
GROUP 54Bb

SWS SYMPTOM PROCEDURES

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SYMPTOM CHART

M1549000800316

<ECU communication system>

SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Communication with the SWS monitor kit is not possible.	A-1	P.54Bb-7
Communication with the column switch (column-ECU) is not possible.	A-2	P.54Bb-13
Communication with the ETACS-ECU is not possible.	A-3	P.54Bb-22
Communication with the front-ECU is not possible.	A-4	P.54Bb-30
Communication with the sunroof motor assembly (sunroof-ECU) is not possible.	A-5	P.54Bb-37

<Function system>

SYSTEM	SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Tone alarm	General description concerning the tone alarm function.	–	P.54Bb-47
	Ignition key reminder tone alarm function does not work.	B-1	P.54Bb-51
	Light reminder tone alarm function does not work normally.	B-2	P.54Bb-54
	Seat belt tone alarm function does not work normally.	B-3	P.54Bb-57
Central door locking system	General description concerning the central door locking system.	–	P.54Bb-60
	The central door lock system does not work at all.	C-1	P.54Bb-64
	Some doors do not lock or unlock.	C-2	P.54Bb-72
	All the doors do not lock or unlock with just the door lock switch operation.	C-3	P.54Bb-85
	All the doors do not lock or unlock with just the door lock key cylinder key operation.	C-4	P.54Bb-87
	All the doors do not lock or unlock with just the driver's inside lock knob operation.	C-5	P.54Bb-89

**SWS SYMPTOM PROCEDURES
SYMPTOM CHART**

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SYSTEM	SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Power windows	General description concerning the power windows function.	–	P.54Bb-91
	Power windows do not work at all.	D-1	P.54Bb-95
	The power window timer function does not work normally.	D-2	P.54Bb-107
	Only the front door window (LH) does not work normally by operating the power window main switch.	D-3	P.54Bb-110
	Power windows does not work normally by operating the front passenger's and rear power window switches.	D-4	P.54Bb-113
	Front or rear passenger's power windows do not work at all by operating the power window main switch.	D-5	P.54Bb-149
Keyless entry system	General description concerning keyless entry system.	–	P.54Bb-151
	Keyless entry system does not operate.	E-1	P.54Bb-156
	The front dome light, the turn-signal lights and the horn do not operate through the answerback function.	E-2	P.54Bb-158
	Encrypted code cannot be registered.	E-3	P.54Bb-171
Sunroof	General description concerning the sunroof.	–	P.54Bb-173
	Sunroof does not operate.	F-1	P.54Bb-175
	Any of the sunroof switch positions is defective.	F-2	P.54Bb-185
	Sunroof timer function does not work normally.	F-3	P.54Bb-187
	Safety mechanism does not function.	F-4	P.54Bb-190

SYSTEM	SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Windshield wiper and washer	General description concerning the windshield wiper and washer function.	—	P.54Bb-190
	The windshield wipers do not work at all.	G-1	P.54Bb-195
	The windshield wipers do not work when the windshield wiper switch is at "INT" or "MIST" position or the windshield washer switch is at "ON" position. However, the wipers work at low speed when the windshield wiper switch is at "LO" or "HI."	G-2	P.54Bb-204
	Any of the windshield wiper switch positions is defective.	G-3	P.54Bb-206
	The windshield wipers do not stop at the predetermined park position.	G-4	P.54Bb-211
	The windshield intermittent wiper interval is not changed according to the vehicle speed.	G-5	P.54Bb-217
	The intermittent wiper interval is not changed according to the vehicle speed.	G-6	P.54Bb-219
	The windshield washer does not work.	G-7	P.54Bb-222
Rear wiper and washer	General description concerning the rear wiper and washer function.	—	P.54Bb-230
	Rear wiper does not work at all.	H-1	P.54Bb-233
	Rear wiper does not stop at the predetermined park position.	H-2	P.54Bb-241
	When the selector lever is moved to "R" position during the rear wiper operation, the rear wiper does not operate at the continuous mode.	H-3	P.54Bb-247
	Rear washer does not work.	H-4	P.54Bb-249
Seat belt warning light	General description concerning the seat belt warning light function.	—	P.54Bb-257
	The seat belt warning light does not work normally.	I-1	P.54Bb-258

**SWS SYMPTOM PROCEDURES
SYMPTOM CHART**

54Bb-5

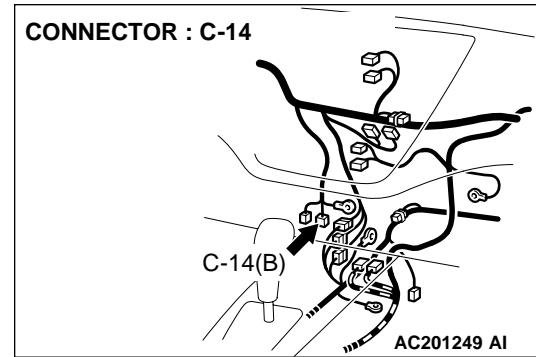
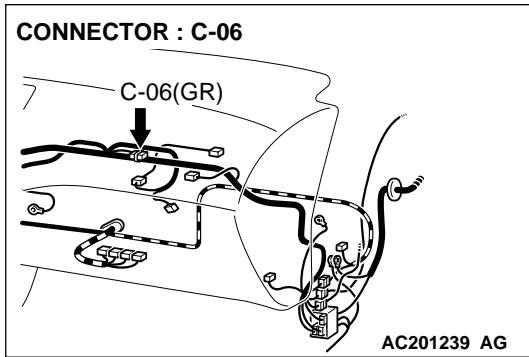
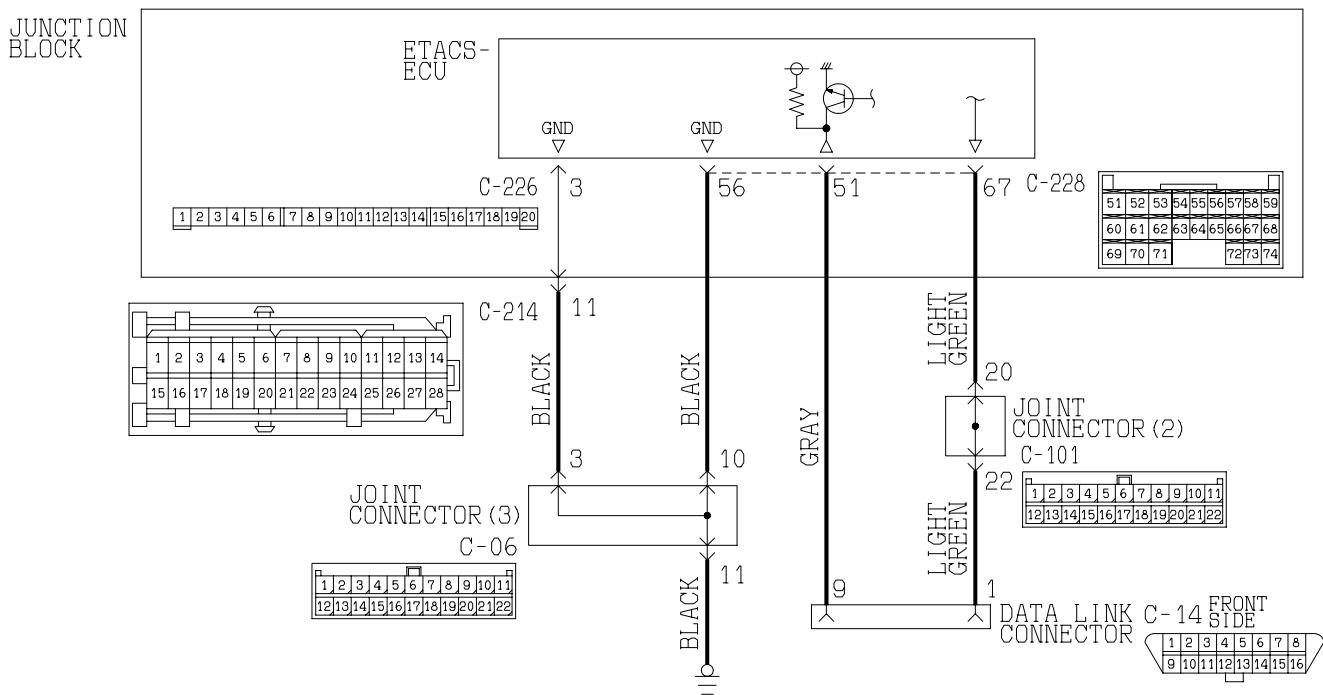
SYSTEM	SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Headlight and taillight	General description concerning headlight and taillight function.	–	P.54Bb-267
	The taillights do not illuminate normally.	J-1	P.54Bb-273
	Headlights (low-beam) do not illuminate normally.	J-2	P.54Bb-278
	Headlights (high-beam) do not illuminate normally.	J-3	P.54Bb-282
	When the passing switch is turned "on", the headlights (low-beam or high-beam) do not illuminate.	J-4	P.54Bb-285
	Headlights do not illuminate when the lighting switch is at "AUTO," "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.	J-5	P.54Bb-286
	Any of taillights, position lights or license plate light does not illuminate.	J-6	P.54Bb-288
	One of the headlights does not illuminate.	J-7	P.54Bb-323
	The High-beam Indicator Light does not illuminate.	J-8	P.54Bb-334
	Headlight automatic shutdown function does not work normally.	J-9	P.54Bb-340
	Headlight dimmer switch automatic resetting function does not work normally.	J-10	P.54Bb-342
	Daytime running light function does not work normally. <vehicles with daytime running light function>	J-11	P.54Bb-343
	When the daytime running light function is operating, the headlights (high-beam) continue lighting even if the headlight switch turns on. <vehicles with daytime running light function>	J-12	P.54Bb-352
Flasher timer	General description concerning the flasher timer function.	–	P.54Bb-355
	Turn-signal lights do not flash when the turn-signal light switch is turned on.	K-1	P.54Bb-358
	Hazard warning lights do not flash when the hazard warning light switch is turned on.	K-2	P.54Bb-365
	The right or left turn-signal light does not illuminate.	K-3	P.54Bb-367

