

HEADLIGHT AND TAILLIGHT

GENERAL DESCRIPTION CONCERNING HEADLIGHT AND TAILLIGHT

M1549021300231

The ECU related to the headlight and taillight types and various control functions are as follows.

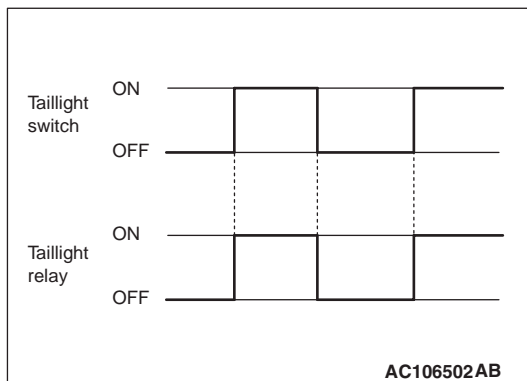
FUNCTION	CONTROL ECU
Taillight	Front-ECU, column switch
Headlights and high-beam indicator light	ETACS-ECU, front-ECU, column switch
Headlight automatic-shutdown function	ETACS-ECU, front-ECU, column switch
Dimmer automatic reset function	Front-ECU, column switch
Daytime running light function	Daytime running light-ECU

Taillights and headlights illumination

Taillight

The front ECU will light up the taillight when the taillight switch signal from the column switch is in the "ON" state and the built-in taillight relay is in the "ON" state.

NOTE: This item only considers the taillight lightup function and does not take into consideration the other functions. In actual driving, the taillights may be turned off due to the headlight automatic shut-down function. For the details of the headlight automatic shut-down function, refer to its Section.

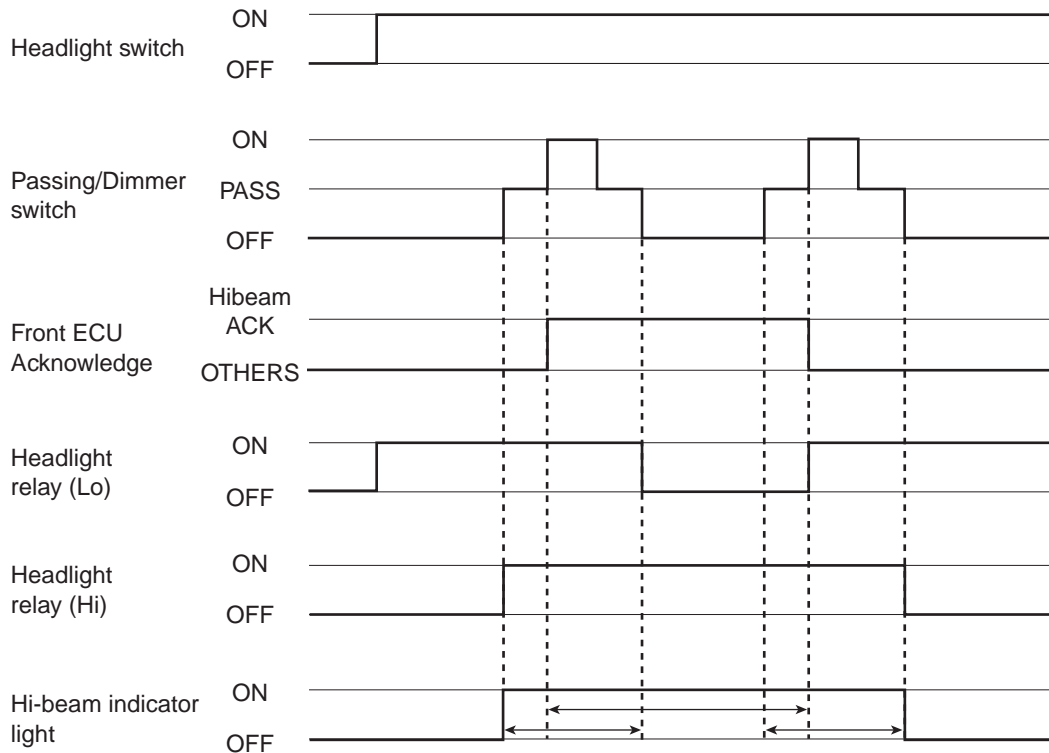


Headlights and high-beam indicator light

The front ECU lights up the headlight (LO) when the signal from the column switch to the headlight switch is in the "ON" state and the built-in head light relay (LO) is in the "ON" state. If the dimmer switch is turned on while the headlight relay (LO) is on, the front-ECU turns on the headlight relay (HI), causing the high-beam headlights to illuminate.

What's more, ETACS-ECU lights up the high beam indicator light when the acknowledgment signal from the front ECU is in the "HI-BEAM ACK" state or the head light switch signal from the column switch is in the "PASS" state.

NOTE: This item only considers the headlight lightup function and doesn't take into consideration the other functions. In actual driving, the headlights may be turned off due to the headlight automatic shut-down function. For the details of the headlight automatic shut-down function, refer to its Section.

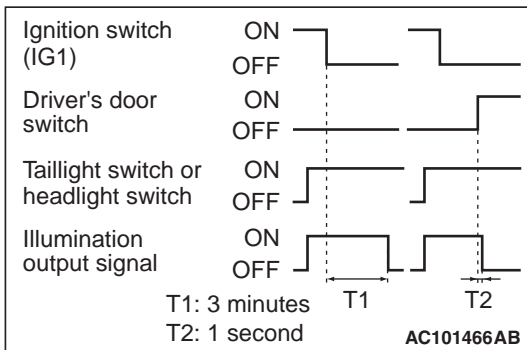


AC106816 AB

Headlight automatic-shutdown function

Even if the lighting switch (taillight switch or headlight switch) is ON, the head light (including the taillights) will automatically go off in the following conditions to prevent the battery from discharging as a result of forgetting to turn off lights. When the ignition key is turned from "ON" to "LOCK" (OFF) or "ACC" position with the lighting switch turned ON, and this state continues for three minutes, the light will automatically be turned off. If the driver's door is opened during these three minutes, the light will go off one second later.

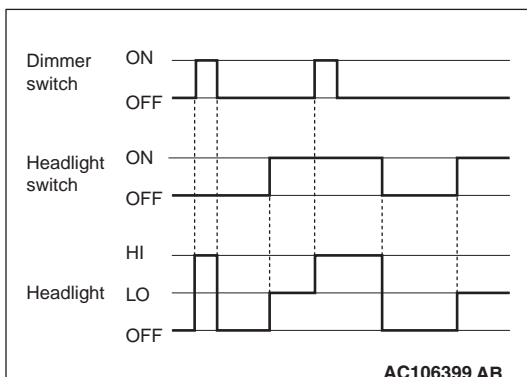
NOTE: This function can be disabled by the adjustment procedures of SWS function (Refer to P.54B-622.)



AC101466 AB

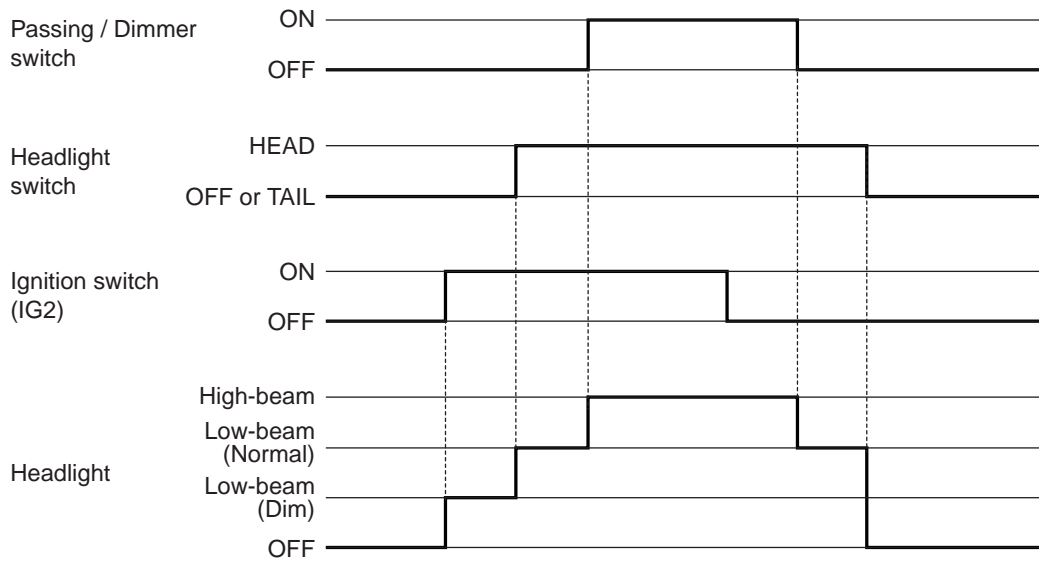
Dimmer automatic reset function

The column switch (column ECU) resets the dimmer switch and prevents the high beam from lighting up when turning on the headlight again if the headlight switch is put in the "OFF" position while the high beam of the headlight is on (including the instance when the dimmer switch is erroneously put in the "ON" state upon passing operations) and resets the dimmer switch.



AC106399 AB

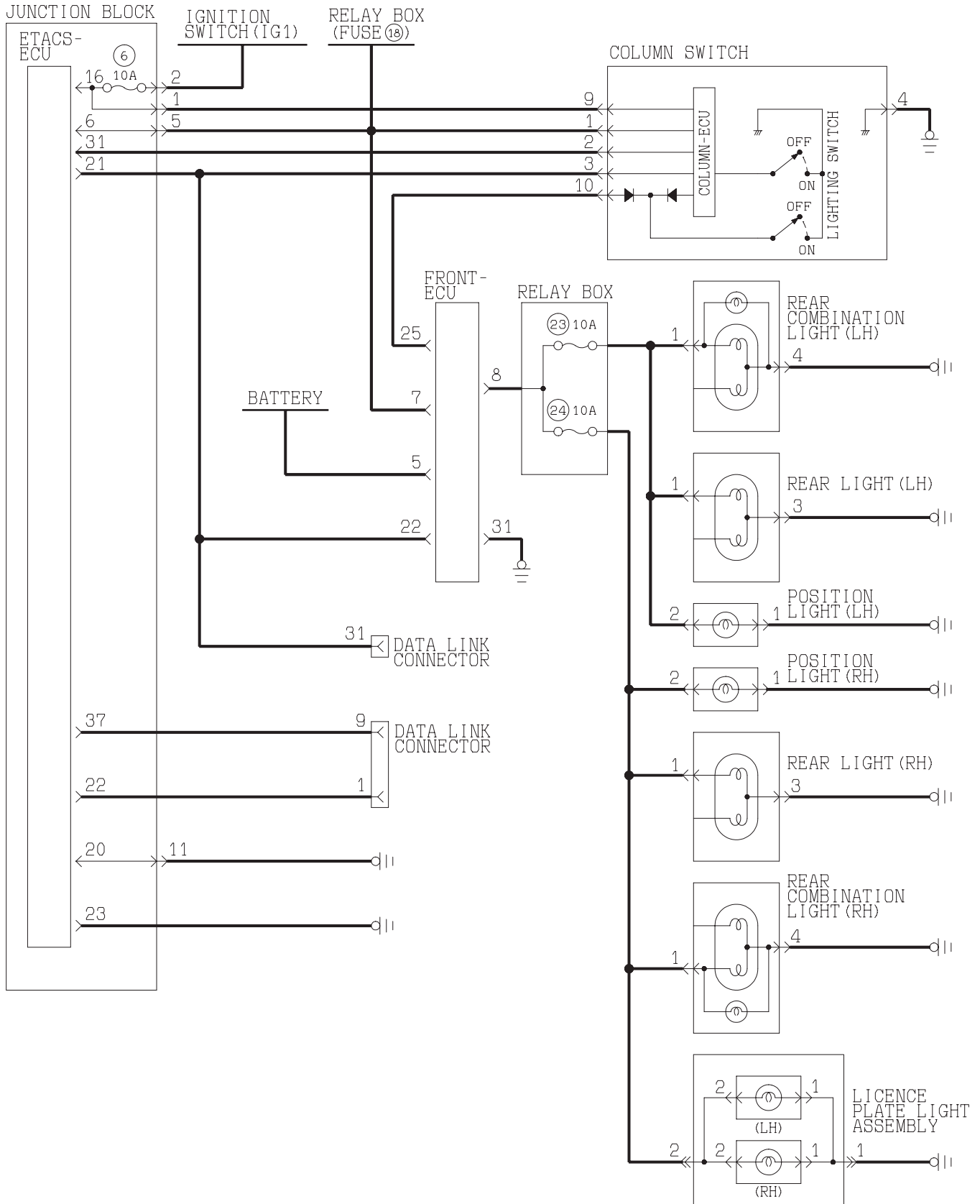
Daytime running light function <Vehicles for CANADA>



AC201190AC

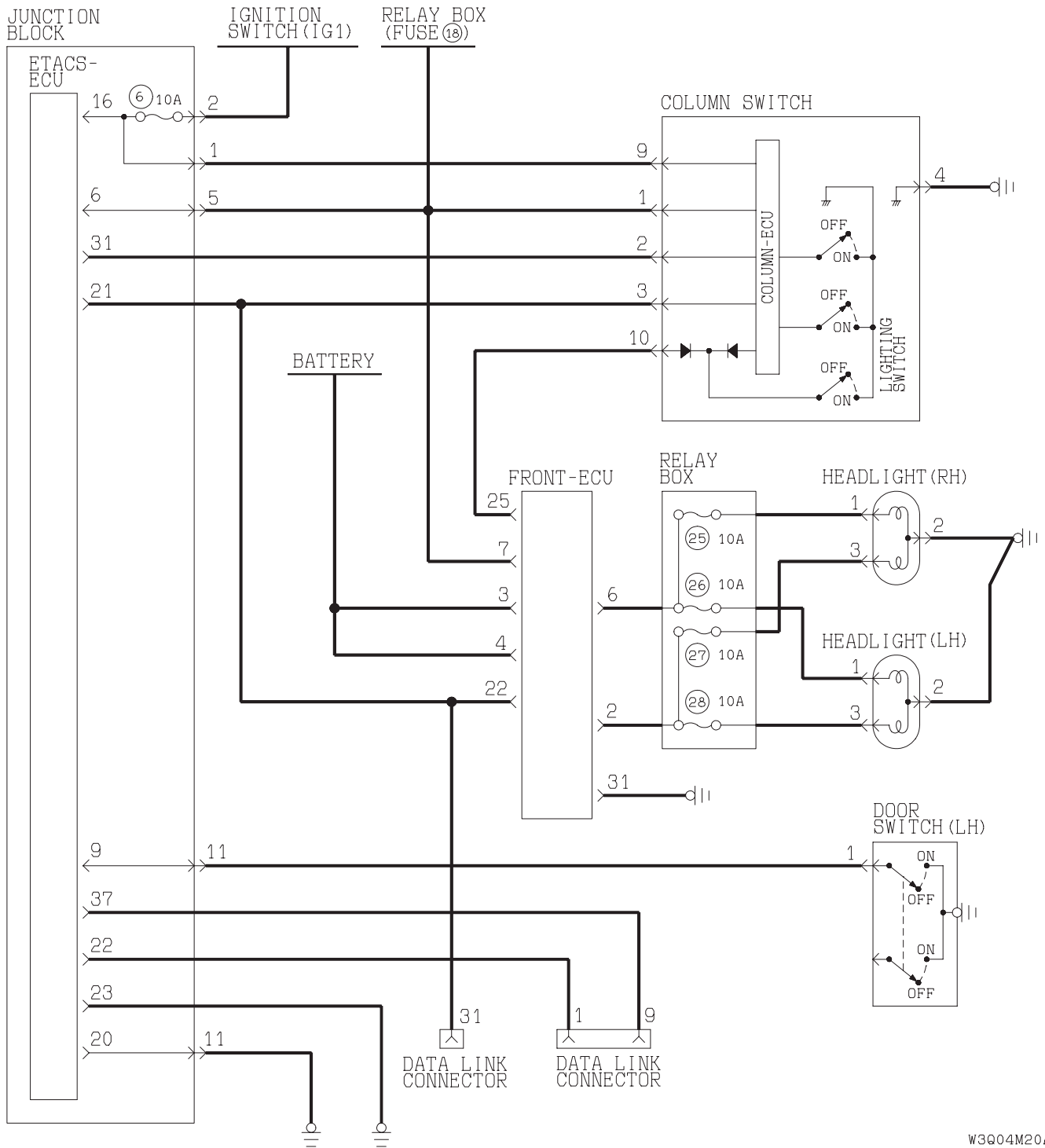
The front-ECU illuminates the low-beam headlights at a reduced brightness when the ignition switch is turned "ON" with the headlight switch is at the "OFF" or "TAIL" position. It illuminates the low-beam headlights at a normal brightness when the headlights are turned on with the daytime running lights on.

General circuit diagram for the taillights

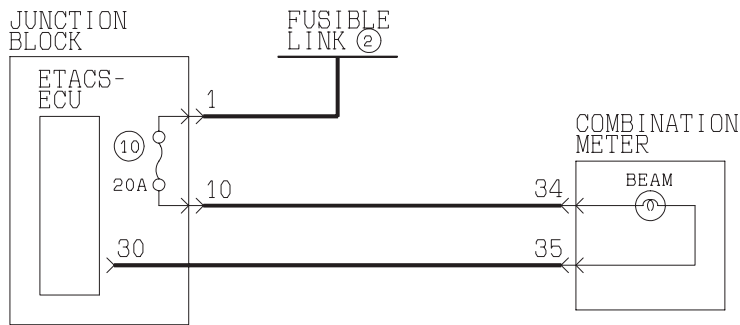


W3004M19AA

General circuit diagram for the headlights



W3Q04M20AA

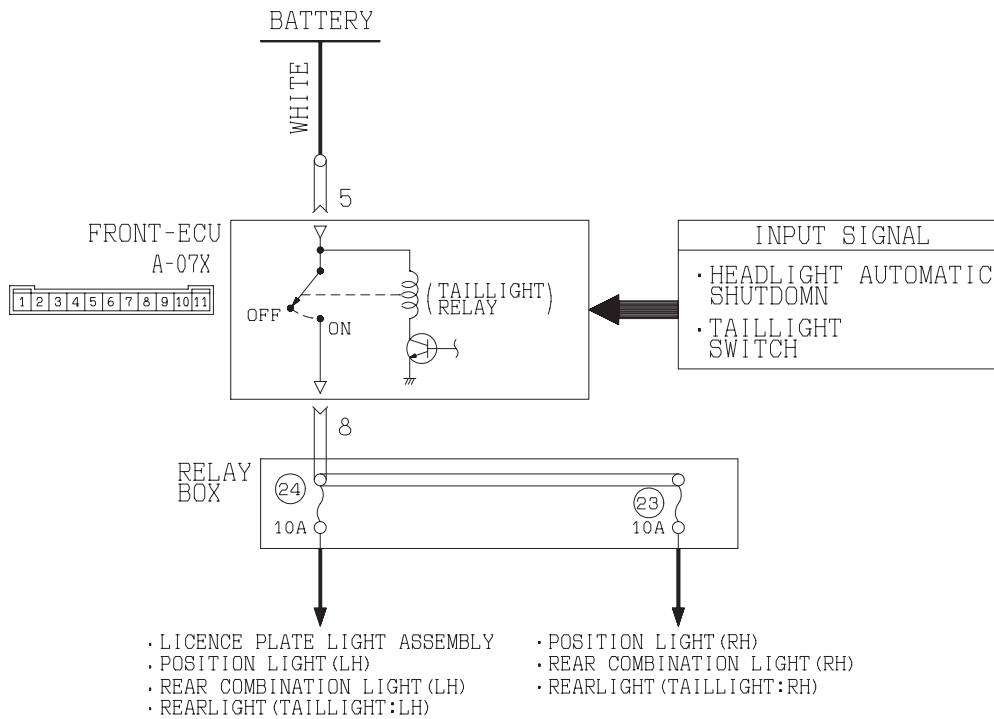


W3Q04M35AA

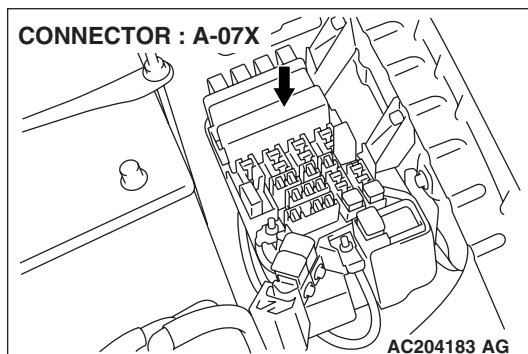
INSPECTION PROCEDURE J-1: Headlight and Taillight: The taillights does not illuminate.

NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-10."

Taillight Relay Circuit



W3Q04M07AA



CIRCUIT OPERATION

When the lighting switch is set to "TAIL" position, the "TAIL" signal is sent through the column-ECU (incorporated in the column switch) to the front-ECU. If the front-ECU receives the "TAIL" signal through the column-ECU, the front-ECU turns on the taillight relay (incorporated in the front-ECU), thus causing the taillights to illuminate.

TECHNICAL DESCRIPTION (COMMENT)

If the taillights do not illuminate normally, the column switch or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- The column switch (taillight switch) may be defective
- The front-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B
- MB991813: SWS Monitor Kit
 - MB991806: SWS Monitor Cartridge
 - MB991812: SWS Monitor Harness (For Column-ECU)
 - MB991822: Probe Harness
- MB991854: SWS Monitor Harness (For 13-pin)

STEP 1. Use scan tool MB991958 to select "ECU COMM CHK" on the SWS monitor display.

Check the following ECUs:

- Column-ECU
- Front-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.

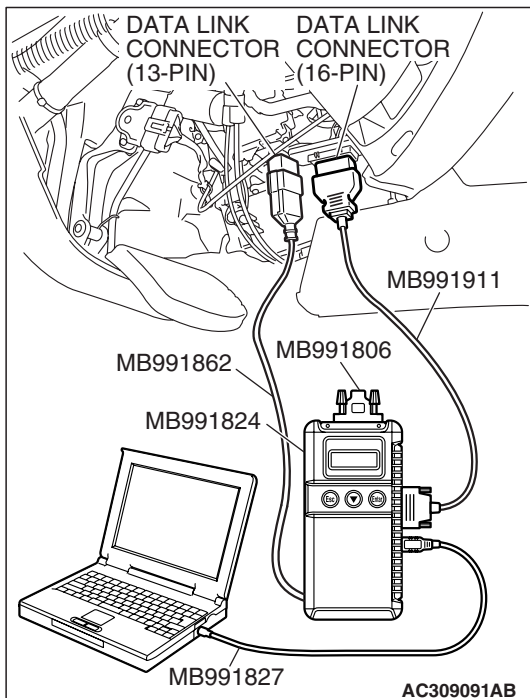
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK."
- (4) Scan tool MB991958 should show "OK" on the "ECU COMM CHK" menus for both the "COLUMN ECU" and the "FRONT ECU" menus.

Q: Is "OK" displayed on both the "COLUMN ECU" and "FRONT ECU" menus?

"OK" are displayed for all the items : Go to Step 2.

"NG" is displayed on the "COLUMN ECU" menu : Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is not possible P.54B-34."

"NG" is displayed on the "FRONT ECU" menu : Refer to Inspection procedure A-4 "Communication with front-ECU is not possible P.54B-48."

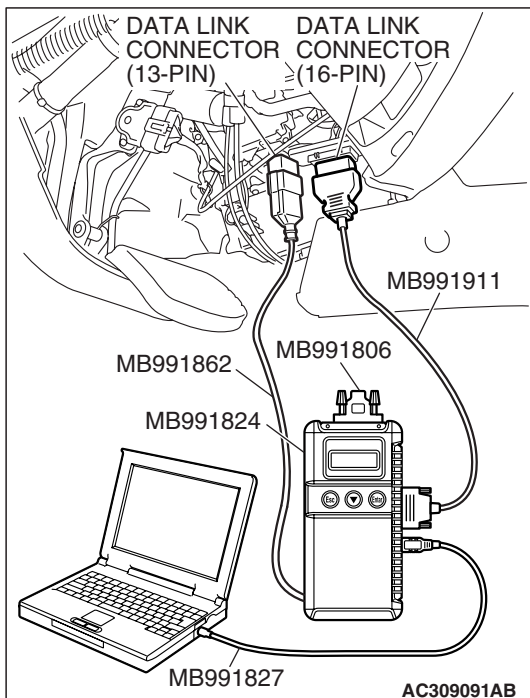


STEP 2. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

Check the input signals from the following switches:

- Ignition switch: ON
- Lighting switch: TAIL

NOTE: Turn the ignition switch to the "ON" position in order to disable the headlight automatic shutdown function.



Operate scan tool MB991958 according to the procedure below to display "TAILLIGHT."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "LIGHTING."
6. Select "TAILLIGHT."

Check that normal conditions are displayed on the items described in the table below.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 01	TAILLIGHT SW	ON
ITEM 35	H/L AUTO-CUT	OFF
ITEM 70	FRONT ECU ACK	NORMAL ACK

Q: Are normal conditions displayed on the "TAILLIGHT SW", "H/L AUTO-CUT" and "FRONT ECU ACK"?

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

Normal condition is not displayed on the "TAIL LIGHT SW" : Refer to Inspection Procedure O-6 "ETACS-ECU does not receive any signal from the taillight switch [P.54B-516.](#)"

Normal condition is not displayed on the "H/L AUTO-CUT" : Refer to Inspection Procedure J-9 "Headlight automatic shutdown function does not work normally [P.54B-354.](#)"

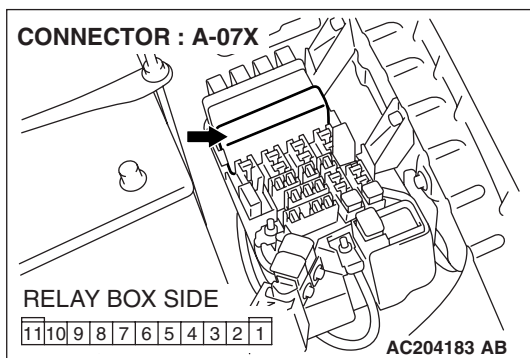
Normal condition is not displayed on the "FRONT ECU ACK" : Replace the front-ECU. Verify that the taillights illuminate normally.

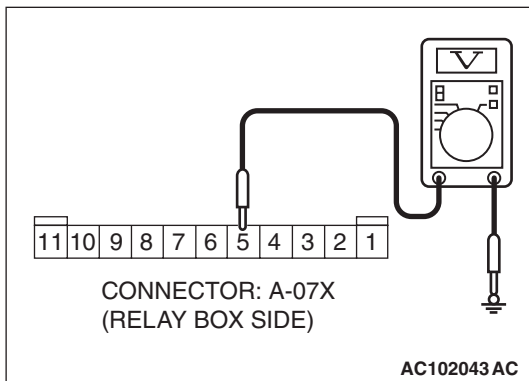
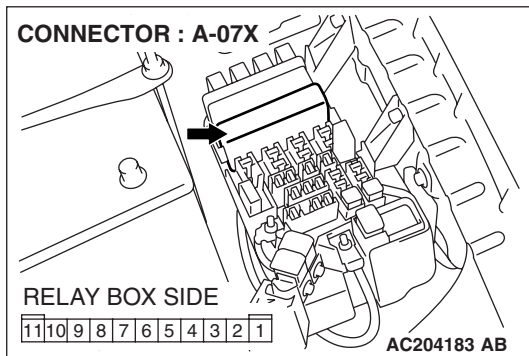
STEP 3. Check the front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the front-ECU connector A-07X 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.](#) Verify that the taillights illuminate normally.





STEP 4. Check the battery power supply circuit to the front-ECU. Test at front-ECU connector A-07X.

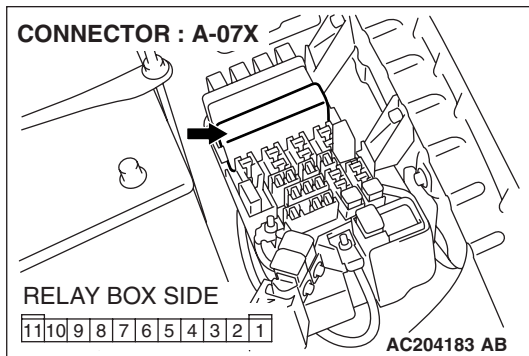
(1) Disconnect front-ECU connector A-07X and measure the voltage available at the relay box side of the connector.

(2) Measure the voltage between terminal 5 and ground.
 • The voltage should be approximately 12 volts (battery positive voltage).

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

YES : Replace the front-ECU. Verify that the taillights illuminate normally.

NO : Go to Step 5.



STEP 5. Check the wiring harness between front-ECU connector A-07X (terminal 5) and the battery.

Q: Is the wiring harness between front-ECU connector A-07X (terminal 5) and the battery in good condition?

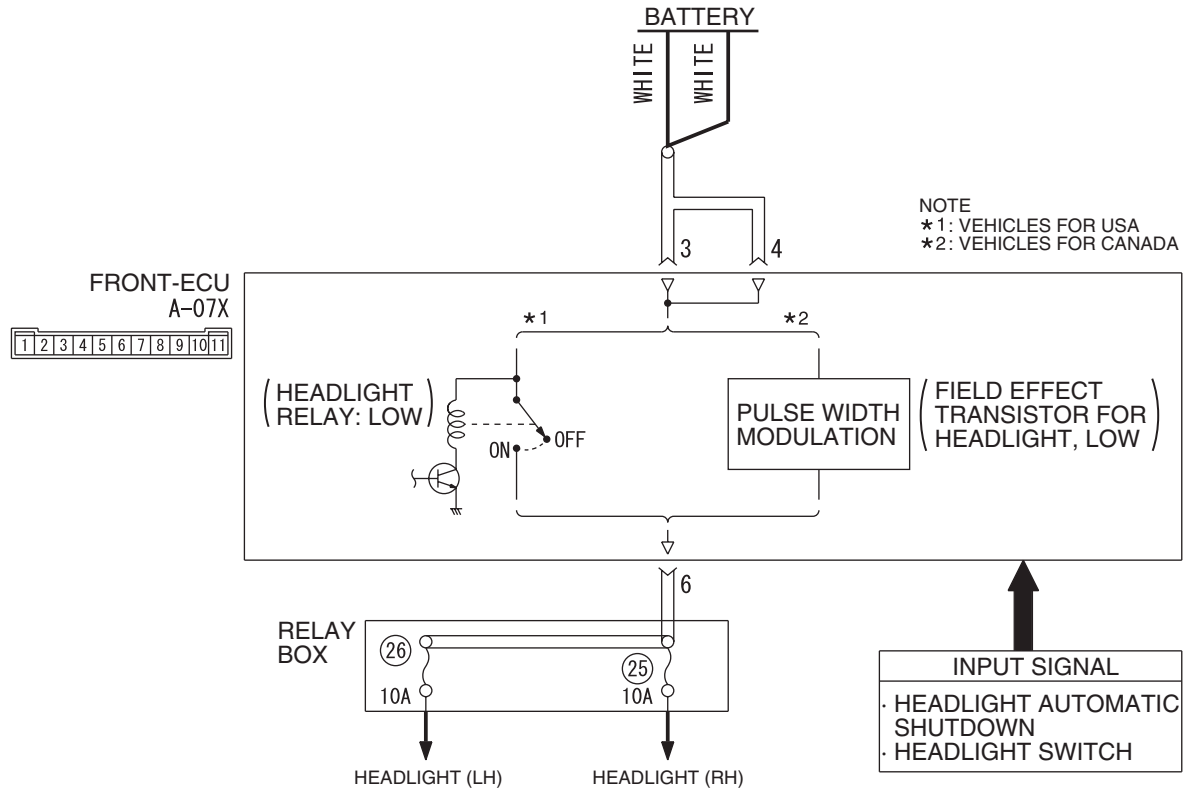
YES : No action is necessary and testing is complete.

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

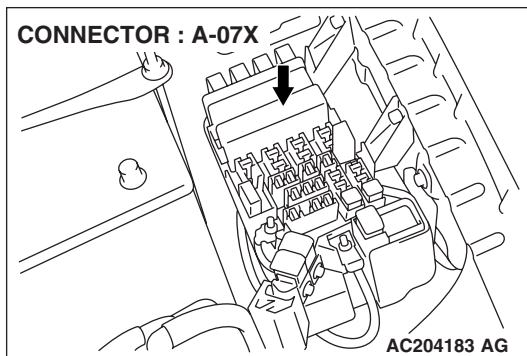
INSPECTION PROCEDURE J-2: Headlight and Taillight: Headlights (low-beam) do not illuminate.

NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-10."

Headlight Relay (Low-Beam) Circuit



W5Q54M016A



CIRCUIT OPERATION

- When the lighting switch is set to "HEAD" position, the "HEAD" signal is sent through the column-ECU (incorporated in the column switch) to the front-ECU. If the front-ECU receives the "HEAD" signal through the column-ECU, the front-ECU turns on the headlight relay (incorporated in the front-ECU), thus causing the headlights to illuminate. The headlights always illuminate at low-beam by the headlight dimmer switch automatic resetting function.
- If the SWS communication line is defective, the front-ECU operates the headlights by using the other communication lines (headlight backup circuit) instead of that line.

TECHNICAL DESCRIPTION (COMMENT)

If the headlights (low-beam) do not illuminate normally, the column switch or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- The column switch (turn-signal light and lighting switch) may be defective
- The front-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B
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 - MB991806: SWS Monitor Cartridge
 - MB991812: SWS Monitor Harness (For Column-ECU)
 - MB991822: Probe Harness
- MB991854: SWS Monitor Harness (For 13-pin)

STEP 1. Use scan tool MB991958 to select "ECU COMM CHK" on the SWS monitor display.

Check the following ECUs:

- Column-ECU
- Front-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.

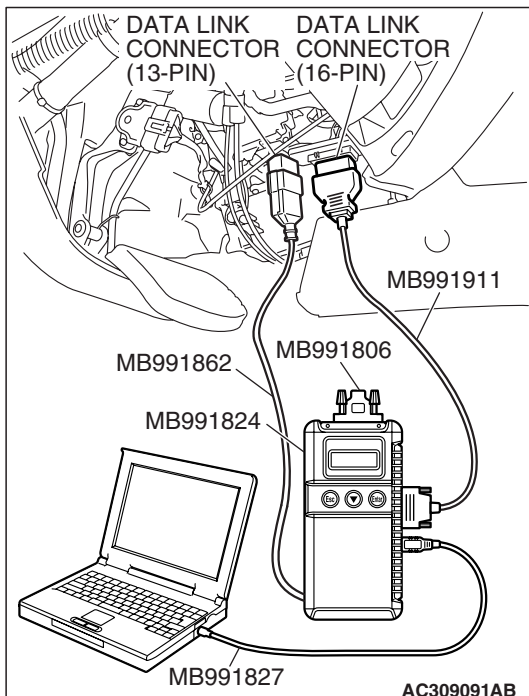
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK."
- (4) Scan tool MB991958 should show "OK" on the "ECU COMM CHK" menus for both the "COLUMN ECU" and the "FRONT ECU" menus.

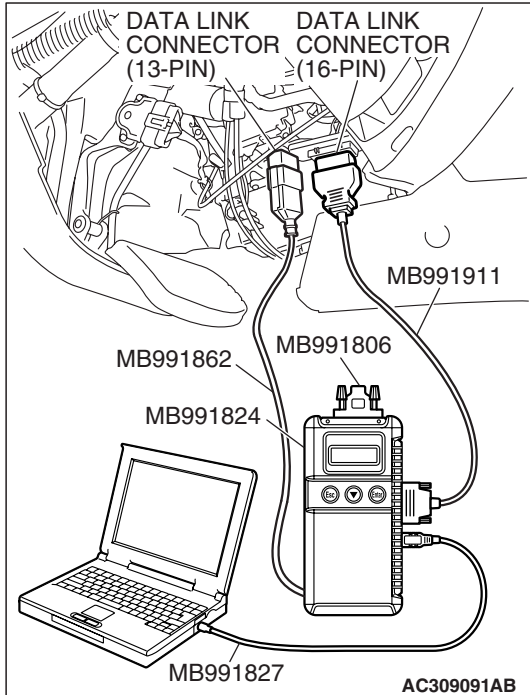
Q: Is "OK" displayed on both the "COLUMN ECU" and "FRONT ECU" menus?

"OK" are displayed for all the items : Go to Step 2.

"NG" is displayed on the "COLUMN ECU" menu : Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is not possible P.54B-34."

"NG" is displayed on the "FRONT ECU" menu : Refer to Inspection procedure A-4 "Communication with front-ECU is not possible P.54B-48."





STEP 2. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

Check the input signals from the following switches:

- Ignition switch: ON
- Lighting switch: HEAD

Operate scan tool MB991958 according to the procedure below to display "HEADLIGHT LO."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "LIGHTING."
6. Select "HEADLIGHT LO."

Check that normal conditions are displayed on the items described in the table below.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 00	HEADLIGHT SW	ON
ITEM 35	H/L AUTO-CUT	OFF
ITEM 70	FRONT ECU ACK	NORMAL ACK

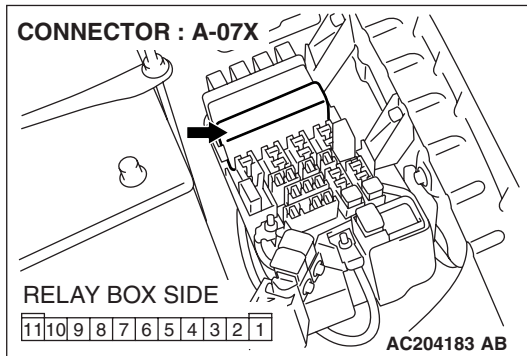
Q: Are normal conditions displayed on the "HEADLIGHT SW", "H/L AUTO-CUT" and "FRONT ECU ACK"?

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

Normal condition is not displayed on the "HEADLIGHT SW" : Refer to Inspection Procedure O-6 "ETACS-ECU does not receive any signal from the headlight switch [P.54B-516.](#)"

Normal condition is not displayed on the "H/L AUTO-CUT" : Refer to Inspection Procedure J-9 "Headlight automatic shutdown function does not work normally [P.54B-354.](#)"

Normal condition is not displayed on the "FRONT ECU ACK" : Replace the front-ECU. Verify that the headlights (low-beam) illuminate normally.

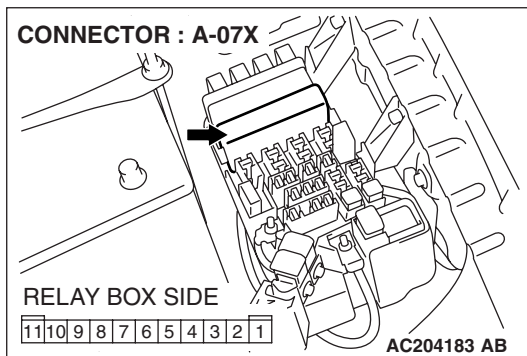


STEP 3. Check the front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the front-ECU connector A-07X in good condition?

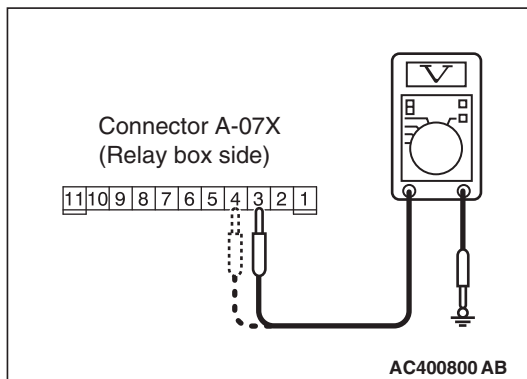
YES : Go to Step 4.

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



STEP 4. Check the battery power supply circuit to the front-ECU. Test at front-ECU connector A-07X.

(1) Disconnect front-ECU connector A-07X and measure the voltage available at the relay box side of the connector.



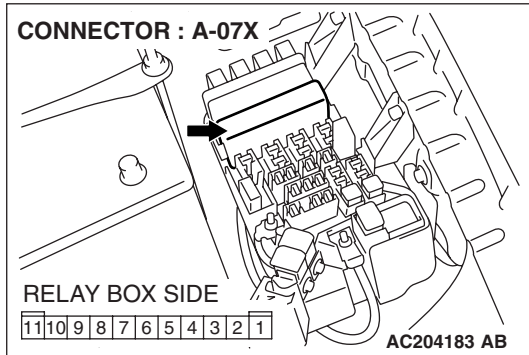
(2) Measure the voltage between terminals 3, 4 and ground.

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

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

YES : Replace the front-ECU. Verify that the headlights (low-beam) illuminate normally.

NO : Go to Step 5.



STEP 5. Check the wiring harness between front-ECU connector A-07X (terminals 3 and 4) and the battery.

Q: Is the wiring harness between front-ECU connector A-07X (terminals 3 and 4) and the battery in good condition?

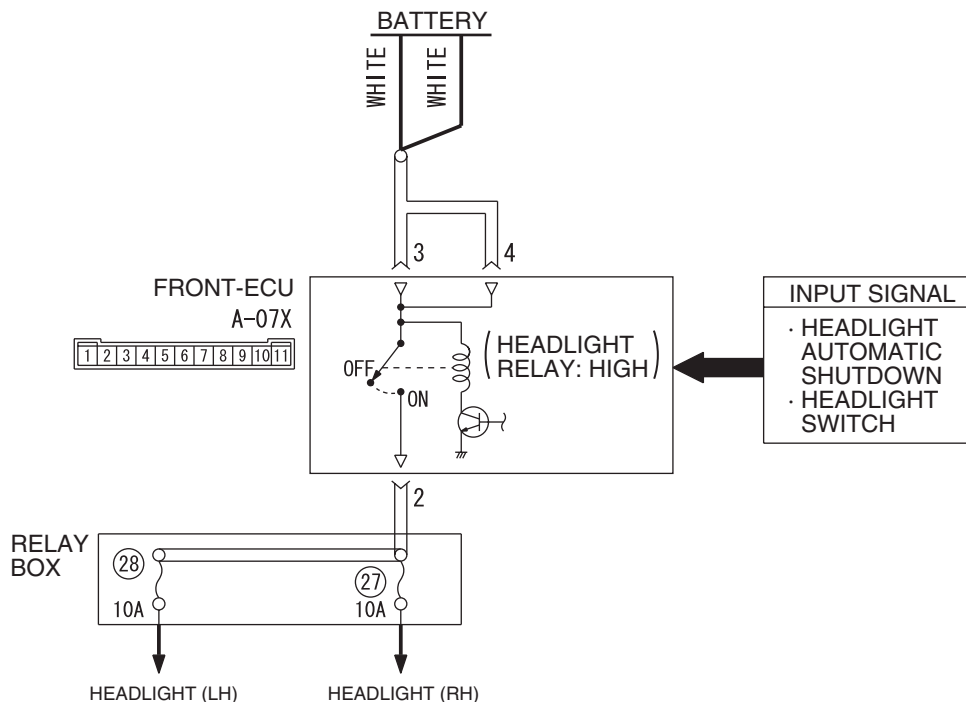
YES : No action is necessary and testing is complete.

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

INSPECTION PROCEDURE J-3: Headlight and Taillight: Headlights (high-beam) do not illuminate.

NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-10."

Headlight Relay (High-Beam) Circuit



W5Q54M017A

CIRCUIT OPERATION

When the dimmer switch is turned on, the column switch sends any signal to the front-ECU. Then the front-ECU switches the headlights from low-beam to high beam or vice versa.

TECHNICAL DESCRIPTION (COMMENT)

If the headlights (high-beam) do not illuminate normally, the column switch or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- The column switch (turn-signal light and lighting switch) may be defective
- The front-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B
- MB991813: SWS Monitor Kit
 - MB991806: SWS Monitor Cartridge
 - MB991812: SWS Monitor Harness (For Column-ECU)
 - MB991822: Probe Harness
- MB991854: SWS Monitor Harness (For 13-pin)

STEP 1. Use scan tool MB991958 to select "ECU COMM CHK" on the SWS monitor display.

Check the following ECUs:

- Column-ECU
- Front-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.

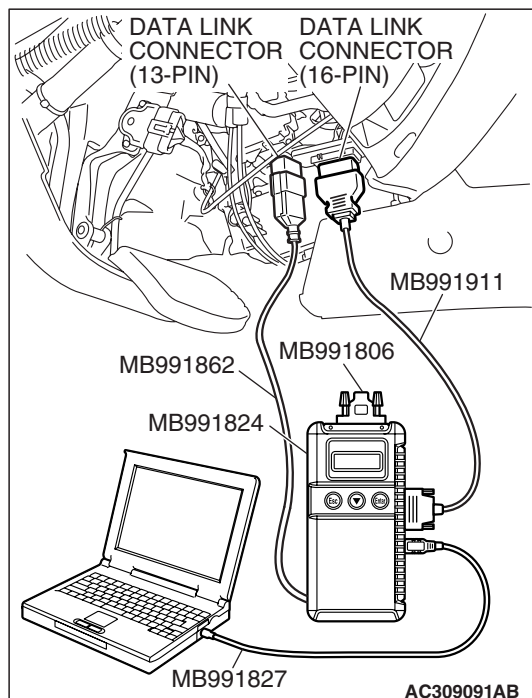
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK."
- (4) Scan tool MB991958 should show "OK" on the "ECU COMM CHK" menus for both the "COLUMN ECU" and the "FRONT ECU" menus.

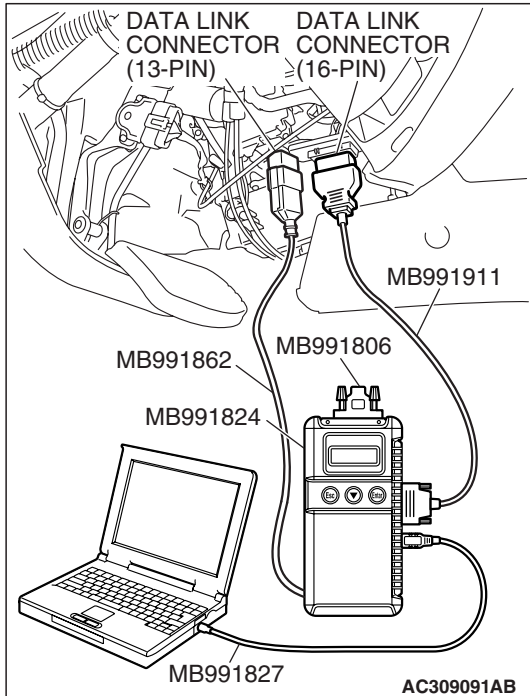
Q: Is "OK" displayed on both the "COLUMN ECU" and "FRONT ECU" menus?

"OK" are displayed for all the items : Go to Step 2.

"NG" is displayed on the "COLUMN ECU" menu : Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is not possible P.54B-34."

"NG" is displayed on the "FRONT ECU" menu : Refer to Inspection procedure A-4 "Communication with front-ECU is not possible P.54B-48."





STEP 2. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

Check the input signals from the following switches:

- Ignition switch: ON
- Lighting switch: HEAD
- Dimmer switch: ON

Operate scan tool MB991958 according to the procedure below to display "HEADLIGHT HI."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "LIGHTING."
6. Select "HEADLIGHT HI."

Check that normal conditions are displayed on the items described in the table below.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 00	HEADLIGHT SW	ON
ITEM 02	DIMMER SW	OFF (should turn "ON" momentarily when the dimmer switch is operated)
ITEM 35	H/L AUTO-CUT	OFF
ITEM 70	FRONT ECU ACK	HI-BEAM ACK

Q: Are normal conditions displayed on the "HEADLIGHT SW", "DIMMER SW", "H/L AUTO-CUT" and "FRONT ECU ACK"?

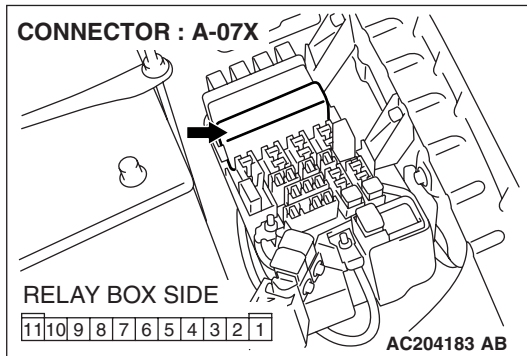
Normal conditions are displayed for all the items : Go to Step 3.

Normal condition is not displayed on the "HEADLIGHT SW" : Refer to Inspection Procedure O-6 "ETACS-ECU does not receive any signal from the headlight switch [P.54B-516.](#)"

Normal condition is not displayed on the "DIMMER SW" : Refer to Inspection Procedure O-6 "ETACS-ECU does not receive any signal from the dimmer switch [P.54B-516.](#)"

Normal condition is not displayed on the "H/L AUTO-CUT" : Refer to Inspection Procedure J-9 "Headlight automatic shutdown function does not work normally [P.54B-354.](#)"

Normal condition is not displayed on the "FRONT ECU ACK" : Replace the front-ECU. Verify that the headlights (high-beam) illuminate normally.

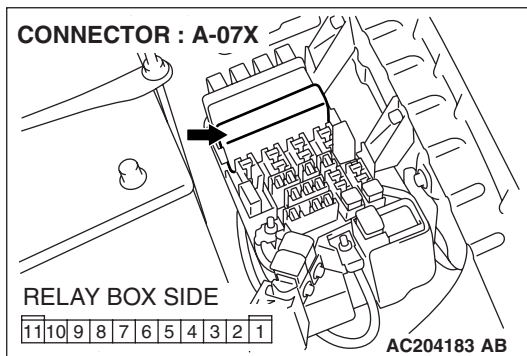


STEP 3. Check the front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the front-ECU connector A-07X in good condition?

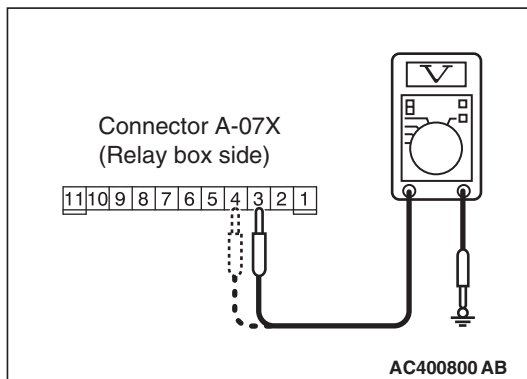
YES : Go to Step 4.

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



STEP 4. Check the battery power supply circuit to the front-ECU. Test at front-ECU connector A-07X.

(1) Disconnect front-ECU connector A-07X and measure the voltage available at the relay box side of the connector.



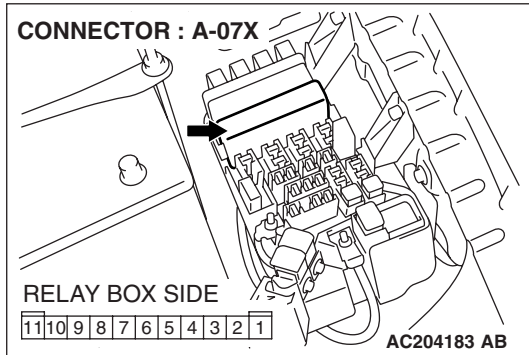
(2) Measure the voltage between terminals 3, 4 and ground.

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

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

YES : Replace the front-ECU. Verify that the headlights (low-beam) illuminate normally.

NO : Go to Step 5.



STEP 5. Check the wiring harness between front-ECU connector A-07X (terminals 3, 4) and the battery.

Q: Is the wiring harness between front-ECU connector A-07X (terminals 3, 4) and the battery in good condition?

YES : No action is necessary and testing is complete.

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

INSPECTION PROCEDURE J-4: Headlight and Taillight: Headlights do not illuminate when the passing switch is operated.

NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-10."

TECHNICAL DESCRIPTION (COMMENT)

If both of the headlights (low-beam and high-beam) do not illuminate, the input circuit from the passing switch or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- The column switch may be defective
- The front-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B
- MB991813: SWS Monitor Kit
 - MB991806: SWS Monitor Cartridge
 - MB991812: SWS Monitor Harness (For Column-ECU)
 - MB991822: Probe Harness
- MB991854: SWS Monitor Harness (For 13-pin)

STEP 1. Verify the headlight operation.

Q: Do the headlights (low-beam and high-beam) illuminate normally?

Headlights do illuminate normally : Go to Step 2.

Headlights (low-beam) do not illuminate normally :

Refer to Inspection Procedure J-2 "Headlights (low-beam) do not illuminate [P.54B-294.](#)"

Headlights (high-beam) do not illuminate normally :

Refer to Inspection Procedure J-3 "Headlights (high-beam) do not illuminate [P.54B-299.](#)"

STEP 2. Check the input signal by using "DATA LIST" menu of the SWS monitor.

Turn the passing switch to the "ON" position before checking input signals from the passing switch.

⚠ CAUTION

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

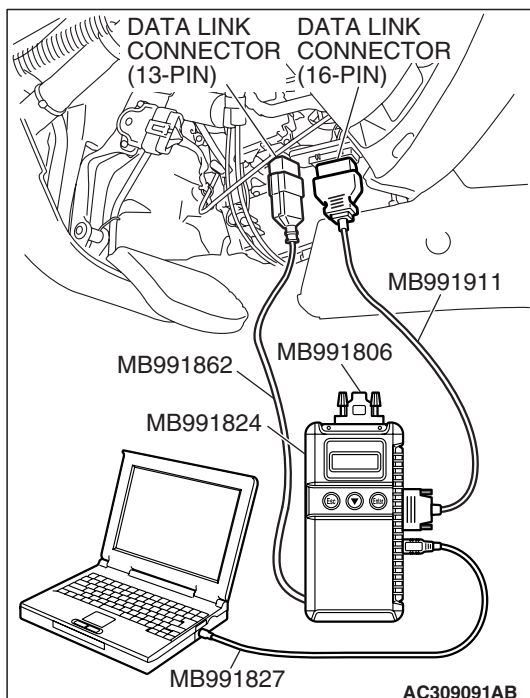
- (1) Connect the special tool. Refer to "How to connect SWS monitor [P.54B-7.](#)"
- (2) Operate scan tool MB991958 according to the procedure below to display "COLUMN ECU."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "DATA LIST."
 5. Select "COLUMN ECU."
- (3) Check that normal conditions are displayed on the items described in the table below.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 03	PASSING SW	ON

Q: Is normal condition displayed on the "PASSING SW"?

YES : Replace the front-ECU. When the passing switch is operated, the headlights (low-beam and high-beam) should illuminate normally.

NO : Refer to Inspection Procedure O-6 "ETACS-ECU does not receive any signal from the passing light switch [P.54B-516.](#)"



INSPECTION PROCEDURE J-5: Headlight and Taillight: Headlights do not illuminate when the lighting switch is at "TAIL," and "PASSING" position, but illuminate at low-beam when the switch is at "HEAD" position. At this position, the headlights cannot be changed into high beam by operating the dimmer switch.

NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor" P.54B-10.

TECHNICAL DESCRIPTION (COMMENT)

If the headlights illuminate at low-beam regardless of the lighting switch positions, the headlight operation is in fail-safe mode.

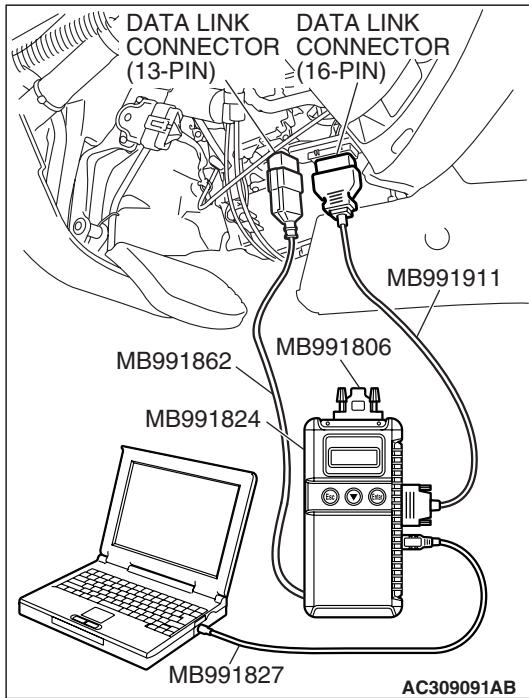
TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B
- MB991813: SWS Monitor Kit
 - MB991806: SWS Monitor Cartridge
 - MB991812: SWS Monitor Harness (For Column-ECU)
 - MB991822: Probe Harness
- MB991854: SWS Monitor Harness (For 13-pin)



Use scan tool MB991958 to select "ECU COMM CHK" on the SWS monitor display.

