TROUBLE SYMPTOM CHART

M1540102100647

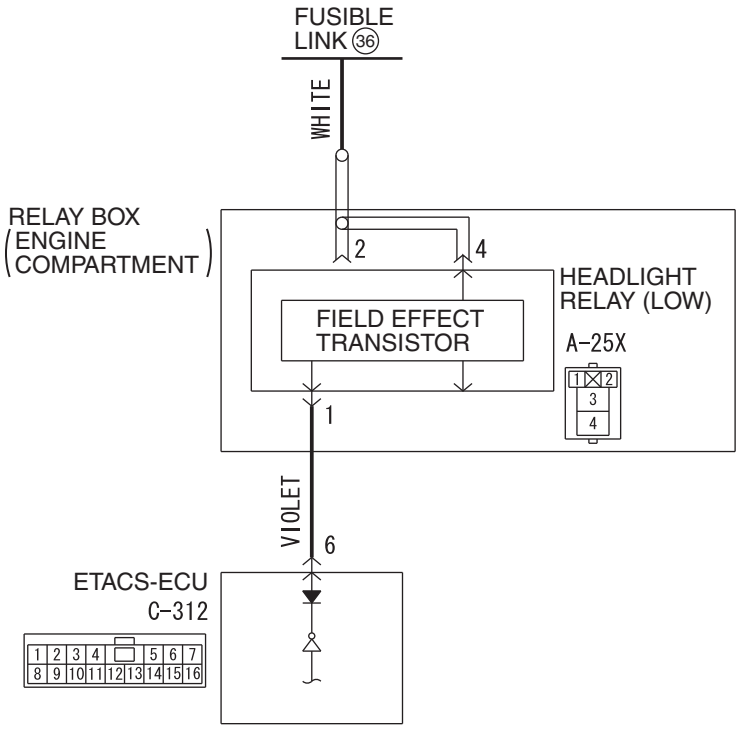
Trouble symptom			Inspection Procedure No.	Reference page
Headlight and taillight	None of headlights (low-beam) illuminates.		1	P.54A-158
	None of headlights (high-beam) illuminates.		2	P.54A-162
	The headlights illuminate at low-beam (high-beam does not illuminate) regardless of the lighting switch positions.		3	P.54A-166
	Headlights do not illuminate when the passing switch is operated.		4	P.54A-168
	One of the headlights does not illuminate.		5	P.54A-170
	High-beam indicator light does not illuminate normally.		6	P.54A-174
	The headlight automatic shutdown function does not work normally.		7	P.54A-176
	Daytime running light function does not work normally.	Halogen type headlight	8	P.54A-179
		Discharge type headlight		P.54A-182
	One of the tail lights, side marker lights or the license plate lights does not Illuminate.		9	P.54A-189
	The auto light function does not work normally.		10	P.54A-197
Turn-signal light	None of turn-signal lights illuminates.		11	P.54A-199
	The comfort flashing function does not work normally.		12	P.54A-200
	The turn-signal indicator lights do not illuminate.		13	P.54A-202
The welcome light function does not work normally.			14	P.54A-204
The coming home light function does not work normally.			15	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



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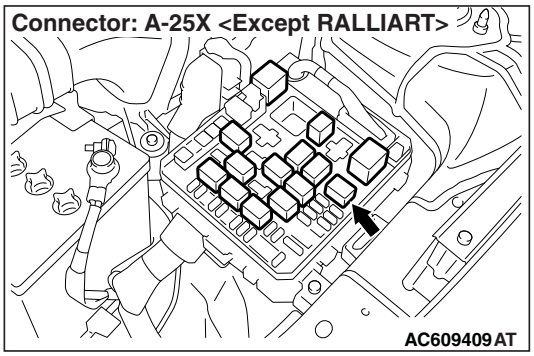
Connector: A-25X <Except RALLIART>



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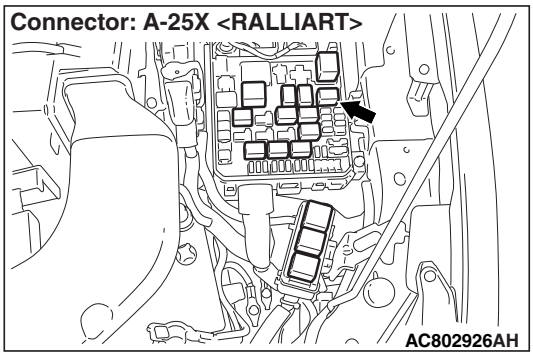

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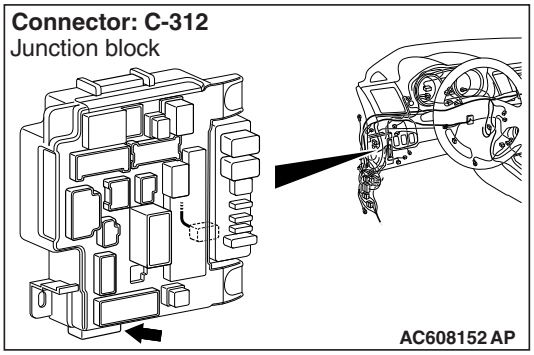


TECHNICAL DESCRIPTION (COMMENT)

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.

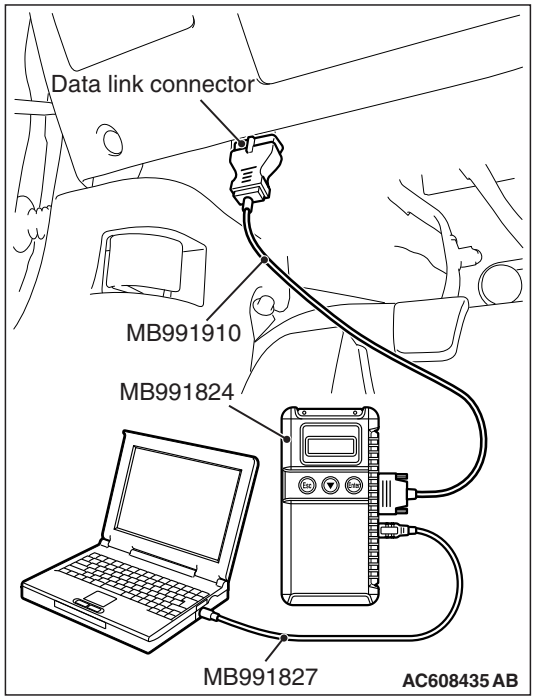
⚠ CAUTION

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 too (M.U.T.-III) P.54A-133."
(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-678.
NO : Go to Step 2.



STEP 2. Using scan tool MB991958, check data list

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

- Turn the headlight switch to the ON position.

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

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

YES : Go to Step 3.
NO : Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-735.

STEP 3. Check headlight relay (LOW) connector A-25X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : 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-25X.

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

(1) Disconnect headlight relay (LOW) connector A-25X and measure the voltage available at the relay box side of the connector.
(2) Measure the voltage between terminal 4 and ground.

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

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

YES : Go to Step 5.
NO : Go to Step 7.

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

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

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

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

- Check the output line for open circuit.

Q: Is the wiring harness between headlight relay (LOW) connector A-25X (terminal 1) and ETACS-ECU connector C-312 (terminal 6) in good condition?

YES : Go to Step 8.

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

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

- Check the power supply line for open circuit.

Q: Is the wiring harness between headlight relay (LOW) connector A-25X (terminal 4) and fusible link (36) in good condition?

YES : Go to Step 8.

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

STEP 8. Temporarily replace the headlight relay (LOW), and retest the system.

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

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

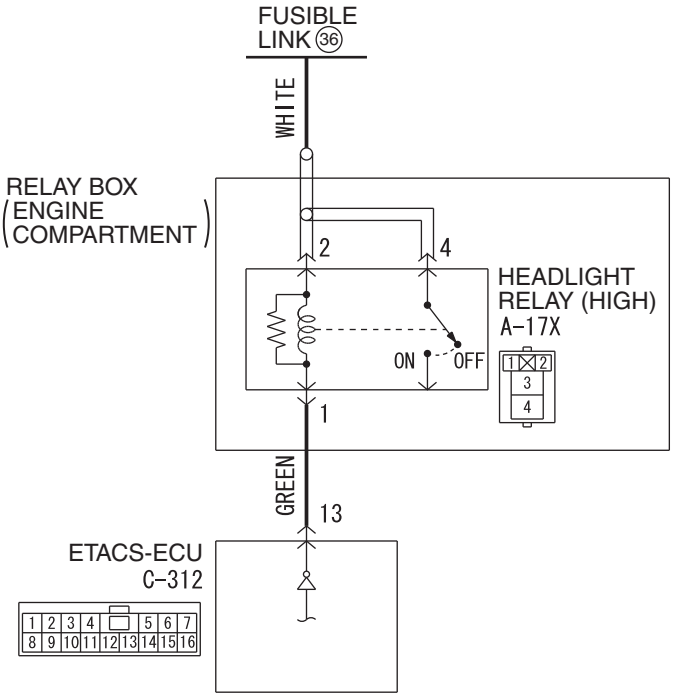
YES : Replace the headlight relay (LOW).

NO : Replace the ETACS-ECU.

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

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

Headlight Relay (High-Beam) Circuit



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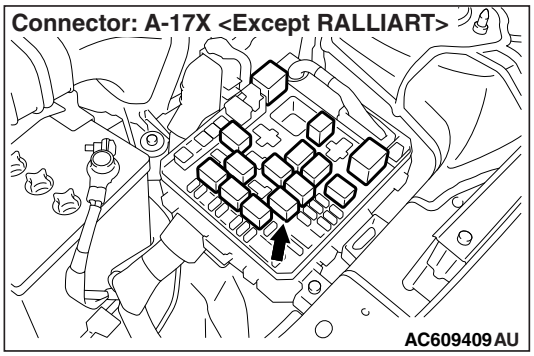

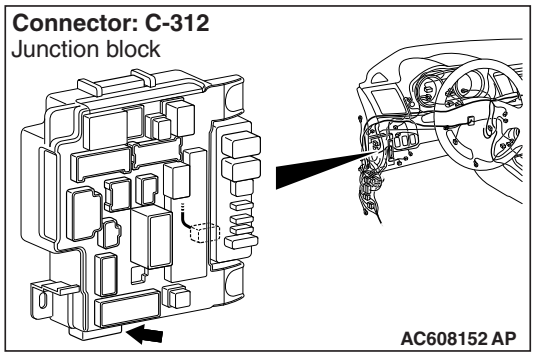

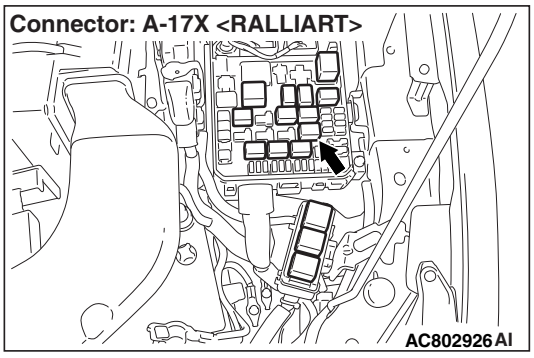

TECHNICAL DESCRIPTION (COMMENT)

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

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DIAGNOSIS

Required Special Tools:

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

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

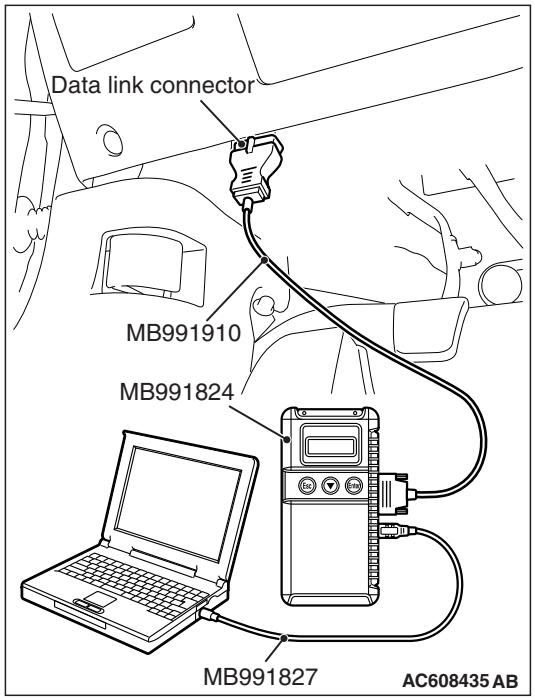
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-133."
(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-678.
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-735.

STEP 3. Check headlight relay (HIGH) connector A-17X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 4.

NO : Repair the damaged parts.

STEP 4. Check of headlight relay (HIGH)

Refer to P.54A-223.

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

YES : Go to Step 5.

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

STEP 5. Check the battery power supply circuit to the headlight relay (HIGH). Measure the voltage at headlight relay (HIGH) connector A-17X

⚠ CAUTION

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

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

(2) Measure the voltage between terminal 2/4 and ground.

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

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

YES : Go to Step 6.

NO : Go to Step 8.

STEP 6. Check ETACS-ECU connector C-312 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 7.

NO : Repair the damaged parts.

STEP 7. Check the wiring harness between headlight relay (HIGH) connector A-17X (terminal 1) and ETACS-ECU connector C-312 (terminal 13).

- Check the output line for open circuit.

Q: Is the wiring harness between headlight relay (HIGH) connector A-17X (terminal 1) and ETACS-ECU connector C-312 (terminal 13) in good condition?

YES : Go to Step 9.

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

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

- Check the power supply line for open circuit.

Q: Is the wiring harness between headlight relay (HIGH) connector A-17X (terminal 2/4) and fusible link (36) in good condition?

YES : Go to Step 9.

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

STEP 9. Retest the system

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

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

NO : Replace the ETACS-ECU.

Inspection Procedure 3: The headlights illuminate at low-beam (high-beam does not illuminate) regardless of the lighting switch positions.

⚠ CAUTION

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

TECHNICAL DESCRIPTION (COMMENT)

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

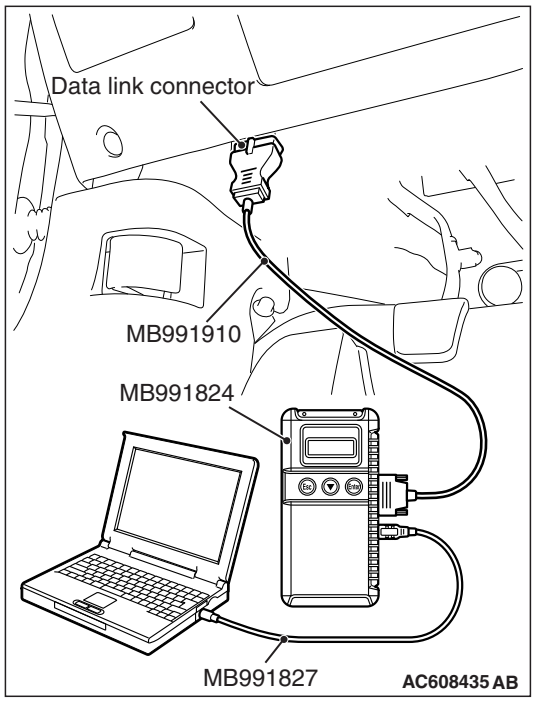
TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-133."
(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-678.
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.00-14).
NO : Replace the ETACS-ECU.

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

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

TECHNICAL DESCRIPTION (COMMENT)

If none of headlights (low-beam and high-beam) illuminates, the passing switch input circuit or ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

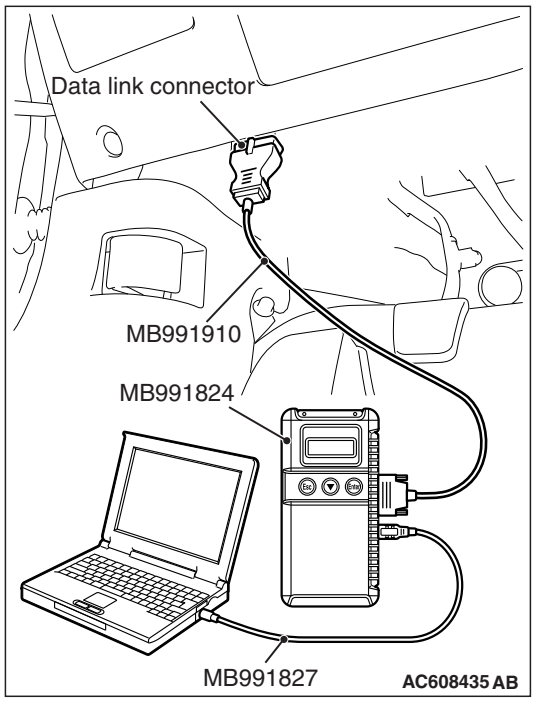
STEP 1. Check that the headlights operate.

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

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure 1 "None of headlights (low-beam) illuminates." P.54A-158 and Inspection Procedure 2 "None of headlights (high-beam) illuminates." P.54A-162.



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-133."
(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-678.
NO : Go to Step 3.

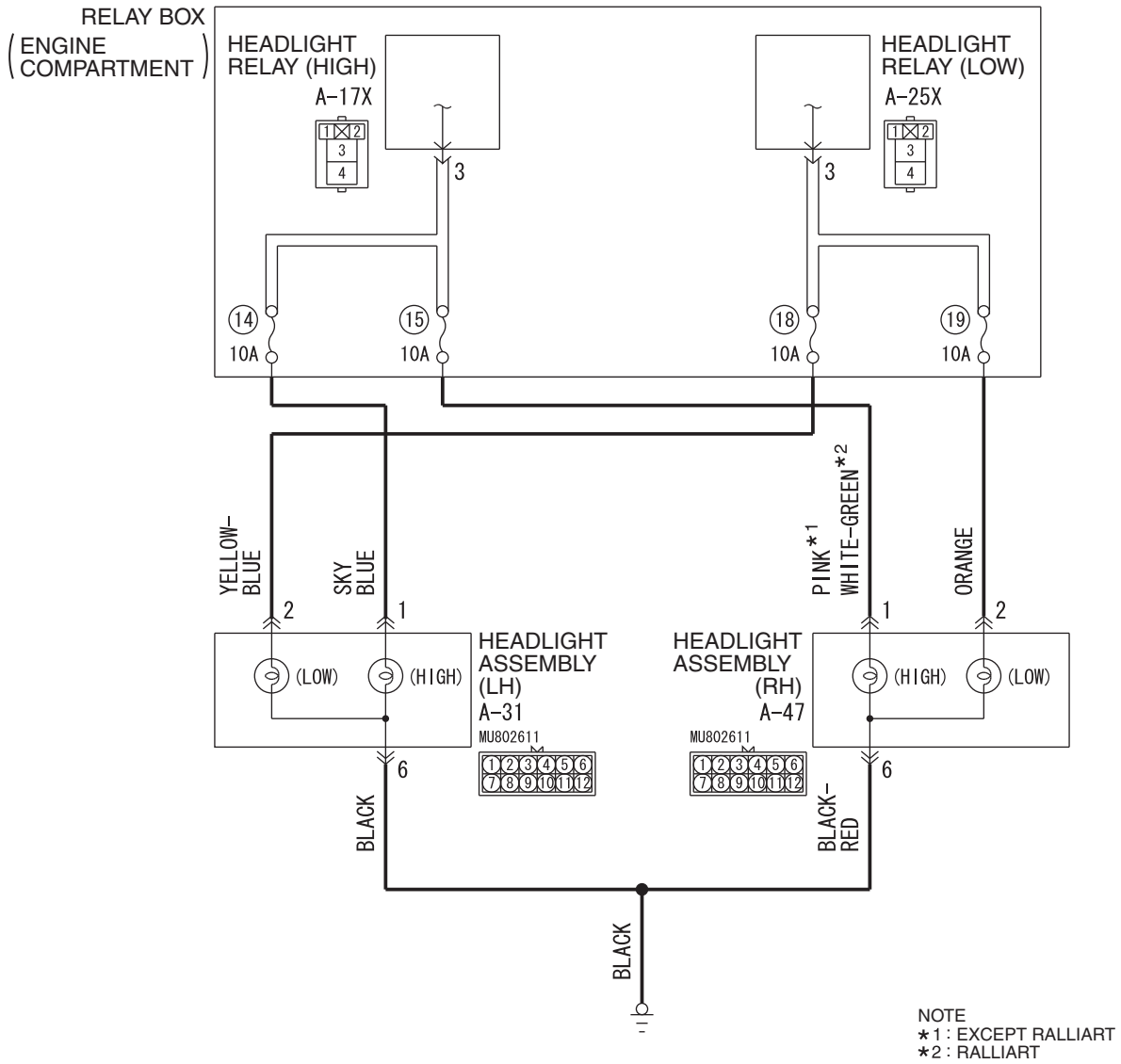
STEP 3. Retest the system

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.00-14).
NO : Replace the ETACS-ECU.

Inspection Procedure 5: One of the headlight(s) does not illuminate.

Headlights Circuit <Halogen Type>



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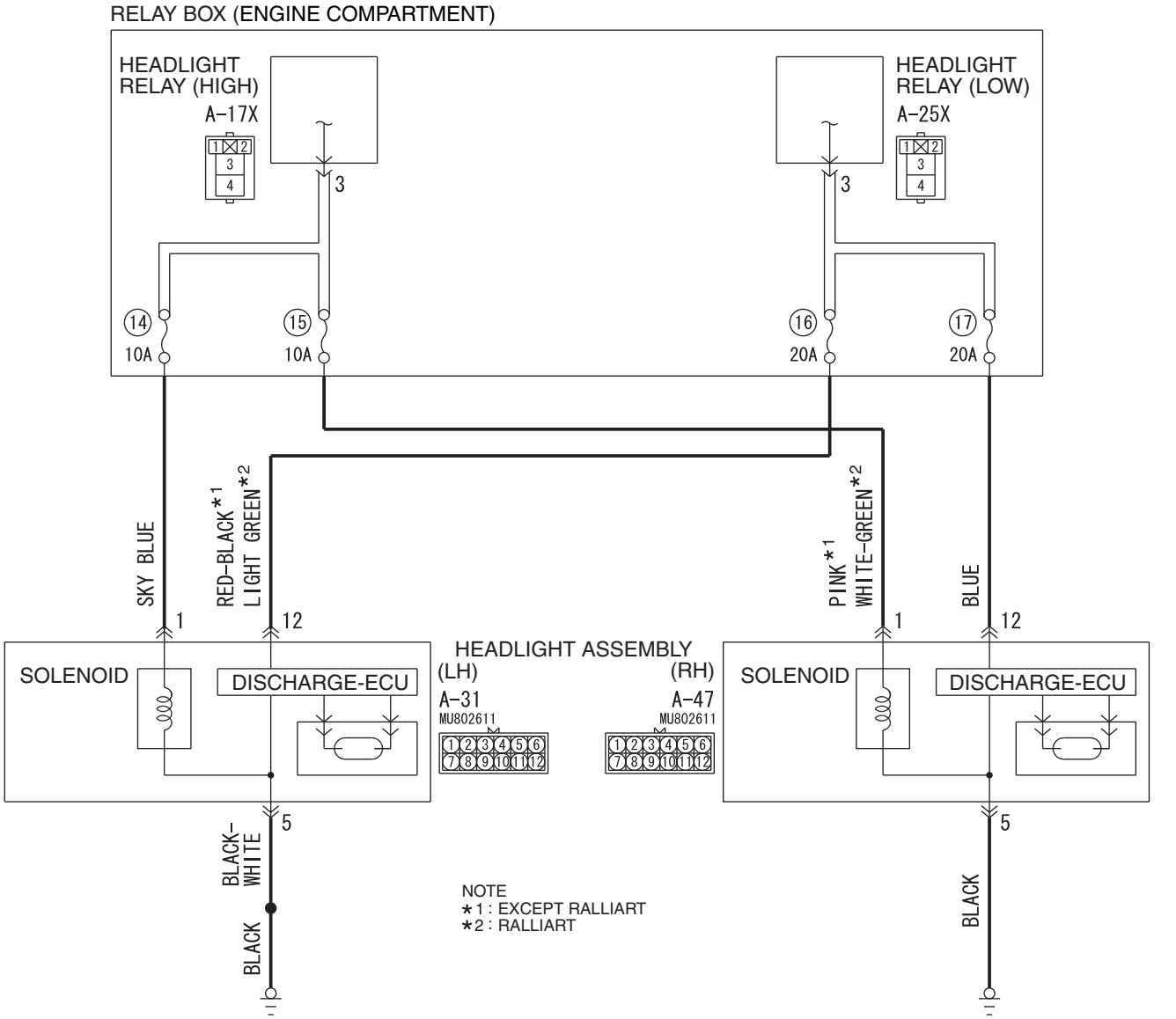
Headlights Circuit <Discharge Type>



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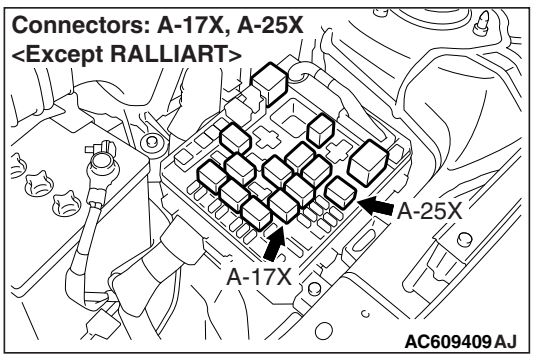

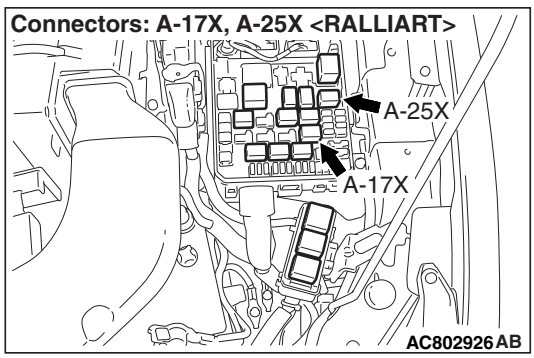

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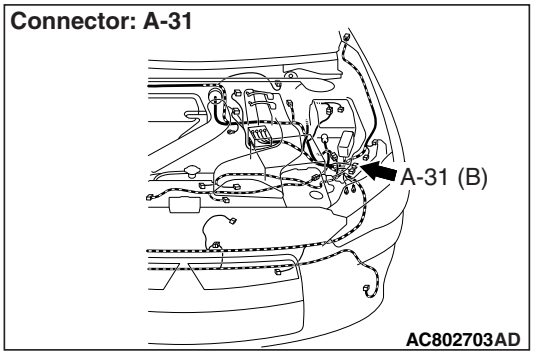
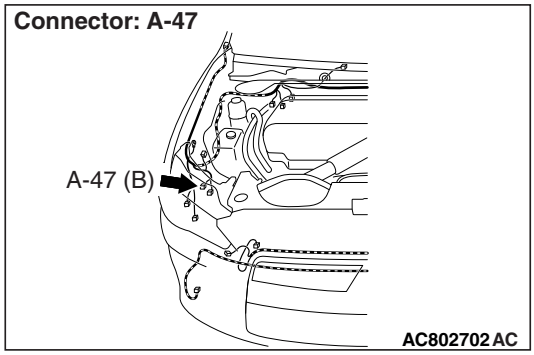




TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set

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

Q: Is headlight assembly connector A-31 <LH> or A-47 <RH> in good condition?

YES : Go to Step 2.

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

STEP 2. Check bulb.

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

NOTE: If discharge-type lower beam headlights do not illuminate, their bulbs cannot be inspected. In this case, assume the bulbs to be normal and proceed with steps.

Q: Is the bulb in good condition?

YES : Go to Step 3.

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

STEP 3. Check the wiring harness between headlight assembly connector and headlight relay connector.

Check the power supply line for open circuit.

- Check the wiring harness between headlight assembly (LH) connector A-31 (terminal 2) and headlight relay (LOW) connector A-25X (terminal 3). <LH-LOW>
- Check the wiring harness between headlight assembly (LH) connector A-31 (terminal 1) and headlight relay (HIGH) connector A-17X (terminal 3). <LH-HIGH>
- Check the wiring harness between headlight assembly (LH) connector A-31 (terminal 6) and ground. <LH-LOW and HIGH>
- Check the wiring harness between headlight assembly (RH) connector A-47 (terminal 2) and headlight relay (LOW) connector A-25X (terminal 3). <RH-LOW>
- Check the wiring harness between headlight assembly (RH) connector A-47 (terminal 1) and headlight relay (HIGH) connector A-17X (terminal 3). <RH-HIGH>
- Check the wiring harness between headlight assembly (RH) connector A-47 (terminal 6) and ground. <RH-LOW and HIGH>

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

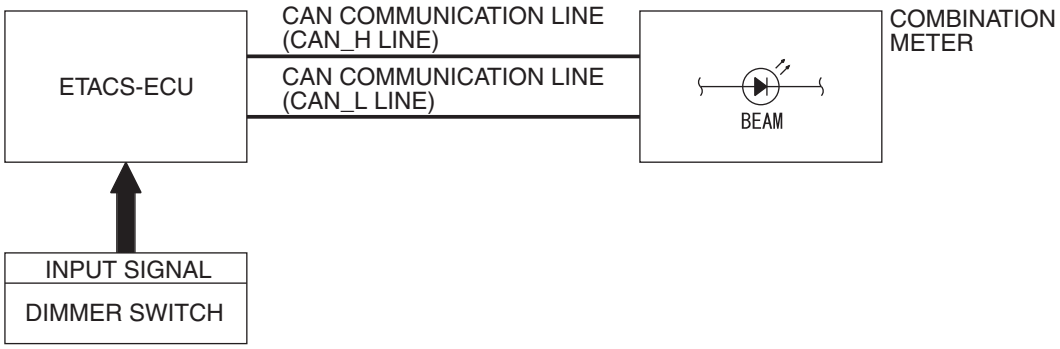
YES : Replace the headlight assembly that does not illuminate.

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

Inspection Procedure 6: High-beam indicator light does not illuminate normally.

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

High-Beam Indicator Light Circuit



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TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the ETACS-ECU
- Malfunction of combination meter
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

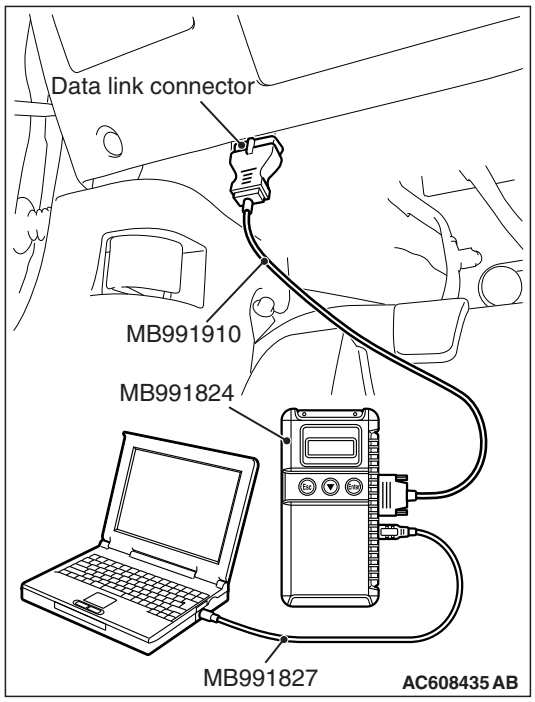
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

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

Check that the headlights (high-beam) illuminate/extinguish normally when the lighting switch is operated.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Refer to Inspection Procedure 2 "All the headlights (high-beam) do not illuminate P.54A-162."



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-133."
(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 too (M.U.T.-III) P.54A-133."
(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-678.
NO : Go to Step 4.

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

(1) Turn the ignition switch to the "ON" position.
(2) Perform the actuator test for the combination meter, and check that the high-beam indicator light illuminates (Refer to combination meter P.54A-100).
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Replace the ETACS-ECU.
NO : Replace the combination meter.

Inspection Procedure 7: The headlight automatic shutdown function does not work normally.

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

OPERATION

The ETACS-ECU operates this function in accordance with the input signals from column switch (lighting switch), ignition switch (IG1), and front door switch (LH).

TECHNICAL DESCRIPTION (COMMENT)

If the headlight automatic shutdown function does not work normally, the above described input circuits or ETACS-ECU may have a problem. Also, it may be possible that the headlight automatic shutdown function is set to "Disable" through configuration function.

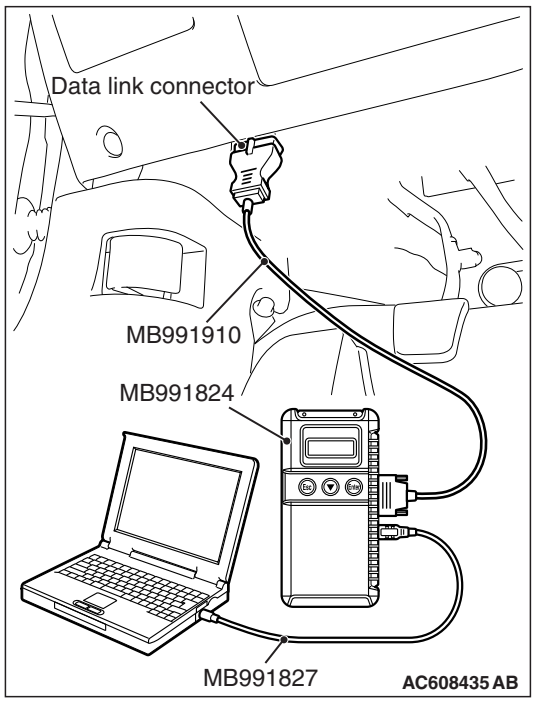
TROUBLESHOOTING HINTS

- Malfunction of front door switch (LH)
- Malfunction of the ETACS-ECU
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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



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

Use the ETACS-ECU configuration function to check that the "Head light auto cut customize" is set to "Enable (C-spec.)"

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the scan tool (M.U.T.-III) P.54A-133."
(2) Turn the ignition switch to the "ON" position.
(3) Use the ETACS-ECU configuration function to check that the "Headlight auto cut customize" is set to "C-spec."
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Use the ETACS-ECU configuration function to set the "Headlight auto cut customize" to "Enable (C-spec.)" (Refer to P.54A-215).

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-678).
NO : Go to Step 3.

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

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

- Turn the ignition switch to the LOCK (OFF) position.
- Illuminate the headlights.

Item No.	Item name	Normal condition
Item 206	Head light LO ON duty	100%
Item 254	IG voltage	1 V or less

- Open the driver's door.

Item No.	Item name	Normal condition
Item 256	Dr door ajar switch	Open

Q: Does scan tool MB991958 display the items "Head light LO ON duty", "IG voltage" and "Dr door ajar switch" as normal condition?

YES : Go to Step 4.

NO : Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-735.

STEP 4. Retest the system

Check that the headlight automatic shutdown function works normally.

Q: Is the check result normal?

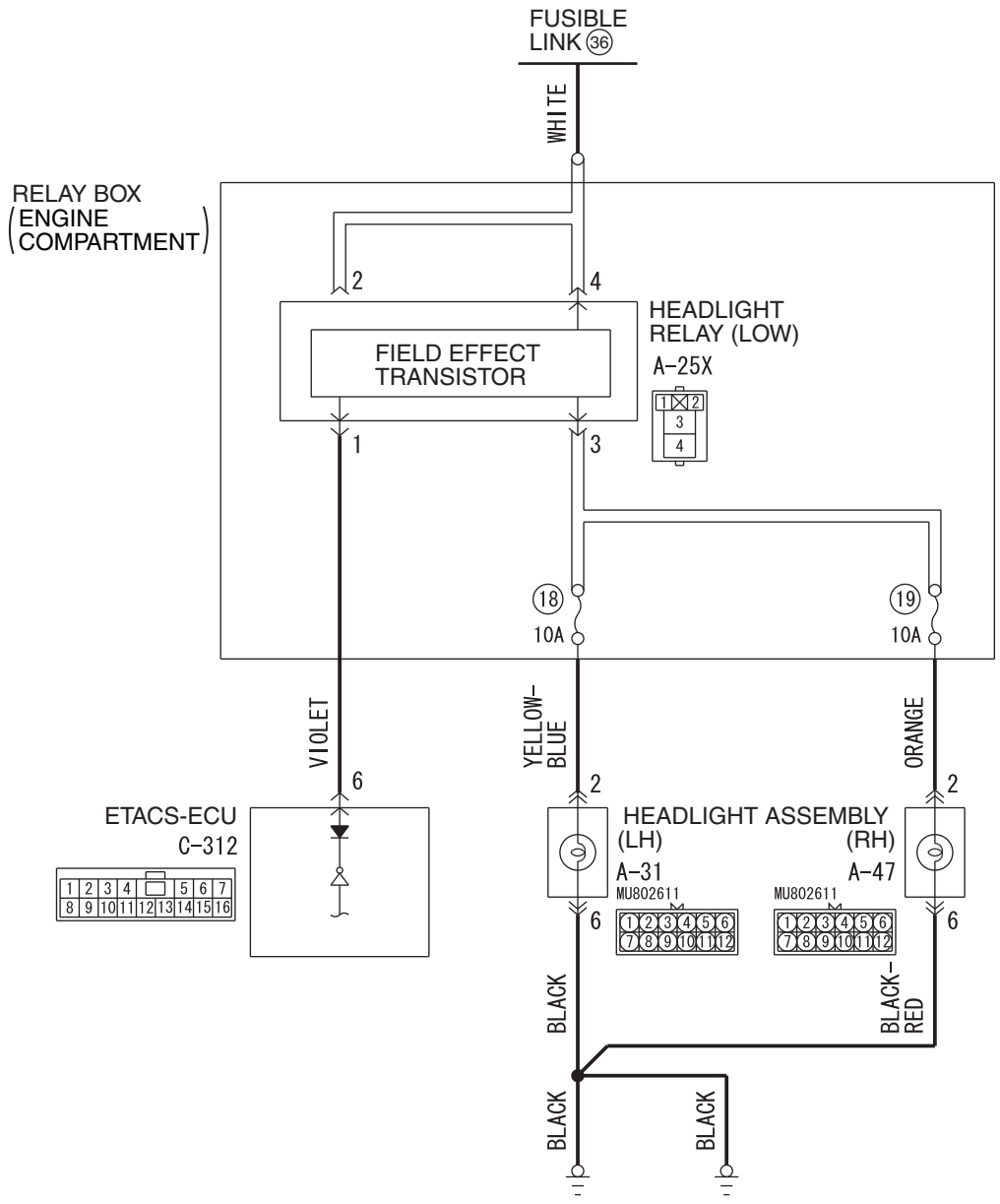
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

NO : Replace the ETACS-ECU.

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

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

Daytime Running Light Circuit



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TECHNICAL DESCRIPTION (COMMENT)

If the daytime running light function does not work, connector(s), wiring harness in the CAN bus lines, the engine control module, the combination meter, the ETACS-ECU or the input signal circuit may be defective.

TROUBLESHOOTING HINTS

- Trouble in input signal system
- Malfunction of headlight relay (LOW)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: 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-158."