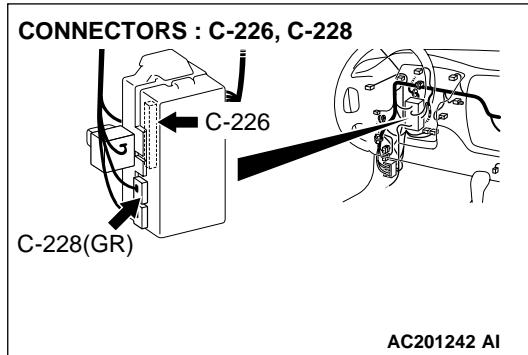
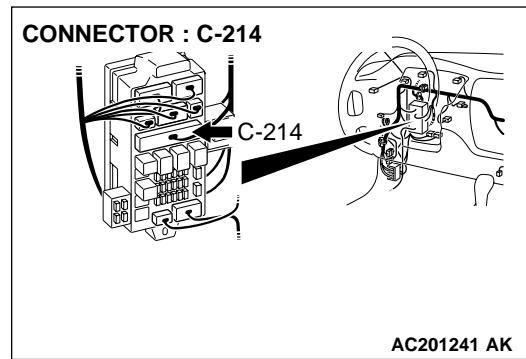
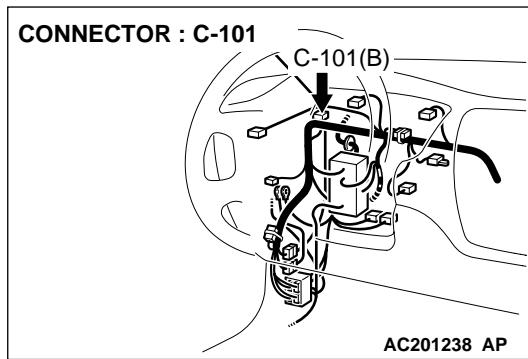
SYSTEM	SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Interior light	General description concerning the interior light function.	–	P.54Bb-398
	The front dome light, rear dome light <vehicles without sunroof> and luggage compartment light do not illuminate or go out normally.	L-1	P.54Bb-401
	The front dome light, rear dome light <vehicles without sunroof> or luggage compartment light does not illuminate or go out normally.	L-2	P.54Bb-406
	Front dome light and rear dome light <vehicles without sunroof> dimming function does not work normally.	L-3	P.54Bb-420
	The interior light automatic shut-down function does not work normally.	L-4	P.54Bb-425
	The door ajar indicator lights does not illuminate normally.	L-5	P.54Bb-429

SYMPTOM PROCEDURES

INSPECTION PROCEDURE A-1: Communication with the SWS monitor kit is not possible.

Scan Tool Communication and ETACS-ECU Ground Circuit



**TECHNICAL DESCRIPTION (COMMENT)**

The SWS monitor kit may be connected improperly.

TROUBLESHOOTING HINTS

- The SWS monitor body (I/F cartridge) may be defective

- The SWS monitor harness 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Verify SWS monitor kit MB991862 for proper connection.

Q: Is SWS monitor kit MB991862 connected with the column switch properly?

YES : Go to Step 2.

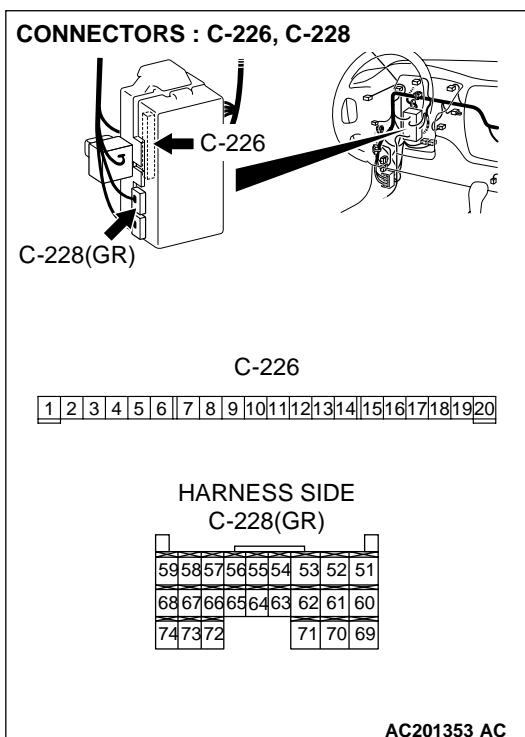
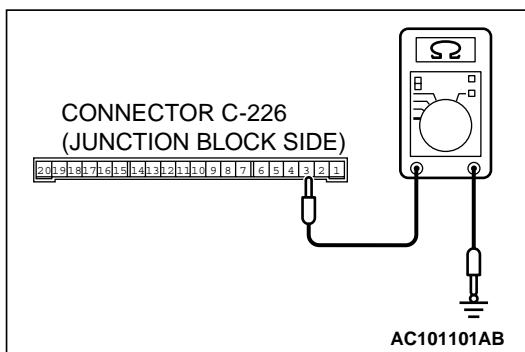
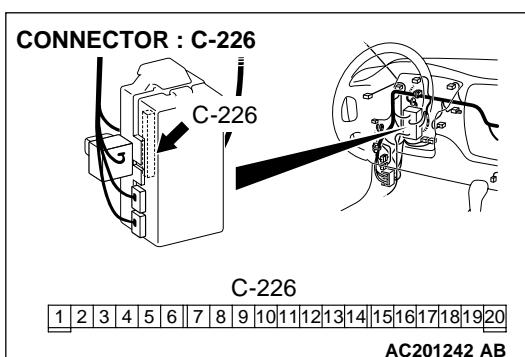
NO : Connect SWS monitor kit MB991862 to the column switch securely.

STEP 2. Verify the power supply circuit to the ETACS-ECU.

Q: Does the system communicate with scan tool MB991502 when the ignition switch is turned to the "ON" position?

YES : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible [P.54Bb-22](#)."

NO : Go to Step 3.



STEP 3. Check the ground circuit to the ETACS-ECU. Test at ETACS-ECU connector C-226.

(1) Disconnect ETACS-ECU connector C-226 and measure the resistance available at the junction block 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 6.

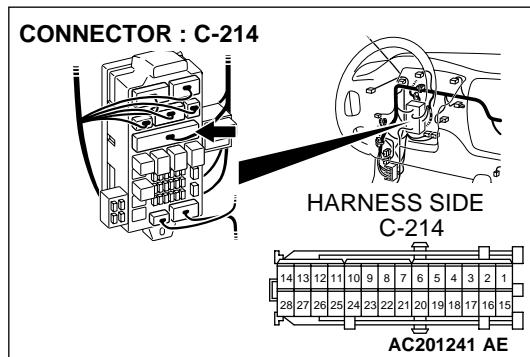
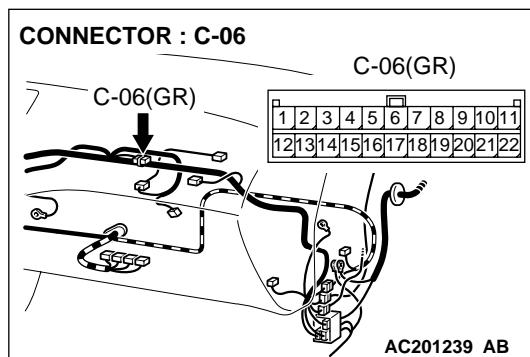
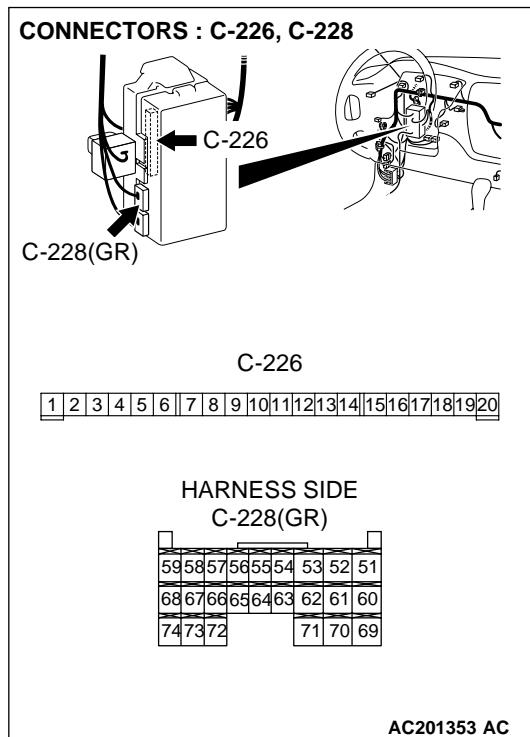
NO : Go to Step 4.