Check the following ECUs:

- ETACS-ECU
- Column-ECU
- Front-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 the special tool. Refer to "How to connect SWS monitor P.54B-7.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK."
- (4) Scan tool MB991958 should show "OK" on the "ECU COMM CHK" menus for the "ETACS ECU", "COLUMN ECU" and "FRONT ECU" menus.

Q: Is "OK" displayed on the "ETACS ECU", "COLUMN ECU" and "FRONT ECU" menus?

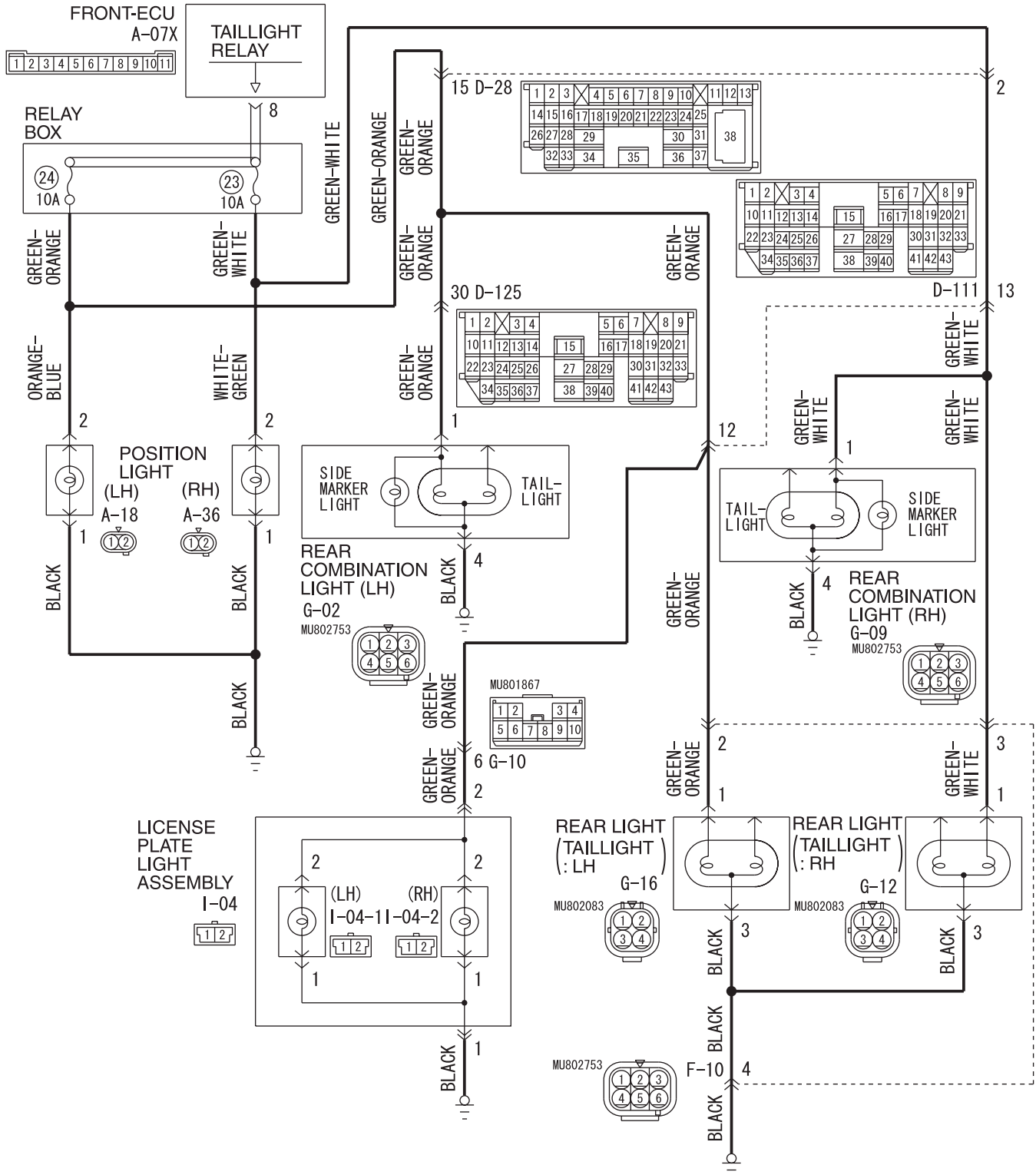
"OK" are displayed for all the items : Replace the front-ECU. Verify that the headlights and the taillights illuminate normally.

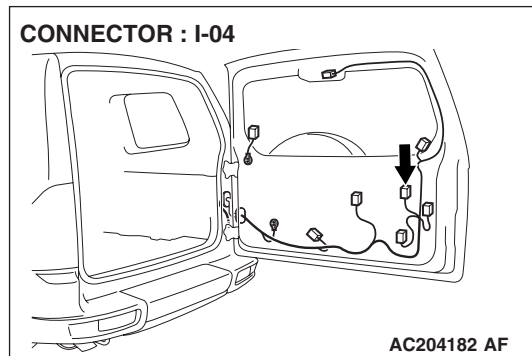
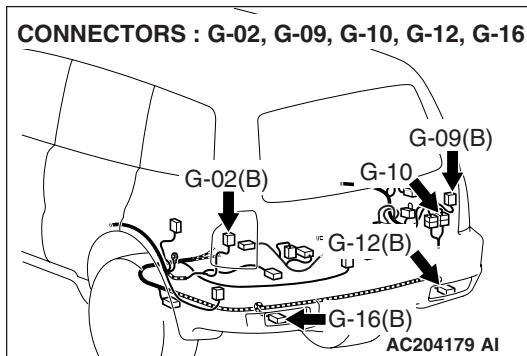
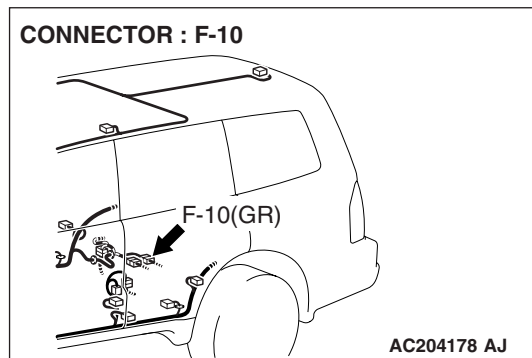
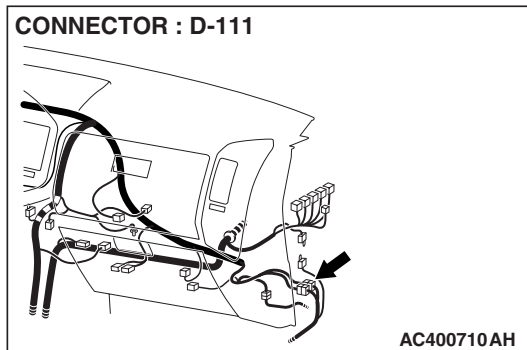
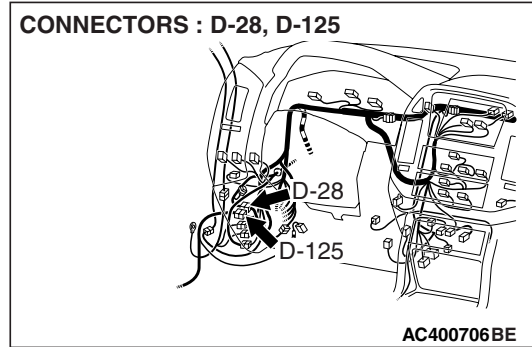
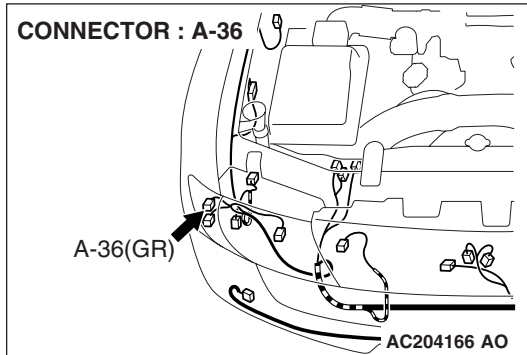
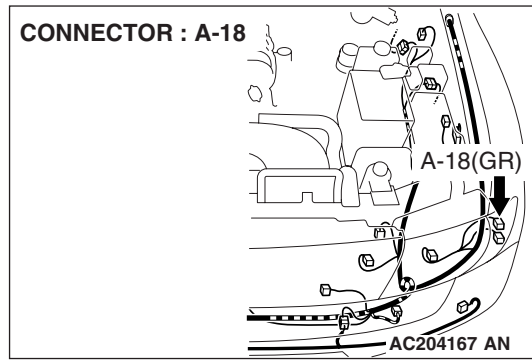
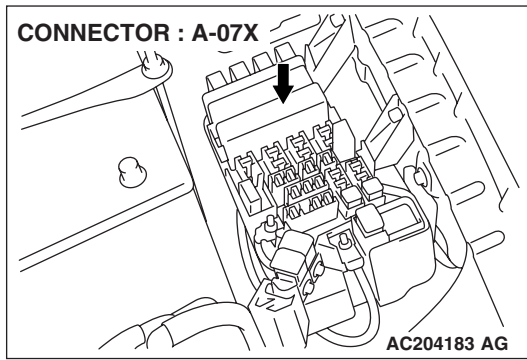
"NG" is displayed on the "ETACS ECU" menu : Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is not possible P.54B-41."

"NG" is displayed on the "COLUMN ECU" menu : Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is not possible P.54B-34."

"NG" is displayed on the "FRONT ECU" menu : Refer to Inspection procedure A-4 "Communication with front-ECU is not possible P.54B-48."

INSPECTION PROCEDURE J-6: Headlight and Taillight: Any of taillights, the position lights, the side marker lights or the license plate lights does not illuminate.





TECHNICAL DESCRIPTION (COMMENT)

If the position lights, the taillights, the side marker lights or the license plate lights do not illuminate, their bulb may be defective.

TROUBLESHOOTING HINTS

- The position light bulb may be defective

- The stop/taillight bulb may be defective
- The side marker light bulb may be defective
- The license plate light bulb may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

STEP 1. Verify the operation of each light.

Q: Which light does not illuminate?

Taillight (LH), license plate light and side marker light

(LH) : Go to Step 2.

Taillight (RH) and side marker light (RH) : Go to Step 4.

Taillight (LH) and license plate : Go to Step 6.

Position light : Go to Step 8.

Position light (LH) : Go to Step 11.

Position light (RH) : Go to Step 17.

Taillights : Go to Step 23.

Taillight (LH) : Go to Step 26.

Taillight (RH) : Go to Step 32.

License plate lights : Go to Step 38.

Side marker light (LH) : Go to Step 44.

Side marker light (RH) : Go to Step 50.

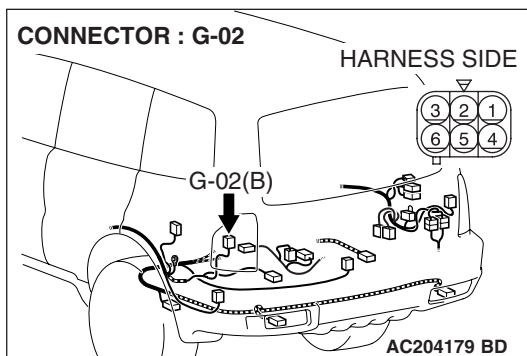
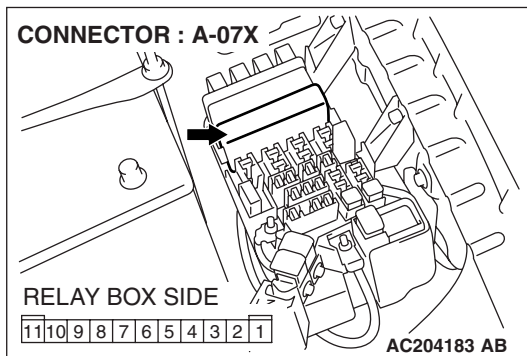
All lights : Refer to Inspection Procedure J-1 "The taillights do not illuminate [P.54B-289](#)."

STEP 2. Check rear combination light (LH) connector G-02 and front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

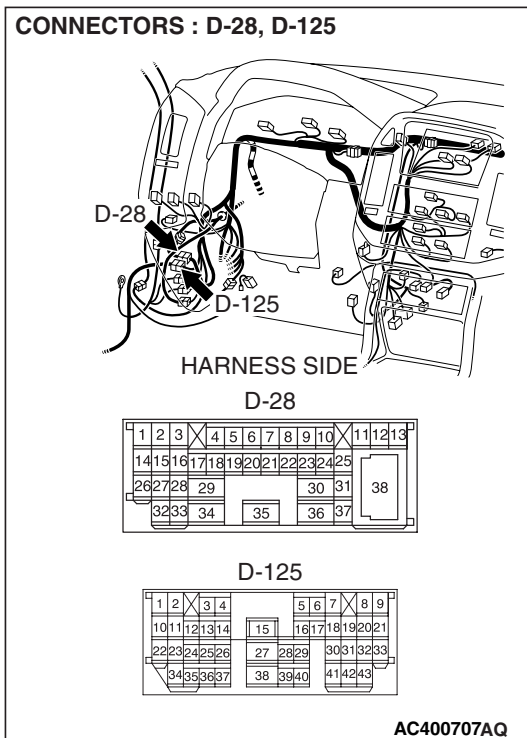
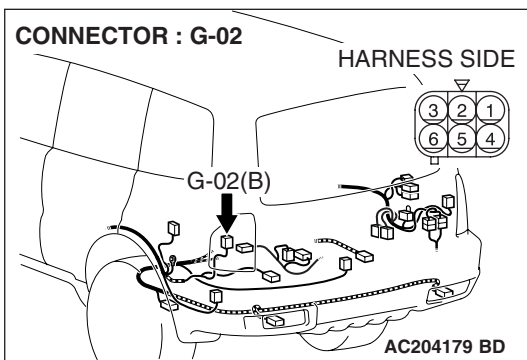
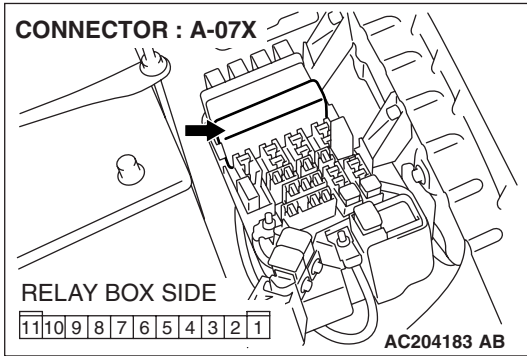
Q: Are rear combination light (LH) connector G-02 and front-ECU connector A-07X in good condition?

YES : Go to Step 3.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the taillight (LH), license plate light and side marker light (LH) illuminates normally.



STEP 3. Check the wiring harness between rear combination light (LH) connector G-02 (terminal 1) and front-ECU connector A-07X (terminal 8).



NOTE: Also check intermediate connectors D-28 and D-125 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-28 or D-125 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear combination light (LH) connector G-02 (terminal 1) and front-ECU connector A-07X (terminal 8) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the taillight (LH), license plate light and side marker light (LH) illuminates normally.

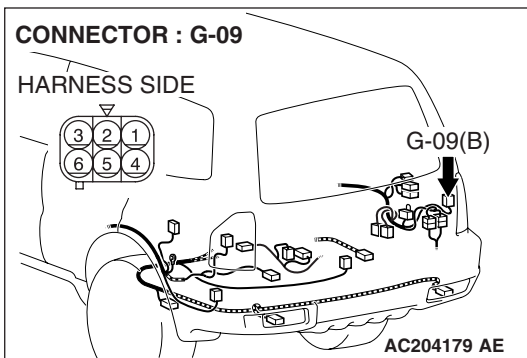
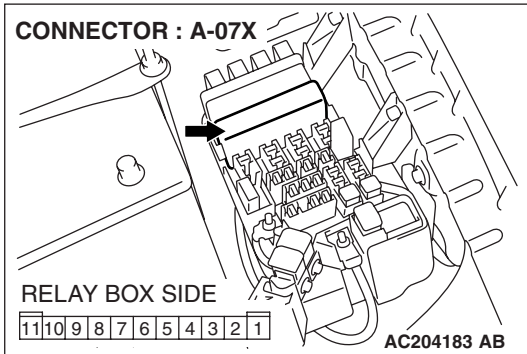
STEP 4. Check rear combination light (RH) connector G-09 and front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are rear combination light (RH) connector G-09 and front-ECU connector A-07X in good condition?

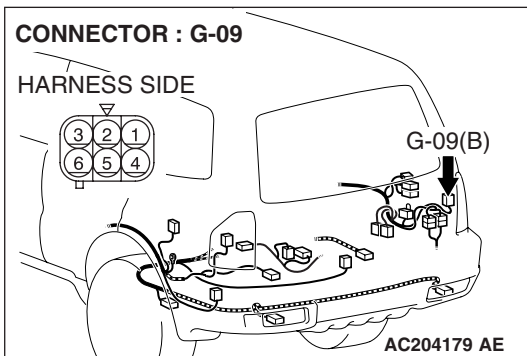
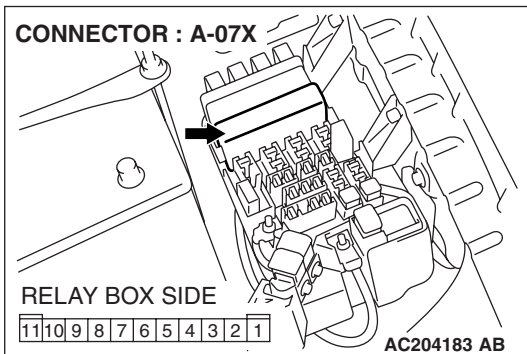
YES : Go to Step 5.

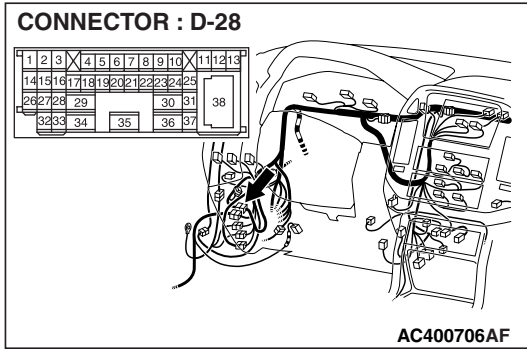
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

P.00E-2. Verify that the taillight (RH) and side marker light (RH) illuminates normally.



STEP 5. Check the wiring harness between rear combination light (RH) connector G-09 (terminal 1) and front-ECU connector A-07X (terminal 8).



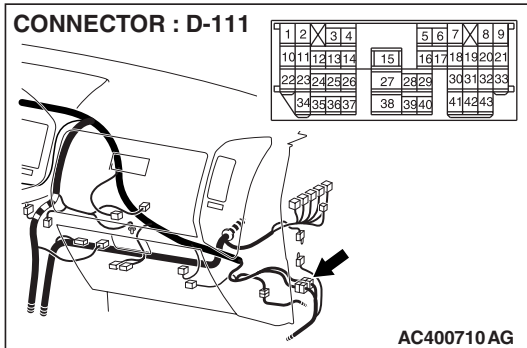


NOTE: Also check intermediate connectors D-28 and D-111 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-28 or D-111 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear combination light (RH) connector G-09 (terminal 1) and front-ECU connector A-07X (terminal 8) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the taillight (RH) and side marker light (RH) illuminates normally.

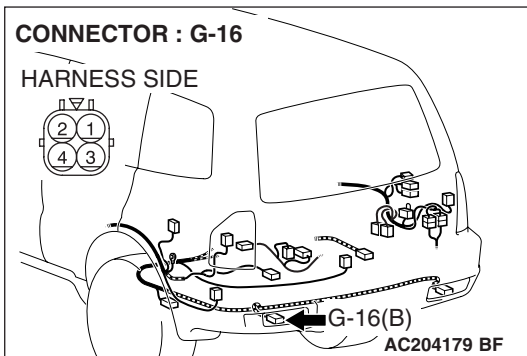
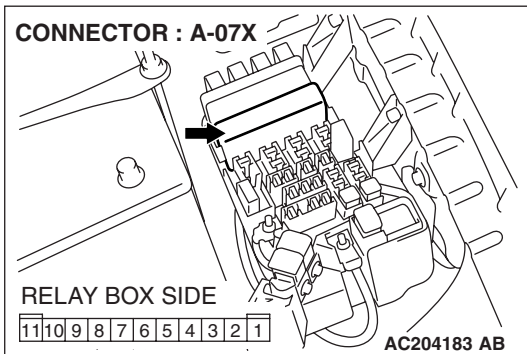


STEP 6. Check taillight (LH) connector G-16 and front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

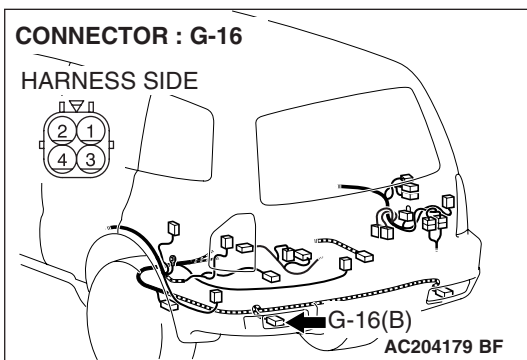
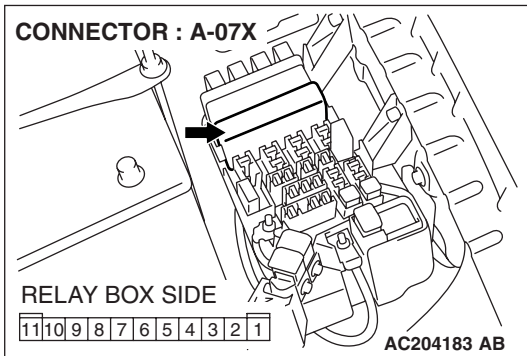
Q: Are taillight (LH) connector G-16 and front-ECU connector A-07X in good condition?

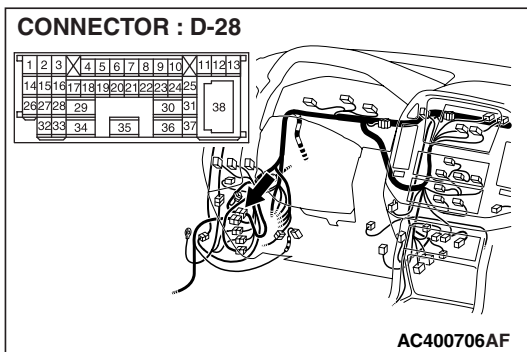
YES : Go to Step 7.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the taillight (RH) and side marker light (RH) illuminates normally.



STEP 7. Check the wiring harness between taillight (LH) connector G-16 (terminal 1) and front-ECU connector A-07X (terminal 8).



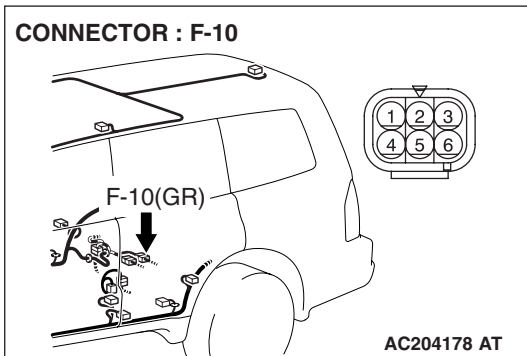
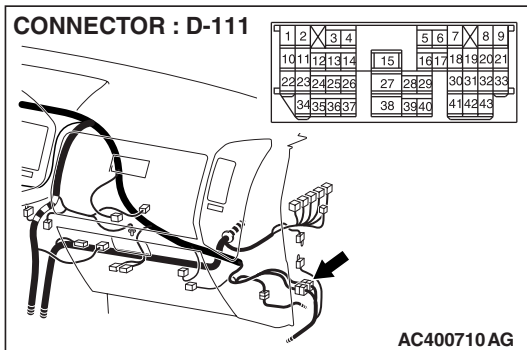


NOTE: Also check intermediate connectors D-28, D-111 and F-10 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-28, D-111 or F-10 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between taillight (LH) connector G-16 (terminal 1) and front-ECU connector A-07X (terminal 8) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the taillight (RH) and side marker light (RH) illuminates normally.

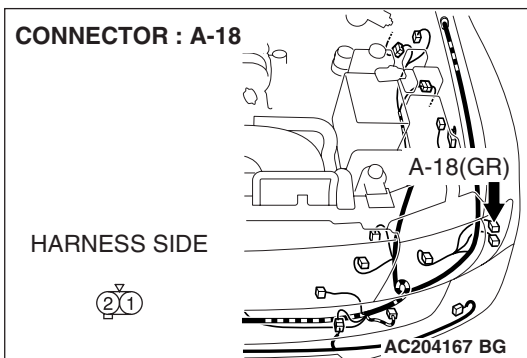


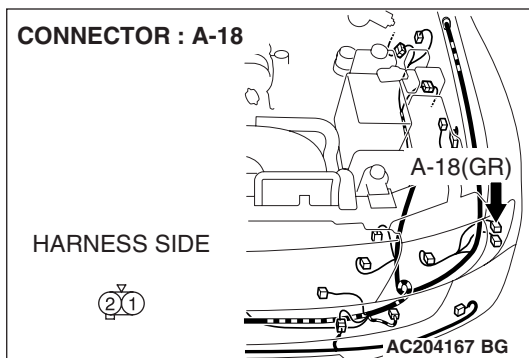
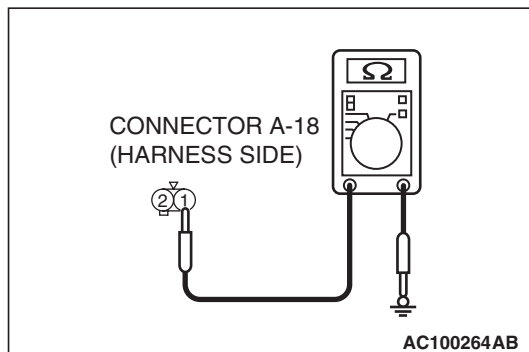
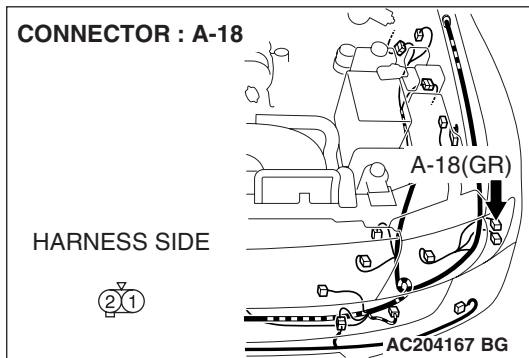
STEP 8. Check position light (LH) connector A-18 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is position light (LH) connector A-18 in good condition?

YES : Go to Step 9.

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





**STEP 9. Check the ground circuit to the position light (LH).
Test at position light (LH) connector A-18.**

(1) Disconnect position light (LH) connector A-18 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 1 and ground.
• The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : No action is necessary and testing is complete.

NO : Go to Step 10.

STEP 10. Check the wiring harness between position light (LH) connector A-18 (terminal 1) and ground.

Q: Is the wiring harness between position light (LH) connector A-18 (terminal 1) and ground in good condition?

YES : No action is necessary and testing is complete.

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

STEP 11. Check the position light bulb (LH).

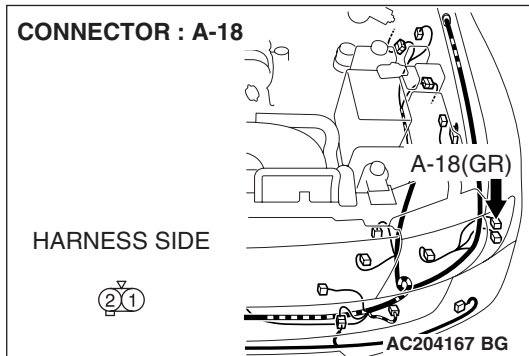
(1) Remove the position light bulb (LH).

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

Q: Is the position light bulb (LH) in good condition?

YES : Go to Step 12.

NO : Replace the position light bulb (LH). Verify that the position light (LH) illuminates normally.

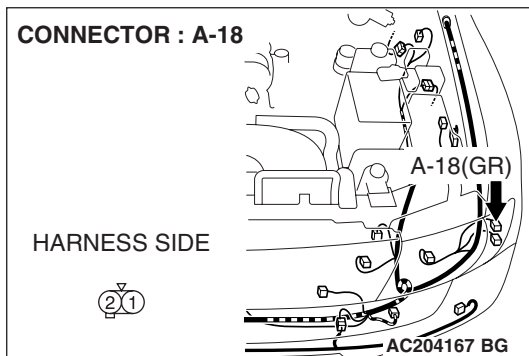


STEP 12. Check position light (LH) connector A-18 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is position light (LH) connector A-18 in good condition?

YES : Go to Step 13.

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



STEP 13. Check the ground circuit to the position light (LH). Test at position light (LH) connector A-18.

(1) Disconnect position light (LH) connector A-18 and measure the resistance available at the wiring harness side of the connector.

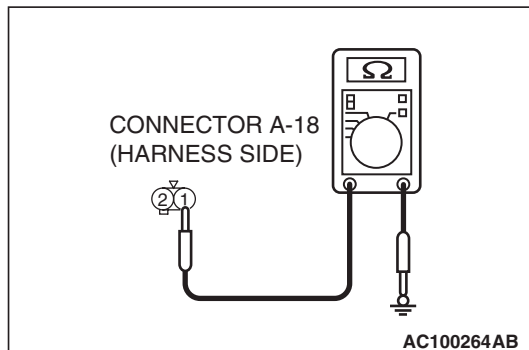
(2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 15.

NO : Go to Step 14.

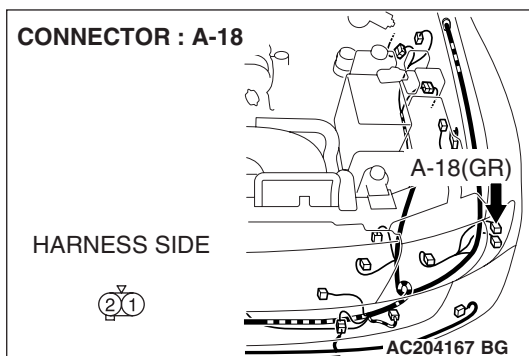


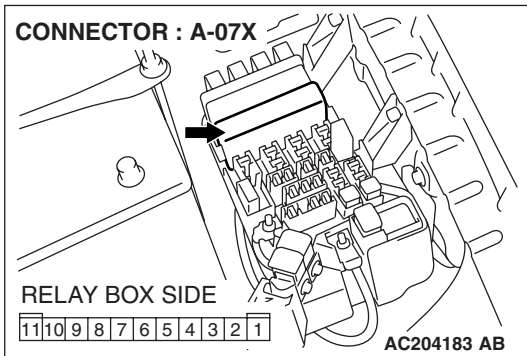
STEP 14. Check the wiring harness between position light (LH) connector A-18 (terminal 1) and ground.

Q: Is the wiring harness between position light (LH) connector A-18 (terminal 1) and ground in good condition?

YES : Replace the position light socket (LH). Verify that the position light (LH) illuminates normally.

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



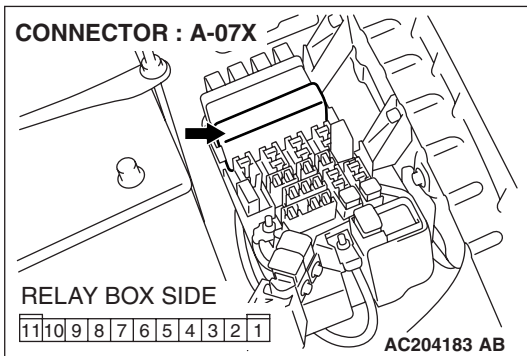


STEP 15. Check front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front-ECU connector A-07X in good condition?

YES : Go to Step 16.

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

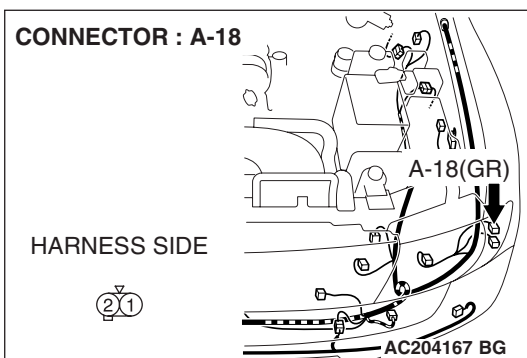


STEP 16. Check the wiring harness between position light (LH) connector A-18 (terminal 2) and front-ECU connector A-07X (terminal 8).

Q: Is the wiring harness between position light (LH) connector A-18 (terminal 2) and front-ECU connector A-07X (terminal 8) in good condition?

YES : No action is necessary and testing is complete.

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



STEP 17. Check the position light bulb (RH).

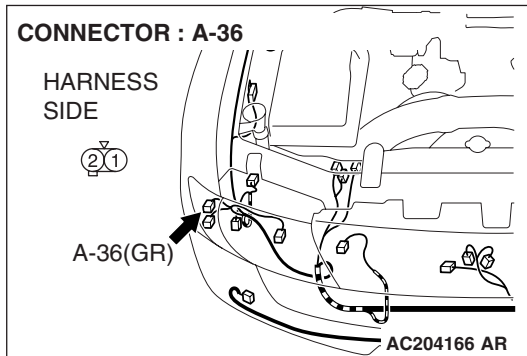
(1) Remove the position light bulb (RH).

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

Q: Is the position light bulb (RH) in good condition?

YES : Go to Step 18.

NO : Replace the position light bulb (RH). Verify that the position light (RH) illuminates normally.

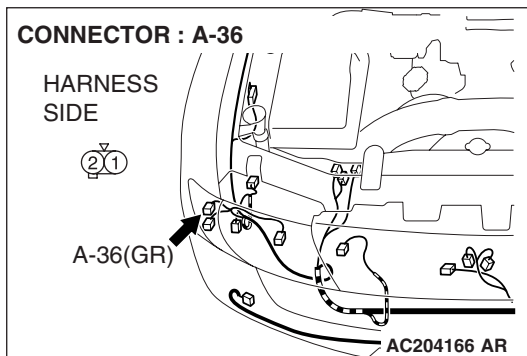


STEP 18. Check position light (RH) connector A-36 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is position light (RH) connector A-36 in good condition?

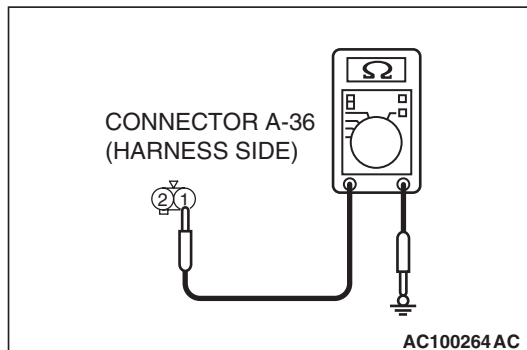
YES : Go to Step 19.

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



STEP 19. Check the ground circuit to the position light (RH). Test at position light (RH) connector A-36.

(1) Disconnect position light (RH) connector A-36 and measure the resistance available at the wiring harness side of the connector.



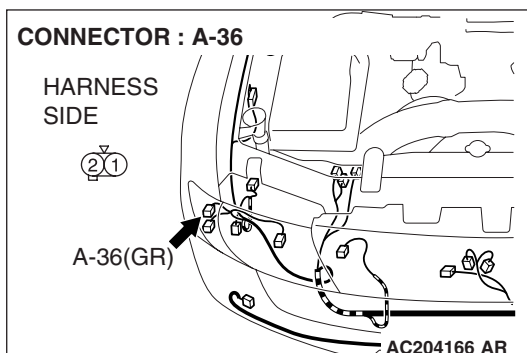
(2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 21.

NO : Go to Step 20.

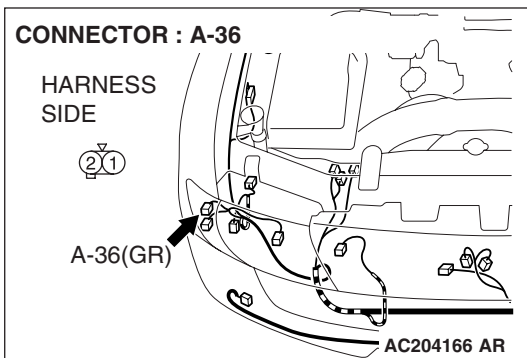
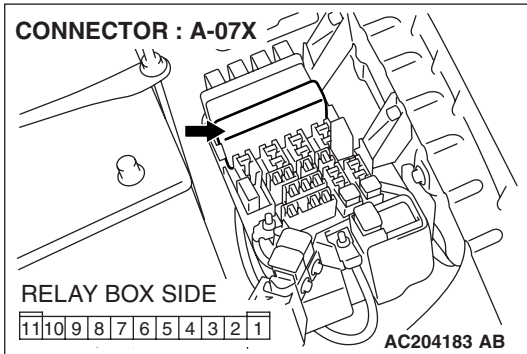


STEP 20. Check the wiring harness between position light (RH) connector A-36 (terminal 1) and ground.

Q: Is the wiring harness between position light (RH) connector A-36 (terminal 1) and ground in good condition?

YES : Replace the position light socket (RH). Verify that the position light (RH) illuminates normally.

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



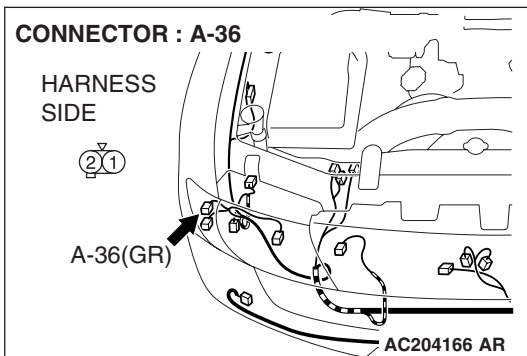
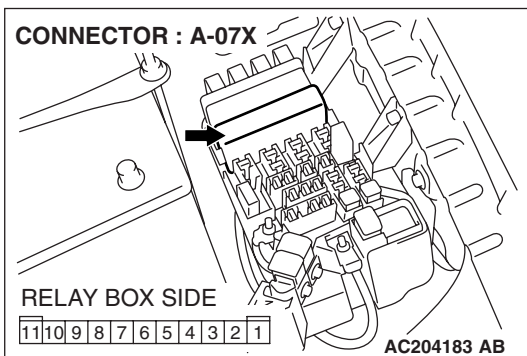
STEP 21. Check position light (RH) connector A-36 and front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are position light (RH) connector A-36 and front-ECU connector A-07X in good condition?

YES : Go to Step 22.

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

P.00E-2. Verify that the position light (RH) illuminates normally.

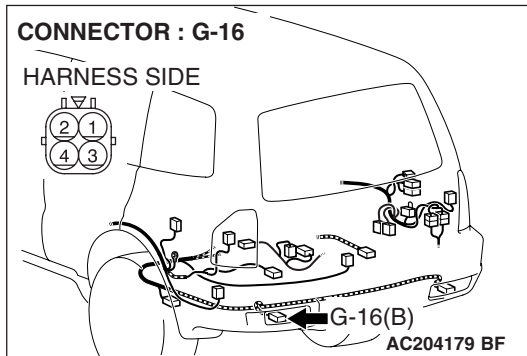


STEP 22. Check the wiring harness between position light (RH) connector A-36 (terminal 2) and front-ECU connector A-07X (terminal 8).

Q: Is the wiring harness between position light (RH) connector A-36 (terminal 2) and front-ECU connector A-07X (terminal 8) in good condition?

YES : No action is necessary and testing is complete.

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



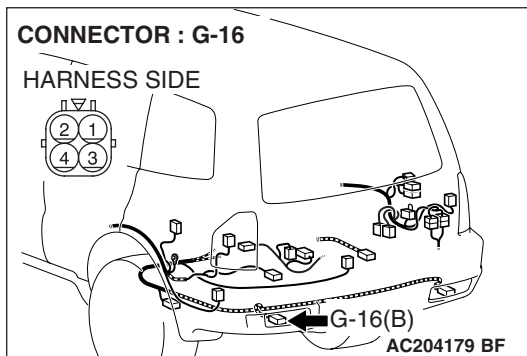
STEP 23. Check rear light (LH) connector G-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear light (LH) connector G-16 in good condition?

YES : Go to Step 24.

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

P.00E-2. Verify that the taillights illuminate normally.



STEP 24. Check the ground circuit to the taillight (LH). Test at rear light (LH) connector G-16.

(1) Disconnect rear light (LH) connector G-16 and measure the resistance available at the wiring harness side of the connector.

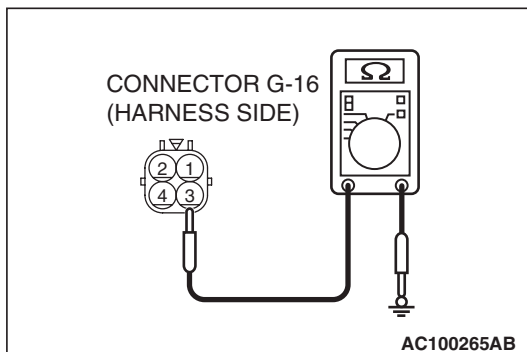
(2) Measure the resistance value between terminal 3 and ground.

- The resistance should equal 2 ohms or less.

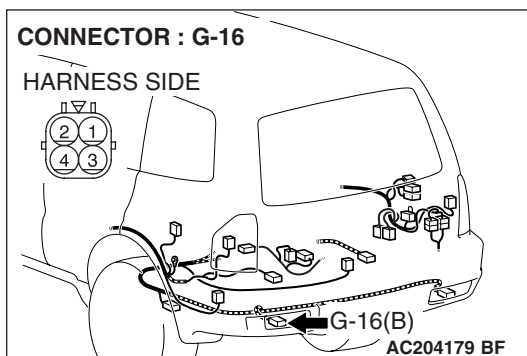
Q: Is the measured resistance 2 ohms or less?

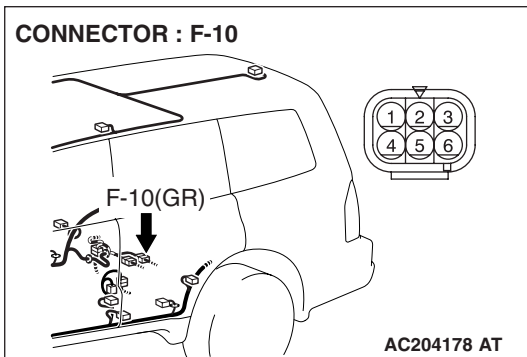
YES : No action is necessary and testing is complete.

NO : Go to Step 25.



STEP 25. Check the wiring harness between rear light (LH) connector G-16 (terminal 3) and ground.





NOTE: Also check intermediate connector F-10 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-10 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear light (LH) connector G-16 (terminal 3) and ground in good condition?

YES : No action is necessary and testing is complete.

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

STEP 26. Check the taillight bulb (LH).

- (1) Remove the taillight bulb (LH).
- (2) Verify that the taillight bulb (LH) is not damaged or burned out.

Q: Is the taillight bulb (LH) in good condition?

YES : Go to Step 27.

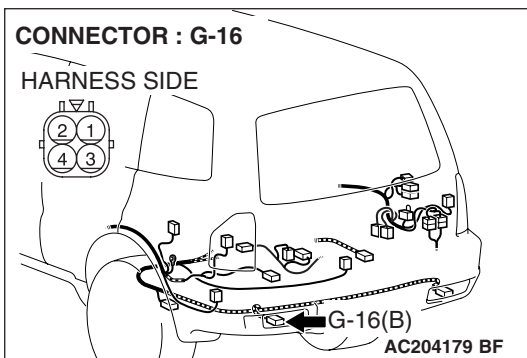
NO : Replace the taillight bulb (LH). Verify that the taillights (LH) illuminates normally.

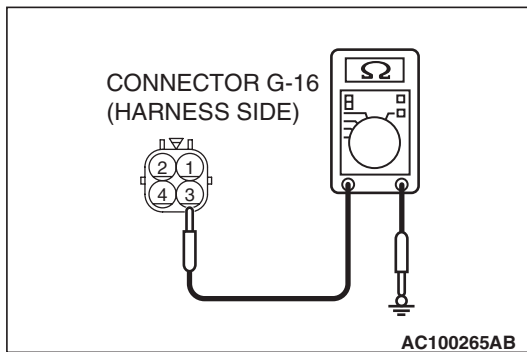
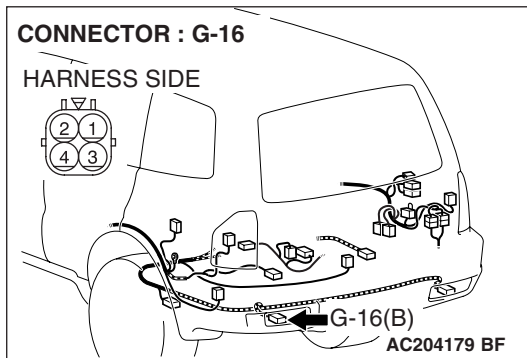
STEP 27. Check rear light (LH) connector G-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear light (LH) connector G-16 in good condition?

YES : Go to Step 28.

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





STEP 28. Check the ground circuit to the taillight (LH). Test at rear light (LH) connector G-16.

(1) Disconnect rear light (LH) connector G-16 and measure the resistance available at the wiring harness side of the connector.

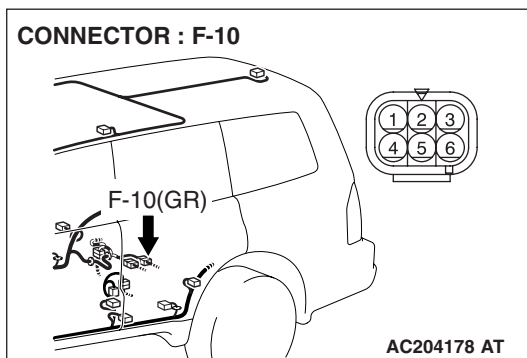
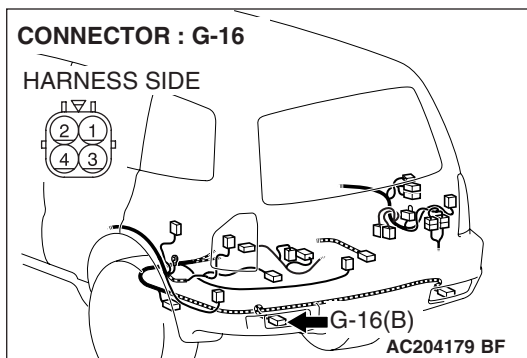
(2) Measure the resistance value between terminal 3 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 30.

NO : Go to Step 29.



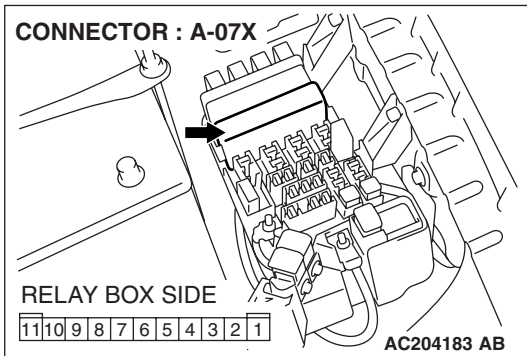
STEP 29. Check the wiring harness between rear light (LH) connector G-16 (terminal 3) and ground.

NOTE: Also check intermediate connector F-10 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-10 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear light (LH) connector G-16 (terminal 3) and ground in good condition?

YES : Replace the rear combination light socket (LH). Verify that the taillight (LH) illuminates normally.

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

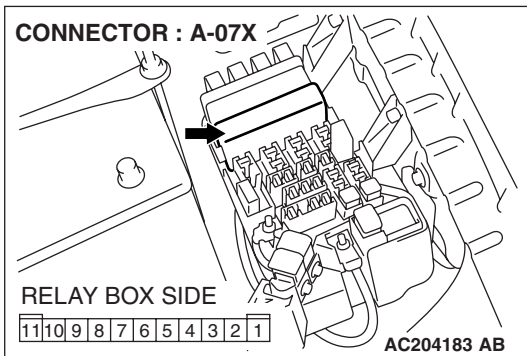


STEP 30. Check front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

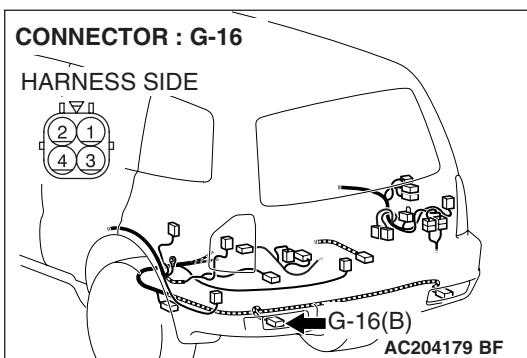
Q: Is front-ECU connector A-07X in good condition?

YES : Go to Step 31.

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

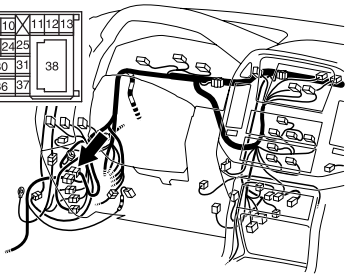


STEP 31. Check the wiring harness between rear light (LH) connector G-16 (terminal 1) and front-ECU connector A-07X (terminal 8).



CONNECTOR : D-28

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	
26	27	28	29		30	31						38
32	33	34	35	36	37							



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NOTE: Also check intermediate connectors D-28, D-111 and F-10 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-28, D-111 or F-10 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

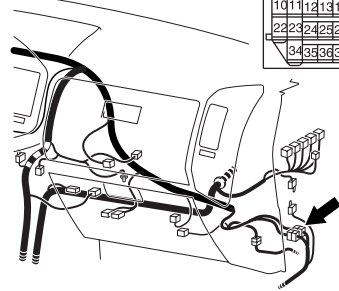
Q: Is the wiring harness between rear light (LH) connector G-16 (terminal 1) and front-ECU connector A-07X (terminal 8) in good condition?

YES : Replace the rear combination light socket (LH). Verify that the taillights (LH) illuminates normally.

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

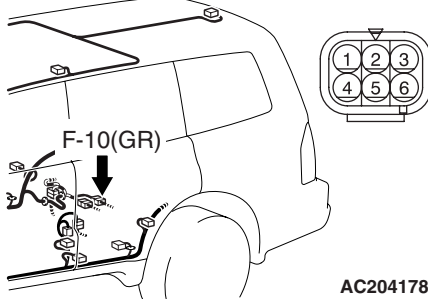
CONNECTOR : D-111

1	2	3	4		5	6	7	8	9		
10	11	12	13	14	15	16	17	18	19	20	21
22	23	24	25	26	27	28	29	30	31	32	33
34	35	36	37		38	39	40	41	42	43	



AC400710AG

CONNECTOR : F-10



AC204178 AT

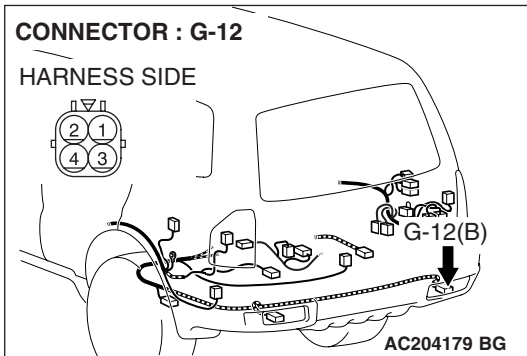
STEP 32. Check the taillight bulb (RH).

- (1) Remove the taillight bulb (RH).
- (2) Verify that the taillight bulb (RH) is not damaged or burned out.

Q: Is the taillight bulb (RH) in good condition?

YES : Go to Step 33.

NO : Replace the taillight bulb (RH). Verify that the taillight (RH) illuminates normally.

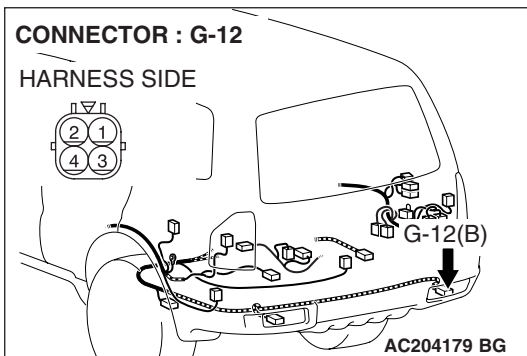


STEP 33. Check rear light (RH) connector G-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear light (RH) connector G-12 in good condition?

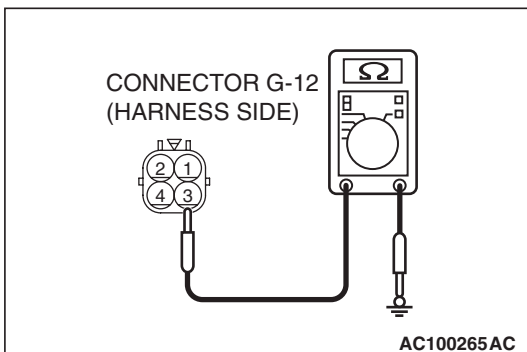
YES : Go to Step 34.

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



STEP 34. Check the ground circuit to the taillight (RH). Test at rear light (RH) connector G-12.

(1) Disconnect rear light (RH) connector G-12 and measure the resistance available at the wiring harness side of the connector.



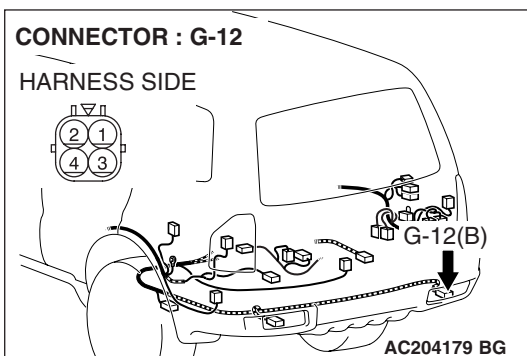
(2) Measure the resistance value between terminal 3 and ground.

- The resistance should equal 2 ohms or less.

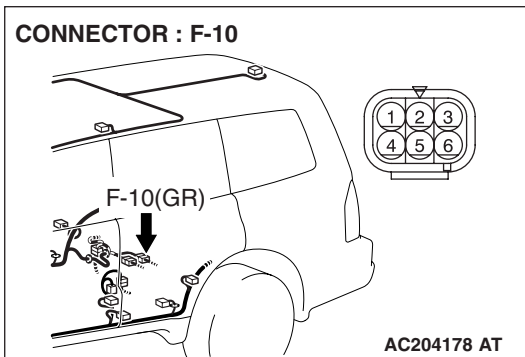
Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 36.

NO : Go to Step 35.



STEP 35. Check the wiring harness between rear light (RH) connector G-12 (terminal 3) and ground.