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

⚠ CAUTION

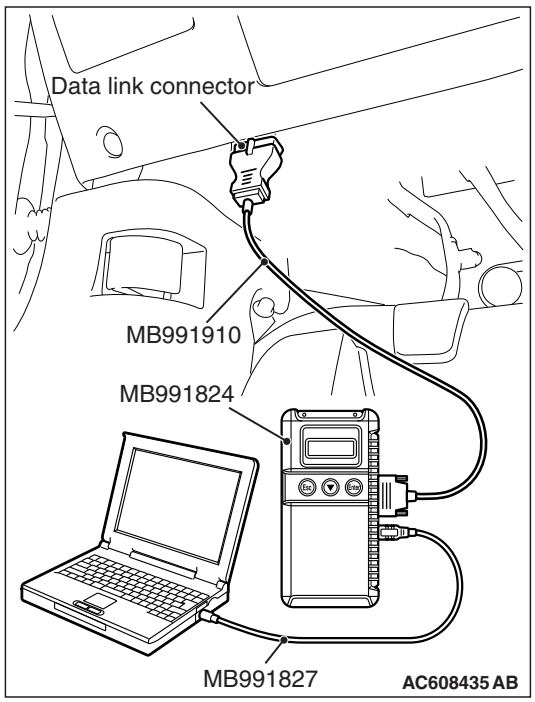
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-133."
(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-678.
NO : Go to Step 4.

STEP 4. Using scan tool MB991958, read the MFI system diagnostic trouble code.

Check whether engine control module DTCs are set or not.
(1) Turn the ignition switch to the "ON" position.
(2) Check for engine control module DTCs.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the MFI system. Refer to GROUP 13A, Diagnosis P.13A-50. <2.0L Engine non-turbo>, GROUP 13B, Diagnosis P.13B-51. <2.0L Engine turbo>, GROUP 13C, Diagnosis P.13C-48. <2.4L Engine>
NO : Go to Step 5.

STEP 5. Check the parking brake switch.

Check the input signals from the parking brake switch.
(1) Turn the ignition switch to the "ON" position.
(2) Check that the brake warning light on the combination meter goes off when the parking brake lever is released.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the brake warning light go off?

YES : Go to Step 6.
NO : Refer to GROUP 36, Diagnosis, Inspection Procedure 3 P.36-5. Verify that the daytime running light function does not work normally.

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

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

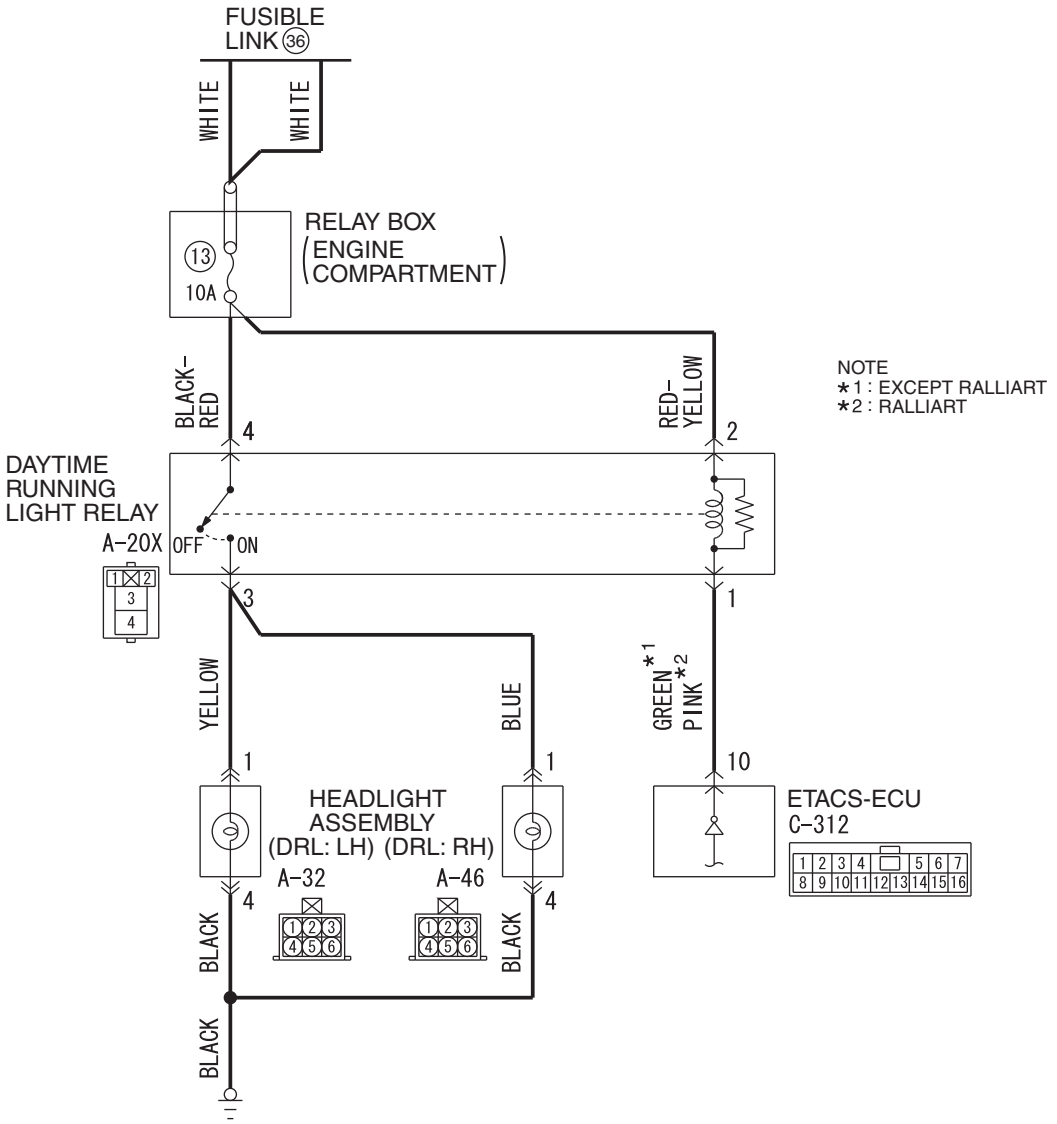
Q: Does the headlights (low-beam) do not illuminate in good condition?

YES : Replace the headlight relay (LOW).
NO : Replace the ETACS-ECU.

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

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

Daytime Running Light Circuit



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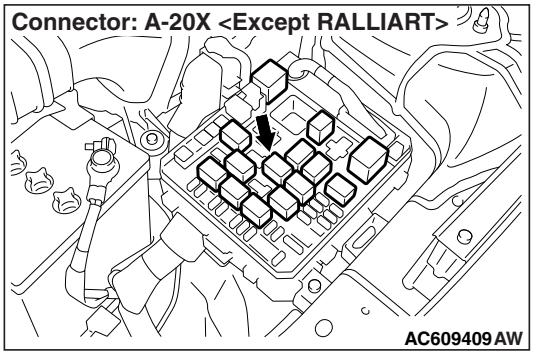
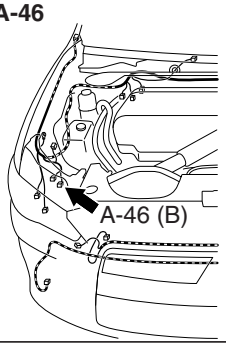
Connector: A-20X <Except RALLIART>



AC609409AW

Connector: A-46



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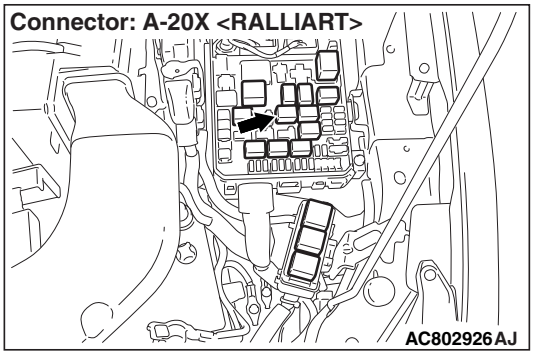
Connector: A-20X <RALLIART>



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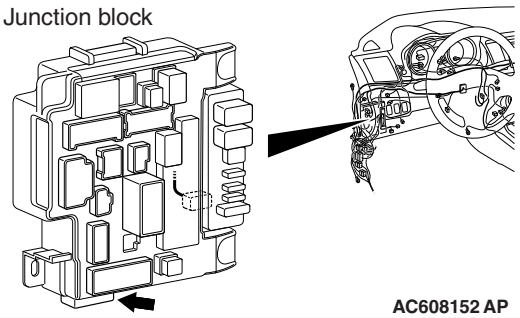
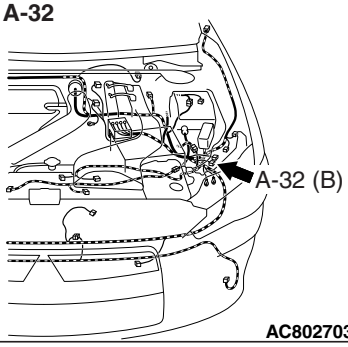
Connector: C-312
Junction block



AC608152AP

Connector: A-32



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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-157).

STEP 2. Check the daytime running light bulb.

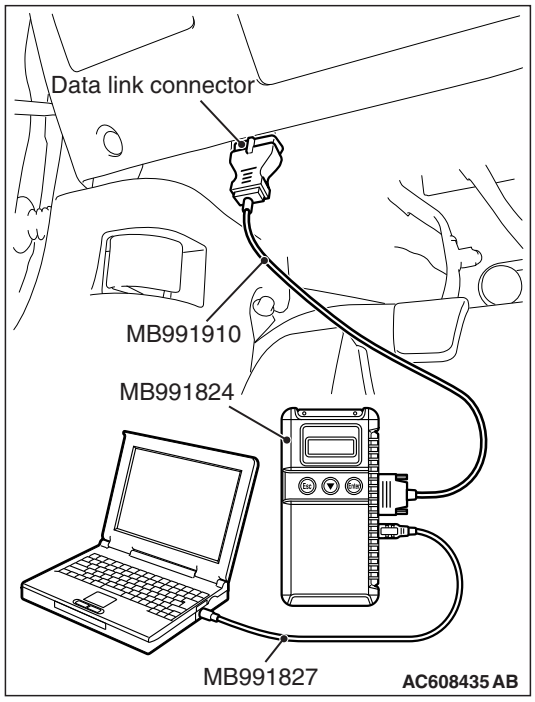
(1) Remove the daytime running light bulb.
(2) Verify that the daytime running light bulb is not damaged or burned out.

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-133."
(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-678.
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. GROUP 13A, Diagnosis P.13A-50. <2.0L Engine non-turbo>, GROUP 13B, Diagnosis P.13B-51. <2.0L Engine turbo>, GROUP 13C, Diagnosis P.13C-48. <2.4L Engine>.
NO : Go to Step 6.

STEP 6. Check the parking brake switch.

Check the input signals from the parking brake switch.
(1) Turn the ignition switch to the "ON" position.
(2) Check that the brake warning light on the combination meter goes off when the parking brake lever is released.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the brake warning light go off?

YES : Go to Step 7.
NO : Refer to GROUP 36, Diagnosis, Inspection Procedure 3 P.36-5. Verify that the daytime running light function does not work normally.

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

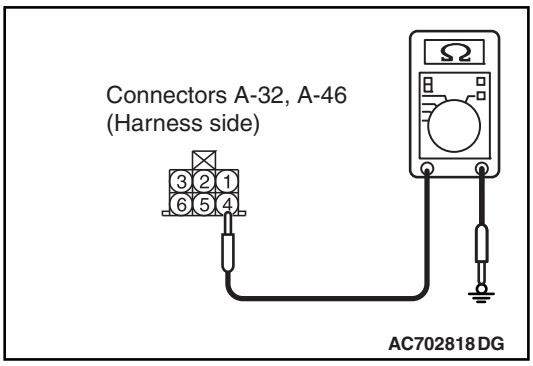
Q: Is daytime running light (LH) connector A-32, daytime running light (RH) A-46 in good condition?

YES : Go to Step 8.
NO : Repair the damaged parts.

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

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

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



Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 10.
NO : Go to Step 9.

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STEP 9. Check the wiring harness between daytime running light (LH) connector A-32 (terminal 4) or daytime running light (RH) connector A-46 (terminal 4) and ground.

- Check the ground wires for open circuit.

Q: Is the wiring harness between daytime running light (LH) connector A-32 (terminal 4) or daytime running light (RH) connector A-46 (terminal 4) and ground in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-14).

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

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

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

YES : Go to Step 11.

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

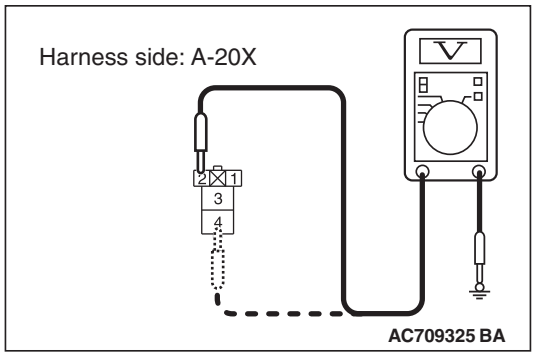
STEP 11. Check the daytime running light relay.

Refer to P.54A-223.

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

YES : Go to Step 12.

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



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

⚠ CAUTION

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

(1) Disconnect daytime running light relay connector A-20X and measure the voltage available at the relay box side of the connector.

(2) Measure the voltage between terminal 2 and ground, and also between terminal 4 and ground.

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

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

YES : Go to Step 14.

NO : Go to Step 13.

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

- Check the power supply line for open circuit.

Q: Is the wiring harness between daytime running light relay connector A-20X (terminal 2 and 4) and fusible link (36) in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-14).

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

STEP 14. Check ETACS-ECU connector C-312 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 15.

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

STEP 15. Check the wiring harness between daytime running light relay connector A-20X (terminal 1) and ETACS-ECU connector C-312 (terminal 10).

- Check the communication wires for open circuit.

Q: Is the wiring harness between daytime running light relay connector A-20X (terminal 1) and ETACS-ECU connector C-312 (terminal 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.

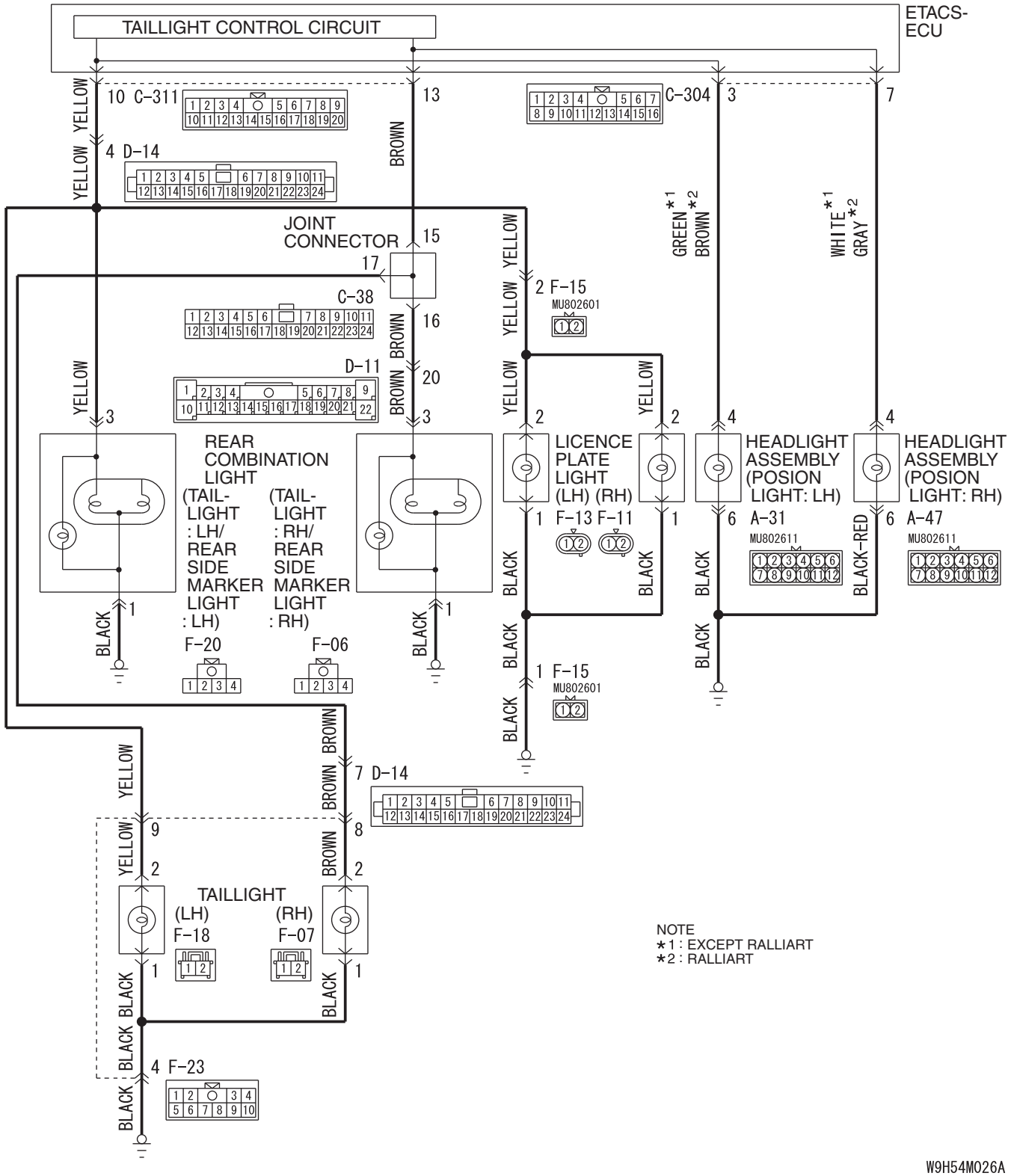
Q: Does the daytime running lights illuminate in good condition?

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.00-14).

NO : Replace the ETACS-ECU.

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

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



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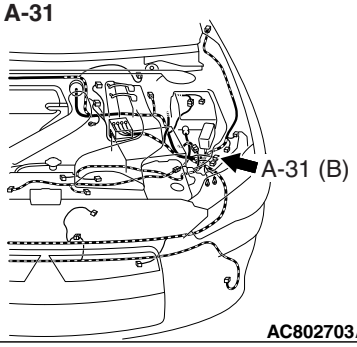
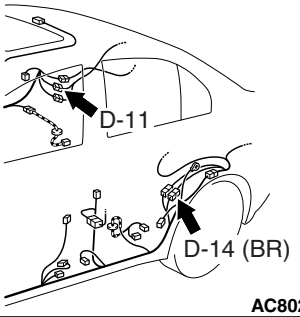
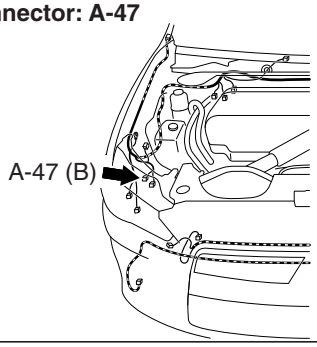
Connector: A-31



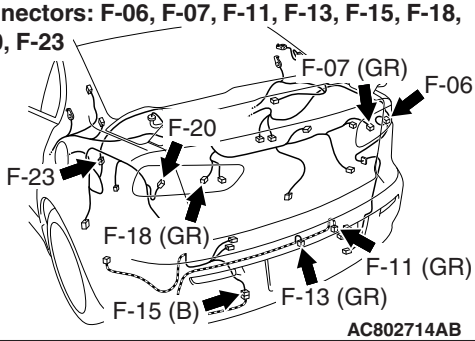
Connectors: D-11, D-14



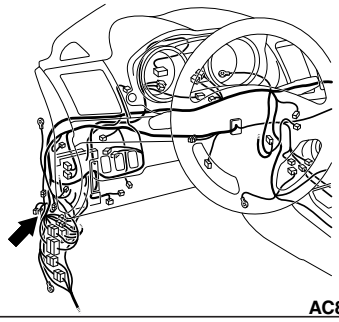
Connector: A-47



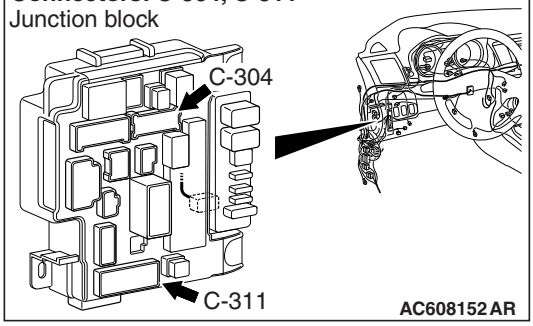
Connectors: F-06, F-07, F-11, F-13, F-15, F-18, F-20, F-23



Connector: C-38



Connectors: C-304, C-311
Junction block



TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set

TSB Revision

STEP 1. Check headlight assembly connector A-31 (position light: LH) or A-47 (position light: RH), rear combination light connector F-20 (taillight: LH/rear side marker light: LH) or F-06 (taillight: RH/rear side marker light: RH), taillight connector F-18 (LH) or F-07 (RH), license plate light connector F-13 (LH) or F-11 (RH) for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is headlight assembly connector A-31 (position light: LH) or A-47 (position light: RH), rear combination light connector F-20 (taillight: LH/rear side marker light: LH) or F-06 (taillight: RH/rear side marker light: RH), taillight connector F-18 (LH) or F-07 (RH), license plate light connector F-13 (LH) or F-11 (RH) in good condition?

YES : Go to Step 2.

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

STEP 2. Bulb check.

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

Q: Is the check result normal?

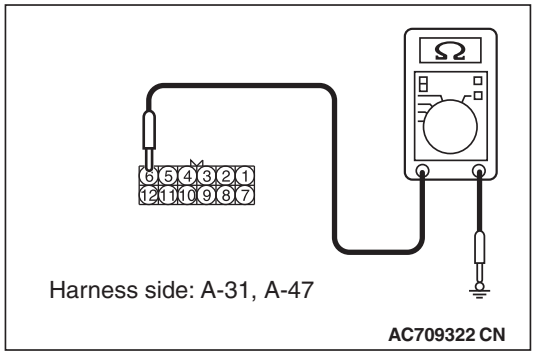
YES : Go to Step 3.

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

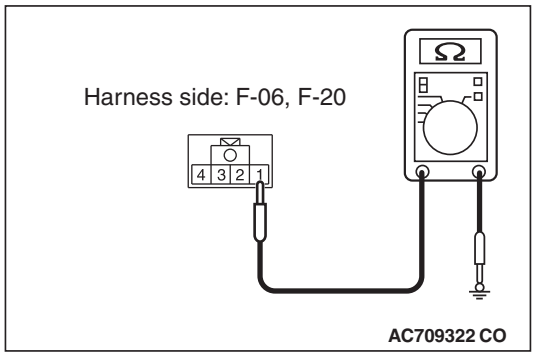
STEP 3. Resistance measurement at headlight assembly connector A-31 (position light: LH) or A-47 (position light: RH), rear combination light connector F-20 (taillight: LH/rear side marker light: LH) or F-06 (taillight: RH/rear side marker light: RH), taillight connector F-18 (LH) or F-07 (RH), license plate light connector F-13 (LH) or F-11 (RH) .

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

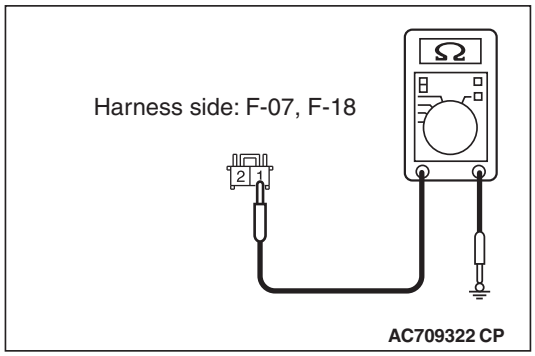
(2) Measure the resistance between the connector of light which does not illuminate and the body ground.



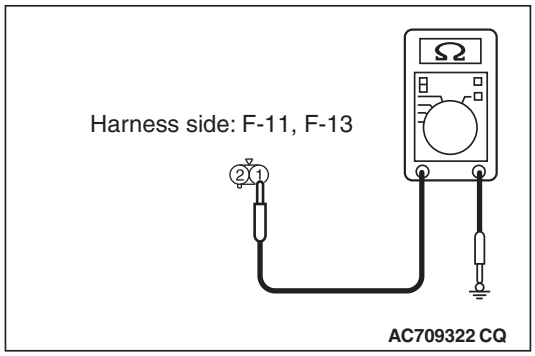
- Measure the resistance between headlight assembly connector A-31 (position light: LH) or A-47 (position light: RH) (terminal 6) and body ground.



- Measure the resistance between rear combination light connector F-20 (taillight: LH/rear side marker light: LH) or F-06 (taillight: RH/rear side marker light: RH) (terminal 1) and body ground.



- Measure the resistance between taillight connector F-18 (LH) or F-07 (RH) (terminal 1) and body ground.



- Measure the resistance between license plate light connector F-13 (LH) or F-11 (RH) (terminal 1) and body ground.

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

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

YES : Go to Step 5.

NO : Go to Step 4.

TSB Revision

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

Check the ground line for open circuit.

- Check the wiring harness between headlight assembly (position light: LH) connector A-31 (terminal 6) and the body ground.
- Check the wiring harness between headlight assembly (position light: RH) connector A-47 (terminal 6) and the body ground.
- Check the wiring harness between rear combination light (taillight: LH/rear side marker light: LH) connector F-20 (terminal 1) and the body ground.
- Check the wiring harness between rear combination light (taillight: RH/rear side marker light: RH) connector F-06 (terminal 1) and the body ground.
- Check the wiring harness between taillight (LH) connector F-18 (terminal 1) and the body ground.

  NOTE: Also check intermediate connector F-23 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-23 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between taillight (RH) connector F-07 (terminal 1) and the body ground.

  NOTE: Also check intermediate connector F-23 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-23 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between license plate light (LH) connector F-13 (terminal 1) and the body ground.

  NOTE: Also check intermediate connector F-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between license plate light (RH) connector F-11 (terminal 1) and the body ground.

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

Q: Is the wiring harness between headlight assembly connector, rear combination light connector, taillight connector or license plate light connector and the body ground in good condition?

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

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

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

YES : Go to Step 6.

NO : Repair the damaged parts.

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

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

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

  NOTE: Also check intermediate connectors D-14 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between rear combination light (taillight: RH/rear side marker light: RH) connector F-06 (terminal 3) and ETACS-ECU connector C-311 (terminal 13).

  NOTE: Also check joint connector C-38 and intermediate connector D-11 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-38 or intermediate connector D-11 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between taillight (LH) connector F-18 (terminal 2) and ETACS-ECU connector C-311 (terminal 10).

  NOTE: Also check intermediate connectors D-14 and F-23 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 or F-23 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between taillight (RH) connector F-07 (terminal 2) and ETACS-ECU connector C-311 (terminal 13).

  NOTE: Also check intermediate connectors D-14 and F-23 and joint connector C-38 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 or F-23 or joint connector C-38 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between license plate light (LH) connector F-13 (terminal 2) and ETACS-ECU connector C-311 (terminal 10).

  NOTE: Also check intermediate connectors D-14 and F-15 for loose, corroded, or damaged terminals, or terminals

pushed back in the connector. If intermediate connector D-14 or F-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- Check the wiring harness between license plate light (RH) connector F-11 (terminal 2) and ETACS-ECU connector C-311 (terminal 10).

  NOTE: Also check intermediate connectors D-14 and F-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 or F-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between headlight assembly connector, rear combination light connector, taillight connector or license plate light connector and ETACS-ECU connector in good condition?

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

STEP 7. Retest the system.

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

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

YES (The light illuminate normally.) : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).
NO <When the position light does not illuminate> : Replace the position light socket.
NO <When the rear combination light (taillight/rear side marker light) do not illuminate> : Replace the rear combination light socket.
NO <When the taillight do not illuminate> : Replace the taillight socket.
NO <When the license plate light does not illuminate> : Replace the license plate light socket.

Inspection Procedure 10: The auto light function does not work normally.

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

OPERATION

The ETACS-ECU operates this function in accordance with the input signals from driving distance, lighting control sensor, and column switch (auto light switch). Also, when the column switch (lighting switch) is in the "AUTO" position, and when an abnormality is present to the auto light circuit, the fail-safe function is activated and the low beam is turned ON at all times regardless of the brightness around the vehicle.

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

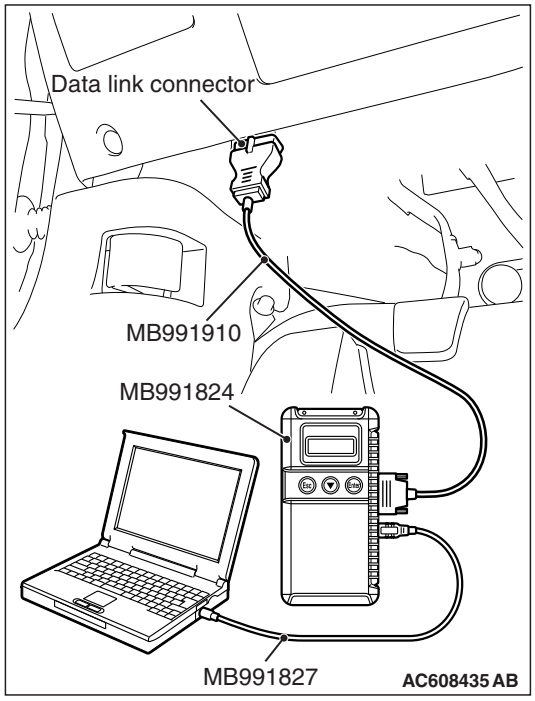
STEP 1. Using scan tool MB991958, diagnose the CAN bus line

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-133."
(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-135.
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-678).
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-158.

STEP 5. Using scan tool MB991958, check data list
Use the ETACS-ECU service data to check the signals related to the operation of auto light function.

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

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

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

YES : Go to Step 6.
NO : Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis P.54A-735.

STEP 6. Lighting control sensor check
Check the lighting control sensor. Refer to P.54A-226.

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.00-14).
NO : Replace the ETACS-ECU.

TSB Revision

Inspection Procedure 11: None of turn-signal lights illuminates.

TECHNICAL DESCRIPTION (COMMENT)

If none of turn-signal lights illuminates, the ignition switch (IG1), the turn-signal light switch input circuit or the ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

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

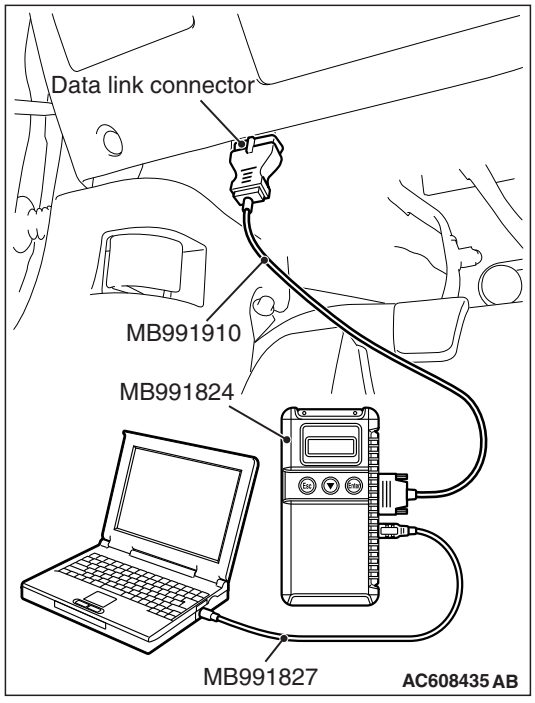
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-133."
(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-678).
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 ETACS, Diagnosis - Inspection Procedure 2 "ETACS-ECU does not receive any signal from the ignition switch (IG1)" P.54A-735.

STEP 3. Retest the system.
Check that turn-signal lights illuminate.

Q: Do turn-signal lights work normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).
NO : Replace the ETACS-ECU.

Inspection Procedure 12: 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.

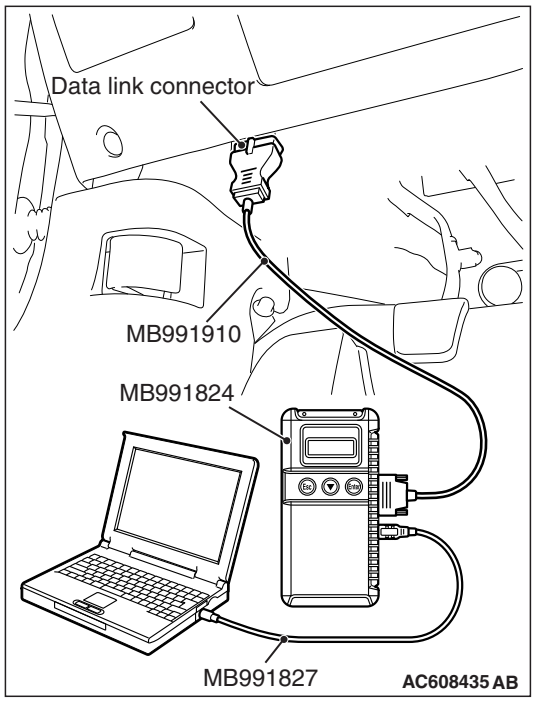
TROUBLESHOOTING HINTS

- 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-133."
(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-215).

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-678).
NO : Go to Step 3.

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

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

Q: Do turn-signal lights work normally?

YES : Go to Step 4.
NO : Refer to Inspection Procedure 11 "None of turn-signal lights illuminates" P.54A-199.

STEP 4. Retest the system
Check that the comfort flashing function works normally.

Q: Does comfort flashing function works normally?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).

NO : Replace the ETACS-ECU.

Inspection Procedure 13: The turn-signal indicator lights do not illuminate.

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

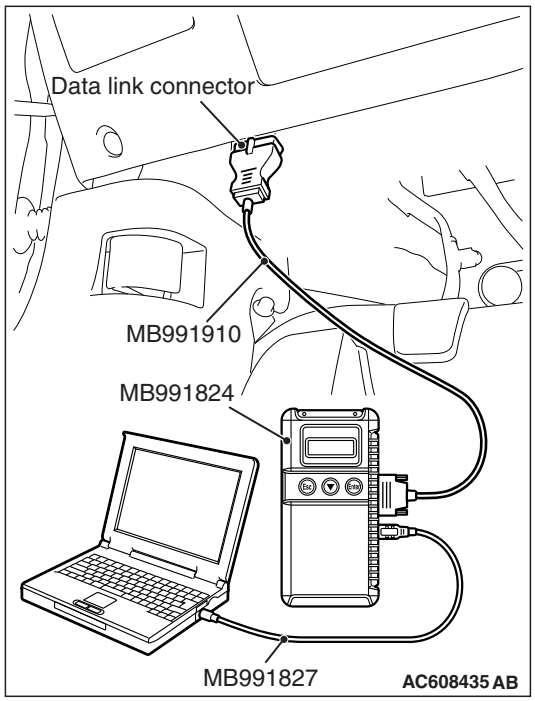
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Check turn-signal light.
Check that the turn-signal light flashes normally when the turn-signal switch is operated.

Q: Do Turn-signal light work normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure 11 "None of turn-signal lights illuminates" P.54A-199.



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-133."
(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-678.
NO : Go to Step 4.

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

(1) Connect scan tool MB991958 to the data link connector.
(2) Turn the ignition switch to the "ON" position.
(3) Set scan tool MB991958 to the actuator test mode.
- Item 7: Indicator1

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

Q: Is the check result normal?

YES : Replace the ETACS-ECU.
NO : Replace the combination meter.

Inspection Procedure 14: The welcome light function does not work normally.

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the keyless entry system
- Malfunction of the ETACS-ECU

DIAGNOSIS

Required Special Tools:

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

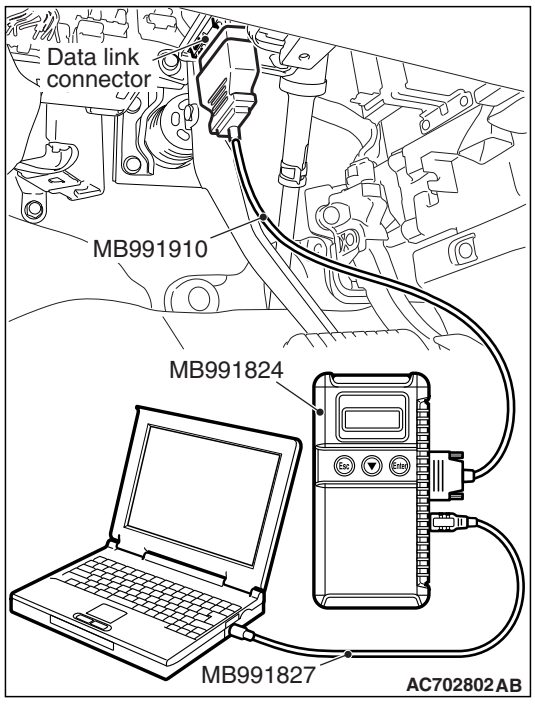
STEP 1. Using scan tool MB991958, Check the configuration function.

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

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-133."
(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-215).



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-678)
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-137 <KOS> or GROUP 42C, Troubleshooting P.42C-83 <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-157.

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.00-14).
NO : Replace the ETACS-ECU.

Inspection Procedure 15: The coming home light function does not work normally.

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

TECHNICAL DESCRIPTION (COMMENT)

When the coming home light function does not operate normally, the 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)

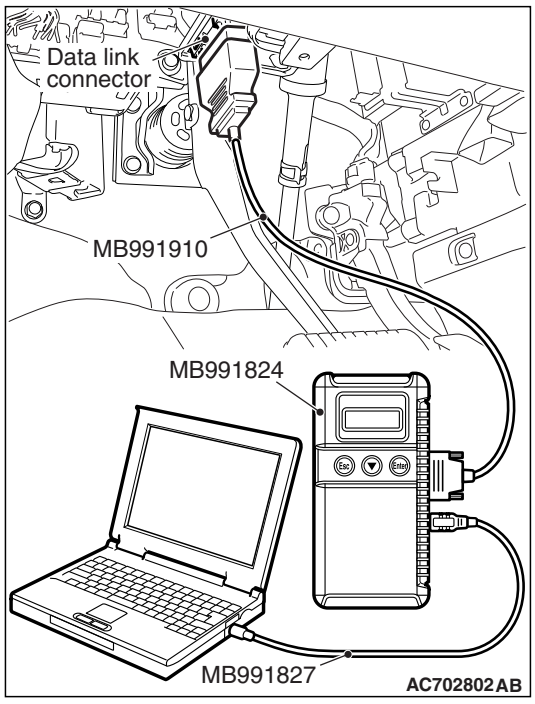
STEP 1. Using scan tool MB991958, Check the configuration function.

⚠ 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-133."
(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-215).



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-678)
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-738.

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-157.

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.00-14).
NO : Replace the ETACS-ECU.