STEP 4. Check ETACS-ECU connector C-226 and C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-226 and C-228 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. The system should communicate with the SWS monitor normally.



STEP 5. Check the wiring harness between ETACS-ECU connector C-226 (terminal 3), C-228 (terminal 56) and the ground.

NOTE: Also check junction block connector C-214 and joint connector C-06 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-214 or joint connectors C-06 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 C-226 (terminal 3), C-228 (terminal 56) and the 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. The system should communicate with the SWS monitor kit normally.

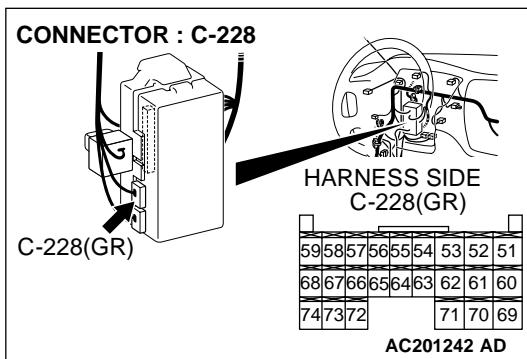
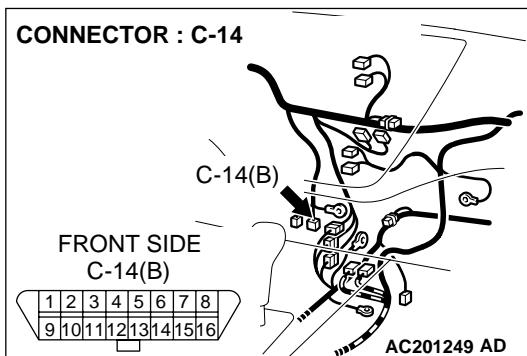
STEP 6. Check ETACS-ECU connector C-228 and data link connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

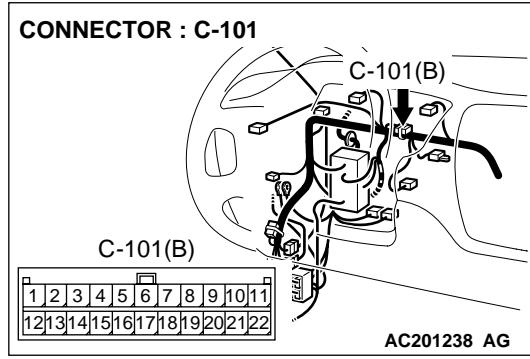
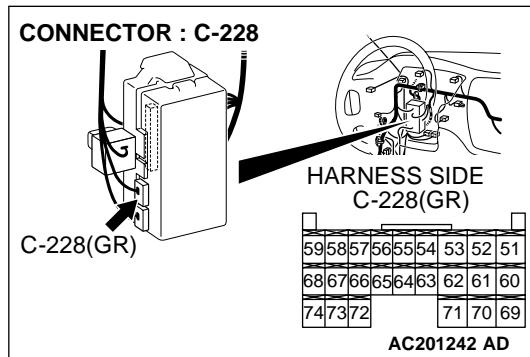
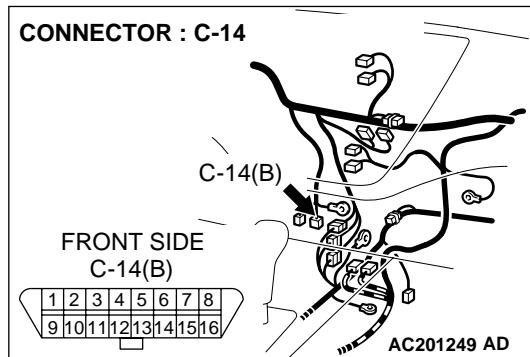
Q: Are ETACS-ECU connector C-228 and data link connector C-14 in good condition?

YES : Go to Step 7.

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

P.00E-2. The system should communicate with the SWS monitor kit normally.





STEP 7. Check the wiring harness between ETACS-ECU connector C-228 (terminal 51 and 67) and data link connector C-14 (terminal 9 and 1).

NOTE: Also check joint connector C-101 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-101 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 C-228 (terminal 51 and 67) and data link connector C-14 (terminal 9 and 1) in good condition?

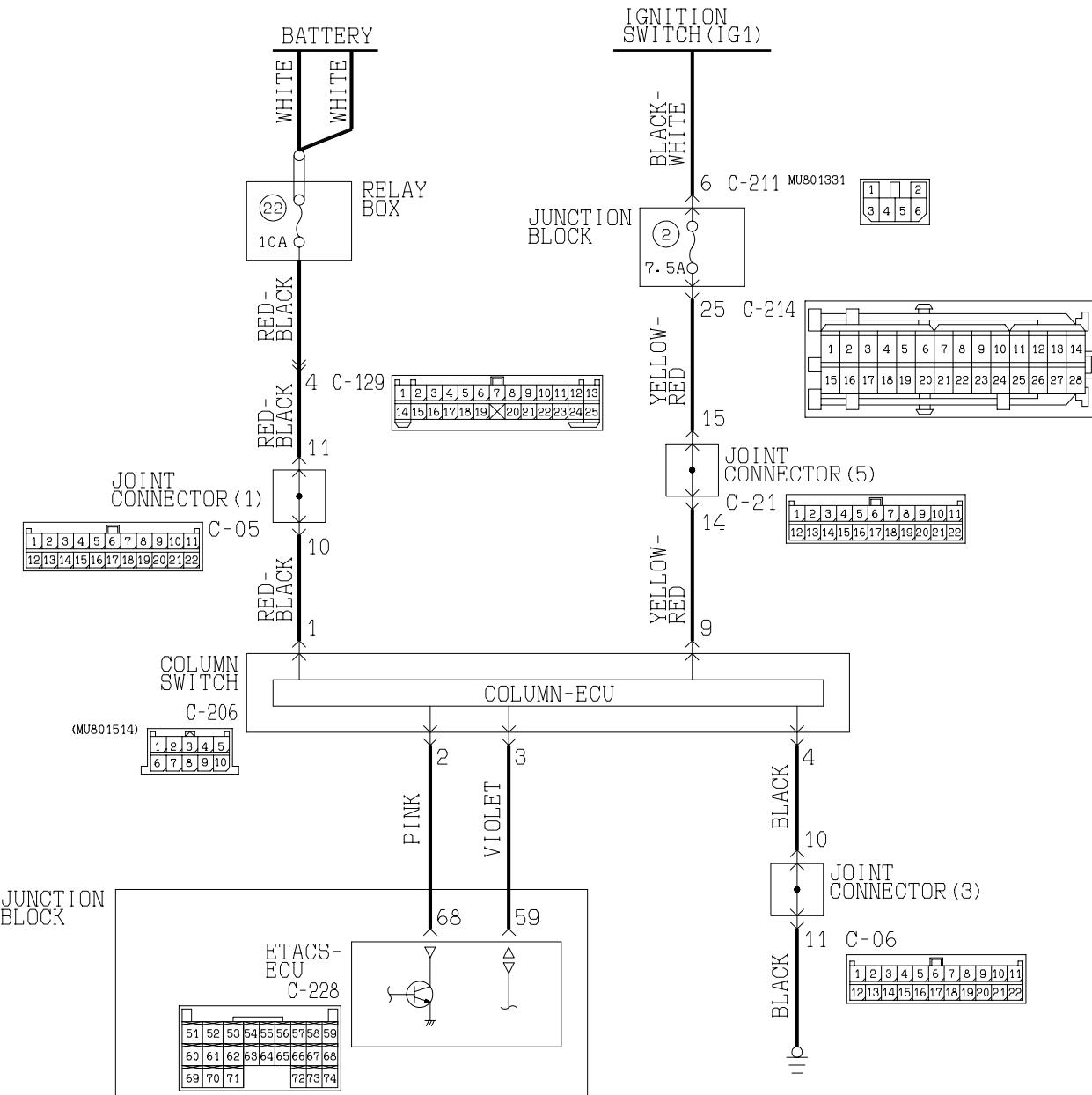
YES : Replace the ETACS-ECU. The system should communicate with the SWS monitor kit normally.

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. The system should communicate with the SWS monitor kit normally.

