trunk/gate trunk ajar switch	Open
Item 264	Handle lock switch	Key in →Key out

Q: Does scan tool MB991958 display the items "Dr door unlock", "IG voltage", "Dr door ajar switch", "As door ajar switch", "RR door ajar switch", "RL door ajar switch", "Trunk/gate trunk ajar switch" and "Handle lock switch" as normal condition?

YES <Normal conditions are displayed for all items.> :

Go to step 3.

NO <Normal condition is not displayed for item No.

228.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 4 "ETACS-ECU does not receive any signal from the front door lock actuator" [P.54A-806](#).

NO <Normal condition is not displayed for item No.

254.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 2 "ETACS-ECU does not receive any signal from the ignition switch (IG1)" [P.54A-800](#).

NO <Normal condition is not displayed for item No.

256.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 5 "ETACS-ECU does not receive any signal from the front door switch (LH)" [P.54A-813](#).

NO <Normal condition is not displayed for item No.

257.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 6 "ETACS-ECU does not receive any signal from the front door switch (RH)" [P.54A-816](#).

NO <Normal condition is not displayed for item No.

258.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 7 "ETACS-ECU does not receive any signal from the rear door switch (LH)" [P.54A-818](#).

NO <Normal condition is not displayed for item No. 259.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 8 "ETACS-ECU does not receive any signal from the rear door switch (RH)" [P.54A-820](#).

NO <Normal condition is not displayed for item No. 260.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 9 "ETACS-ECU does not receive any signal from the liftgate switch" [P.54A-823](#).

NO <Normal condition is not displayed for item No. 264.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 3 "ETACS-ECU does not receive any signal from the key reminder switch" [P.54A-803](#).

STEP 3. Check luggage compartment light connector F-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is luggage compartment light connector F-02 in good condition?

YES : Go to Step 4.

NO : Repair the damaged parts.

STEP 4. Luggage compartment light bulb check

Check that the luggage compartment light bulb is normal.

Q: Does luggage compartment light work normally?

YES : Go to Step 5.

NO : Replace the luggage compartment light bulb.

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

Q: Is ETACS-ECU connectors C-311 in good condition?

YES : Go to Step 6.

NO : Repair the damaged parts.

STEP 6. Check the wiring harness between luggage compartment light connector F-02 (terminal No. 2/1) and ETACS-ECU connector C-311 (terminal No. 3/17).

Check the communication line for open or short circuit.

NOTE: Prior to the wiring harness inspection, check intermediate connector D-12, and repair if necessary.

Q: Is wiring harness between luggage compartment light connector F-02 (terminal No. 2/1) and ETACS-ECU connector C-311 (terminal No. 3/17) in good condition?

YES : Go to Step 7.

NO : Repair the wiring harness.

STEP 7. Retest the system

Check that the luggage compartment light illuminates/extinguishes normally.