DATA LIST REFERENCE TABLE

M1540103800218

LIN <LIGHTING CONTROL SENSOR (LIGHT SENSOR)>

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

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

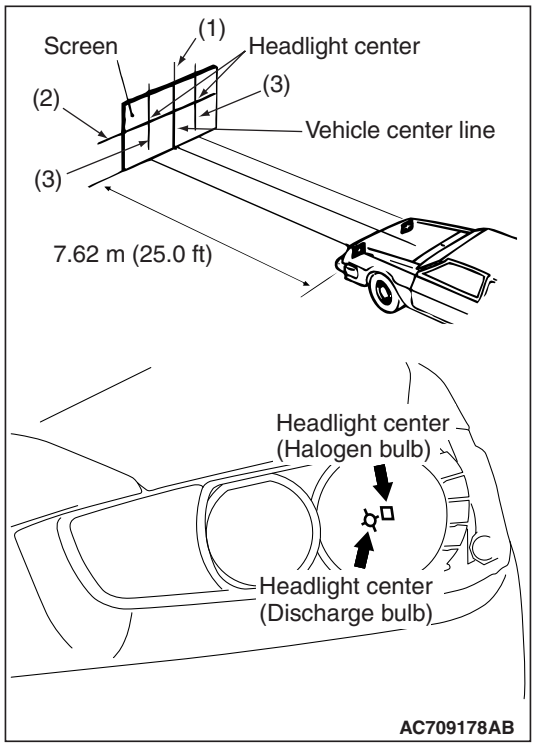
ON-VEHICLE SERVICE

HEADLIGHT AIMING

M1540100500412

PRE-AIMING INSTRUCTIONS (LOW-BEAM)

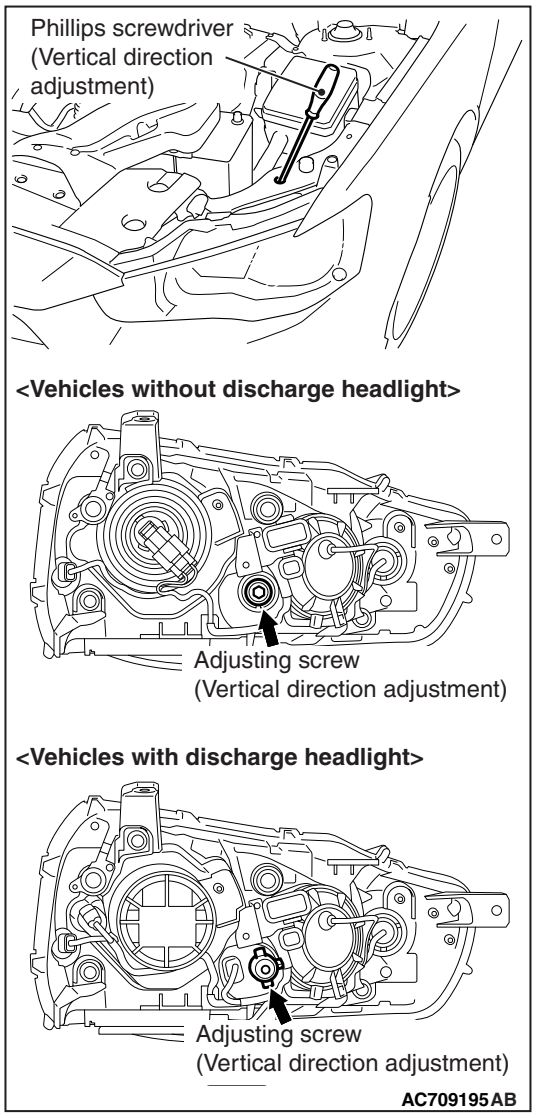
1. Inspect for rusted or faulty headlight assemblies.
2. These conditions must be corrected before a satisfactory adjustment can be made.
3. Inspect tire inflation, and adjust if necessary.
4. If the fuel tank is not full, place a weight in the trunk of the vehicle to simulate weight of a full tank [3 kg (6.6 pounds) per gallon].
5. There should be no other load in the vehicle other than driver or substituted weight of approximately 68 kg (150 pounds) placed in driver's position.
6. Turn the headlight leveling switch to the switch position "0." <Vehicles with headlight manual leveling system>
7. Thoroughly clean headlight lenses.
8. Place the vehicle on a level floor, perpendicular to a flat screen 7.62 m (25.0 ft) away from the bulb center-marks on the headlight lens.
9. Rock vehicle sideways to allow vehicle to assume its normal position.
10. Bounce the front suspension through three (3) oscillations by applying the body weight to hood or bumper.



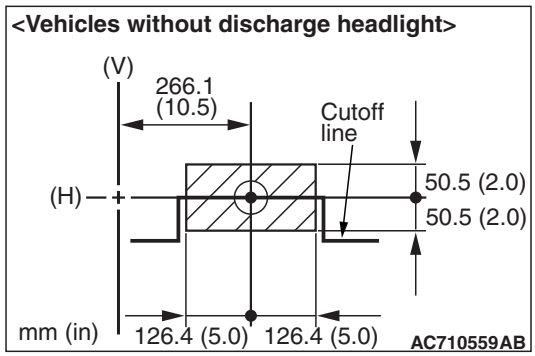
11. Set the distance between the screen and the bulb center marks of the headlight as shown in the illustration.
12. Four lines of adhesive tape (or equivalent markings) are required on screen or wall:
    (1) Position a vertical tape or mark so that it is aligned with the vehicle center line.
    (2) Measure the distance from the center-marks on the headlight lens to the floor [reference value: 679.5 mm (26.75 inches)]. Transfer the measurement to the screen. Horizontal tape or mark on the screen is for reference of vertical adjustment.
    (3) Measure the distance from the center line of the vehicle to the center of each headlight. Transfer the measurement to the screen. Vertical tape or mark on the screen with reference to the center line of each headlight bulb.

HEADLIGHT ADJUSTMENT (LOW-BEAM)

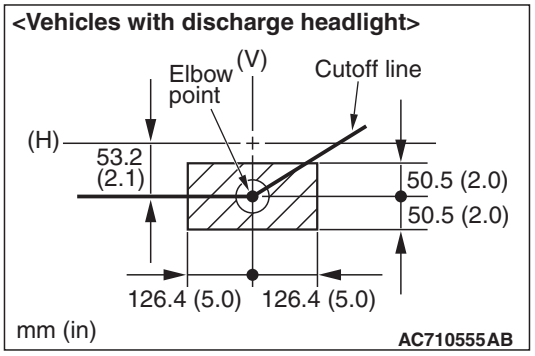
1. The low-beam headlight will project on the screen upper edge of the beam (cut-off).



2. 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)

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⚠ CAUTION

Do not cover a headlight for more than three minutes to prevent the plastic headlight lens deformation.

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

LUMINOUS INTENSITY MEASUREMENT

M1540100600129

1. Set the headlights to high-beam.
2. Using a photometer, and following its manufacturer's instruction manual, measure the headlight center intensity and check to be sure that the limit value is satisfied.

   Limit: 40,000 cd or more {When a screen is set 18.3m (60 feet) ahead of the vehicle}

NOTE: When measuring the intensity, maintain an engine speed of 2,000 r/min, with the battery fully charged.
There may be special local regulations pertaining to headlight intensity. Be sure to make any adjustments necessary to satisfy such regulations.
If an illuminometer is used to make the measurements, convert its values to photometer values by using the following formula.

$I = E \times r^2$

- I = intensity (cd)
- E = illumination (lux)
- r = distance (m) from headlights to illuminometer

REPLACE THE BULB

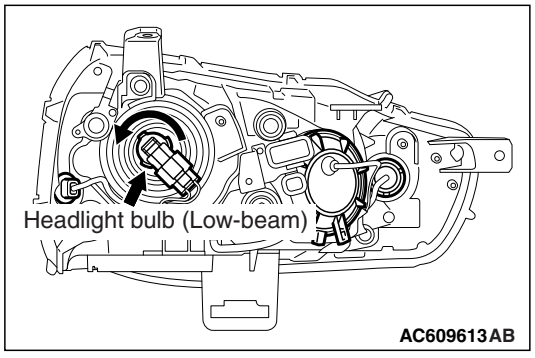
M1540100700353

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

⚠ CAUTION

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

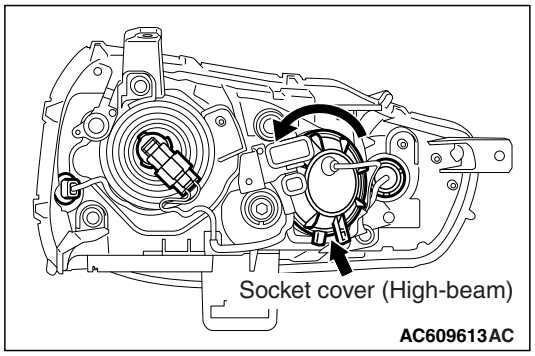
Disconnect the connector, and twist the headlight bulb (low-beam) to remove.



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

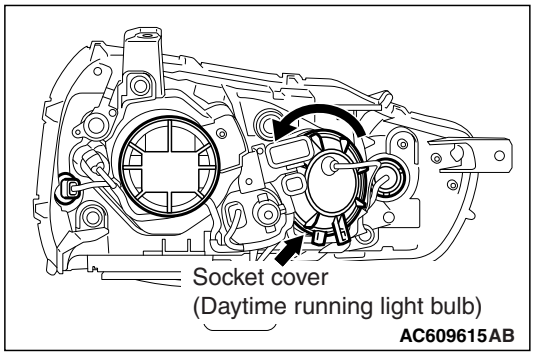
⚠ CAUTION

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



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

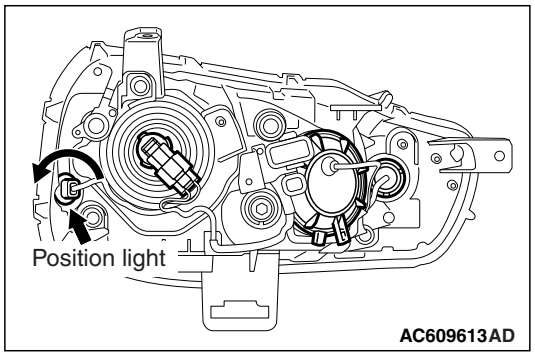
DAYTIME RUNNING LIGHT BULB REPLACEMENT <VEHICLES WITH DISCHARGE HEADLIGHT>



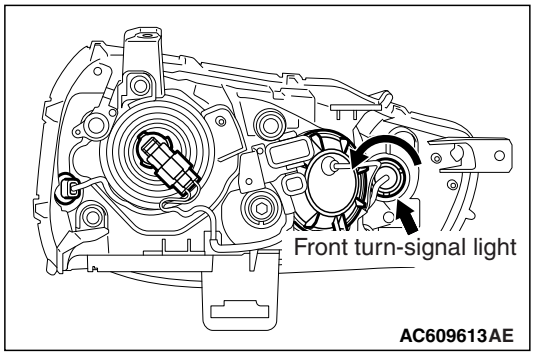
1. Twist the socket cover to remove.
2. Twist the daytime running light socket to remove it.

POSITION LIGHT BULB REPLACEMENT

Disconnect the connector, and twist the position light socket to remove it.



FRONT TURN-SIGNAL LIGHT BULB REPLACEMENT



Disconnect the connector, and twist the front turn-signal light socket to remove it.

HEADLIGHT AUTOMATIC-SHUTDOWN FUNCTION CHECK

M1540100800220

Confirm that the headlights turn OFF in one second if the driver's door is opened when the ignition switch is OFF and the lighting switch is ON (HEAD position). If there is a malfunction, perform the troubleshooting (Refer to P.54A-157).

HEADLIGHT AUTO LIGHT FUNCTION CHECK

M1540100900227

Under the direct sunlight with the ignition switch ON and the lighting switch in the AUTO position, check that the headlight automatically illuminates when the lighting control sensor receiver is covered by hand. If there is any trouble, carry out the troubleshooting. (Refer to P.54A-157.)

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

WELCOME LIGHT FUNCTION CHECK

M1540112700026

When the lighting switch is in the OFF or AUTO position, unlock the door by the keyless entry system and check that the taillights or headlights turn on. If there is a malfunction, perform the troubleshooting (Refer to P.54A-157).

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

COMING-HOME LIGHT FUNCTION CHECK

M1540112800023

After turning the ignition switch to the LOCK (OFF) position, check that passing operation lights up the headlights. If there is a malfunction, perform the troubleshooting (Refer to P.54A-157).

CUSTOMIZATION FUNCTION

M1540103700802

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

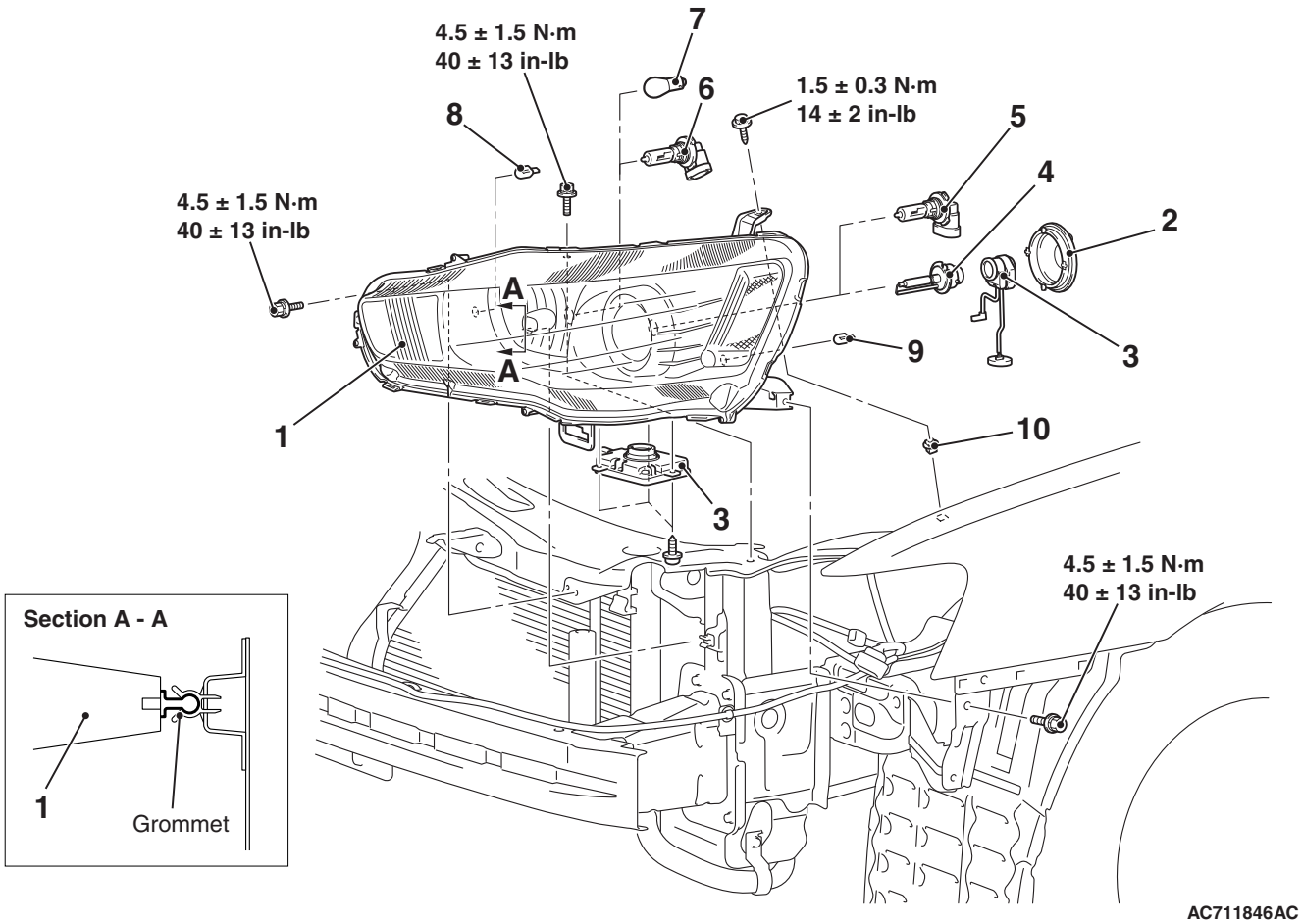
Adjustment item (scan tool display)	Adjustment item	Adjusting contents (scan tool display)	Adjusting contents
ACC power auto cut	Time to ACC power cut-off when the ignition switch is in the ACC position	Disable	No function
		30 min	30 minutes (initial condition)
		60 min	60 minutes
Turn power source	Adjustment of turn-signal light operation condition	ACC or IG1	Operable with ACC or ON position
		IG1	Operable with ON position (initial condition)
Comfort flasher	With/without comfort flasher function	Disable	No function
		Enable	With function (initial condition)
Comfort flasher switch time	Switch operation time to activate the comfort flasher function	Normal	0.4 seconds (initial condition)
		Long	0.8 seconds
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
Hazard answer back	Adjustment of the number of keyless hazard warning light answer back flashes	Lock:1, Unlock:2	LOCK: Flashes once, UNLOCK: Flashes twice (initial condition)
		Lock:1, Unlock:0	LOCK: Flashes once, UNLOCK: No flash
		Lock:0, Unlock:2	LOCK: No flash, UNLOCK: Flash twice
		Lock:2, Unlock:1	LOCK: Flash twice, UNLOCK: Flash once
		Lock:2, Unlock:0	LOCK: Flash twice, UNLOCK: No flash
		Lock:0, Unlock:1	LOCK: No flash, UNLOCK: Flash once
		Lock:0, Unlock:0	No function
Headlight auto cut customize	Adjustment of headlight automatic shutdown function	Disable	No function
		Enable (C-spec.)	With function (initial condition)
Welcome light	Disabling or enabling welcome light function	Disabled	No function
		Small light	Tail light illuminates. (initial condition)
		Head light	Headlight illuminates.

Adjustment item (scan tool display)	Adjustment item	Adjusting contents (scan tool display)	Adjusting contents
Coming home light	Disabling or enabling coming home light function	Disabled	No function
		15 sec	Headlight illuminates for 15 seconds.
		30sec	Headlight illuminates for 30 seconds. (initial condition)
		60 sec	Headlight illuminates for 60 seconds.
		180 sec	Headlight illuminates for 180 seconds.

HEADLIGHT REMOVAL AND INSTALLATION

M1540101000528

Pre-removal operation	Post-installation operation
Front bumper and radiator grille assembly removal (Refer to GROUP 51 – Front Bumper Assembly and Radiator Grille P.51-3.)	• Front bumper and radiator grille assembly installation (Refer to GROUP 51 – Front Bumper Assembly and Radiator Grille P.51-3). • Check the beam direction of the headlight (Refer to Headlight Aiming P.54A-209).



Removal Steps

1. Headlight assembly
2. Headlight bulb socket cover <Vehicles with discharge headlight>

<<A>> >>A<< 3. Headlight control unit <Vehicles with discharge headlight>

<<B>>

Removal Steps (Continued)

4. Headlight bulb <Vehicles with discharge headlight>
5. Headlight bulb (low-beam) <Vehicles without discharge headlight>

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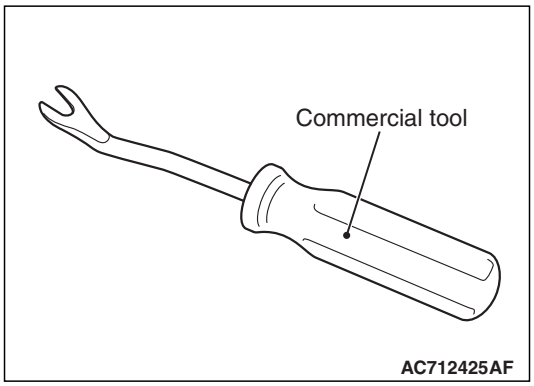
Removal Steps (Continued)

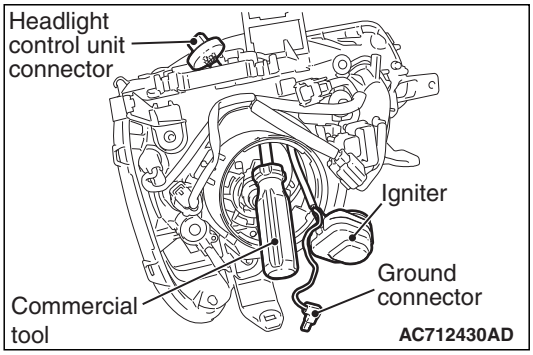
6. Headlight bulb (high-beam) <Vehicles without discharge headlight>
7. Daytime running light bulb <Vehicles with discharge headlight>
8. Front turn-signal light bulb
9. Position light bulb
10. Grommet

REMOVAL SERVICE POINTS

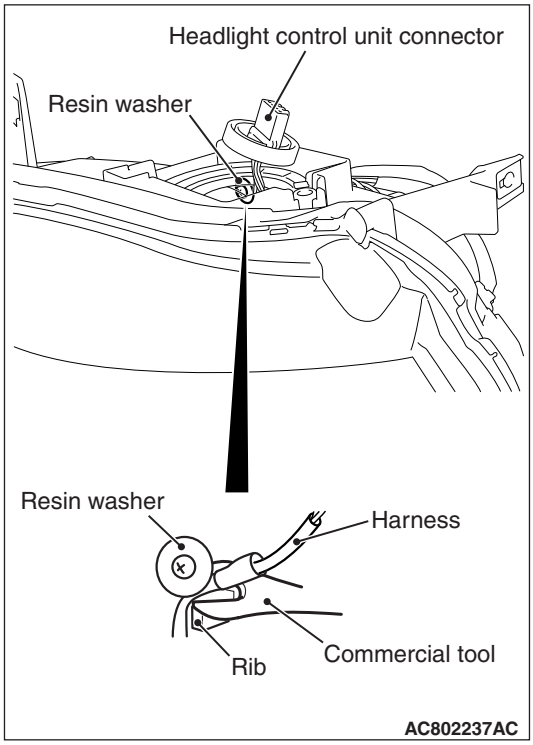
<<A>> HEADLIGHT CONTROL UNIT (HARNESS) REMOVAL <VEHICLES WITH DISCHARGE HEADLIGHT>

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 earth connector.

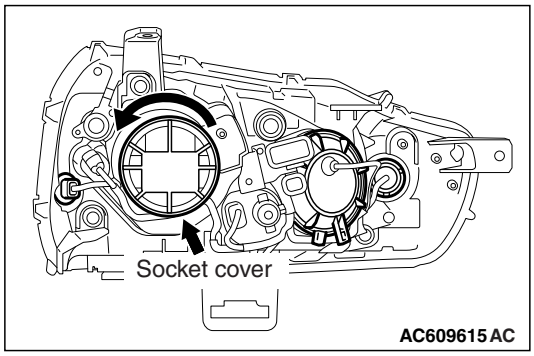


3. Using the commercial tool, make the resin washer sag to push up the harness above the resin washer.
4. Pull out the harness from the headlight assembly.

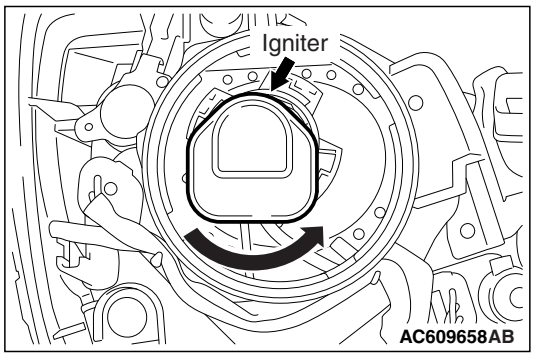
<<B>> HEADLIGHT BULB REMOVAL <VEHICLES WITH DISCHARGE HEADLIGHT>

⚠ CAUTION

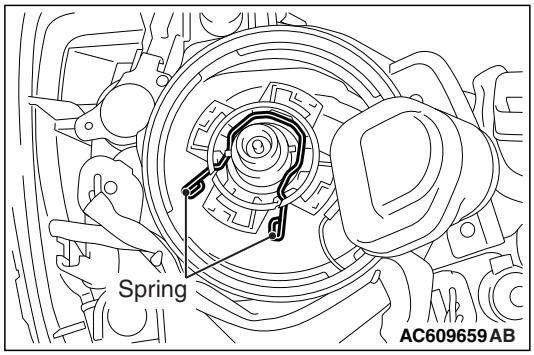
Do not touch the bulb surface with bare hands or dirty gloves. If the bulb surface (glass part) gets dirty, immediately clean it with alcohol or thinner. After drying completely, install the bulb.



1. Twist the socket cover to remove.



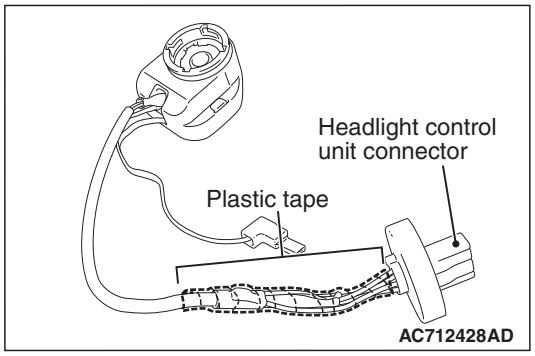
2. Disconnect the igniter.



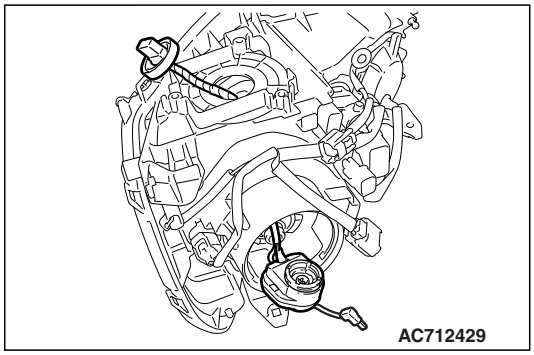
3. Release the bulb securing spring, and remove the bulb.

INSTALLATION SERVICE POINT

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



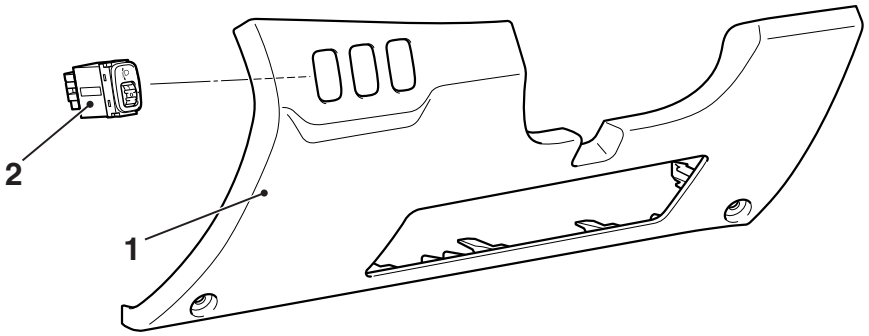
1. As shown in the figure, doubly wrap the portion in the vinyl tape, from the headlight control unit connector root to the point where the harness separation is hidden.



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

M1540105200160



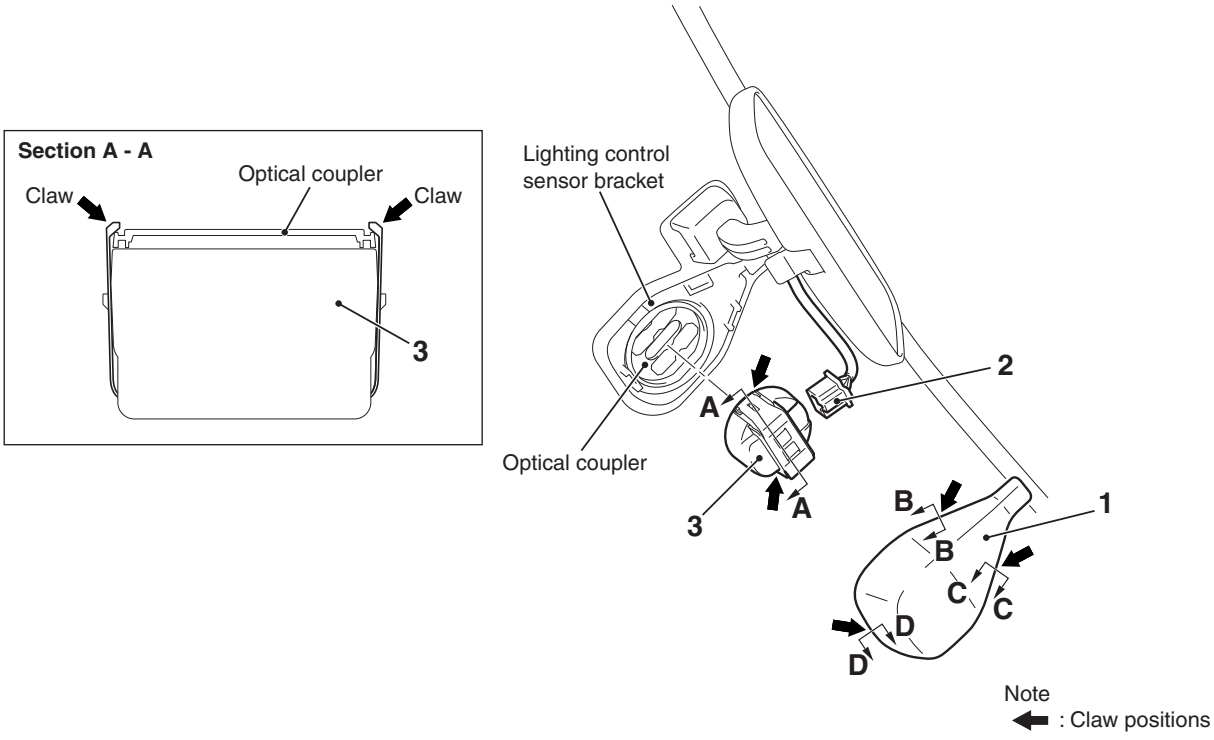
AC709250AB

Removal Steps

1. Instrument panel cover assembly (Refer to GROUP 52A – Instrument Lower Panel P.52A-8).
2. Headlight leveling switch

LIGHTING CONTROL SENSOR REMOVAL AND INSTALLATION

M1540108500193



Removal Steps

1. Lighting control sensor cover

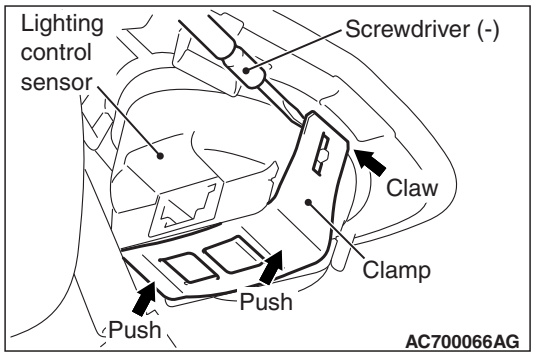
Removal Steps (Continued)

2. Connector

<<A>> >>A<< 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.

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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.51-87>.

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

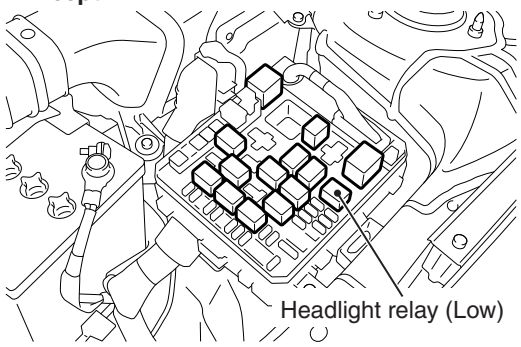
INSPECTION

HEADLIGHT RELAY CHECK

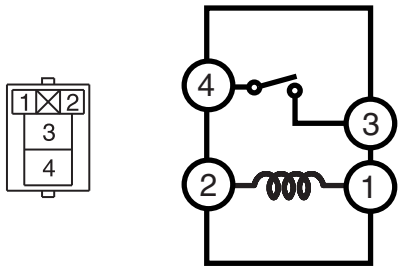
M1540104000271

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

<Except RALLIART>



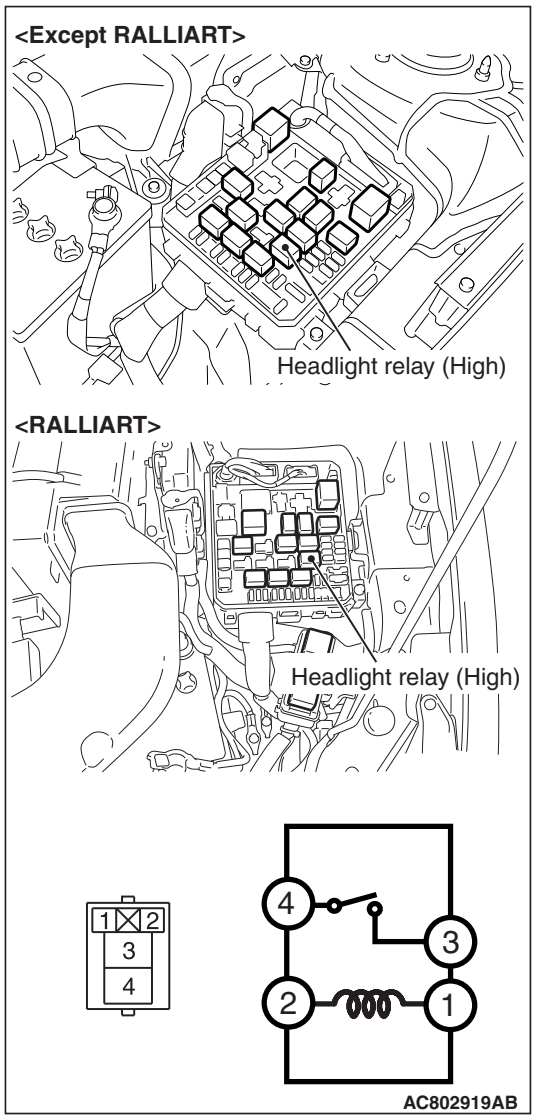
<RALLIART>



AC802919AC

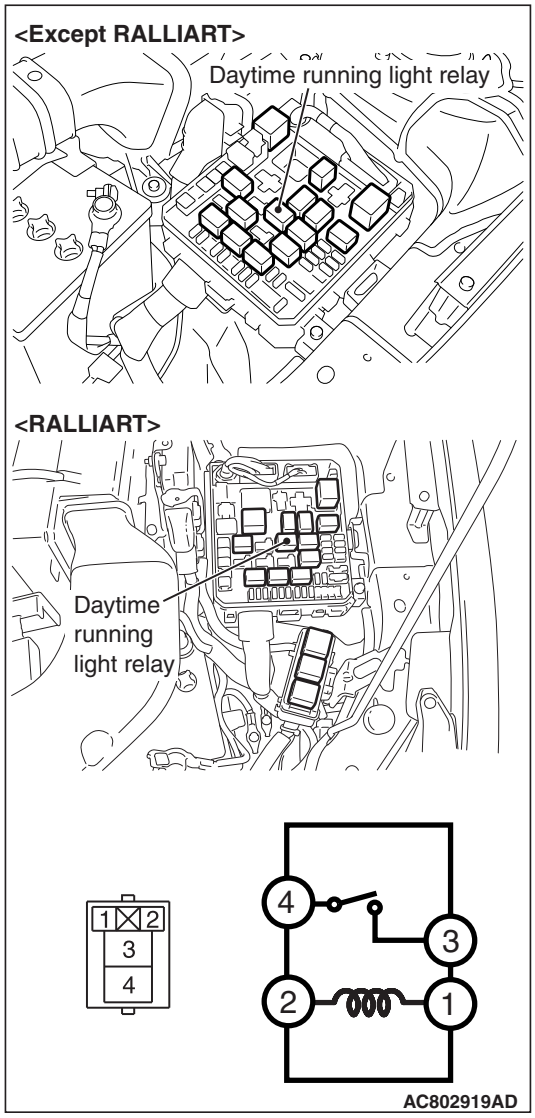
Battery voltage	Terminal number	Normal conditions
Not energized	3 – 4	No continuity
With current supply [terminal 2 (+), terminal 1 (–)]		Continuity exists (2 ohms or less)

HEADLIGHT RELAY (HIGH) CHECK



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

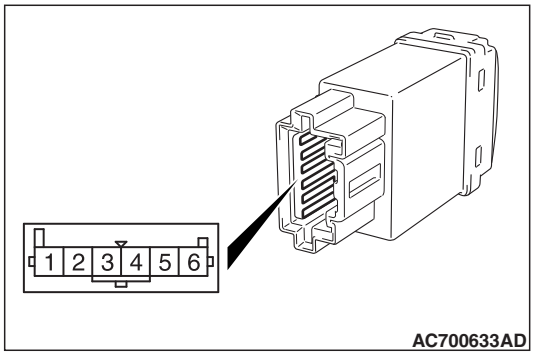
DAYTIME RUNNING LIGHT RELAY CHECK <VEHICLES WITH DISCHARGE HEADLIGHT>



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

HEADLIGHT LEVELING SWITCH CHECK

M1540101300295



Measured terminals	Switch position	Resistance value 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

M1540109000179

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

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

NOTE:

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

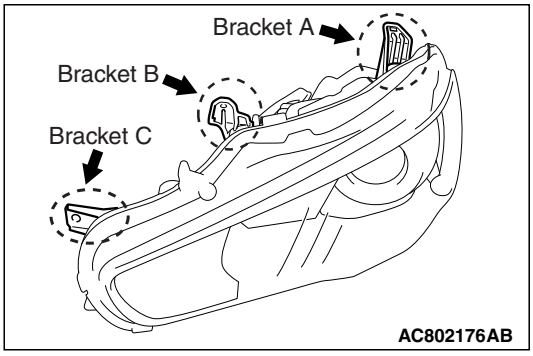
BRACKET REPAIR OF HEADLIGHT ASSEMBLY

M1540104500113

⚠ CAUTION

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

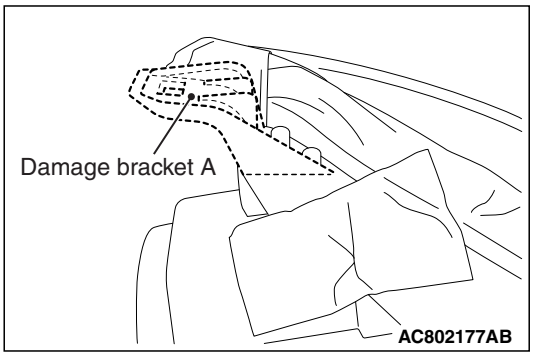
When brackets A, B and C shown in the figure are damaged, a low-cost repair can be performed by mounting a repair bracket.



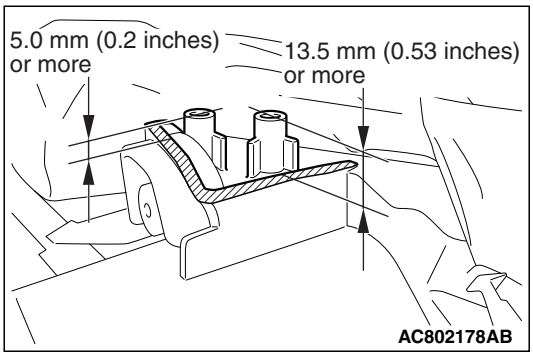
OPERATIONS BEFORE REPAIRING BRACKET

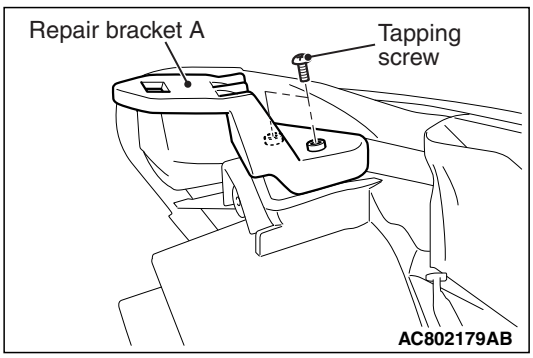
Remove the headlight assembly.

REPAIR PROCEDURE OF BRACKET A



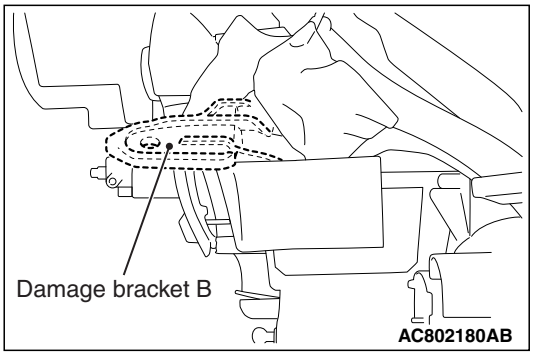
1. Cut the damaged bracket A so that it has the larger dimension than the dimension shown in the figure from the mounting boss seating face.
2. Smoothen the bracket cut surface using the sandpaper.