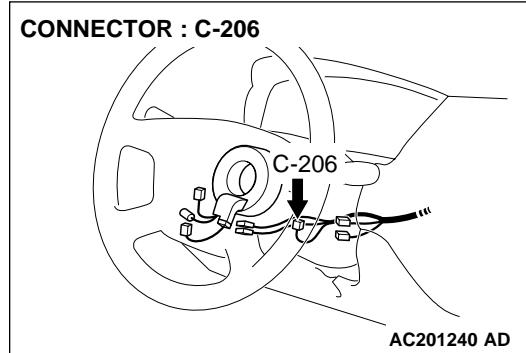
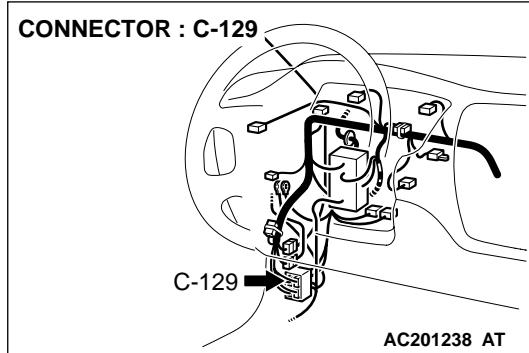
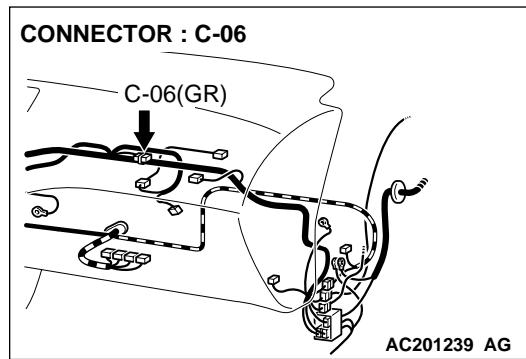
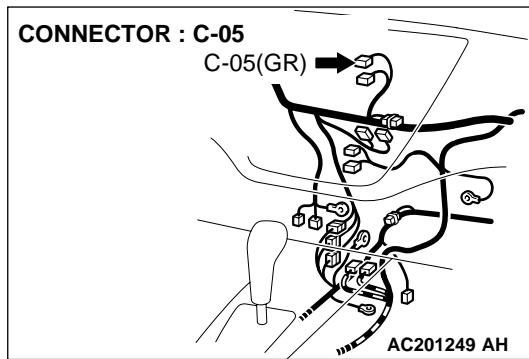
INSPECTION PROCEDURE A-2: Communication with the column switch (column-ECU) is not possible.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7.

Column Switch Power Supply and SWS Communication Circuit



W3J01M06AA

**CIRCUIT OPERATION**

- The power supply to the column switch is provided by the battery and the ignition switch (IG1).
- If the power supply system from the battery is defective, the system operates by the power supply from the ignition switch (IG1).

TECHNICAL DESCRIPTION (COMMENT)

The power supply circuit to the column switch (column-ECU) may be defective. If the battery power supply circuit (terminal 1 of the column switch) to the ECU is damaged, also check the power supply circuit from the ignition switch (IG1) (terminal 9 of the column switch), and repair if necessary.

TROUBLESHOOTING HINTS

- The ETACS-ECU may be defective
- The column switch 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

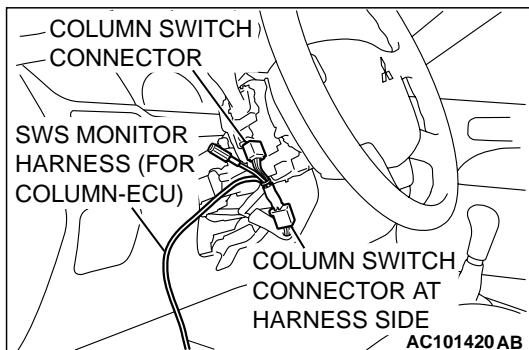
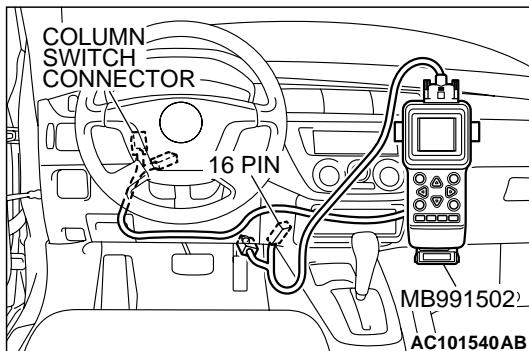
STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the following ECUs:

- ETACS-ECU
- Column-ECU

CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.



- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 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 MB991502 should show "OK" on the "ECU COMM CHK" menus for both the "ETACS ECU" and the "COLUMN ECU" menus.

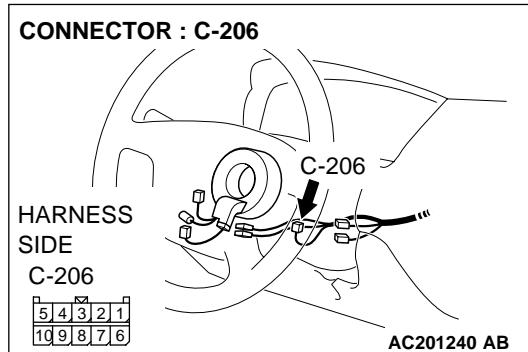
Q: Is "OK" displayed on both the "ETACS ECU" and "COLUMN ECU" menus?

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

"NG" is displayed on the "COLUMN ECU" menu : Go to Step 6.

"NG" is displayed on the "ETACS ECU" menu : Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is not possible [P.54Bb-22](#)."

"NG" are displayed for all the items : Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is not possible [P.54Bb-22](#)."

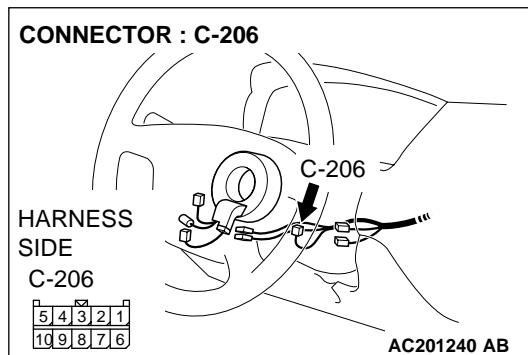


STEP 2. Check column switch connector C-206 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is column switch connector C-206 in good condition?

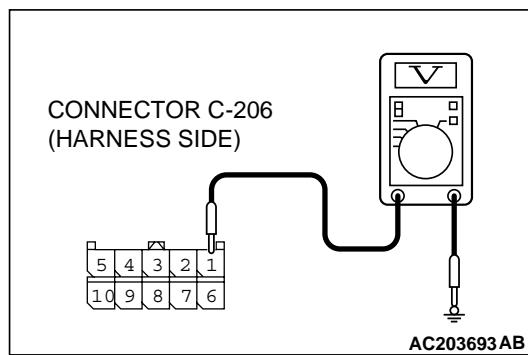
YES : Go to Step 3.

NO : Repair or replace the damaged component(s). The system should communicate with the column switch (column-ECU) normally.



STEP 3. Check the battery power supply circuit to the column switch. Test at column switch connector C-206.

(1) Column switch connector C-206 and measure the voltage available at the wiring harness side of the connector.



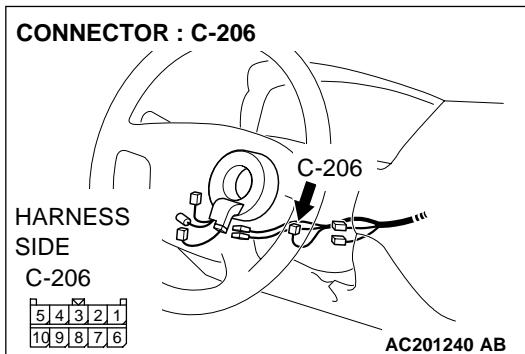
(2) Measure the voltage between terminal 1 and ground by backprobing.

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

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

YES : Go to Step 6.

NO : Go to Step 4.



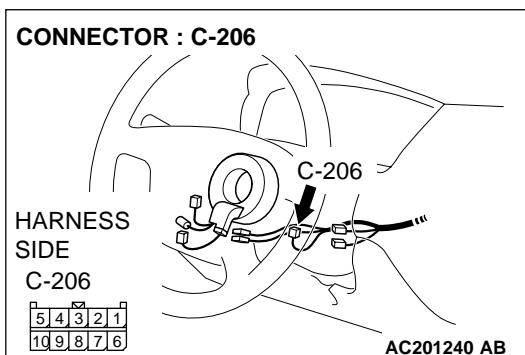
STEP 4. Check column switch connector C-206 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is column switch connector C-206 in good condition?

YES : Go to Step 5.

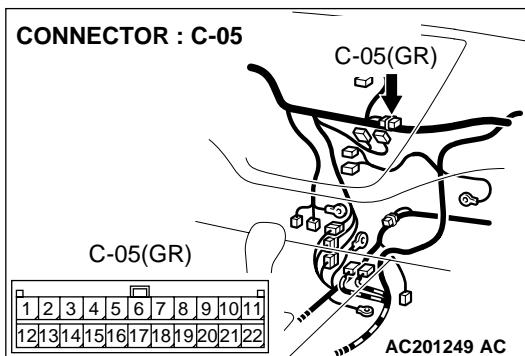
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

P.00E-2. The system should communicate with the column switch (column-ECU) normally.



STEP 5. Check the wiring harness between column switch connector C-206 (terminal 1) and the battery.