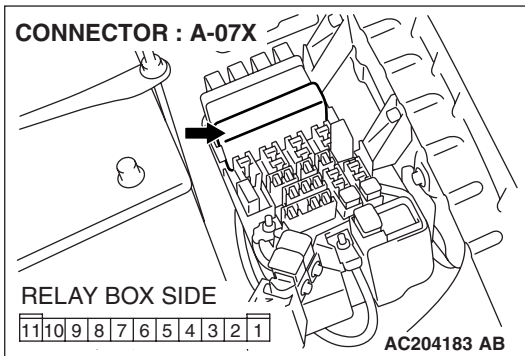


NOTE: Also check intermediate connector F-10 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-10 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear light (RH) connector G-12 (terminal 3) and ground in good condition?

YES : Replace the rear combination light socket (RH). Verify that the taillight (RH) illuminates normally.

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



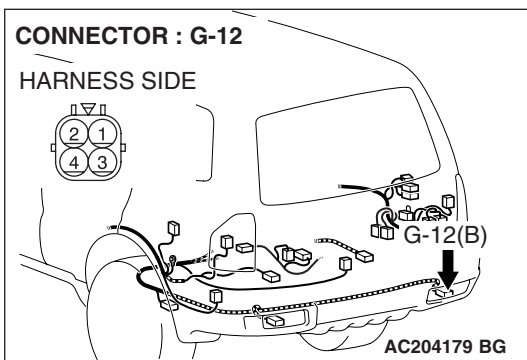
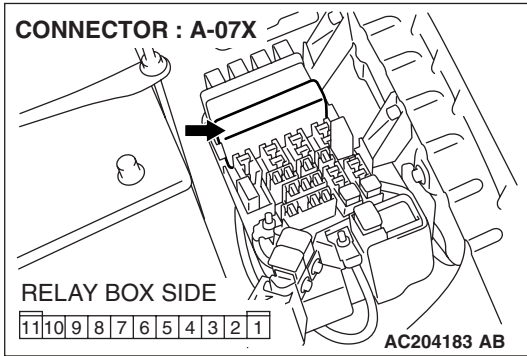
STEP 36. Check front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front-ECU connector A-07X in good condition?

YES : Go to Step 37.

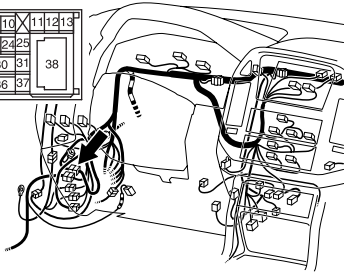
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the taillight (RH) illuminates normally.

STEP 37. Check the wiring harness between rear light (RH) connector G-12 (terminal 1) and front-ECU connector A-07X (terminal 8).



CONNECTOR : D-28

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	
26	27	28	29		30	31						
32	33	34	35	36	37						38	



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NOTE: Also check intermediate connectors D-28, D-111 and F-10 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-28, D-111 or F-10 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

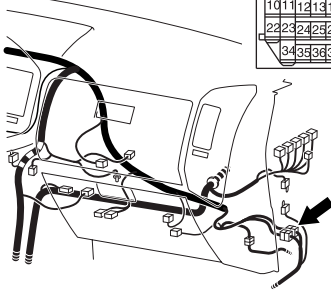
Q: Is the wiring harness between rear light (RH) connector G-12 (terminal 1) and front-ECU connector A-07X (terminal 8) in good condition?

YES : Replace the rear light socket (RH). Verify that the taillight (RH) illuminates normally.

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

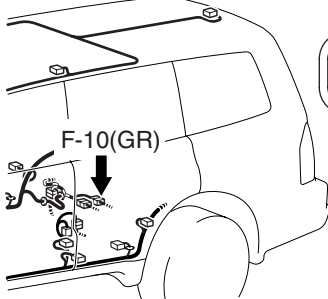
CONNECTOR : D-111

1	2	3	4		5	6	7	8	9		
10	11	12	13	14	15	16	17	18	19	20	21
22	23	24	25	26	27	28	29	30	31	32	33
34	35	36	37		38	39	40	41	42	43	



AC400710AG

CONNECTOR : F-10



AC204178 AT

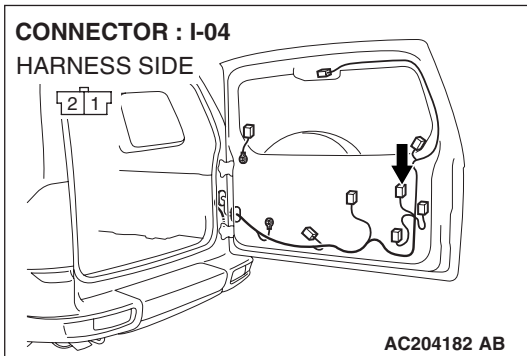
STEP 38. Check the license plate light bulb.

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

Q: Is the license plate light bulb in good condition?

YES : Go to Step 39.

NO : Replace the license plate light bulb. Verify that the license plate light illuminate normally.

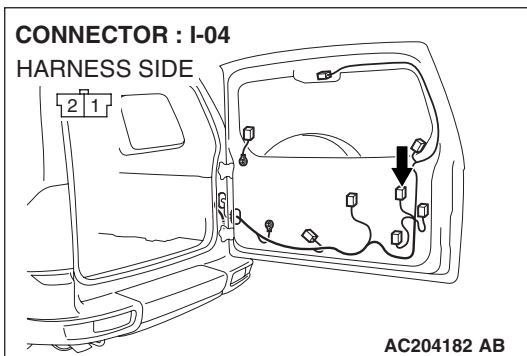


STEP 39. Check license plate light assembly connector I-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is license plate light assembly connector I-04 in good condition?

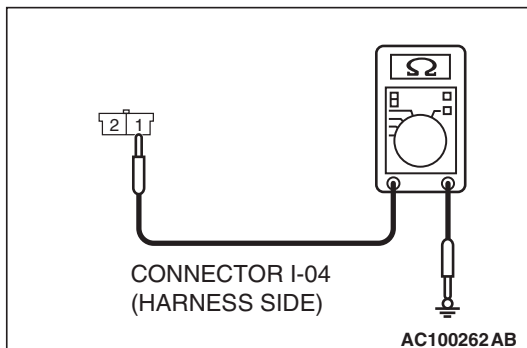
YES : Go to Step 40.

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



STEP 40. Check the ground circuit to the license plate light. Test at license plate light assembly connector I-04.

(1) Disconnect license plate light assembly connector I-04 and measure the resistance available at the wiring harness side of the connector.



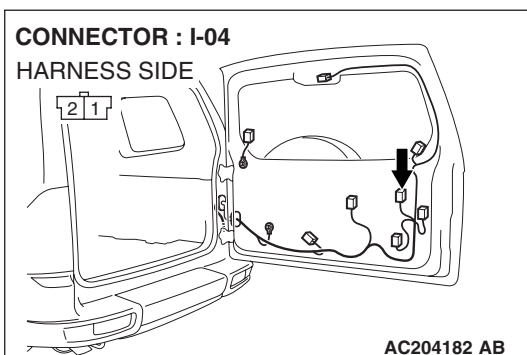
(2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 42.

NO : Go to Step 41.

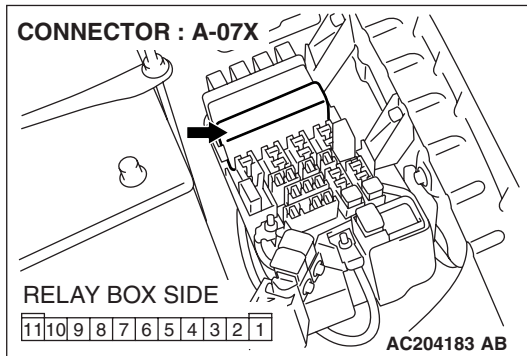


STEP 41. Check the wiring harness between license plate light assembly connector I-04 (terminal 1) and ground.

Q: Is the wiring harness between license plate light assembly connector I-04 (terminal 1) and ground in good condition?

YES : No action is necessary and testing is complete.

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

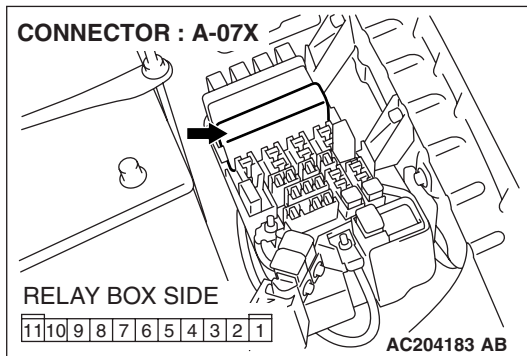


STEP 42. Check front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

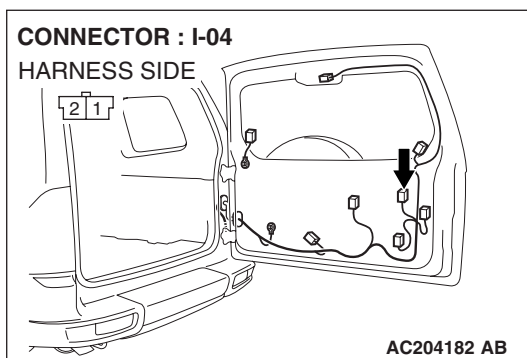
Q: Is front-ECU connector A-07X in good condition?

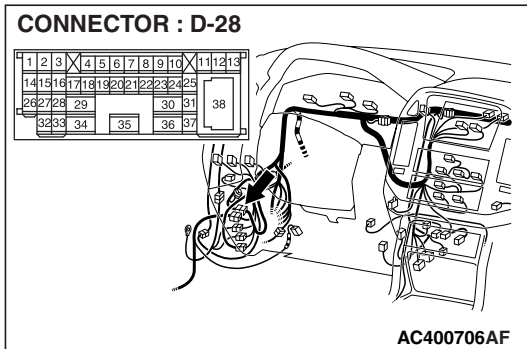
YES : Go to Step 43.

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



STEP 43. Check the wiring harness between license plate light assembly connector I-04 (terminal 2) and front-ECU connector A-07X (terminal 8).



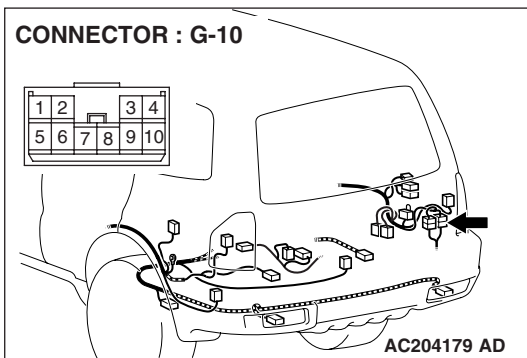
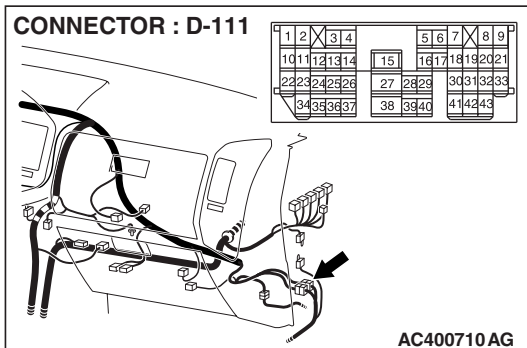


NOTE: Also check intermediate connectors D-28, D-111 and G-10 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-28, D-111 or G-10 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between license plate light assembly connector I-04 (terminal 2) and front-ECU connector A-07X (terminal 8) in good condition?

YES : No action is necessary and testing is complete.

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



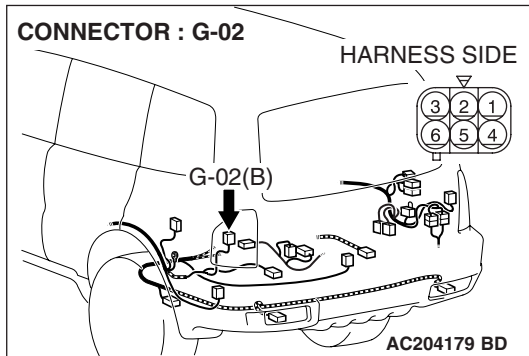
STEP 44. Check the side marker light bulb (LH).

- (1) Remove the side marker light bulb (LH).
- (2) Verify that the side marker light bulb (LH) is not damaged or burned out.

Q: Is the side marker light bulb (LH) in good condition?

YES : Go to Step 45.

NO : Replace the side marker light bulb (LH). Verify that the side marker lights (LH) illuminates normally.

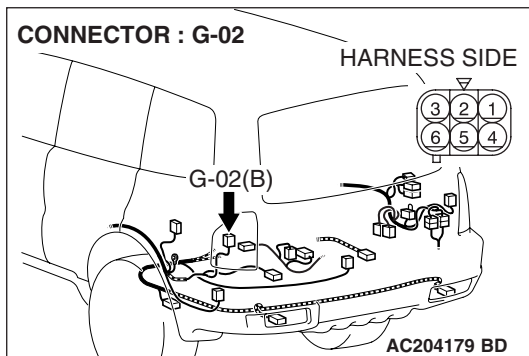


STEP 45. Check side marker light (LH) connector G-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is side marker light (LH) connector G-02 in good condition?

YES : Go to Step 46.

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



STEP 46. Check the ground circuit to the side marker light (LH). Test at side marker light (LH) connector G-02.

(1) Disconnect side marker light (LH) connector G-02 and measure the resistance available at the wiring harness side of the connector.

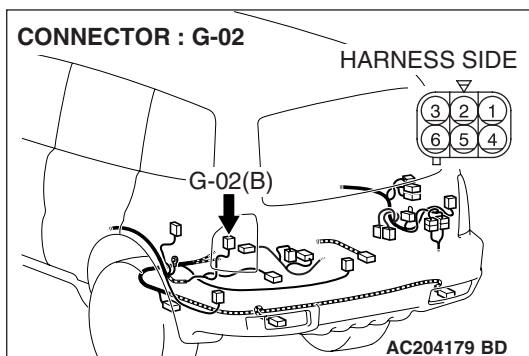
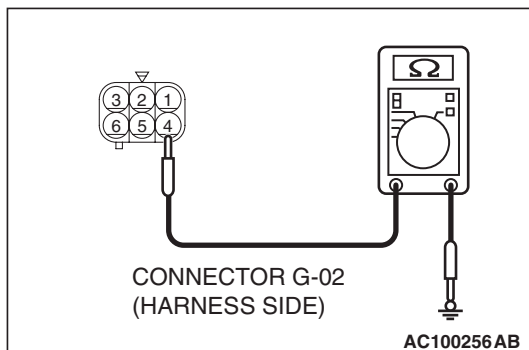
(2) Measure the resistance value between terminal 4 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 48.

NO : Go to Step 47.

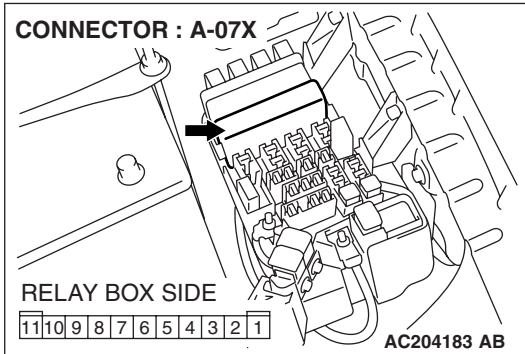


STEP 47. Check the wiring harness between side marker light (LH) connector G-02 (terminal 4) and ground.

Q: Is the wiring harness between side marker light (LH) connector G-02 (terminal 4) and ground in good condition?

YES : Replace the side marker light socket. Verify that the side marker light (LH) illuminates normally.

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

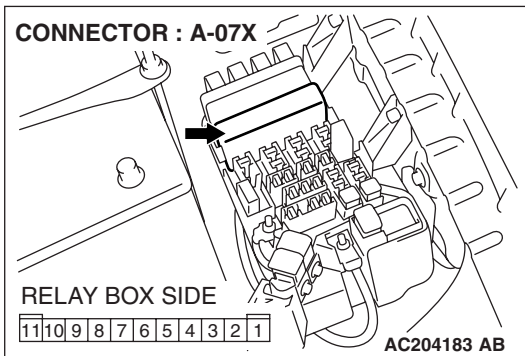


STEP 48. Check front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

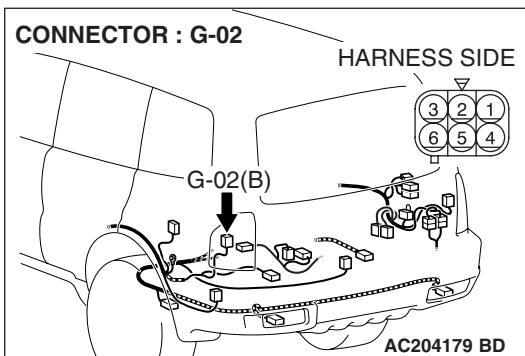
Q: Is front-ECU connector A-07X in good condition?

YES : Go to Step 49.

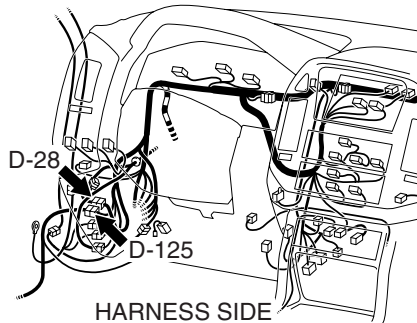
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the side marker light (LH) illuminates normally.



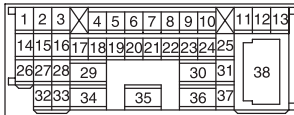
STEP 49. Check the wiring harness between side marker light (LH) connector G-02 (terminal 1) and front-ECU connector A-07X (terminal 8).



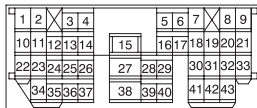
CONNECTORS : D-28, D-125



HARNESS SIDE
D-28



D-125



AC400707AQ

NOTE: Also check intermediate connectors D-28 and D-125 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-28 or D-125 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between side marker light (LH) connector G-02 (terminal 1) and front-ECU connector A-07X (terminal 8) in good condition?

YES : Replace the license plate light socket. Verify that the side marker light (LH) illuminates normally.

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

STEP 50. Check the side marker light bulb (RH).

- (1) Remove the side marker light bulb (RH).
- (2) Verify that the side marker light bulb (RH) is not damaged or burned out.

Q: Is the side marker light bulb (RH) in good condition?

YES : Go to Step 51.

NO : Replace the side marker light bulb (RH). Verify that the side marker lights (RH) illuminates normally.

STEP 51. Check side marker light (RH) connector G-09 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

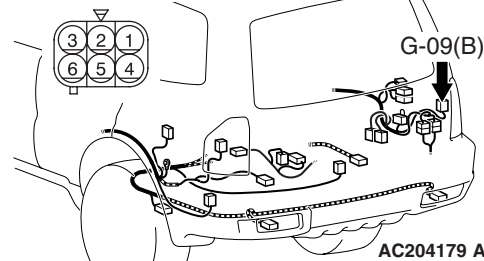
Q: Is side marker light (RH) connector G-09 in good condition?

YES : Go to Step 52.

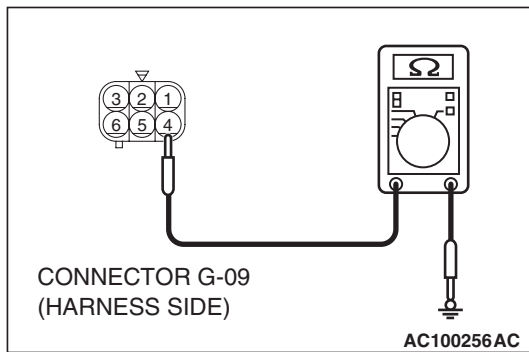
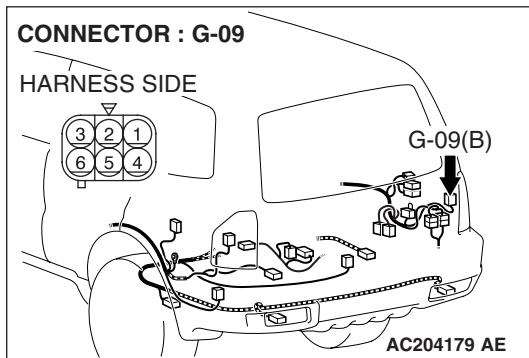
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the side marker light (RH) illuminates normally.

CONNECTOR : G-09

HARNESS SIDE



AC204179 AE



STEP 52. Check the ground circuit to the side marker light (RH). Test at side marker light (RH) connector G-09.

(1) Disconnect side marker light (RH) connector G-09 and measure the resistance available at the wiring harness side of the connector.

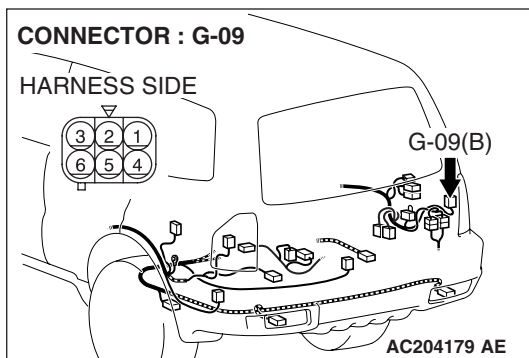
(2) Measure the resistance value between terminal 4 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 54.

NO : Go to Step 53.

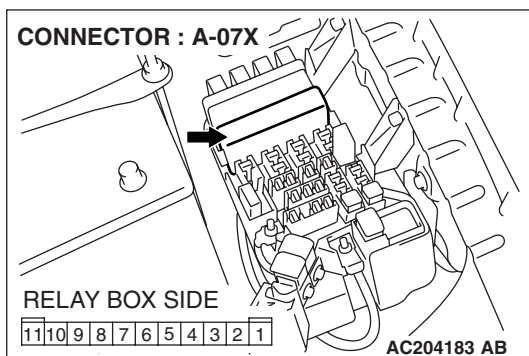


STEP 53. Check the wiring harness between side marker light (RH) connector G-09 (terminal 4) and ground.

Q: Is the wiring harness between side marker light (RH) connector G-09 (terminal 4) and ground in good condition?

YES : Replace the license plate light socket. Verify that the side marker light (RH) illuminates normally.

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



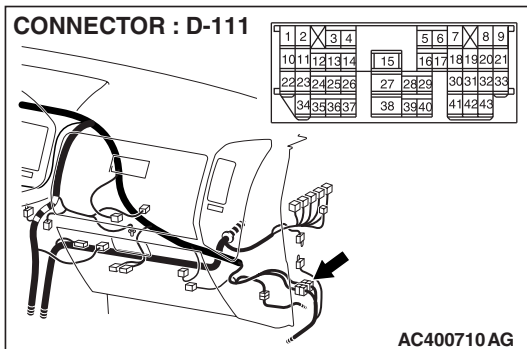
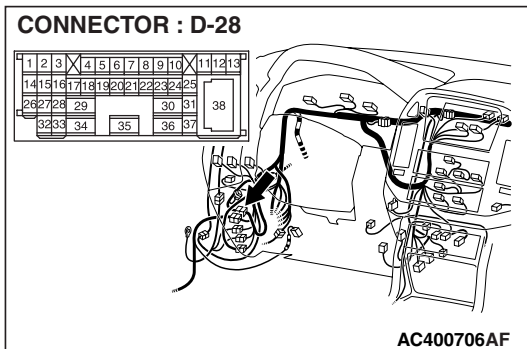
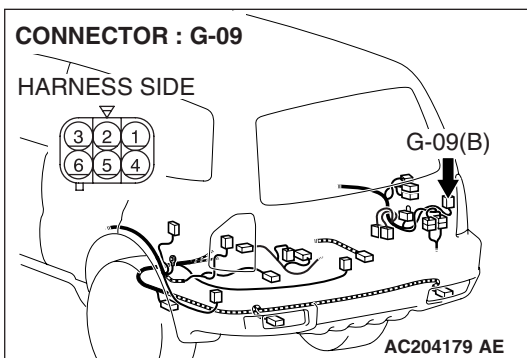
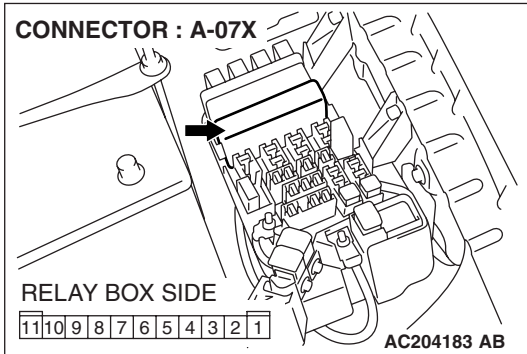
STEP 54. Check front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front-ECU connector A-07X in good condition?

YES : Go to Step 55.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the side marker light (RH) illuminates normally.

STEP 55. Check the wiring harness between side marker light (RH) connector G-09 (terminal 1) and front-ECU connector A-07X (terminal 8).



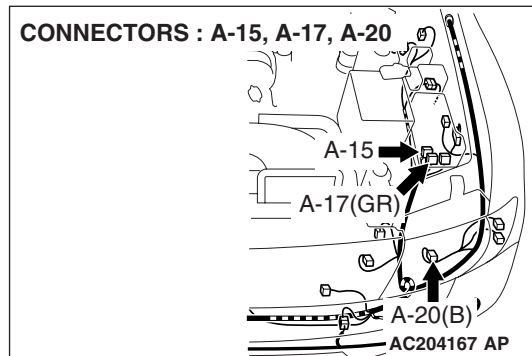
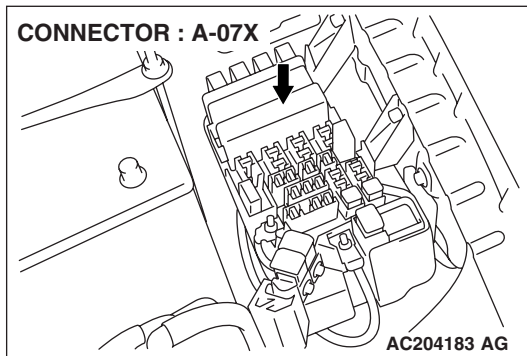
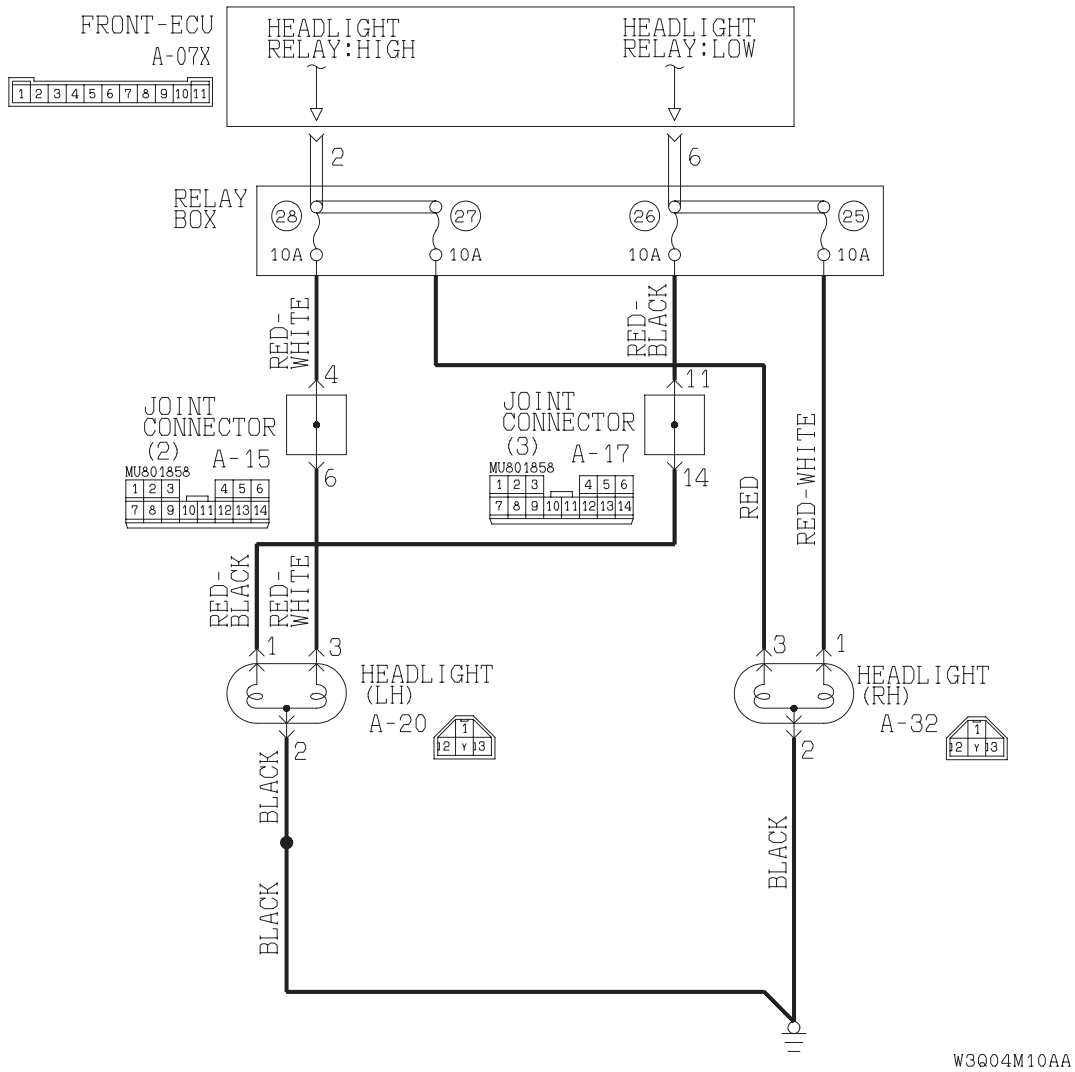
NOTE: Also check intermediate connectors D-28 and D-111 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-28 or D-111 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, [Harness Connector Inspection P.00E-2](#).

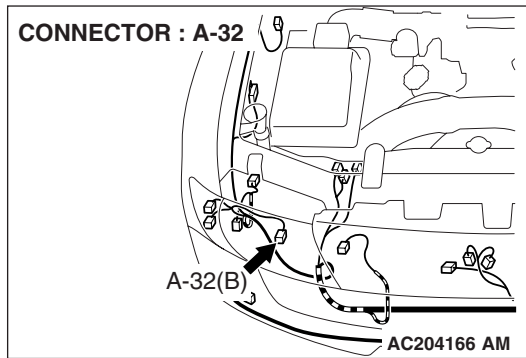
Q: Is the wiring harness between side marker light (RH) connector G-09 (terminal 1) and front-ECU connector A-07X (terminal 8) in good condition?

- YES :** Replace the license plate light socket. Verify that the side marker light (RH) illuminates normally.
- NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the side marker light (RH) illuminates normally.

Inspection Procedure J-7: Headlight and Taillight: One of the headlights does not illuminate.

Headlights Circuit



**TECHNICAL DESCRIPTION (COMMENT)**

If one of the headlights does not illuminate, a headlight bulb may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tool:**

- MB991223: Test Harness Set

STEP1. Check the headlight operation.**Q: Which of the headlights does not illuminate?**

LH (low and high beam) : Go to Step 2.

RH (low and high beam) : Go to Step 5.

LH (only low beam) : Go to Step 8.

RH (only low beam) : Go to Step 11.

LH (only high beam) : Go to Step 14.

RH (only high beam) : Go to Step 17.

Low beam only (both RH and LH) : Refer to Inspection Procedure J-2 "Headlights (low-beam) do not illuminate [P.54B-294](#)."

High beam only (both RH and LH) : Refer to Inspection Procedure J-3 "Headlights (high-beam) do not illuminate [P.54B-299](#)."

STEP 2. Check headlight (LH) bulb.

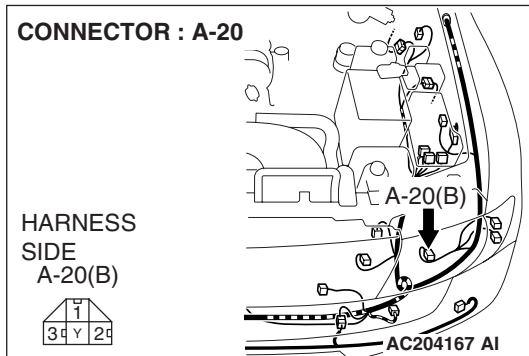
(1) Remove the headlight (LH) bulb.

(2) Verify that the headlight (LH) bulb is not damaged or burned out.

Q: Is headlight (LH) bulb normal?

YES : Go to Step 3.

NO : Replace the headlight (LH) bulb. Verify that the headlights illuminate normally.

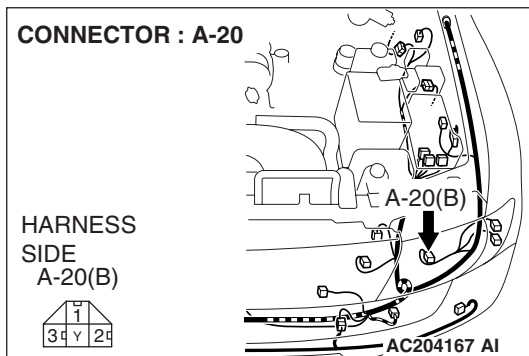


STEP 3. Check headlight (LH) connector A-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is headlight (LH) connector A-20 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. Verify that the headlights illuminate normally.

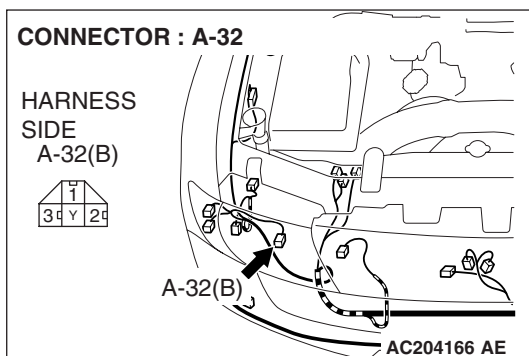


STEP 4. Check the wiring harness between headlight (LH) connector A-20 (terminal 2) and ground.

Q: Is the wiring harness between headlight (LH) connector A-20 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

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



STEP 5. Check headlight (RH) bulb.

- (1) Remove the headlight (RH) bulb.
- (2) Verify that the headlight (RH) bulb is not damaged or burned out.

Q: Is headlight (RH) bulb normal?

YES : Go to Step 6.

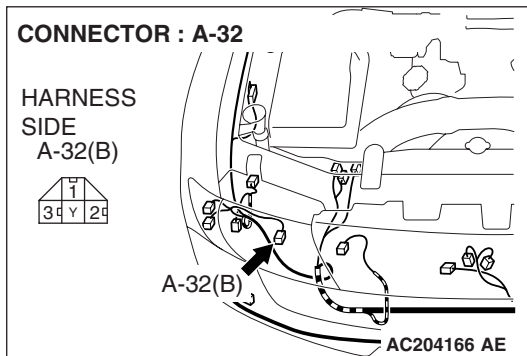
NO : Replace the headlight (RH) bulb. Verify that the headlights illuminate normally.

STEP 6. Check headlight (RH) connector A-32 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is headlight (RH) connector A-32 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. Verify that the headlights illuminate normally.



STEP 7. Check the wiring harness between headlight (RH) connector A-32 (terminal 2) and ground.

Q: Is the wiring harness between headlight (RH) connector A-32 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

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

STEP 8. Check headlight (LH) bulb.

(1) Remove the headlight (LH) bulb.

(2) Verify that the headlight (LH) bulb is not damaged or burned out.

Q: Is headlight (LH) bulb normal?

YES : Go to Step 9.

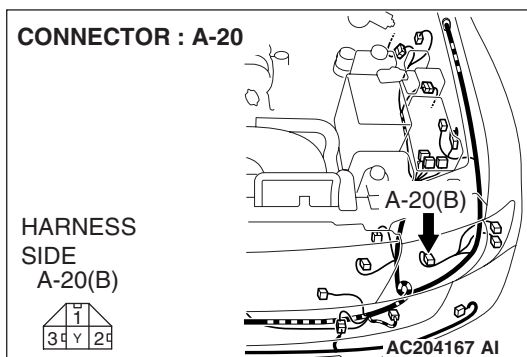
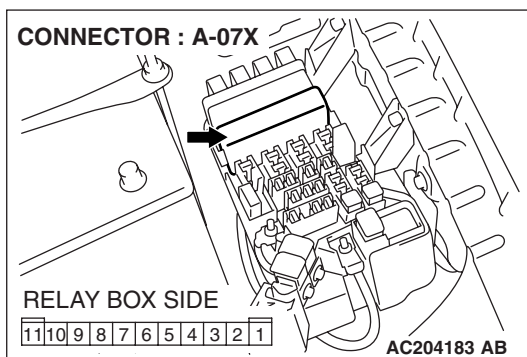
NO : Replace the headlight (LH) bulb. Verify that the headlights illuminate normally.

STEP 9. Check headlight (LH) connector A-20 and front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

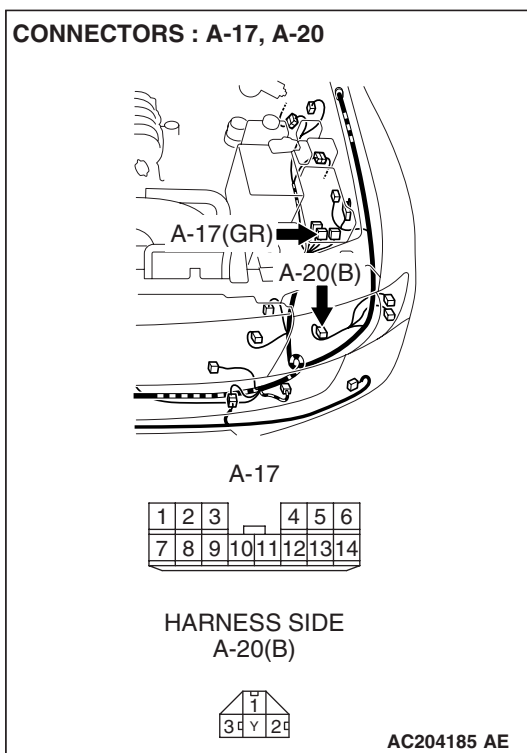
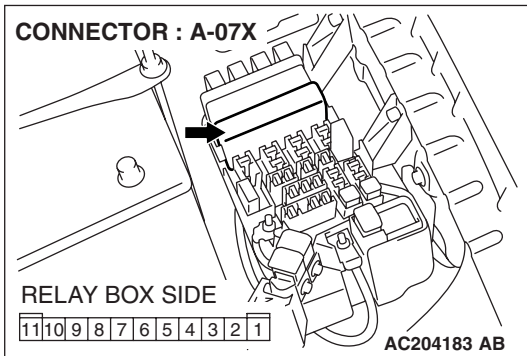
Q: Are headlight (LH) connector A-20 and front-ECU connector A-07X in good condition?

YES : Go to Step 10.

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



STEP 10. Check the wiring harness between headlight (LH) connector A-20 (terminal 1) and front-ECU connector A-07X (terminal 6).



NOTE: Also check joint connector A-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector A-17 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, *Harness Connector Inspection* [P.00E-2](#).

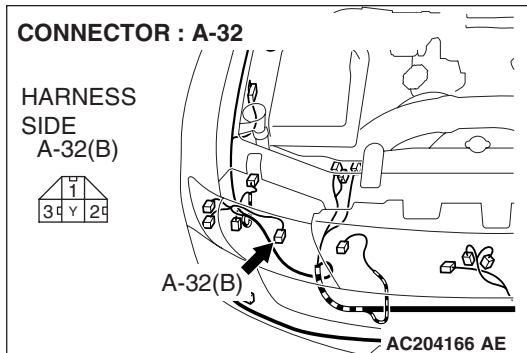
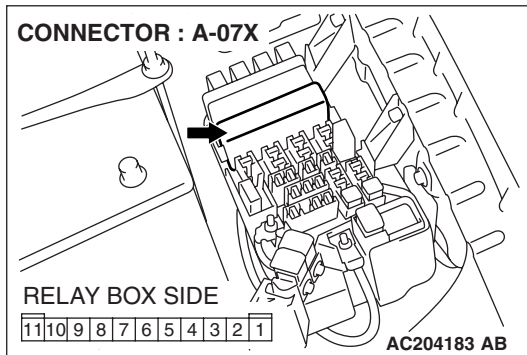
Q: Is the wiring harness between headlight (LH) connector A-20 (terminal 1) and front-ECU connector A-07X (terminal 6) in good condition?

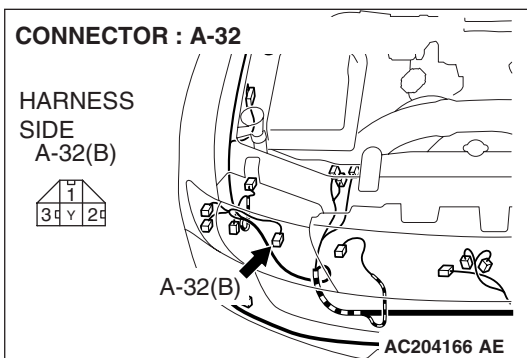
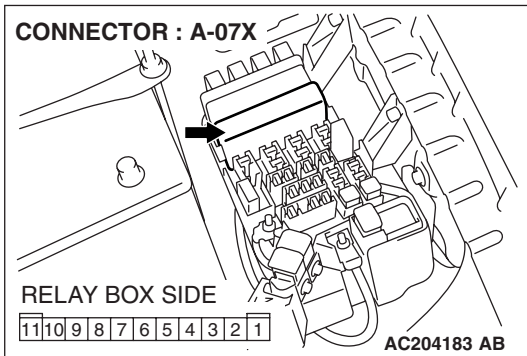
YES : No action is necessary and testing is complete.

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

STEP 11. Check headlight (RH) bulb.

- (1) Remove the headlight (RH) bulb.
- (2) Verify that the headlight (RH) bulb is not damaged or burned out.

Q: Is headlight (RH) bulb normal?**YES** : Go to Step 12.**NO** : Replace the headlight (RH) bulb. Verify that the headlights illuminate normally.**STEP 12. Check headlight (RH) connector A-32 and front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.****Q: Are headlight (RH) connector A-32 and front-ECU connector A-07X in good condition?****YES** : Go to Step 13.**NO** : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the headlights illuminate normally.



STEP 13. Check the wiring harness between headlight (RH) connector A-32 (terminal 1) and front-ECU connector A-07X (terminal 6).

Q: Is the wiring harness between headlight (RH) connector A-32 (terminal 1) and front-ECU connector A-07X (terminal 6) in good condition?

YES : No action is necessary and testing is complete.

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

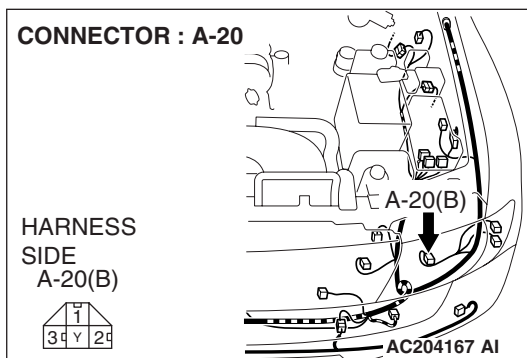
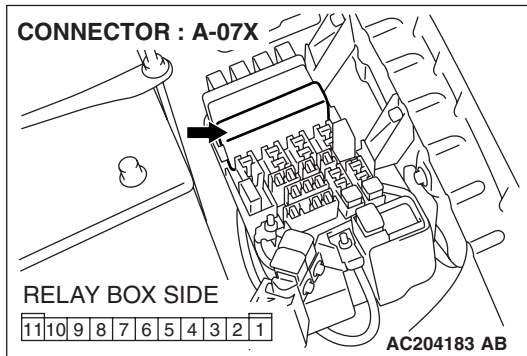
STEP 14. Check headlight (LH) bulb.

- (1) Remove the headlight (LH) bulb.
- (2) Verify that the headlight (LH) bulb is not damaged or burned out.

Q: Is headlight (LH) bulb normal?

YES : Go to Step 15.

NO : Replace the headlight (LH) bulb. Verify that the headlights illuminate normally.



STEP 15. Check headlight (LH) connector A-20 and front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

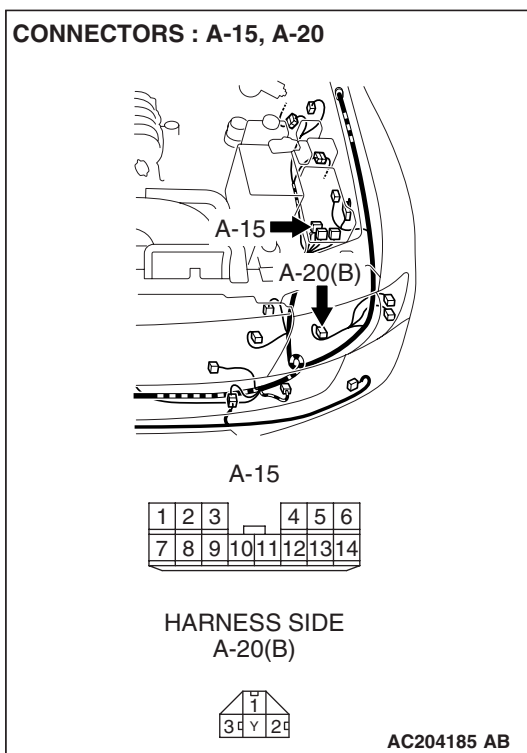
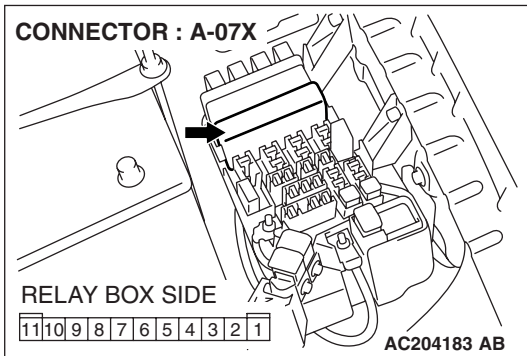
Q: Are headlight (LH) connector A-20 and front-ECU connector A-07X in good condition?

YES : Go to Step 16.

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

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

STEP 16. Check the wiring harness between headlight (LH) connector A-20 (terminal 3) and front-ECU connector A-07X (terminal 2).



NOTE: Also check joint connector A-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector A-15 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

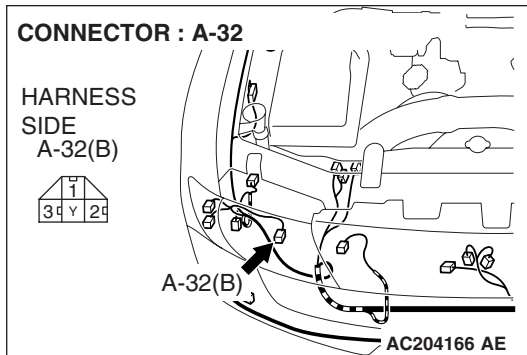
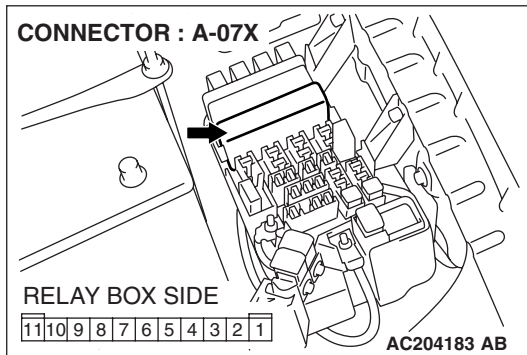
Q: Is the wiring harness between headlight (LH) connector A-20 (terminal 3) and front-ECU connector A-07X (terminal 2) in good condition?

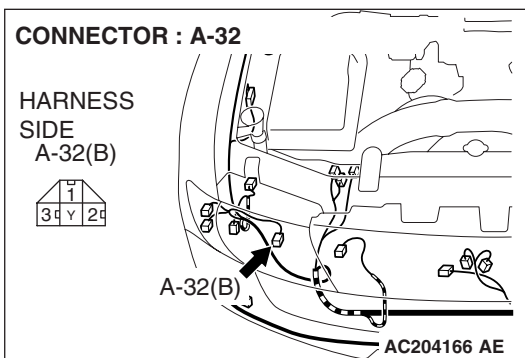
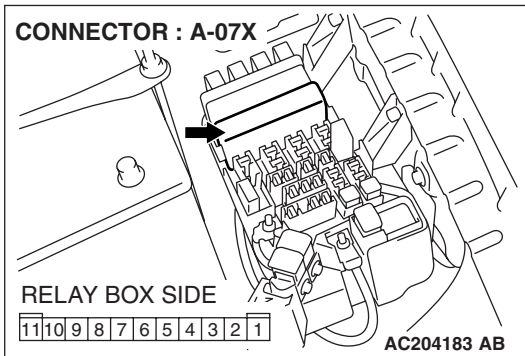
YES : No action is necessary and testing is complete.

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

STEP 17. Check headlight (RH) bulb.

- (1) Remove the headlight (RH) bulb.
- (2) Verify that the headlight (RH) bulb is not damaged or burned out.

Q: Is headlight (RH) bulb normal?**YES** : Go to Step 18.**NO** : Replace the headlight (RH) bulb. Verify that the headlights illuminate normally.**STEP 18. Check headlight (RH) connector A-32 and front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.****Q: Are headlight (RH) connector A-32 and front-ECU connector A-07X in good condition?****YES** : Go to Step 19.**NO** : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the headlights illuminate normally.



STEP 19. Check the wiring harness between headlight (RH) connector A-32 (terminal 3) and front-ECU connector A-07X (terminal 2).

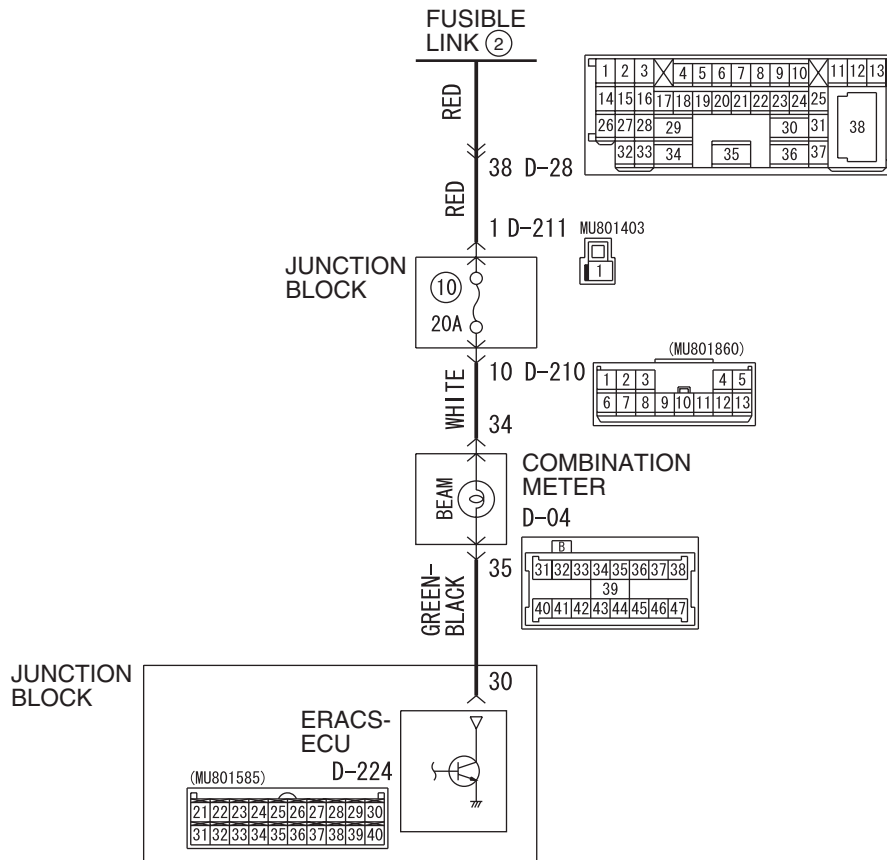
Q: Is the wiring harness between headlight (RH) connector A-32 (terminal 3) and front-ECU connector A-07X (terminal 2) in good condition?

YES : No action is necessary and testing is complete.

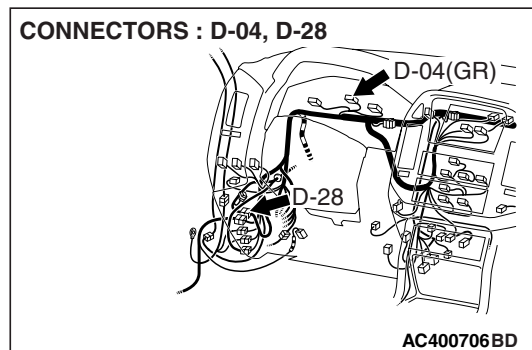
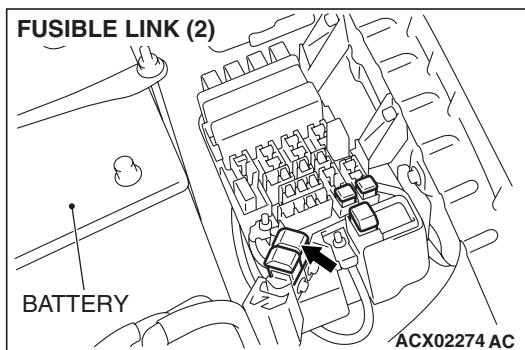
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the headlights illuminate normally.

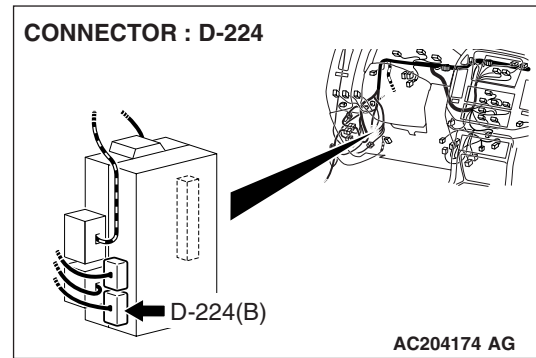
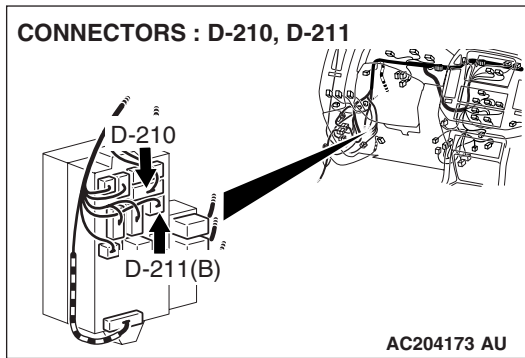
Inspection Procedure J-8: Headlight and Taillight: The high-beam indicator light does not illuminate.

High-beam Indicator Light Circuit



W5Q54M019A





TECHNICAL DESCRIPTION (COMMENT)

If the high-beam indicator light does not illuminate, the high-beam indicator light bulb or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The high-beam indicator light bulb may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

STEP 1. Verify the headlight operation.

Q: Do the headlights illuminate?

YES : Go to Step 2.

NO : Repair the headlights first (Refer to [P.54B-22](#)).

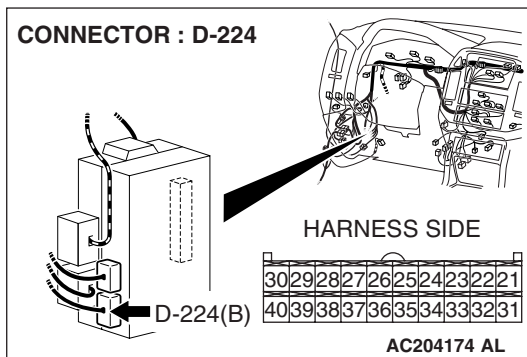
STEP 2. Check ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

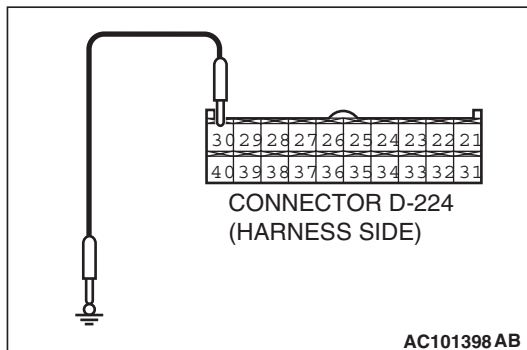
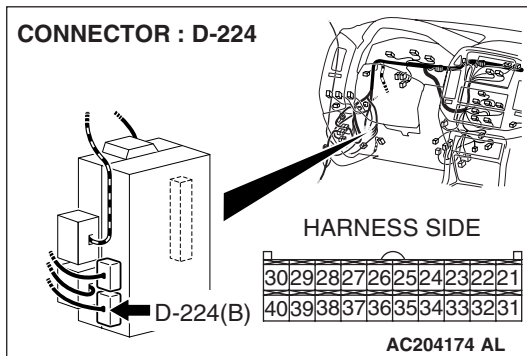
Q: Is ETACS-ECU connector D-224 in good condition?