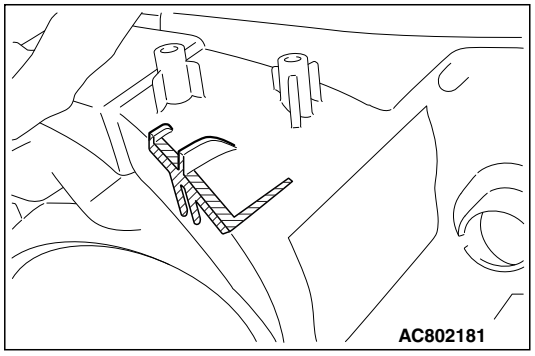


3. Fix the repair bracket A to the headlight assembly using the tapping screw.

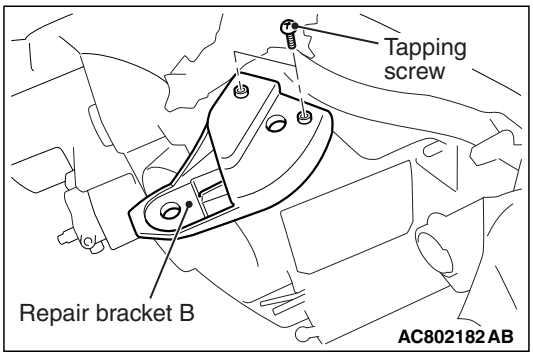
REPAIR PROCEDURE OF BRACKET B



1. Cut off the damaged bracket B.

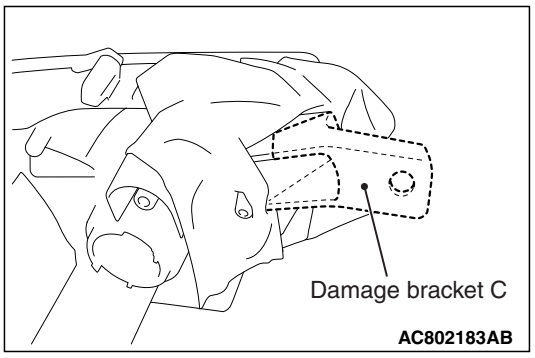


2. Remove the remaining bracket cut surface using the sandpaper.

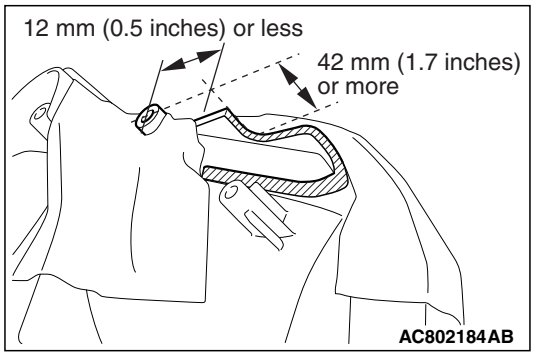


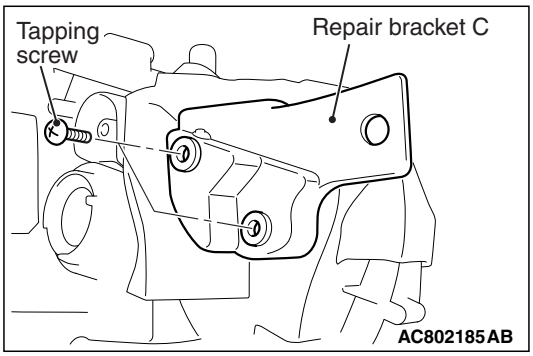
3. Fix the repair bracket B to the headlight assembly using the tapping screw.

REPAIR PROCEDURE OF BRACKET C



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





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

OPERATIONS AFTER REPAIRING BRACKET

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

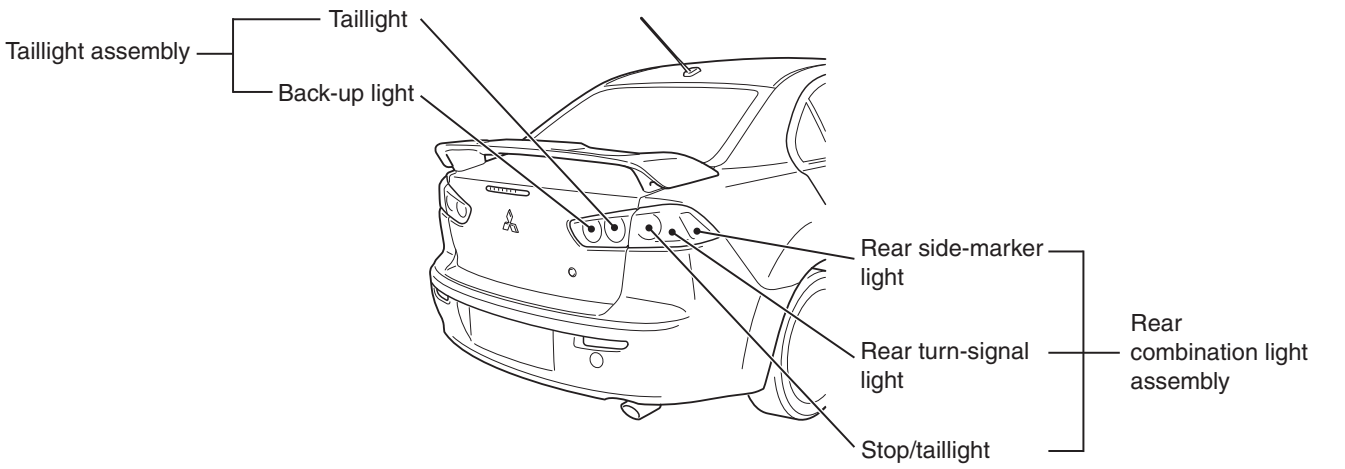
REPAIR BRACKET PART NUMBER

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

REAR COMBINATION LIGHT

GENERAL INFORMATION

M1542000100327

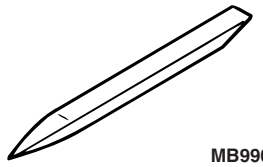
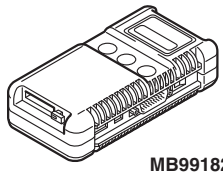
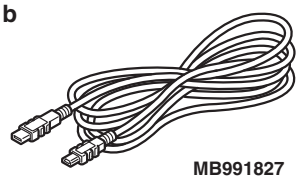
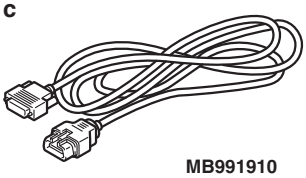
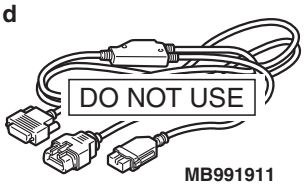
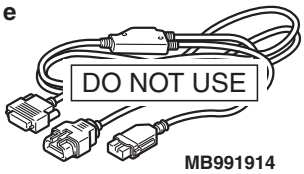
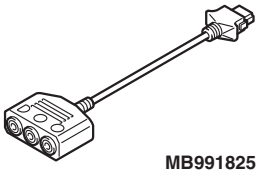
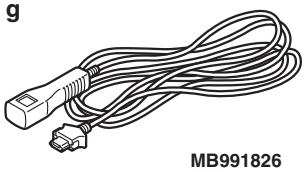


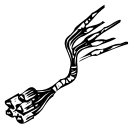
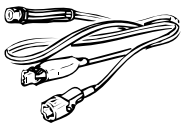
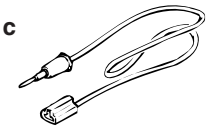
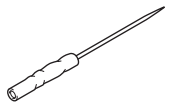
AC608727AC

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

SPECIAL TOOLS

M1541400100292

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

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

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1541402500081

Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, Troubleshooting Contents P.00-7.

DIAGNOSTIC FUNCTION

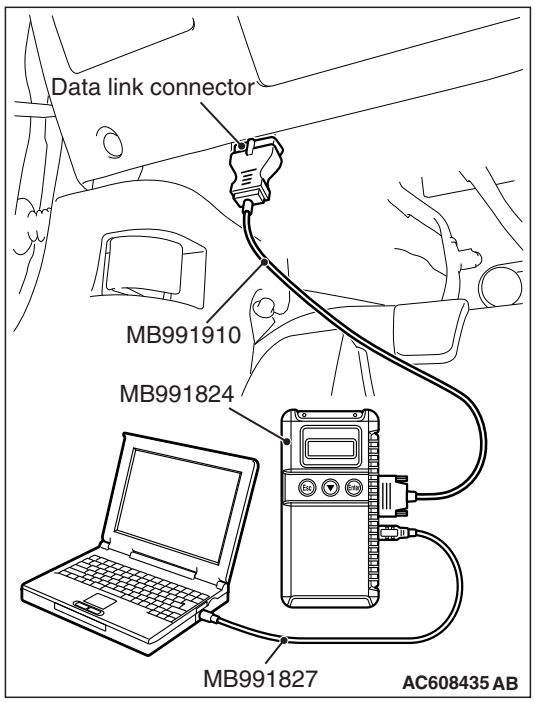
M1541400900038

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

Required Special Tools:

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

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



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

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

⚠ CAUTION

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

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

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

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

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

DIAGNOSTIC TROUBLE CODE CHART

M1541400200028

⚠ CAUTION

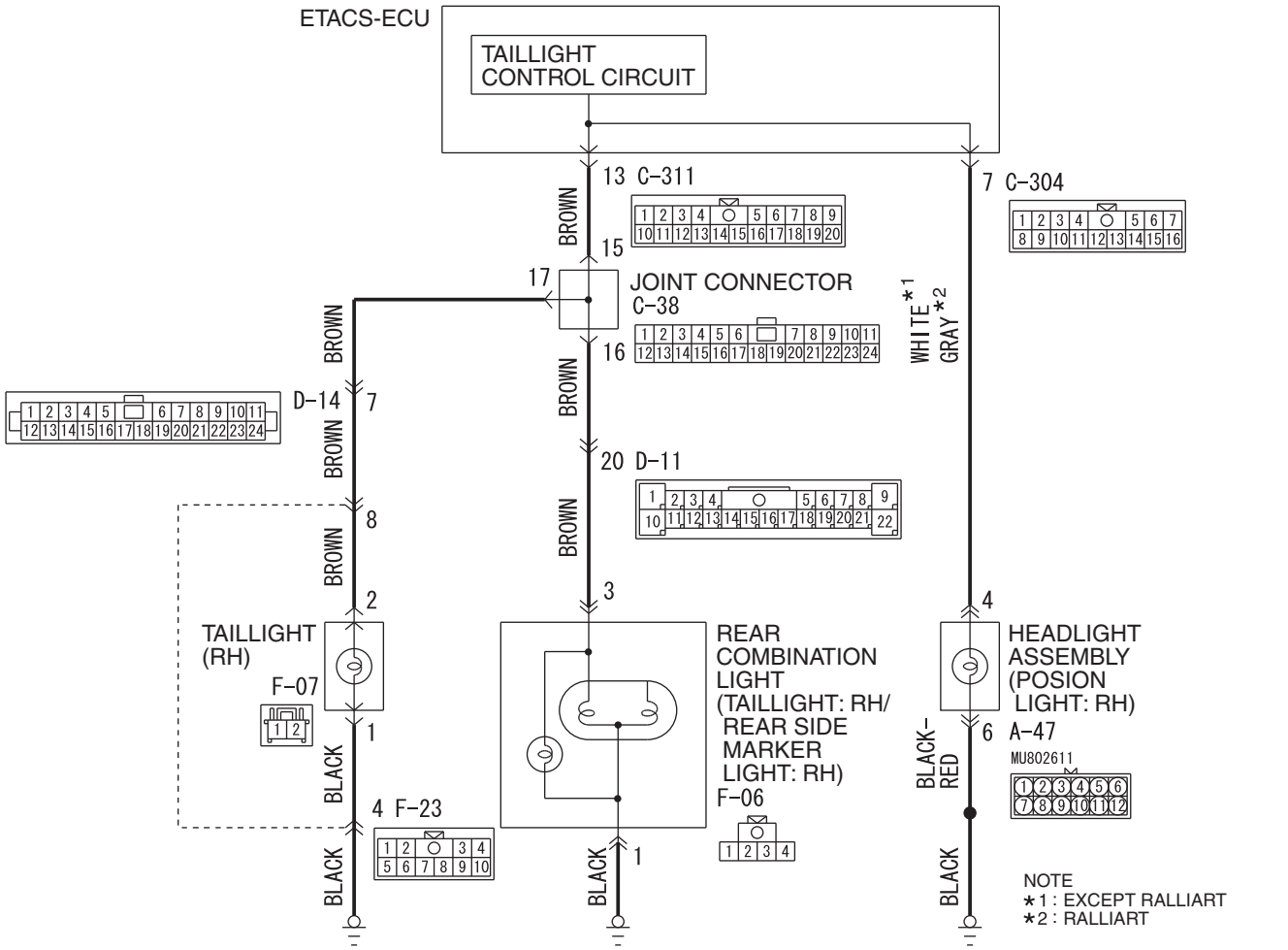
On troubleshooting, if the ignition switch is turned ON while disconnecting connector(s), diagnostic trouble code(s) associated with other system may be set. On completion, confirm all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

DTC No.	Diagnostic item	Reference page
B16A0	Taillight (RH) circuit open <Open circuit in the position light (RH) circuit, the taillight (RH) circuit and the rear side marker light (RH) circuit>	P.54A-235
B16A7	Taillight (RH) circuit short <Short circuit in the position light (RH) circuit, the taillight (RH) circuit or the rear side marker light (RH) circuit>	
B16A1	Taillight (LH) circuit open <Open circuit in the position light (LH) circuit, the taillight (LH) circuit, the rear side marker light (LH) circuit and the license plate light circuit>	P.54A-242
B16A8	Taillight (LH) circuit short <Short circuit in the position light (LH) circuit, the taillight (LH) circuit, the rear side marker light (LH) circuit or the license plate light circuit>	

DIAGNOSTIC TROUBLE CODE PROCEDURES

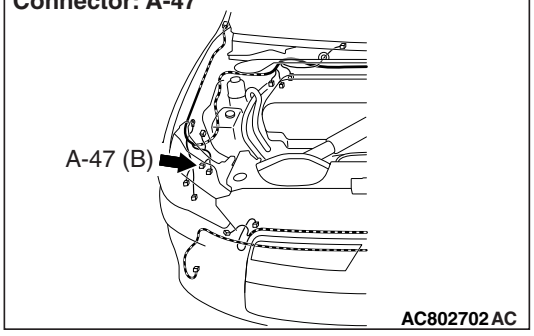
DTC B16A0: Taillight (RH) circuit open <Open circuit in the position light (RH) circuit, the taillight (RH) circuit and the rear side marker light (RH) circuit>
DTC B16A7: Taillight (RH) circuit short <Short circuit in the position light (RH) circuit, the taillight (RH) circuit or the rear side marker light (RH) circuit>

Taillight and Position Light Circuit

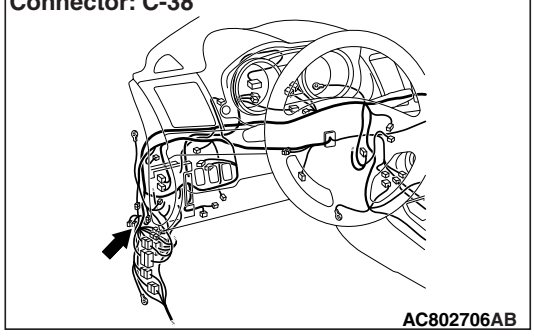


W9H54M027A

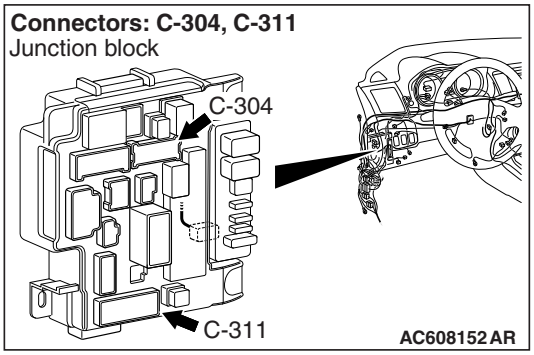
Connector: A-47

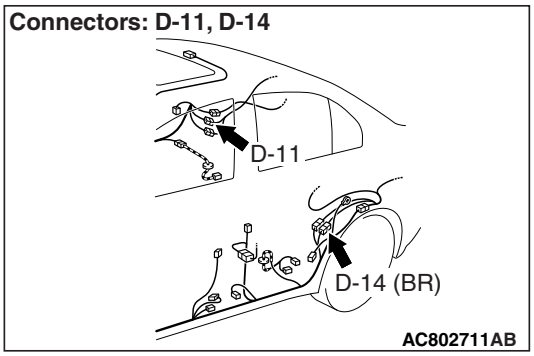


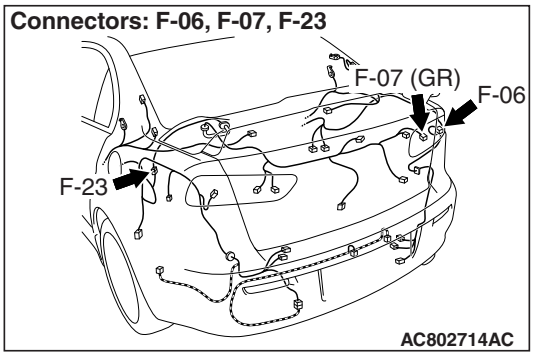
Connector: C-38



TSB Revision







TROUBLE JUDGMENT

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

STEP 1. Bulb check.

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

Q: Is the check result normal?

YES : Go to Step 2.

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

STEP 2. Check headlight assembly (position light: RH) connector A-47, rear combination light (taillight: RH/rear side marker light: RH) connector F-06 and taillight (RH) connector F-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is headlight assembly (position light: RH) connector A-47, rear combination light (taillight: RH/rear side marker light: RH) connector F-06 and taillight (RH) connector F-07 in good condition?

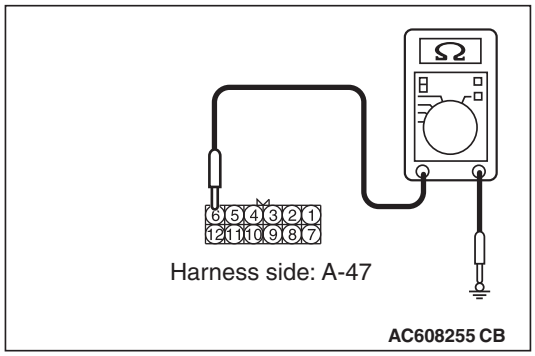
YES : Go to Step 3.

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

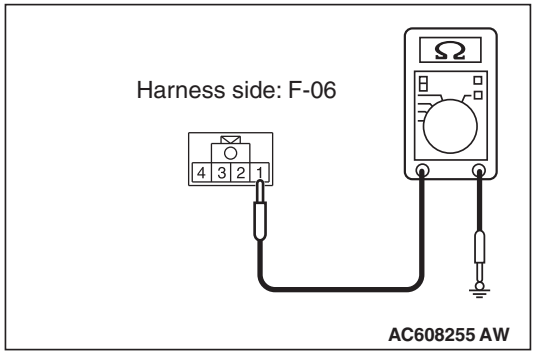
STEP 3. Resistance measurement at headlight assembly (position light: RH) connector A-47, rear combination light (taillight: RH/rear side marker light: RH) connector F-06 and taillight (RH) connector F-07.

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

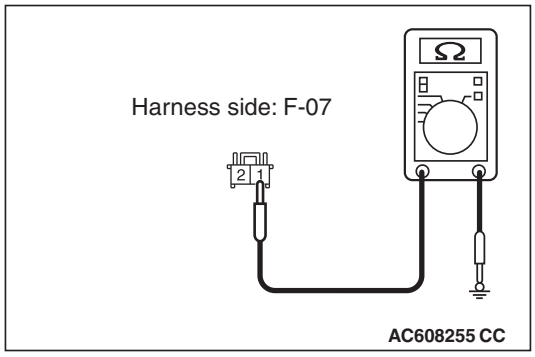
(2) Measure the resistance between the connector of light which does not illuminate and the body ground.



- Measure the resistance between headlight assembly (position light: RH) connector A-47 (terminal 6) and the body ground.



- Measure the resistance between rear combination light (taillight: RH/rear side marker light: RH) connector F-06 (terminal 1) and the body ground.



- Measure the resistance between taillight (RH) connector F-07 (terminal 1) and the body ground.

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

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

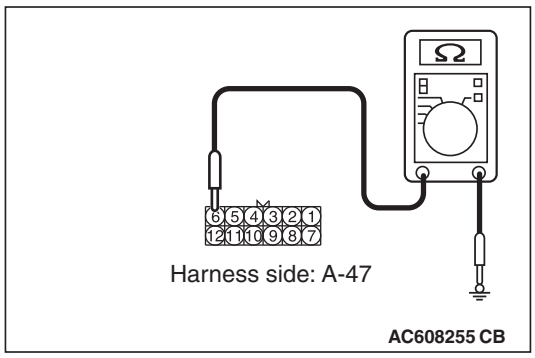
YES : Go to Step 5.

NO : Go to Step 4.

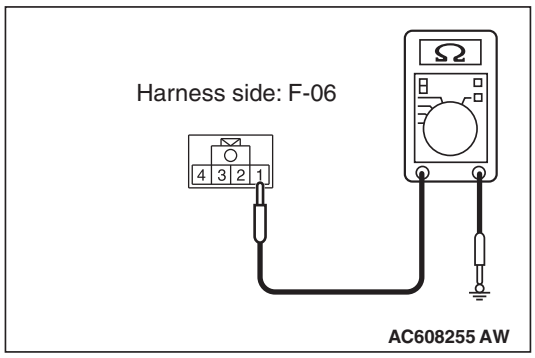
STEP 4. Check the wiring harness between headlight assembly connector, rear combination light connector or taillight connector and the body ground.

Check the ground line for open circuit.

- Check the wiring harness between headlight assembly (position light: RH) connector A-47 (terminal 6) and the body ground.

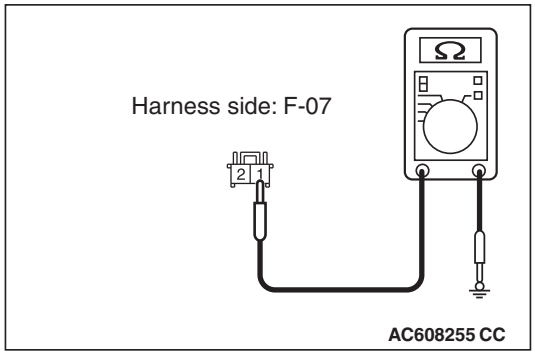


- Check the wiring harness between rear combination light (taillight: RH/rear side marker light: RH) connector F-06 (terminal 1) and the body ground.



- Check the wiring harness between taillight (RH) connector F-07 (terminal 1) and the body ground.

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



Q: Is the wiring harness between headlight assembly connector, rear combination light connector or tail light connector and the body ground in good condition?

YES : Go to Step 7.

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

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

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

YES : Go to Step 6.

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

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

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

- Check the wiring harness between headlight assembly (position light: RH) connector A-47 (terminal 4) and ETACS-ECU connector C-304 (terminal 7).
- Check the wiring harness between rear combination light (taillight: RH/rear side marker light: RH) connector F-06 (terminal 3) and ETACS-ECU connector C-311 (terminal 13).

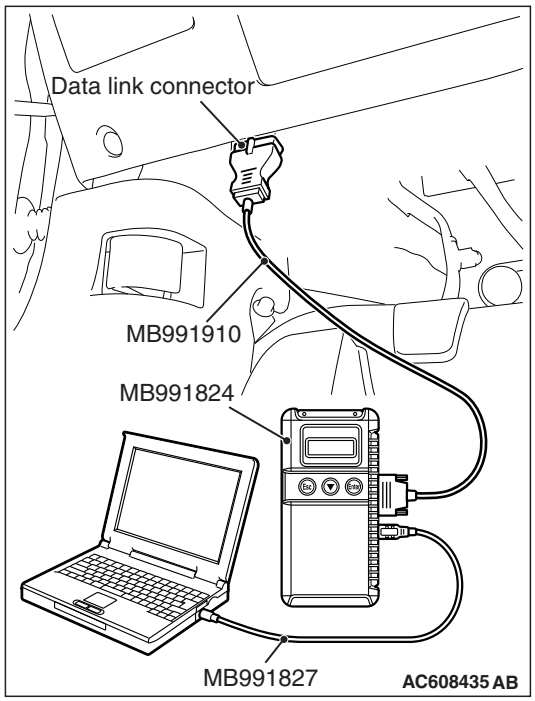
  NOTE: Also check joint connector C-38 and intermediate connector D-11 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-38 or intermediate connector D-11 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between taillight (RH) connector F-07 (terminal 2) and ETACS-ECU connector C-311 (terminal 13).

  NOTE: Also check intermediate connectors D-14 and F-23 and joint connector C-38 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 or F-23 or joint connector C-38 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between headlight assembly connector, rear combination light connector, taillight connector and ETACS-ECU connector in good condition?

YES : Go to Step 7.

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



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

⚠ CAUTION

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

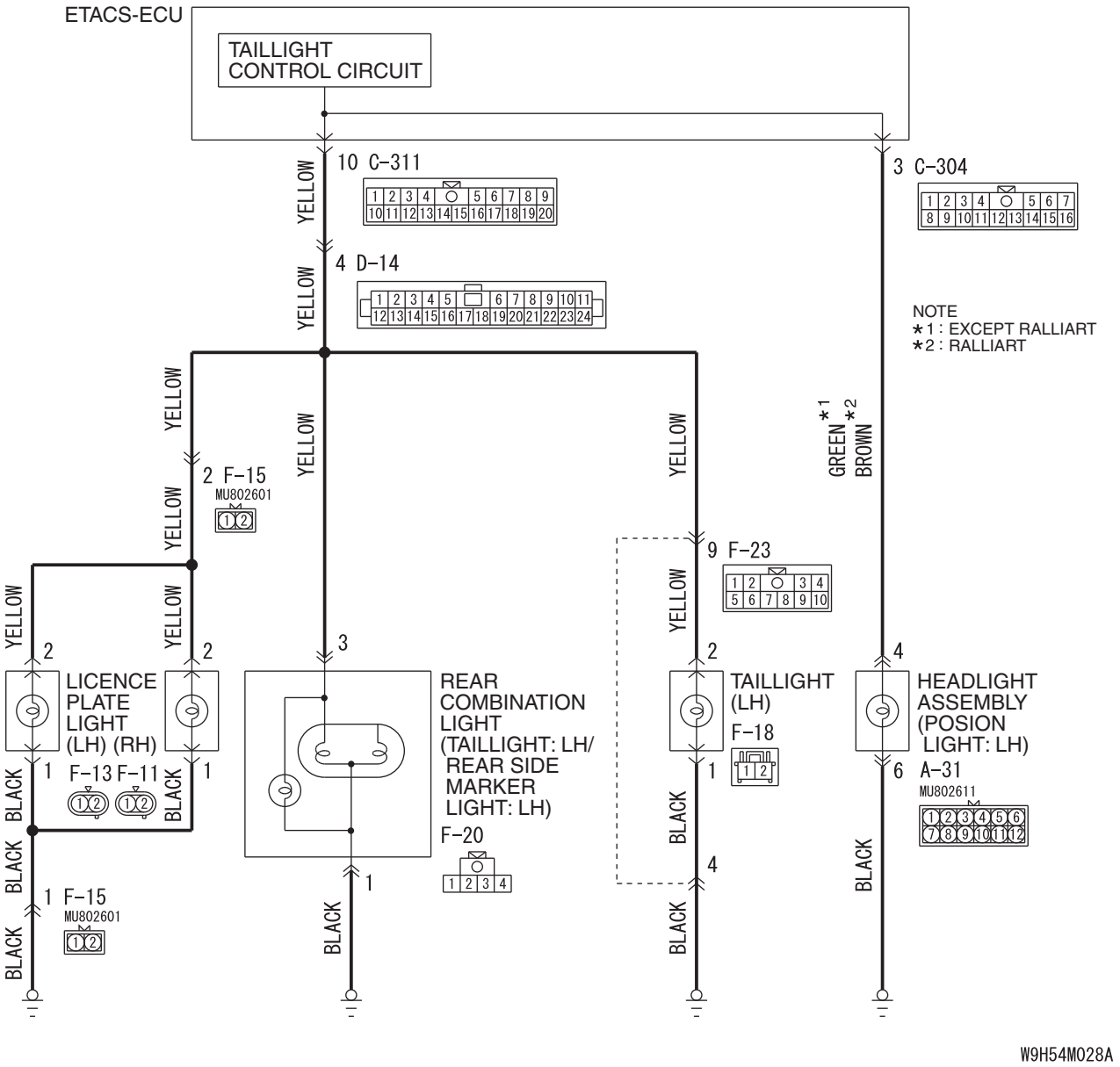
(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-232."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.

Q: Is the DTC set?

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

DTC B16A1: Taillight (LH) circuit open <Open circuit in the position light (LH) circuit, the taillight (LH) circuit, the rear side marker light (LH) circuit and the license plate light circuit>
DTC B16A8: Taillight (LH) circuit short <Short circuit in the position light (LH) circuit, the taillight (LH) circuit, the rear side marker light (LH) circuit or the license plate light circuit>

Taillight, Position Light and License Plate Light Circuit



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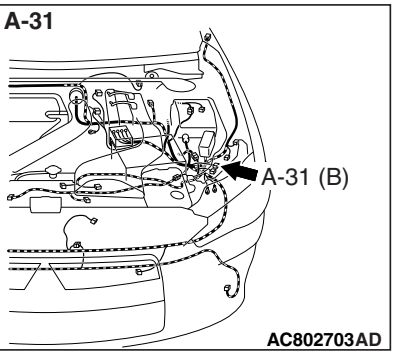
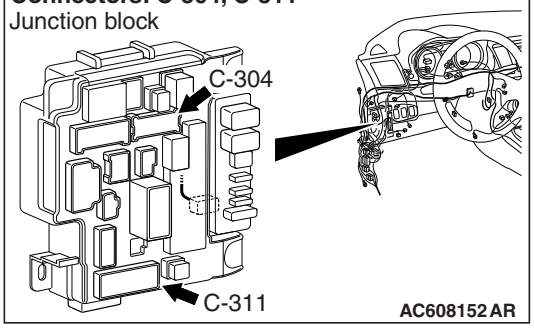
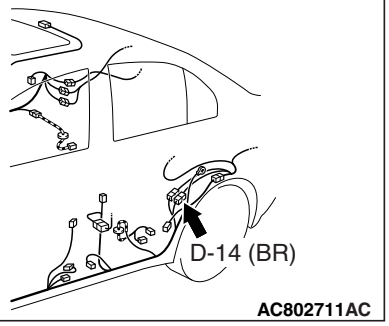
Connector: A-31



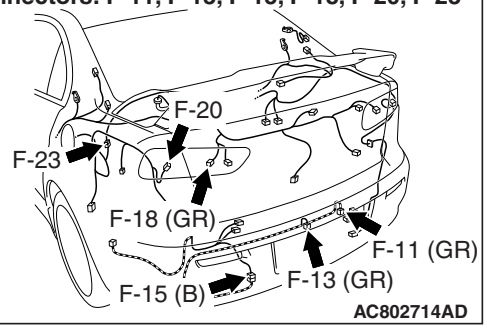
Connectors: C-304, C-311
Junction block



Connector: D-14



Connectors: F-11, F-13, F-15, F-18, F-20, F-23



TROUBLE JUDGMENT

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

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STEP 1. Bulb check.
Check the bulb(s) of the light that does not illuminate.

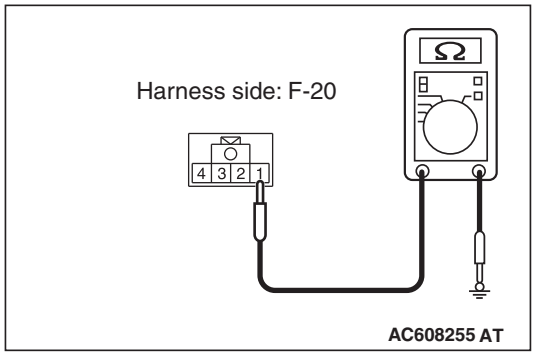
Q: Is the check result normal?

YES : Go to Step 2.
NO : Replace the bulb(s) of the light that does not illuminate.

STEP 2. Check headlight assembly (position light: LH) connector A-31, rear combination light (taillight: LH/rear side marker light: LH) connector F-20, taillight (LH) connector F-18, license plate light (LH) connector F-13 and license plate light (RH) connector F-11 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is headlight assembly (position light: LH) connector A-31, rear combination light (taillight: LH/rear side marker light: LH) connector F-20, taillight (LH) connector F-18, license plate light (LH) connector F-13 and license plate light (RH) connector F-11 in good condition?

YES : Go to Step 3.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.



STEP 3. Resistance measurement at headlight assembly (position light: LH) connector A-31, rear combination light(taillight: LH/rear side marker light: LH) connector F-20 , taillight (LH) connector F-18, license plate light (LH) connector F-13 and license plate light (RH) connector F-11.

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

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

- Measure the resistance between headlight assembly (position light: LH) connector A-31 (terminal 6) and body ground.
- Measure the resistance between the rear combination light (LH) connector F-20 (terminal 1) and the body ground.
- Measure the resistance between taillight (LH) connector F-18 (terminal 1) and body ground.
- Measure the resistance between license plate light (LH) connector F-13 (terminal 1) and body ground.
- Measure the resistance between license plate light (RH) connector F-11 (terminal 1) and body ground.

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

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

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

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

Check the ground line for open circuit.

- Check the wiring harness between headlight assembly (position light: LH) connector A-31 (terminal 6) and the body ground.
- Check the wiring harness between rear combination light (taillight: LH/rear side marker light: LH) connector F-20 (terminal 1) and the body ground.
- Check the wiring harness between taillight (LH) connector F-18 (terminal 1) and the body ground.

  NOTE: Also check intermediate connector F-23 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-23 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between license plate light (LH) connector F-13 (terminal 1) and the body ground.

  NOTE: Also check intermediate connector F-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between license plate light (RH) connector F-11 (terminal 1) and the body ground.

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

Q: Is the wiring harness between headlight assembly connector, rear combination light connector, taillight connector or license plate light and ground in good condition?

YES : Go to Step 7.

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

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

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

YES : Go to Step 6.

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

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

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

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

  NOTE: Also check intermediate connectors D-14 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between taillight (LH) connector F-18 (terminal 2) and ETACS-ECU connector C-311 (terminal 10).

  NOTE: Also check intermediate connectors D-14 and F-23 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 or F-23 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between license plate light (LH) connector F-13 (terminal 2) and ETACS-ECU connector C-311 (terminal 10).

  NOTE: Also check intermediate connectors D-14 and F-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 or F-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between license plate light (RH) connector F-11 (terminal 2) and ETACS-ECU connector C-311 (terminal 10).

  NOTE: Also check intermediate connectors D-14 and F-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 or F-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between headlight assembly connector, rear combination light connector, taillight connector or license plate light and ETACS-ECU connector in good condition?

YES : Go to Step 7.

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

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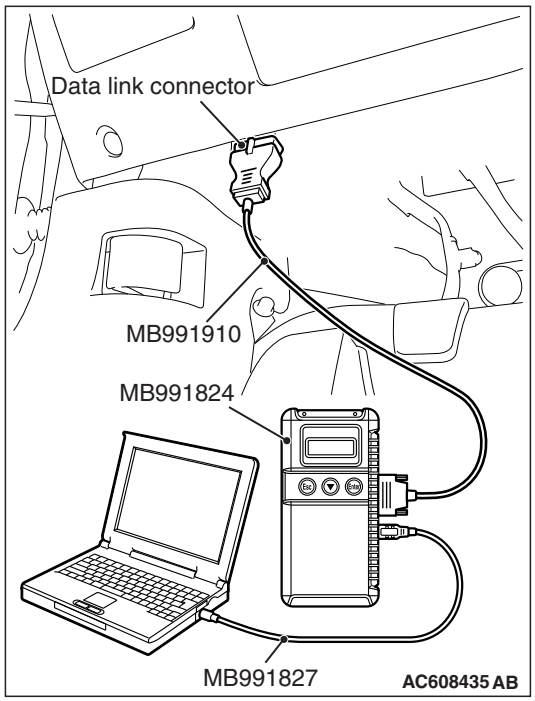


STEP 7. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

⚠ 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 too (M.U.T.-III) P.54A-232."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.

Q: Is the DTC set?

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

TROUBLE SYMPTOM CHART

M1541401000306

Inspection Procedure No.	Trouble symptom	Reference page
1	None of taillights illuminates.	P.54A-249
2	One of the taillights does not illuminate.	P.54A-251

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:

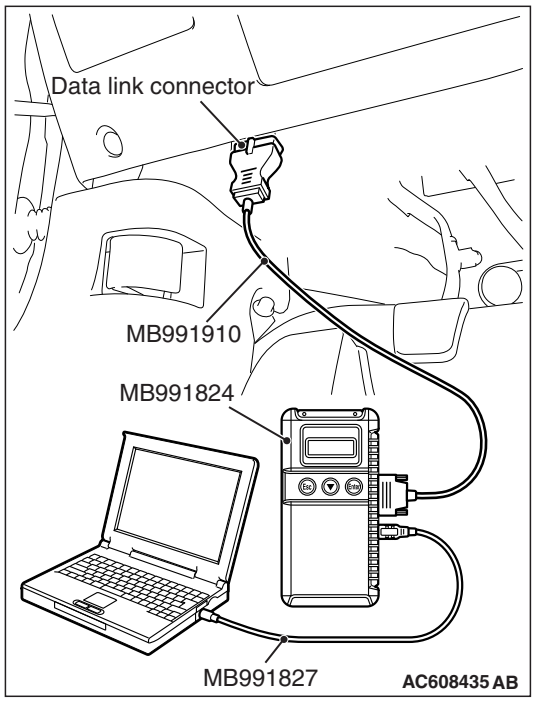
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

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 too (M.U.T.-III) P.54A-232."
(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-678.
NO : Go to Step 3.

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

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

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

Item No.	Item name	Normal conditions
Item 218	Taillight	ON

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

YES : Go to Step 4.
NO : Troubleshoot the ETACS-ECU (Refer to P.54A-735).

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.00-14).
NO : Replace the ETACS-ECU.