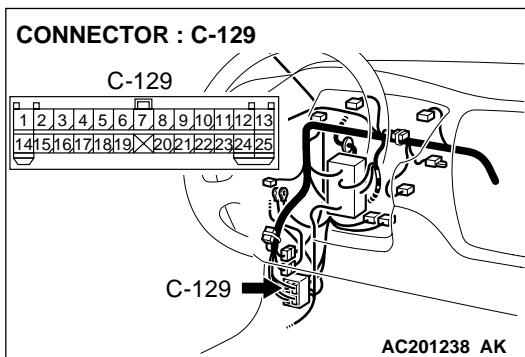
NOTE: Also check joint connector C-05 and intermediate connector C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-05 or intermediate connectors C-129 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection **P.00E-2.**

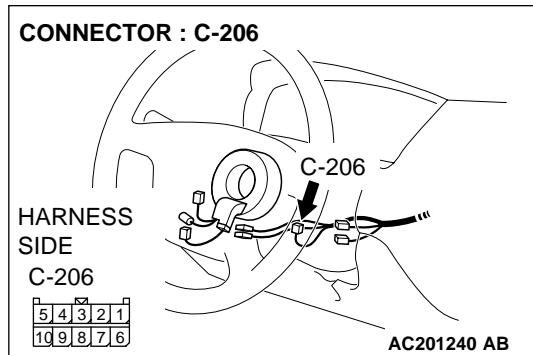
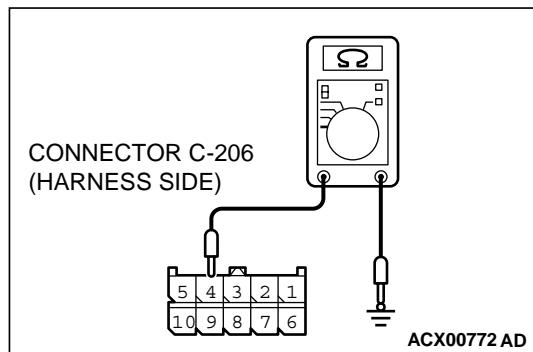
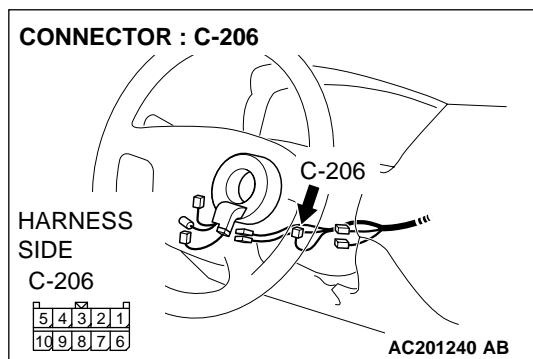


Q: Is the wiring harness between column switch connector C-206 (terminal 1) and the battery in good condition?

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. The system should communicate with the column switch (column-ECU) normally.





**STEP 6. Check the ground circuit to the column switch.
Test at column switch connector C-206.**

(1) Disconnect column switch connector C-206 and measure the resistance available at the 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 9.

NO : Go to Step 7.

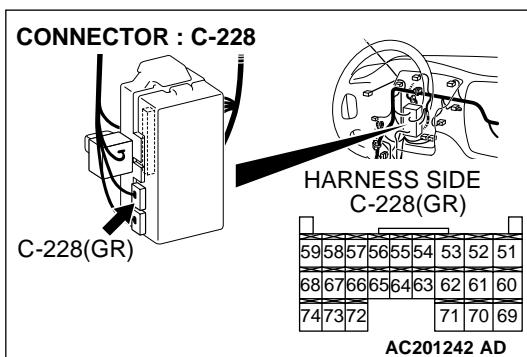
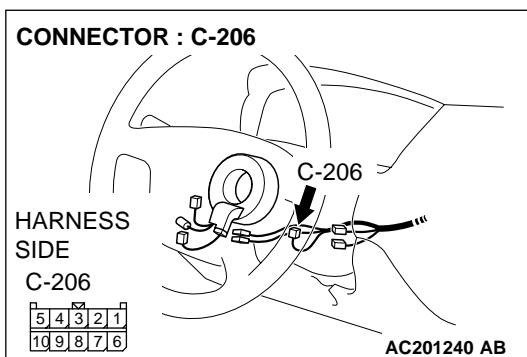
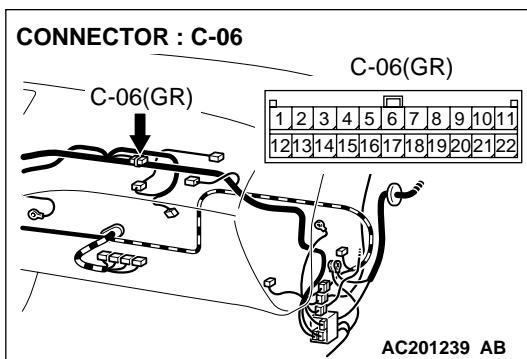
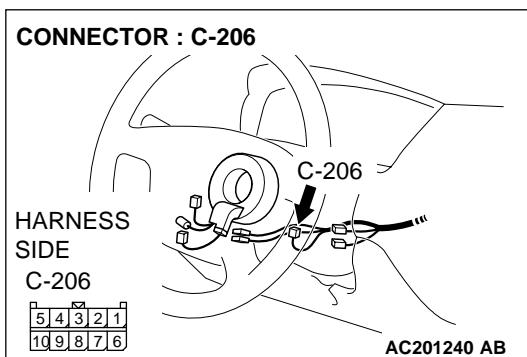
STEP 7. Check column switch connector C-206 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is column switch connector C-206 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. The system should communicate with the column switch (column-ECU) normally.



STEP 8. Check the wiring harness between column switch connector C-206 (terminal 4) and the ground.

NOTE: Also check joint connector C-06 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-06 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 column switch connector C-206 (terminal 4) and the ground in good condition?

YES : No action is necessary and testing is complete.

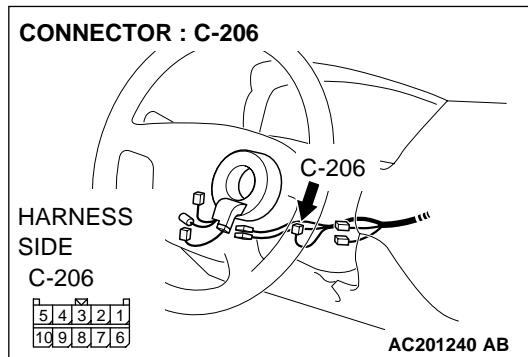
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The system should communicate with the column switch (column-ECU) normally.

STEP 9. Check column switch connector C-206 and ETACS-ECU connector C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are column switch connector C-206 and ETACS-ECU connector C-228 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](#). The system should communicate with the column switch (column-ECU) normally.

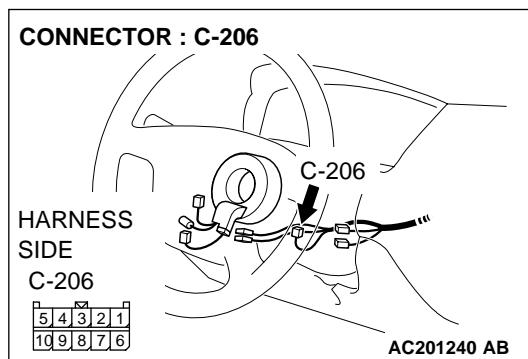
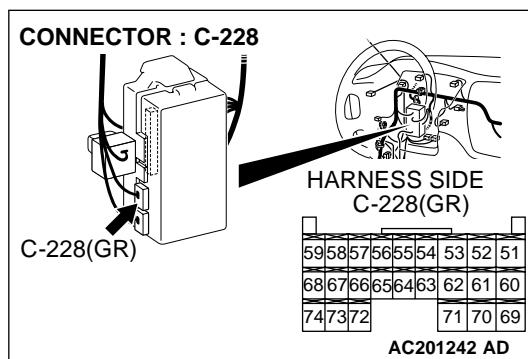


STEP 10. Check the wiring harness between column switch connector C-206 (terminal 3) and ETACS-ECU connector C-228 (terminal 59).

Q: Is the wiring harness between column switch connector C-206 (terminal 3) and ETACS-ECU connector C-228 (terminal 59) 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. The system should communicate with the column switch (column-ECU) normally.



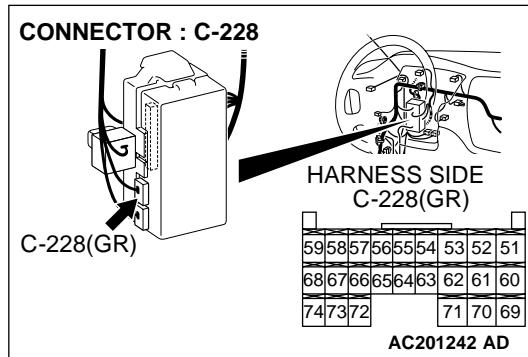
STEP 11. Check column switch connector C-206 and ETACS-ECU connector C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

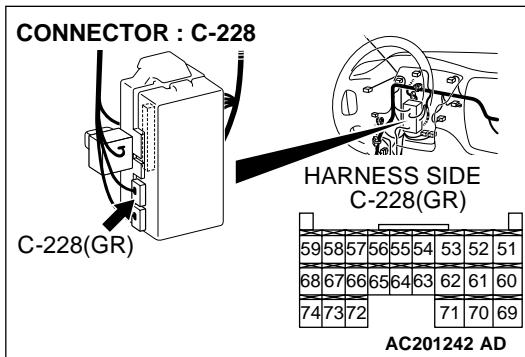
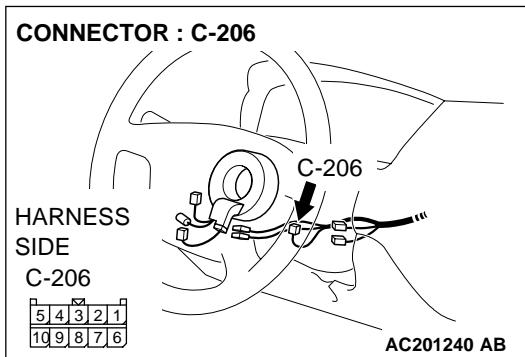
Q: Are column switch connector C-206 and ETACS-ECU connector C-228 in good condition?