YES : Go to Step 3.

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

[P.00E-2](#). Verify that the high-beam indicator light illuminates normally.





STEP 3. Check at ETACS-ECU connector D-224 in order to check the high-beam indicator light circuit.

- (1) Disconnect ETACS-ECU connector D-224, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.

- (3) Connect terminal 30 to ground.

Q: Does the high-beam indicator light illuminate?

YES : Replace the ETACS-ECU. Verify that the high-beam indicator light illuminates normally.

NO : Go to Step 4.

STEP 4. Check high-beam indicator light bulb.

- (1) Remove the high-beam indicator light bulb.
- (2) Verify that the high-beam indicator light bulb is not damaged or burned out.

Q: Is the high-beam indicator light normal?

YES : Go to Step 5.

NO : Replace the bulb. Verify that the high-beam indicator light illuminates normally.

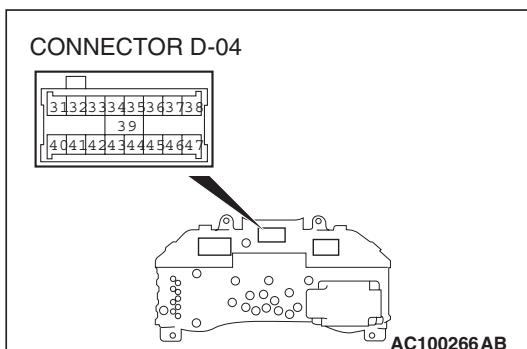
STEP 5. Check the combination meter (printed-circuit board).

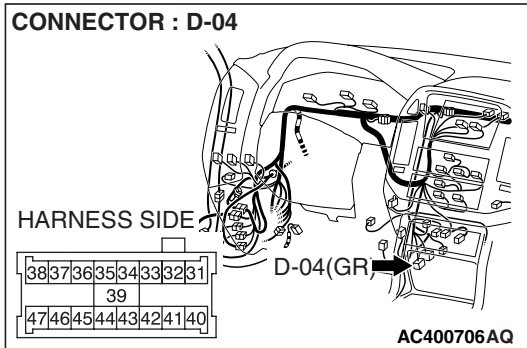
- (1) Remove the combination meter. Refer to GROUP 54A, Combination Meters Assembly And Vehicle Speed Sensor [P.54A-74](#).
- (2) Remove the high-beam indicator light bulb. Then measure the resistance value between the bulb terminals.
- (3) Install the bulb to the combination meter, and then measure the resistance value between connector D-04 terminals 34 and 35. The measured resistance value should be roughly the same as the value measured in Step (2).

Q: Are these two resistance values extremely different?

YES : Repair or replace the combination meter (printed circuit board). Verify that the headlight-beam indicator light illuminates normally.

NO (roughly the same) : Go to Step 6.



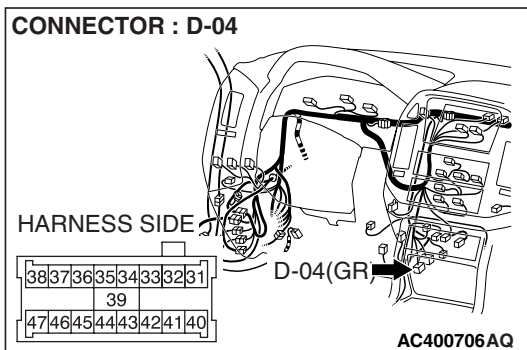


STEP 6. Check combination meter connector D-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector D-04 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**. Verify that the high-beam indicator light illuminates normally.



STEP 7. Check the fusible link (2) line of the power supply circuit to the combination meter. Test at combination meter connector D-04.

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

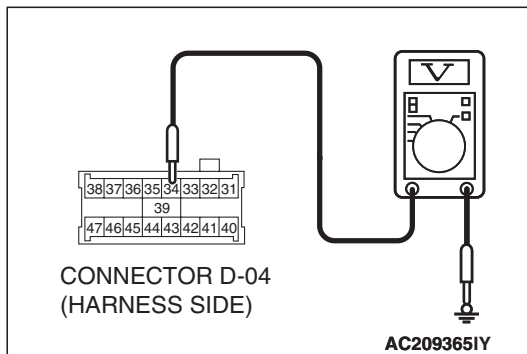
(2) Measure the voltage between terminal 34 and ground.

- The voltage should equal 12 volts (battery positive voltage).

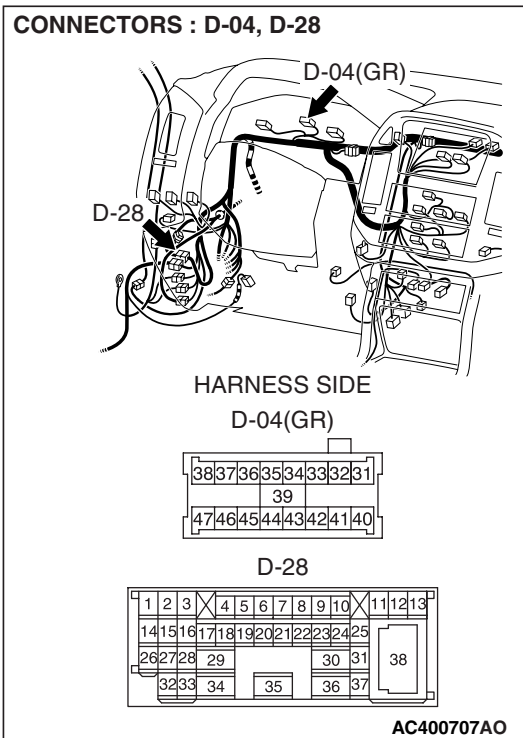
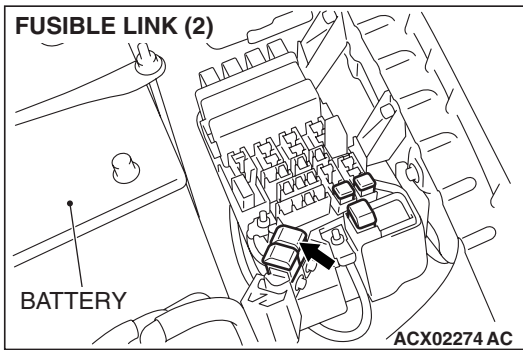
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

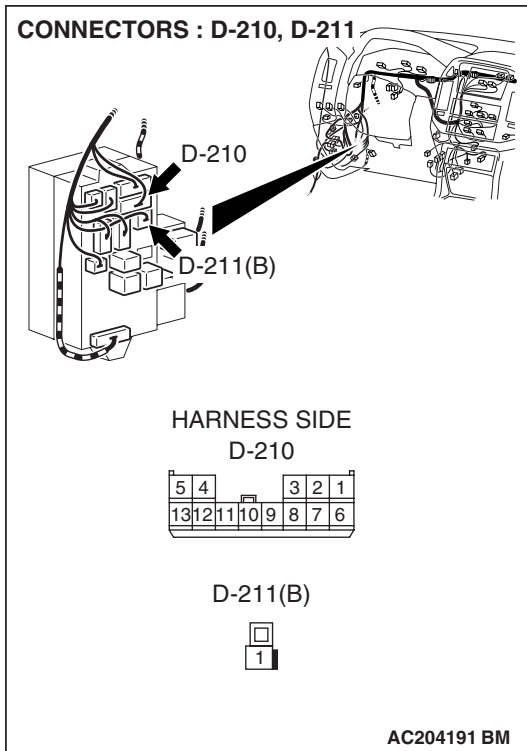
YES : Go to Step 9.

NO : Go to Step 8.



STEP 8. Check the wiring harness between combination meter connector D-04 (terminal 34) and the fusible link (2).

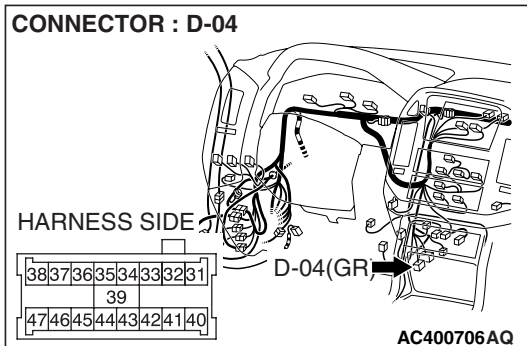




NOTE: Also check junction block connectors D-210, D-211 and intermediate connector D-28 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-210, D-211 or intermediate connector D-28 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector D-04 (terminal 34) and the fusible link (2) in good condition?

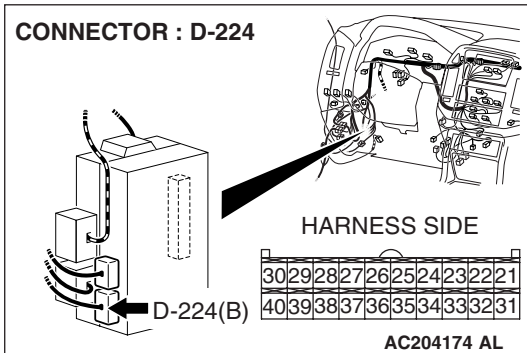
- YES :** No action is necessary and testing is complete.
- NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the high-beam indicator light illuminates normally.



STEP 9. Check the wiring harness between combination meter connector D-04 (terminal 35) and ETACS-ECU connector D-224 (terminal 72).

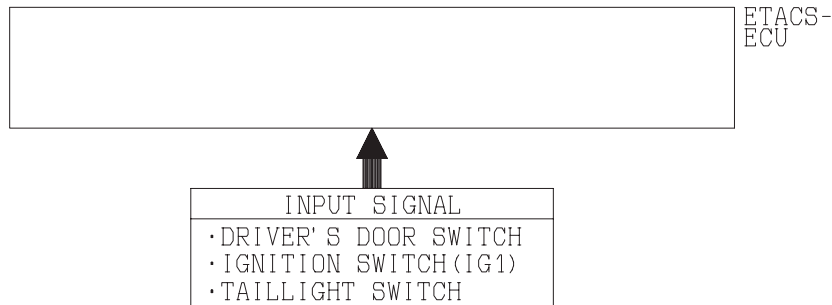
Q: Is the wiring harness between combination meter connector D-04 (terminal 35) and ETACS-ECU connector D-224 (terminal 72) in good condition?

- YES :** No action is necessary and testing is complete.
- NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the high-beam indicator light illuminates normally.



INSPECTION PROCEDURE J-9: Headlight and Taillight: Headlight automatic shutdown function does not work normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-10."

Headlight Automatic Shutt-down Function

W2J08M62AA

CIRCUIT OPERATION

The ETACS-ECU operates the headlight automatic shutdown function according to the following signals:

- Ignition switch (IG1)
- Driver's door switch
- Taillight switch
- Headlight switch

TECHNICAL DESCRIPTION (COMMENT)

If the function does not work normally, the input circuit system from the switches, the ETACS-ECU or the front-ECU may be defective (refer to "CIRCUIT OPERATION").

TROUBLESHOOTING HINTS

- The driver's door switch may be defective
- The column switch (lighting and turn-signal switch) may be defective
- The ETACS-ECU may be defective
- The front-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B
- MB991813: SWS Monitor Kit
 - MB991806: SWS Monitor Cartridge
 - MB991812: SWS Monitor Harness (For Column-ECU)
 - MB991822: Probe Harness
- MB991854: SWS Monitor Harness (For 13-pin)

STEP 1. Verify the configuration function operation.

Q: Has the headlight automatic shutdown function been enabled by means of the adjustment function?

YES : Go to Step 2.

NO : Enable the headlight automatic shutdown function by means of the adjustment function. Refer to [P.54B-622](#).

STEP 2. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

Check the input signals from the following switches:

- Ignition switch: "ON" to "OFF"
- Lighting switch: "TAIL" or "HEAD"

⚠ CAUTION

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

- (1) Connect the special tool. Refer to "How to connect SWS monitor [P.54B-7](#).
- (2) Operate scan tool MB991958 according to the procedure below to display "H/L AUTO-CUT."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "LIGHTING."
 6. Select "H/L AUTO-CUT."
- (3) Check that normal conditions are displayed on the items described in the table below.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 01	TAILLIGHT SW	ON
ITEM 30	IG SW (IG1)	OFF

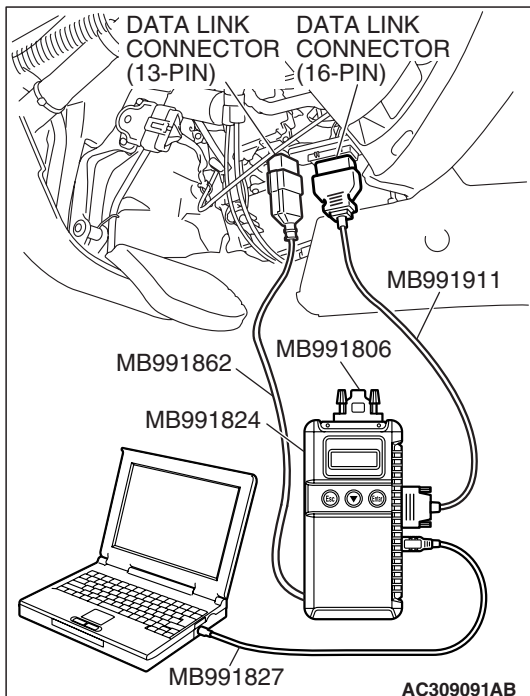
- (4) When the driver's door is opened, Check that normal conditions are displayed on the items described in the table below.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 32	FRONT DOOR SW	ON
ITEM 35	H/L AUTO-CUT	ON

Q: Are normal conditions displayed on the "TAILLIGHT SW", "IG SW (IG1)", "FRONT DOOR SW" and "H/L AUTO-CUT"?

Normal conditions are displayed for all the items :

Replace the front-ECU. Verify that the headlight automatic shutdown function now works normally.



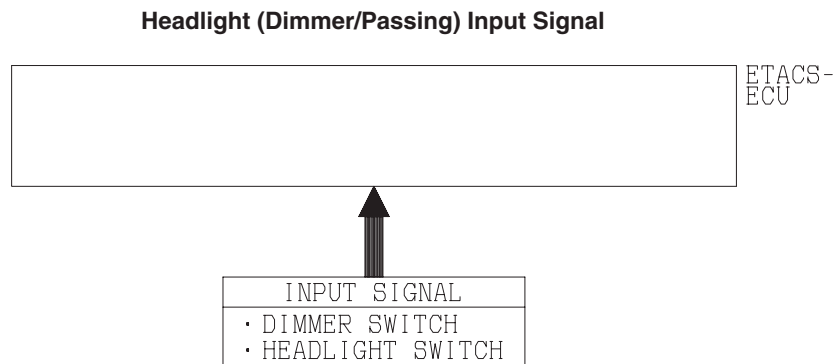
Normal condition is not displayed on the "TAIL LIGHT SW" : Refer to Inspection Procedure O-6 "ETACS-ECU does not receive any signal from the taillight switch [P.54B-516.](#)"

Normal condition is not displayed on the "IG SW (IG1)" : Refer to Inspection Procedure O-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) [P.54B-496.](#)"

Normal condition is not displayed on the "FRONT DOOR SW" : Refer to Inspection Procedure O-5 "ETACS-ECU does not receive any signal from the driver's or the front passenger's door switch [P.54B-509.](#)"

Normal condition is not displayed on the "H/L AUTO-CUT" : Replace the front-ECU. Verify that the headlight automatic shutdown function now works normally.

INSPECTION PROCEDURE J-10: Headlight and Taillight: Headlight dimmer switch automatic resetting function does not work normally.



W2J08M63AA

CIRCUIT OPERATION

The headlight dimmer switch automatic resetting function is controlled by the front-ECU.

TECHNICAL DESCRIPTION (COMMENT)

If the headlight dimmer switch automatic resetting function does not work normally, the front-ECU may be defective.

TROUBLESHOOTING HINT

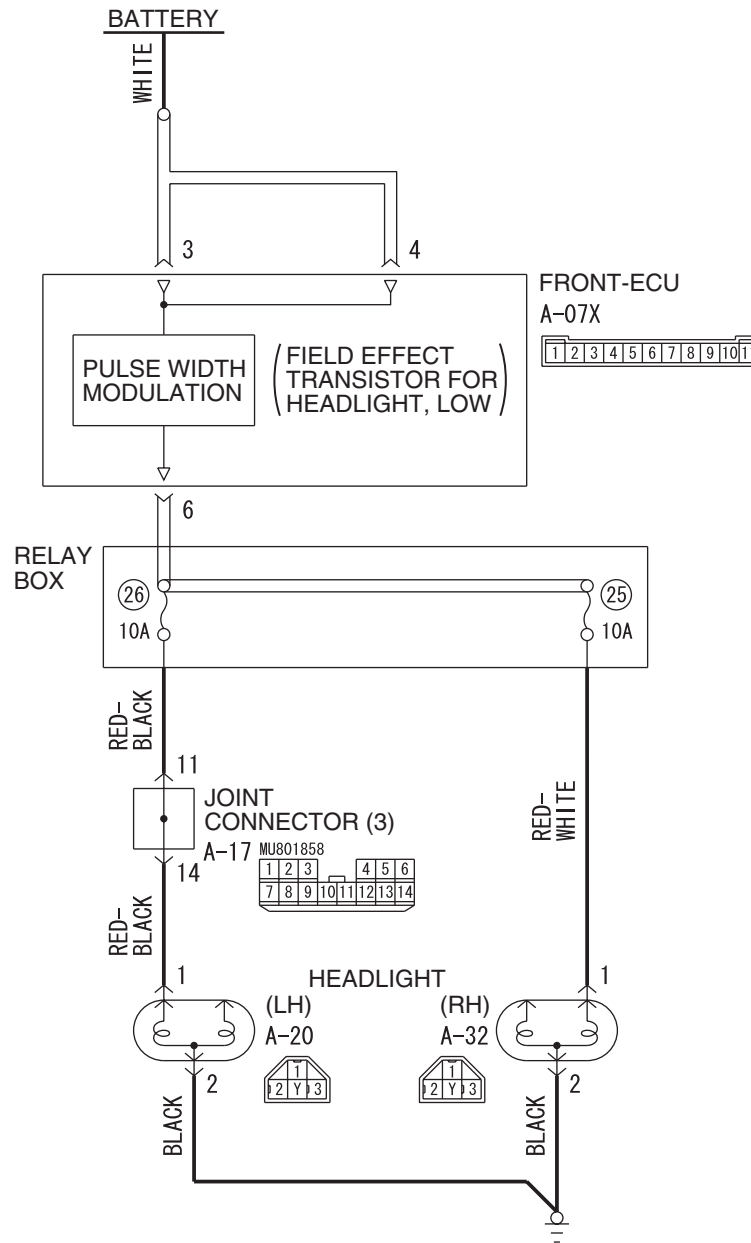
The front-ECU may be defective

DIAGNOSIS

Replace the front-ECU.
Verify that the headlight dimmer switch automatic resetting function now works normally.

INSPECTION PROCEDURE J-11: Headlight and Taillight: Daytime running light function does not work normally. <vehicles for Canada>

Daytime Running Light Circuit



W5Q54M020A

TECHNICAL DESCRIPTION (COMMENT)

If the daytime running light function is not operating normally the daytime running light-ECU power circuit may be defective or the daytime running light-ECU may be defective.

TROUBLESHOOTING HINTS

- The daytime running light-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B
- MB991813: SWS Monitor Kit
 - MB991806: SWS Monitor Cartridge
 - MB991812: SWS Monitor Harness (For Column-ECU)
 - MB991822: Probe Harness
- MB991854: SWS Monitor Harness (For 13-pin)

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 J-2 "Headlights (low-beam) do not illuminate normally [P.54B-294](#)."

STEP 2. Use scan tool MB991958 to select "ECU COMM CHK" on the SWS monitor display.

Check the following ECUs:

- Front-ECU

⚠ CAUTION

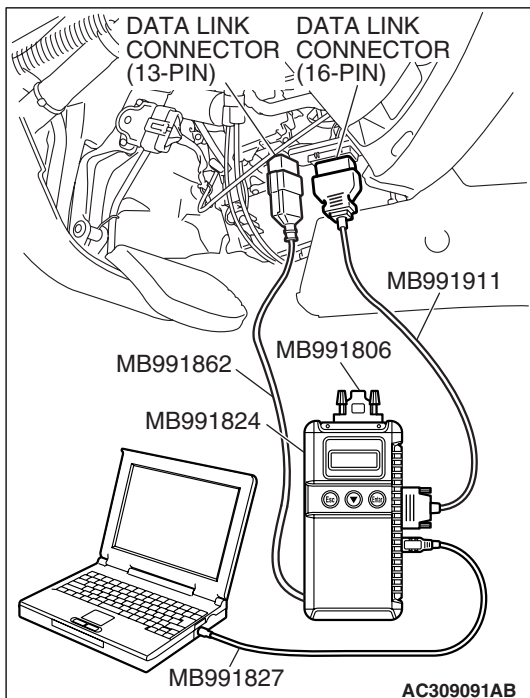
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "ON" position.
- (4) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK."
- (5) Scan tool MB991958 should show "OK" on the "ECU COMM CHK" menu for the "FRONT ECU" menu.

Q: Is "OK" displayed on the "FRONT ECU" menu?

YES : Replace the front-ECU. The daytime running light function should now work normally.

NO : Refer to Inspection procedure A-4 "Communication with the front-ECU is not possible P.54B-48."



FLASHER TIMER

GENERAL DESCRIPTION CONCERNING FLASHER TIMER

M1549023600205

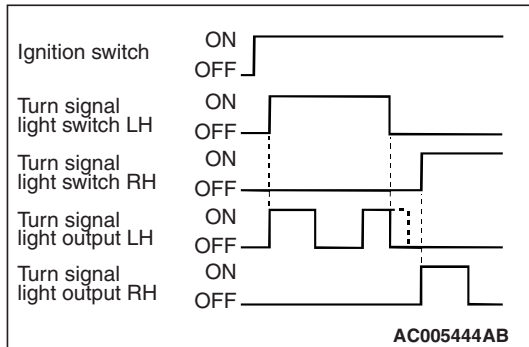
The ECU related to the alarm function types and various control functions are as follows.

FUNCTION	CONTROL ECU
Turn signal light	ETACS-ECU, column switch
Hazard warning light	ETACS-ECU

Flasher timer function

Turn signal light

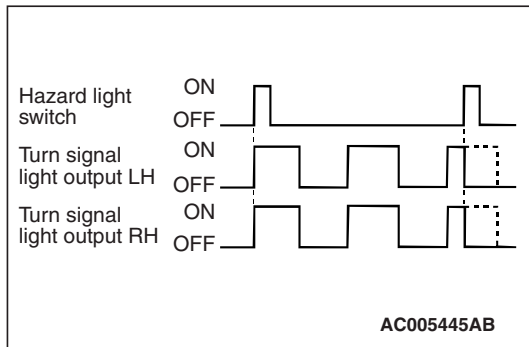
The turn signal light output (flashing signal) is turned ON when the turn signal light ignition switch is ON and the turn signal light switch is ON (LH or RH.) If the front turn signal light or rear turn signal light bulb has burned out, the flashing speed increases to indicate that the bulb has burned out.



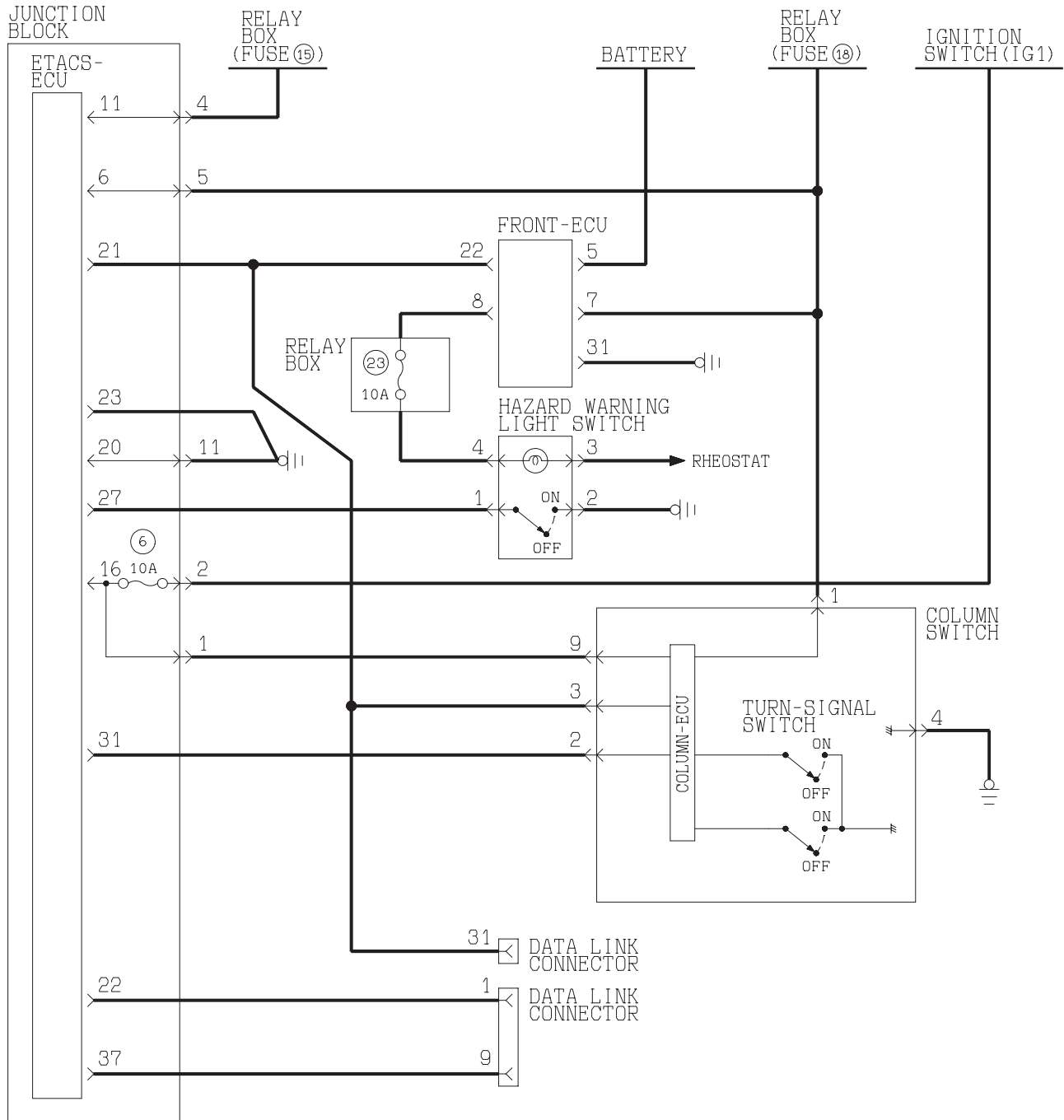
Hazard warning light

The hazard warning lights output (flashing) is turned ON when the hazard warning light switch is turned OFF to ON. When the switch is turned ON again, the output is turned OFF.

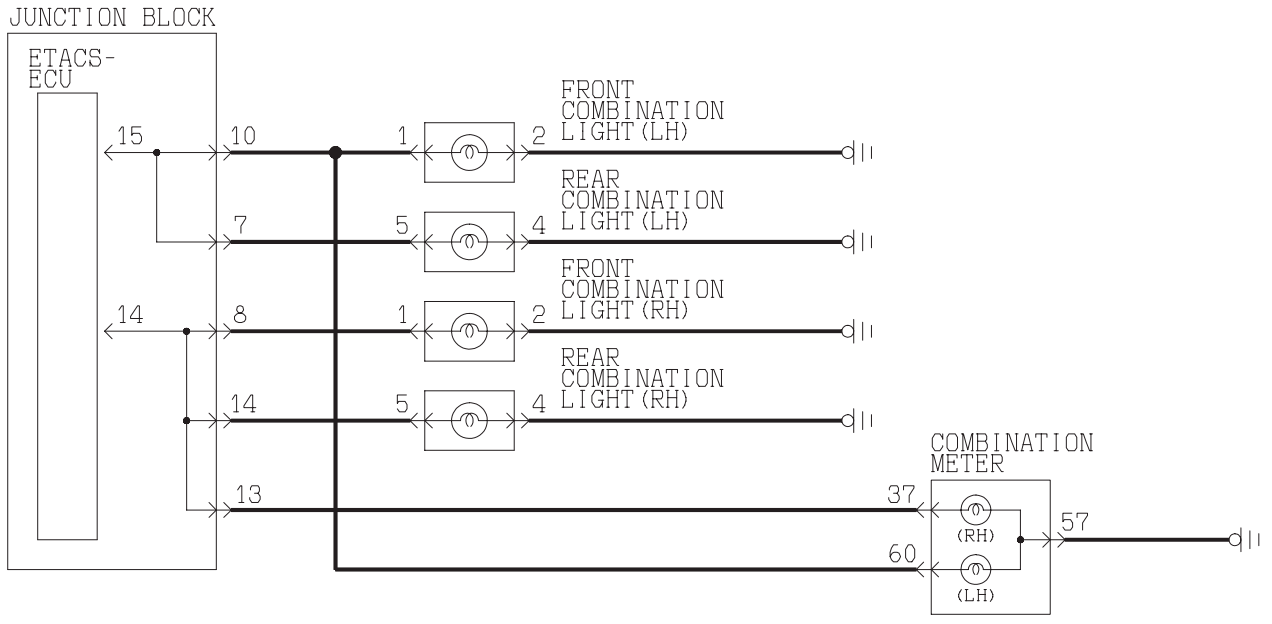
NOTE: The hazard warning light switch is a push-return type toggle switch.



General circuit for turn signal light and hazard light



W3Q04M27AA

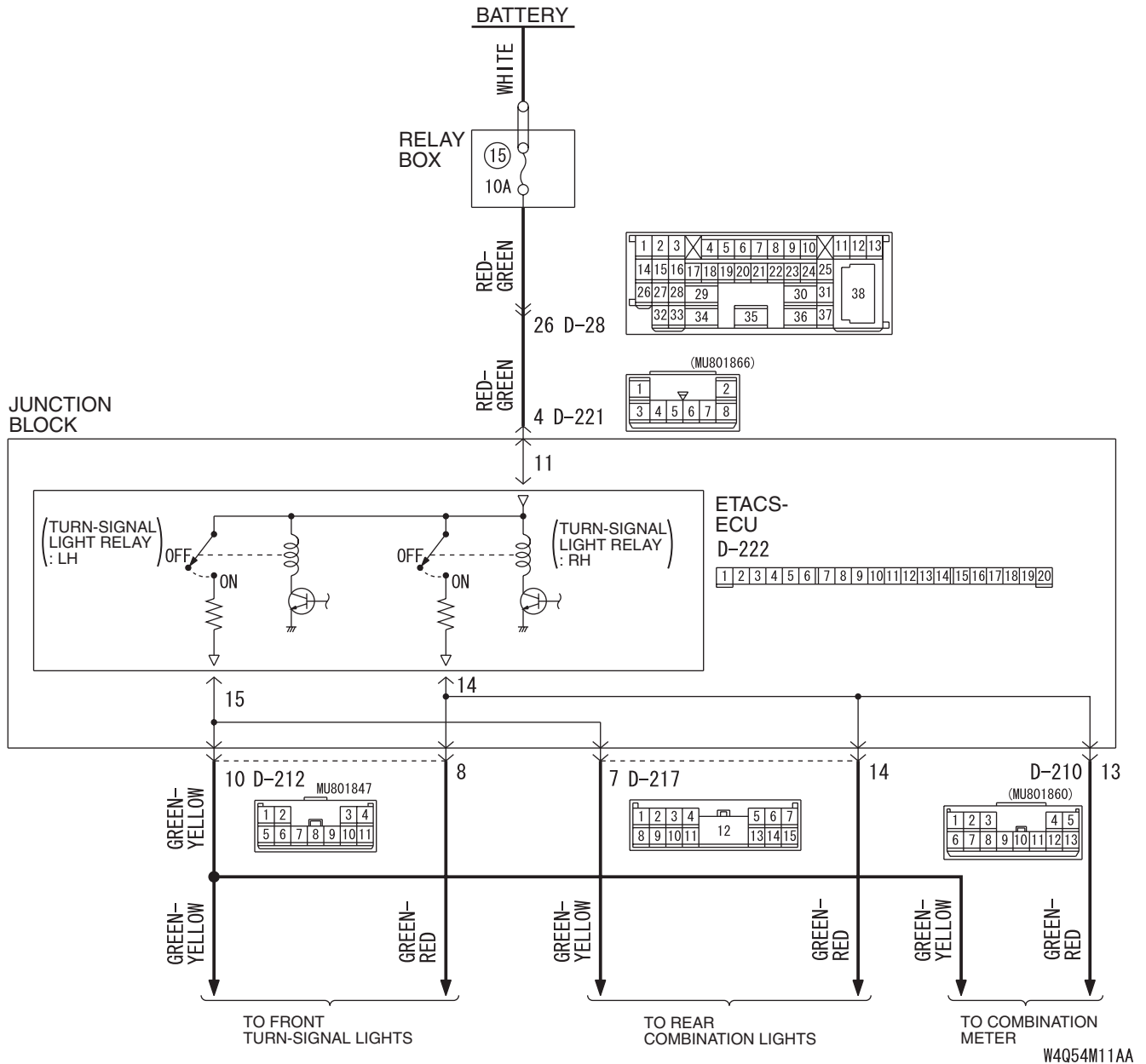


W3Q04M28AA

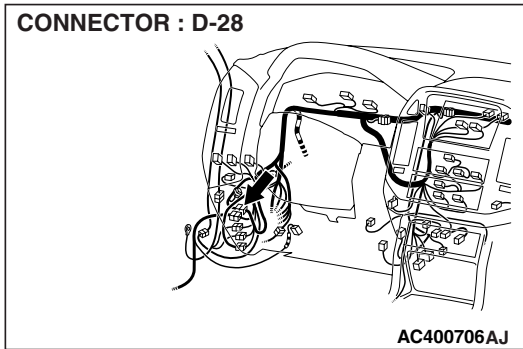
INSPECTION PROCEDURE K-1: Flasher Timer: Turn-signal lights do not flash when the turn-signal light switch is operated.

NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-10."

Turn-signal Light Power Supply Circuit

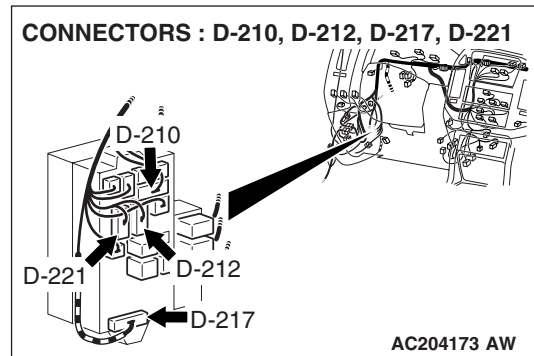


CONNECTOR : D-28



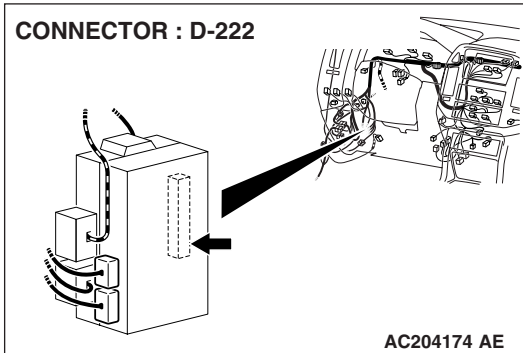
AC400706AJ

CONNECTORS : D-210, D-212, D-217, D-221



AC204173 AW

CONNECTOR : D-222



AC204174 AE

CIRCUIT OPERATION

- The turn-signal light switch sends any signal through the column-ECU (incorporated in the column switch) to the ETACS-ECU. If the column-ECU sends a turn-signal light switch "ON" signal to the ETACS-ECU, the ETACS-ECU turns on the flasher timer (incorporated in the ETACS-ECU), thus causing the turn-signal lights to flash.
- The ETACS-ECU operates the turn-signal lights according to the following signals:
 - Ignition switch (IG1)
 - Turn-signal light switch

TECHNICAL DESCRIPTION (COMMENT)

Is the turn-signal lights do not flash normally, the input circuits from the switches described in "CIRCUIT OPERATION" or the ETACS-ECU may be defective. If the hazard warning lights do not flash, the power supply line to the ETACS-ECU (dedicated to the turn-signal lights) may be defective.

TROUBLESHOOTING HINTS

- The column switch (turn-signal light and lighting switch) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B
- MB991813: SWS Monitor Kit
 - MB991806: SWS Monitor Cartridge
 - MB991812: SWS Monitor Harness (For Column-ECU)
 - MB991822: Probe Harness
- MB991854: SWS Monitor Harness (For 13-pin)

STEP 1. Verify the hazard warning light operation.

Q: Does the hazard warning light work normally?

YES : Go to Step 7.

NO : Go to Step 2.

STEP 2. Verify the turn-signal light operation.

Q: Does either of the turn-signal lights illuminate?

YES (illuminates at only one side) : Go to Step 3.

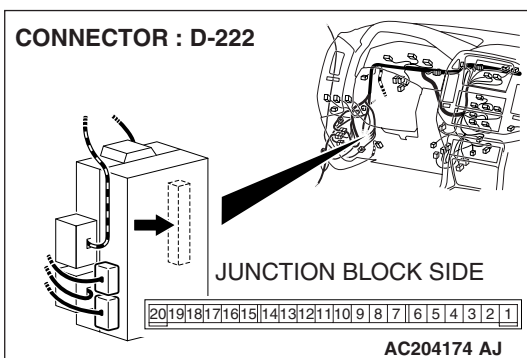
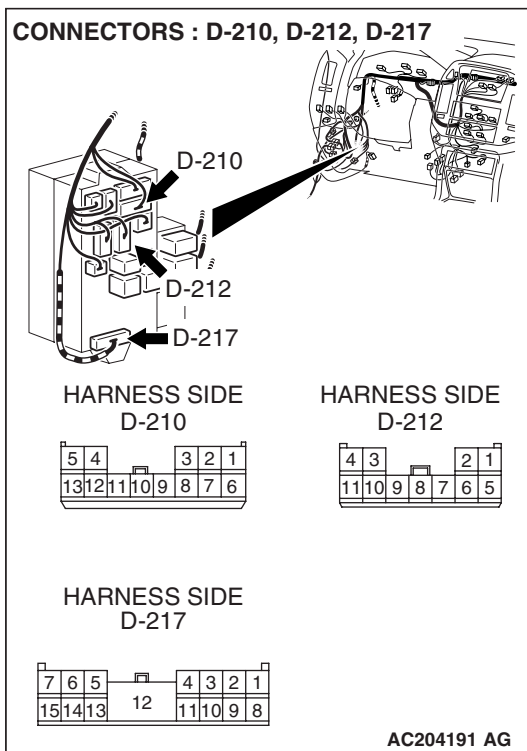
NO (do not illuminate at all) : Go to Step 4.

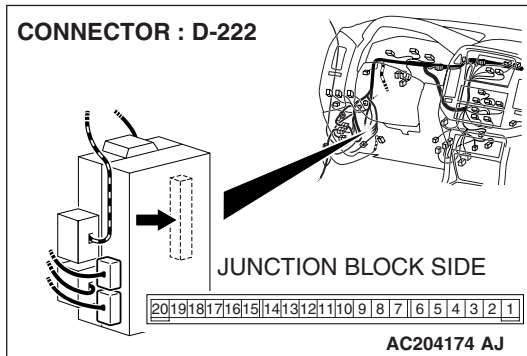
STEP 3. Check ETACS-ECU connector D-222, junction block connectors D-210, D-212 and D-217 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are ETACS-ECU connector D-222, junction block connectors D-210, D-212 and D-217 in good condition?

YES : Replace the ETACS-ECU. Verify that the turn-signal lights illuminate normally.

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



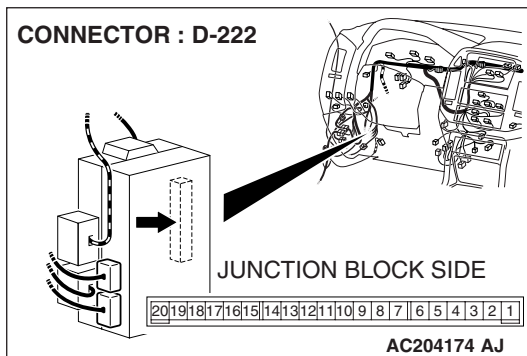


STEP 4. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector D-222 in good condition?

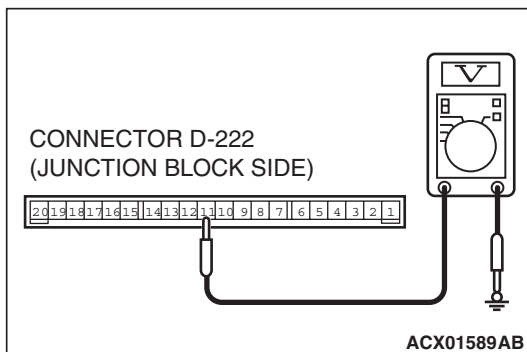
YES : Go to Step 5.

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



STEP 5. Check the battery power supply circuit to the ETACS-ECU. Test at ETACS-ECU connector D-222.

(1) Disconnect ETACS-ECU connector D-222 and measure the voltage available at the junction block side of the connector.



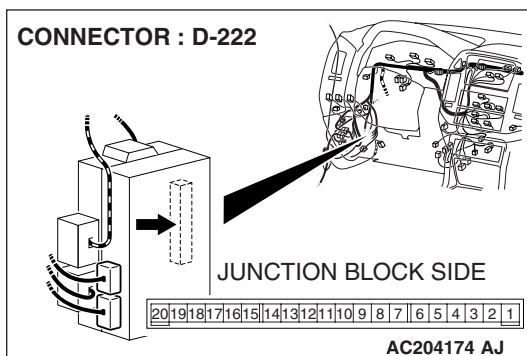
(2) Measure the voltage between terminal 11 and ground.

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

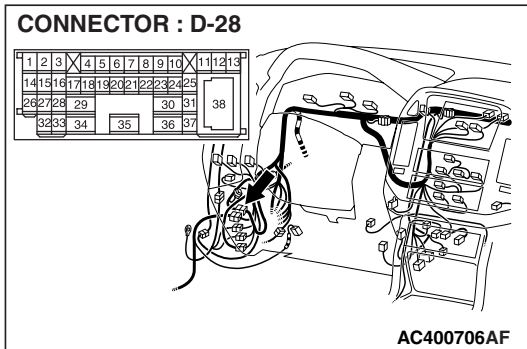
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Replace the ETACS-ECU. Verify that the turn-signal lights illuminate normally.

NO : Go to Step 6.



STEP 6. Check the wiring harness between ETACS-ECU connector D-222 (terminal 11) and the battery.

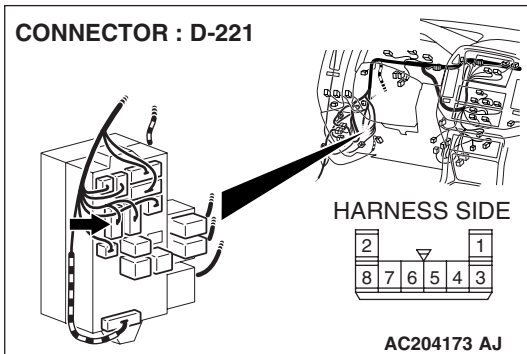


NOTE: Also check intermediate connector D-28 and junction block connector D-221 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-28 or junction block connector D-221 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector D-222 (terminal 11) and the battery in good condition?

YES : No action is necessary and testing is complete.

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



STEP 7. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

Check the input signals from the following switches:

- Ignition switch: ON
- Turn-signal light switch: RH

⚠ CAUTION

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

- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7.
- (2) Operate scan tool MB991958 according to the procedure below to display "TURN SIG.RH."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "TURN SIGNAL."
 6. Select "TURN SIG.RH."
- (3) Check that normal conditions are displayed on the items described in the table below.

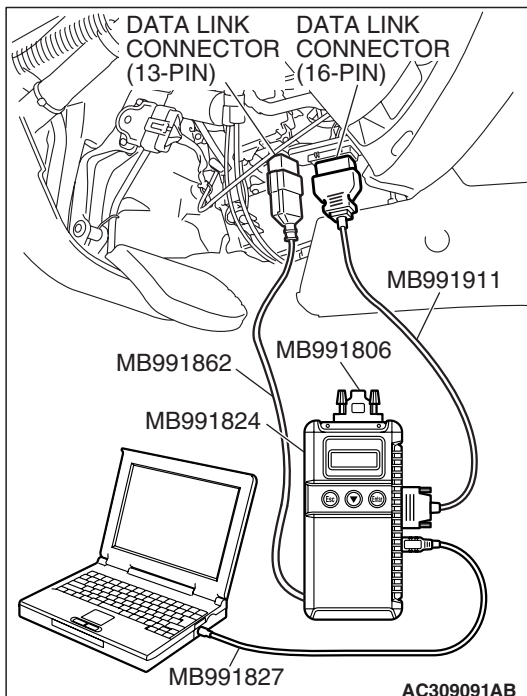
ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 10	T/S RH SW	ON
ITEM 30	IG SW (IG1)	ON

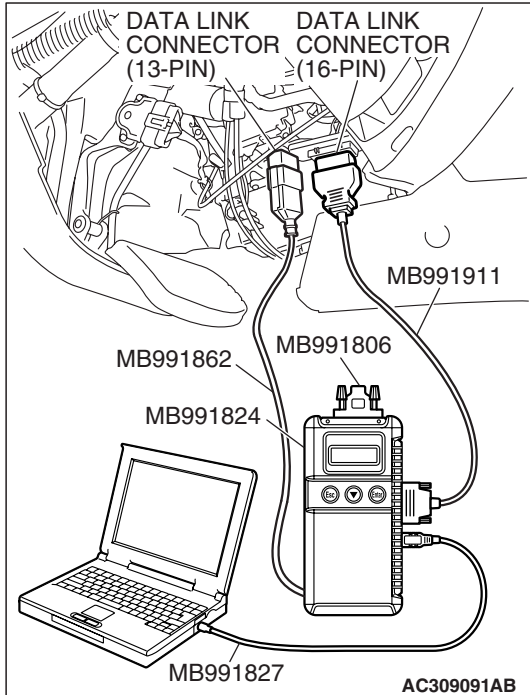
Q: Are normal conditions displayed on the "T/S RH SW" and "IG SW (IG1)"?

Normal conditions are displayed for all the items : Go to Step 8.

Normal condition is not displayed on the "T/S RH SW" :
Normal condition is not displayed on the "T/S RH SW": Refer to Inspection Procedure O-6 "ETACS-ECU does not receive any signal from the turn-signal switch P.54B-516."

Normal condition is not displayed on the "IG SW (IG1)" :
Refer to Inspection Procedure O-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) P.54B-496."





STEP 8. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

If the Ignition switch is turned to the "ON" position and the turn-signal light switch (LH) is turned on, normal conditions should be displayed on the items described in the table below.

Operate scan tool MB991958 according to the procedure below to display "TURN SIG.LH."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "TURN SIGNAL."
6. Select "TURN SIG.LH."

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 11	T/S LH SW	ON

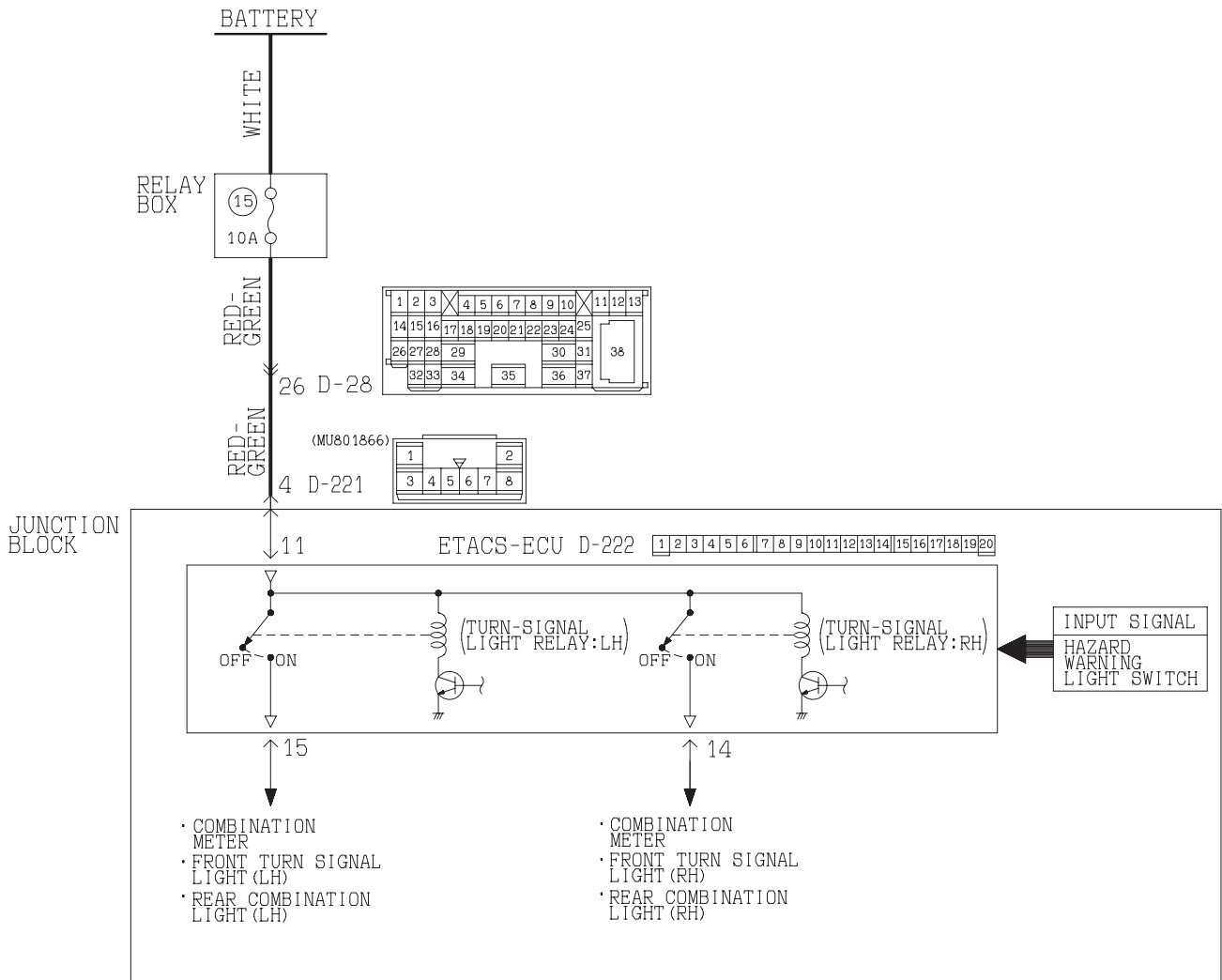
Q: Do the scan tool display the items "T/S LH SW" is normal condition?

YES : Replace the ETACS-ECU. Verify that the turn-signal lights illuminate normally.

NO : Refer to Inspection Procedure O-6 "ETACS-ECU does not receive any signal from the turn-signal switch P.54B-516."

INSPECTION PROCEDURE K-2: Flasher Timer: Hazard warning lights do not illuminate.

Hazard Warning Light Circuit



W3Q04M12AA

CIRCUIT OPERATION

If the ETACS-ECU receives "ON" signal from the hazard warning light switch, the ETACS-ECU turns on the flasher timer (incorporated in the ETACS-ECU), thus causing the turn-signal lights to flash.

TECHNICAL DESCRIPTION (COMMENT)

If the hazard warning lights do not flash, the power supply line to the ETACS-ECU (dedicated to the turn-signal lights) or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The hazard warning light switch may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B

STEP 1. Verify the turn-signal light operation.

Q: Do the turn-signal lights illuminate normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure K-1 "Turn-signal lights do not flash when the turn signal light switch is operated P.54B-363."

STEP 2. Check the input signal (by using the pulse check mode of the monitor.)

Check input signal from the hazard warning light switch.

CAUTION

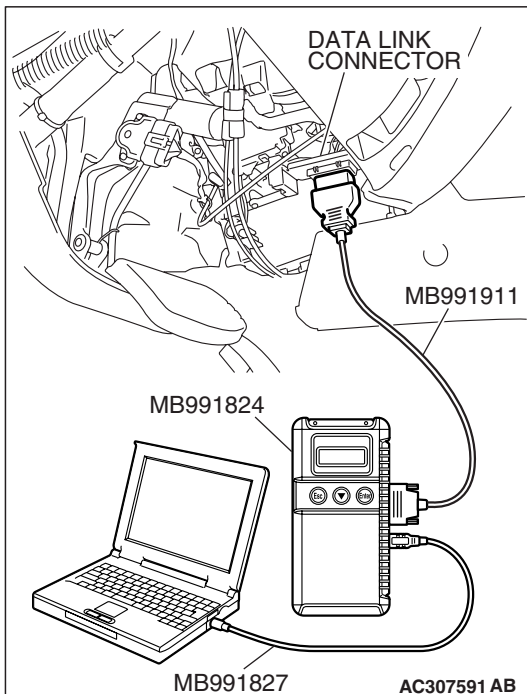
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector (16-pin).
- (2) Operate scan tool MB991958 according to the procedure below to display "PULSE CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) Verify that scan tool MB991958 sounds when the hazard warning light switch is turned from "OFF" to "ON."

Q: Does scan tool MB991958 sound when the hazard warning light switch is turned from "OFF" to "ON"?