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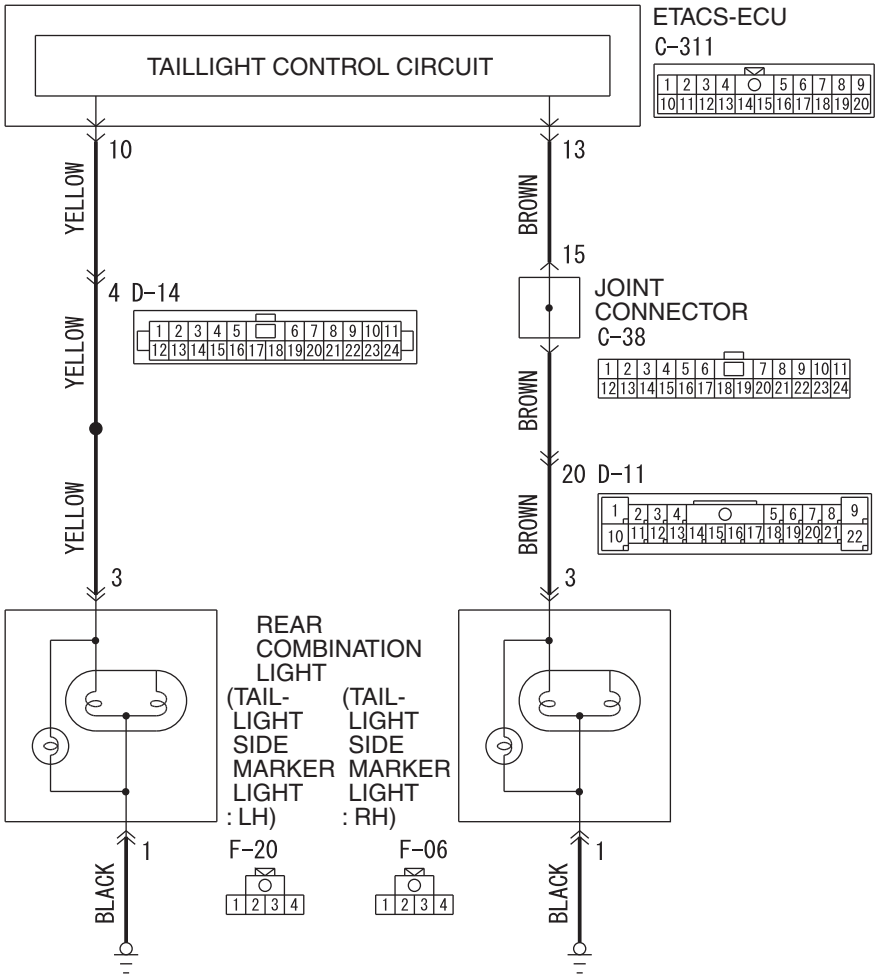
Inspection Procedure 2: One of the taillights does not illuminate.

Taillight Circuit



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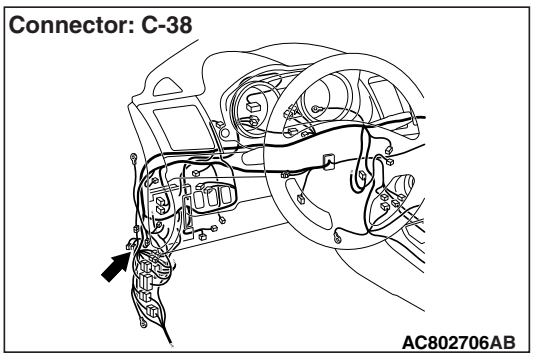
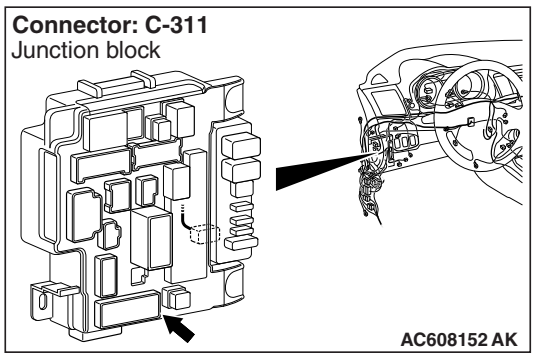
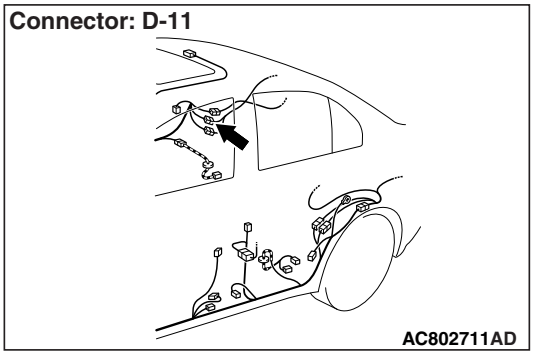




TSB Revision

Connector: D-11



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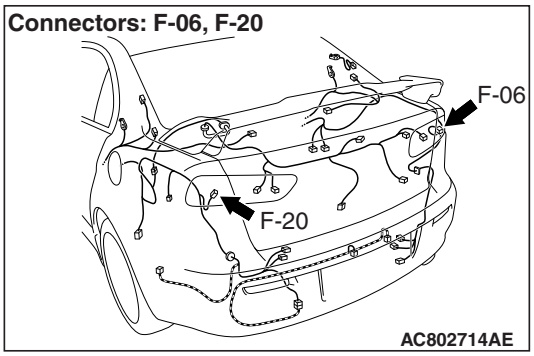
Connectors: F-06, F-20



AC802714AE

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

STEP 1. Check rear combination light connector F-20 (taillight/side marker light: LH) or F-06 (taillight/side marker light: RH) for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear combination light connector F-20 (taillight/side marker light: RH) or F-06 (taillight/side marker light: LH) in good condition?

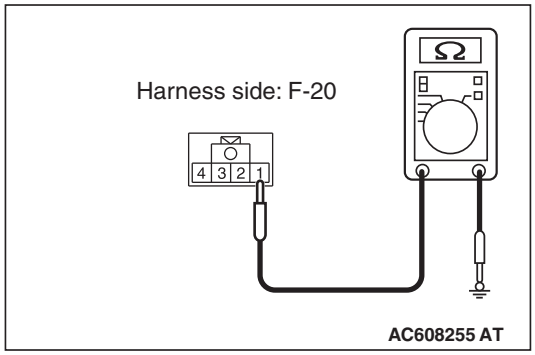
YES : Go to Step 2.

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

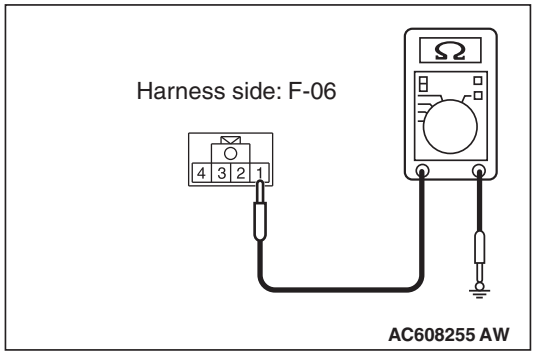
STEP 2. Resistance measurement at rear combination light connector F-20 (taillight/side marker light: LH) or F-06 (taillight/side marker light: RH).

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

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



- Measure the resistance between rear combination light (taillight/side marker light: LH) connector F-20 (terminal 1) and body ground.



- Measure the resistance between rear combination light (taillight/side marker light: RH) connector F-06 (terminal 1) and body ground.

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

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

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

STEP 3. Check the wiring harness between rear combination light connectors F-20 (taillight/side marker light: LH) (terminal 1) or F-06 (taillight/side marker light: RH) (terminal 1) and ground.

Q: Is the wiring harness between rear combination light connectors F-20 (taillight/side marker light: LH) (terminal 1) or F-06 (taillight/side marker light: RH) (terminal 1) and ground in good condition?

YES : Go to Step 6.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

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

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

YES : Go to Step 5.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

TSB Revision

STEP 5. Check the wiring harness between rear combination light connector and ETACS-ECU connector.

Check the power supply line for open circuit.

- Check the wiring harness between rear combination light (taillight/side marker light: LH) connector F-20 (terminal 3) and ETACS-ECU connector C-311 (terminal 10). <LH>

  NOTE: Also check intermediate connector D-14 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-14 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- Check the wiring harness between rear combination light (taillight/side marker light: RH) connector F-06 (terminal 3) and ETACS-ECU connector C-311 (terminal 13). <RH>

  NOTE: Also check joint connector C-38 and intermediate connector D-11 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-38 or intermediate connector D-11 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear combination light connector and ETACS-ECU connector in good condition?

YES : Go to Step 6.

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

STEP 6. Retest the system.

Check that the taillight illuminates normally.

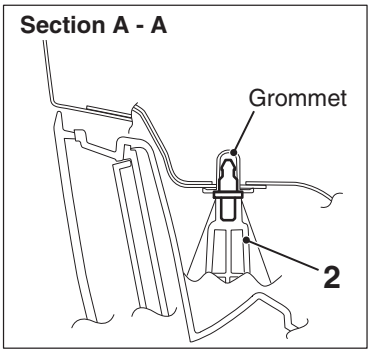
Q: Does the taillight work normally?

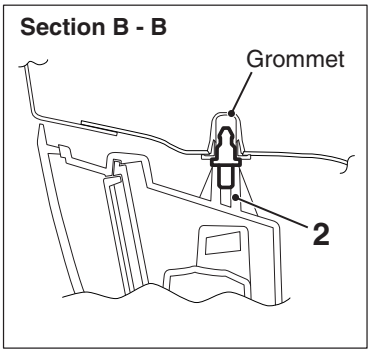
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

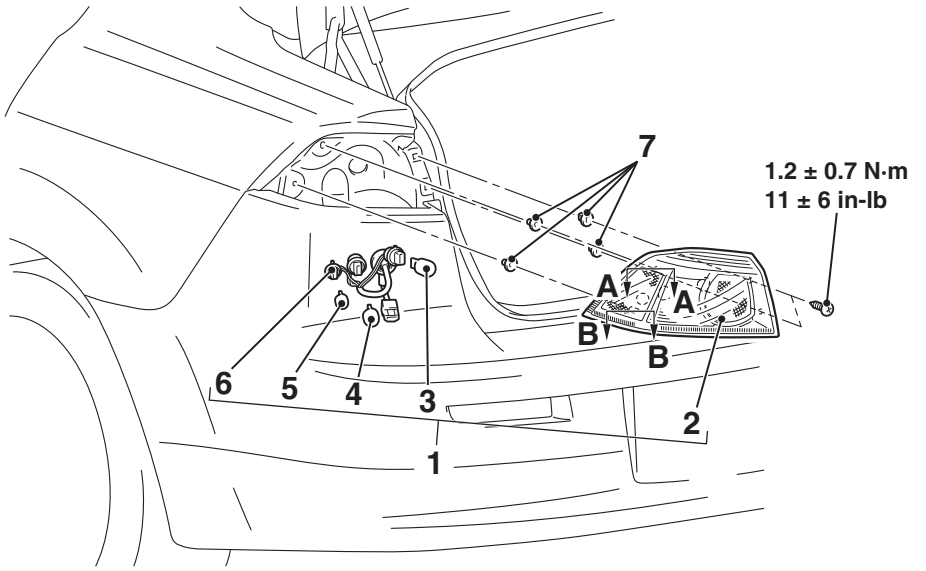
NO : Replace the defective rear combination light unit.

REAR COMBINATION LIGHT REMOVAL AND INSTALLATION

M1541402200154







AC610314AB

Removal Steps

1. Rear combination light assembly
2. Rear combination light unit
3. Stop/taillight bulb
4. Rear turn-signal light bulb

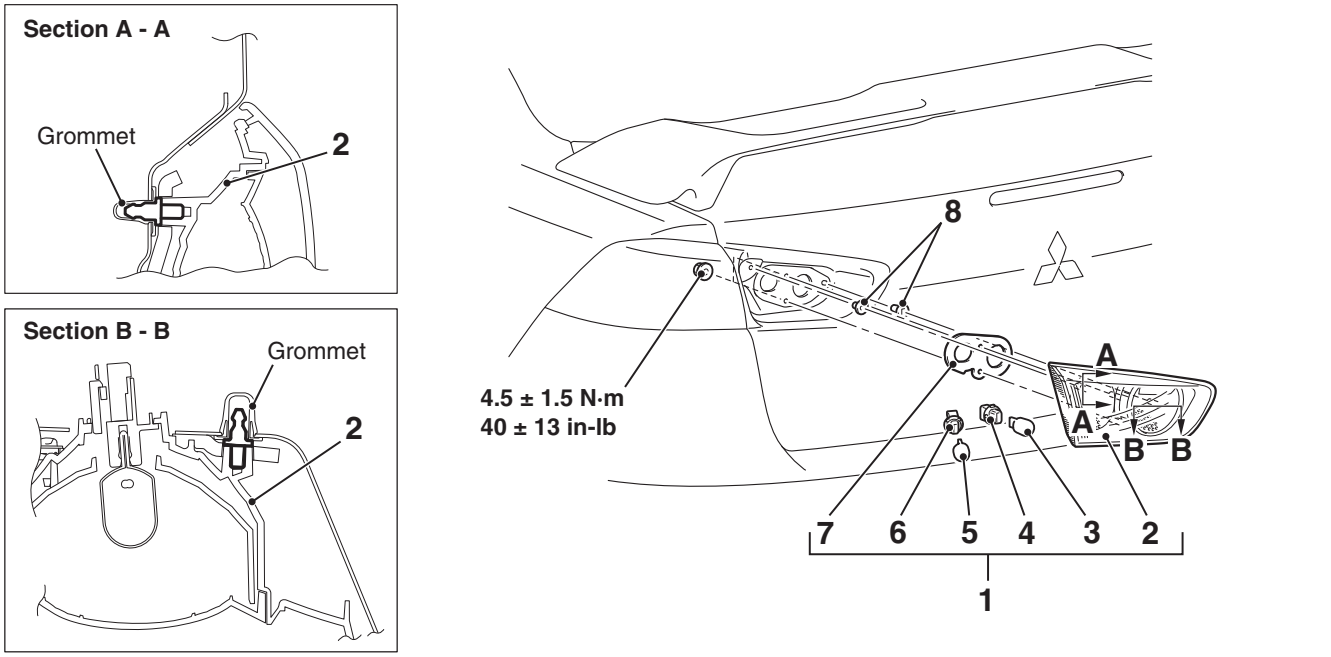
Removal Steps (Continued)

5. Rear side-marker light bulb
6. Socket
7. Grommet

TSB Revision

TAILLIGHT REMOVAL AND INSTALLATION

M1541402600185



AC610486AB

Removal Steps

- Trunk lid trim (Refer to GROUP 52A – Trims P.52A-12).

1. Taillight assembly
2. Taillight unit
3. Back-up light bulb

Removal Steps (Continued)

4. Socket
5. Taillight bulb
6. Socket
7. Gasket
8. Grommet

TSB Revision

FOG LIGHT

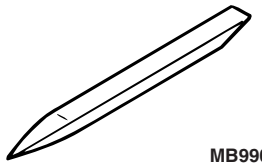
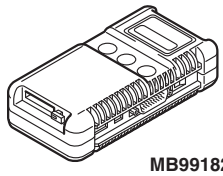
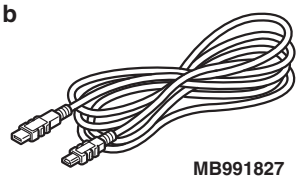
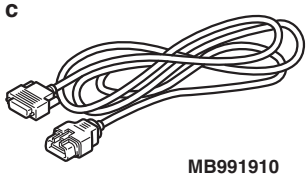
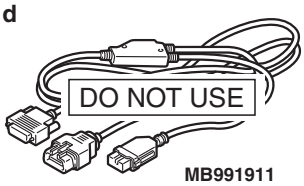
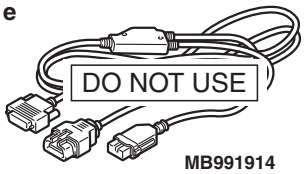
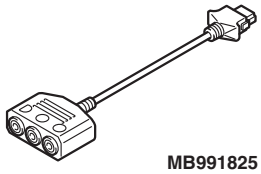
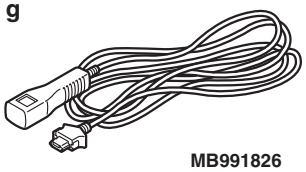
SERVICE SPECIFICATIONS

M1540400900091

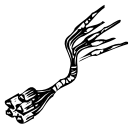
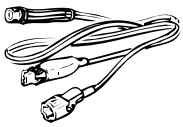
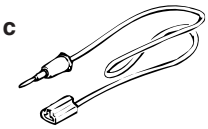
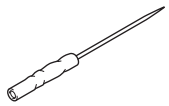
Item	Standard value	Limit
Fog light aiming (cutoff line direction) [at 7.62 m (25.0 ft)]	The horizontal line 153.0 mm (6.02 inches) (1.15 degrees angle) below the horizontal line (H)	–
Fog light aiming (vertical direction) [at 7.62 m (25.0 ft)]	–	Area from 53.2 mm (2.09 inches) (0.4 degrees angle) above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

SPECIAL TOOLS

M1540401800310

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

TSB Revision

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

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1540401700012

Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, Troubleshooting Contents P.00-7.

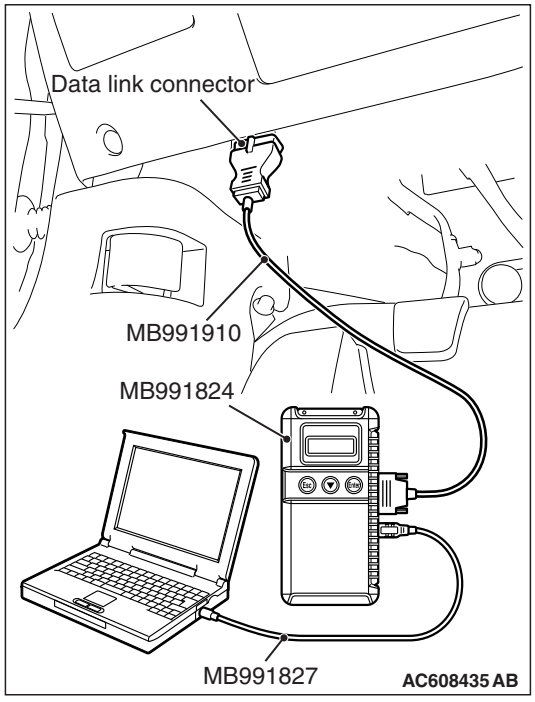
DIAGNOSTIC FUNCTION

M1540403000031

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

REQUIRED SPECIAL TOOLS:

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



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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

REQUIRED SPECIAL TOOLS:

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

⚠ CAUTION

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

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

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

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

TROUBLE SYMPTOM CHART

M1540401000273

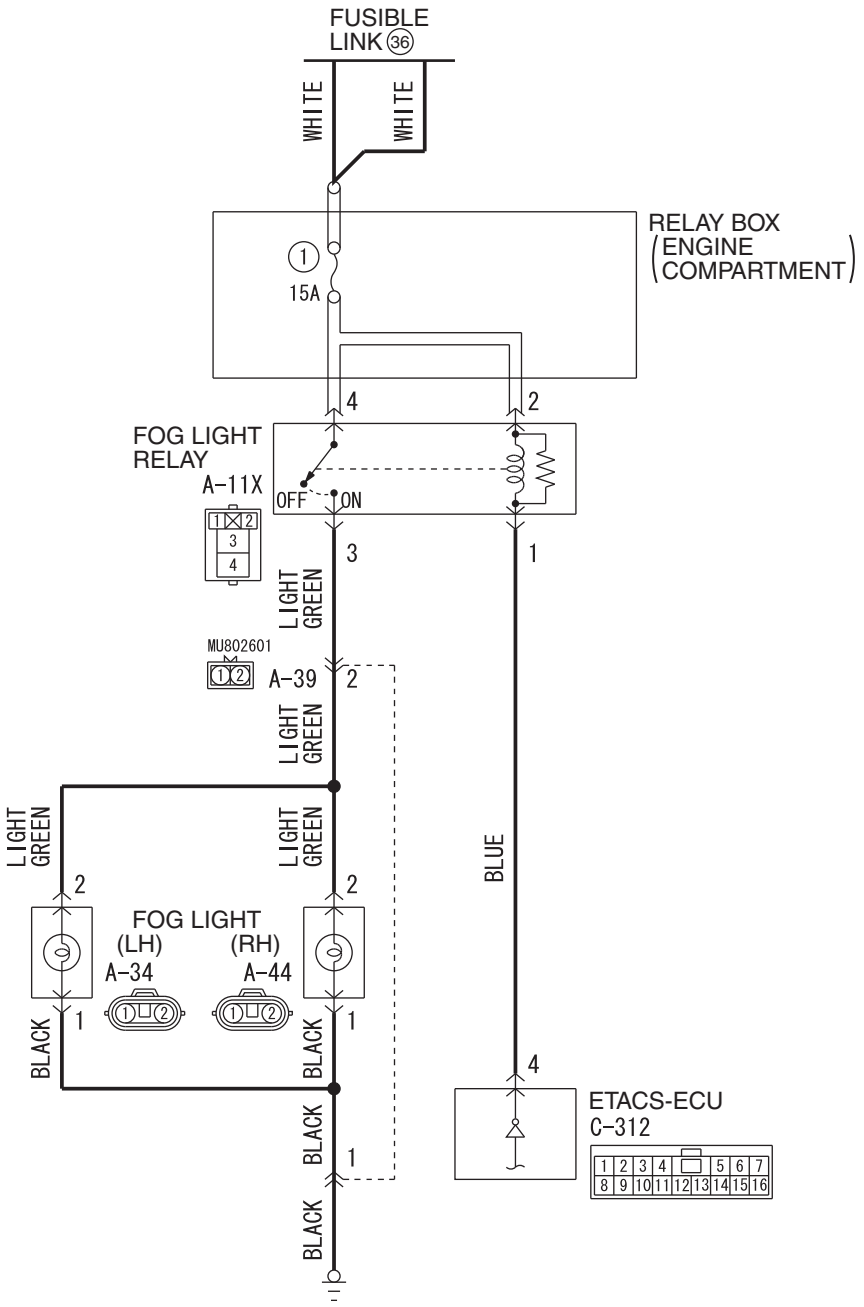
Inspection Procedure No.	Trouble symptom	Reference page
1	None of the front fog lights illuminates.	P.54A-262
2	One of the front fog lights does not illuminate.	P.54A-268
3	The front fog light indicator does not illuminate normally.	P.54A-272

SYMPTOM PROCEDURES

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

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

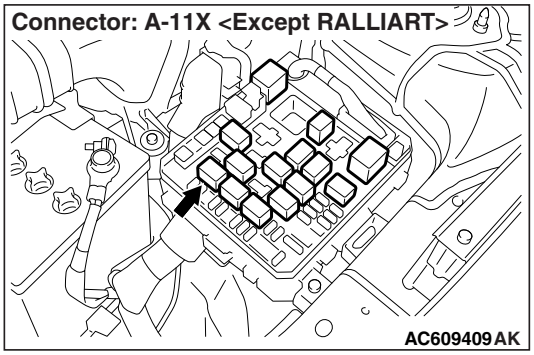
Fog Light and ETACS-ECU Communication Circuit



W9H54M030A

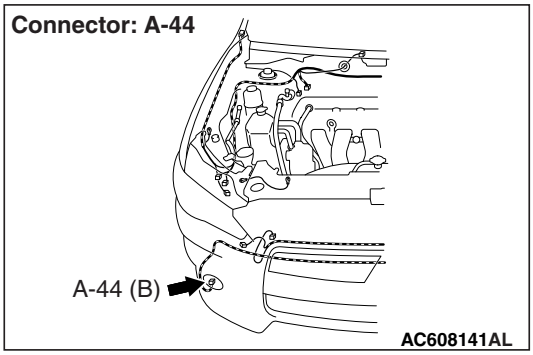
TSB Revision

Connector: A-11X <Except RALLIART>



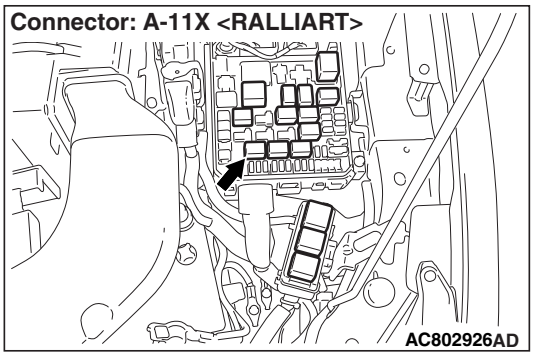
AC609409AK

Connector: A-44



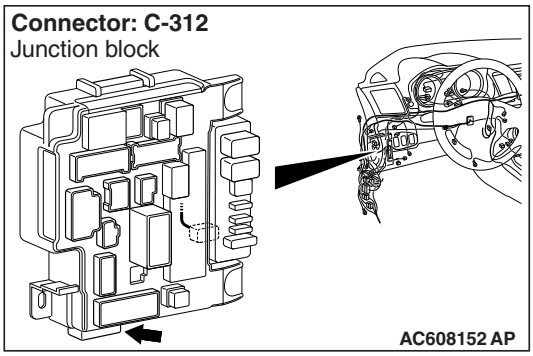
AC608141AL

Connector: A-11X <RALLIART>



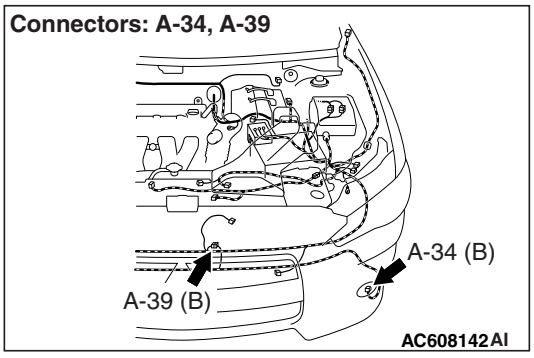
AC802926AD

Connector: C-312
Junction block



AC608152AP

Connectors: A-34, A-39



AC608142AI

CIRCUIT OPERATION

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

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

TECHNICAL DESCRIPTION (COMMENT)

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

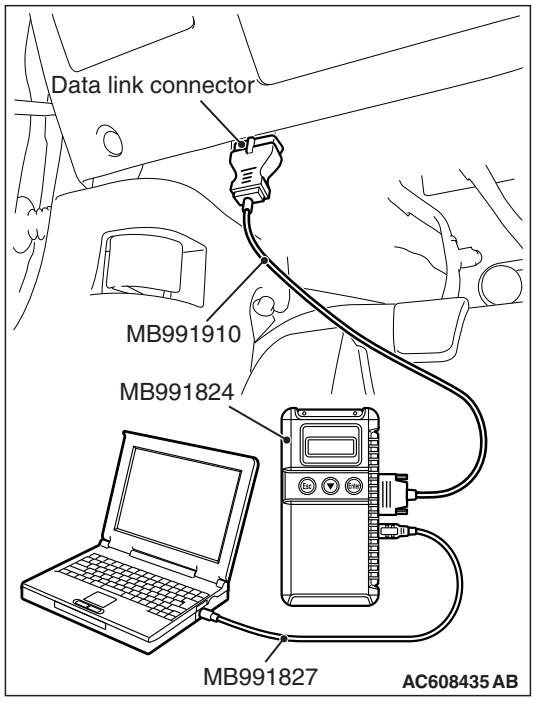
TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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



STEP 1. ETACS-ECU coding data check.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-260."
(2) Turn the ignition switch to the "ON" position.
(3) Read out the option coding information in ETACS-ECU (Refer to GROUP 00, Precautions before service, Coding Table P.00-33).
(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-157).

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

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

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to ETACS, Diagnosis P.54A-678).
NO : Go to Step 4.

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

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

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

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

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

YES : Go to Step 5.

NO : Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis - Inspection Procedure 11 "ETACS-ECU does not receive any signal from the column switch signal." P.54A-735.

STEP 5. Check fog light relay connector A-11X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fog light relay connector A-11X in good condition?

YES : Go to Step 6.

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

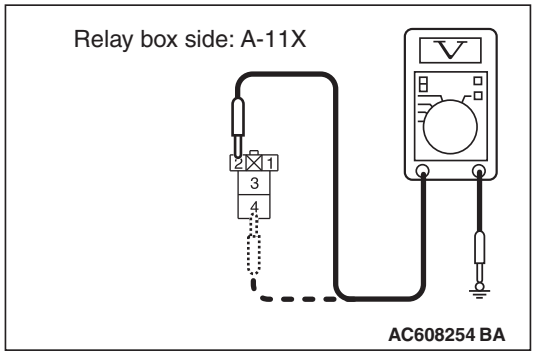
STEP 6. Check the fog light relay.

Refer to P.54A-279.

Q: Is the fog light relay in good condition?

YES : Go to Step 7.

NO : Replace the fog light relay.



STEP 7. Check the battery power supply circuit to the fog light relay. Measure the voltage at fog light relay connector A-11X.

⚠ CAUTION

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

(1) Disconnect fog light relay connector A-11X and measure the voltage available at the relay box side of the connector.
(2) Measure the voltage between terminal 2 and ground, and between terminal 4 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

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

YES : Go to Step 9.
NO : Go to Step 8.

STEP 8. Check the wiring harness between fog light relay connector A-11X (terminal 2 and 4) and fusible link (36).

- Check the power supply line for open circuit.

Q: Is the wiring harness between fog light relay connector A-11X (terminal 2 and 4) and fusible link (36) in good condition?

YES : Go to Step 13.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

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

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

YES : Go to Step 10.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 10. Check the wiring harness between fog light relay connector A-11X (terminal 1) and ETACS-ECU connector C-312 (terminal 4).

Q: Is the wiring harness between fog light relay connector A-11X (terminal 1) and ETACS-ECU connector C-312 (terminal 4) in good condition?

YES : Go to Step 11.

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

STEP 11. Check the wiring harness between fog light relay connector A-11X (terminal 3) and fog light (LH) connector A-34 (terminal 2) or fog light (RH) connector A-44 (terminal 2).

NOTE: Also check intermediate connector A-39 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-39 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- Check the power supply line for open circuit.

Q: Is the wiring harness between fog light relay connector A-11X (terminal 3) and fog light (LH) connector A-34 (terminal 2) or fog light (RH) connector A-44 (terminal 2) in good condition?

YES : Go to Step 12.

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

STEP 12. Check the wiring harness between fog light (LH) connector A-34 (terminal 1) or fog light (RH) connector A-44 (terminal 1) and ground.

NOTE: Also check intermediate connector A-39 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-39 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- Check the ground wires for open circuit.

Q: Is the wiring harness between fog light (LH) connector A-34 (terminal 1) or fog light (RH) connector A-44 (terminal 1) and ground in good condition?

YES : Go to Step 13.

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

STEP 13. Retest the system.

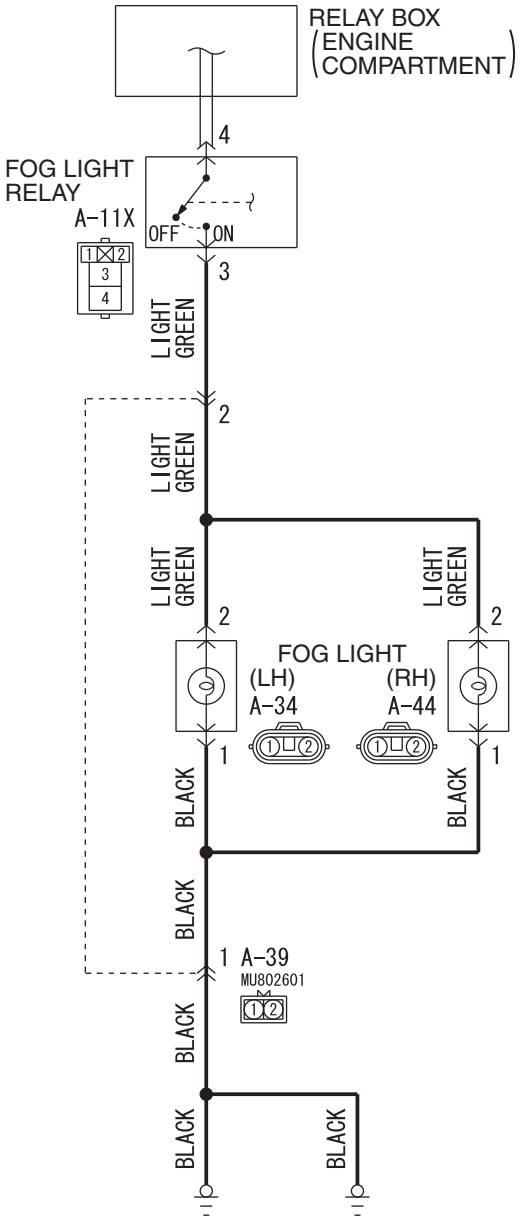
Q: Does the fog lights illuminate in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

NO : Replace the ETACS-ECU.

Inspection Procedure 2: One of the front fog lights does not illuminate.

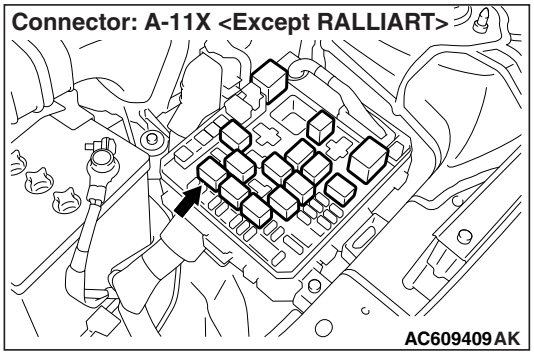
Fog Light Circuit



W9H54M031A

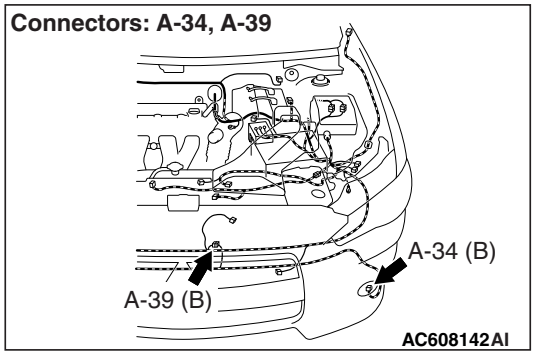
TSB Revision

Connector: A-11X <Except RALLIART>



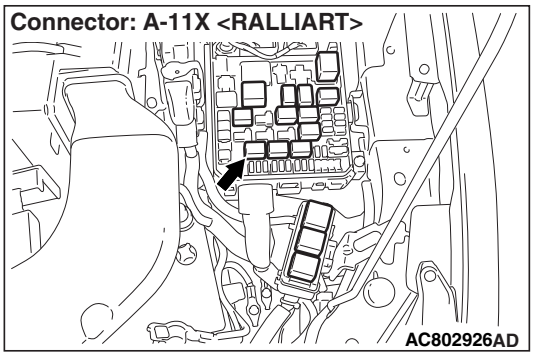
AC609409AK

Connectors: A-34, A-39



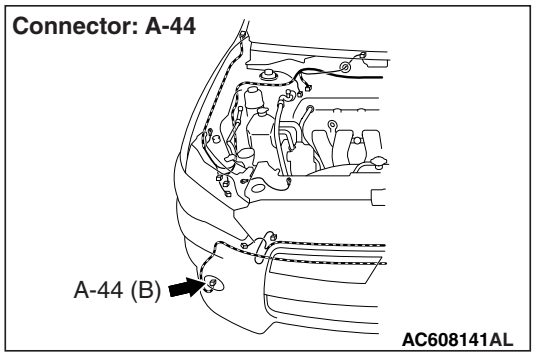
AC608142AI

Connector: A-11X <RALLIART>



AC802926AD

Connector: A-44



AC608141AL

TECHNICAL DESCRIPTION (COMMENT)

If one of the fog lights do not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set

STEP 1. Check fog light (LH) connector A-34 or fog light (RH) connector A-44 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fog light (LH) connector A-34 or fog light (RH) connector A-44 in good condition?

YES : Go to Step 2.

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

STEP 2. Check the fog light bulb.

(1) Remove the fog light bulb.

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

Q: Is the fog light bulb in good condition?

YES : Go to Step 3.

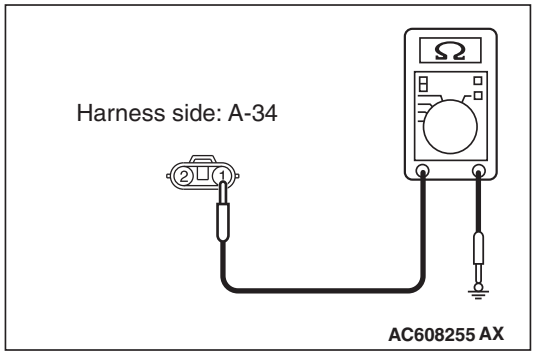
NO : Replace the fog light bulb.

TSB Revision

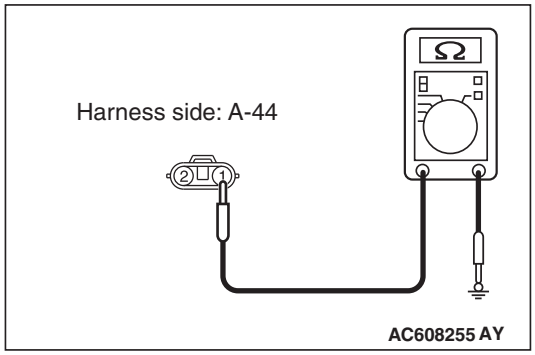
Step 3. Check the ground circuit to the fog light (LH) or fog light (RH). Measure the resistance at fog light (LH) connector A-34 or fog light (RH) connector A-44.

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

(2) Check the resistance between the fog light connector and ground.



- Resistance between A-34 fog light (LH) connector terminal No.1 and ground



- Resistance between A-44 front fog light (RH) connector terminal No.1 and ground

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

Q: Is the measured resistance 2 ohms or less?

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

Step 4. Check the wiring harness between fog light (LH) connector A-34 (terminal 1) or fog light (RH) connector A-44 (terminal 1) and ground.

NOTE: Also check intermediate connector A-39 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-39 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- Check the ground wires for open circuit.

Q: Is the wiring harness between fog light (LH) connector A-34 (terminal 1) or fog light (RH) connector A-44 (terminal 1) and ground in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 5. Check fog light relay connector A-11X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fog light relay connector A-11X in good condition?

YES : Go to Step 6.

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

STEP 6. Check the wiring harness between fog light (LH) connector A-34 (terminal 2) or fog light (RH) connector A-44 (terminal 2) and fog light relay connector A-11X (terminal 3).

NOTE: Also check intermediate connector A-39 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-39 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- Check the power supply line for open circuit.

Q: Is the wiring harness between fog light (LH) connector A-34 (terminal 2) or fog light (RH) connector A-44 (terminal 2) and fog light relay connector A-11X (terminal 3) in good condition?

YES : Go to Step 7.

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

STEP 7. Retest the system.

Q: Does the right or left fog light does not illuminate in good condition?

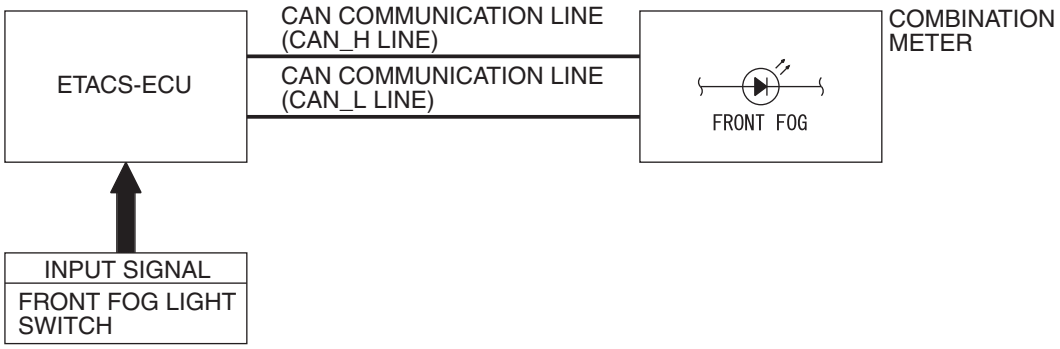
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

NO : Replace the fog light(s).