YES : Go to Step 12.

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

[P.00E-2](#). The system should communicate with the column switch (column-ECU) normally.





STEP 12. Check the wiring harness between column switch connector C-206 (terminal 2) and ETACS-ECU connector C-228 (terminal 68).

Q: Is the wiring harness between column switch connector C-206 (terminal 2) and ETACS-ECU connector C-228 (terminal 68) in good condition?

YES : Go to Step 13.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The system should communicate with the column switch (column-ECU) normally.

STEP 13. Replace the ECU.

(1) Replace the column switch.

(2) The system should communicate with the column switch (column-ECU) normally.

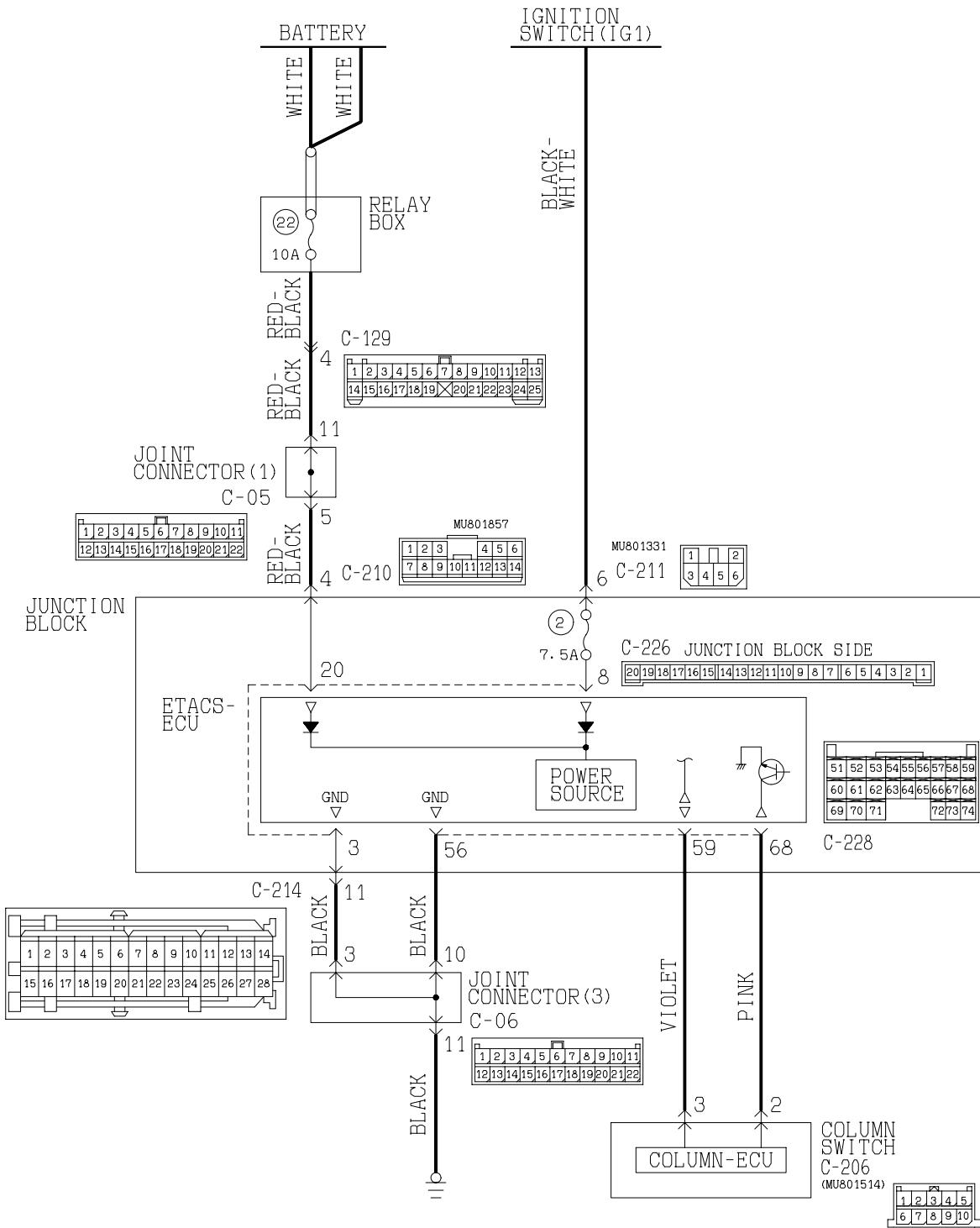
Q: Can the system communicate with the column switch (column-ECU)?

YES : No action is necessary and testing is complete.

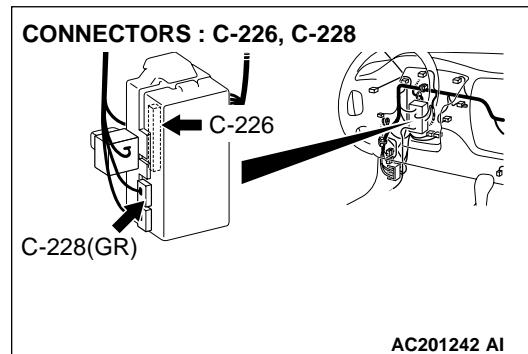
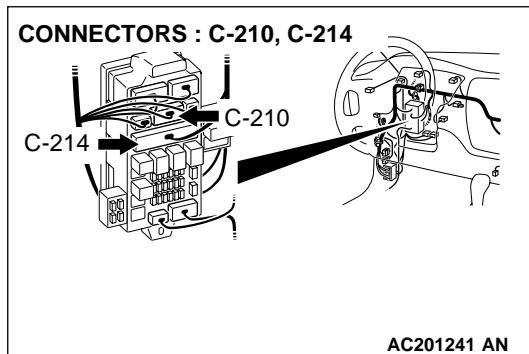
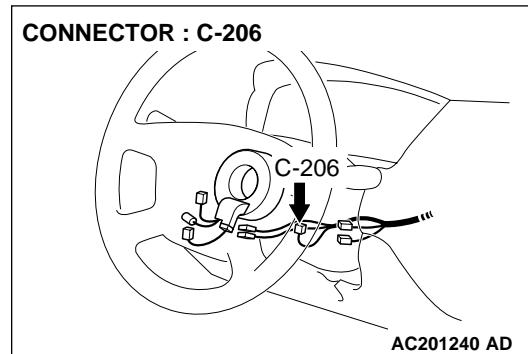
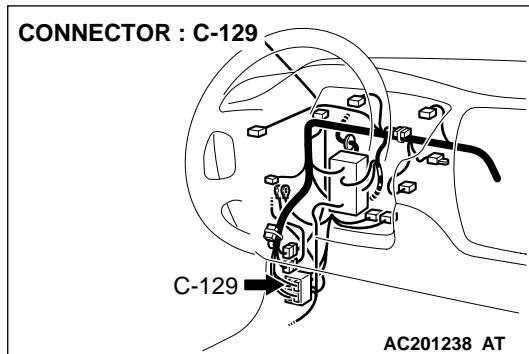
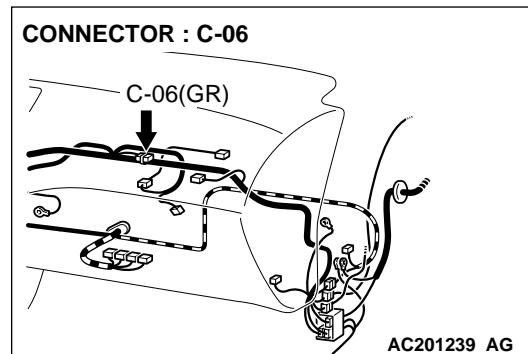
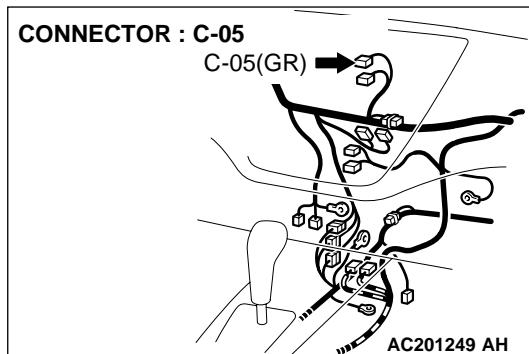
NO : Replace the ETACS-ECU. The system should communicate with the column switch (column-ECU) normally.