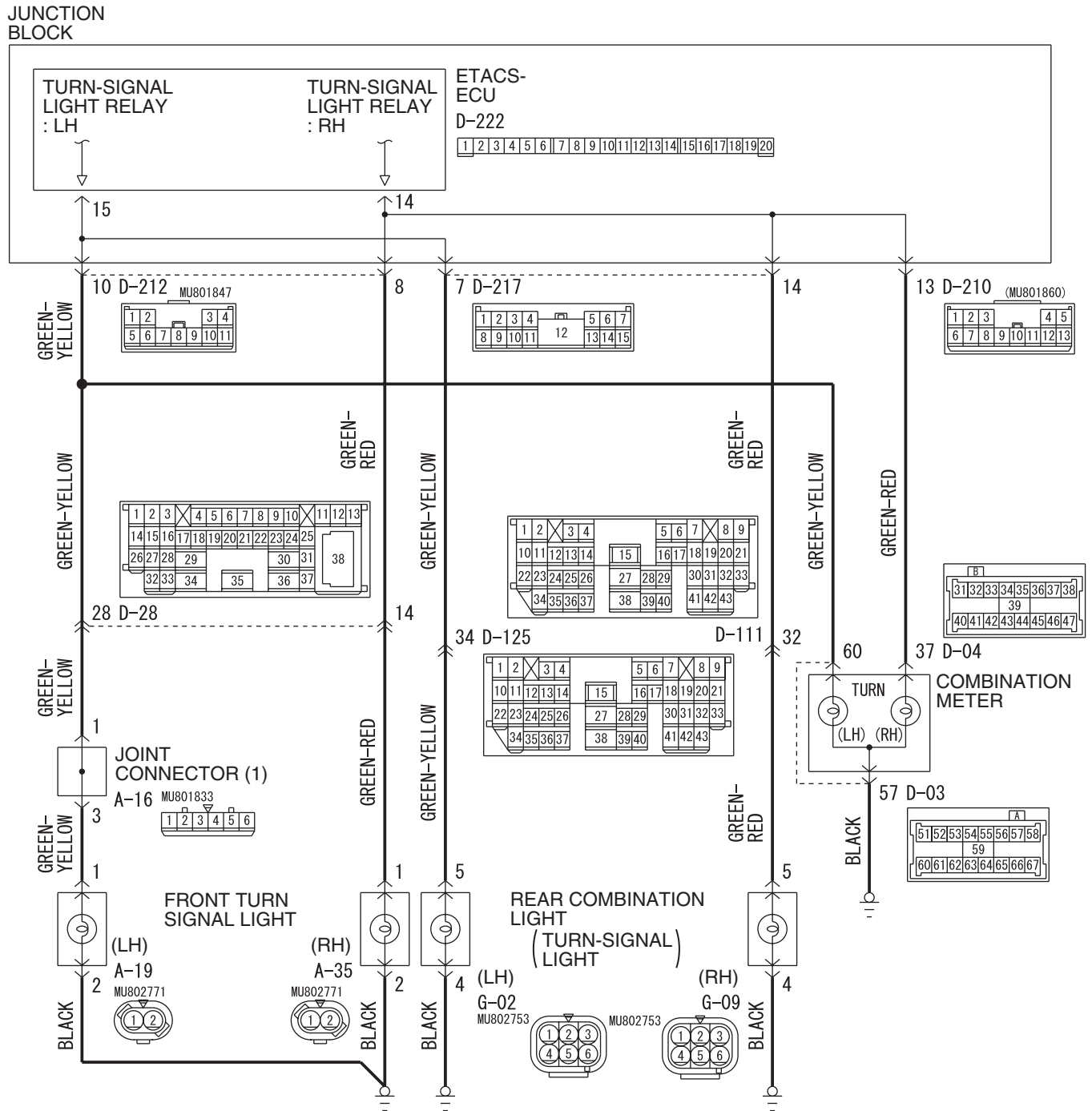
YES : Replace the ETACS-ECU. Verify that the hazard warning lights illuminate normally.

NO : Refer to Inspection Procedure P-2 "ETACS-ECU does not receive any signal from the hazard warning light switch P.54B-536."

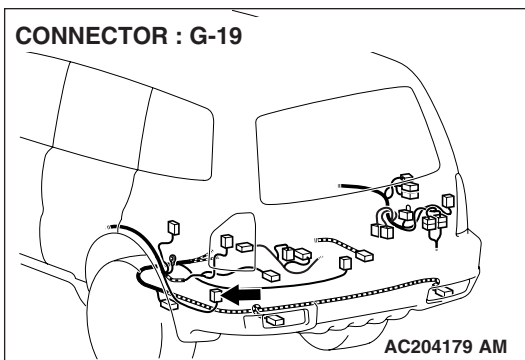
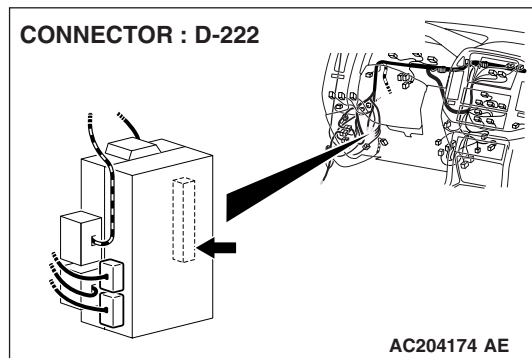
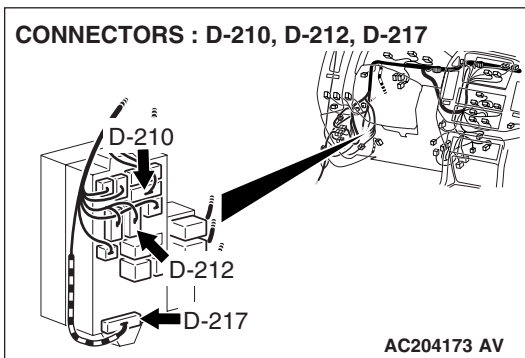
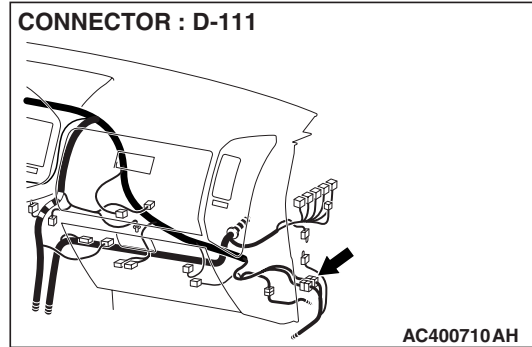
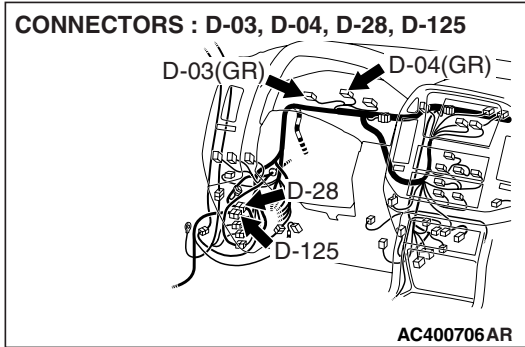
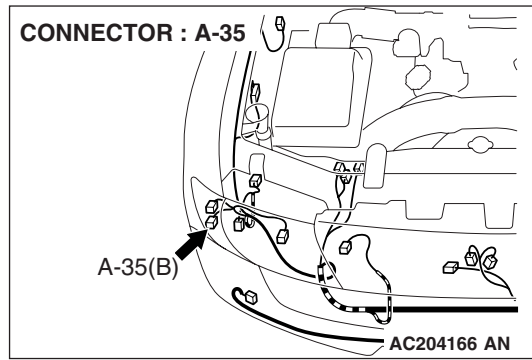
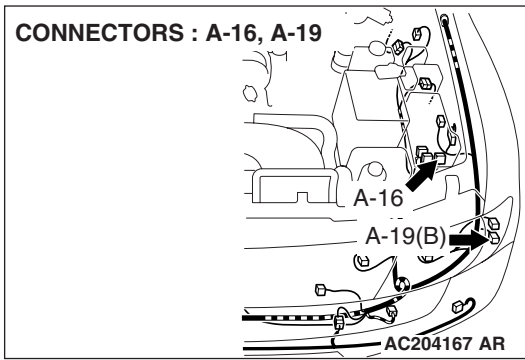


INSPECTION PROCEDURE K-3: Frasher timer: One of the turn-signal lights do not illuminate.

Turn-Signal Lights Circuit



W5Q54M021A



TECHNICAL DESCRIPTION (COMMENT)

If the right or left turn-signal light does not illuminate, their bulb may be defective.

TROUBLESHOOTING HINTS

- The turn-signal light bulb may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tool:**

- MB991223: Test Harness Set

STEP 1. Verify the hazard warning light.**Q: Which turn-signal light does not illuminate?**

Front turn-signal light (LH) : Go to Step 2.

Front turn-signal light (RH) : Go to Step 8.

Rear combination light (LH) : Go to Step 14.

Rear combination light (RH) : Go to Step 20.

Combination meter (LH) : Go to Step 26.

Combination meter (RH) : Go to Step 28.

Combination meter (both RH and LH) : Go to Step 30.

Front turn-signal light (LH) and combination meter (LH)

: Go to Step 32.

LH side only : Refer to Inspection Procedure K-1 "Turn-signal lights do not flash when the turn signal light switch is operated [P.54B-363](#)."

RH side only : Refer to Inspection Procedure K-1 "Turn-signal lights do not flash when the turn signal light switch is operated [P.54B-363](#)."

Both LH and RH sides : Refer to Inspection Procedure K-2 "Hazard warning lights do not illuminate [P.54B-370](#)."

STEP 2. Check the front turn-signal light bulb (LH).

(1) Remove the front turn-signal (LH) light bulb.

(2) Verify that the front turn-signal light bulb (LH) is not damaged or burned out.

Q: Is the front turn-signal (LH) light bulb in good condition?

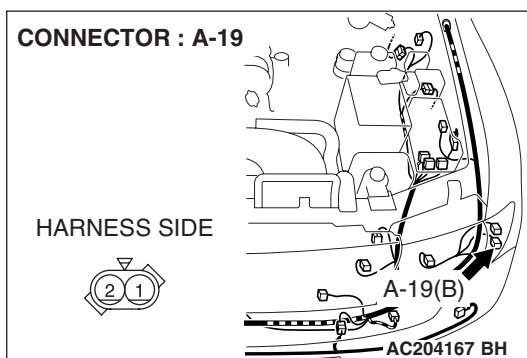
YES : Go to Step 3.

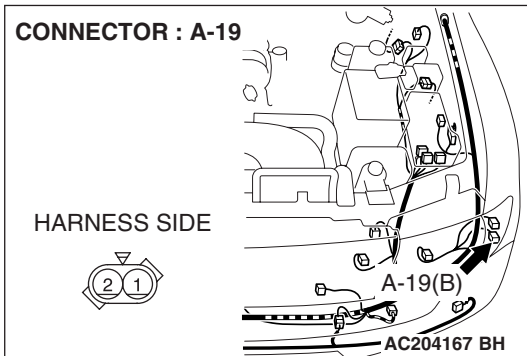
NO : Replace the front turn-signal (LH) light bulb. Verify that the turn-signal lights illuminate normally.

STEP 3. Check front turn-signal light (LH) connector A-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q: Is the front turn-signal light (LH) connector A-19 in good condition?**

YES : Go to Step 4.

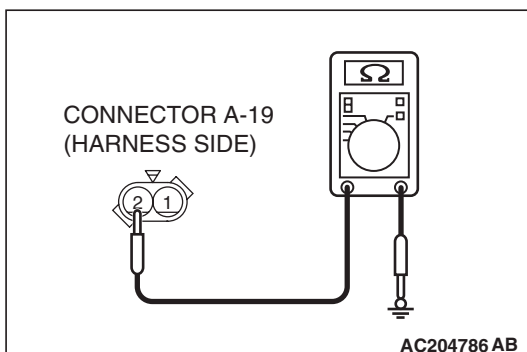
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the turn-signal lights illuminate normally.





STEP 4. Check the ground circuit to the front combination light (LH). Test at front combination light (LH) connector A-19.

(1) Disconnect front combination light (LH) connector A-19 and measure the resistance available at the wiring harness side of the connector.



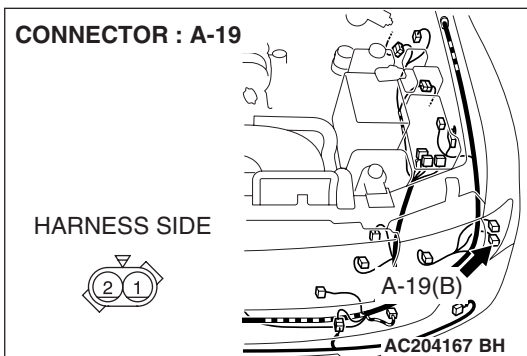
(2) Measure the resistance value between terminal 2 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 6.

NO : Go to Step 5.



STEP 5. Check the wiring harness between front turn-signal light (LH) connector A-19 (terminal 2) and ground.

Q: Is the wiring harness between front turn-signal light (LH) connector A-19 (terminal 2) and ground in good condition?

YES : Replace the socket. Verify that the turn-signal lights illuminate normally.

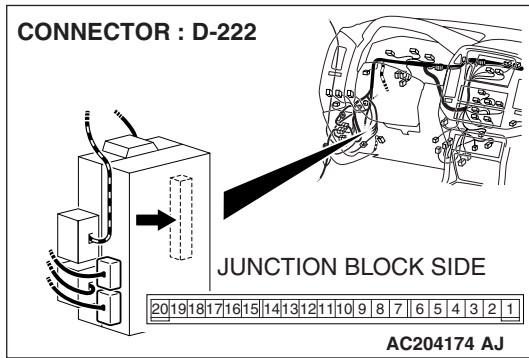
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the turn-signal lights illuminate normally.

STEP 6. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

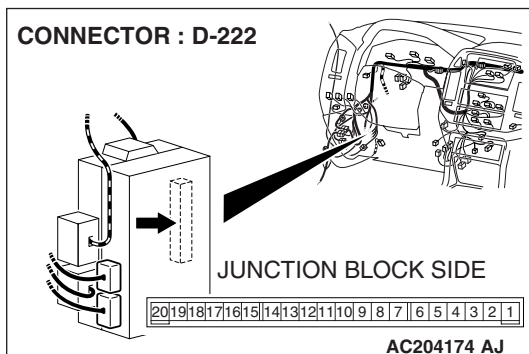
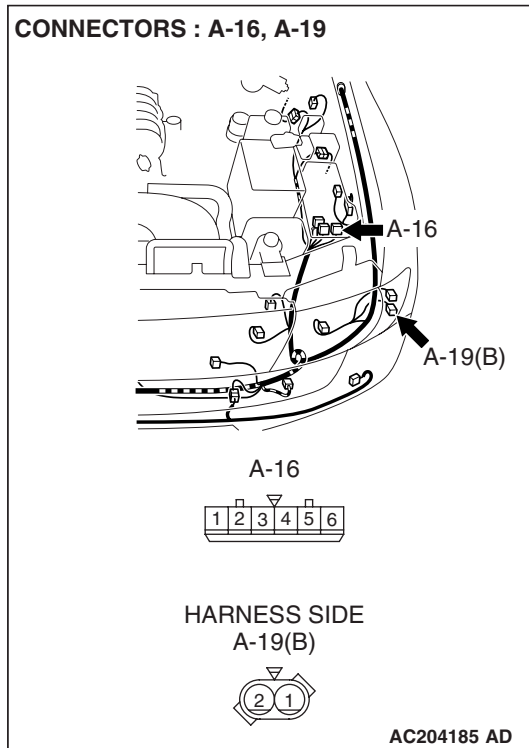
Q: Is ETACS-ECU connector D-222 in good condition?

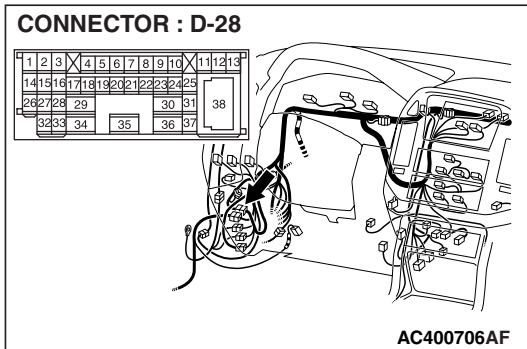
YES : Go to Step 7.

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

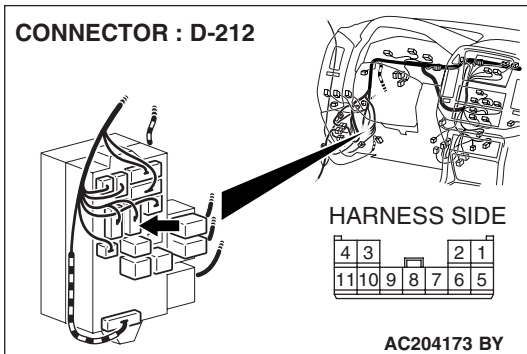


STEP 7. Check the wiring harness between front turn-signal light (LH) connector A-19 (terminal 1) and ETACS-ECU connector D-222 (terminal 15).





NOTE: Also check junction block connector D-212, joint connector A-16 and intermediate connector D-28 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-212, joint connector A-16 or intermediate connector D-28 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between front turn-signal light (LH) connector A-19 (terminal 1) and ETACS-ECU connector D-222 (terminal 15) in good condition?

YES : Replace the socket. Verify that the turn-signal lights illuminate normally.

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

STEP 8. Check the front turn-signal light bulb (RH).

- (1) Remove the front turn-signal (RH) light bulb.
- (2) Verify that the front turn-signal light bulb (RH) is not damaged or burned out.

Q: Is the front turn-signal (RH) light bulb in good condition?

YES : Go to Step 9.

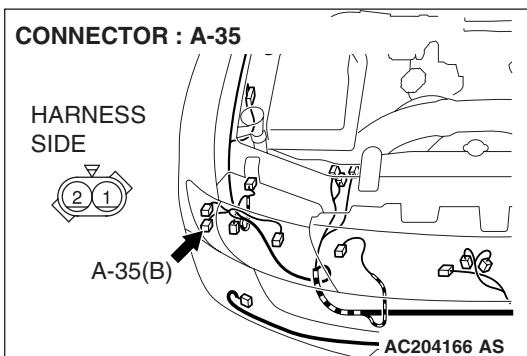
NO : Replace the front turn-signal (RH) light bulb. Verify that the turn-signal lights illuminate normally.

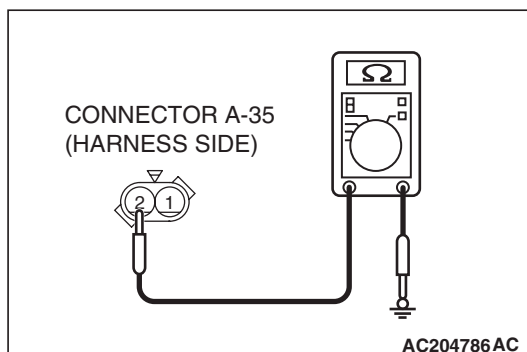
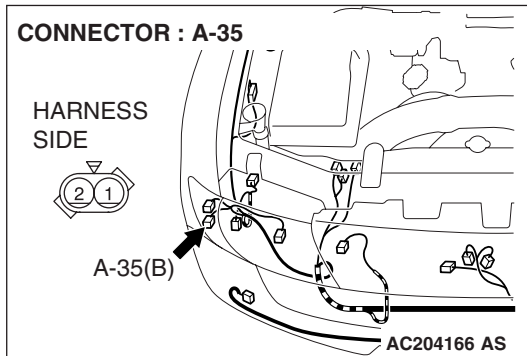
STEP 9. Check front turn-signal light (RH) connector A-35 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the front turn-signal (RH) connector A-35 in good condition?

YES : Go to Step 10.

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





STEP 10. Check the ground circuit to the front combination light (RH). Test at front combination light (RH) connector A-35.

(1) Disconnect front combination light (RH) connector A-35 and measure the resistance available at the wiring harness side of the connector.

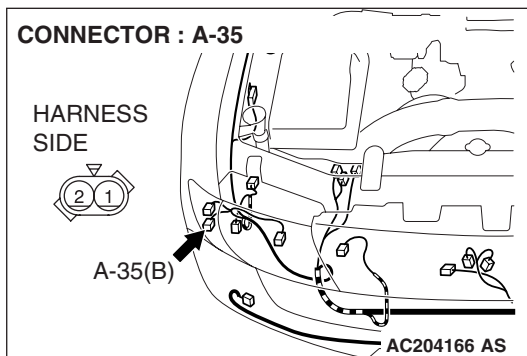
(2) Measure the resistance value between terminal 2 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 12.

NO : Go to Step 11.

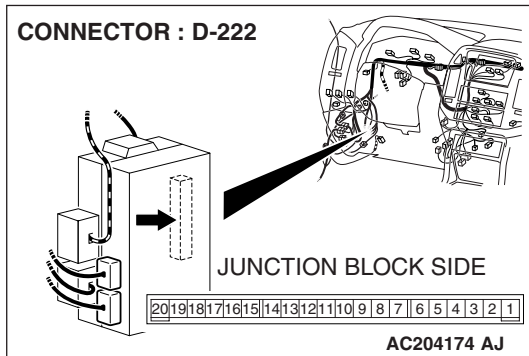


STEP 11. Check the wiring harness between front turn-signal light (RH) connector A-35 (terminal 2) and ground.

Q: Is the wiring harness between front turn-signal light (RH) connector A-35 (terminal 2) and ground in good condition?

YES : Replace the socket. Verify that the turn-signal lights illuminate normally.

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

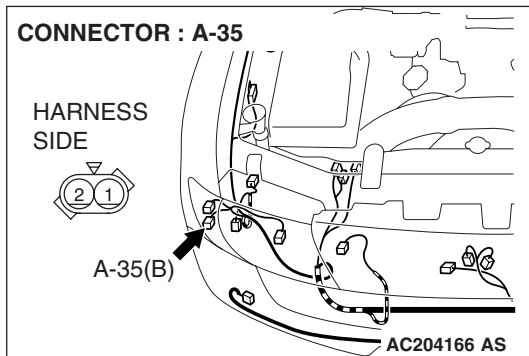


STEP 12. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

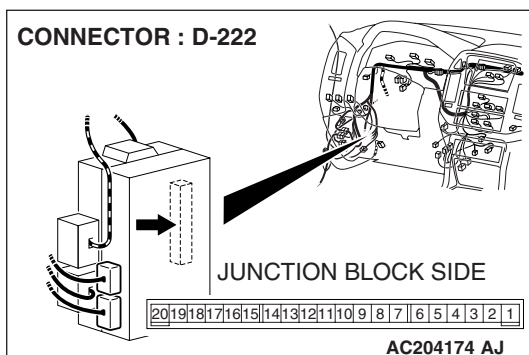
Q: Is ETACS-ECU connector D-222 in good condition?

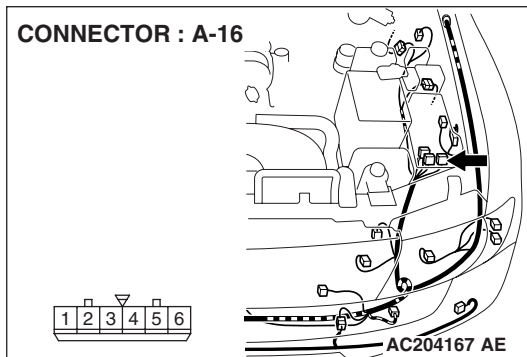
YES : Go to Step 13.

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



STEP 13. Check the wiring harness between front turn-signal light (RH) connector A-35 (terminal 1) and ETACS-ECU connector D-222 (terminal 14).



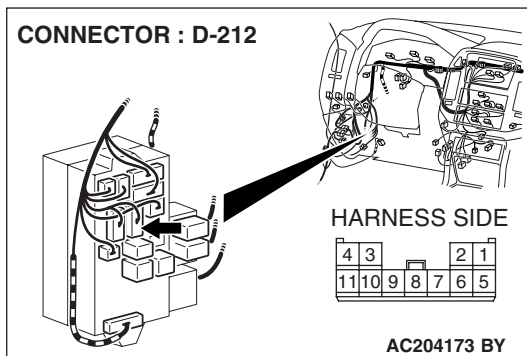
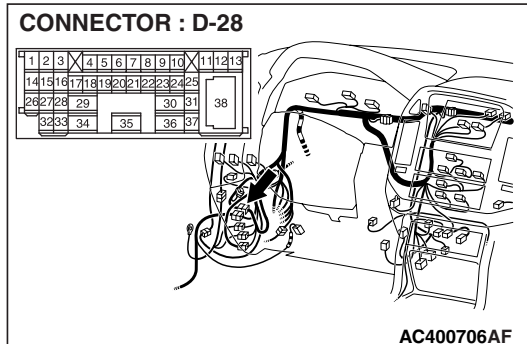


NOTE: Also check junction block connector D-212, joint connector A-16 and intermediate connector D-28 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-212, joint connector A-16 or intermediate connector D-28 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between front turn-signal light (RH) connector A-35 (terminal 1) and ETACS-ECU connector D-222 (terminal 14) in good condition?

YES : Replace the socket. Verify that the turn-signal lights illuminate normally.

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



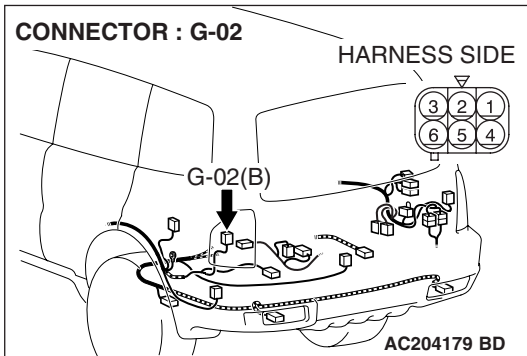
STEP 14. Check the rear turn-signal light bulb (LH).

- (1) Remove the rear turn-signal (LH) light bulb.
- (2) Verify that the rear turn-signal light bulb (LH) is not damaged or burned out.

Q: Is the rear turn-signal (LH) light bulb in good condition?

YES : Go to Step 15.

NO : Replace the rear turn-signal (LH) light bulb. Verify that the turn-signal lights illuminate normally.

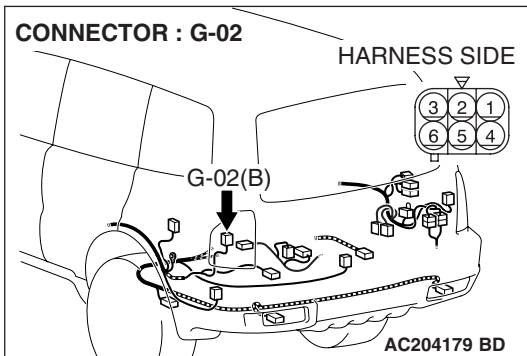


STEP 15. Check rear combination light (LH) connector G-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear combination light (LH) connector G-02 in good condition?

YES : Go to Step 16.

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



STEP 16. Check the ground circuit to the rear combination light (LH). Test at rear combination light (LH) connector G-02.

(1) Disconnect rear combination light (LH) connector G-02 and measure the resistance available at the wiring harness side of the connector.

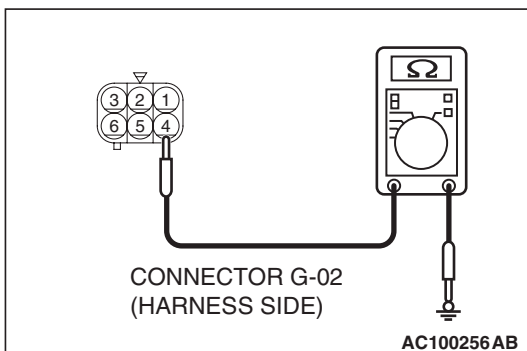
(2) Measure the resistance value between terminal 4 and ground.

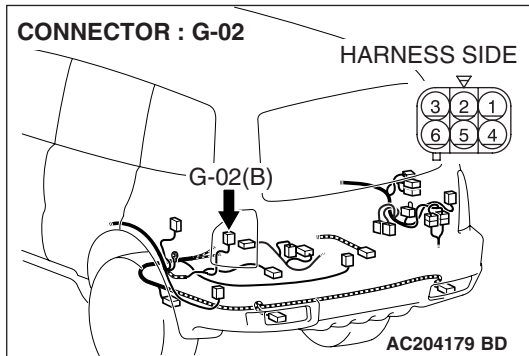
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 18.

NO : Go to Step 17.

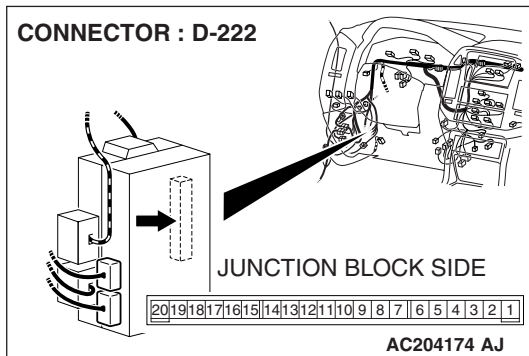




STEP 17. Check the wiring harness between rear combination light (LH) connector G-02 (terminal 4) and ground.

Q: Is the wiring harness between rear combination light (LH) connector G-02 (terminal 4) and ground in good condition?

- YES :** Replace the socket assembly. Verify that the turn-signal lights illuminate normally.
- NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the turn-signal lights illuminate normally.

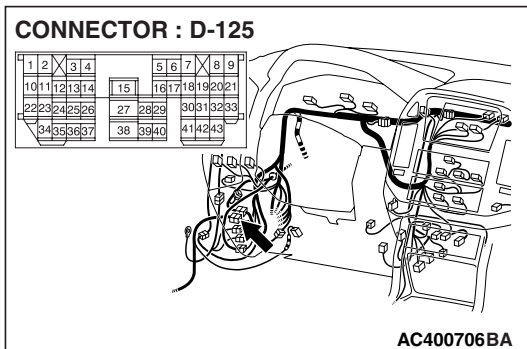
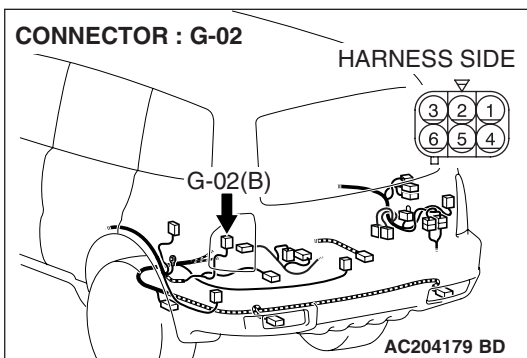
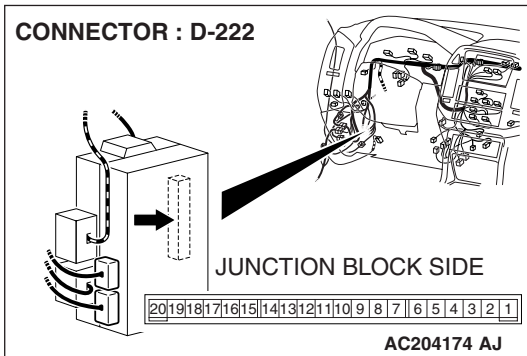


STEP 18. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector D-222 in good condition?

- YES :** Go to Step 19.
- NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the turn-signal lights illuminate normally.

STEP 19. Check the wiring harness between rear combination light (LH) connector G-02 (terminal 5) and ETACS-ECU connector D-222 (terminal 15).

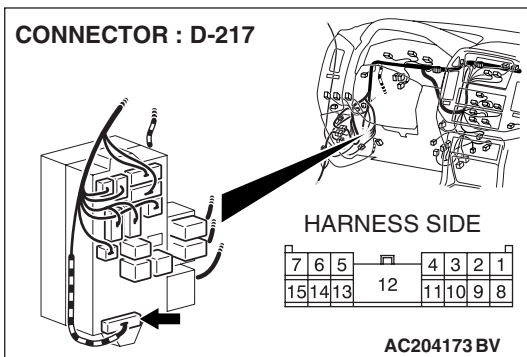


NOTE: Also check junction block connector D-217 and intermediate connector D-125 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-217 or intermediate connector D-125 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear combination light (LH) connector G-02 (terminal 5) and ETACS-ECU connector D-222 (terminal 15) in good condition?

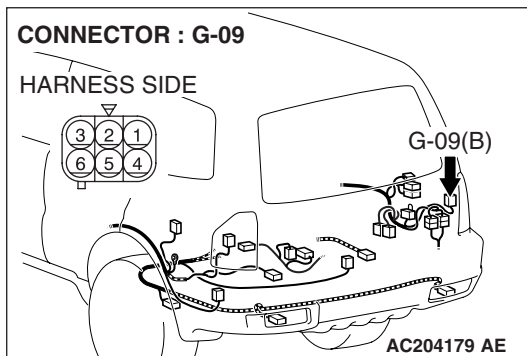
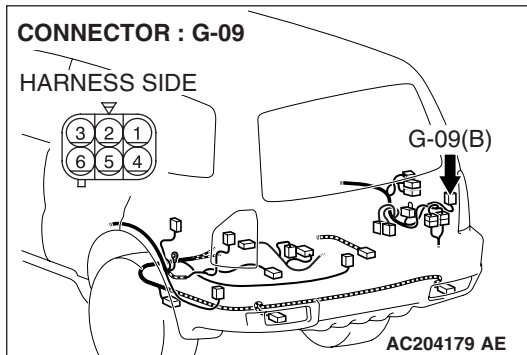
YES : Replace the socket assembly. Verify that the turn-signal lights illuminate normally.

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



STEP 20. Check the rear turn-signal light bulb (RH).

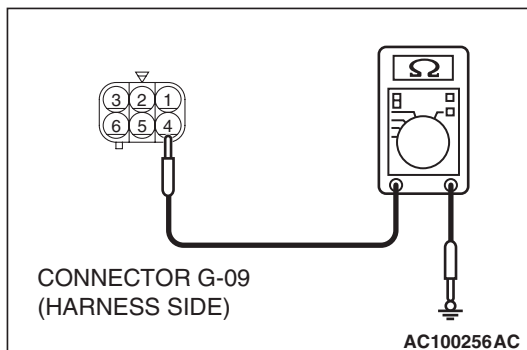
- (1) Remove the rear turn-signal (RH) light bulb.
- (2) Verify that the rear turn-signal light bulb (RH) is not damaged or burned out.

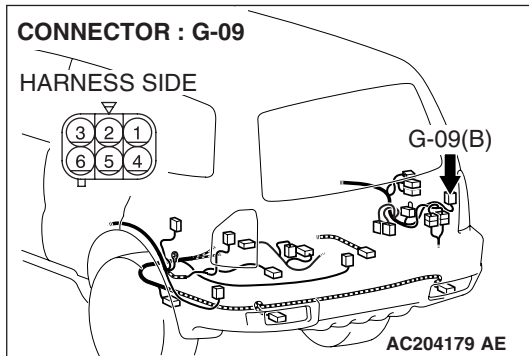
Q: Is the rear turn-signal (RH) light bulb in good condition?**YES** : Go to Step 21.**NO** : Replace the rear turn-signal (RH) light bulb. Verify that the turn-signal lights illuminate normally.**STEP 21. Check rear combination light (RH) connector G-09 for loose, corroded or damaged terminals, or terminals pushed back in the connector.****Q: Is rear combination light (RH) connector G-09 in good condition?****YES** : Go to Step 22.**NO** : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the turn-signal lights illuminate normally.**STEP 22. Check the ground circuit to the rear combination light (RH). Test at rear combination light (RH) connector G-09.**

- (1) Disconnect rear combination light (RH) connector G-09 and measure the resistance available at the wiring harness side of the connector.

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

- The resistance should equal 2 ohms or less.

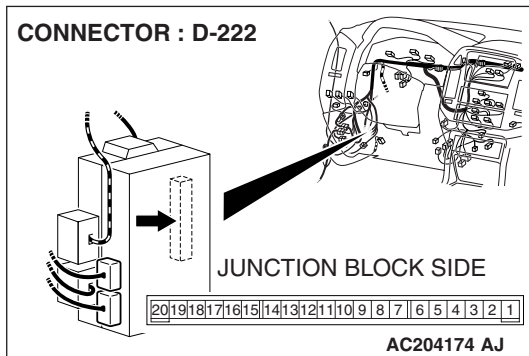
Q: Is the measured resistance 2 ohms or less?**YES** : Go to Step 24.**NO** : Go to Step 23.



STEP 23. Check the wiring harness between rear combination light (RH) connector G-09 (terminal 4) and ground.

Q: Is the wiring harness between rear combination light (RH) connector G-09 (terminal 4) and ground in good condition?

- YES :** Replace the socket assembly. Verify that the turn-signal lights illuminate normally.
- NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the turn-signal lights illuminate normally.

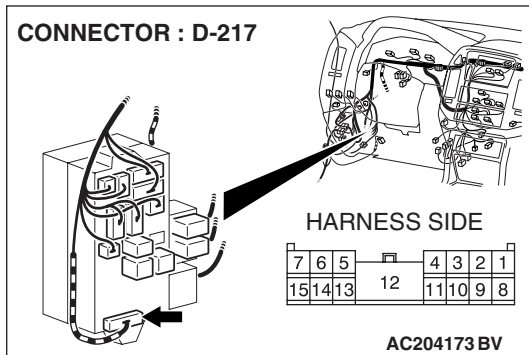
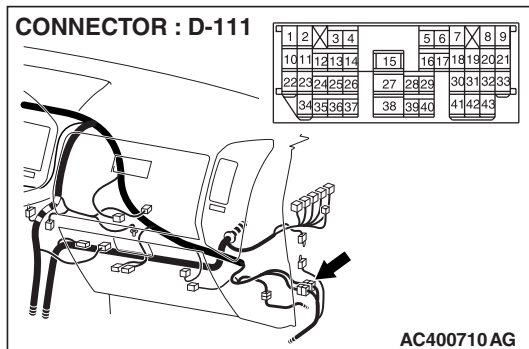
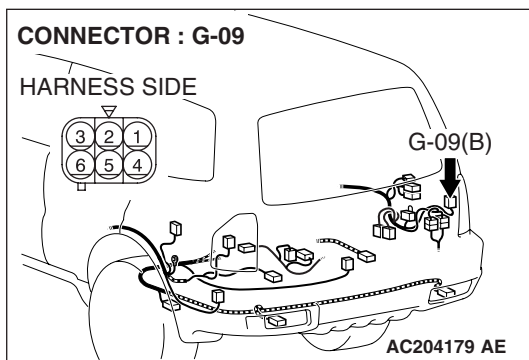
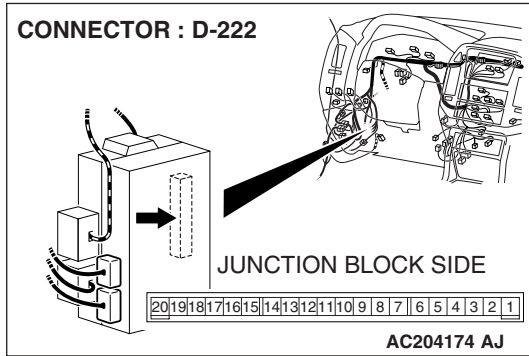


STEP 24. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector D-222 in good condition?

- YES :** Go to Step 25.
- NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the turn-signal lights illuminate normally.

STEP 25. Check the wiring harness between rear combination light (RH) connector G-09 (terminal 5) and ETACS-ECU connector D-222 (terminal 14).



NOTE: Also check junction block connector D-217 and intermediate connector D-111 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-217 or intermediate connector D-111 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear combination light (RH) connector G-09 (terminal 5) and ETACS-ECU connector D-222 (terminal 14) in good condition?

- YES :** Replace the socket assembly. Verify that the turn-signal lights illuminate normally.
- NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the turn-signal lights illuminate normally.

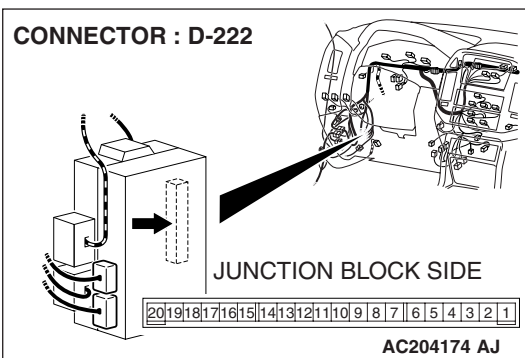
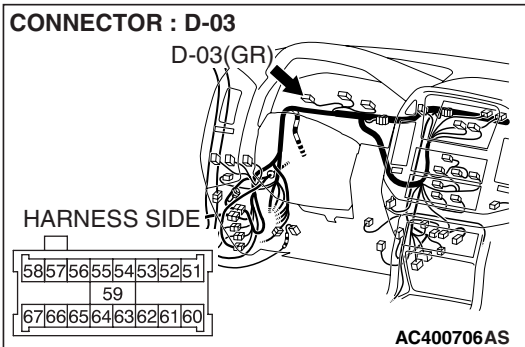
STEP 26. Check combination meter connector D-03 and ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are combination meter connector D-03 and ETACS-ECU connector D-222 in good condition?

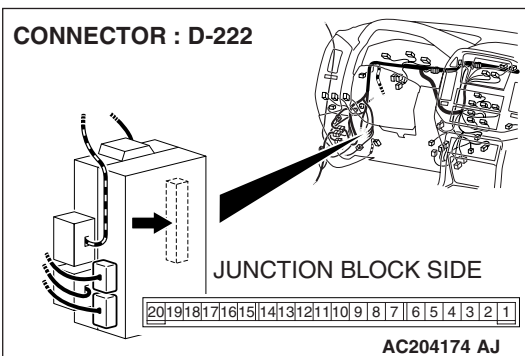
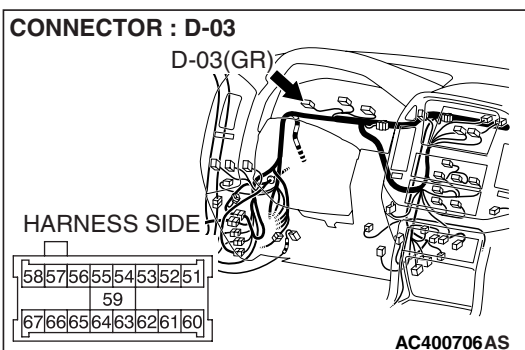
YES : Go to Step 27.

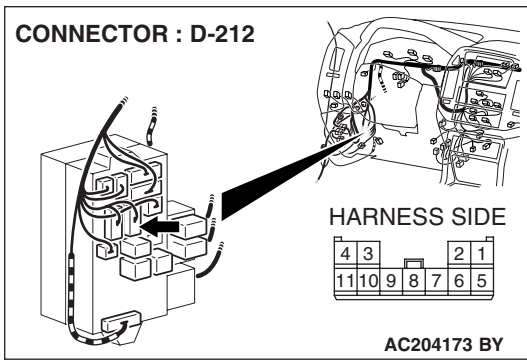
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

P.00E-2. Verify that the turn-signal lights illuminate normally.



STEP 27. Check the wiring harness between combination meter connector D-03 (terminal 60) and ETACS-ECU connector D-222 (terminal 15).



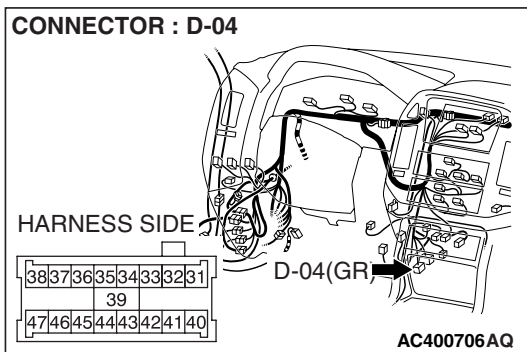


NOTE: Also check junction block connector D-212 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-212 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector D-03 (terminal 60) and ETACS-ECU connector D-222 (terminal 15) in good condition?

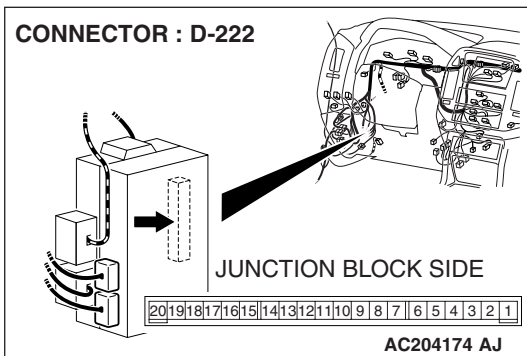
- YES :** Replace the combination meter. Verify that the turn-signal lights illuminate normally.
- NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the turn-signal lights illuminate normally.

STEP 28. Check combination meter connector D-04 and ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

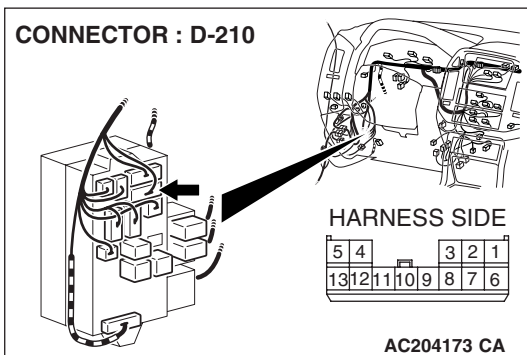
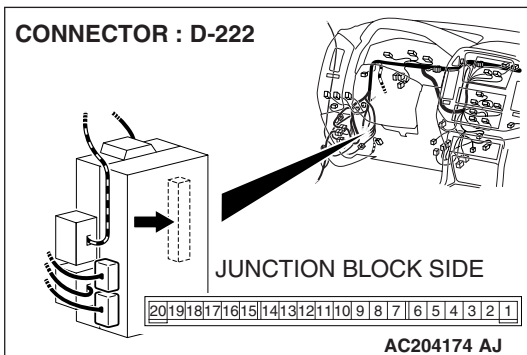
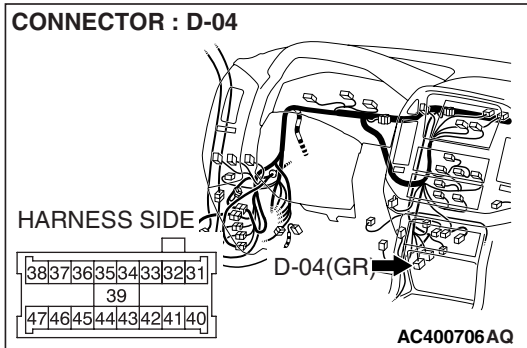


Q: Are combination meter connector D-04 and ETACS-ECU connector D-222 in good condition?

- YES :** Go to Step 29.
- NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the turn-signal lights illuminate normally.



STEP 29. Check the wiring harness between combination meter connector D-04 (terminal 37) and ETACS-ECU connector D-222 (terminal 14).

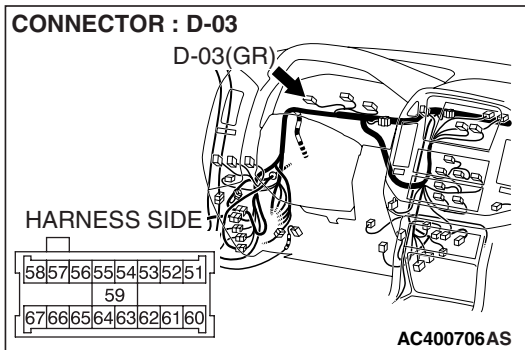


NOTE: Also check junction block connector D-210 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-210 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector D-04 (terminal 37) and ETACS-ECU connector D-222 (terminal 14) in good condition?

YES : Replace the combination meter. Verify that the turn-signal lights illuminate normally.

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

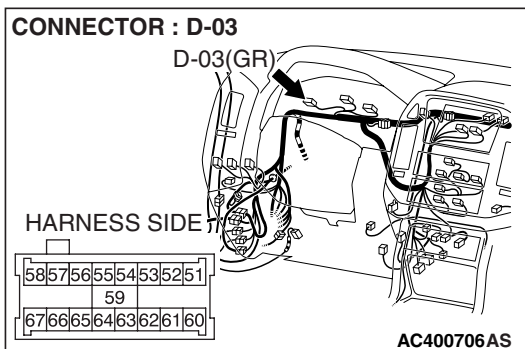


STEP 30. Check combination meter connector D-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 31.

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



STEP 31. Check the wiring harness between combination meter connector D-03 (terminal 57) and ground.

Q: Is the wiring harness between combination meter connector D-03 (terminal 57) and ground in good condition?

YES : Replace the combination meter. Verify that the turn-signal lights illuminate normally.

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

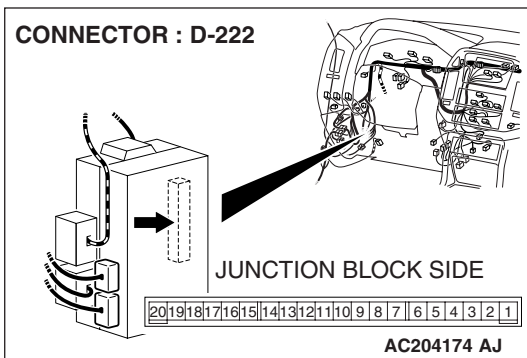
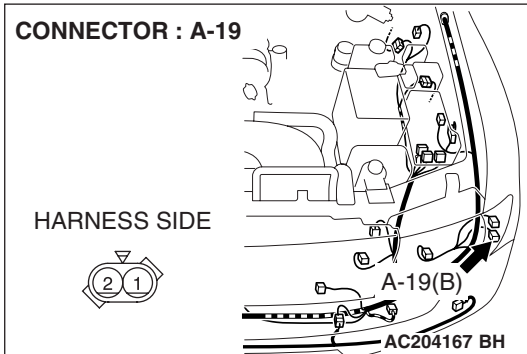
STEP 32. Check front turn-signal light (LH) connector A-19 and ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are front turn-signal light (LH) connector A-19 and ETACS-ECU connector D-222 in good condition?

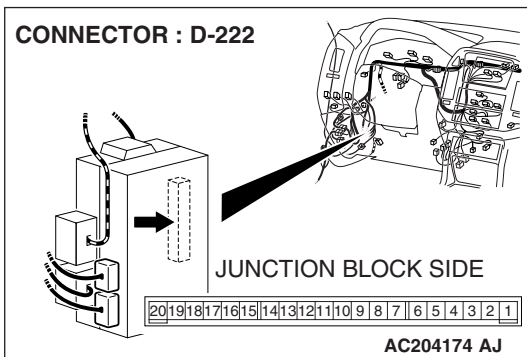
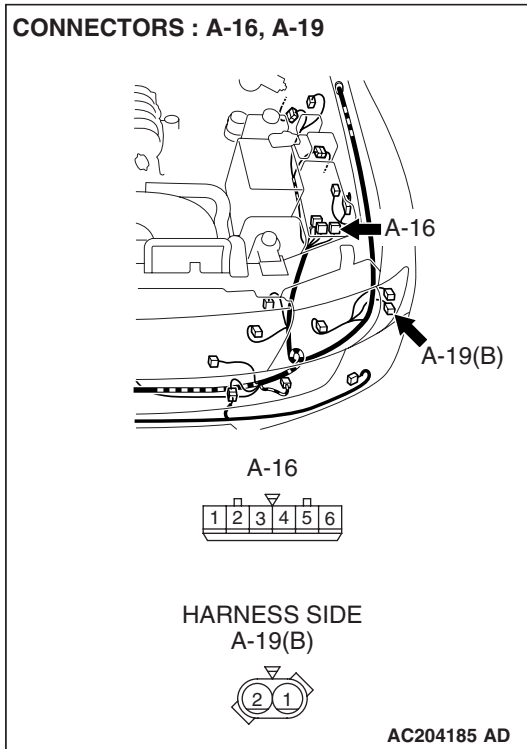
YES : Go to Step 33.

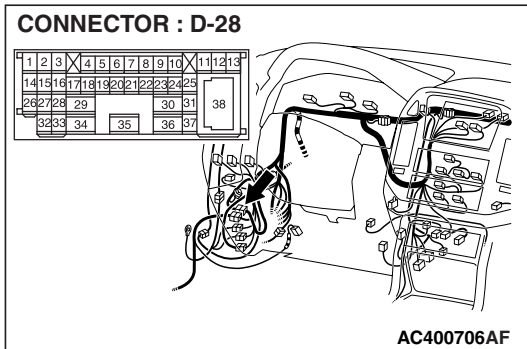
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

P.00E-2. Verify that the turn-signal lights illuminate normally.

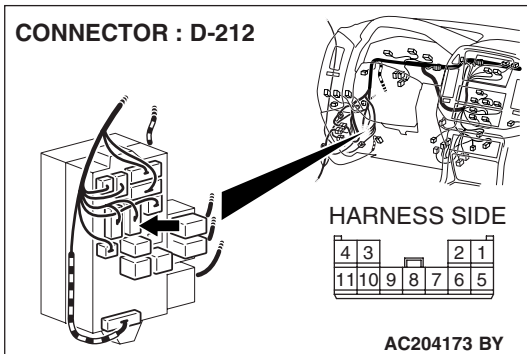


STEP 33. Check the wiring harness between front turn-signal light (LH) connector A-19 (terminal 1) and ETACS-ECU connector D-222 (terminal 15).





NOTE: Also check junction block connector D-212, joint connector A-16 and intermediate connector D-28 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-212, joint connector A-16 or intermediate connector D-28 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between front turn-signal light (LH) connector A-19 (terminal 1) and ETACS-ECU connector D-222 (terminal 15) in good condition?

YES : No action is necessary and testing is complete.

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

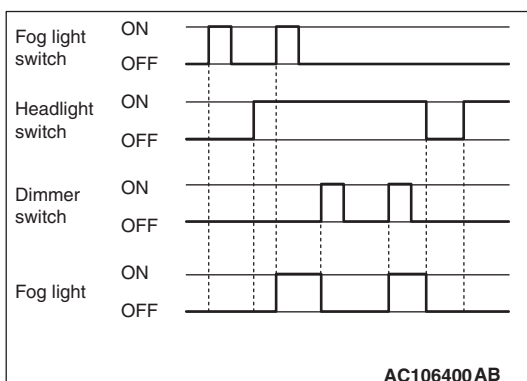
FOG LIGHT

GENERAL DESCRIPTION CONCERNING FOG LIGHT

M1549021400186

The following ECUs affect the functions and control of the fog lights and fog light indicator light.

FUNCTION	CONTROL ECU
Fog light and fog light indicator light	ETACS-ECU, front-ECU, column switch



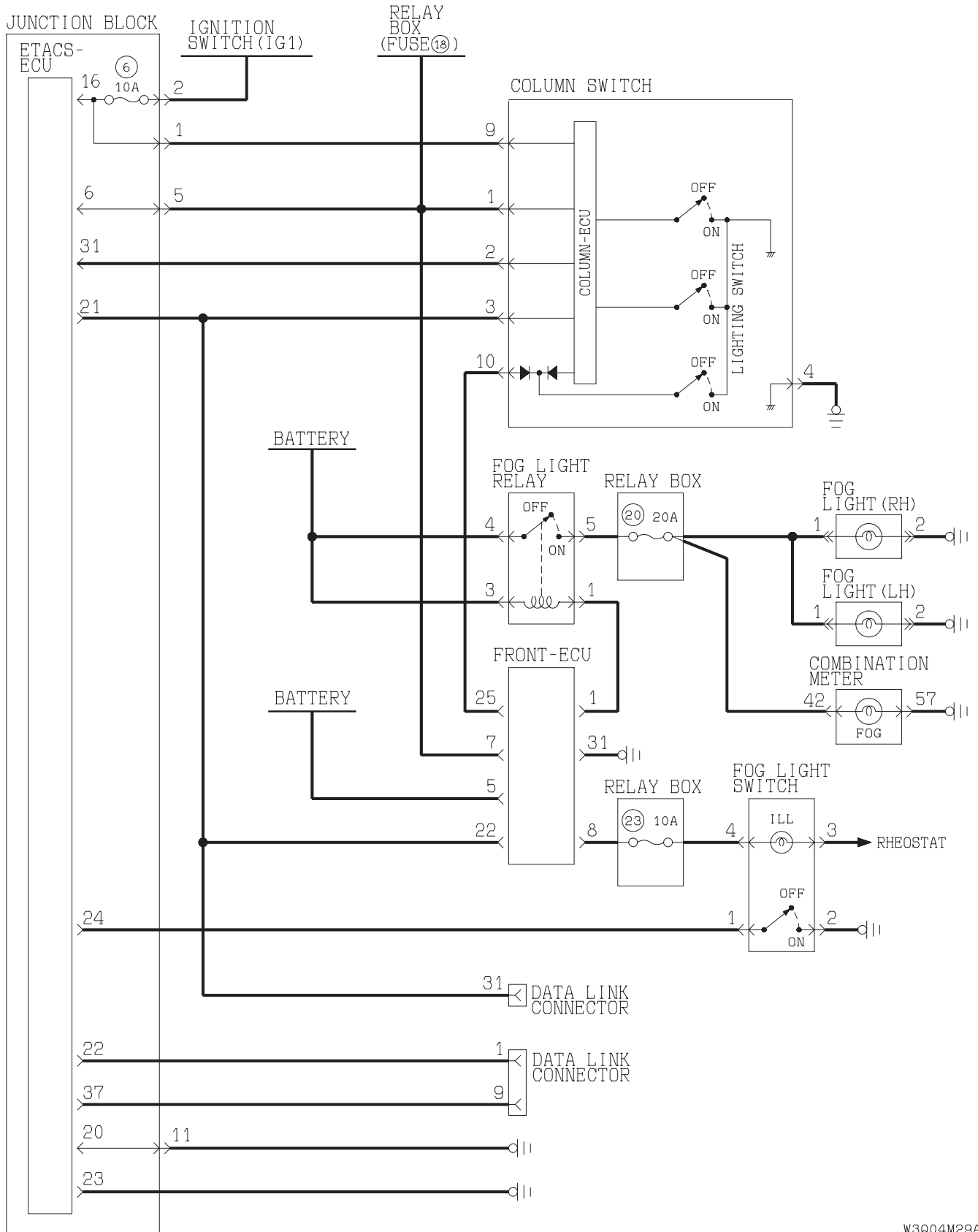
Fog light and fog light indicator light

If the ETACS-ECU sends a fog light "ON" request signal to the front-ECU after the low-beam headlights are on, the fog light relay is turned on, allowing the fog lights and the fog light indicator light to be illuminated. If the low-beam headlights is turned off, the fog lights will also be turned off automatically. Therefore, if the headlights are turned on at next opportunity, the fog lights do not illuminate.