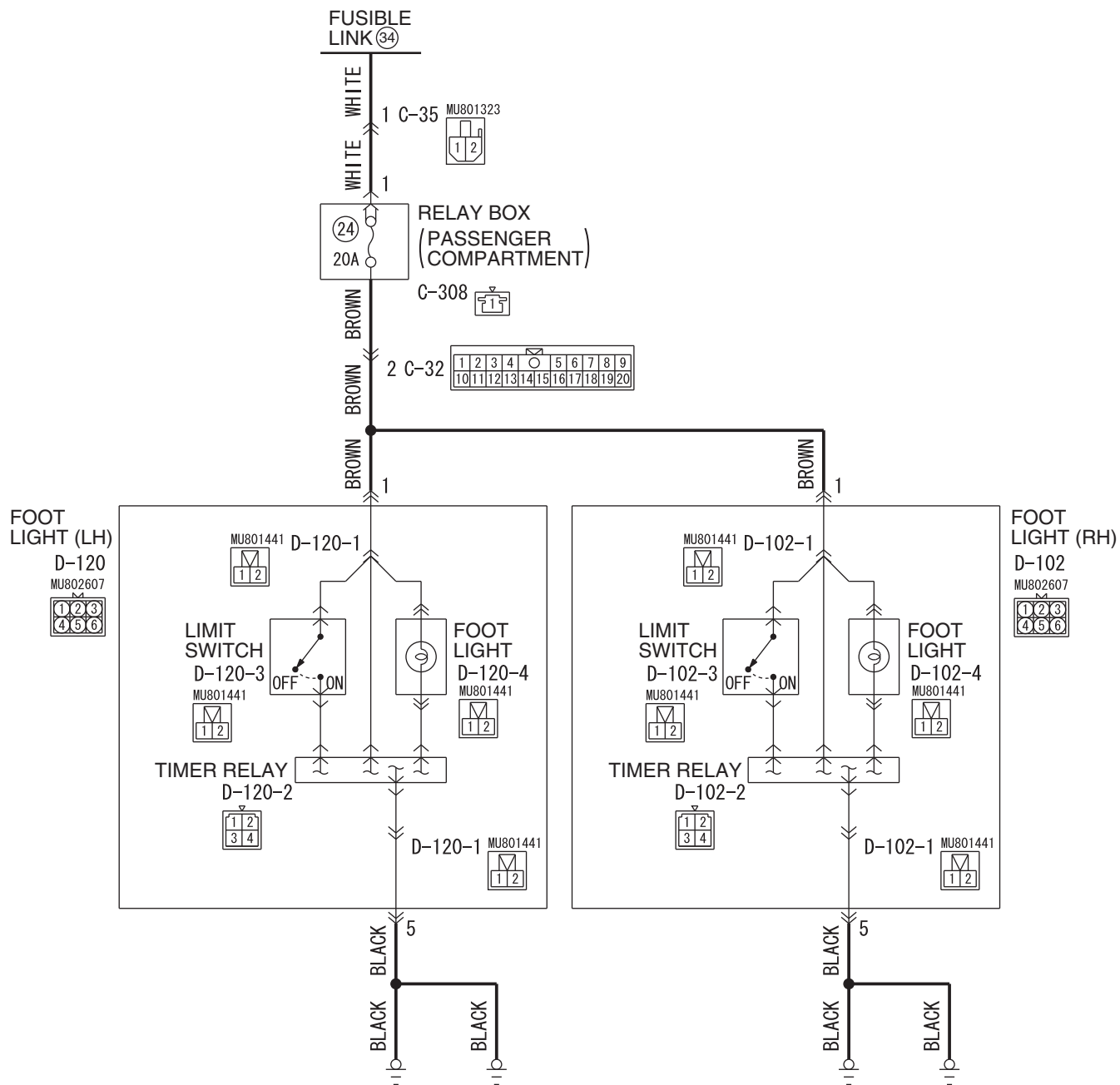
Q: Does the luggage compartment light work normally?

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](#)).

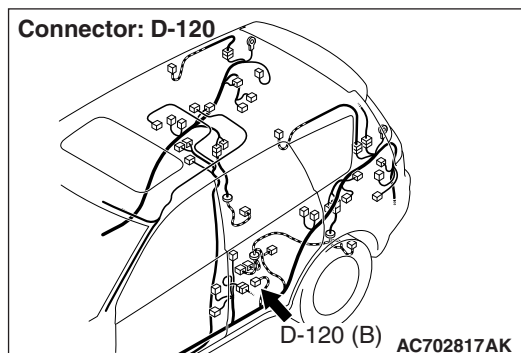
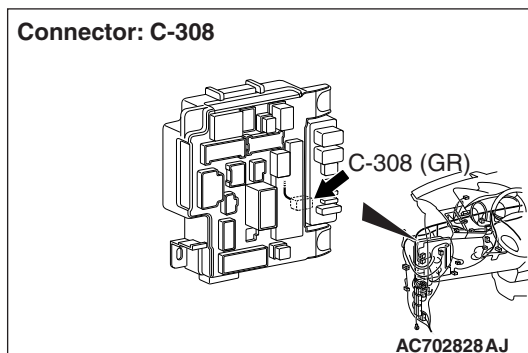
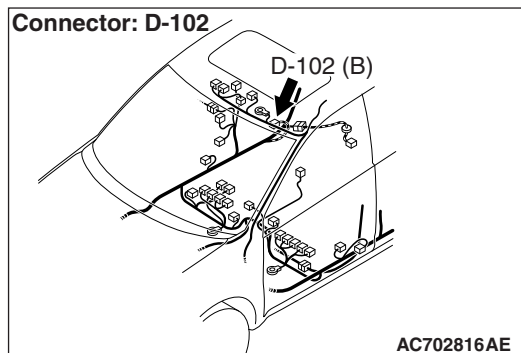
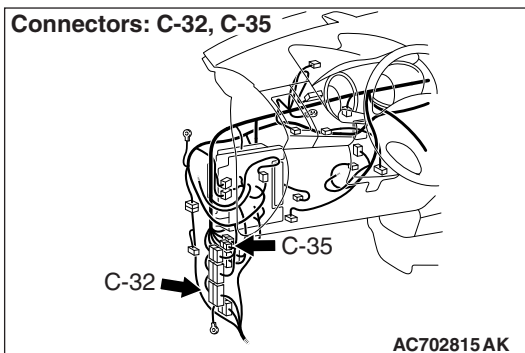
NO : Replace the ETACS-ECU.