INSPECTION PROCEDURE A-3: Communication with the ETACS-ECU is not possible.

ETACS-ECU Power Supply and SWS Communication Circuit



W3J01M07AB



CIRCUIT OPERATION

- The power supply to the ETACS-ECU is provided by the battery and the ignition switch (IG1).
- If the power supply system from the battery is defective, the system operates by the power supply from the ignition switch (IG1).

TECHNICAL DESCRIPTION (COMMENT)

It is suspected that the power supply circuit to the ETACS-ECU is defective, or the wiring harness between the SWS monitor kit and the ETACS-ECU or their connector(s) is damaged. If the battery power supply circuit to the ECU (terminal 20 of the ETACS-

ECU) is damaged, also check the power supply circuit from the ignition switch (IG1) (terminal 8 of the ETACS-ECU), and repair if necessary. If the ground circuit to the ECU (terminal 3 of the ETACS-ECU) is damaged, also check the ground circuit to the sensor (terminal 56 of the ETACS-ECU), and repair if necessary.

TROUBLESHOOTING HINTS

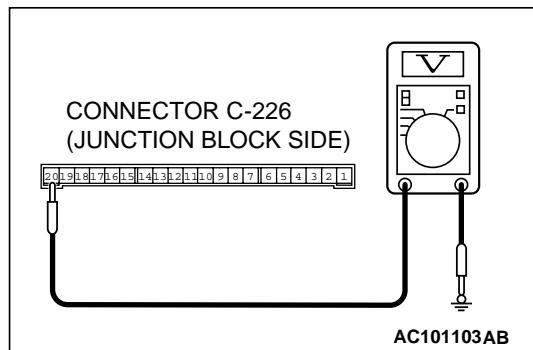
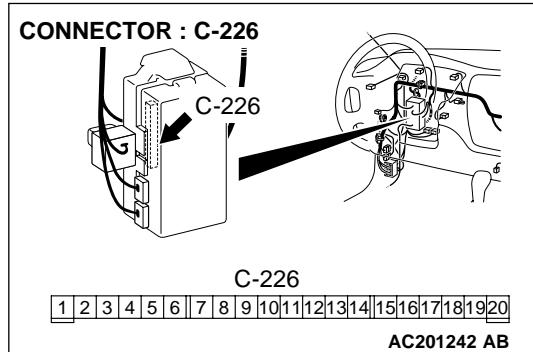
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

STEP 1. Check the battery power supply circuit to the ETACS-ECU. Test at ETACS-ECU connector C-226.

(1) Disconnect ETACS-ECU connector C-226 and measure the voltage available at the junction block side of the connector.



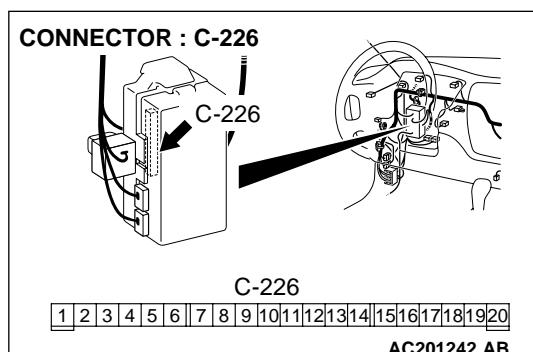
(2) Measure the voltage between terminal 20 and ground.

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

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

YES : Go to Step 4.

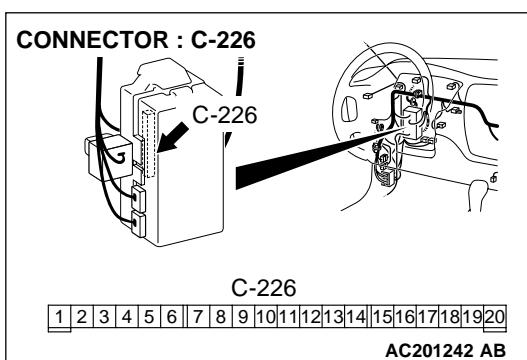
NO : Go to Step 2.

**STEP 2. Check ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

Q: Is ETACS-ECU connector C-226 in good condition?

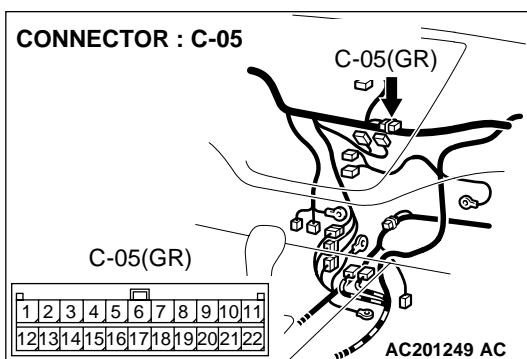
YES : Go to Step 3.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The system should communicate with the ETACS-ECU normally.



STEP 3. Check the wiring harness between ETACS-ECU connector C-226 (terminal 20) and the battery.

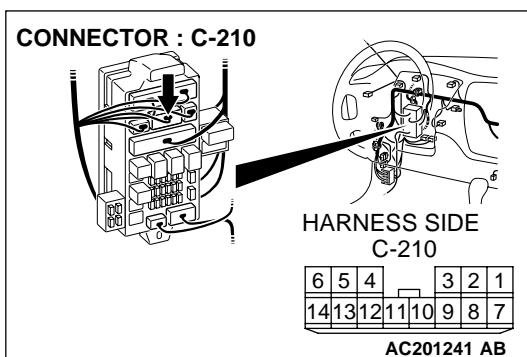
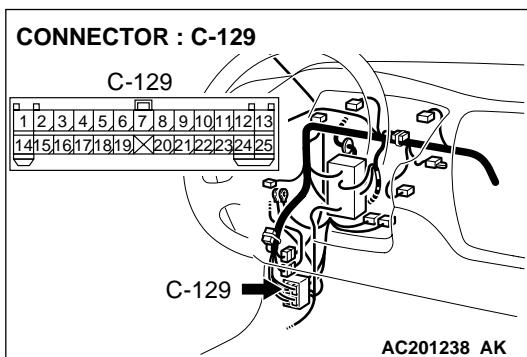
NOTE: Also check intermediate connector C-129, junction block connector C-210 and joint connector C-05 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-129, junction block connector C-210 or joint connectors C-05 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

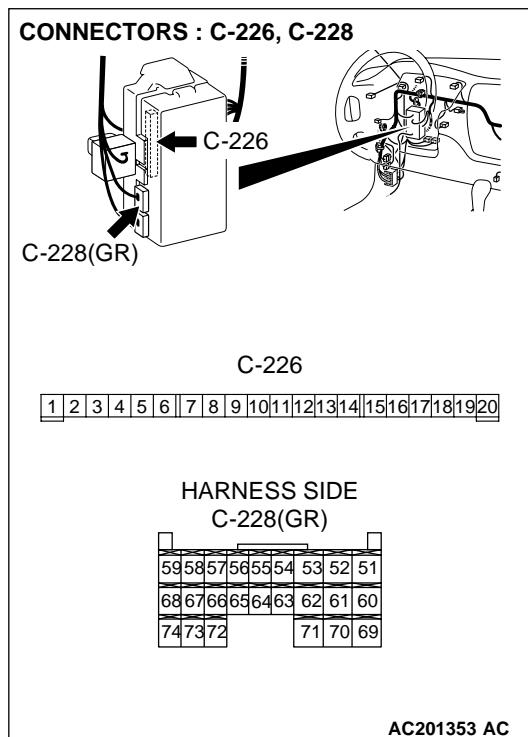
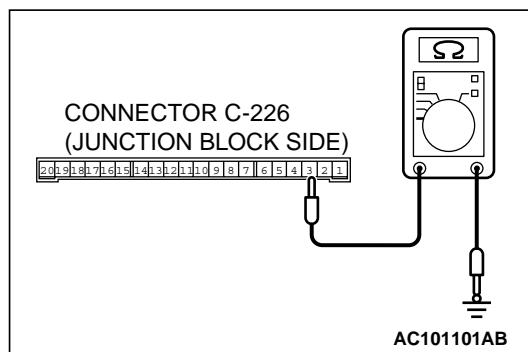
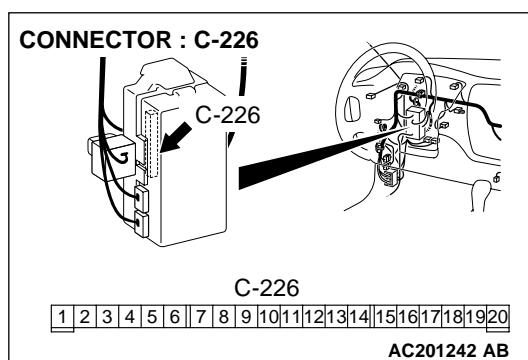


Q: Is the wiring harness between ETACS-ECU connector C-226 (terminal 20) and the battery in good condition?

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. The system should communicate with the ETACS-ECU normally.





STEP 4. Check the ground circuit to the ETACS-ECU. Test at ETACS-ECU connector C-226.

(1) Disconnect ETACS-ECU connector C-226 and measure the resistance available at the junction block 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 7.