If the high-beam headlights is turned on while the fog lights are on, the fog lights will be turned off. Then, if you switch the headlights from the high-beam to the low-beam, the fog lights will be turned on again.

NOTE: This description covers the fog lights only. In actual driving, the fog lights may be turned off due to the headlight automatic shut-down function. For the details of the headlight automatic shut-down function, refer to its Section.

General circuit diagram for the fog lights

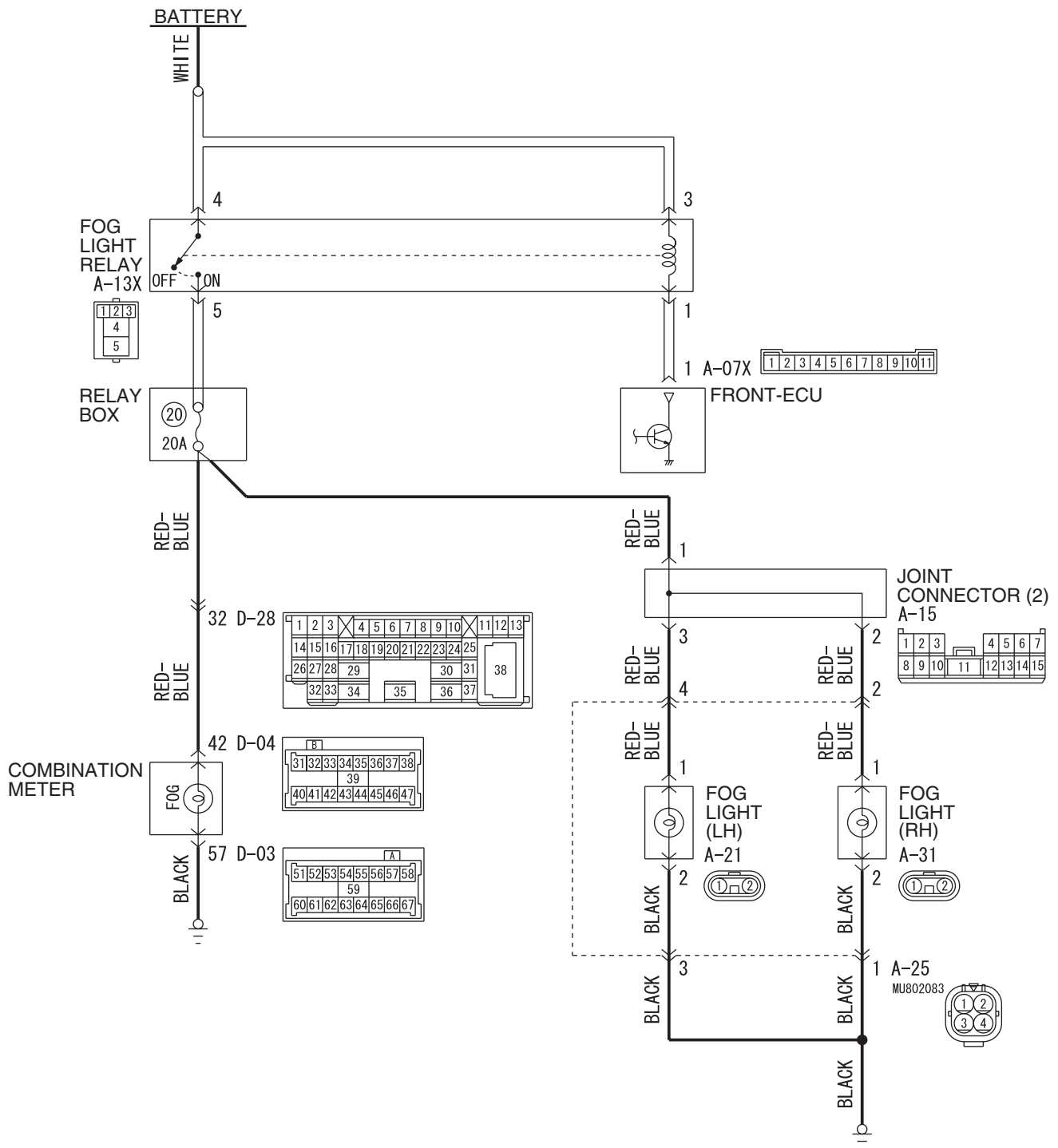


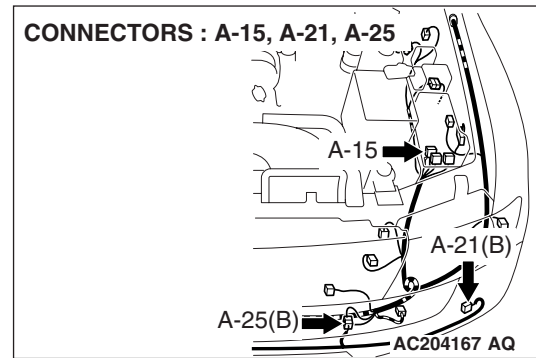
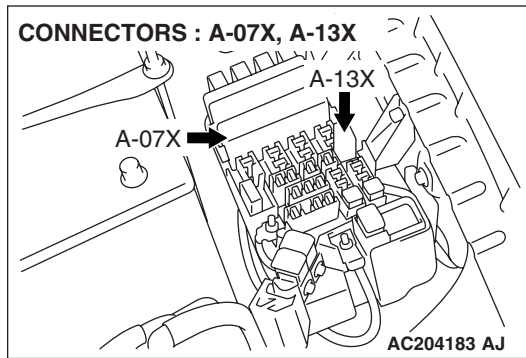
W3Q04M29AA

INSPECTION PROCEDURE L-1: Fog Light: Fog lights do not illuminate when the fog light switch is operated.

NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-10."

Fog Light Circuit



**CIRCUIT OPERATION**

- The ETACS-ECU sends a fog light illumination request signal ("LIGHT ON" signal) to the front-ECU when the fog light switch is turned on while the headlights are on.
- Then the front-ECU switches on its relay to illuminate the fog lights.

TECHNICAL DESCRIPTION (COMMENT)

If the headlights illuminate normally, the fog light relay, the fog light switch, the front-ECU or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The fog light relay may be defective
- The fog light switch may be defective
- The front-ECU may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B
- MB991813: SWS Monitor Kit
 - MB991806: SWS Monitor Cartridge
 - MB991812: SWS Monitor Harness (For Column-ECU)
 - MB991822: Probe Harness
- MB991854: SWS Monitor Harness (For 13-pin)

STEP 1. Verify the headlight operation.**Q: Do the headlights illuminate normally?**

The lights illuminate normally at both high and low beams : Go to Step 2.

Headlights do not illuminate at low beam : Refer to Inspection Procedure J-2 "Headlights (low-beam) do not illuminate [P.54B-294](#)."

Headlights do not illuminate at high beam : Refer to Inspection Procedure J-3 "Headlights (high-beam) do not illuminate [P.54B-299](#)."

STEP 2. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

Set each switch to the following condition before checking input signal from the fog light switch:

- Ignition switch: ON
- Fog light switch: ON

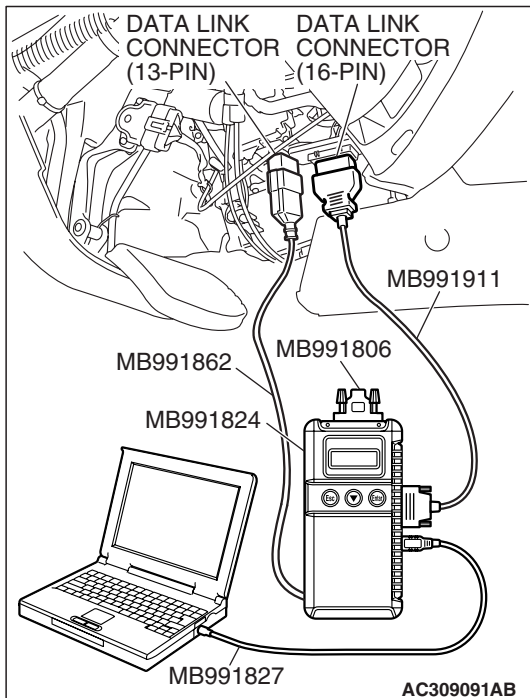
NOTE: Turn the ignition switch to the "ON" position in order to disable the headlight automatic shutdown function.

⚠ 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 the special tool. Refer to "How to connect SWS monitor P.54B-7.
- (2) Operate scan tool MB991958 according to the procedure below to display "F.FOG LIGHT"
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "LIGHTING."
 6. Select "F.FOG LIGHT."
- (3) Check that normal conditions are displayed on the items described in the table below.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 30	IG SW(IG1)	ON
ITEM 36	F.FOG LIGHT	ON

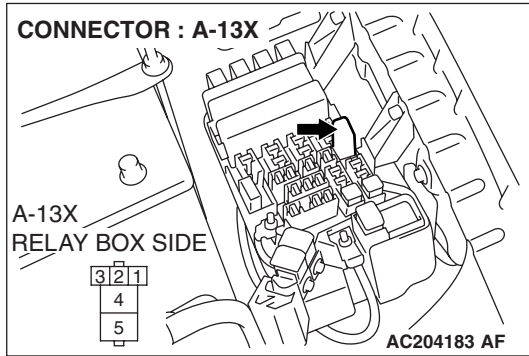


Q: Are normal conditions displayed on the "IG SW(IG1)" and "F.FOG LIGHT"?

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

Normal condition is not displayed on the "IG SW(IG1)" :
Refer to Inspection Procedure O-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) P.54B-496."

Normal condition is not displayed on the "F.FOG LIGHT" :
Refer to Inspection Procedure O-3 "ETACS-ECU does not receive any signal from the fog light switch P.54B-498."



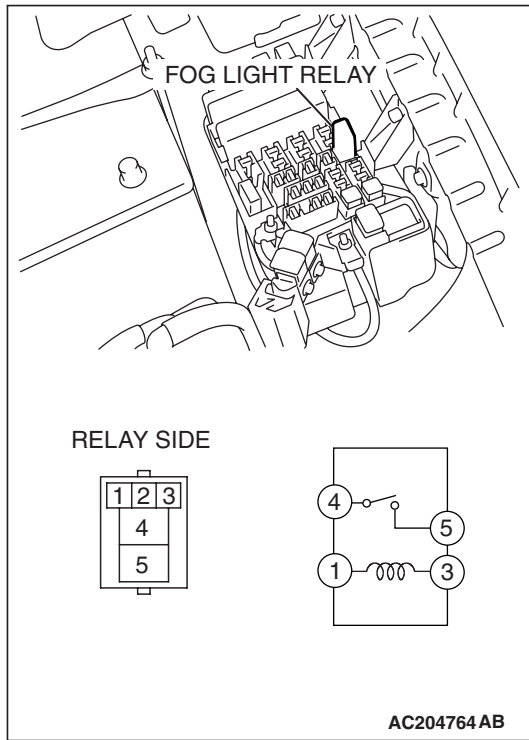
STEP 3. Check fog light relay connector A-13X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fog light relay connector A-13X 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](#). Verify that the fog lights illuminate normally.



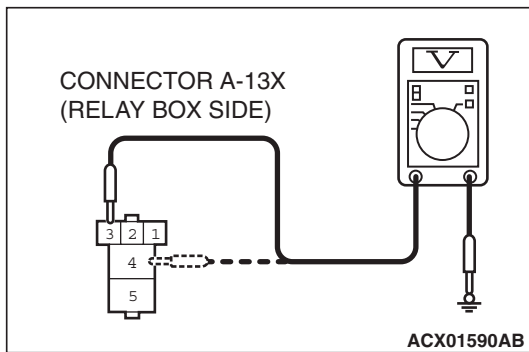
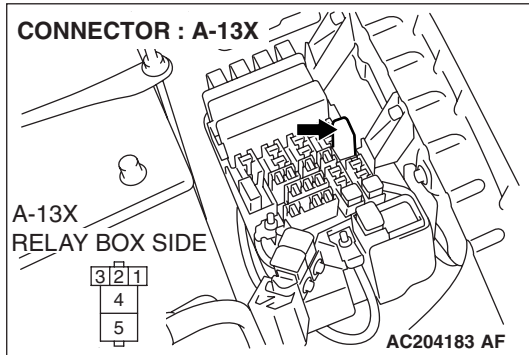
STEP 4. Check the fog light relay.

BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	4 – 5	Open circuit
3 – Battery (+) terminal, 1 – Battery (-) terminal	4 – 5	Less than 2 ohms

Q: Is the fog light relay in good condition?

YES : Go to Step 5.

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



STEP 5. Check the battery power supply circuit to the fog light relay. Test at fog light relay connector A-13X.

(1) Disconnect fog light relay connector A-13X and measure at the voltage available at the relay box side of the connector.

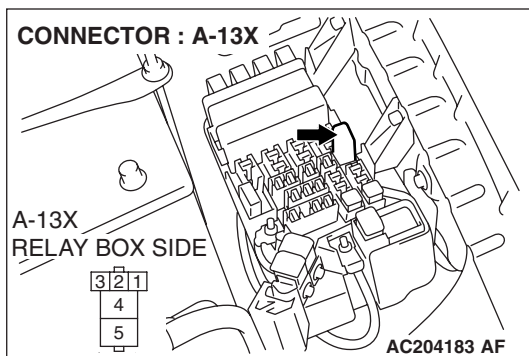
(2) Measure the voltage between terminal 3 and ground, and also between terminal 4 and ground.

- The voltage should be 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.

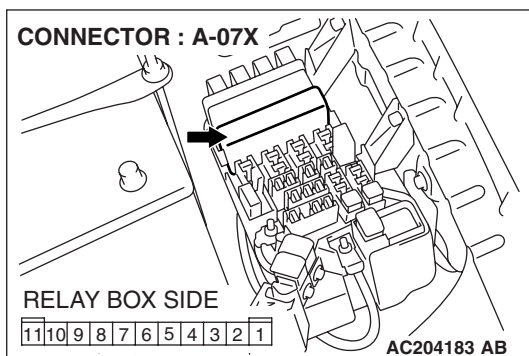


STEP 6. Check the wiring harness between fog light relay connector A-13X (terminals 3 and 4) and the battery.

Q: Is the wiring harness between fog light relay connector A-13X (terminals 3 and 4) and the battery in good condition?

YES : No action is necessary and testing is complete.

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



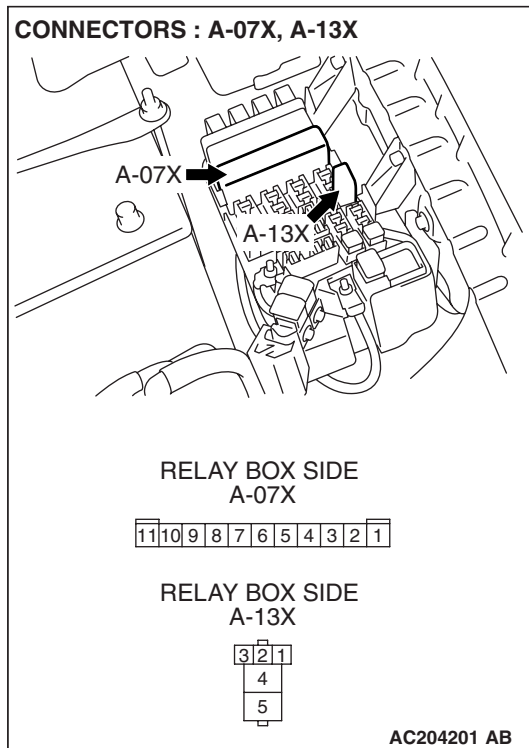
STEP 7. Check front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front-ECU connector A-07X in good condition?

YES : Go to Step 8.

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

P.00E-2. Verify that the fog lights illuminate normally.

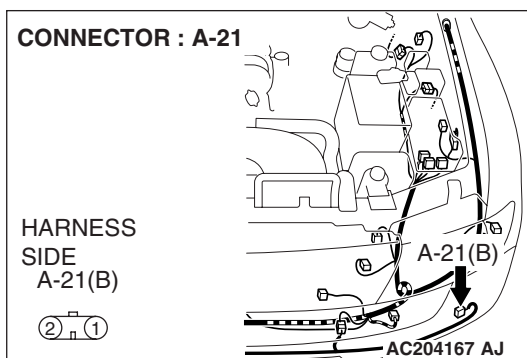


STEP 8. Check the wiring harness between fog light relay connector A-13X (terminal 1) and front-ECU connector A-07X (terminal 1).

Q: Is the wiring harness between fog light relay connector A-13X (terminal 1) and front-ECU connector A-07X (terminal 1) 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 fog lights illuminate normally.



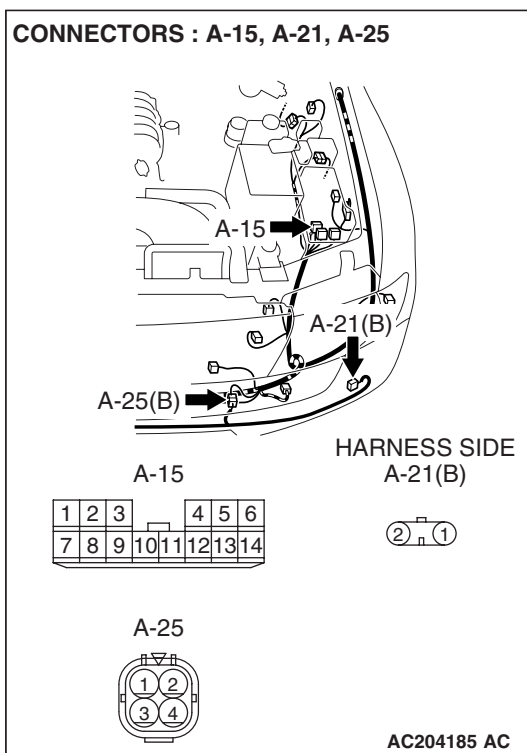
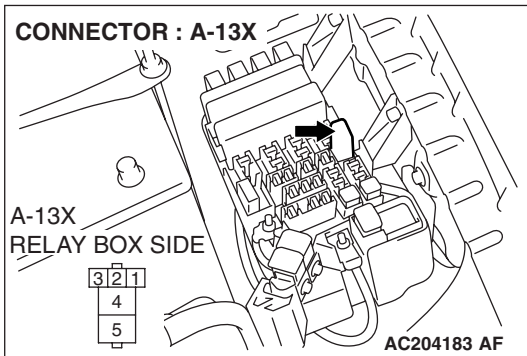
STEP 9. Check fog light (LH) connector A-21 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fog light (LH) connector A-21 in good condition?

YES : Go to Step 10.

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

STEP 10. Check the wiring harnesses among fog light relay connector A-13X (terminal 5) and fog light (LH) connector A-21 (terminal 1).



NOTE: Also check joint connector A-15 and intermediate connector A-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector A-15 or intermediate connectors A-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Are the wiring harnesses among fog light relay connector A-13X (terminal 5) and fog light (LH) connector A-21 (terminal 1) in good condition?

YES : Go to Step 11.

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

STEP 11. Replace the ECU.

- (1) Replace the front-ECU.
- (2) Verify that the fog lights illuminate normally.

Q: Do the fog lights illuminate normally?

YES : No action is necessary and testing is complete.

NO : Replace the ETACS-ECU. Verify that the fog lights illuminate normally.

INSPECTION PROCEDURE L-2: Fog Light: Fog lights do not go out when the headlights (low-beam) are turned off while the fog lights are on.

TECHNICAL DESCRIPTION (COMMENT)

If the trouble above occurs, the front-ECU may be defective.

TROUBLESHOOTING HINT

The front-ECU may be defective

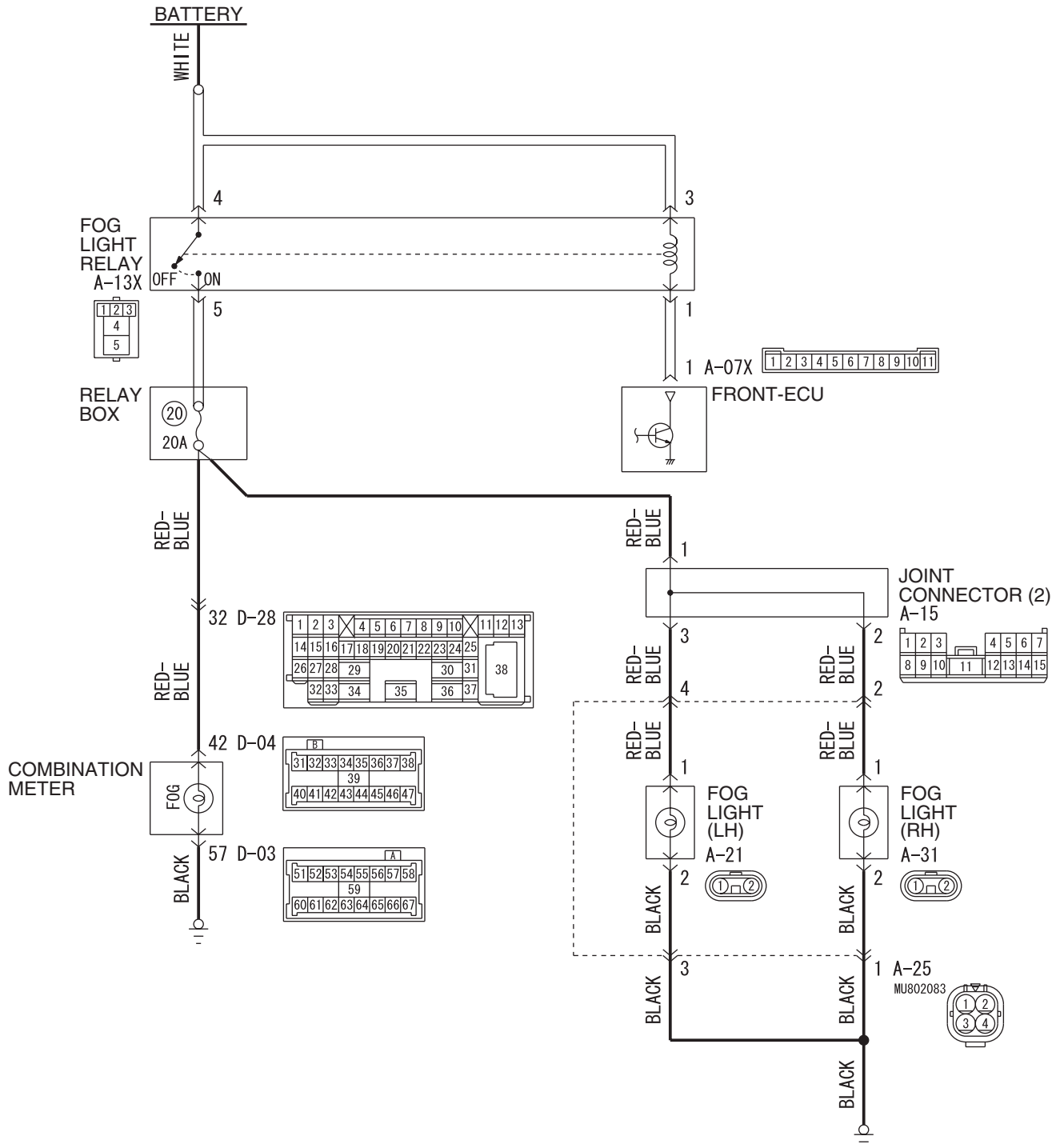
DIAGNOSIS

Replace the front-ECU.

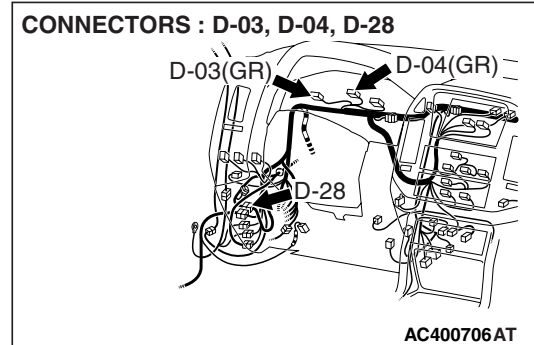
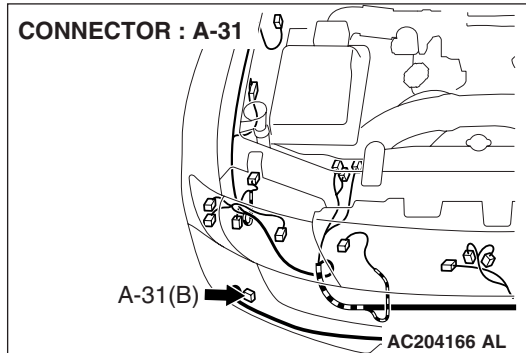
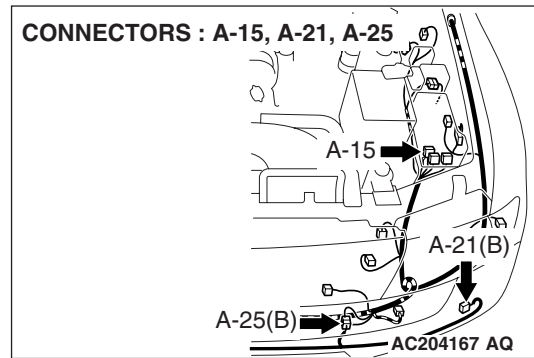
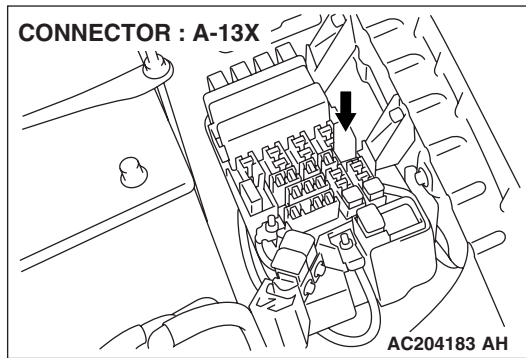
The fog lights should go out when the headlights (low-beam) are turned off while the fog lights are on.

INSPECTION PROCEDURE L-3: Fog Light: One of the fog lights does not illuminate.

Fog Light Circuit



W5Q54M022A

**TECHNICAL DESCRIPTION (COMMENT)**

If one of the fog lights does not illuminate, the fog light relay or the fog light bulb may be defective. If the fog light indicator light does not illuminate, the combination meter may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tool:**

- MB991223: Harness Set

STEP 1. Verify that the fog lights and the fog light indicator light illuminate.

Q: Which light does not illuminate?

Fog light (LH) : Go to Step 2.

Fog light (RH) : Go to Step 8.

Fog light indicator : Go to Step 14.

Fog lights (both RH and LH) : Go to Step 20.

All lights : Refer to Inspection procedure L-1 "Fog lights do not illuminate when the fog light switch is operated [P.54B-395.](#)"

STEP 2. Check the fog light bulb (LH).

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

Q: Is the fog light bulb (LH) in good condition?

YES : Go to Step 3.

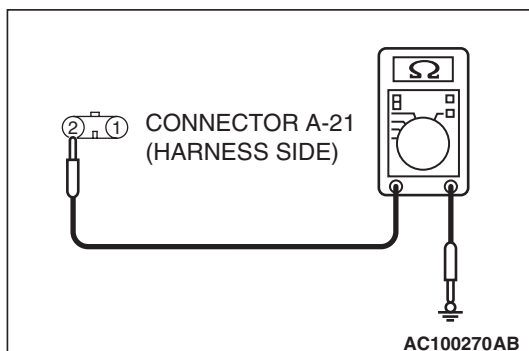
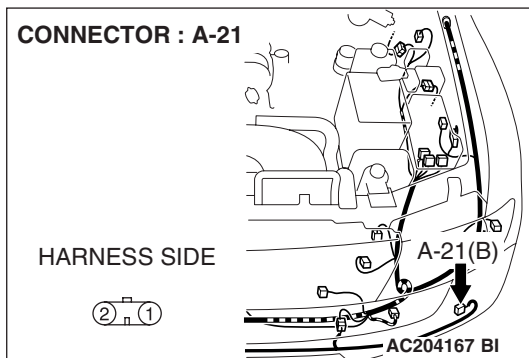
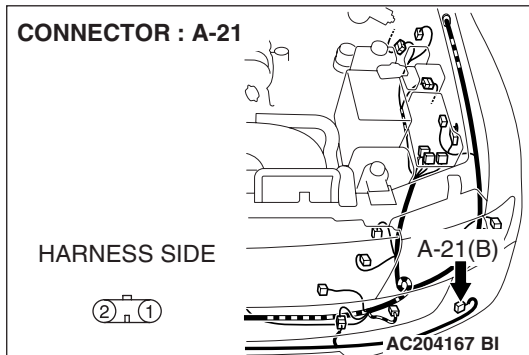
NO : Replace the fog light bulb (LH). Verify that the fog lights illuminate normally.

STEP 3. Check fog light (LH) connector A-21 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fog light (LH) connector A-21 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](#). Verify that the fog lights illuminate normally.



STEP 4. Check the ground circuit to the fog light (LH). Test at fog light (LH) connector A-21.

- (1) Disconnect fog light (LH) connector A-21 and measure the resistance available at the wiring harness side of the connector.

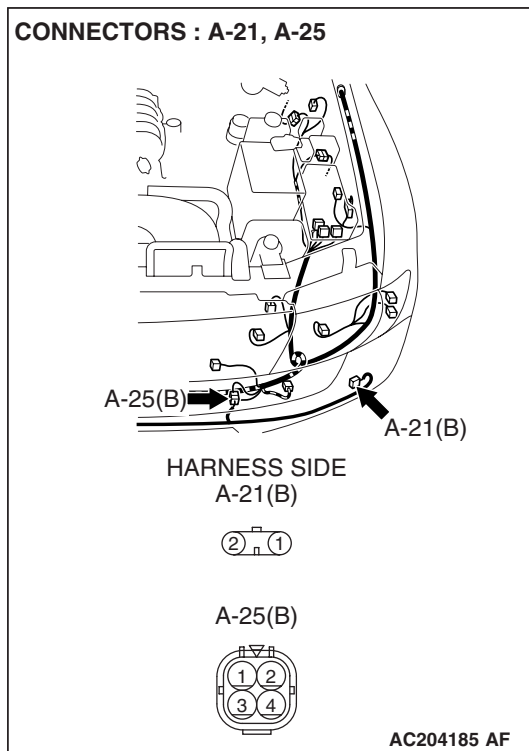
- (2) Measure the resistance value between terminal 2 and ground.
 - The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 6.

NO : Go to Step 5.

STEP 5. Check the wiring harness between fog light (LH) connector A-21 (terminal 2) and ground.



NOTE: Also check intermediate connector A-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between fog light (LH) connector A-21 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

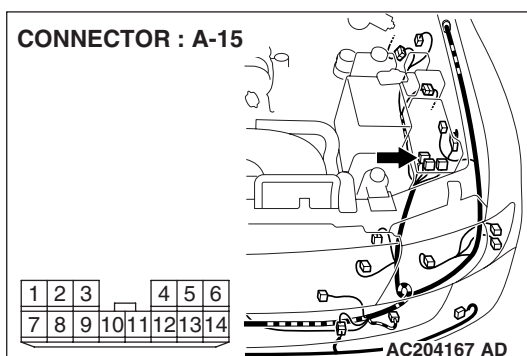
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the fog lights illuminate normally.

STEP 6. Check joint connector (2) A-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

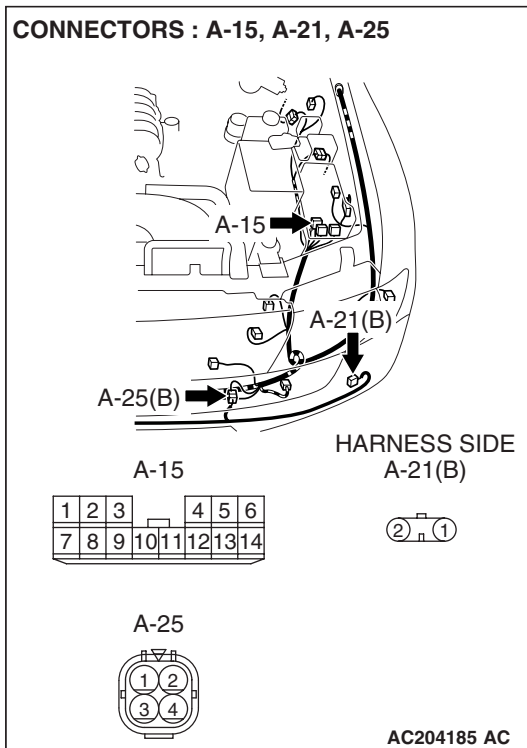
Q: Is joint connector (2) A-15 in good condition?

YES : Go to Step 7.

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



STEP 7. Check the wiring harness between joint connector (2) A-15 (terminal 3) and fog light (LH) connector A-21 (terminal 1).



NOTE: Also check intermediate connector A-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between joint connector (2) A-15 (terminal 3) and fog light (LH) connector A-21 (terminal 1) in good condition?

YES : No action is necessary and testing is complete.

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

STEP 8. Check the fog light bulb (RH).

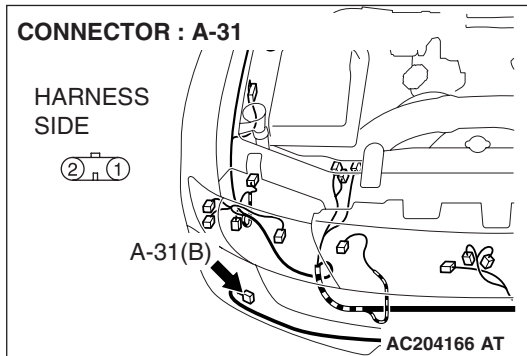
(1) Remove the fog light bulb (RH).

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

Q: Is the fog light bulb (RH) in good condition?

YES : Go to Step 9.

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

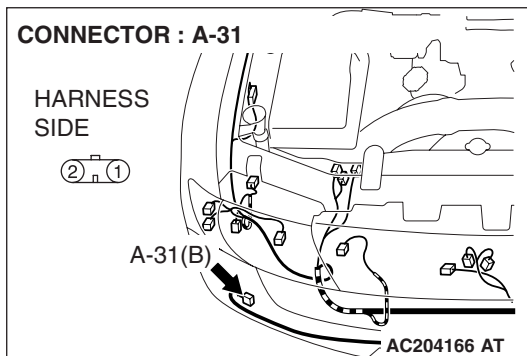


STEP 9. Check fog light (RH) connector A-31 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fog light (RH) connector A-31 in good condition?

YES : Go to Step 10.

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



STEP 10. Check the ground circuit to the fog light (RH). Test at fog light (RH) connector A-31.

(1) Disconnect fog light (RH) connector A-31 and measure the resistance available at the wiring harness side of the connector.

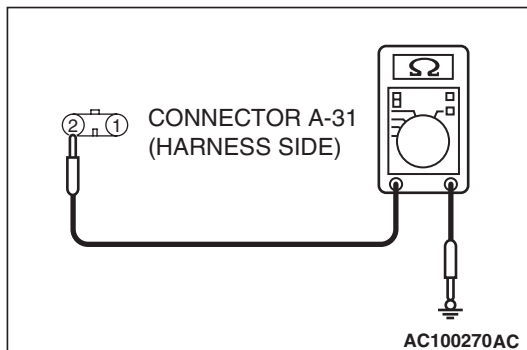
(2) Measure the resistance value between terminal 2 and ground.

- The resistance should equal 2 ohms or less.

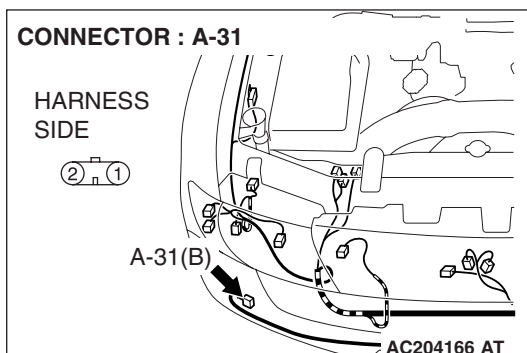
Q: Is the measured resistance 2 ohms or less?

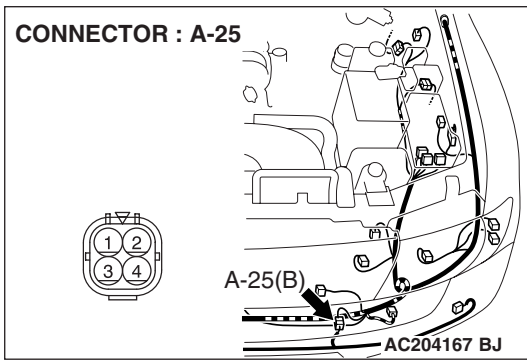
YES : Go to Step 12.

NO : Go to Step 11.



STEP 11. Check the wiring harness between fog light (RH) connector A-31 (terminal 2) and ground.



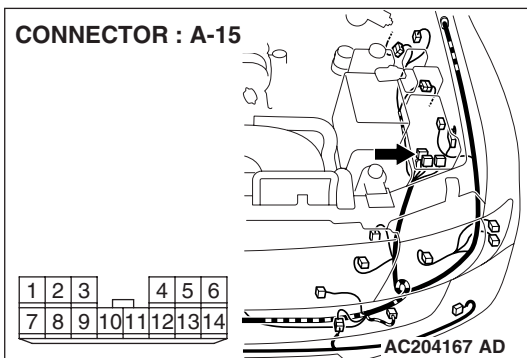


NOTE: Also check intermediate connector A-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between fog light (RH) connector A-31 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

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



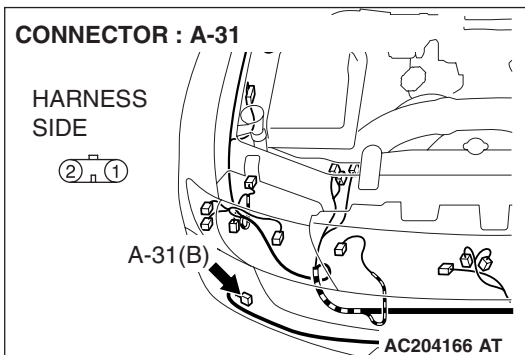
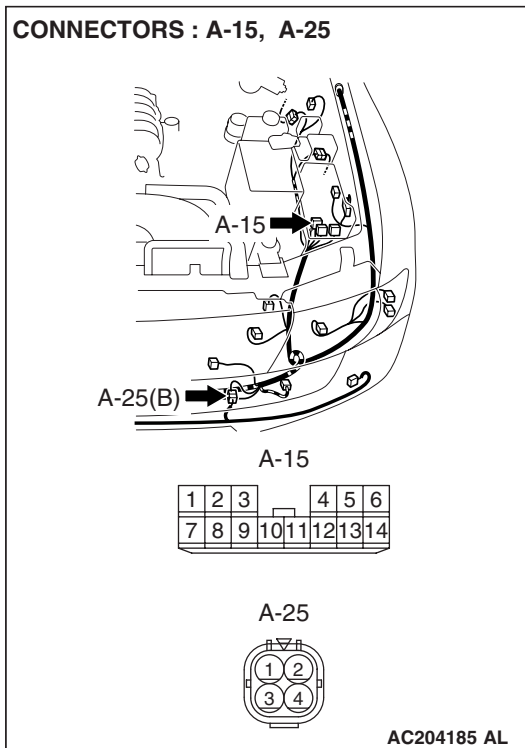
STEP 12. Check joint connector (2) A-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is joint connector (2) A-15 in good condition?

YES : Go to Step 13.

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

STEP 13. Check the wiring harness between joint connector (2) A-15 (terminal 2) and fog light (RH) connector A-31 (terminal 1).



NOTE: Also check intermediate connector A-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between joint connector (2) A-15 (terminal 2) and fog light (RH) connector A-31 (terminal 1) in good condition?

YES : No action is necessary and testing is complete.

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

STEP 14. Check the fog light indicator light bulb.

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

Q: Is the fog light indicator light bulb in good condition?

YES : Go to Step 15.

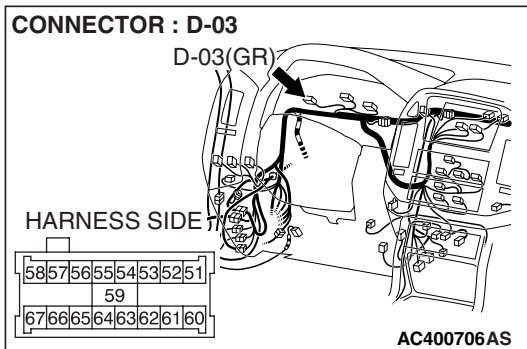
NO : Replace the fog light indicator light bulb. Verify that the fog light indicator light illuminates normally.

STEP 15. Check combination meter connector D-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

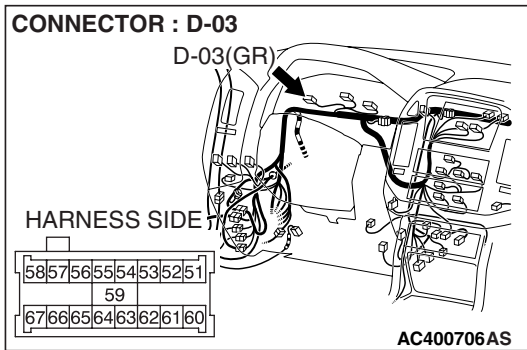
YES : Go to Step 16.

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



STEP 16. Check the ground circuit to the fog light indicator light. Test at combination meter connector D-03.

- (1) Disconnect fog light indicator light connector D-03 and measure the resistance available at the wiring harness side of the connector.



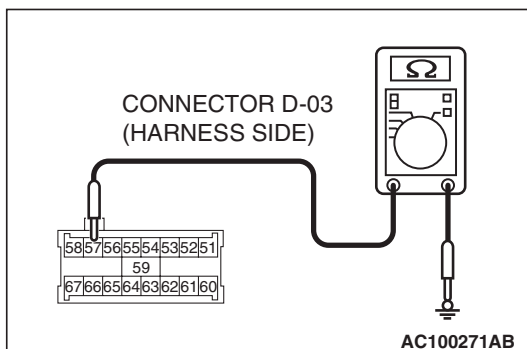
- (2) Measure the resistance value between terminal 57 and ground.

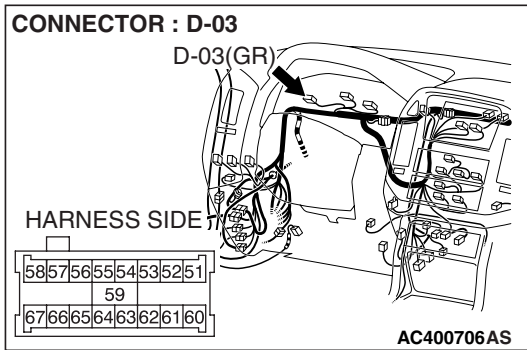
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 18.

NO : Go to Step 17.

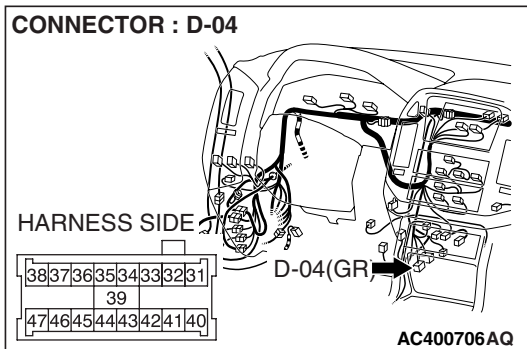




STEP 17. Check the wiring harness between combination meter connector D-03 (terminal 57) and ground.

Q: Is the wiring harness between combination meter connector D-03 (terminal 57) and ground in good condition?

- YES :** No action is necessary and testing is complete.
- NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the fog light indicator light illuminates normally.

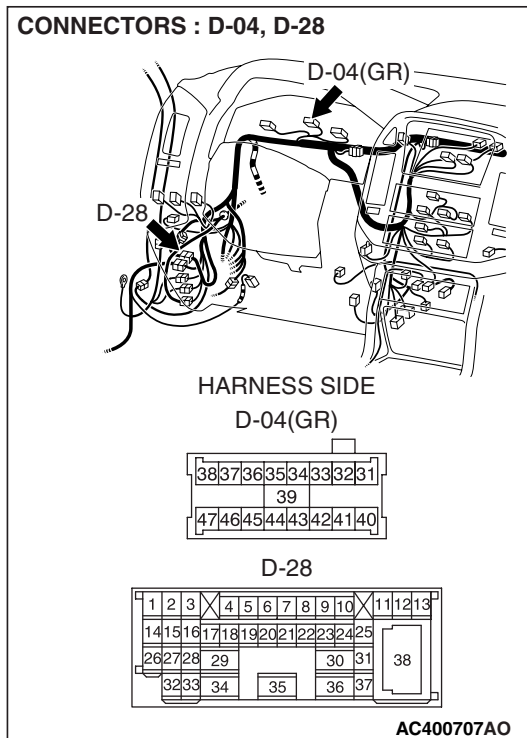


STEP 18. Check combination meter connector D-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

- YES :** Go to Step 19.
- NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the fog light indicator light illuminates normally.

STEP 19. Check the wiring harness between relay box (fuse No.20) and combination meter connector D-04 (terminal 42).

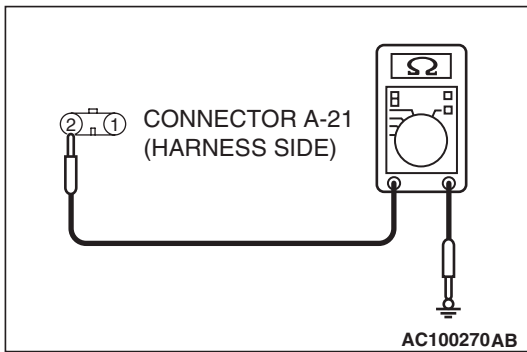
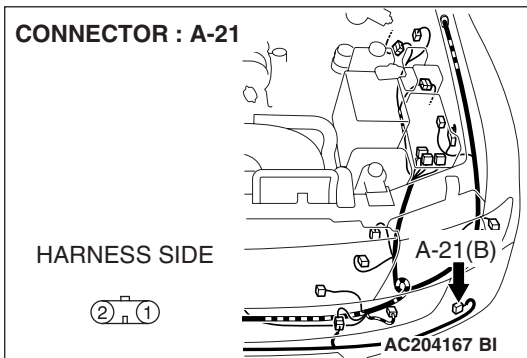


NOTE: Also check intermediate connector D-28 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-28 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between relay box (fuse No.20) and combination meter connector D-04 (terminal 42) in good condition?

YES : Replace the combination meter (printed-circuit board). Verify that the fog light indicator light illuminates normally.

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



STEP 20. Check the ground circuit to the fog light (LH). Test at fog light (LH) connector A-21.

(1) Disconnect fog light (LH) connector A-21 and measure the resistance available at the wiring harness side of the connector.

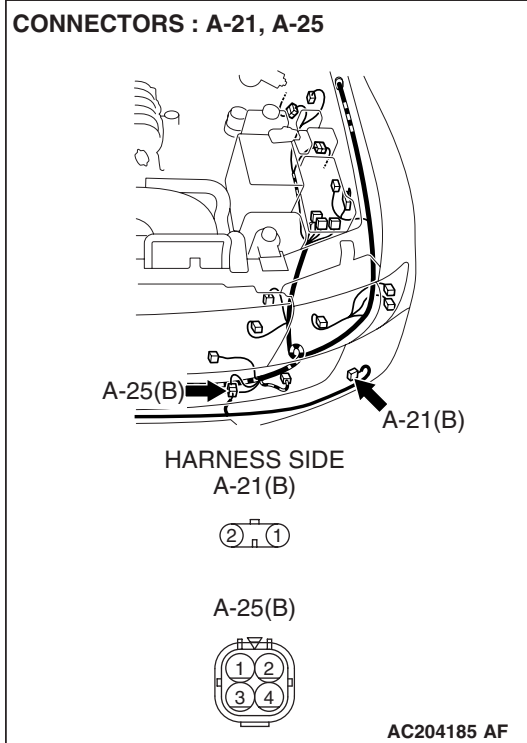
(2) Measure the resistance value between terminal 2 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 22.

NO : Go to Step 21.



STEP 21. Check the wiring harness between fog light (LH) connector A-21 (terminal 2) and ground.

NOTE: Also check intermediate connector A-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between fog light (LH) connector A-21 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

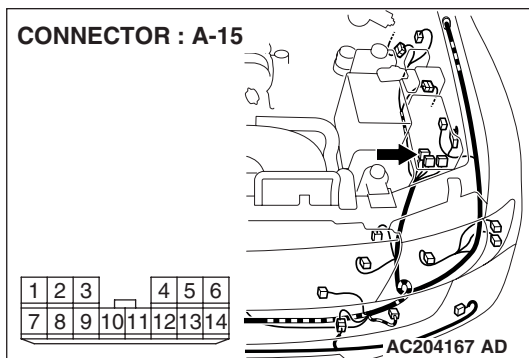
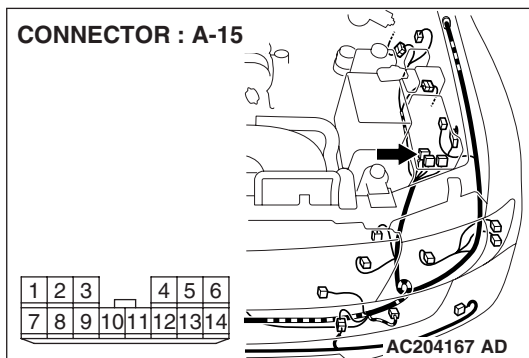
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the fog lights illuminate normally.

STEP 22. Check joint connector (2) A-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is joint connector (2) A-15 in good condition?

YES : Go to Step 23.

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



STEP 23. Check the wiring harness between joint connector (2) A-15 (terminal 1) and relay box (fuse No. 20).

Q: Is the wiring harness between joint connector (2) A-15 (terminal 1) and relay box (fuse No. 20) in good condition?

YES : No action is necessary and testing is complete.

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

INTERIOR LIGHT

GENERAL DESCRIPTION CONCERNING INTERIOR LIGHT

M1549021800203

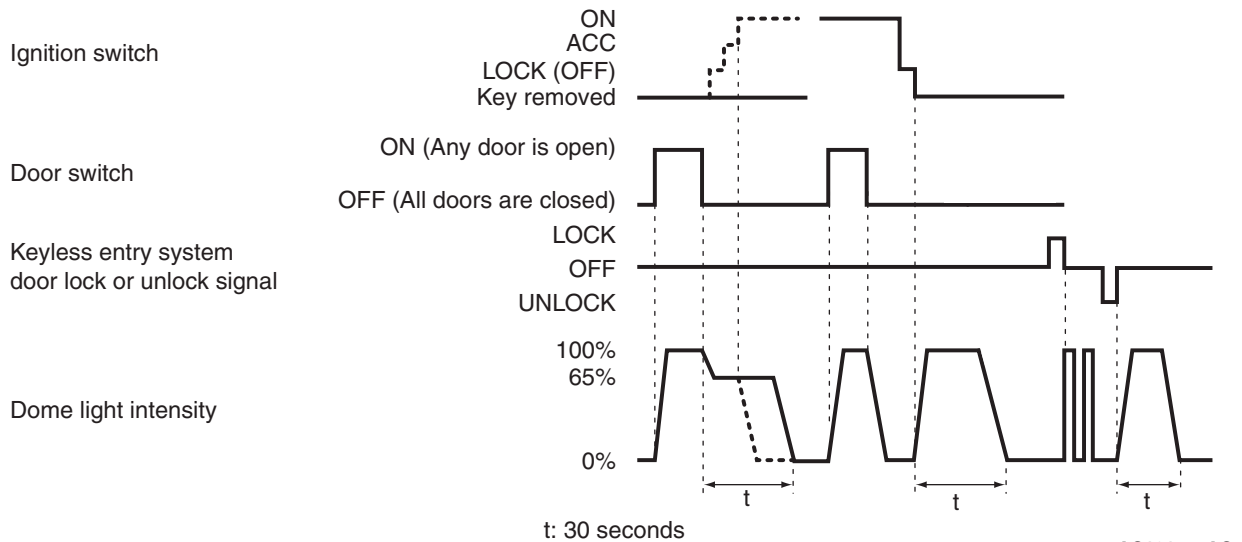
The ECU related to the interior light function types and various control functions are as follows.

FUNCTION	CONTROL ECU
Dome light control function	ETACS-ECU
Ignition key hole illumination light function	ETACS-ECU

Dome light control function

When the dome light switch is at the door position, the ETACS-ECU controls the lighting of the dome light as follows:

- When a door is opened to get on or get off the vehicle with the ignition switch off, the dome light lights up at a luminance of 100 percent. When a door is closed, the dome light dims at a luminance of 65 percent, and goes off 30 seconds later. However if the ignition switch is turned ON or if all doors are locked while they are closed, the dome light will go off at that point.
- When a door is opened with the ignition switch ON, the dome light lights up at a luminance of 100 percent. When a door is closed, the dome light goes off.
- When the ignition key is removed with all doors closed, the dome light lights up at a luminance of 100 percent, and goes off 30 seconds later. However if the ignition key is inserted again or if all doors are locked while the dome light is lighting, the dome light will go off at that point.
- The dome light is flashed twice when door is locked with keyless entry. When door is unlocked with keyless entry, the dome light lights at a luminance of 100 percent, and goes off 15 seconds later.