Inspection Procedure 3: The front fog light indicator does not illuminate normally.

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

Front Fog Light Indicator Light Circuit



W4X54E035A

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

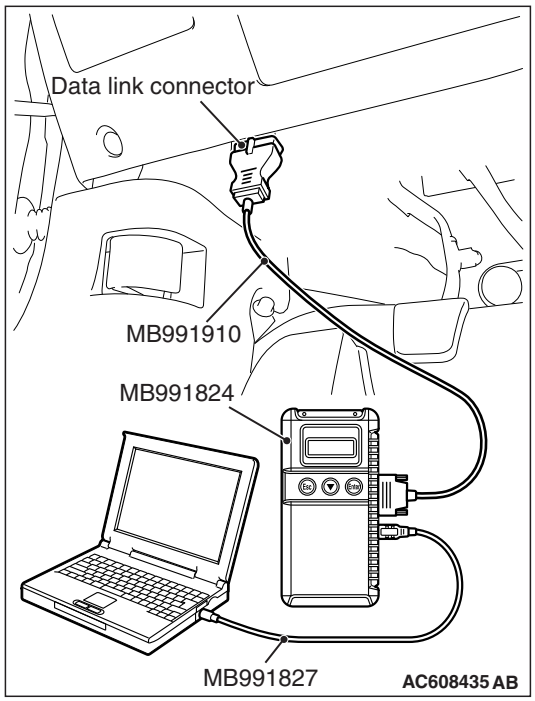
- MB991223: Harness Set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Check the fog lights.

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

Q: Is the fog lights normal?

YES : Go to Step 2.
NO : First, repair the front fog lights. Refer to Inspection Procedure 2 "One of the front fog lights does not illuminate P.54A-268."



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-260."
(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 combination meter, Diagnosis P.54A-33).
NO : Go to Step 4.

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

(1) Turn the ignition switch to the "ON" position.
(2) Perform the actuator test for the combination meter, and check that the fog light indicator illuminates (Refer to combination meter, Diagnosis P.54A-72).
(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.

TSB Revision

ON-VEHICLE SERVICE

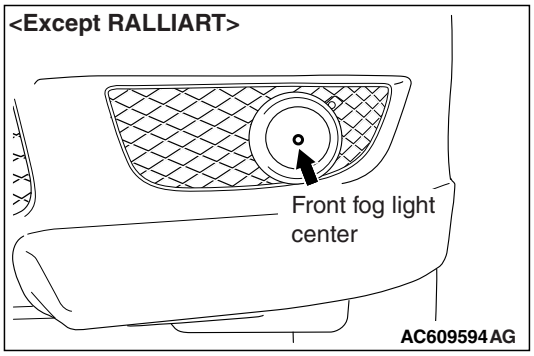
FRONT FOG LIGHT AIMING

M1540400300419

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.

<Except RALLIART>



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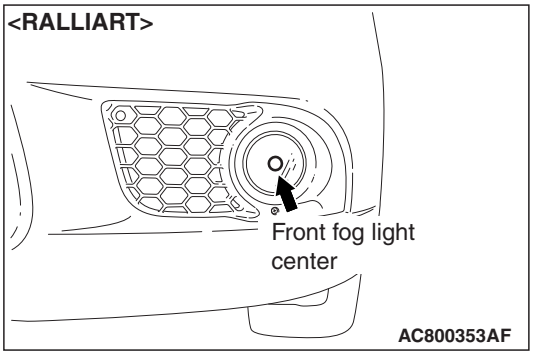
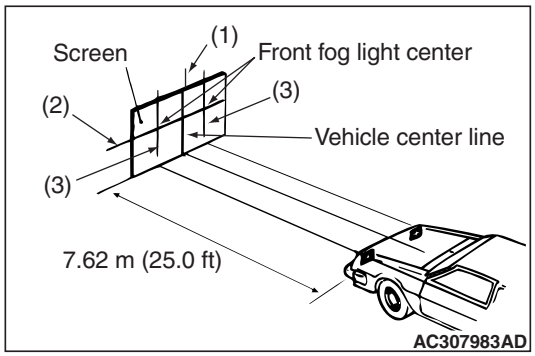
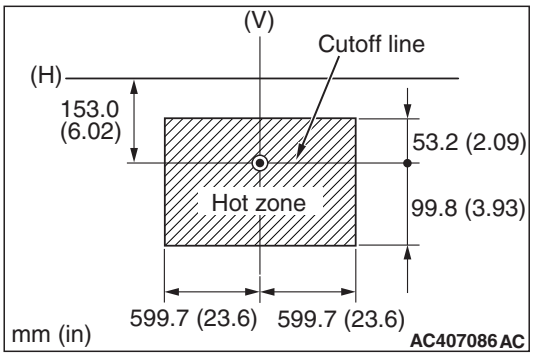




11. Four lines of adhesive tape (or equivalent markings) are required on screen or wall:
    (1) Position a vertical tape or mark so that it is aligned with the vehicle center line.
    (2) Measure the distance from the center of the front fog light lens to the floor. Transfer the measurement to the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

FOG LIGHT ADJUSTMENT



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

   Standard value:

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

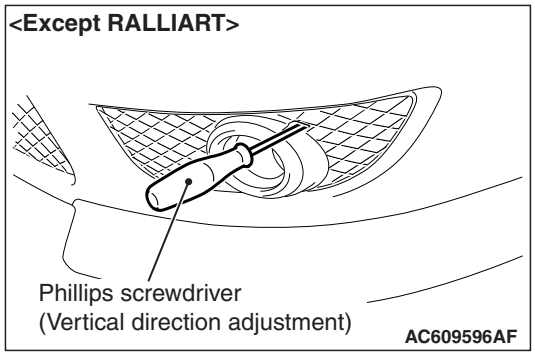
   Limit:

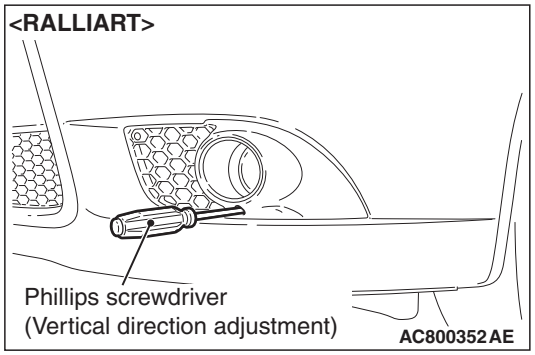
   (Vertical direction): Area from 53.2 mm (2.09 inches) (0.4 degrees angle) above the cutoff line to 99.8 mm (3.93 inches) (0.75 degrees angle) below the cutoff line

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

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

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





BULB REPLACEMENT

M1540400400438

⚠ 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-277.)
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.

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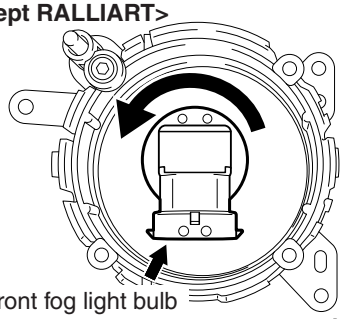

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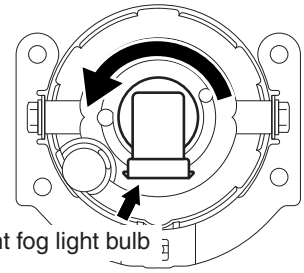


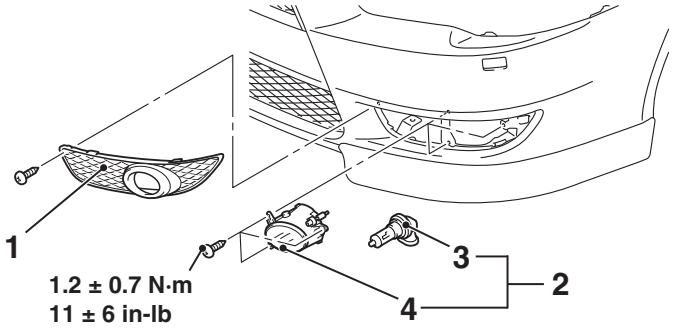
AC800370AF

REMOVAL AND INSTALLATION

M1540400500219

<EXCEPT RALLIART>

Post-installation operation
Check the beam direction of the front fog light (Refer to Front Fog light Aiming P.54A-274).



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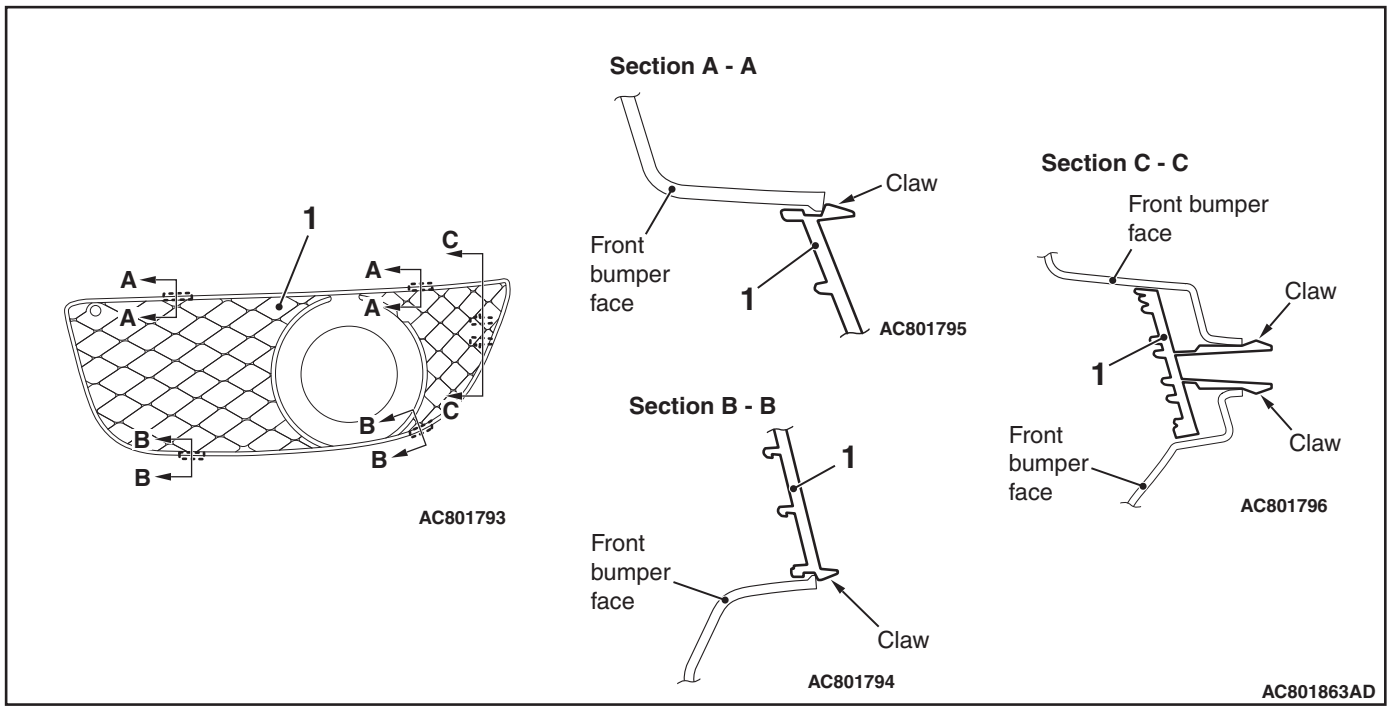


AC801863AD

Removal steps

1. Front fog light bezel
2. Fog light assembly

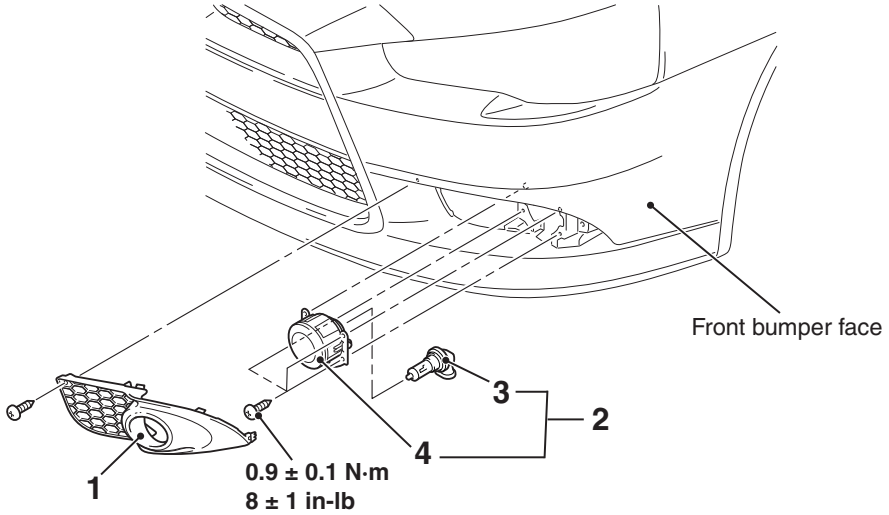
Removal steps (Continued)

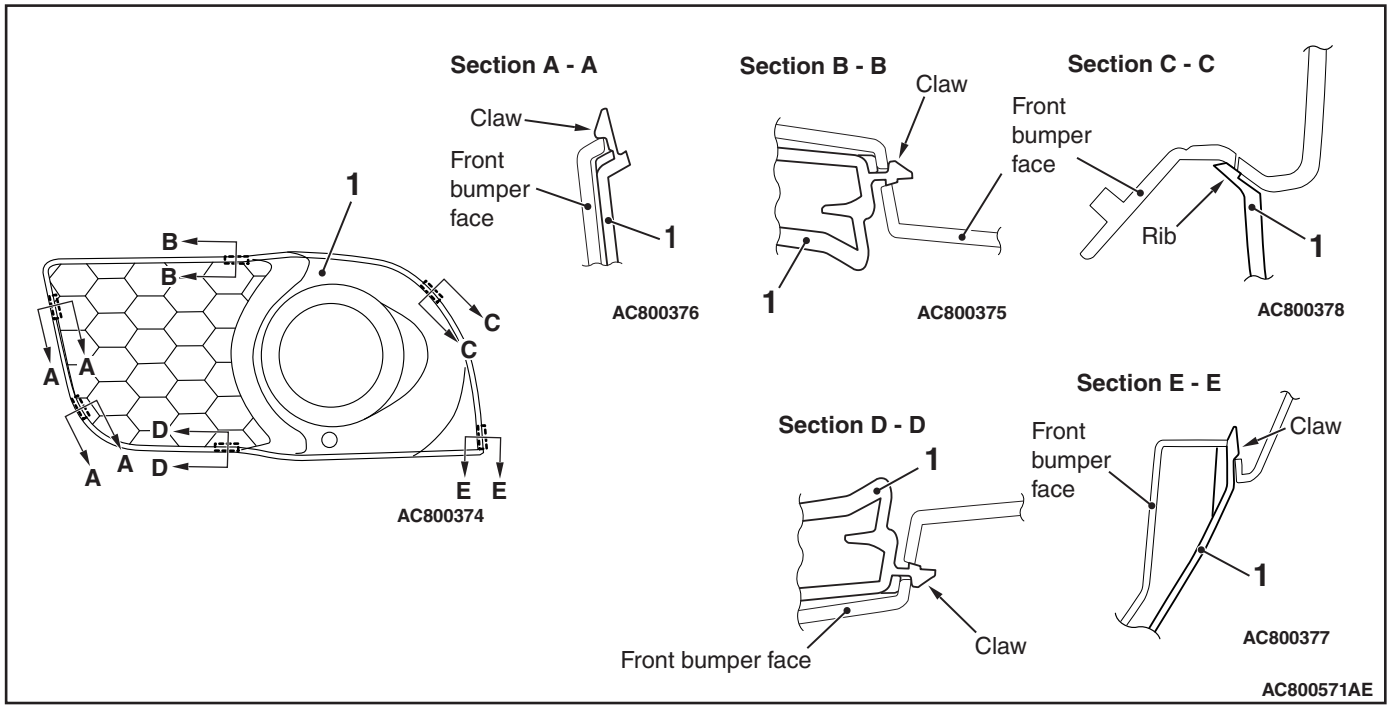
3. Front fog light bulb
4. Front fog light unit

TSB Revision

<RALLIART>

Post-installation operation
Check the beam direction of the front fog light (Refer to Front Fog light Aiming P.54A-274).





Removal steps
1. Front fog light bezel
2. Fog light assembly

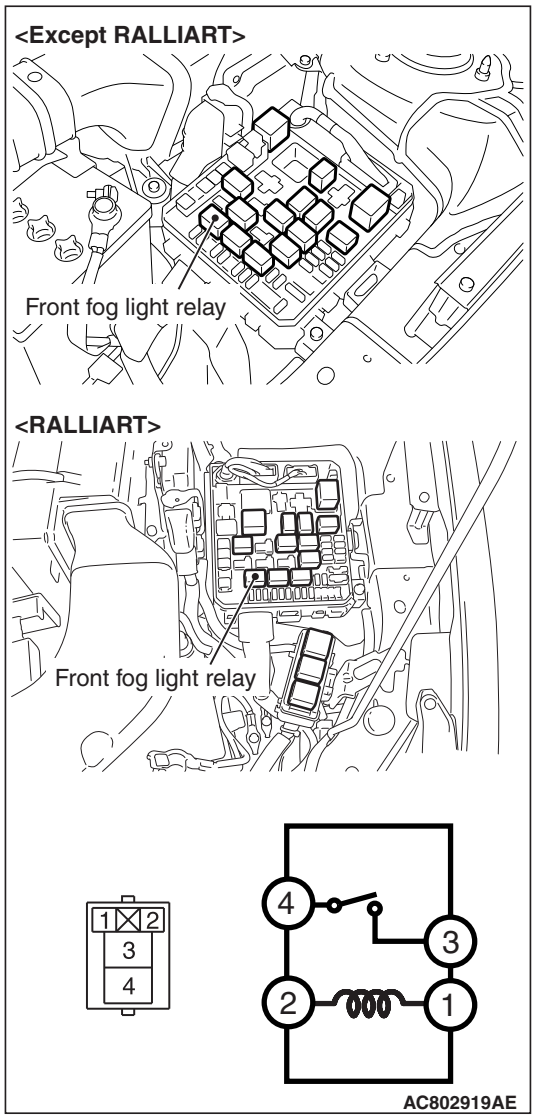
Removal steps (Continued)
3. Front fog light bulb
4. Front fog light unit

TSB Revision

INSPECTION

FRONT FOG LIGHT RELAY CHECK

M1540400700138

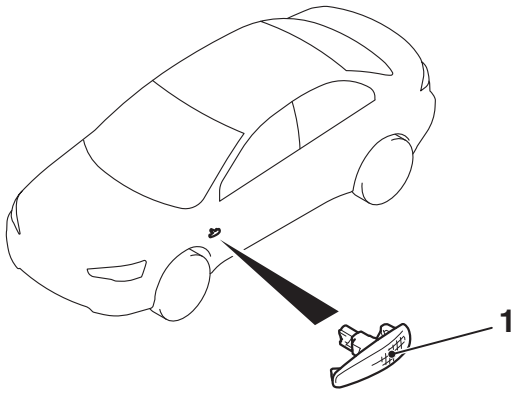


Battery voltage	Terminal number	Normal conditions
Not energized	3 – 4	No continuity
With current supply [terminal 2 (+), terminal 1 (–)]		Continuity exists (2 ohms or less)

SIDE TURN-SIGNAL LIGHT

REMOVAL AND INSTALLATION

M1541800200145



AC609819AB

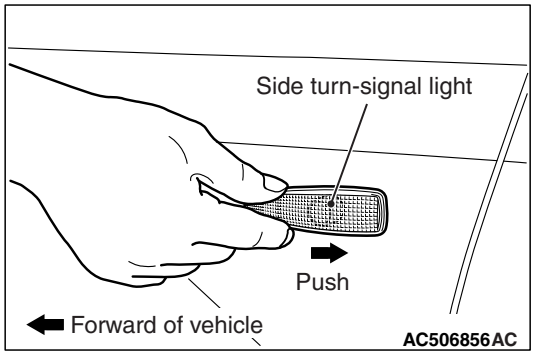
Removal step

<<**A**>> >>**A**<< 1. Side turn-signal light assembly

REMOVAL SERVICE POINT

<<A>> SIDE TURN-SIGNAL LIGHT REMOVAL

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

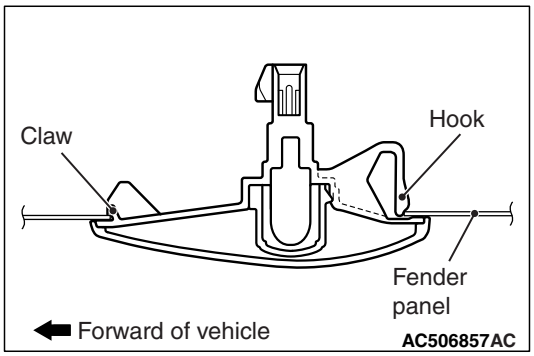


AC506856AC

INSTALLATION SERVICE POINT

>>A<< SIDE TURN-SIGNAL LIGHT INSTALLATION

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



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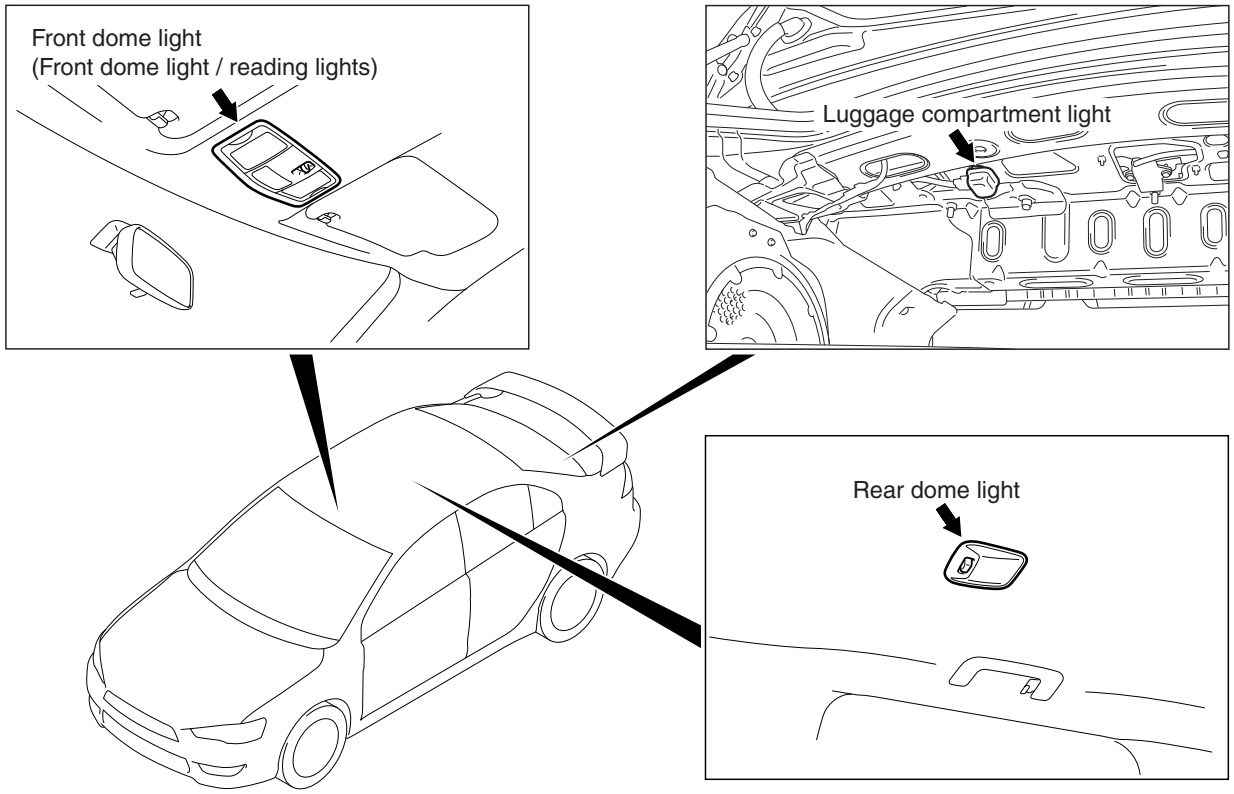
TSB Revision

DOME LIGHT

GENERAL INFORMATION

M1542000100565

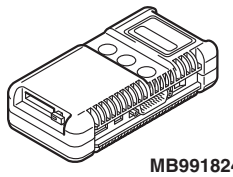
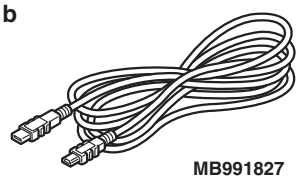
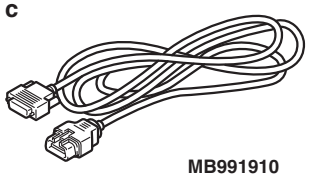
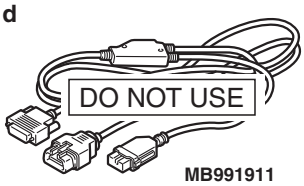
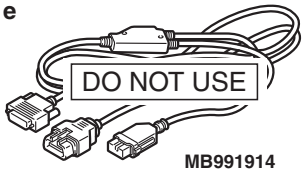
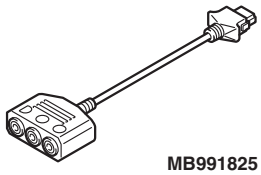
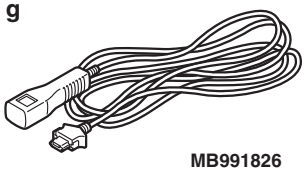


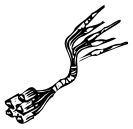
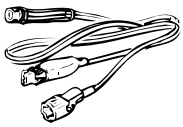
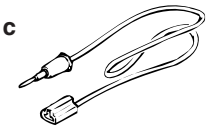
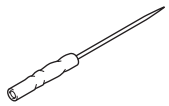
AC608728AB

- A front dome light, installed to the front part of the roof, has been equipped with the lens-push type map and dome light which can be operated easily from the driver's and front passenger's seat, offering excellent operability for turning on and off the light. <ES, GTS and RALLIART>
- The rear dome light, which illuminates the rear passenger's seat, is installed above the rear seat. <Vehicle without sunroof>
- The luggage compartment light is installed to the upper part of the luggage compartment.

SPECIAL TOOLS

M1541301600293

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

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

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1541301500081

Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, Troubleshooting Contents P.00-7.

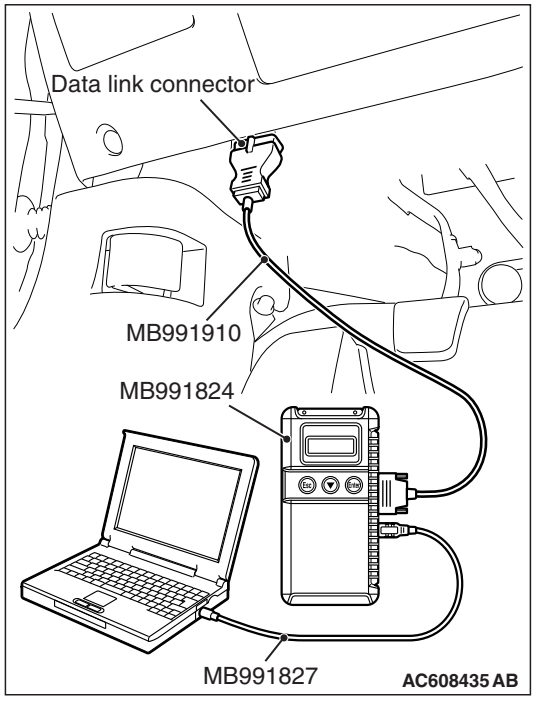
DIAGNOSTIC FUNCTION

M1541302100020

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

Required Special Tools:

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



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

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

⚠ CAUTION

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

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

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

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

TROUBLE SYMPTOM CHART

M1541300200139

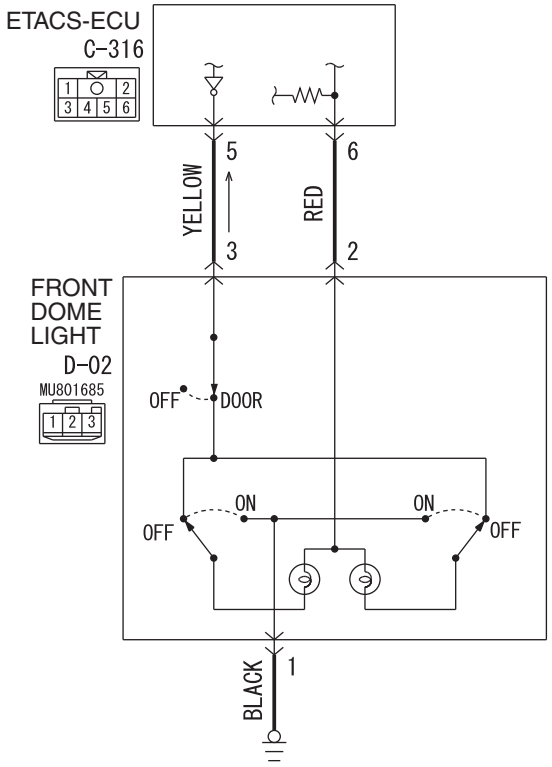
Inspection Procedure No.	Trouble symptom	Reference page
1	The front dome light does not illuminate normally.	P.54A-286
2	The rear dome light does not illuminate normally.	P.54A-290
3	The luggage compartment light does not illuminate normally.	P.54A-294
4	The interior light auto-cut function does not operate correctly.	P.54A-298

SYMPTOM PROCEDURES

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

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

Front Dome Light Circuit



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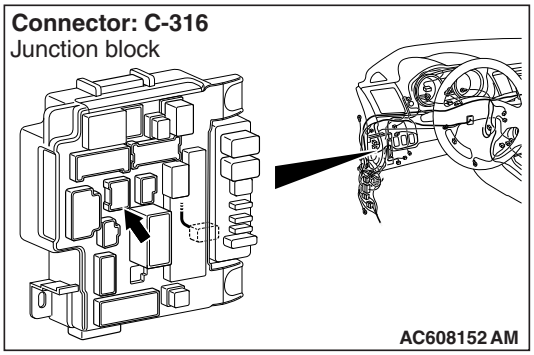
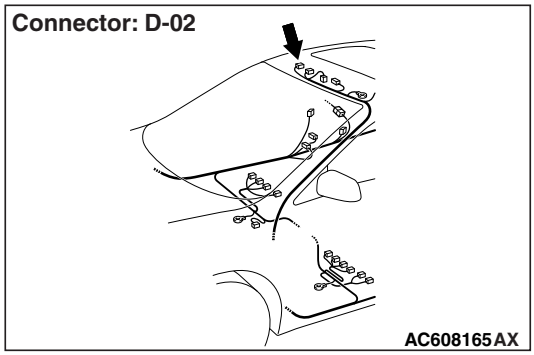




TROUBLE JUDGMENT

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

- Ignition switch (IG1)
- Key reminder switch

TSB Revision

- Door switches
- Front door lock actuator

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

STEP 1. Rear dome light operation check.

Check that the rear dome light illuminates and extinguishes normally.

Q: Does rear dome light work normally?

YES : Go to Step 2.
NO : Replace the ETACS-ECU.

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

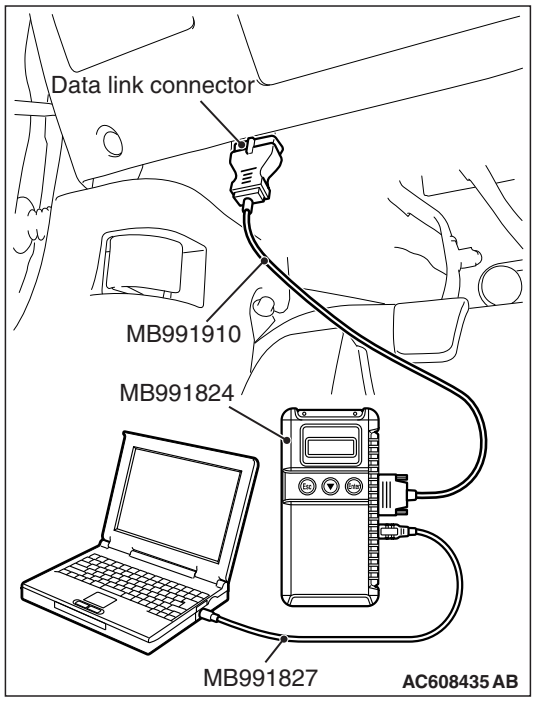
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-284."
(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-678.
NO : Go to Step 3.



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

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

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

Item No.	Item name	Normal condition
Item 228	Dr door unlock	ON
Item 254	IG voltage	1 V or less
Item 256	Dr door ajar switch	Open
Item 257	As door ajar switch	Open
Item 258	RR door ajar switch	Open
Item 259	RL door ajar switch	Open
Item 264	Handle lock switch	Key in → Key out

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

YES : (Normal conditions are displayed for all items.) Go to Step 4.

NO : (Normal condition is not displayed.) Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis, Input signal chart P.54A-735.

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

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

YES : Go to Step 5.

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

STEP 5. Front dome light bulb check

Check that the front dome light bulb is normal.

Q: Is front dome light bulb normal?

YES : Go to Step 6.

NO : Replace the front dome light bulb.

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

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

YES : Go to Step 7.

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

STEP 7. Check the wiring harness between front dome light connector D-02 (terminal 2, 3) and ETACS-ECU connector C-316 (terminal 6, 5)

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

Q: Are wiring harness between front dome light connector D-02 (terminal 2, 3) and ETACS-ECU connector C-316 (terminal 6, 5) in good condition?

YES : Go to Step 8.

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

STEP 8. Check the wiring harness between front dome light connector D-02 (terminal 1) and body ground.

- Check the ground wires for open circuit.

Q: Is wiring harness between front dome light connector D-02 (terminal 1) and body ground in good condition?

YES : Replace the front dome light, and then go to Step 9.

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

STEP 9. Retest the system

Check that the front dome light illuminates and extinguishes normally.

Q: Do the front dome light work normal?

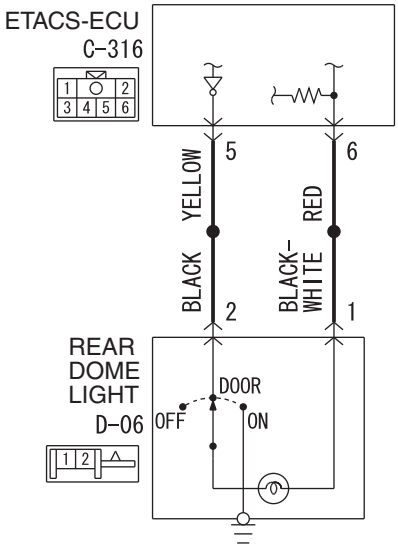
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

NO : Replace the ETACS-ECU.

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

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

Rear Dome Light Circuit



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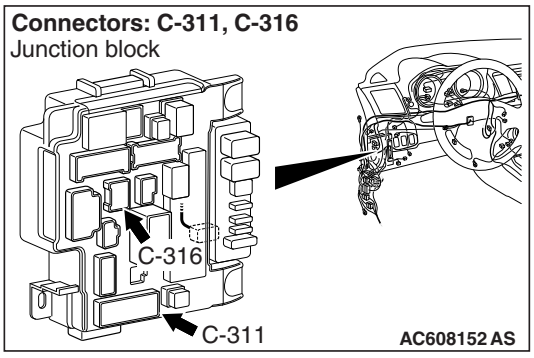

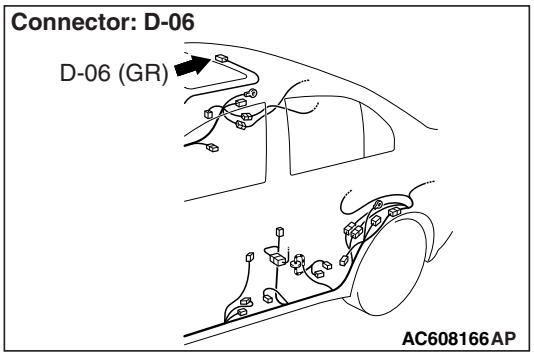

TROUBLE JUDGMENT

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

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

TECHNICAL DESCRIPTION (COMMENT)

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

PROBABLE CAUSES

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

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DIAGNOSIS

Required Special Tools:

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

STEP 1. Front dome light operation check

Check that the front dome light illuminates and extinguishes normally.

Q: Does rear dome light work normally?

YES : Go to Step 2.
NO : Replace the ETACS-ECU.

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

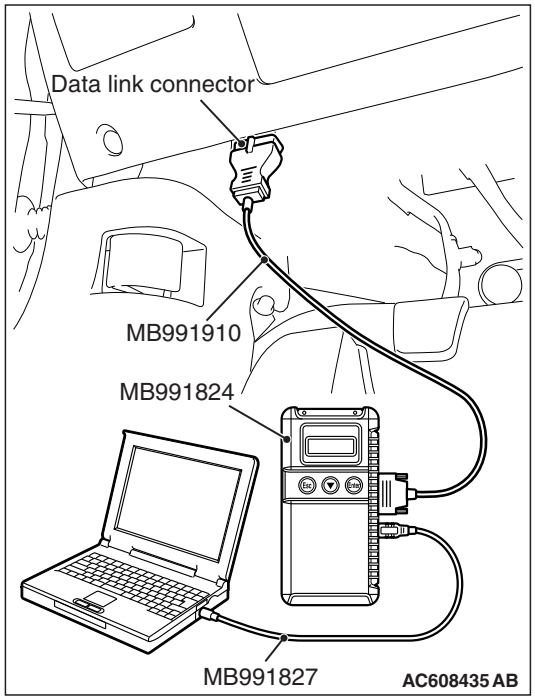
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-284."
(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-678.
NO : Go to Step 3.



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

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

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

Item No.	Item name	Normal condition
Item 228	Dr door unlock	ON
Item 254	IG voltage	1 V or less
Item 256	Dr door ajar switch	Open
Item 257	As door ajar switch	Open
Item 258	RR door ajar switch	Open
Item 259	RL door ajar switch	Open
Item 264	Handle lock switch	Key in → Key out

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

YES : (Normal conditions are displayed for all items.) Go to Step 4.

NO : (Normal condition is not displayed.) Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis, Input signal chart P.54A-735.

STEP 4. Check rear dome light connector D-06 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear dome light connector D-06 in good condition?

YES : Go to Step 5.

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

STEP 5. Rear dome light bulb check

Check that the rear dome light bulb is normal.

Q: Is rear dome light bulb normal?

YES : Go to Step 6.

NO : Replace the rear dome light bulb.

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

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

YES : Go to Step 7.

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

STEP 7. Check the wiring harness between rear dome light D-06 connector (terminal 1, 2) and ETACS-ECU connector C-316 (terminal 6, 5)

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

Q: Is wiring harness between rear dome light D-06 connector (terminal 1, 2) and ETACS-ECU connector C-316 (terminal 6, 5) in good condition?

YES : Go to Step 8.