Inspection Procedure 4: The foot light does not illuminate normally.

Foot Light Circuit



WAG54M021A



TROUBLE JUDGMENT

If the foot light does not illuminate normally, the power supply circuit(s), ground circuit, or under cover rear may have a problem.

TROUBLESHOOTING HINTS

- Malfunction of under cover rear
- Damaged harness wires and connectors

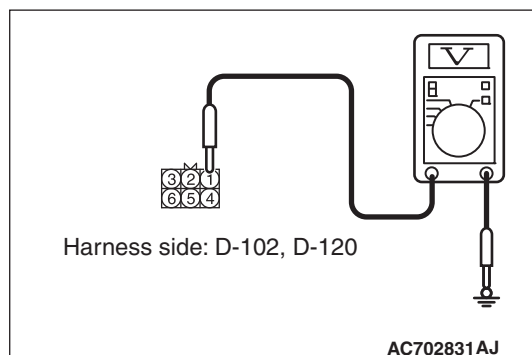
DIAGNOSIS

STEP 1. Check electric foot light connector D-102 (RH), D-120 (LH) for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector.

**STEP 2. Measure the voltage at foot light connector D-102 (RH), D-120 (LH).**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the voltage between the D-102 (RH), D-120 (LH) electric folding second seat connector (terminal No. 1) and the ground.

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

Q: Does the voltage measure battery voltage?

YES : Go to Step 4.

NO : Go to Step 3.

STEP 3. Check the wiring harness between foot light connector D-102 (RH), D-120 (LH) (terminal No. 1) and the fusible link (34).

Check the power supply line for open or short circuit.

NOTE: Before the wiring harness check, check the relay box connector C-308, and the intermediate connector C-35, C-32 and then repair them if necessary.

Q: Is wiring harness between foot light connector D-102 (RH), D-120 (LH) (terminal No. 1) 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 4. Measure the resistance at foot light connector D-102 (RH), D-120 (LH).

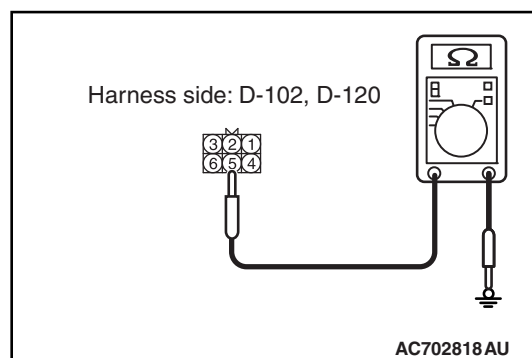
- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the resistance at foot light connector D-102 (RH), D-120 (LH) (terminal No. 5) and ground.

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 the wiring harness between foot light connector D-102 (RH), D-120 (LH) (terminal No. 5) and ground.

Check the ground line for open circuit.

Q: Is wiring harness between foot light connector D-102 (RH), D-120 (LH) (terminal No. 5) 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 6. Retest the system.

Check that the foot light illuminates 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 under cover rear.

Inspection Procedure 5: The interior light auto-cut function does not operate correctly.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU operates the interior light auto-cut function in accordance with the input signals below.

- Ignition switch (ACC)
- Ignition switch (IG1)
- Door switches

If this function does not work normally, these input signal circuit(s) or the ETACS-ECU may have a problem. Also, "Interior light auto cut timer" may be set to "0min" through customization.