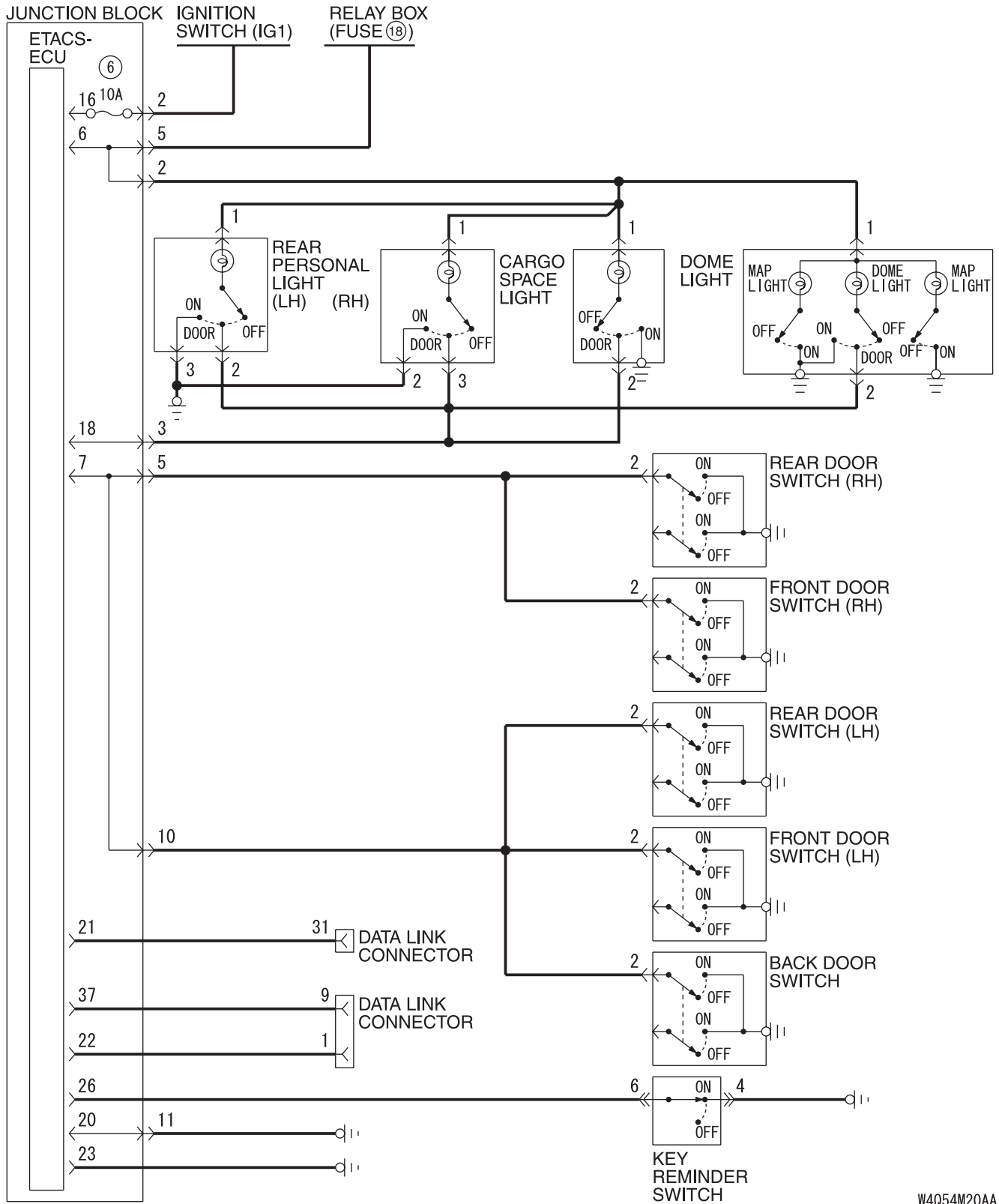


NOTE: The dotted lines indicate that lighting mode when the ignition switch is turned ON, all doors are locked during the timer illumination time.

Ignition key hole illumination light function

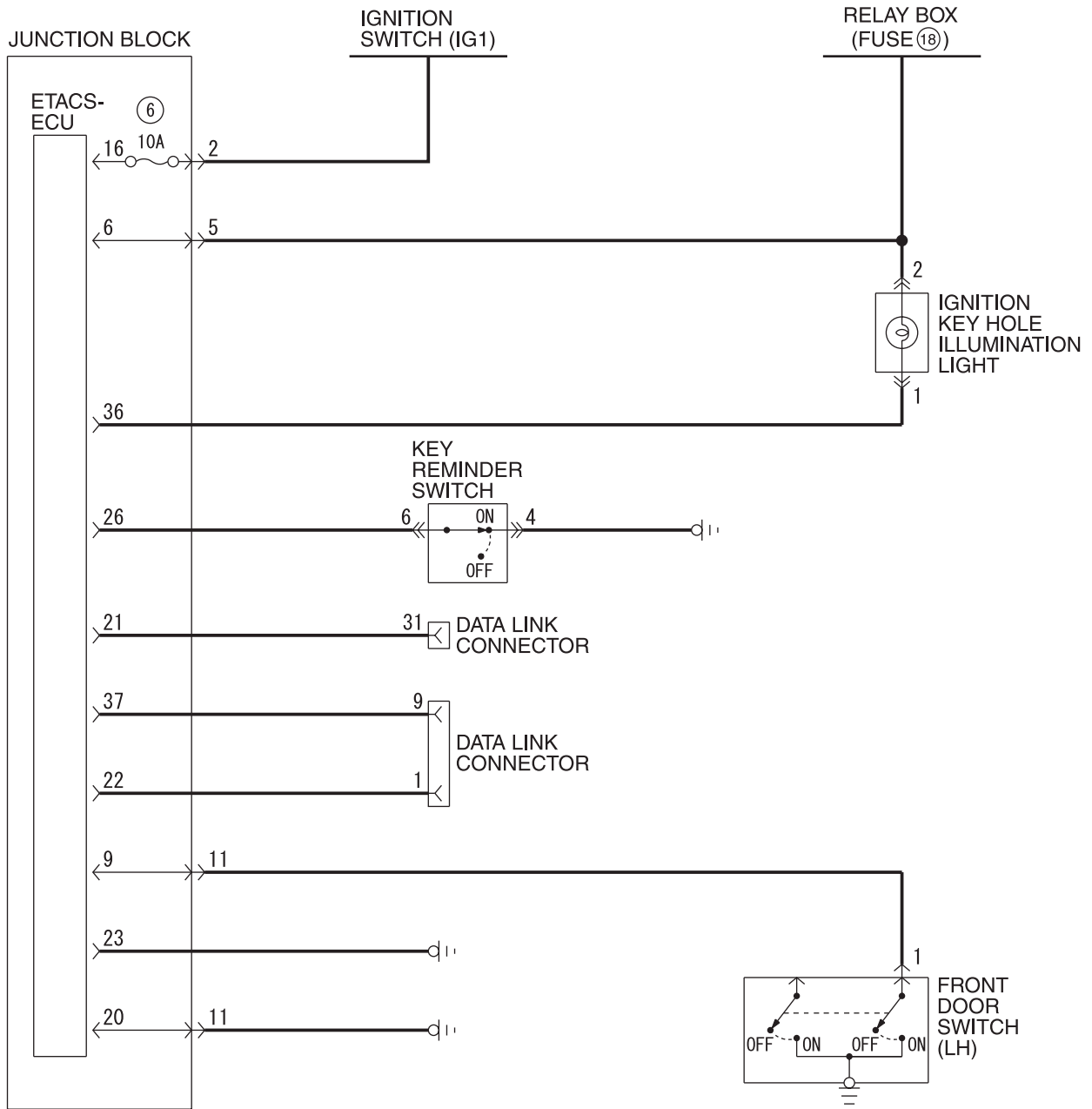
The ignition key cylinder illumination light illuminates when the driver's door is opened with the ignition switch off, and for thirty seconds after the driver's door is closed. It also illuminates for thirty seconds after the ignition key is pulled out. In any case, it goes out when the ignition switch is turned on.

General circuit diagram for the dome lights



W4Q54M20AA

General circuit diagram for the ignition key hole illumination light

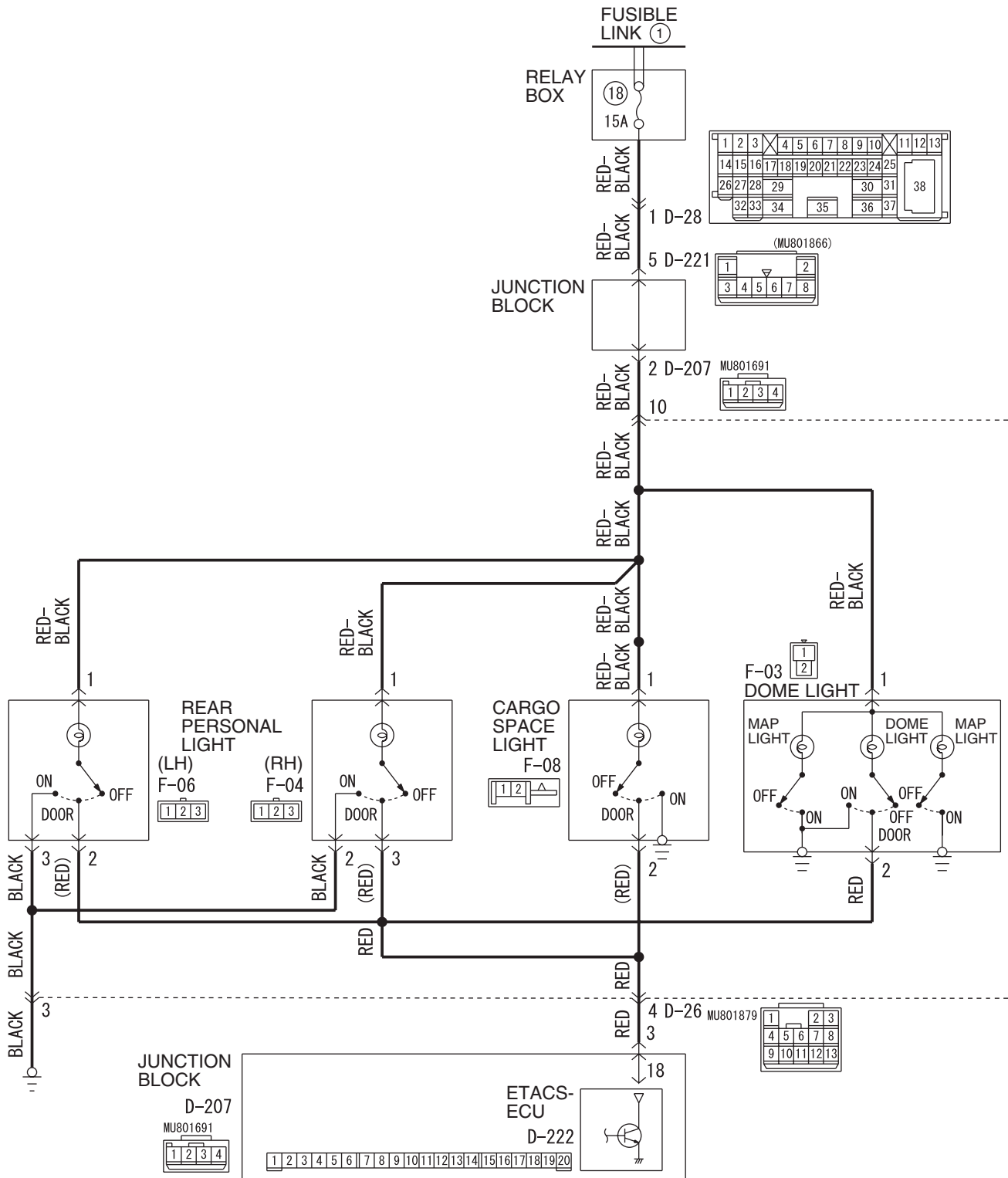


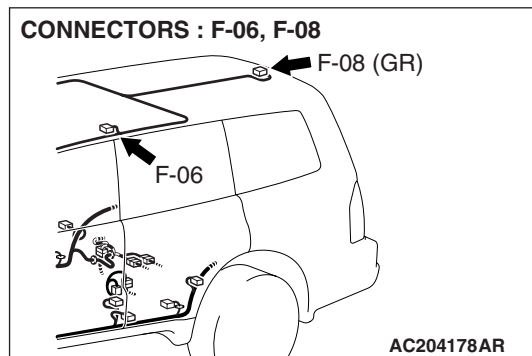
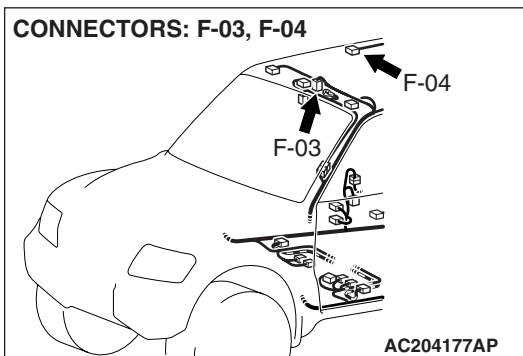
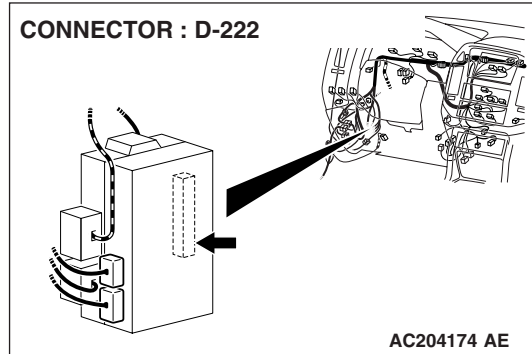
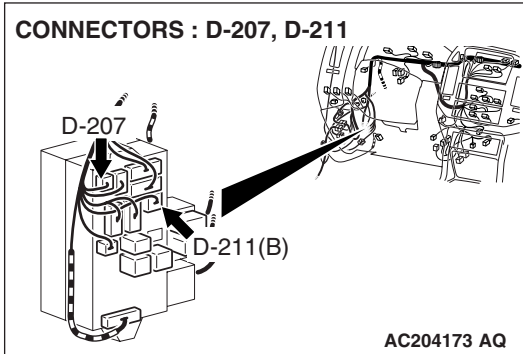
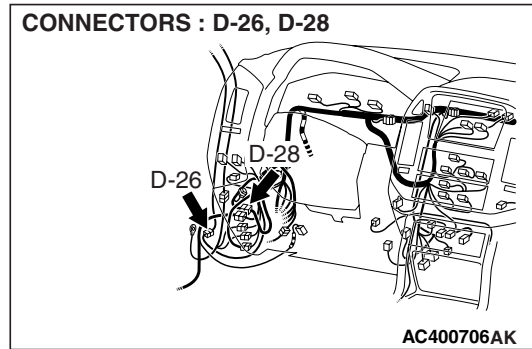
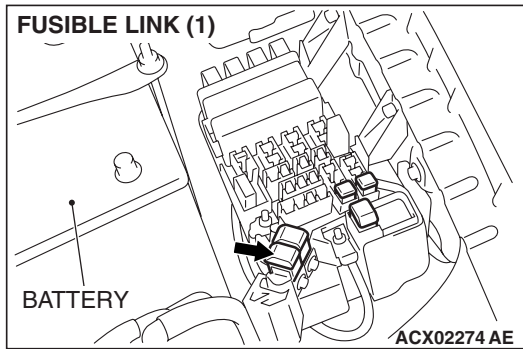
W3Q04M31AA

INSPECTION PROCEDURE M-1: Interior Light: The dome light do not illuminate or go out normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-10."

Interior Light Circuit





CIRCUIT OPERATION

The ETACS-ECU illuminates the front dome light, the cargo space light and the rear personal lights according to the following signals:

- Ignition switch (IG1)
- Key reminder switch
- Front door switch (LH)
- All door switches
- Driver's door lock actuator switch

TECHNICAL DESCRIPTION (COMMENT)

If the front dome light and the rear dome light do not illuminate normally, the dome light bulb(s) may be burned out or the input circuit system from the switches, the power supply lines to the switches or the ETACS-ECU may be defective (refer to "CIRCUIT OPERATION"). Alternatively, the delay-off function may be set to "0 second" by using the configuration function.

TROUBLESHOOTING HINTS

- The key reminder switch may be defective
- The door switch may be defective
- The driver's door lock actuator switch may be defective
- The dome light may be defective
- The cargo space light may be defective
- The rear personal light may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B
- MB991813: SWS Monitor Kit
 - MB991806: SWS Monitor Cartridge
 - MB991812: SWS Monitor Harness (For Column-ECU)
 - MB991822: Probe Harness
- MB991854: SWS Monitor Harness (For 13-pin)

STEP 1. Verify the adjustment function.

Q: Is the interior light delay-off time set to "7.5 seconds," "10 seconds," "15 seconds" or "30 seconds" by using the adjustment function?

YES : Go to Step 2.

NO : Set the interior light delay-off time to "7.5 seconds," "10 seconds," "15 seconds" or "30 seconds" by using the adjustment function. Verify that the interior light illuminates normally.

STEP 2. Use scan tool MB991958 to select "ECU COMM CHK" on the SWS monitor display.

Check the ETACS-ECU.

CAUTION

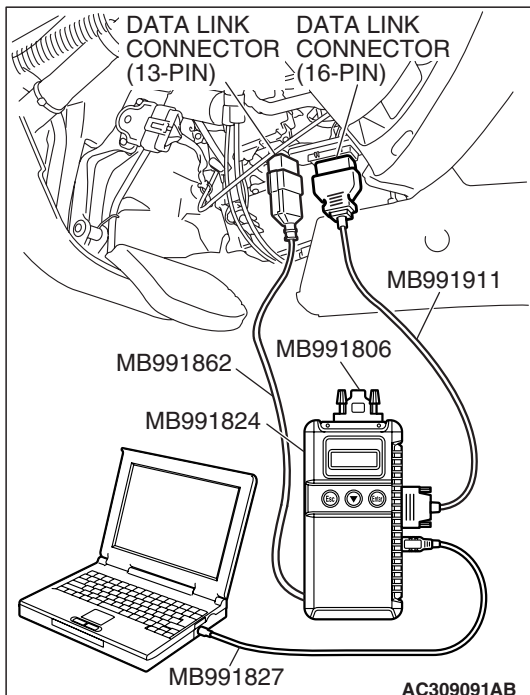
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

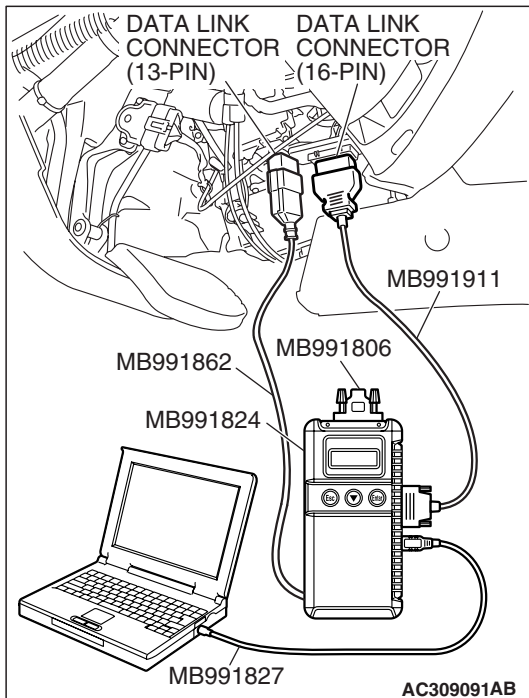
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK."
- (4) Scan tool MB991958 should show "OK" on the "ECU COMM CHK" menu for the "ETACS ECU" menu.

Q: Is "OK" displayed on the "ETACS ECU" menu?

YES : Go to Step 3.

NO : Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is not possible P.54B-41."





STEP 3. Check the input signal by using "DATA LIST" menu of the SWS monitor.

Turn the ignition switch to the "OFF" position before checking input signals from the ignition switch:

Operate scan tool MB991958 according to the procedure below to display "ETACS ECU."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "DATA LIST."
5. Select "ETACS ECU."

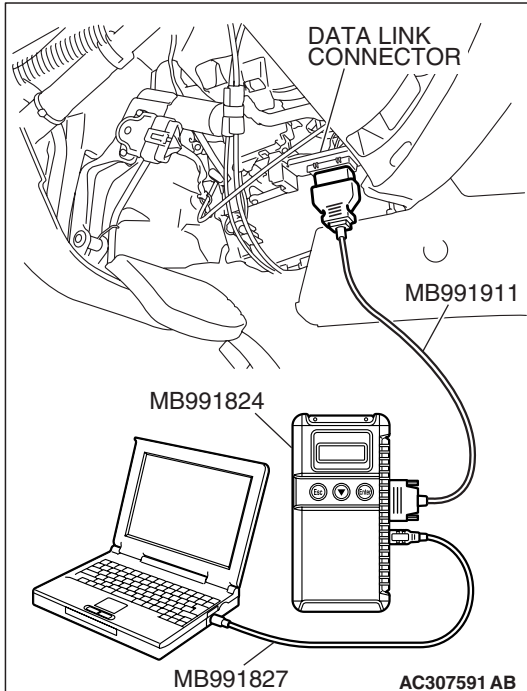
Check that normal conditions are displayed on the items described in the table below.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 30	IG SW (IG1)	OFF

Q: Are normal conditions displayed on the "IG SW (IG1)"?

YES : Go to Step 4.

NO : Refer to Inspection Procedure O-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) [P.54B-496.](#)"



STEP 4. Check the input signal (by using the pulse check mode of the monitor.)

Check the input signals from the following switches:

- Key reminder switch
- All door switch

Operate scan tool MB991958 according to the procedure below to display "PULSE CHECK."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

Check if scan tool MB991958 sounds or not.

ITEM NAME	CONDITION
Key reminder switch	Remove and reinsert the ignition key
Each door switch	Open or close one of the doors

Q: When the key reminder switch, each door switch and the interior light are operated, does scan tool MB991958 sound in each case?

Buzzer of scan tool MB991958 sounds normally : Go to Step 5.

Scan tool MB991958 does not sound when the key reminder switch is operated : Refer to Inspection

Procedure P-1 "ETACS-ECU does not receive a signal from the key reminder switch [P.54B-532.](#)"

Scan tool MB991958 does not sound whenever each door switch is operated : Refer to Inspection Procedure P-4 "ETACS-ECU does not receive a signal from all the door switches [P.54B-545.](#)"

STEP 5. Determine a trouble spot.

Q: Which light does not illuminate?

All lights does not illuminate : Go to Step 6.

The dome light and rear personal lights does not illuminate : Go to Step 9.

The cargo space light and rear personal lights does not illuminate. : Go to Step 10.

Both rear personal light does not illuminate. : Go to Step 11.

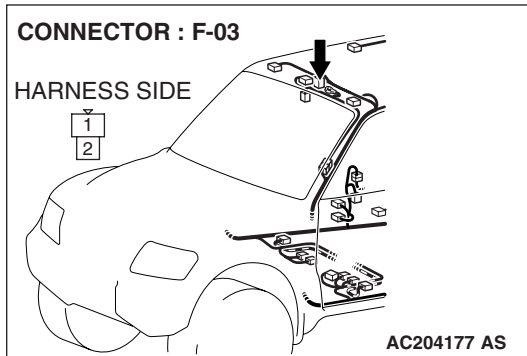
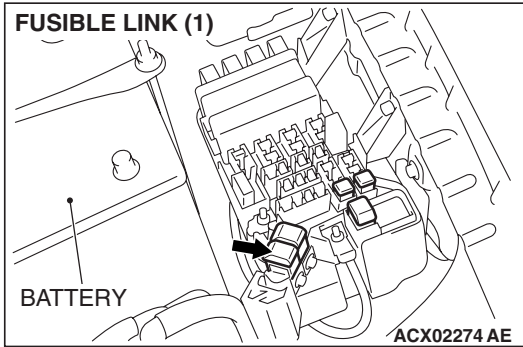
The dome light does not illuminate. : Go to Step 12.

The cargo space light does not illuminate : Go to Step 19.

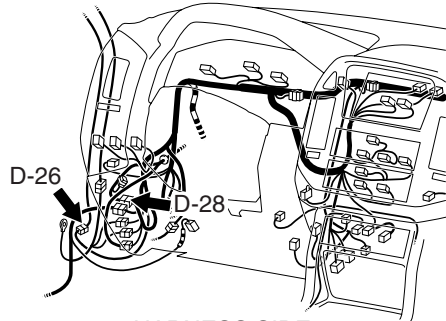
The rear personal light (LH) does not illuminate. : Go to Step 26.

The rear personal light (RH) does not illuminate. : Go to Step 34.

STEP 6. Check the wiring harness between dome light connector F-03 (terminal 1) and fusible link (1).

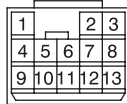


CONNECTORS : D-26, D-28

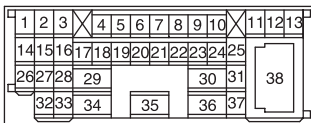


HARNESS SIDE

D-26



D-28



AC400707AN

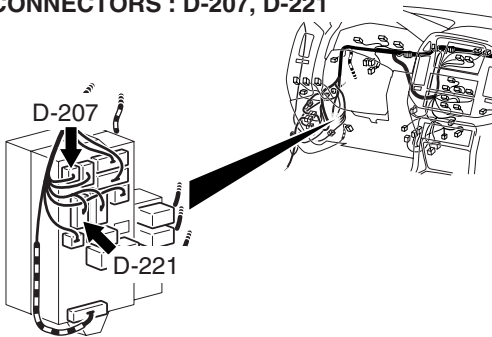
NOTE: Also check intermediate connector D-26, D-28, junction block connector D-207 and D-221 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-207, D-221, intermediate connector D-26 or D-28 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between dome light connector F-03 (terminal 1) and fusible link (1) in good condition?

YES : Go to Step 7.

NO : Repair the wiring harness. Verify that the dome light illuminates normally.

CONNECTORS : D-207, D-221

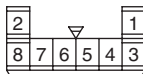


HARNESS SIDE

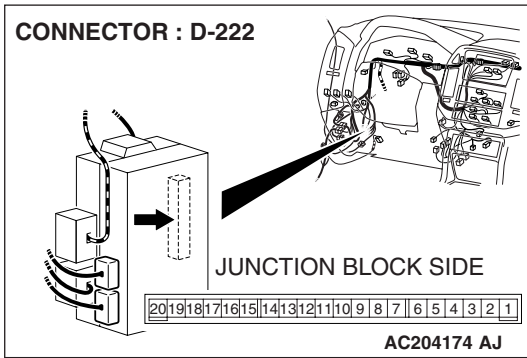
D-207



D-221



AC204191 BH

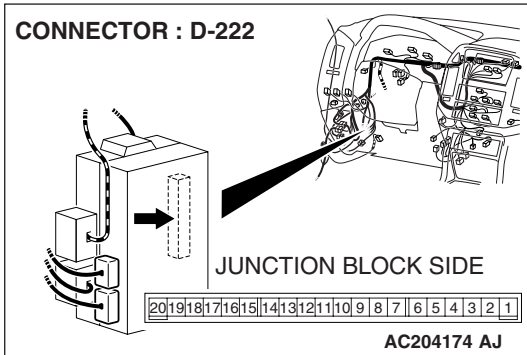


STEP 7. Check ETACS-ECU connector D-222 for damage.

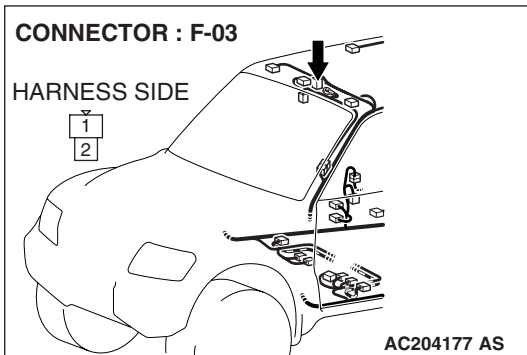
Q: ETACS-ECU connector D-222 in good condition?

YES : Go to Step 8.

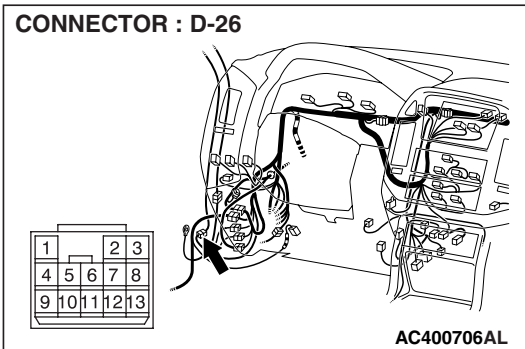
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the dome light illuminates normally.



STEP 8. Check the wiring harness between dome light connector F-03 (terminal 2) and ETACS-ECU connector D-222 (terminal 18).



CONNECTOR : D-26



AC400706AL

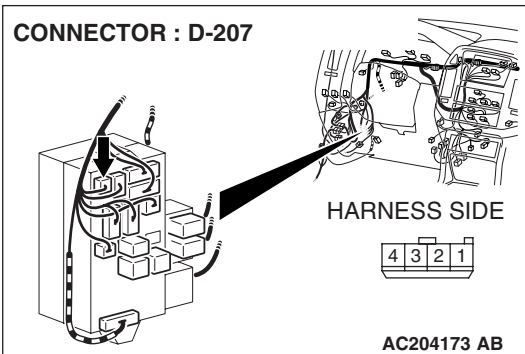
NOTE: Also check intermediate connector D-26 and junction block connector D-207 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-207 or intermediate connector D-26 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between dome light connector F-03 (terminal 2) and ETACS-ECU connector D-222 (terminal 18) in good condition?

YES : Replace the ETACS-ECU. Verify that the dome light illuminates normally.

NO : Repair the wiring harness. Verify that the dome light illuminates normally.

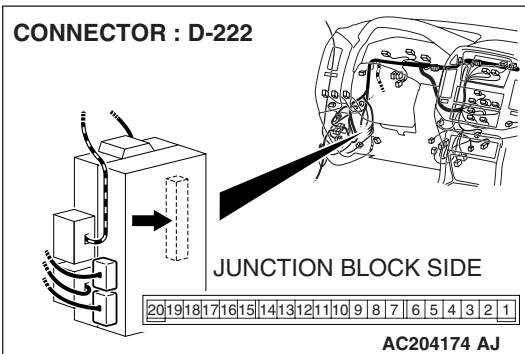
CONNECTOR : D-207



AC204173 AB

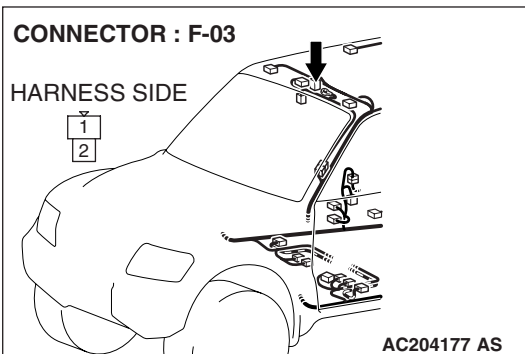
STEP 9. Check the wiring harness between dome light connector F-03 (terminal 2) and ETACS-ECU connector D-222 (terminal 18).

CONNECTOR : D-222



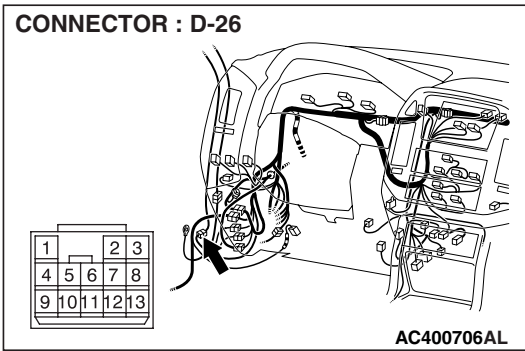
AC204174 AJ

CONNECTOR : F-03



AC204177 AS

CONNECTOR : D-26



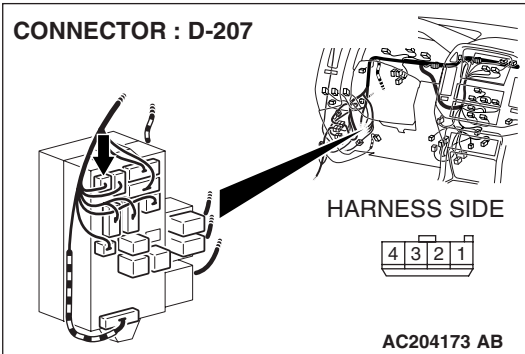
NOTE: Also check intermediate connector D-26 and junction block connector D-207 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-207 or intermediate connector D-26 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between dome light connector F-03 (terminal 2) and ETACS-ECU connector D-222 (terminal 18) in good condition?

YES : Replace the ETACS-ECU. Verify that the dome light illuminates normally.

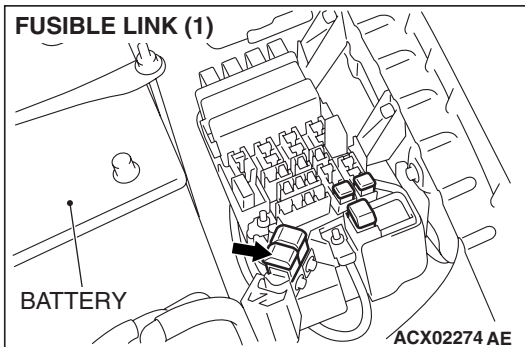
NO : Repair the wiring harness. Verify that the dome light illuminates normally.

CONNECTOR : D-207

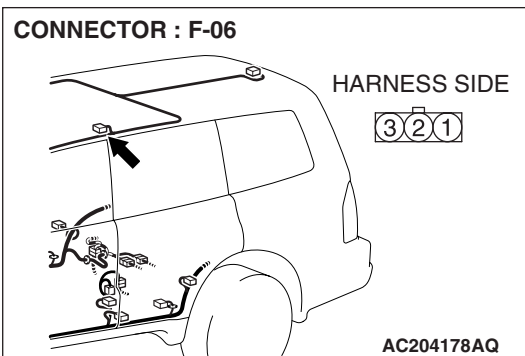


STEP 10. Check the wiring harness between cargo space light connector F-06 (terminal 1) and fusible link (1).

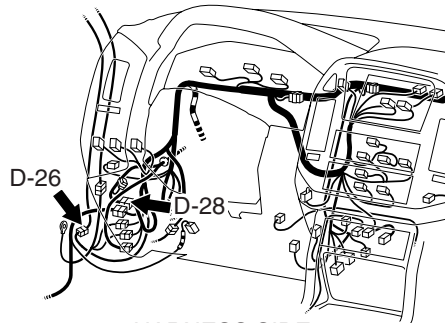
FUSIBLE LINK (1)



CONNECTOR : F-06

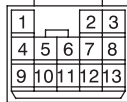


CONNECTORS : D-26, D-28

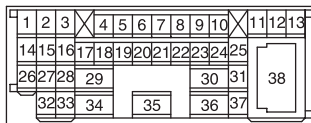


HARNES SIDE

D-26



D-28



AC400707AN

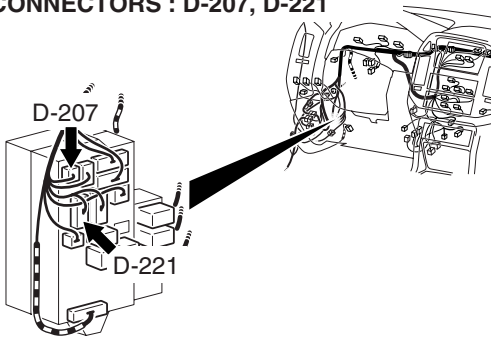
NOTE: Also check intermediate connectors D-26, D-28, junction block connectors D-207 and D-221 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-26, D-28, junction block connector D-207 or D-221 is damaged, repair or replace the damaged component(s) as described in GROUP, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between dome light connector F-03 (terminal 1) and fusible link (1) in good condition?

YES : No action to be taken.

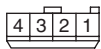
NO : Repair the wiring harness. Verify that the dome light illuminates normally.

CONNECTORS : D-207, D-221

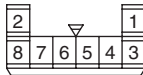


HARNES SIDE

D-207

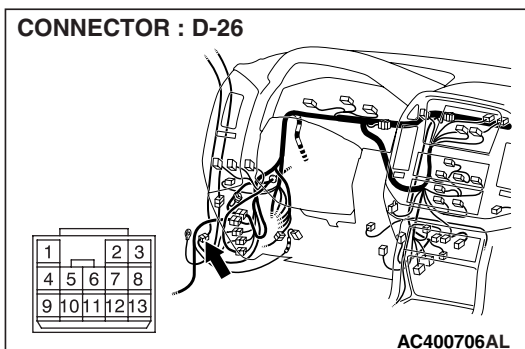
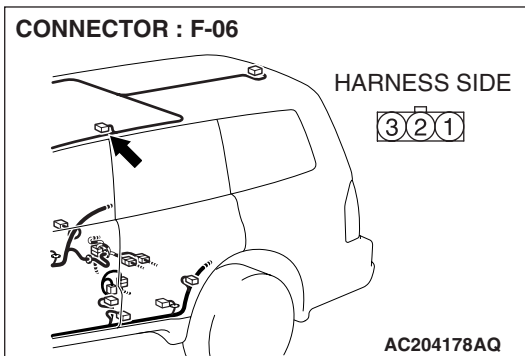
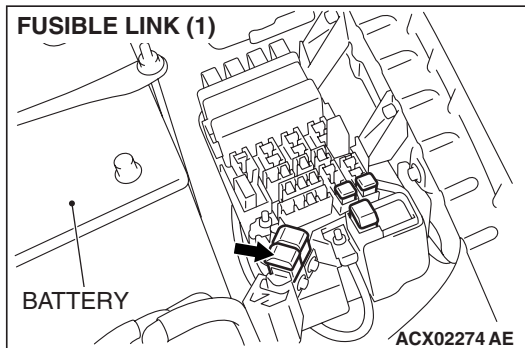


D-221



AC204191 BH

STEP 11. Check the wiring harness between rear personal light (LH) connector F-06 (terminal 3) and ground.



NOTE: Also check intermediate connectors D-26 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-26 is damaged, repair or replace the damaged component(s) as described in GROUP, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between rear personal light (LH) connector (terminal 3) and ground in good condition?

YES : No action to be taken.

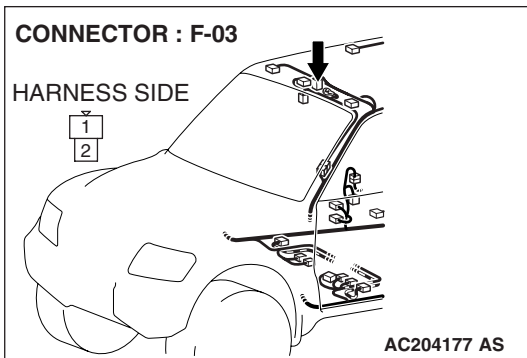
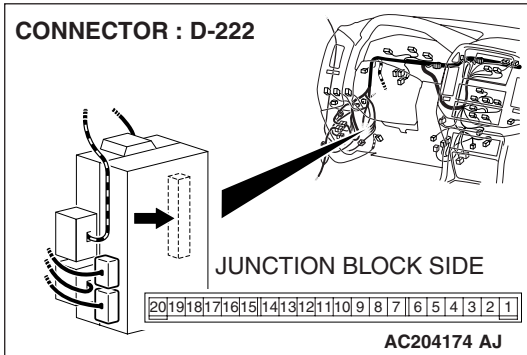
NO : Repair the wiring harness. Verify that the dome light illuminates normally.

STEP 12. Check the dome light.

Q: Does the dome light illuminate when the dome light switch is turned to the "ON" position?

YES : Go to Step 13.

NO : Go to Step 15.

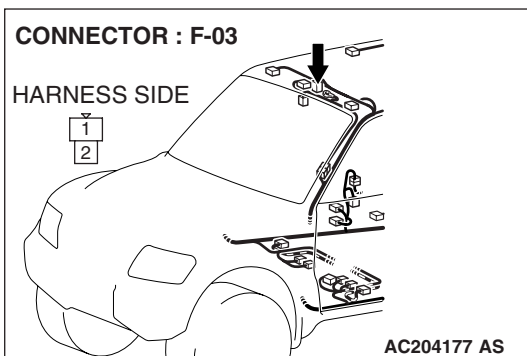
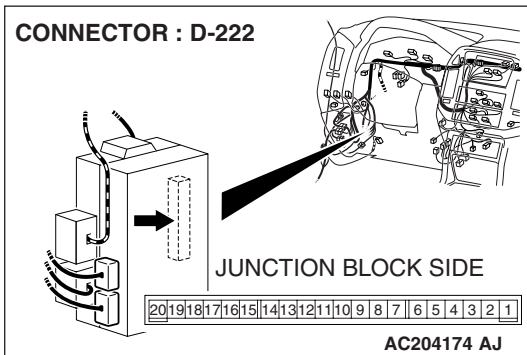


STEP 13. Check dome light connectors F-03 and ETACS-ECU connector D-222 for damage.

Q: Are dome light connector F-03 and ETACS-ECU connector D-222 in good condition?

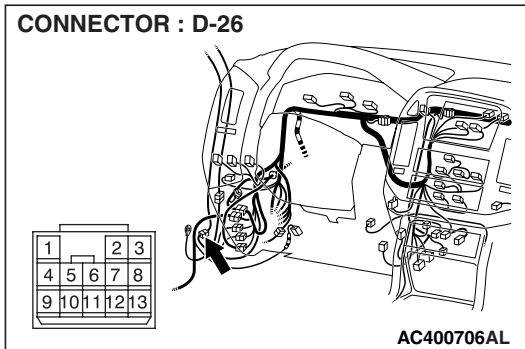
YES : Go to Step 14.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the dome light illuminates normally.



STEP 14. Check the wiring harness between dome light connector F-03 (terminal 2) and ETACS-ECU connector D-222 (terminal 18).

CONNECTOR : D-26



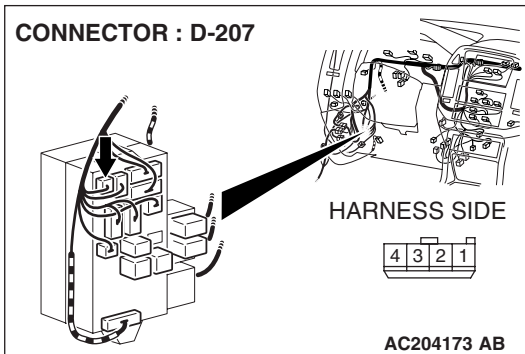
NOTE: Also check intermediate connector D-26 and junction block connector D-207 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-207 or intermediate connector D-26 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between dome light connector F-03 (terminal 2) and ETACS-ECU connector D-222 (terminal 18) in good condition?

YES : Replace the ETACS-ECU. Verify that the dome light illuminates normally.

NO : Repair the wiring harness. Verify that the dome light illuminates normally.

CONNECTOR : D-207

**STEP 15. Check the dome light bulb.**

Q: Is the dome light bulb in good condition?

YES : Go to Step 16.

NO : Replace the bulb. Verify that the dome light illuminates normally.

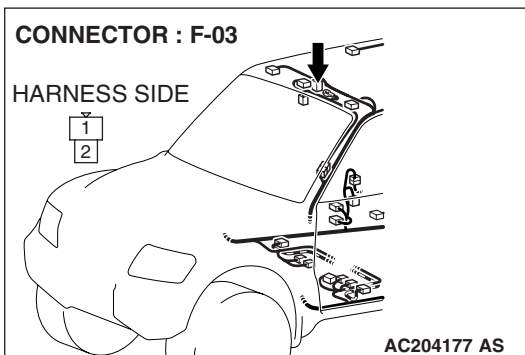
STEP 16. Check dome light connector F-03 for damage.

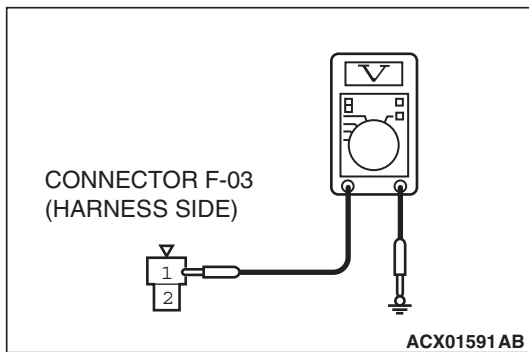
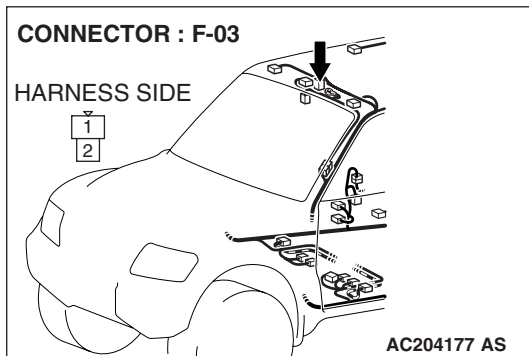
Q: Is dome light connector F-03 in good condition?

YES : Go to Step 17.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the dome light illuminates normally.

CONNECTOR : F-03





STEP 17. Check the fusible link (1) line of the power supply circuit to the dome light. Test at dome light connector F-03.

(1) Disconnect dome light connector F-03 and measure the voltage available at the wiring harness side of the connector.

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

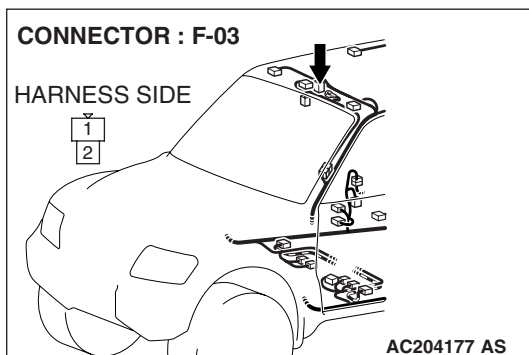
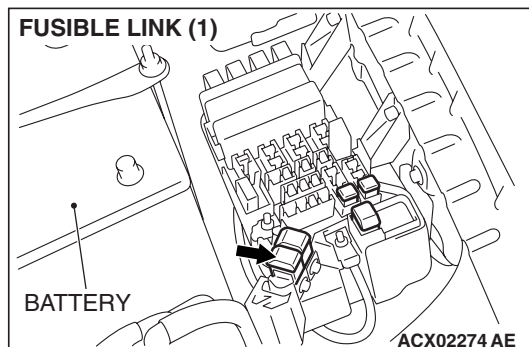
- The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

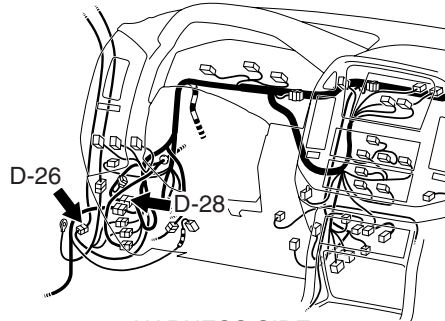
YES : Replace the dome light. Verify that the dome light illuminates normally.

NO : Go to Step 18.

STEP 18. Check the wiring harness between dome light connector F-03 (terminal 1) and fusible link (1).

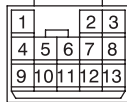


CONNECTORS : D-26, D-28

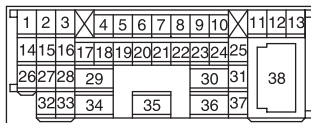


HARNESS SIDE

D-26



D-28



AC400707AN

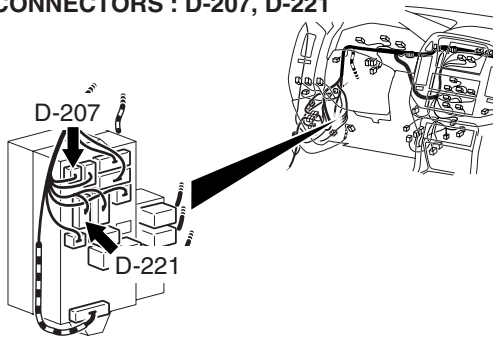
NOTE: Also check intermediate connectors D-26, D-28, junction block connectors D-207 and D-221 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-26, D-28, junction block connector D-207 or D-221 is damaged, repair or replace the damaged component(s) as described in GROUP, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between dome light connector F-03 (terminal 1) and fusible link (1) in good condition?

YES : No action to be taken.

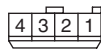
NO : Repair the wiring harness. Verify that the dome light illuminates normally.

CONNECTORS : D-207, D-221

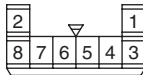


HARNESS SIDE

D-207



D-221



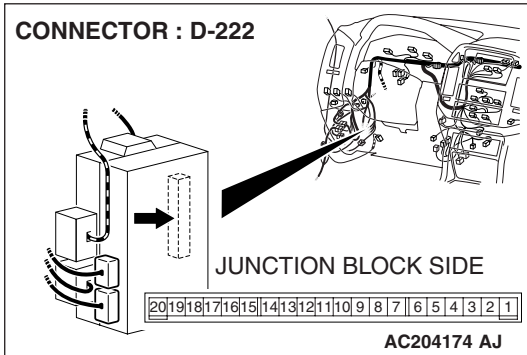
AC204191 BH

STEP 19. Check the cargo space light.

Q: Does the dome light illuminate when the cargo space light switch is turned to the "ON" position?

YES : Go to Step 20.

NO : Go to Step 22.

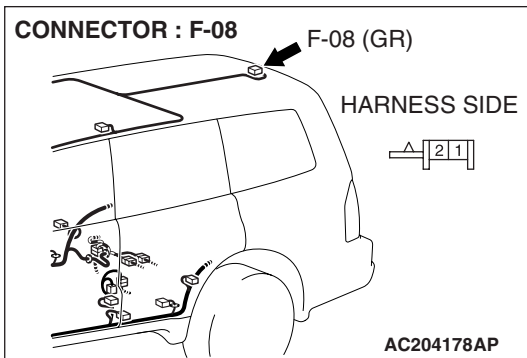


STEP 20. Check cargo space light connectors F-08 and ETACS-ECU connector D-222 for damage.

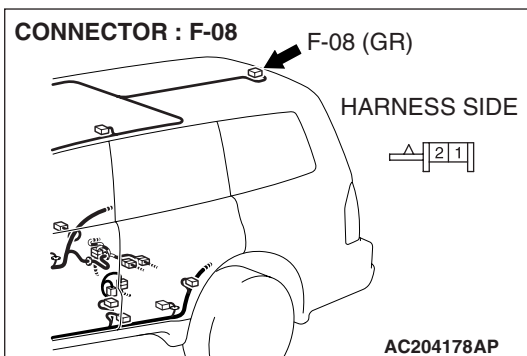
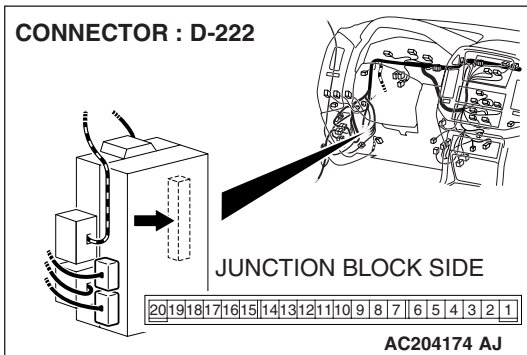
Q: Are cargo space light connector F-08 and ETACS-ECU connector D-222 in good condition?

YES : Go to Step 21.

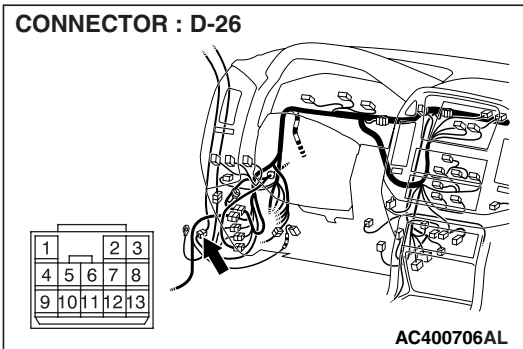
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the cargo space light illuminates normally.



STEP 21. Check the wiring harness between cargo space light connector F-08 (terminal 2) and ETACS-ECU connector D-222 (terminal 18).



CONNECTOR : D-26



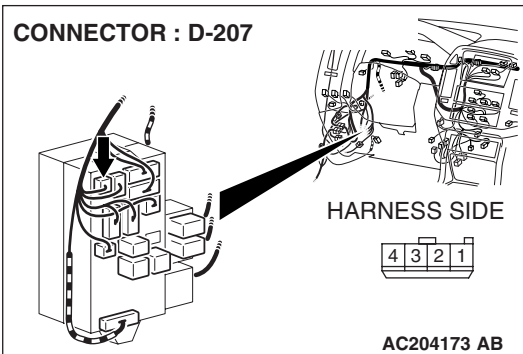
NOTE: Also check intermediate connector D-26 and junction block connector D-207 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-207 or intermediate connector D-26 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between cargo space light connector F-08 (terminal 2) and ETACS-ECU connector D-222 (terminal 18) in good condition?

YES : Replace the ETACS-ECU. Verify that the cargo space light illuminates normally.

NO : Repair the wiring harness. Verify that the cargo space light illuminates normally.

CONNECTOR : D-207

**STEP 22. Check the cargo space light bulb.**

Q: Is the cargo space light bulb in good condition?

YES : Go to Step 23.

NO : Replace the bulb. Verify that the cargo space light illuminates normally.

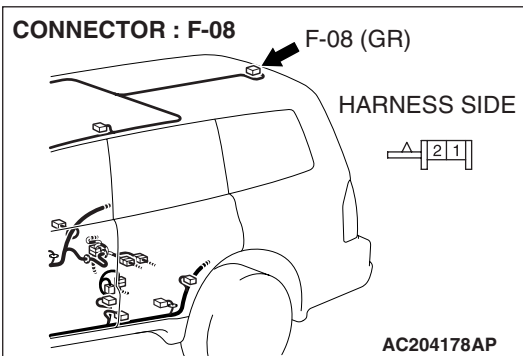
STEP 23. Check cargo space light connector F-08 for damage.

Q: Is cargo space light connector F-08 in good condition?

YES : Go to Step 24.

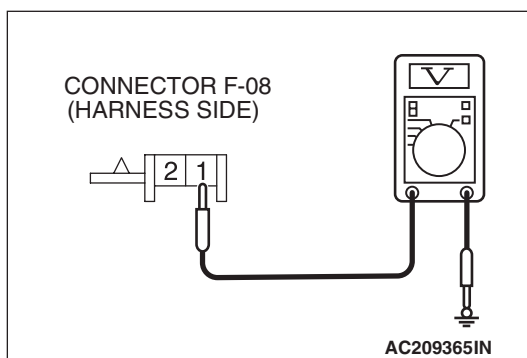
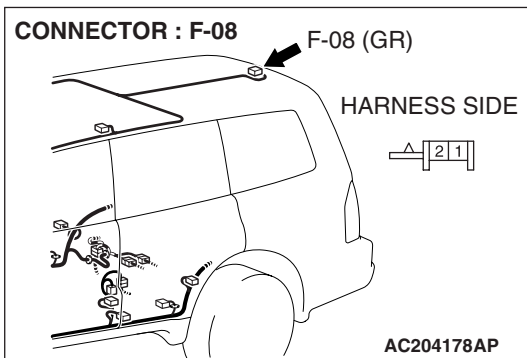
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the cargo space light illuminates normally.

CONNECTOR : F-08



STEP 24. Check the fusible link (1) line of the power supply circuit to the cargo space light. Test at cargo space light connector F-08.

(1) Disconnect cargo space light connector F-08 and measure the voltage available at the wiring harness side of the connector.



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

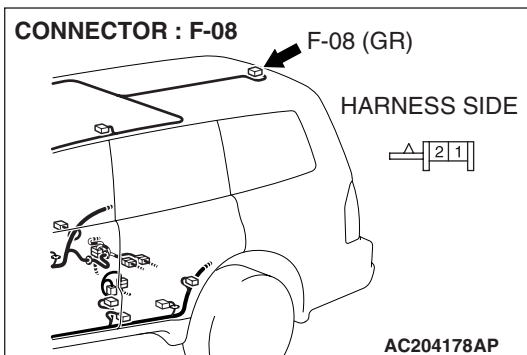
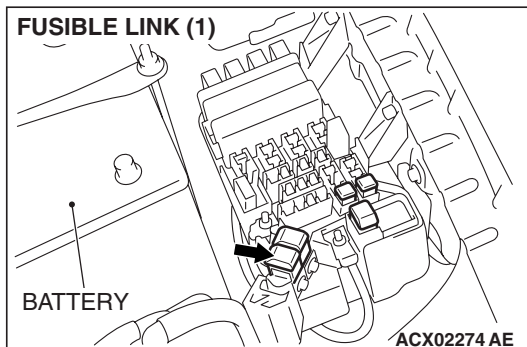
- The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

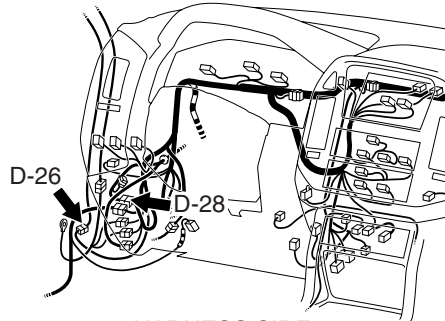
YES : Replace the cargo space light. Verify that the cargo space light illuminates normally.