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

STEP 8. Retest the system

Check that the rear dome light illuminates and extinguishes normally.

Q: Does rear dome light work normal?

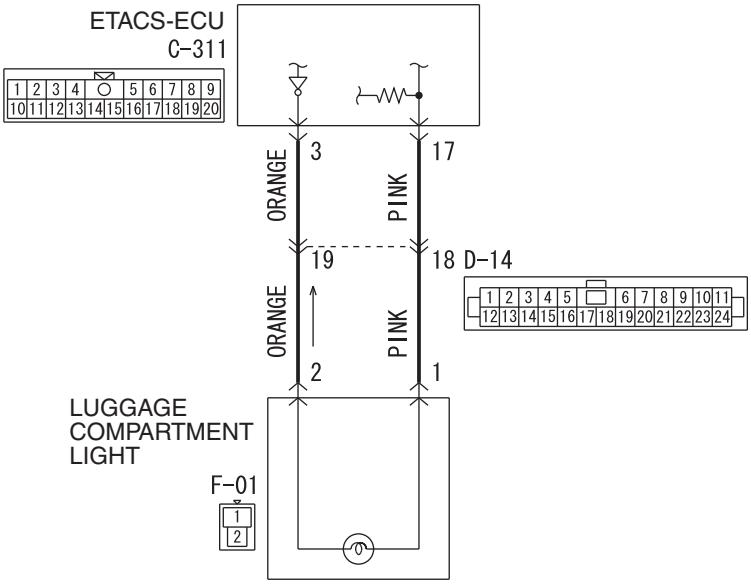
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

NO : Replace the ETACS-ECU.

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

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

Luggage Compartment Light Circuit



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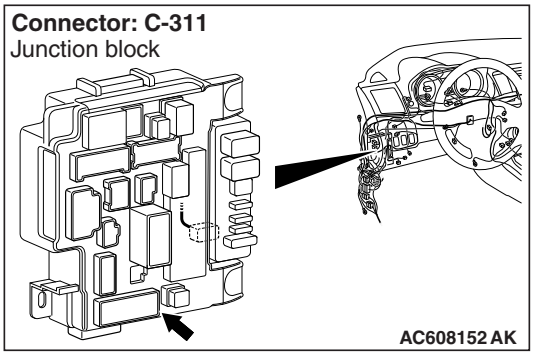

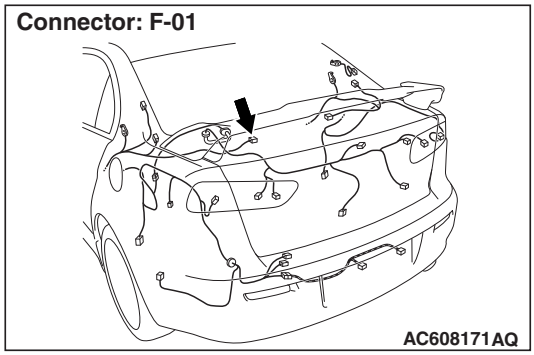

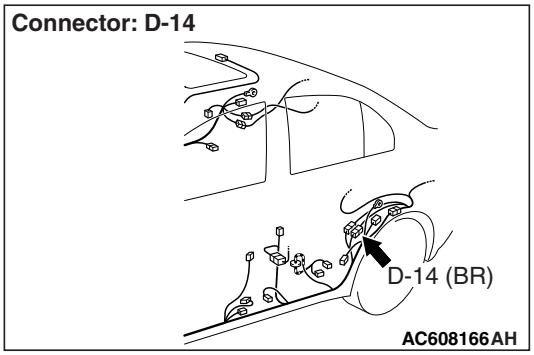

TROUBLE JUDGMENT

The ETACS-ECU illuminates and extinguishes the luggage compartment light in accordance with the input signals from trunk lid latch switch.

TECHNICAL DESCRIPTION (COMMENT)

If this does not work normally, the trunk lid latch switch input circuit, luggage compartment light, or ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

- Malfunction of trunk lid latch assembly
- Malfunction of luggage compartment light

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

DIAGNOSIS

Required Special Tools:

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

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

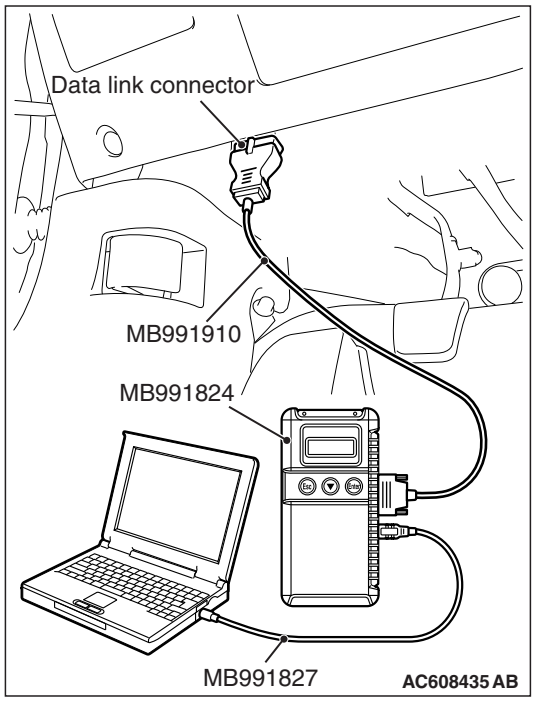
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-284."
(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-678.
NO : Go to Step 2.



STEP 2. Using scan tool MB991958, check data list.
Use the ETACS-ECU service data to check the signal related to the operation of luggage compartment light.

- Open the trunk lid.

Item No.	Item name	Normal condition
Item 260	Trunk/gate trunk ajar switch	Open

Q: Does scan tool MB991958 display the item "Trunk/gate trunk ajar switch" as normal condition?

YES : (Normal condition is displayed.) Go to Step 3.
NO : (Normal condition is not displayed.) Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis, Input signal chart P.54A-735.

STEP 3. Check luggage compartment light connector F-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is luggage compartment light connector F-01 in good condition?

YES : Go to Step 4.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 4. Luggage compartment light bulb check
Check that the luggage compartment light bulb is normal.

Q: Is luggage compartment light bulb normal?

YES : Go to Step 5.
NO : Replace the luggage compartment light bulb.

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

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

YES : Go to Step 6.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 6. Check the wiring harness between luggage compartment light connector F-01 (terminal 1, 2) and ETACS-ECU connector C-311 (terminal 17, 3).

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

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

Q: Is wiring harness between luggage compartment light connector F-01 (terminal 1, 2) and ETACS-ECU connector C-311 (terminal 17, 3) in good condition?

YES : Go to Step 7.

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

STEP 7. Retest the system

Check that the luggage compartment light illuminates and extinguishes normally.

Q: Do the trunk room work normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

NO : Replace the ETACS-ECU.

Inspection Procedure 4: The interior light auto-cut function does not operate correctly.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU operates the interior light auto-cut function in accordance with the input signals below.

- Ignition switch (ACC)
- Ignition switch (IG1)
- Door switches

If this function does not work normally, these input signal circuit(s) or the ETACS-ECU may have a problem. Also, "Interior light auto cut timer" may be set to "Disable" through customization.

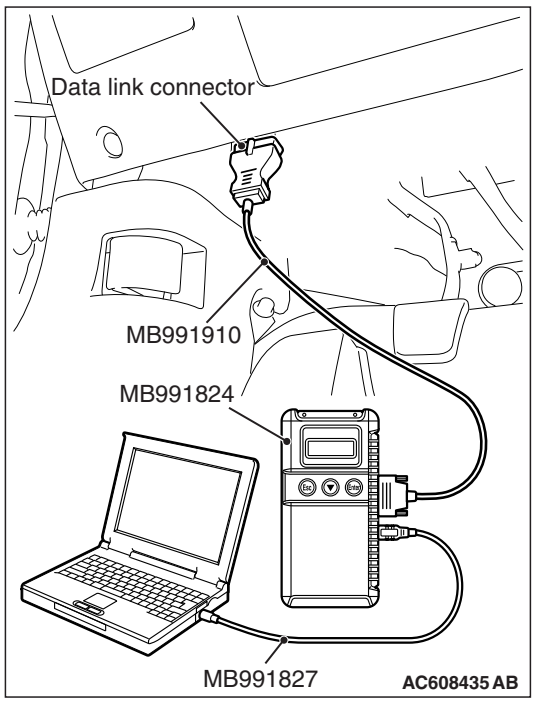
TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-284."
(2) Turn the ignition switch to the "ON" position.
(3) Use the ETACS-ECU customize function to check to see which of the followings other than "Disable" the "Interior light auto cut timer" is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Use the ETACS-ECU configuration function to set the "Interior light auto cut timer" to other than "Disable" (Refer to P.54A-768).

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-678.
NO : Go to Step 3.

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

Use the ETACS-ECU data list to check the signals related to the interior light auto-cut function.

- Turn the ignition switch to the "LOCK" (OFF) position.
- Open each door.

Item No.	Item name	Normal condition
Item 254	IG voltage	1 V or less
Item 288	ACC switch	OFF
Item 256	Dr door ajar switch	Open
Item 257	As door ajar switch	Open
Item 258	RR door ajar switch	Open
Item 259	RL door ajar switch	Open

Q: Does scan tool MB991958 display the items "IG voltage", "ACC switch", "Dr door ajar switch", "As door ajar switch", "RR door ajar switch", and "RL door ajar switch" as normal condition?

YES : (Normal conditions are displayed for all items.) Go to Step 4.
NO : (Normal condition is not displayed.) Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis, Input signal chart P.54A-735.

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.00-14).
NO : Replace the ETACS-ECU.

ON-VEHICLE SERVICE

CUSTOMIZATION FUNCTION

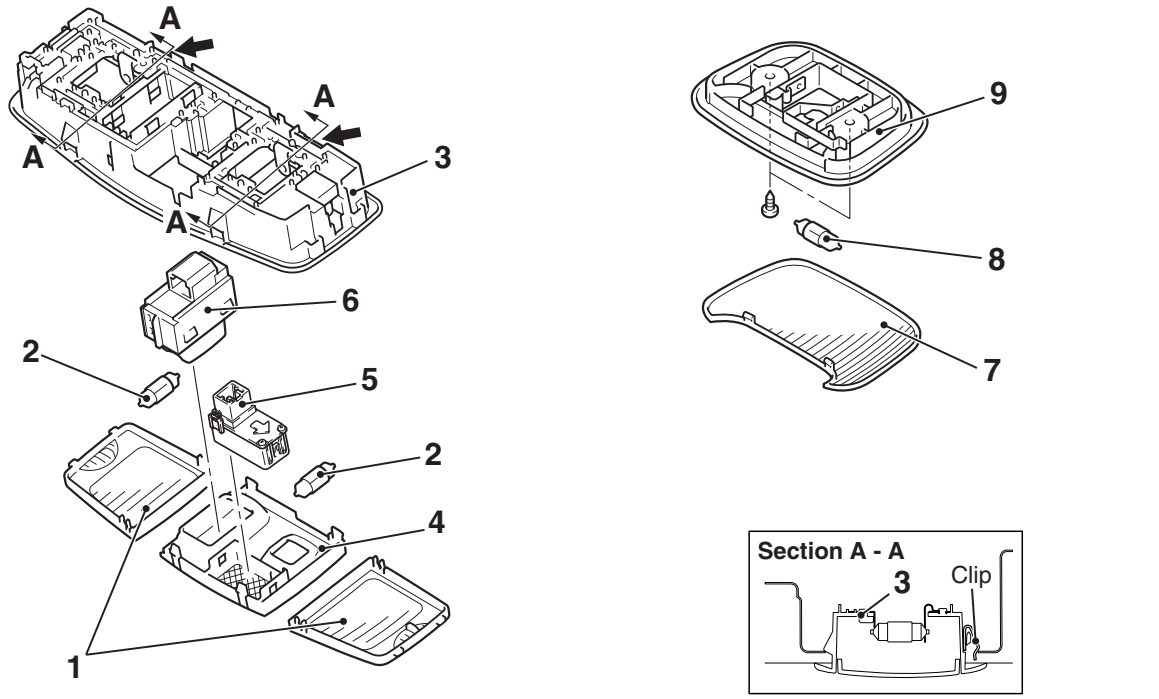
M1541301200325

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

Adjustment item (scan tool MB991958 display)	**Adjustment item**	**Adjusting contents (scan tool MB991958 display)**	**Adjusting contents**
Dome light delay timer with door	Adjustment of interior light delay shutdown time	0 sec	0 second (no delay shutdown time)
		7.5 sec	7.5 seconds
		15 sec	15 seconds
		30 sec	30 seconds (initial condition)
		60 sec	60 seconds
		120 sec	120 seconds
		180 sec	180 seconds
Interior light auto cut timer	Adjustment of interior light automatic shutdown function operation time	Disable	No function
		3 min	3 minutes
		30 min	30 minutes (initial condition)
		60 min	60 minutes

DOME LIGHT REMOVAL AND INSTALLATION

M1541302700011



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Note
◀ : Clip positions

Removal Steps

1. Front dome light lens
2. Dome light bulb

<<**A**>>

3. Front dome light
4. Front dome light cover
5. Microphone unit <Vehicles with hands-free cellular phone system>

Removal Steps (Continued)

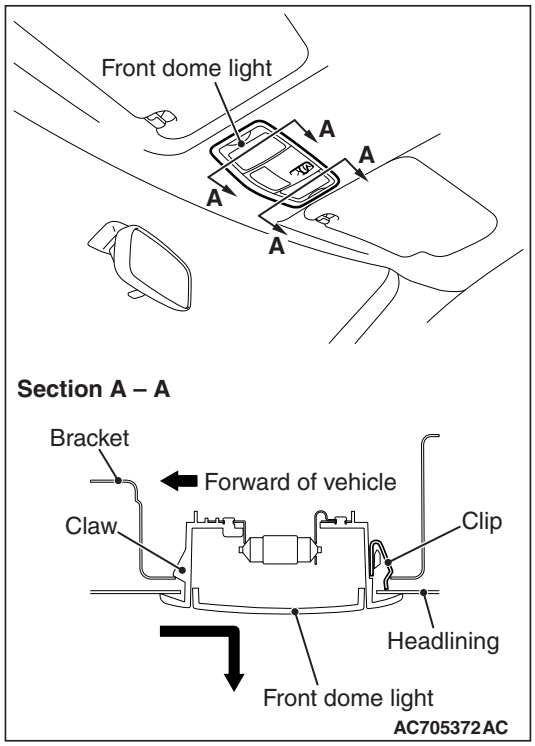
6. Sunroof switch <Vehicles with sunroof>
7. Rear dome light lens
8. Dome light bulb
9. Rear dome light

TSB Revision

REMOVAL SERVICE POINT

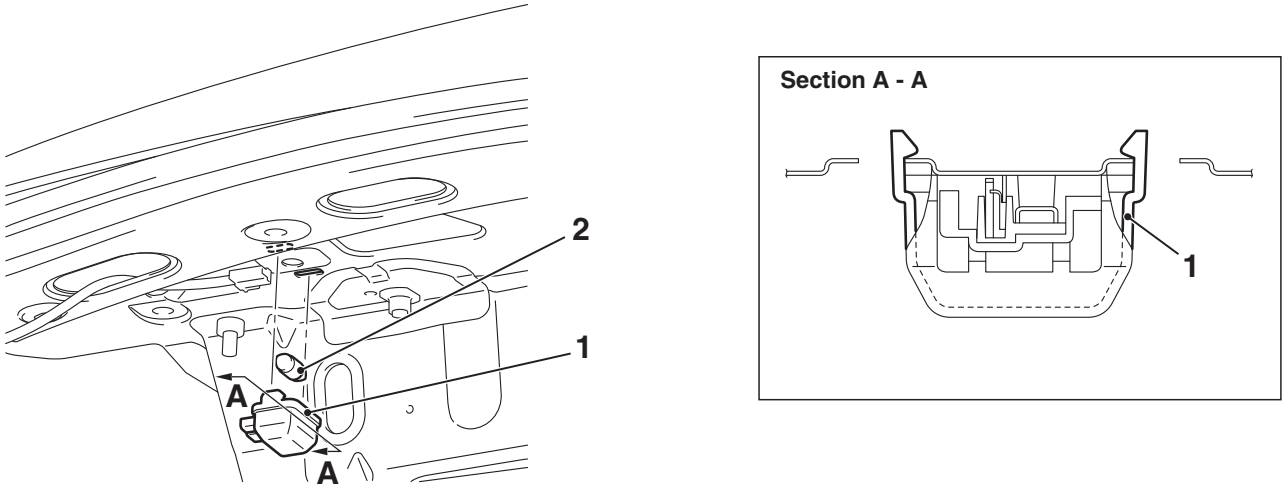
<<A>> FRONT DOME LIGHT REMOVAL

While pressing the front dome light toward the rear of the vehicle, slide the front side of the front dome light downward, and remove the front dome light.



LUGGAGE COMPARTMENT LIGHT REMOVAL AND INSTALLATION

M1541302600014



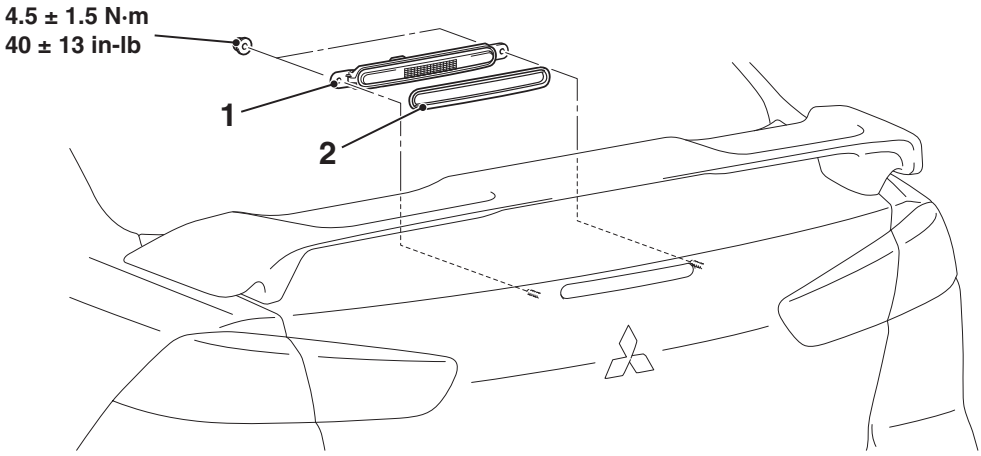
Removal Steps

1. Luggage compartment light lens
2. Luggage compartment light bulb

HIGH-MOUNTED STOPLIGHT

REMOVAL AND INSTALLATION

M1541700200450



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Removal Steps

- Trunk lid trim (Refer to GROUP 52A – Trims P.52A-12).

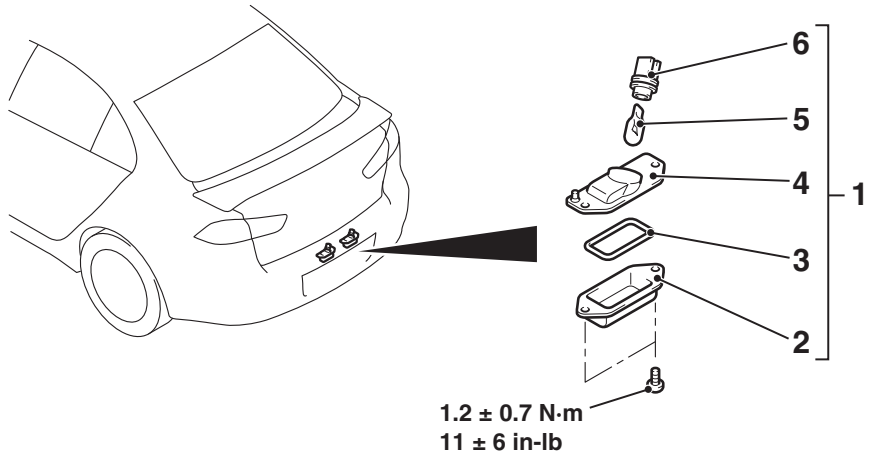
Removal Steps (Continued)

1. High-mounted stoplight assembly
2. Gasket

LICENSE PLATE LIGHT

REMOVAL AND INSTALLATION

M1541900200175



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Removal Steps

1. License plate light assembly
2. Lens
3. Gasket

Removal Steps (Continued)

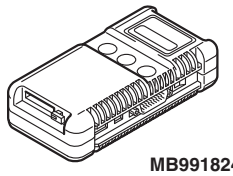
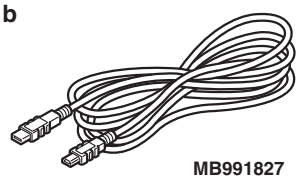
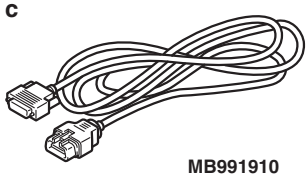
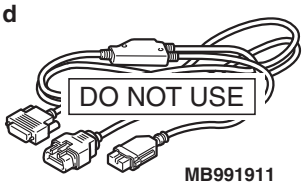
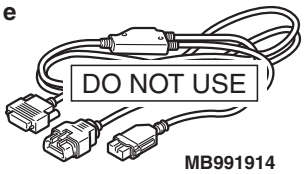
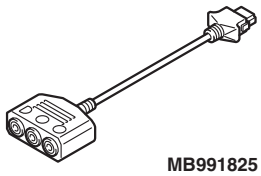
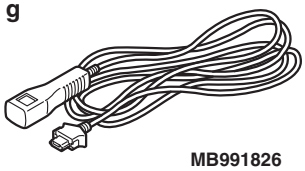
4. Body
5. Bulb
6. Socket

TSB Revision

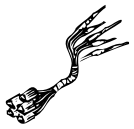
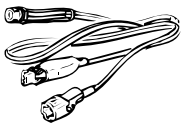
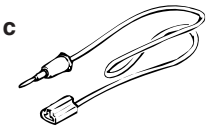
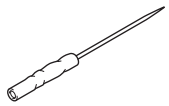
HAZARD WARNING LIGHT SWITCH

SPECIAL TOOLS

M1541500100299

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

TSB Revision

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

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1541501400088

Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, Troubleshooting Contents P.00-7.

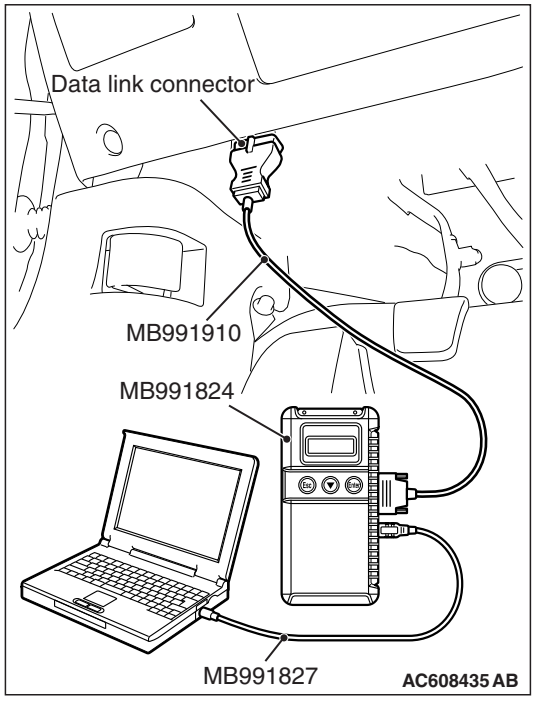
DIAGNOSTIC FUNCTION

M1541500600034

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

Required Special Tools:

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



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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

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

⚠ CAUTION

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

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

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

   NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.
6. Select "Diagnostic Trouble Code." 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

M1541500200025

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

DTC No.	Diagnostic item	Reference page
B16A6	Turn-signal fuse blown	P.54A-308

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B16A6: Turn-signal fuse blown

TROUBLE JUDGEMENT
When the hazard warning light fuse is blown, the ETACS-ECU sets the DTC B16A6.

TECHNICAL DESCRIPTION (COMMENT)
With the DTC not set, when the blown fuse of hazard warning light is detected three times consecutively, the ETACS-ECU sets the DTC B16A3.

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

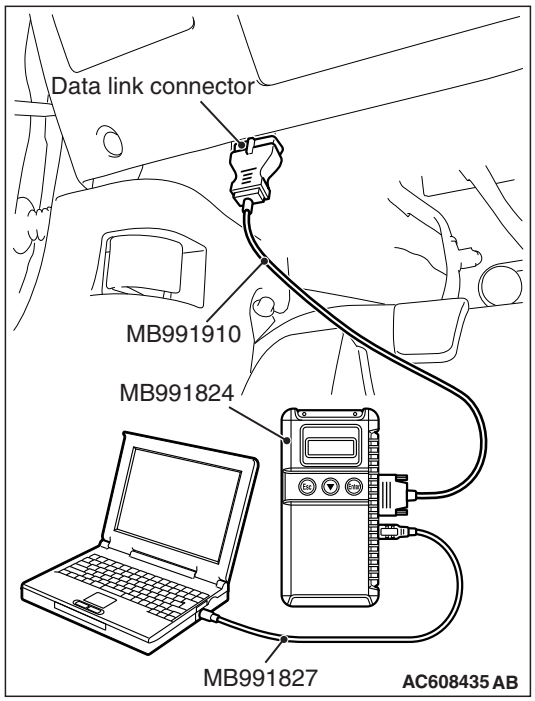
DIAGNOSIS

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

STEP 1. Fuse check
Check if the turn-signal light fuse is normal.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Replace the turn-signal light fuse.



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan tool P.54A-306."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.

Q: Is the DTC set?

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

TROUBLE SYMPTOM CHART

M1541500700075

Inspection Procedure No.	Trouble symptom	Reference page
1	The hazard warning lights do not illuminate.	P.54A-310

SYMPTOM PROCEDURES

Inspection Procedure 1: The hazard warning lights do not illuminate.

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

TECHNICAL DESCRIPTION (COMMENT)

If the hazard warning light does not illuminate, the hazard warning light switch input circuit in center panel unit or the ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

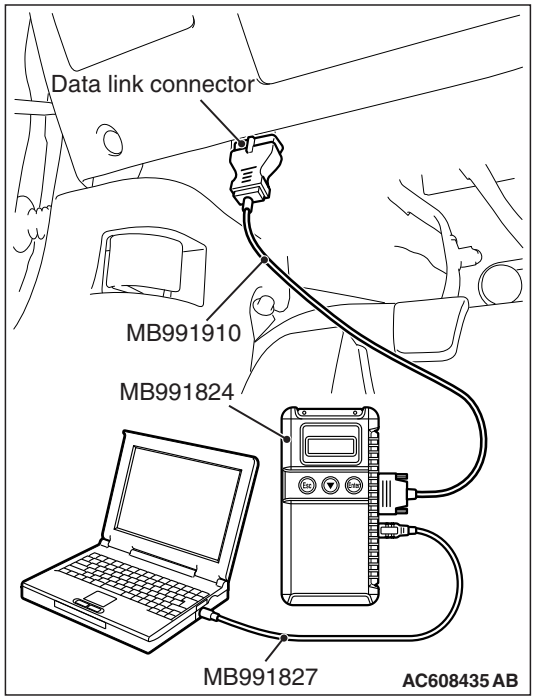
Required Special Tools:

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

STEP 1. Check that the turn-signal light operate.
Check that the turn-signal lights illuminate normally.

Q: Does turn-signal light work normally?

YES : Go to Step 2.
NO : Diagnose the headlights. Refer to Inspection Procedure 11 "All the turn-signal lights do not illuminate" P.54A-199.



STEP 2. Using scan tool MB991958, check data list.
Using the ETACS-ECU service data, check the hazard warning light signal.

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

1.Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-306."

2.Turn the ignition switch to the "ACC" position.

3.Turn "ON" the hazard light switch.

Item No.	Item name	Normal conditions
Item 265	Hazard switch	ON

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

YES : (Normal condition is displayed for item) Go to Step 3.

NO : (Normal condition is not displayed for item No. 265.) Troubleshoot the ETACS-ECU. Refer to ETACS, Diagnosis - Inspection Procedure 10 "ETACS-ECU does not receive any signal from the hazard warning light switch" P.54A-764.

STEP 3. Retest the system
Check that the hazard warning light illuminate normally.

Q: Does the taillight work normally?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

NO : Replace the ETACS-ECU.

REMOVAL AND INSTALLATION

M1541501000154

Refer to GROUP 52A – Instrument Center Panel P.52A-7.

INSPECTION

HAZARD WARNING LIGHT SWITCH CHECK

M1541501100333

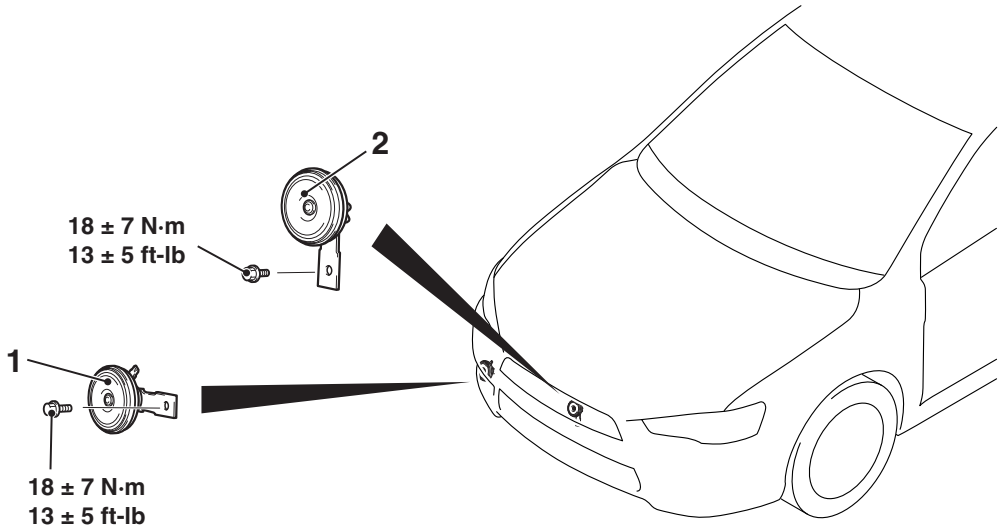
Check the ETACS service data list using the scan tool MB991958. With the item No. 265 (Hazard switch), it is judged normal if the display shows ON when the hazard warning light switch is pressed, and OFF when not pressed.

HORN

REMOVAL AND INSTALLATION

M1542100200644

<EXCEPT RALLIART>



AC802984AB

Removal Steps

- Front bumper and radiator grille assembly (Refer to GROUP 51 – Front Bumper Assembly and Radiator Grille P.51-3).

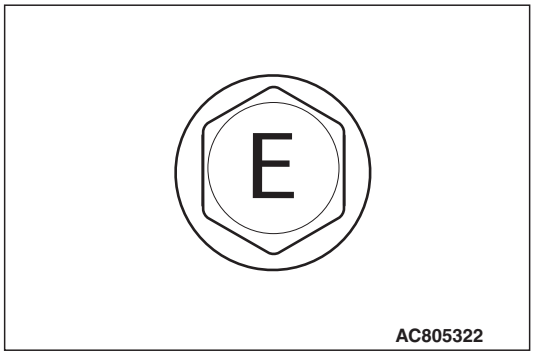
Removal Steps (Continued)

>>A<< 1. Horn (HIGH)
>>A<< 2. Horn (LOW)

INSTALLATION SERVICE POINT

>>A<< HORN (LOW)/HORN (HIGH) INSTALLATION

Use the ground bolts as the mounting bolts for horn (LOW) and horn (HIGH). The ground bolts have "E" mark on the bolt heads.



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TSB Revision

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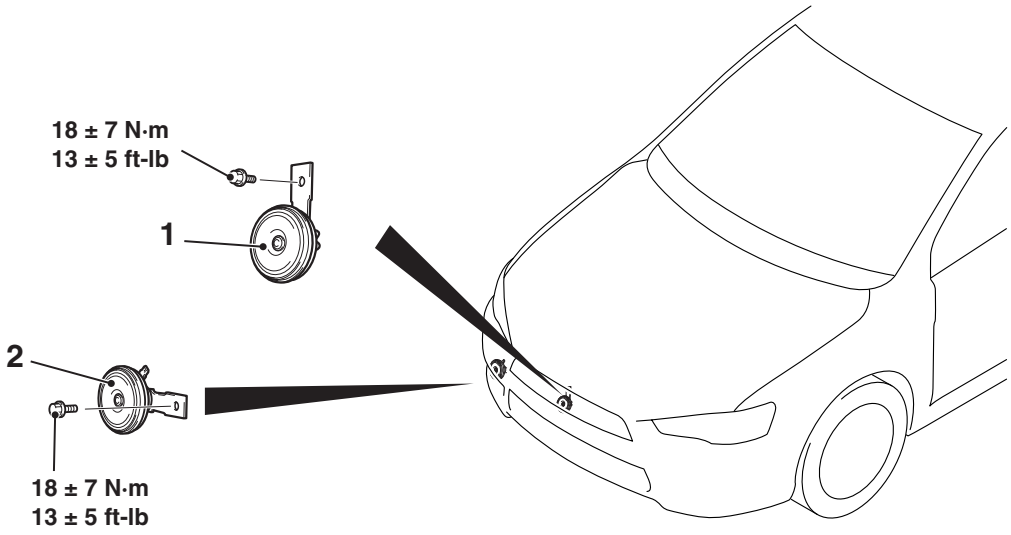


AC802985AB

Removal Steps

- Headlight support panel cover (Refer to GROUP 51 – Front Bumper Assembly and Radiator Grille P.51-3).

>>**A**<< 1. Horn (LOW)

Removal Steps (Continued)

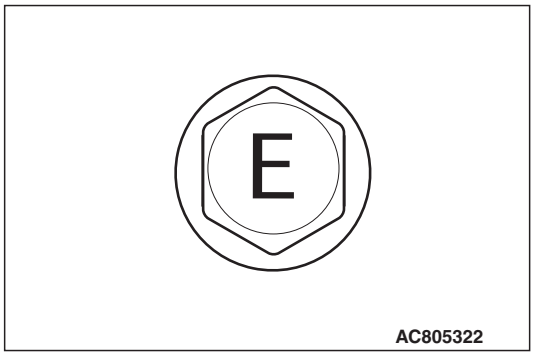
- Front bumper and radiator grille assembly (Refer to GROUP 51 – Front Bumper Assembly and Radiator Grille P.51-3).

>>**A**<< 2. Horn (HIGH)

INSTALLATION SERVICE POINT

>>A<< HORN (LOW)/HORN (HIGH) INSTALLATION

Use the ground bolts as the mounting bolts for horn (LOW) and horn (HIGH). The ground bolts have "E" mark on the bolt heads.

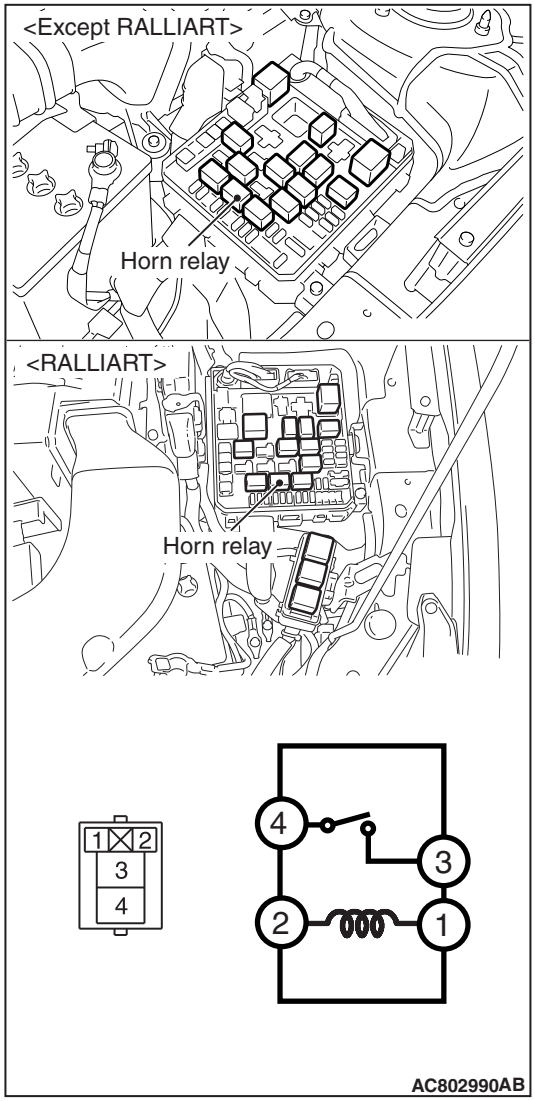


AC805322

INSPECTION

HORN RELAY CHECK

M1542100400499



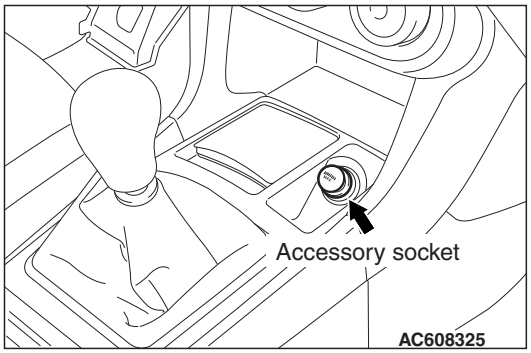
Battery voltage	Terminal number	Normal condition
At no energization	3 – 4	No continuity
With current supply [terminal 1 (–), terminal 2 (+)]		Continuity exists (2 ohms or less)

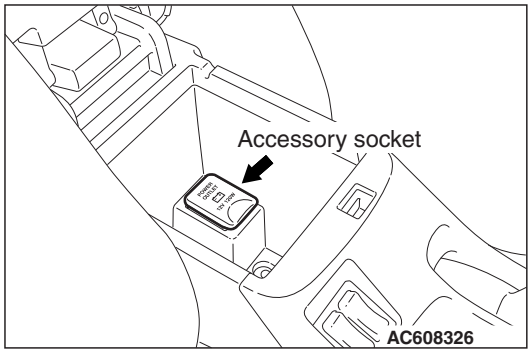
ACCESSORY SOCKET AND CIGARETTE LIGHTER

GENERAL INFORMATION

M1542300500133

The plug-in type accessory socket has been installed for the convenient use of accessories.



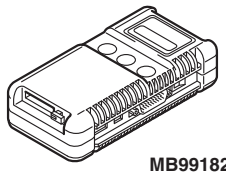
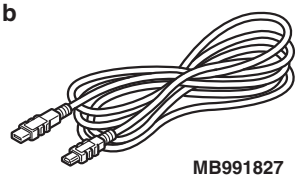
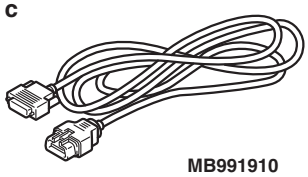
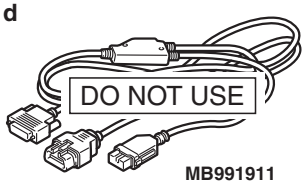
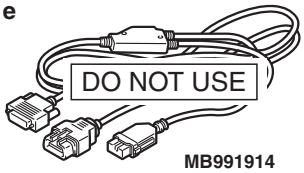
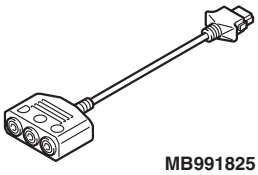
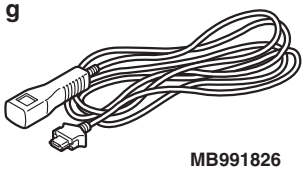


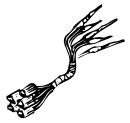
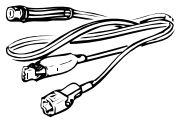
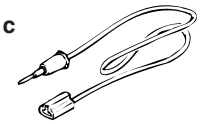
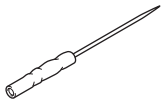
AC608567

- Accessory socket has been added to the floor console panel assembly. This accessory socket can be replaced to the cigarette lighter as an option.
- Accessory sockets have been added to the Floor console box. <Standard equipment: ES, GTS, RALLIART>
- The maximum load is 120 W when a single accessory socket is used. When two accessory sockets are used simultaneously, the combined maximum load for two sockets is 120 W.