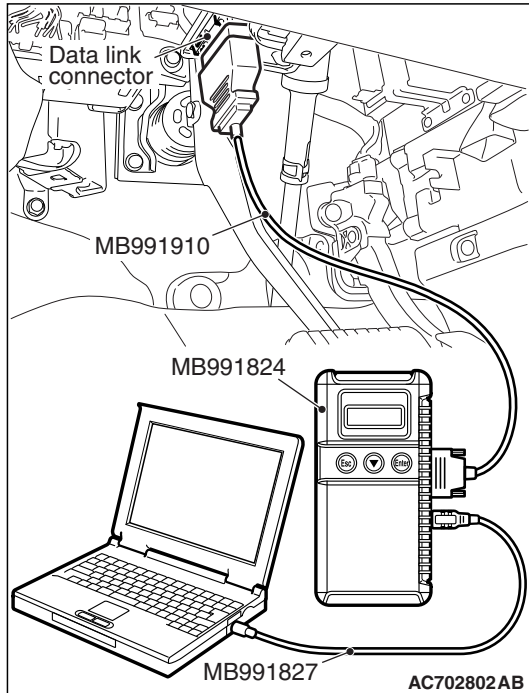
TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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



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

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-286](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Use the ETACS-ECU customize function to check to see which of the followings other than "0min" the "Interior light auto cut timer" is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Use the ETACS-ECU configuration function to set the "Interior light auto cut timer" to other than "0min" (Refer to [P.54A-836](#)).

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

Check if DTC is set to the ETACS-ECU.

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

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to ETACS, Diagnosis [P.54A-742](#).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, check data list.

Use the ETACS-ECU data list to check the signals related to the interior light auto-cut function.

- Turn the ignition switch to the "LOCK" (OFF) position.
- Open each door.

Item No.	Item name	Normal conditions
Item 254	IG voltage	1 V or less
Item 288	ACC switch	OFF
Item 256	Dr door ajar switch	Open
Item 257	As door ajar switch	Open
Item 258	RR door ajar switch	Open
Item 259	RL door ajar switch	Open

Q: Does scan tool MB991958 display the items "IG voltage", "ACC switch", "As door ajar switch", "RR door ajar switch", and "RL door ajar switch" as normal condition?

YES <Normal conditions are displayed for all items.> :
Go to Step 4.

NO <Normal condition is not displayed for item No. 254.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 2 "ETACS-ECU does not receive any signal from the ignition switch (IG1)" [P.54A-800](#).

NO <Normal condition is not displayed for item No. 288.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 1 "ETACS-ECU does not receive any signal from the ignition switch (ACC)" [P.54A-797](#).

NO <Normal condition is not displayed for item No. 256.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 5 "ETACS-ECU does not receive any signal from the front door switch (LH)" [P.54A-813](#).

NO <Normal condition is not displayed for item No. 257.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 6 "ETACS-ECU does not receive any signal from the front door switch (RH)" [P.54A-816](#).

NO <Normal condition is not displayed for item No. 258.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 7 "ETACS-ECU does not receive any signal from the rear door switch (LH)" [P.54A-818](#).

NO <Normal condition is not displayed for item No. 259.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 8 "ETACS-ECU does not receive any signal from the rear door switch (RH)" [P.54A-820](#).

STEP 4. Retest the system.

Check that the interior light automatic shutdown function works normally.

Q: Is the check result normal?

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

NO : Replace the ETACS-ECU.

ON-VEHICLE SERVICE**CUSTOMIZATION FUNCTION**

M1541301200206

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
Dome light delay timer with door	Adjustment of interior light delay shutdown time	0sec	0 second (no delay shutdown time)
		7.5sec	7.5 seconds
		15sec	15 seconds
		30sec	30 seconds (initial condition)
		60sec	60 seconds
		120sec	120 seconds
		180sec	180 seconds
Interior light auto cut timer	Adjustment of interior light automatic shutdown function operation time	0min	Without function
		3min	3 minutes
		30min	30 minutes (initial condition)
		60min	60 minutes

REMOVAL AND INSTALLATION

M1541302700055

Refer to GROUP 52A –Headlining [P.52A-15](#).