NO : Go to Step 25.

STEP 25. Check the wiring harness between cargo space light connector F-08 (terminal 1) and fusible link (1).

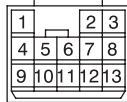


CONNECTORS : D-26, D-28

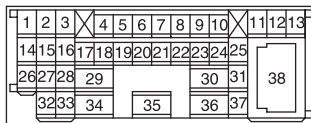


HARNESS SIDE

D-26



D-28



AC400707AN

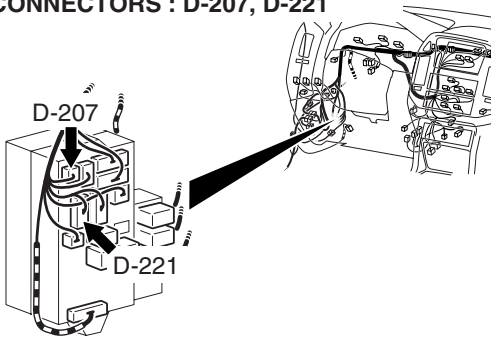
NOTE: Also check intermediate connectors D-26, D-28, junction block connectors D-207 and D-221 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-26, D-28, junction block connector D-207 or D-221 is damaged, repair or replace the damaged component(s) as described in GROUP, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between cargo space light connector F-08 (terminal 1) and fusible link (1) in good condition?

YES : No action to be taken.

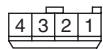
NO : Repair the wiring harness. Verify that the cargo space light illuminates normally.

CONNECTORS : D-207, D-221

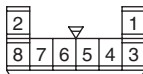


HARNESS SIDE

D-207



D-221



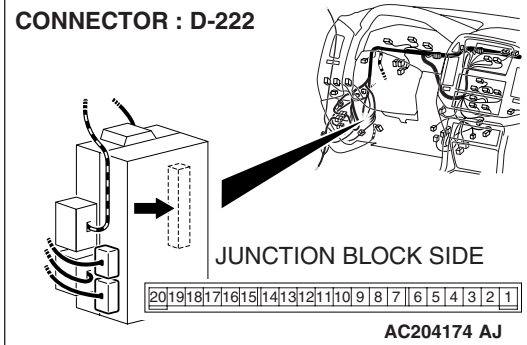
AC204191 BH

STEP 26. Check the rear personal light (LH).

Q: Does the dome light illuminate when the rear personal light (LH) switch is turned to the "ON" position?

YES : Go to Step 27.

NO : Go to Step 29.

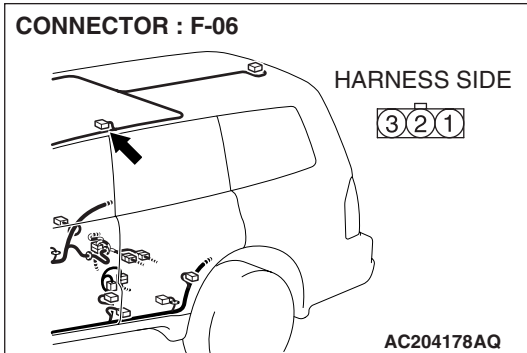


STEP 27. Check rear personal light (LH) connectors F-06 and ETACS-ECU connector D-222 for damage.

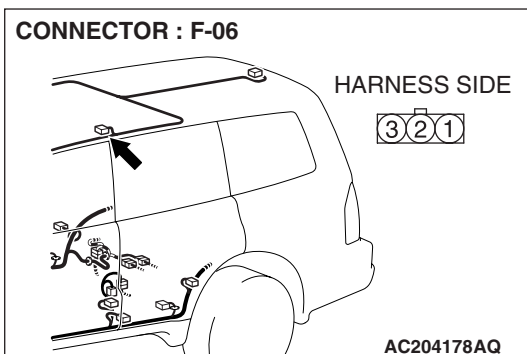
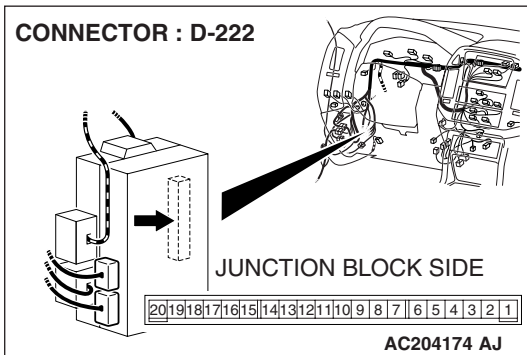
Q: Are rear personal light (LH) connector F-06 and ETACS-ECU connector D-222 in good condition?

YES : Go to Step 28.

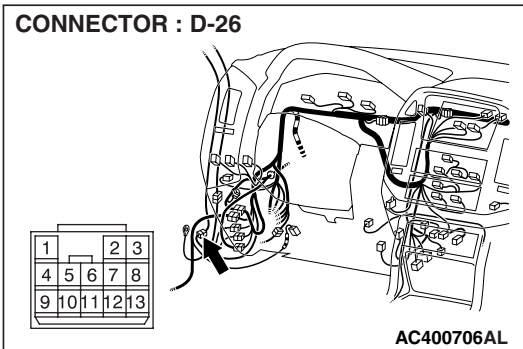
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the rear personal light (LH) illuminates normally.



STEP 28. Check the wiring harness between rear personal light (LH) connector F-06 (terminal 2) and ETACS-ECU connector D-222 (terminal 18).



CONNECTOR : D-26



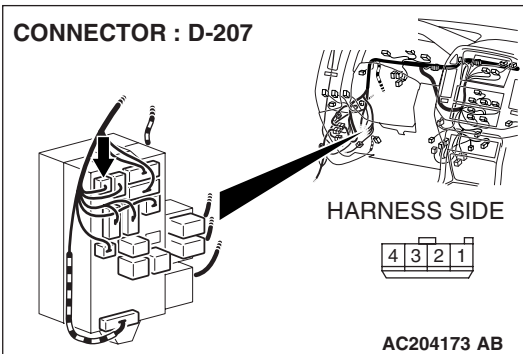
NOTE: Also check intermediate connector D-26 and junction block connector D-207 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-207 or intermediate connector D-26 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear personal light (LH) connector F-06 (terminal 2) and ETACS-ECU connector D-222 (terminal 18) in good condition?

YES : Replace the ETACS-ECU. Verify that the rear personal light (LH) illuminates normally.

NO : Repair the wiring harness. Verify that the rear personal light (LH) illuminates normally.

CONNECTOR : D-207

**STEP 29. Check the rear personal light (LH) bulb.**

Q: Is the rear personal light (LH) bulb in good condition?

YES : Go to Step 30.

NO : Replace the bulb. Verify that the rear personal light (LH) illuminates normally.

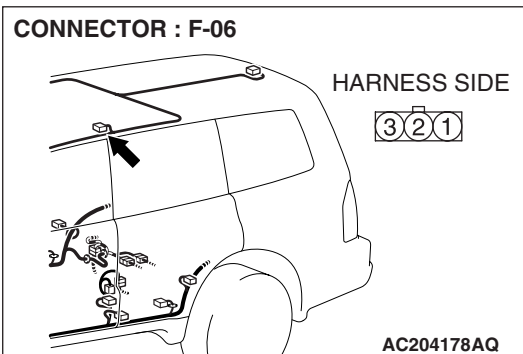
STEP 30. Check rear personal light (LH) connector F-06 for damage.

Q: Is rear personal light (LH) connector F-06 in good condition?

YES : Go to Step 31.

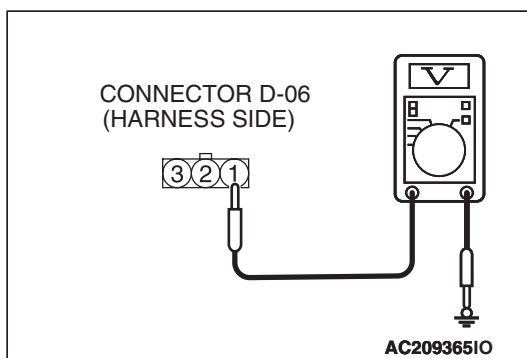
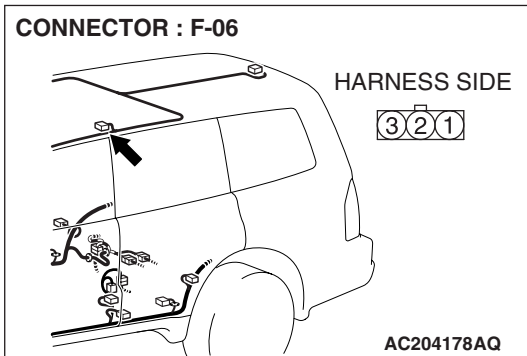
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the rear personal light (LH) illuminates normally.

CONNECTOR : F-06



STEP 31. Check the fusible link (1) line of the power supply circuit to the rear personal light (LH). Test at rear personal light (LH) connector F-06.

(1) Disconnect rear personal light (LH) connector F-06 and measure the voltage available at the wiring harness side of the connector.



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

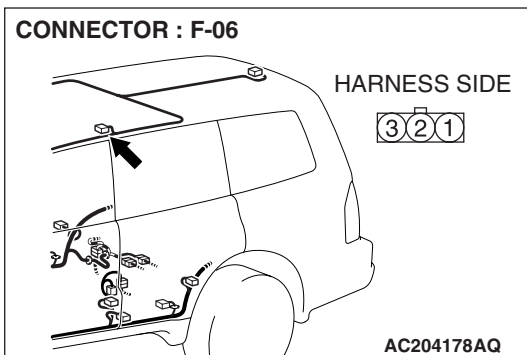
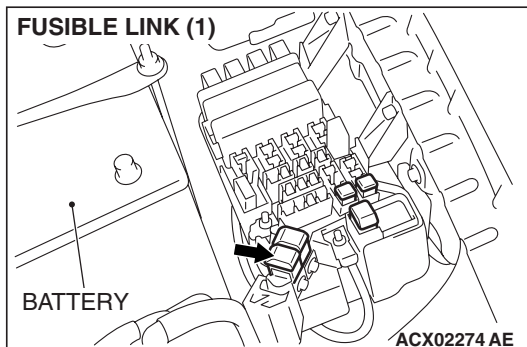
- The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

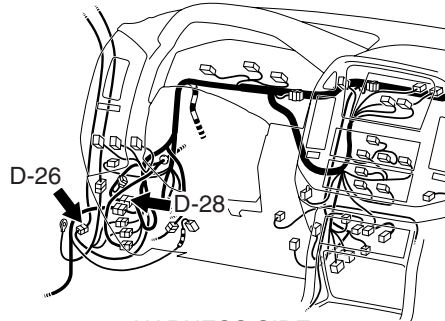
YES : Replace the rear personal light (LH). Verify that the rear personal light (LH) illuminates normally.

NO : Go to Step 32.

STEP 32. Check the wiring harness between rear personal light (LH) connector F-06 (terminal 1) and fusible link (1).

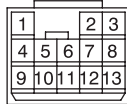


CONNECTORS : D-26, D-28

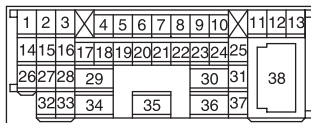


HARNESS SIDE

D-26



D-28



AC400707AN

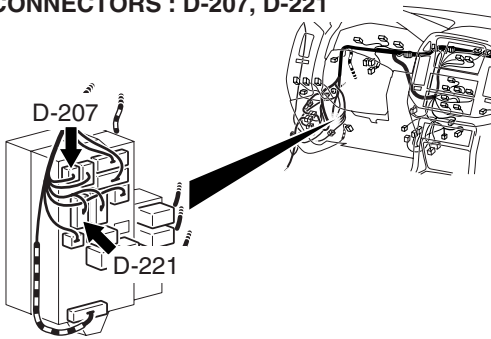
NOTE: Also check intermediate connectors D-26, D-28, junction block connectors D-207 and D-221 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-26, D-28, junction block connector D-207 or D-221 is damaged, repair or replace the damaged component(s) as described in GROUP, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear personal light (LH) connector F-06 (terminal 1) and fusible link (1) in good condition?

YES : Go to Step 33.

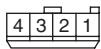
NO : Repair the wiring harness. Verify that the rear personal light (LH) illuminates normally.

CONNECTORS : D-207, D-221

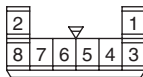


HARNESS SIDE

D-207

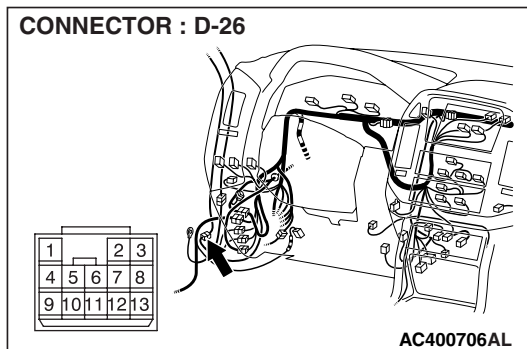
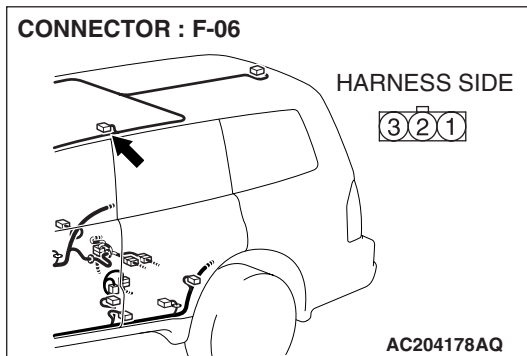


D-221



AC204191 BH

STEP 33. Check the wiring harness between rear personal light (LH) connector F-06 (terminal 3) and ground.



NOTE: Also check intermediate connectors D-26 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-26 is damaged, repair or replace the damaged component(s) as described in GROUP, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear personal light (LH) connector (terminal 3) and ground in good condition?

YES : No action to be taken.

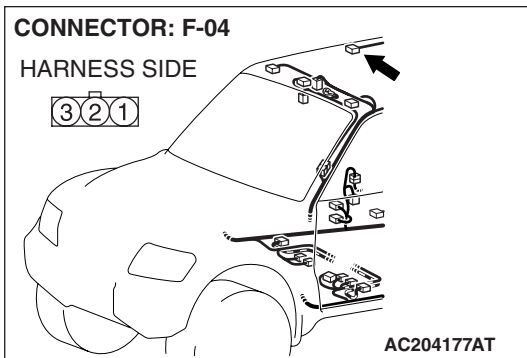
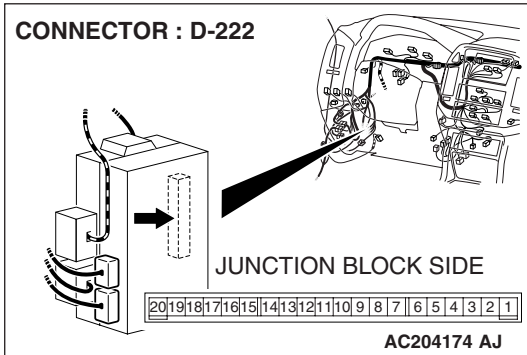
NO : Repair the wiring harness. Verify that the rear personal light (LH) illuminates normally.

STEP 34. Check the rear personal light (RH).

Q: Does the dome light illuminate when the rear personal light (RH) switch is turned to the "ON" position?

YES : Go to Step 35.

NO : Go to Step 37.



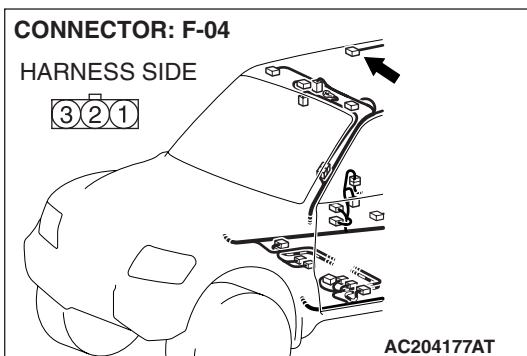
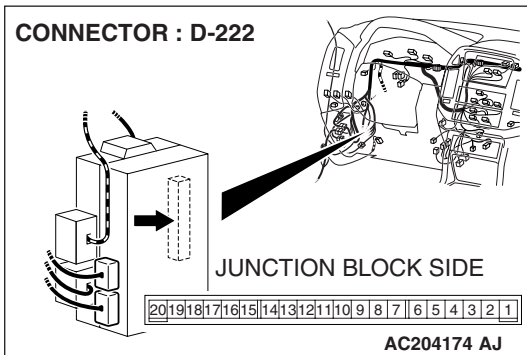
STEP 35. Check rear personal light (RH) connectors F-04 and ETACS-ECU connector D-222 for damage.

Q: Are rear personal light (RH) connector F-04 and ETACS-ECU connector D-222 in good condition?

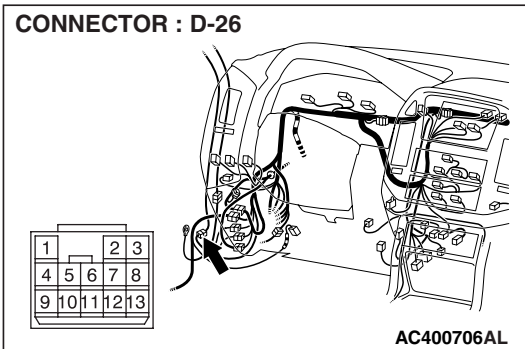
YES : Go to Step 36.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the rear personal light (RH) illuminates normally.

STEP 36. Check the wiring harness between rear personal light (RH) connector F-04 (terminal 3) and ETACS-ECU connector D-222 (terminal 18).



CONNECTOR : D-26



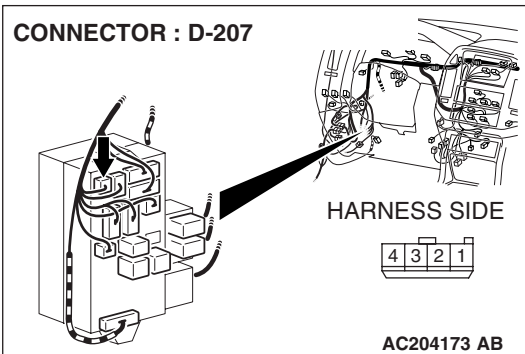
NOTE: Also check intermediate connector D-26 and junction block connector D-207 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-207 or intermediate connector D-26 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear personal light (RH) connector F-04 (terminal 3) and ETACS-ECU connector D-222 (terminal 18) in good condition?

YES : Replace the ETACS-ECU. Verify that the rear personal light (RH) illuminates normally.

NO : Repair the wiring harness. Verify that the rear personal light (RH) illuminates normally.

CONNECTOR : D-207



STEP 37. Check the rear personal light (RH) bulb.

Q: Is the rear personal light (RH) bulb in good condition?

YES : Go to Step 38.

NO : Replace the bulb. Verify that the rear personal light (RH) illuminates normally.

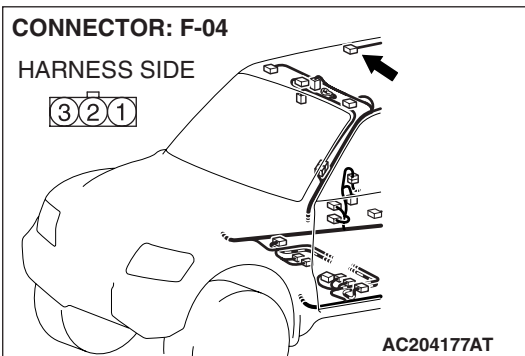
STEP 38. Check rear personal light (RH) connector F-04 for damage.

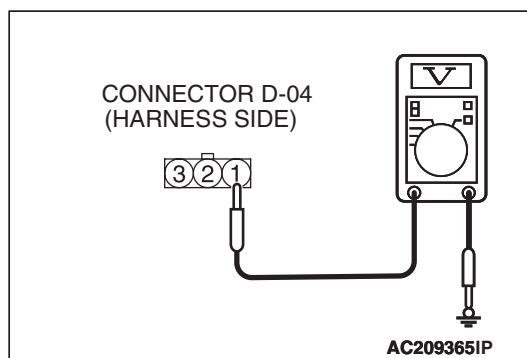
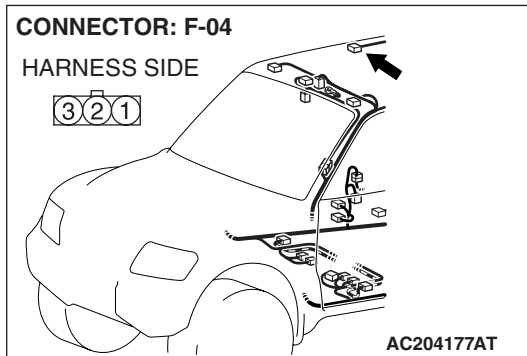
Q: Is rear personal light (RH) connector F-04 in good condition?

YES : Go to Step 39.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the rear personal light (RH) illuminates normally.

CONNECTOR: F-04





STEP 39. Check the fusible link (1) line of the power supply circuit to the rear personal light (RH). Test at rear personal light (RH) connector F-04.

(1) Disconnect rear personal light (RH) connector F-04 and measure the voltage available at the wiring harness side of the connector.

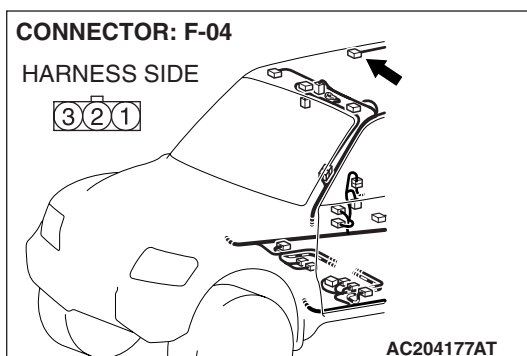
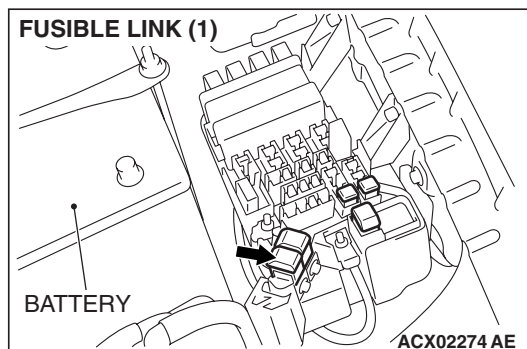
(2) Measure the voltage between terminal 1 and ground.

- The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

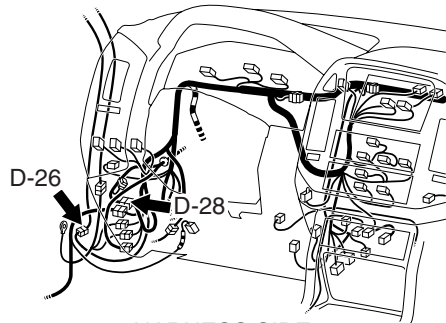
YES : Replace the rear personal light (RH). Verify that the rear personal light (RH) illuminates normally.

NO : Go to Step 40.



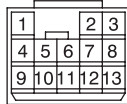
STEP 40. Check the wiring harness between rear personal light (RH) connector F-04 (terminal 1) and fusible link (1).

CONNECTORS : D-26, D-28

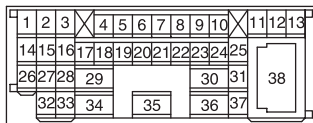


HARNESS SIDE

D-26



D-28



AC400707AN

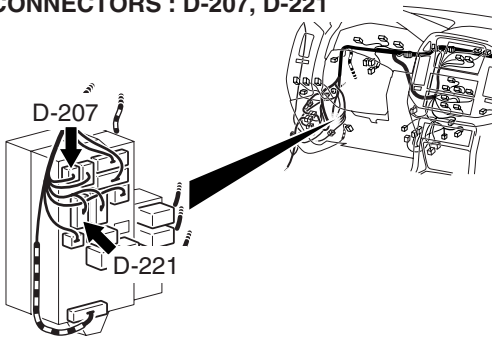
NOTE: Also check intermediate connectors D-26, D-28, junction block connectors D-207 and D-221 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-26, D-28, junction block connector D-207 or D-221 is damaged, repair or replace the damaged component(s) as described in GROUP, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear personal light (RH) connector F-04 (terminal 1) and fusible link (1) in good condition?

YES : Go to Step 41.

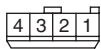
NO : Repair the wiring harness. Verify that the rear personal light (RH) illuminates normally.

CONNECTORS : D-207, D-221

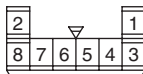


HARNESS SIDE

D-207

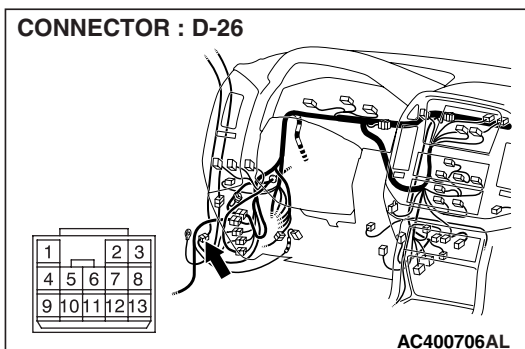
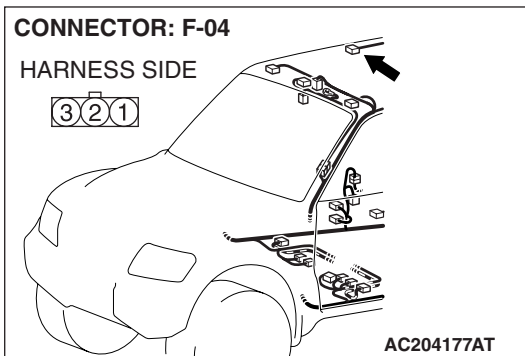
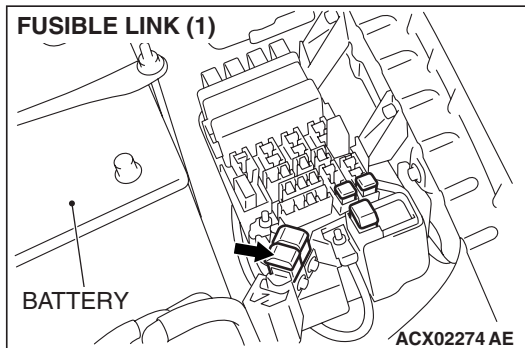


D-221



AC204191 BH

STEP 41. Check the wiring harness between rear personal light (RH) connector F-04 (terminal 2) and ground.



NOTE: Also check intermediate connectors D-26 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-26 is damaged, repair or replace the damaged component(s) as described in GROUP, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between rear personal light (LH) connector (terminal 2) and ground in good condition?

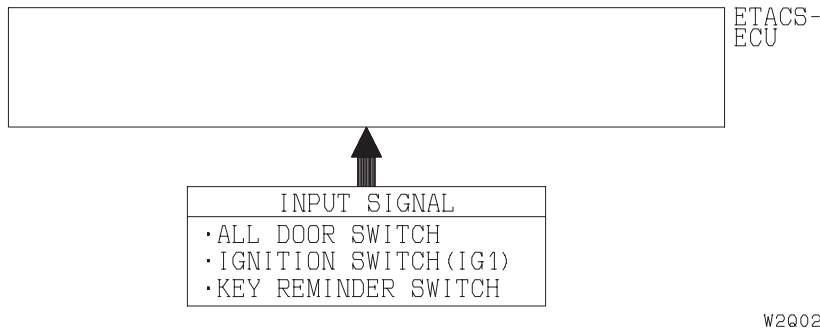
YES : No action to be taken.

NO : Repair the wiring harness. Verify that the rear personal light (RH) illuminates normally.

INSPECTION PROCEDURE M-2: Interior Light: Dome light dimming function does not work normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-10."

Interior Light Dimming Function



CIRCUIT OPERATION

The ETACS-ECU operates the dome light dimming function according to the following switches:

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

TECHNICAL DESCRIPTION (COMMENT)

If the dome lights do not dim normally, the input circuits from the switches described in "CIRCUIT OPERATION" or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B
- MB991813: SWS Monitor Kit
 - MB991806: SWS Monitor Cartridge
 - MB991812: SWS Monitor Harness (For Column-ECU)
 - MB991822: Probe Harness
- MB991854: SWS Monitor Harness (For 13-pin)

STEP 1. Verify the dome light.

If the dome light switch are moved to the "door interlock position", the dome light should illuminate when either door is opened.

Q: Do the dome light illuminate normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure M-1 "The dome light do not illuminate or go out normally [P.54B-419.](#)"

STEP 2. Use scan tool MB991958 to select "ECU COMM CHK" on the SWS monitor display.

Check the ETACS-ECU.

⚠ CAUTION

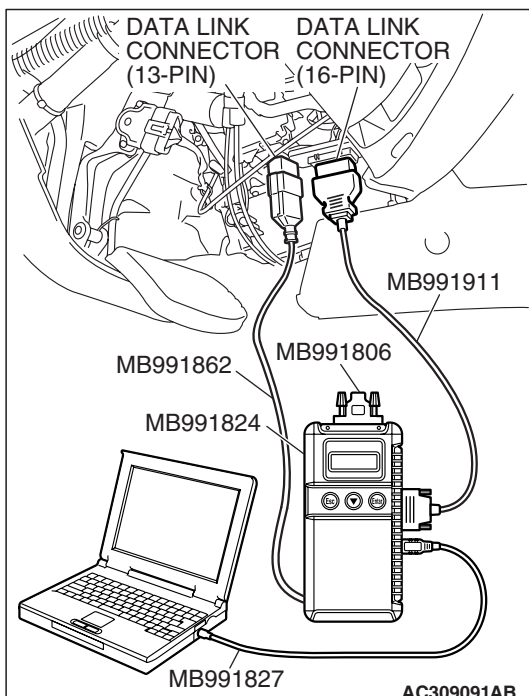
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

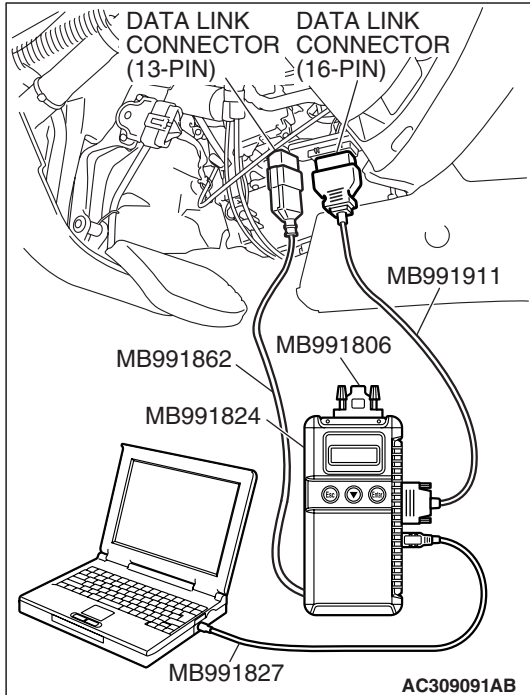
- (1) Connect the special tool. Refer to "How to connect SWS monitor [P.54B-7.](#)
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK."
- (4) Scan tool MB991958 should show "OK" on the "ECU COMM CHK" menu for the "ETACS ECU" menu.

Q: Is "OK" displayed on the "ETACS ECU" menu?

YES : Go to Step 3.

NO : Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is not possible [P.54B-41.](#)"





STEP 3. Check the input signal by using "DATA LIST" menu of the SWS monitor.

Check the input signals from the following switches:

- Ignition switch: ON or START
- Driver's door: open

Operate scan tool MB991958 according to the procedure below to display "ETACS ECU."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "DATA LIST."
5. Select "ETACS ECU."

Check that normal conditions are displayed on the items described in the table below.

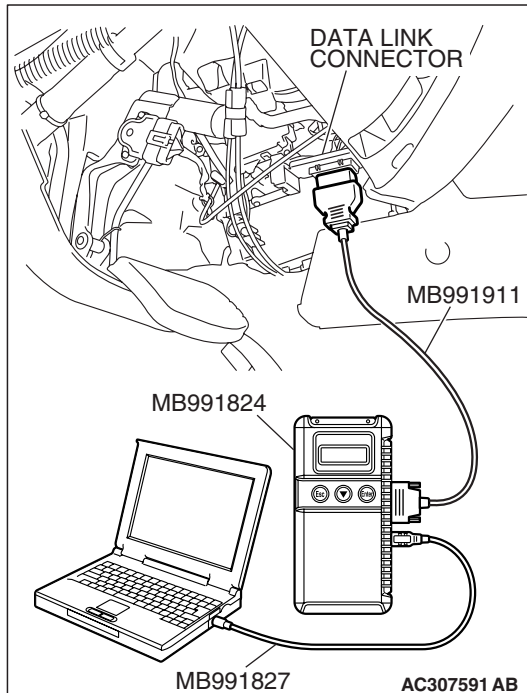
ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 30	IG SW (IG1)	ON
ITEM 32	FRONT DOOR SW	ON

Q: Are normal conditions displayed on the "IG SW (IG1)" and "FRONT DOOR SW"?

Normal conditions are displayed for all the items : Go to Step 4.

Normal condition is not displayed on the "IG SW (IG1)" :
Refer to Inspection Procedure O-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) [P.54B-496.](#)"

Normal condition is not displayed on the "FRONT DOOR SW" : Refer to Inspection Procedure O-5 "ETACS-ECU does not receive any signal from the driver's or the front passenger's door switch [P.54B-509.](#)"



STEP 4. Check the input signal (by using the pulse check mode of the monitor.)

Check the following switches and input signals:

- Key reminder switch
- All door switches

Operate scan tool MB991958 according to the procedure below to display "PULSE CHECK."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

Check if scan tool MB991958 sounds or not.

ITEM NAME	CONDITION
key reminder switch	Remove and reinsert the ignition key
Each door switch	Open or close one of the doors

Q: When the key reminder switch and each door switch are operated, does scan tool MB991958 sound in each case?

Buzzer of scan tool MB991958 sounds normally :

Replace the ETACS-ECU. Verify that the dome light illuminates normally.

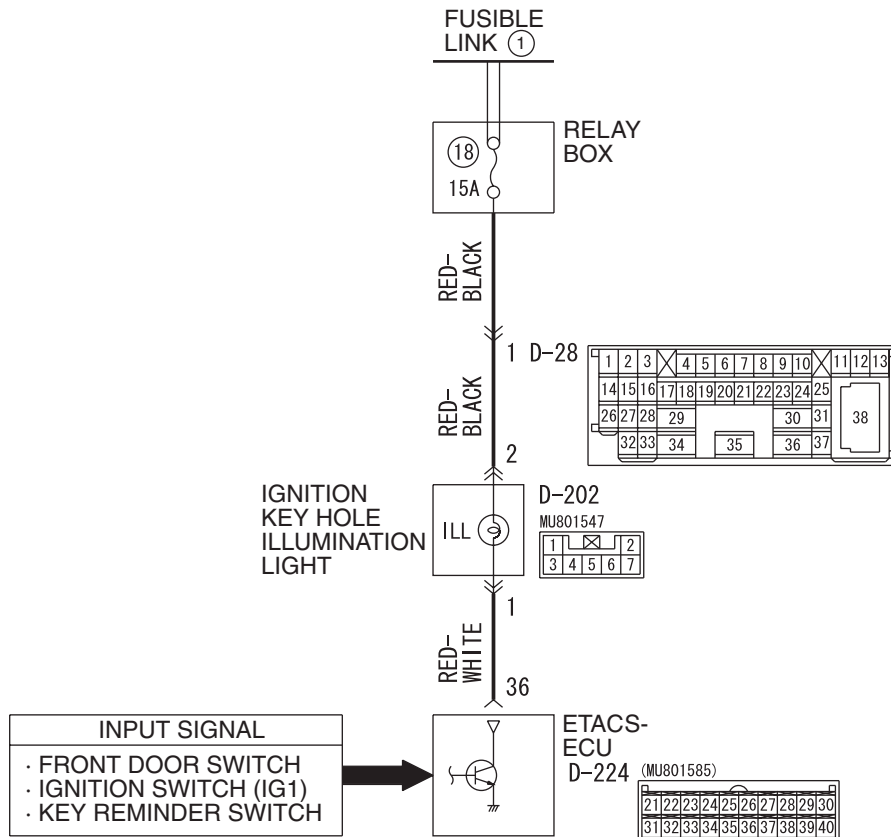
Scan tool MB991958 does not sound when the ignition key is removed and reinserted : Refer to Inspection Procedure P-1 "ETACS-ECU does not receive any signal from the key reminder switch [P.54B-532.](#)"

When one of the doors is opened and closed, scan tool MB991958 does not sound : Refer to Inspection Procedure P-4 "ETACS-ECU does not receive any signal from all the door switches [P.54B-545.](#)"

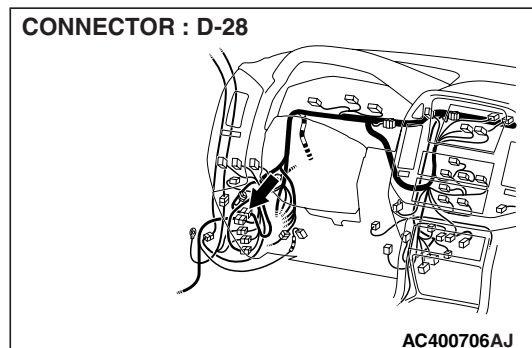
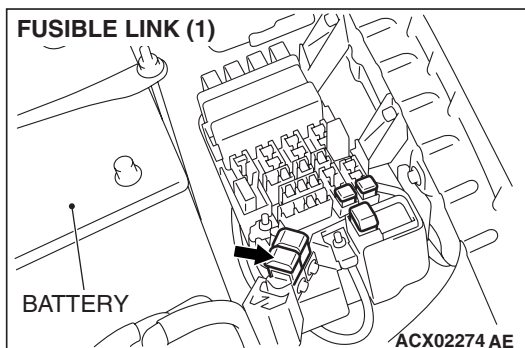
INSPECTION PROCEDURE M-3: Interior Light: The ignition key hole illumination light does not illuminate or go out normally.

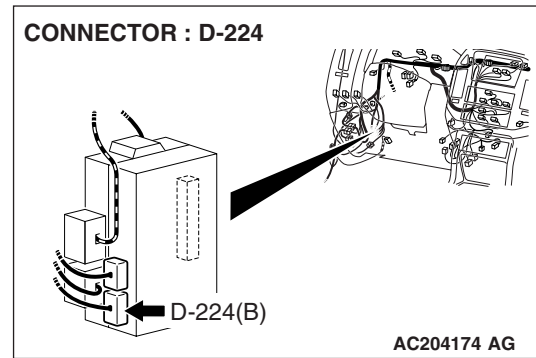
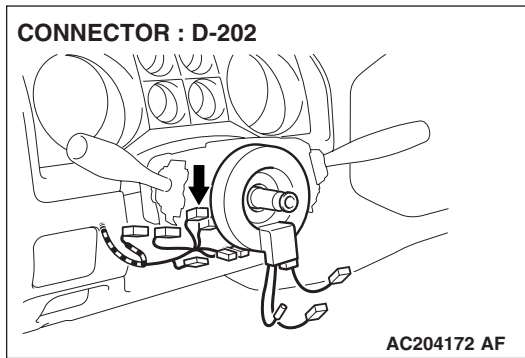
NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-10."

Ignition Key Hole Illumination Light Circuit



W4Q54M15AA





CIRCUIT OPERATION

- When the driver's door is opened with the ignition switch at "ACC" position, the ETACS-ECU illuminates the ignition key hole illumination light.
- The ignition key hole illumination light goes out in 30 seconds after the driver's door is closed. The ignition key hole illumination light remains illuminated for 30 seconds after the ignition key is pulled out.
- The ETACS-ECU operates the ignition key hole illumination light according to the input signals from the following switches:
 - Ignition switch (IG1): OFF
 - Key reminder switch: OFF
- Vehicle condition
 - Ignition switch: ACC position
 - Ignition key is inserted in the ignition key cylinder

TECHNICAL DESCRIPTION (COMMENT)

If the ignition key hole illumination light does not illuminate, the input circuits from the switches described in "CIRCUIT OPERATION", the key reminder switch (ignition key hole illumination light bulb) or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B
- MB991813: SWS Monitor Kit
 - MB991806: SWS Monitor Cartridge
 - MB991812: SWS Monitor Harness (For Column-ECU)
 - MB991822: Probe Harness
- MB991854: SWS Monitor Harness (For 13-pin)

STEP 1. Use scan tool MB991958 to select "ECU COMM CHK" on the SWS monitor display.

Check 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 the special tool. Refer to "How to connect SWS monitor P.54B-7.

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

(3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHK."

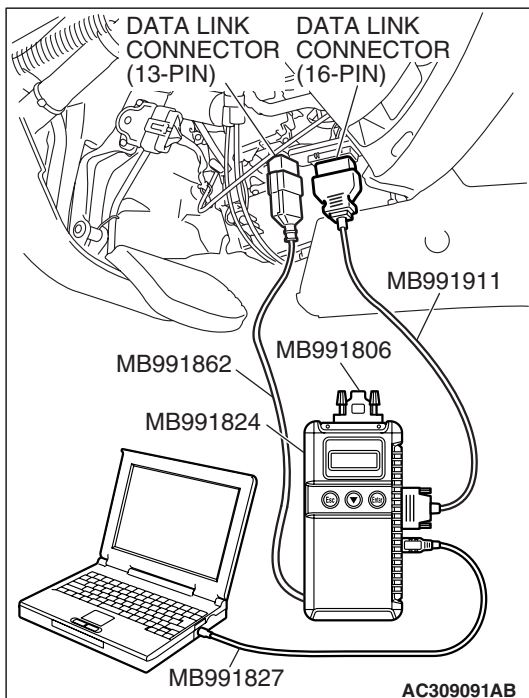
1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "ECU COMM CHK."

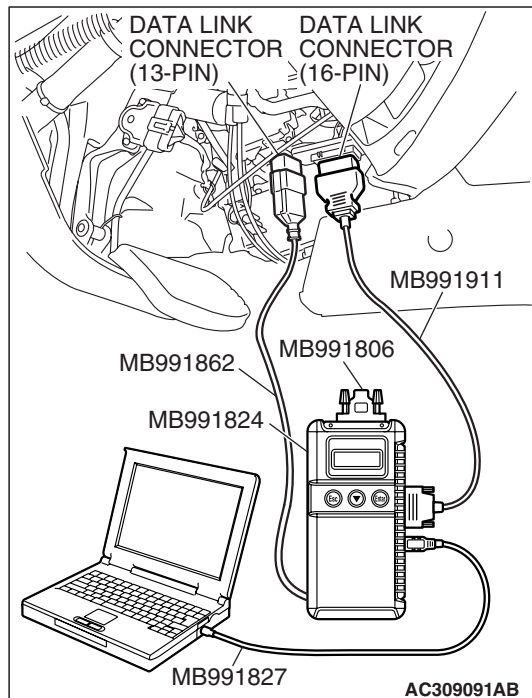
(4) Scan tool MB991958 should show "OK" on the "ECU COMM CHK" menu for the "ETACS ECU" menu.

Q: Is "OK" displayed on the "ETACS ECU" menu?

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is not possible P.54B-41."





STEP 2. Check the input signal by using "DATA LIST" menu of the SWS monitor.

Check the input signals from the following switches:

- Ignition switch: OFF
- Driver's door: open
- Front passenger's door: closed

Operate scan tool MB991958 according to the procedure below to display "ETACS ECU."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "DATA LIST."
5. Select "ETACS ECU."

Check that normal conditions are displayed on the items described in the table below.

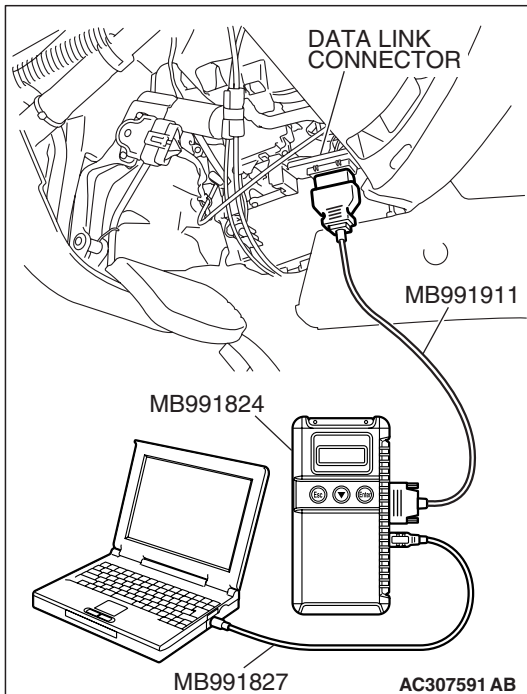
ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 30	IG SW(IG1)	OFF
ITEM 32	FRONT DOOR SW	ON

Q: Are normal conditions displayed on the "IG SW (IG1)" and "FRONT DOOR SW"?

YES : Go to Step 3.

Normal condition is not displayed "IG SW (IG1)" : Refer to Inspection Procedure O-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) [P.54B-496.](#)"

Normal condition is not displayed "FRONT DOOR SW" : Refer to Inspection Procedure O-5 "ETACS-ECU does not receive any signal from the driver's or the front passenger's door switch [P.54B-509.](#)"



STEP 3. Check the input signal (by using the pulse check mode of the monitor.)

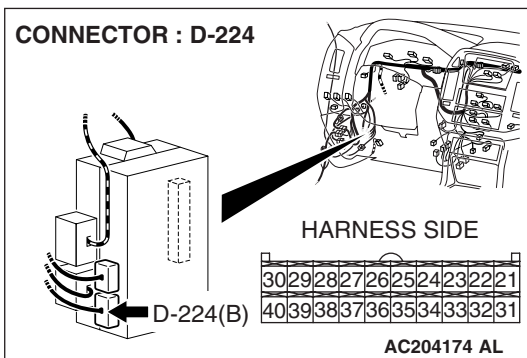
Check the input signals from the key reminder switch.
Operate scan tool MB991958 according to the procedure below to display "PULSE CHECK."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."
 - Check whether scan tool MB991958 sounds or not when the ignition key is removed and reinserted.

Q: Does scan tool MB991958 sound when the ignition key is removed and reinserted?

YES : Go to Step 4.

NO : Refer to Inspection Procedure P-1 "ETACS-ECU does not receive any signal from the key reminder switch P.54B-532."

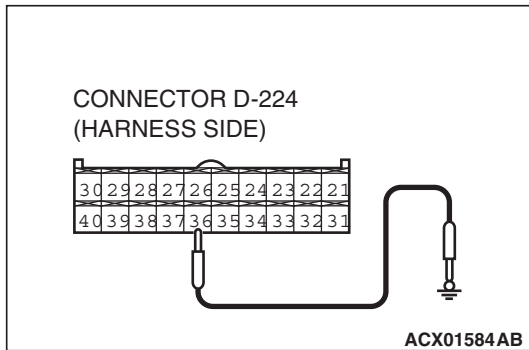
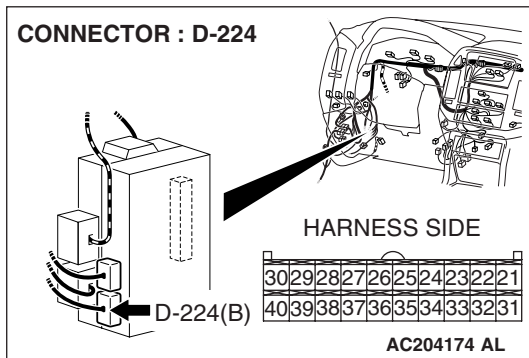


STEP 4. Check ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector D-224 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. Verify that the ignition key hole illumination light illuminates normally.



STEP 5. Check at ETACS-ECU connector D-224 in order to check the line from the ignition key hole illumination light.

(1) Disconnect ETACS-ECU connector D-224, and measure at the wiring harness side.

(2) Connect terminal 36 to ground.

Q: Does the ignition key hole illumination light illuminate?

YES : Replace the ETACS-ECU. Verify that the ignition key hole illumination light illuminates normally.

NO : Go to Step 6.

STEP 6. Check the ignition key hole illumination light bulb.

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

YES : Go to Step 7.

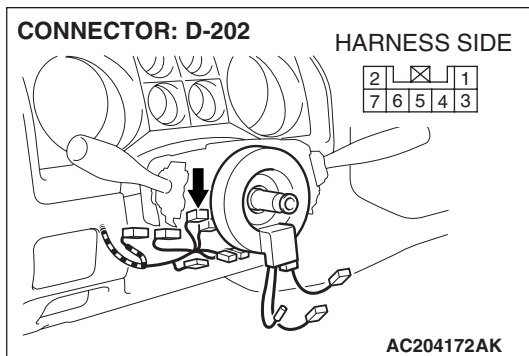
NO : Replace the bulb. Verify that the ignition key hole illumination light illuminates normally.

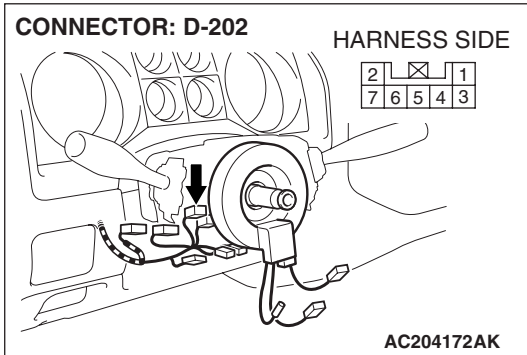
STEP 7. Check key reminder switch connector D-202 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is key reminder switch connector D-202 in good condition?

YES : Go to Step 8.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the ignition key hole illumination light illuminates normally.





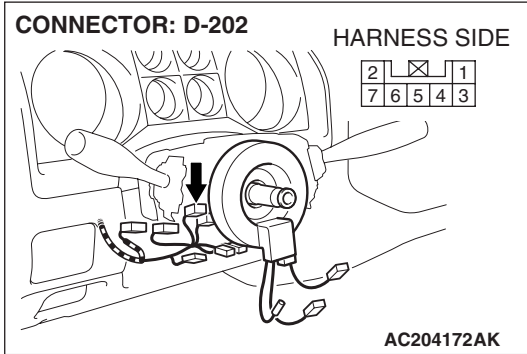
STEP 8. Check the key reminder switch (ignition key hole illumination).

- (1) Disconnect key reminder switch connector D-202.
- (2) Remove the ignition key hole illumination light bulb. Then measure the resistance value between the bulb terminals.
- (3) Install a bulb to the key remainder switch, and measure the resistance between connector D-202 terminal 1 and 2. The measured resistance value should be roughly the same as the value measured in Step (2).

Q: Are these two resistance values extremely different?

YES : Replace the key reminder switch. Verify that the ignition key hole illumination light illuminates normally.

NO (roughly the same) : Go to Step 9.



STEP 9. Check the fusible link (1) line of the power supply circuit to the key reminder switch. Test at key reminder switch connector D-202.

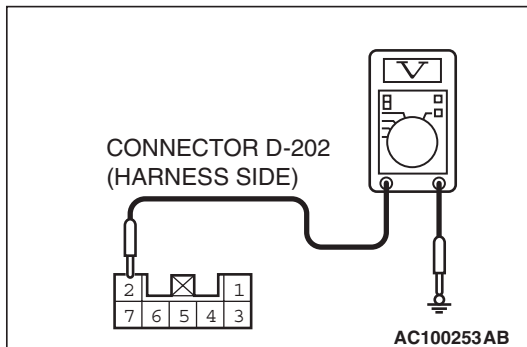
- (1) Disconnect key reminder switch connector D-202 and measure at the voltage available at the wiring harness side of the connector.

- (2) Measure the voltage between terminal 2 and ground.
 - The voltage should be approximately 12 volts (battery positive voltage).

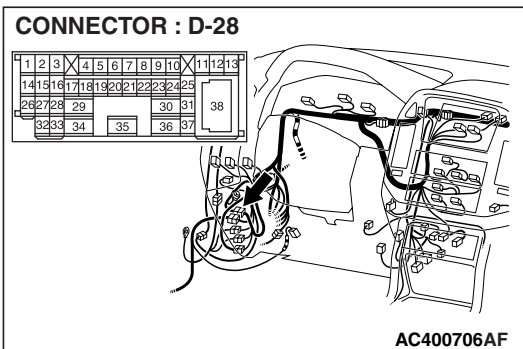
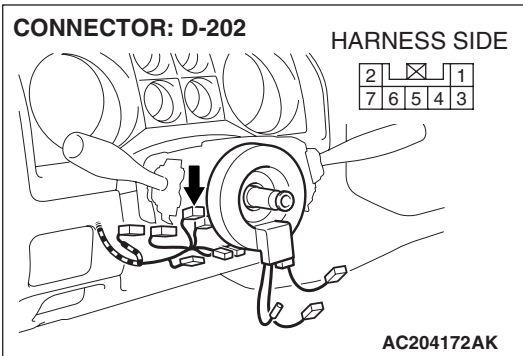
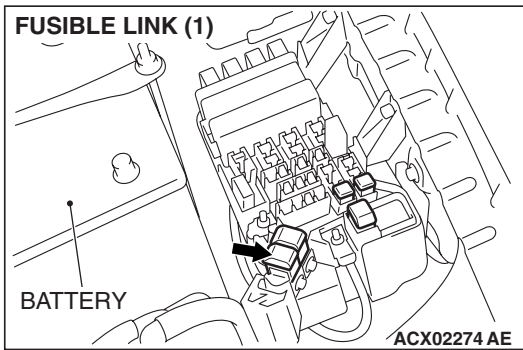
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 11.

NO : Go to Step 10.



STEP 10. Check the wiring harness between key reminder switch connector D-202 (terminal 2) and fusible link (1).

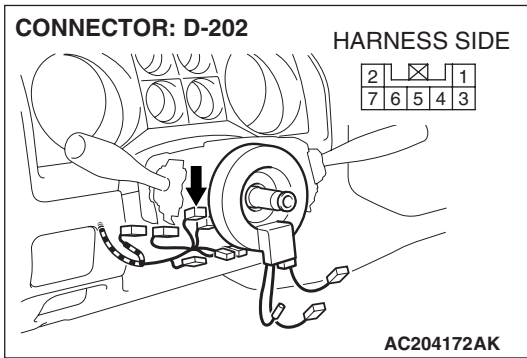


NOTE: Also check intermediate connector D-28 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-28 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between key reminder switch connector D-202 (terminal 2) and fusible link (1) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the ignition key hole illumination light illuminates normally.

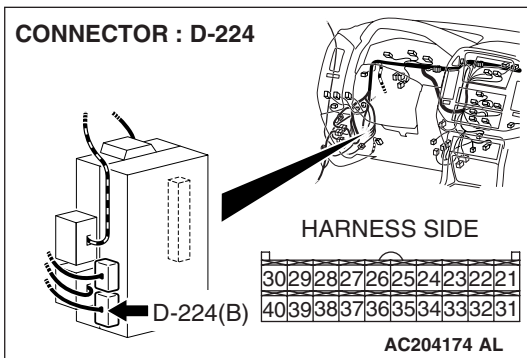


STEP 11. Check the wiring harness between key reminder switch connector D-202 (terminal 1) and ETACS-ECU connector D-224 (terminal 36).

Q: Is the wiring harness between key reminder switch connector D-202 (terminal 1) and ETACS-ECU connector D-224 (terminal 36) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the ignition key hole illumination light illuminates normally.



NEXT>>