SPECIAL TOOLS

M1542300700041

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

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

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1542301100042

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

TROUBLE SYMPTOM CHART

M1542300800145

Trouble symptom	Inspection Procedure No.	Reference page
The accessory socket does not work. <Vehicles with accessory socket>	1	P.54A-318
The cigarette lighter does not work.<Vehicles with cigarette lighter>	2	P.54A-324

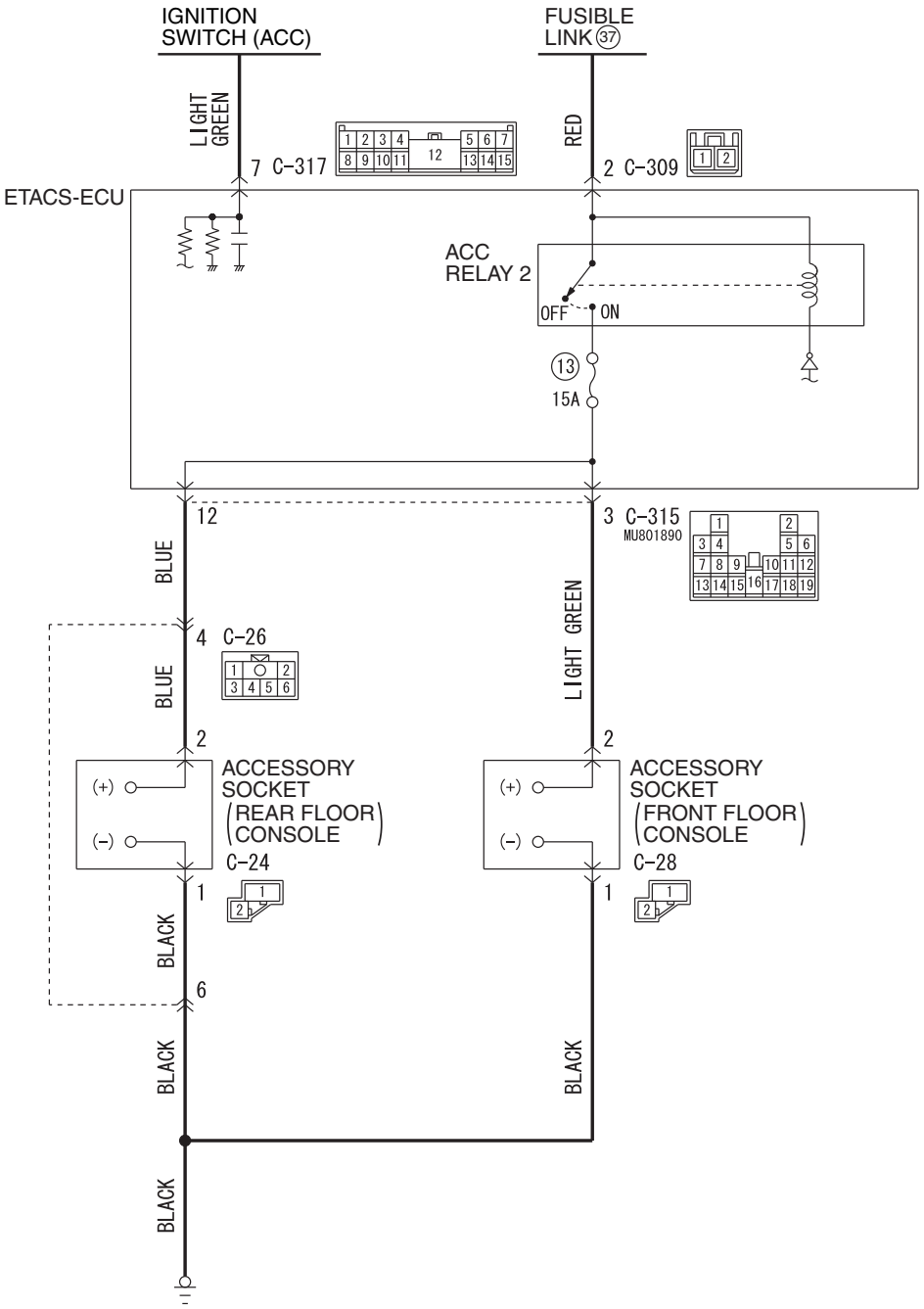
SYMPTOM PROCEDURES

Inspection Procedure 1: The accessory socket does not work. <Vehicles with accessory socket>

⚠ CAUTION

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

Accessory Socket Circuit



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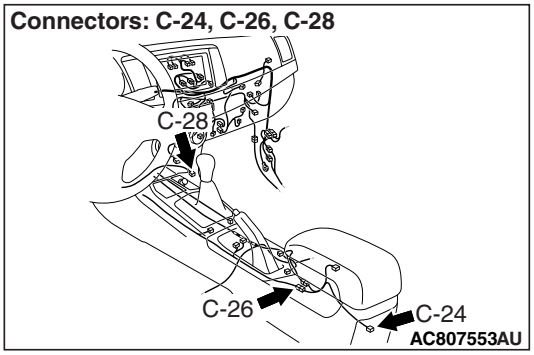
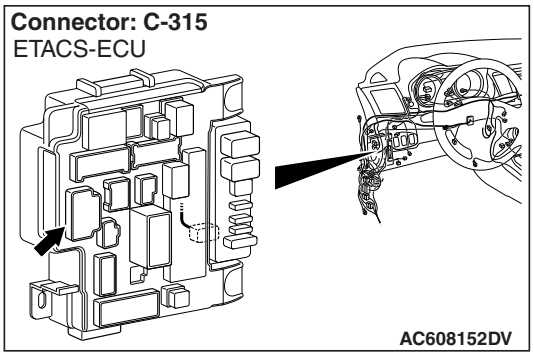




OPERATION

When the ignition switch is in the ON or ACC position, the accessory socket can be used.

NOTE: The maximum load of accessory socket is 120 W.

TECHNICAL DESCRIPTION (COMMENT)

If the accessory socket cannot be used even when the ignition switch is in the ON or ACC position, ETACS-ECU, accessory socket itself, or accessory socket power supply circuit may have a problem.

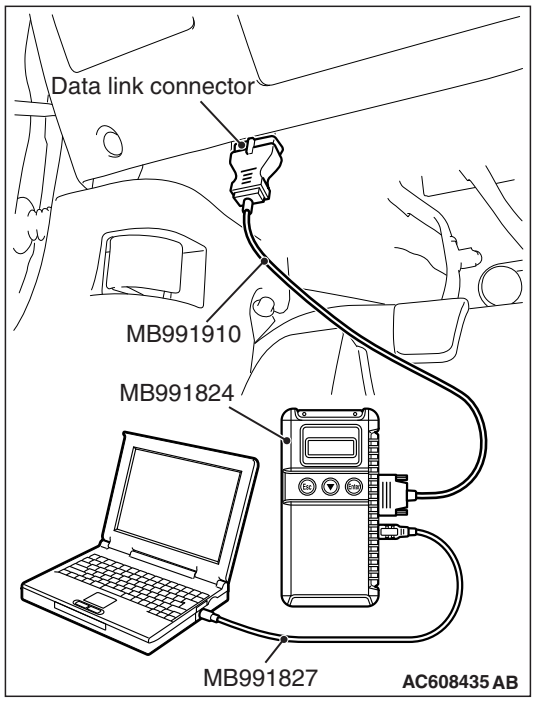
TROUBLESHOOTING HINTS

- Malfunctions of accessory socket (front floor console)
- Malfunctions of accessory socket (rear floor console) <vehicles with accessory socket (rear floor console)>
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-13."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to P.54A-772.
NO : Go to Step 2.

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

Check the input signal of ACC relay. (ETACS-ECU)

- Turn the ignition switch to the ACC position.

Item No.	Item name	Normal condition
Item 288	ACC switch	ON

Q: Does scan tool MB991958 display the item "ACC switch" as normal condition?

YES : Go to Step 3.
NO : Troubleshoot the ETACS-ECU. Refer to ETACS – Input Signal Procedure 1 "The ignition switch (ACC) signal is not sent to the ETACS-ECU" P.54A-735.

STEP 3. Check ETACS-ECU connector C-315, accessory socket (front floor console) connector C-28 and accessory socket (rear floor console) connector C-24 <vehicles with accessory socket (rear floor console)> for loose, corroded or damaged terminals, or terminals pushed back in the connector

Q: Is ETACS-ECU connector C-315, accessory socket (floor console panel) connector C-28 and accessory socket (floor console) connector C-24 in good condition?

YES : Go to Step 4.
NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 4. Check the power supply circuit to the accessory socket (front floor console) and accessory socket (rear floor console) <vehicles with accessory socket (rear floor console)>. Measure the voltage at accessory socket (front floor console) connector C-28 and accessory socket (rear floor console) connector C-24 <vehicles with accessory socket (rear floor console)>.

(1) Disconnect the connector, and measure at the wiring harness-side connector.
(2) Turn the ignition switch to the "ACC" or "ON" position.
(3) Measure the voltage between accessory socket (front floor console) connector C-28 terminal No.2 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

(4) Measure the voltage between accessory socket (rear floor console) connector C-24 terminal No.2 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

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

YES : Go to Step 7.
NO <accessory socket (front floor console) side> : Go to Step 5.
NO <accessory socket (rear floor console) side> : Go to Step 6.

STEP 5. Check the wiring harness between accessory socket (front floor console) connector C-28 terminal No.2 and ETACS-ECU connector C-315 terminal No.3.

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

Q: Is the wiring harness between accessory socket (front floor console) connector C-28 terminal No.2 and ETACS-ECU connector C-315 terminal No.3 in good condition?

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

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STEP 6. Check the wiring harness between accessory socket (rear floor console) connector C-24 terminal No.2 and ETACS-ECU connector C-315 terminal No.12.

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

NOTE: Check C-26 intermediate connector, and repair if necessary.

Q: Is the wiring harness between accessory socket (rear floor console) connector C-24 terminal No.2 and ETACS-ECU connector C-315 terminal No.12 in good condition?

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

STEP 7. Check the ground circuit to the accessory socket (front floor console) and accessory socket (rear floor console) connector <vehicles with accessory socket (rear floor console)>. Measure the resistance at accessory socket (front floor console) connector C-28 and accessory socket (rear floor console) connector C-24 <vehicles with accessory socket (rear floor console)>.

(1) Disconnect the connector, and measure the resistance available at the wiring harness side of the connector.
(2) Measure the resistance value between accessory socket (front floor console) connector C-28 terminal No.1 and ground.
  - The resistance should be 2 ohms or less.
(3) Measure the resistance value between accessory socket (rear floor console) connector C-24 terminal No.1 and ground. <vehicles with accessory socket (front floor console)>
  - The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 10.
NO <accessory socket (front floor console) side> : Go to Step 8.
NO <accessory socket (rear floor console) side> : Go to Step 9.

STEP 8. Check the wiring harness between accessory socket (front floor console) connector C-28 terminal No.1 and the ground.

- Check the ground wires for open circuit.

Q: Is the wiring harness between accessory socket (front floor console) connector C-28 terminal No.1 and the ground in good condition?

YES : Go to Step 10.
NO : Repair the wiring harness.

STEP 9. Check the wiring harness between accessory socket (rear floor console) connector C-24 terminal No.1 and the ground.

- Check the body ground wires for open circuit.

NOTE: Check C-26 intermediate connector, and repair if necessary.

Q: Is the wiring harness between accessory socket (rear floor console) connector C-24 terminal No.1 and the ground in good condition?

YES : Go to Step 10.
NO : Repair the wiring harness.

STEP 10. Retest the system

Check if the accessory socket power is turned ON.

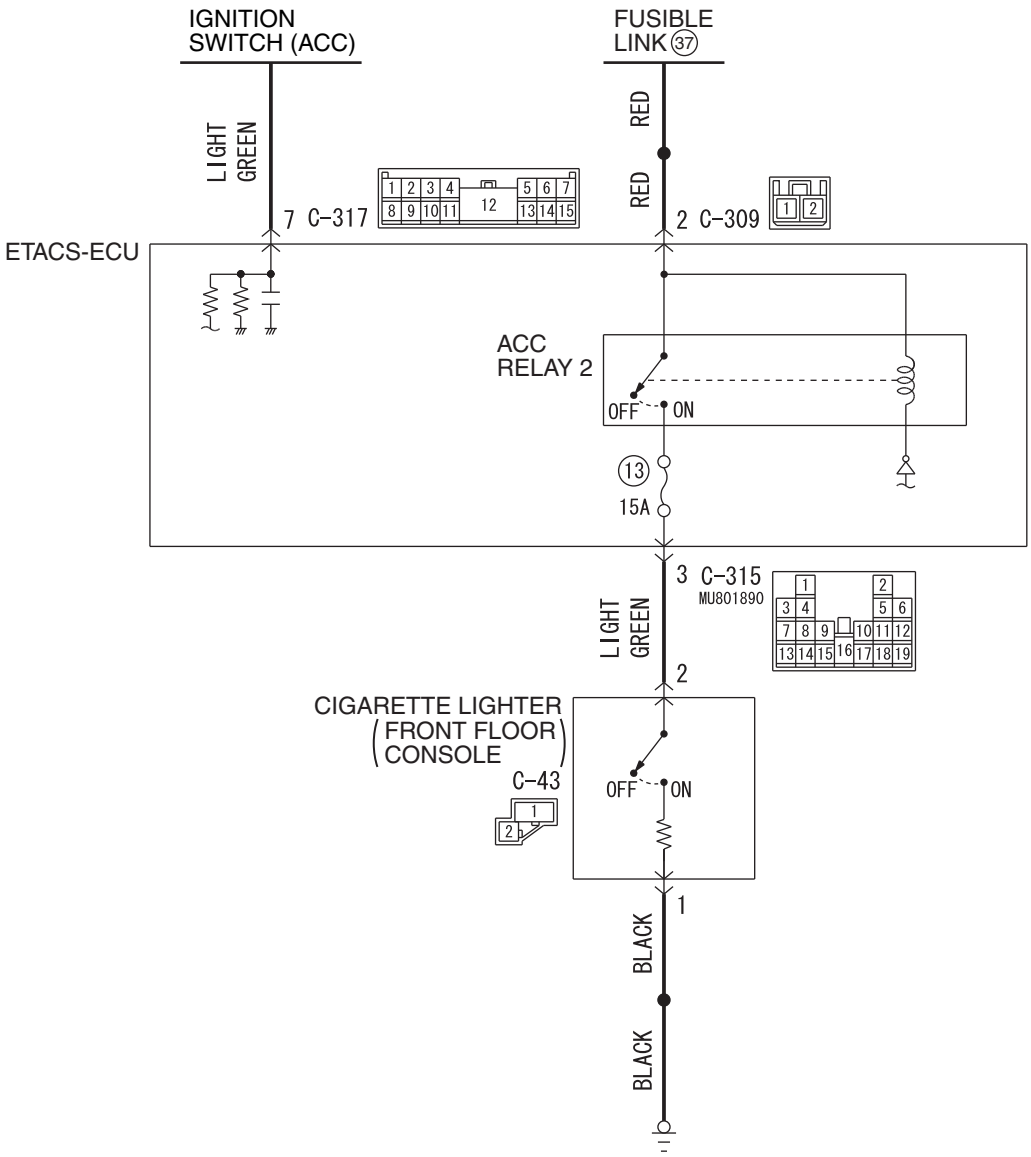
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).
NO : Replace the accessory socket.

Inspection Procedure 2: The cigarette lighter does not work.<Vehicles with cigarette lighter>

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

Cigarette Lighter Circuit



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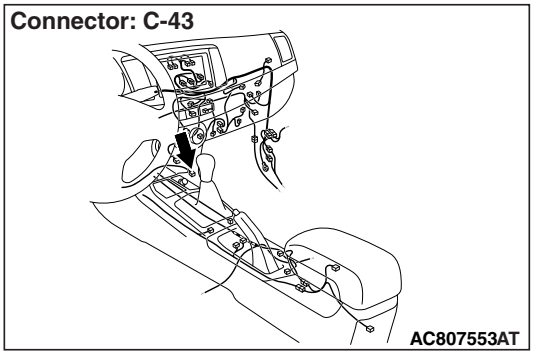
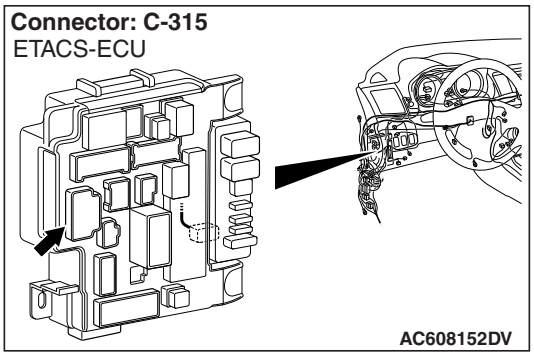




OPERATION

When the ignition switch is in the ON or ACC position, the cigarette lighter can be used.

TECHNICAL DESCRIPTION (COMMENT)

If the cigarette lighter cannot be used even when the ignition switch is in the ON or ACC position, ETACS-ECU, cigarette lighter itself, or cigarette lighter power supply circuit may have a problem.

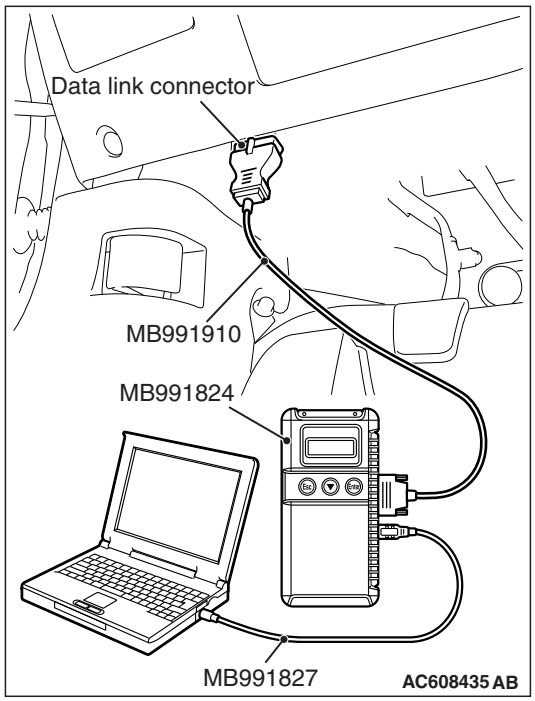
TROUBLESHOOTING HINTS

- Malfunctions of cigarette lighter
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-13."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to P.54A-772.
NO : Go to Step 2.

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

Check the input signal of ACC relay. (ETACS-ECU)

- Turn the ignition switch to the ACC position.

Item No.	Item name	Normal condition
Item 288	ACC switch	ON

Q: Does scan tool MB991958 display the item "ACC switch" as normal condition?

YES : Go to Step 3.
NO : Troubleshoot the ETACS-ECU. Refer to ETACS – Input Signal Procedure 1 "The ignition switch (ACC) signal is not sent to the ETACS-ECU" P.54A-735.

STEP 3. Cigarette lighter check

Refer to P.54A-330.

Q: Is the check result normal?

YES : Go to Step 4.
NO : Replace the cigarette lighter. Then go to Step 10.

STEP 4. Check ETACS-ECU connector C-315 and cigarette lighter connector C-43 for loose, corroded or damaged terminals, or terminals pushed back in the connector

Q: Is ETACS-ECU connector C-315 and cigarette lighter connector C-43 in good condition?

YES : Go to Step 5.
NO : Repair the defective connector.

STEP 5. Check the power supply circuit to the cigarette lighter. Measure the voltage at cigarette lighter connector C-43.

(1) Disconnect the connector, and measure at the wiring harness-side connector.
(2) Turn the ignition switch to the ACC position.
(3) Measure the voltage between cigarette lighter connector C-43 terminal No.2 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

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

YES : Go to Step 7.
NO : Go to Step 6.

STEP 6. Check the wiring harness between cigarette lighter connector C-43 terminal No.2 and ETACS-ECU connector C-315 terminal No.3.

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

Q: Is the wiring harness between cigarette lighter connector C-43 terminal No.2 and ETACS-ECU connector C-315 terminal No.3 in good condition?

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

STEP 7. Check the ground circuit to the cigarette lighter. Measure the resistance at cigarette lighter connector C-43.

(1) Disconnect the connector, and measure the resistance available at the wiring harness side of the connector.
(2) Measure the resistance value between cigarette lighter connector C-43 terminal No.1 and ground.
- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 9.
NO : Go to Step 8.

STEP 8. Check the wiring harness between cigarette lighter connector C-43 terminal No.1 and the ground.

- Check the ground wires for open circuit.

Q: Is the wiring harness between cigarette lighter connector C-43 terminal No.1 and the ground in good condition?

YES : Go to Step 9.
NO : Repair the wiring harness.

STEP 9. Retest the system

Check that the cigarette lighter operates normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction P.00-33).
NO : Replace the cigarette lighter.

STEP 10. Retest the system

Check that the cigarette lighter operates normally.

Q: Is the check result normal?

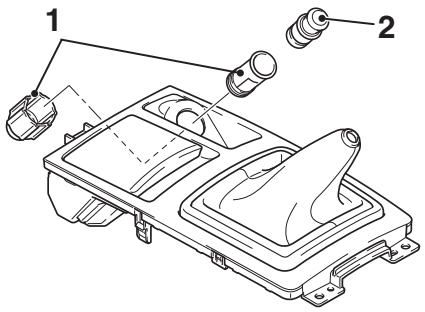
YES : The procedure is complete.
NO : Return to Step 1.

REMOVAL AND INSTALLATION

M1542301400139

ACCESSORY SOCKET <FLOOR CONSOLE PANEL ASSEMBLY>

Pre-removal operation	Post-installation operation
• Removal of floor console panel assembly (Refer to GROUP 52A – Floor Console Assembly P.52A-9)	• Installation of floor console panel assembly (Refer to GROUP 52A – Floor Console Assembly P.52A-9)



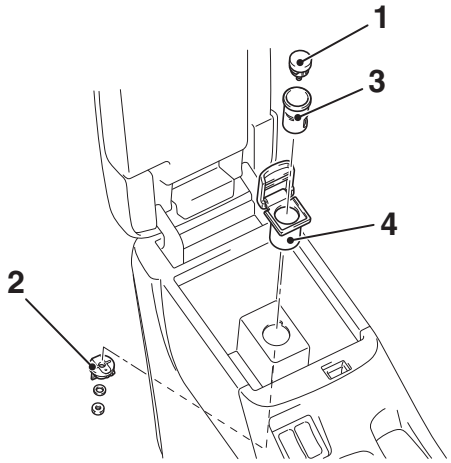
AC706787AB

Removal Steps

1. Accessory socket
2. Accessory socket cap

ACCESSORY SOCKET <FLOOR CONSOLE ASSEMBLY>

Pre-removal operation	Post-installation operation
• Removal of Floor console assembly (Refer to GROUP 52A – Floor Console Assembly P.52A-9).	• Installation of Floor console assembly (Refer to GROUP 52A – Floor Console Assembly P.52A-9).



AC801717AB

Removal steps

<<**A**>>

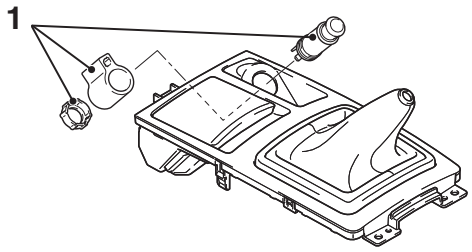
1. Accessory socket (positive terminal assembly)
2. Accessory socket (negative terminal assembly)

Removal steps (Continued)

3. Accessory socket (socket)
4. Accessory socket (cover)

CIGARETTE LIGHTER

Pre-removal operation	Post-installation operation
• Removal of floor console panel assembly (Refer to GROUP 52A – Floor Console Assembly P.52A-9)	• Installation of floor console panel assembly (Refer to GROUP 52A – Floor Console Assembly P.52A-9)



AC707557AB

Removal Step
1. Cigarette lighter

REMOVAL SERVICE POINT

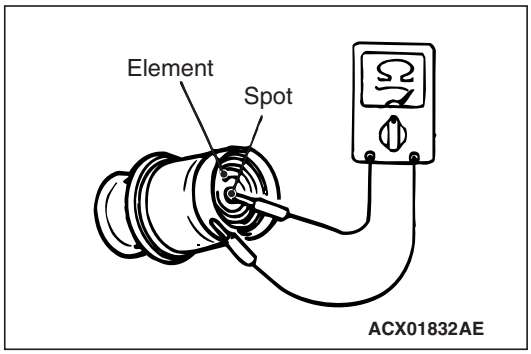
<<A>> REMOVAL OF ACCESSORY SOCKET <FLOOR CONSOLE ASSEMBLY>

Disassemble, and remove.

INSPECTION

M1543019502979

CIGARETTE LIGHTER CHECK



ACX01832AE

- Take out the plug, and check for a worn edge on the element spot connection, and for shreds of tobacco or other material on the element.
- Using an ohmmeter, check that the element resistance value is 1.7 ohms.

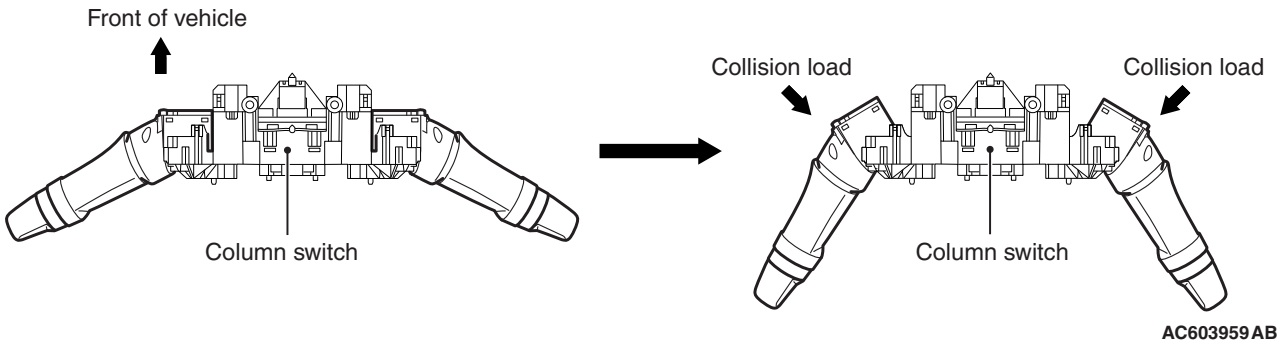
COLUMN SWITCH

GENERAL INFORMATION

M1543101800017

Column switch has a function to ensure the driver's safety during frontal collision of vehicle.

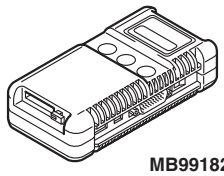
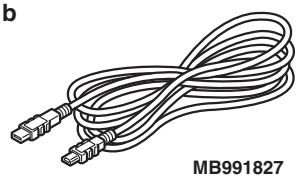
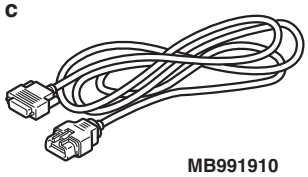
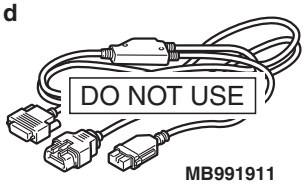
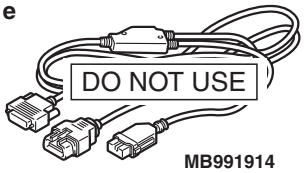
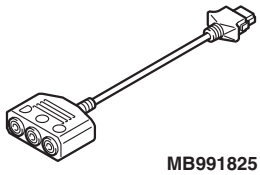
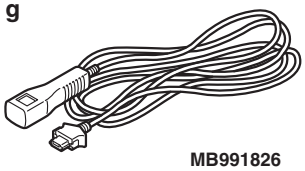
Function

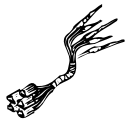
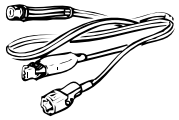
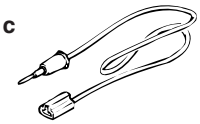
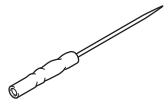


If the column switch is moved to the front of the vehicle and hit on the instrument panel or meter bezel by the frontal collision of vehicle, the steering wheel is moved to the front of the vehicle because the right and left levers fall down, ensuring the driver's safety. In addition, the column switch secures the rigidity that the levers do not fall down by the normal operation, however, it cannot be reused after the deformation.

SPECIAL TOOLS

M1543100200175

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

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

TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1543101200112

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

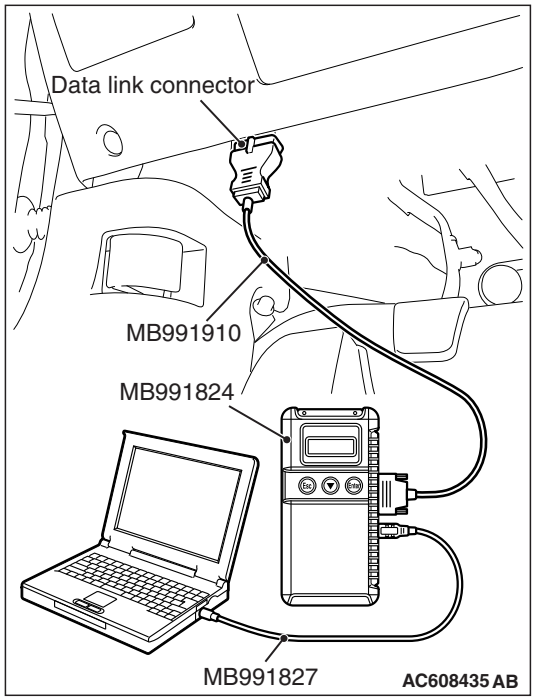
DIAGNOSTIC FUNCTION

M1543101300090

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

Required Special Tools:

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



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

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

⚠ CAUTION

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

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

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

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

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DIAGNOSTIC TROUBLE CODE TABLE

M1543100300246

NOTE: The ETACS-ECU sets a diagnostic trouble code.

DTC No.	Diagnostic item	Reference page
B2350	Malfunction of lighting switch	P.54A-335
B2351	Malfunction of the wiper/washer switch	

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B2350: Malfunction of lighting switch,
DTC B2351: Malfunction of wiper/washer switch

TROUBLE JUDGMENT

The ETACS-ECU receives the signals related to lighting and wiper/washer from the column switch. If the fail information data is included in the signal from column switch, DTC B2350 (Lighting switch) or B2351 (Wiper/washer switch) is stored.

TECHNICAL DESCRIPTION (COMMENT)

The column switch or the ETACS-ECU may have a problem.

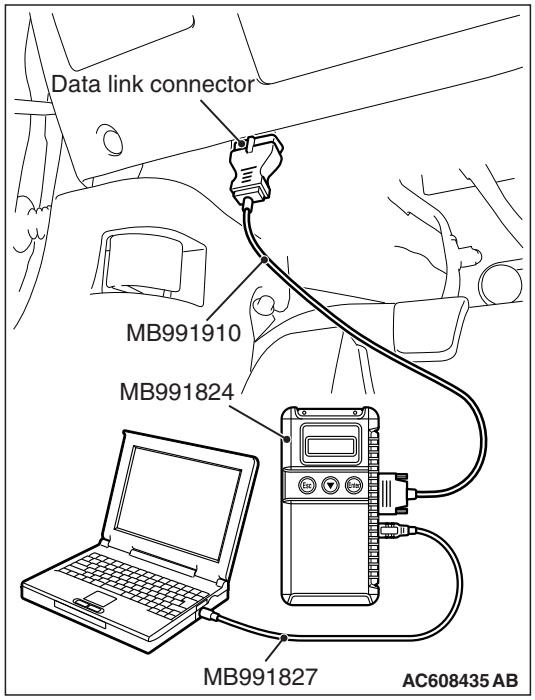
TROUBLESHOOTING HINTS

- Malfunction of lighting switch (integrated with the column-ECU)
- Malfunction of wiper/washer switch
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

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



STEP 1. Using scan tool MB991958, Check whether the diagnostic trouble code is reset.

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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect scan tool P.54A-333".
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if the DTC B2350 or B2351 is set.
(6) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

DTC B2351 is set. : Go to Step 2.
DTC B2350 is set. : Go to Step 3.
No DTC is set. : The trouble can be an intermittent malfunction (GROUP 00 – How to Cope with Intermittent Malfunction P.00-14).

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

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

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

Q: Is the DTC set?

YES : Go to Step 3.
NO : The procedure is complete.

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

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

(1) Replace the lighting switch (integrated with the column-ECU).
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.
(6) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

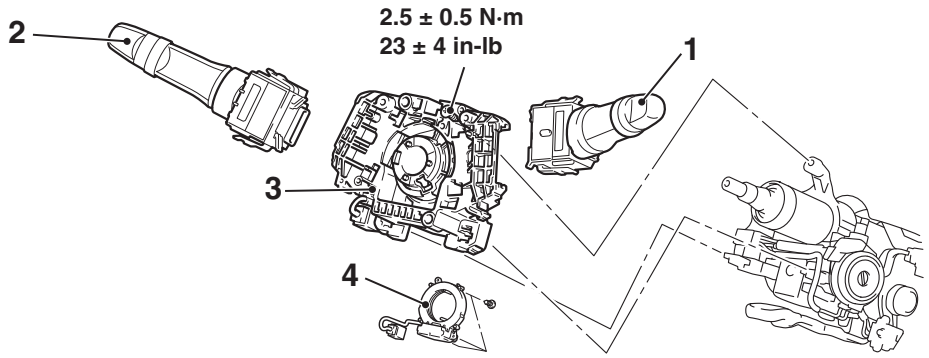
YES : Replace the ETACS-ECU.
NO : The procedure is complete.

REMOVAL AND INSTALLATION

M1543100700415

⚠ CAUTION

- **To remove the driver airbag module, refer to GROUP 52B – Service Precautions P.52B-25 and Driver's Air Bag Module and Clock Spring P.52B-427 <Except RALLIART> or P.52B-427 <RALLIART>.**
- **When the steering wheel sensor is replaced, always carry out calibration to make ASC-ECU learn the neutral point. (Refer to GROUP 35C – On-vehicle Service-Steering Wheel Sensor Calibration P.35C-294.)**



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Removal Steps

- Lower, upper Steering column cover (Refer to GROUP 37 Steering Column shaft assembly P.37-37).
1. Wiper/washer switch
2. Lighting switch (integrated with the column ECU)
- Steering wheel assembly (Refer to GROUP 52B - Driver's Air Bag Module and Clock Spring P.52B-419 <Except RALLIART> or P.52B-427 <RALLIART>).

Removal Steps (Continued)

- Clock spring (Refer to GROUP 52B - Driver's Air Bag Module and Clock Spring P.52B-419 <Except RALLIART> or P.52B-427 <RALLIART>).
3. Column switch body
4. Steering wheel sensor (Refer to GROUP 35C – Steering wheel sensor P.35C-310.)

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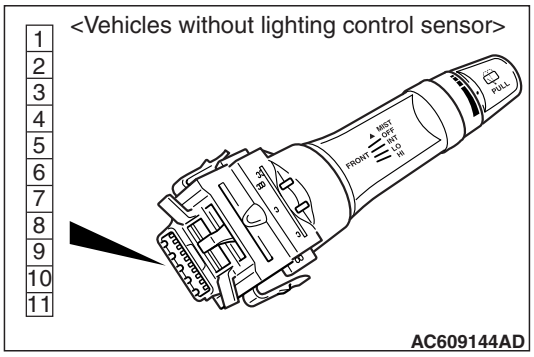
INSPECTION

WIPER/WASHER SWITCH CONTINUITY CHECK

M1543101700151

<Vehicles without lighting control sensor>

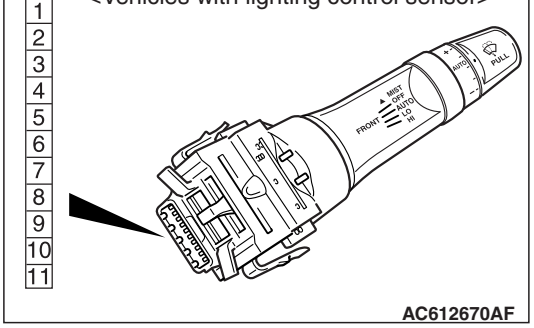


AC609144AD

<VEHICLES WITHOUT LIGHTING CONTROL SENSOR>

Switch position		Tester connection	Specified condition
OFF		–	Open circuit
Windshield intermittent wiper interval adjusting knob		6 – 3	Operating the adjusting knob changes the resistance.
Windshield washer switch		6 – 7	Continuity exists (2 ohms or less)
Windshield wiper switch	Hi	6 – 8	Continuity exists (2 ohms or less)
	Lo	6 – 9	Continuity exists (2 ohms or less)
	Int	6 – 10	Continuity exists (2 ohms or less)
	Mist	6 – 11	Continuity exists (2 ohms or less)

<Vehicles with lighting control sensor>



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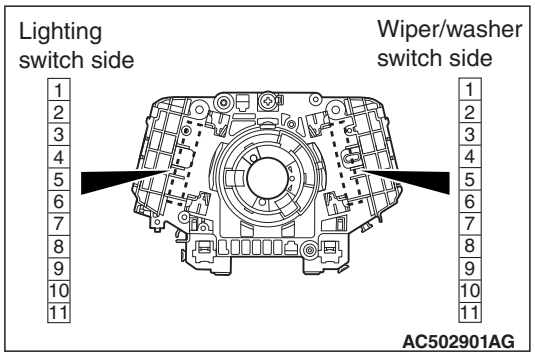
<VEHICLES WITH LIGHTING CONTROL SENSOR>

Switch position		Tester connection	Specified condition
OFF		–	Open circuit
Windshield rain sensitive wiper function adjusting knob		6 – 3	Operating the adjusting knob changes the resistance.
Windshield washer switch		6 – 7	Continuity exists (2 Ω or less)
Windshield wiper switch	Hi	6 – 8	Continuity exists (2 Ω or less)
	Lo	6 – 9	Continuity exists (2 Ω or less)
	Auto	6 – 10	Continuity exists (2 Ω or less)
	Mist	6 – 11	Continuity exists (2 Ω or less)

COLUMN SWITCH (SWITCH BODY PART) CONTINUITY CHECK

M1543100800058

1. Remove the lighting switch and wiper/washer switch.
2. Check that the continuity is present for the same terminal numbers of the column switch body connectors that remain on the steering column.



Column switch body	Terminal number	Normal condition
Lighting switch side connector Wiper/washer switch side connector	3 – 3 6 – 6 7 – 7 8 – 8 9 – 9 10 – 10 11 – 11	Continuity exists (2 ohms or less)