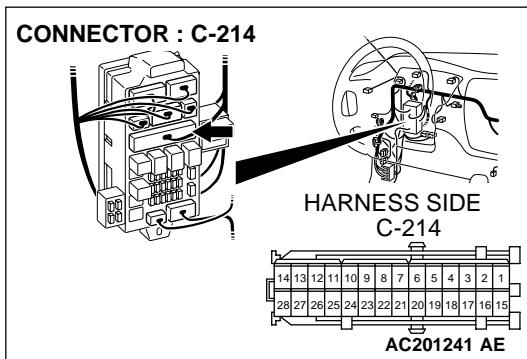
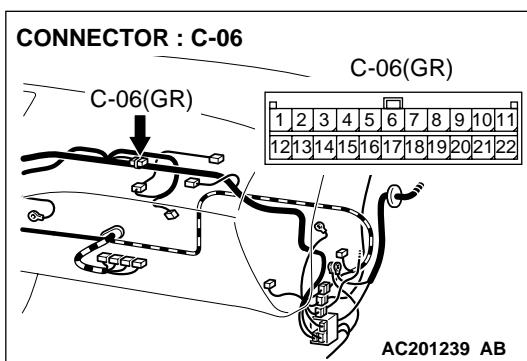
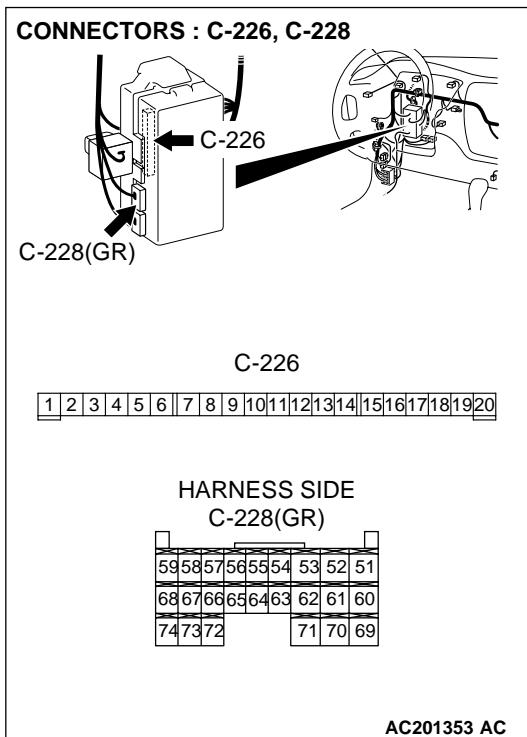
NO : Go to Step 5.

STEP 5. Check ETACS-ECU connector C-226 and C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-226 and C-228 in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The system should communicate with the ETACS-ECU normally.



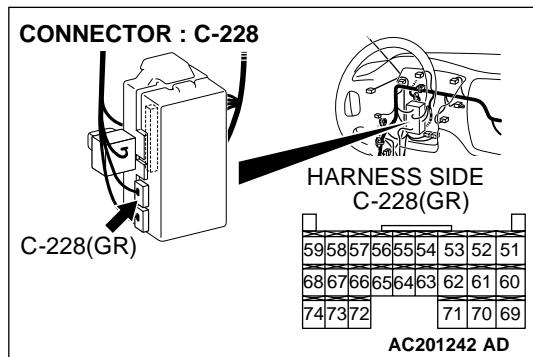
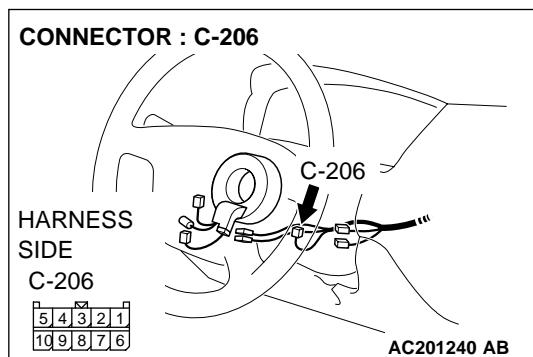
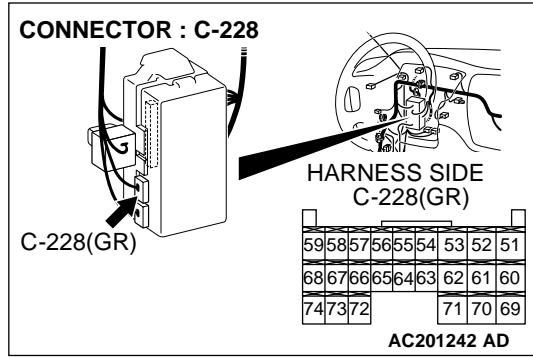
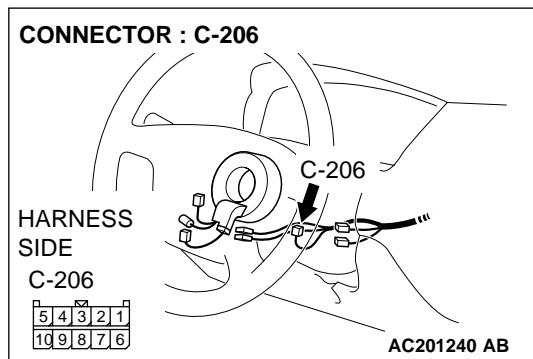
STEP 6. Check the wiring harness between ETACS-ECU connector C-226 (terminal 3) and ETACS-ECU connector C-228 (terminal 56) and the ground.

NOTE: Also check joint connector C-06 and junction block connector C-214 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-06 or junction block connector C-214 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 C-226 (terminal 3) and ETACS-ECU connector C-228 (terminal 56) and the 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. The system should communicate with the ETACS-ECU normally.



STEP 7. Check column switch connector C-206 and ETACS-ECU connector C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are column switch connector C-206 and ETACS-ECU connector C-228 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. The system should communicate with the column switch (column-ECU) normally.

STEP 8. Check the wiring harness between column switch connector C-206 (terminal 2) and ETACS-ECU connector C-228 (terminal 68).

Q: Is the wiring harness between column switch connector C-206 (terminal 2) and ETACS-ECU connector C-228 (terminal 68) 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. The system should communicate with the column switch (column-ECU) normally.

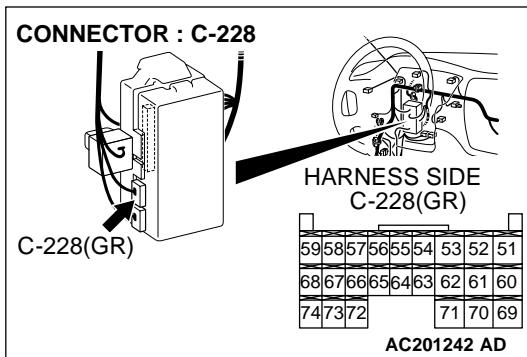
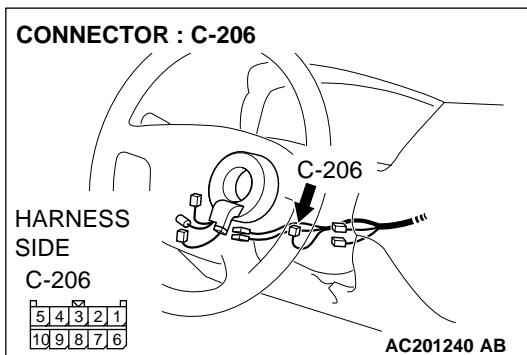
STEP 9. Check column switch connector C-206 and ETACS-ECU connector C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are column switch connector C-206 and ETACS-ECU connector C-228 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](#). The system should communicate with the ETACS-ECU normally.

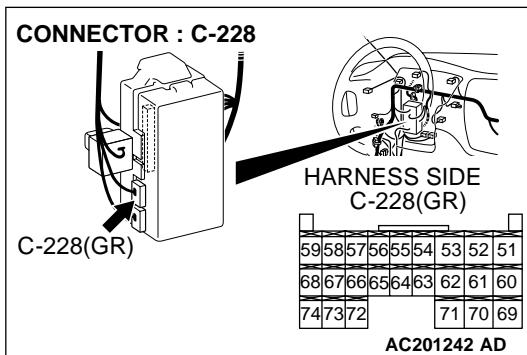
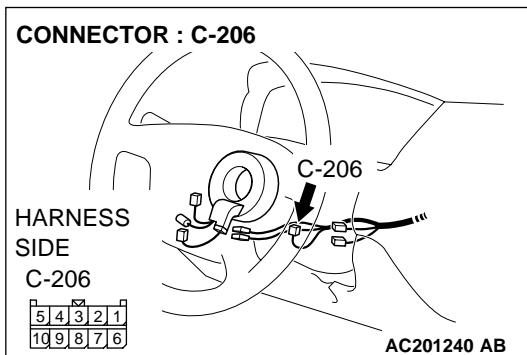


STEP 10. Check the wiring harness between column switch connector C-206 (terminal 3) and ETACS-ECU connector C-228 (terminal 59).

Q: Is the wiring harness between column switch connector C-206 (terminal 3) and ETACS-ECU connector C-228 (terminal 59) in good condition?

YES : Replace the ETACS-ECU. The system should communicate with the ETACS-ECU normally.

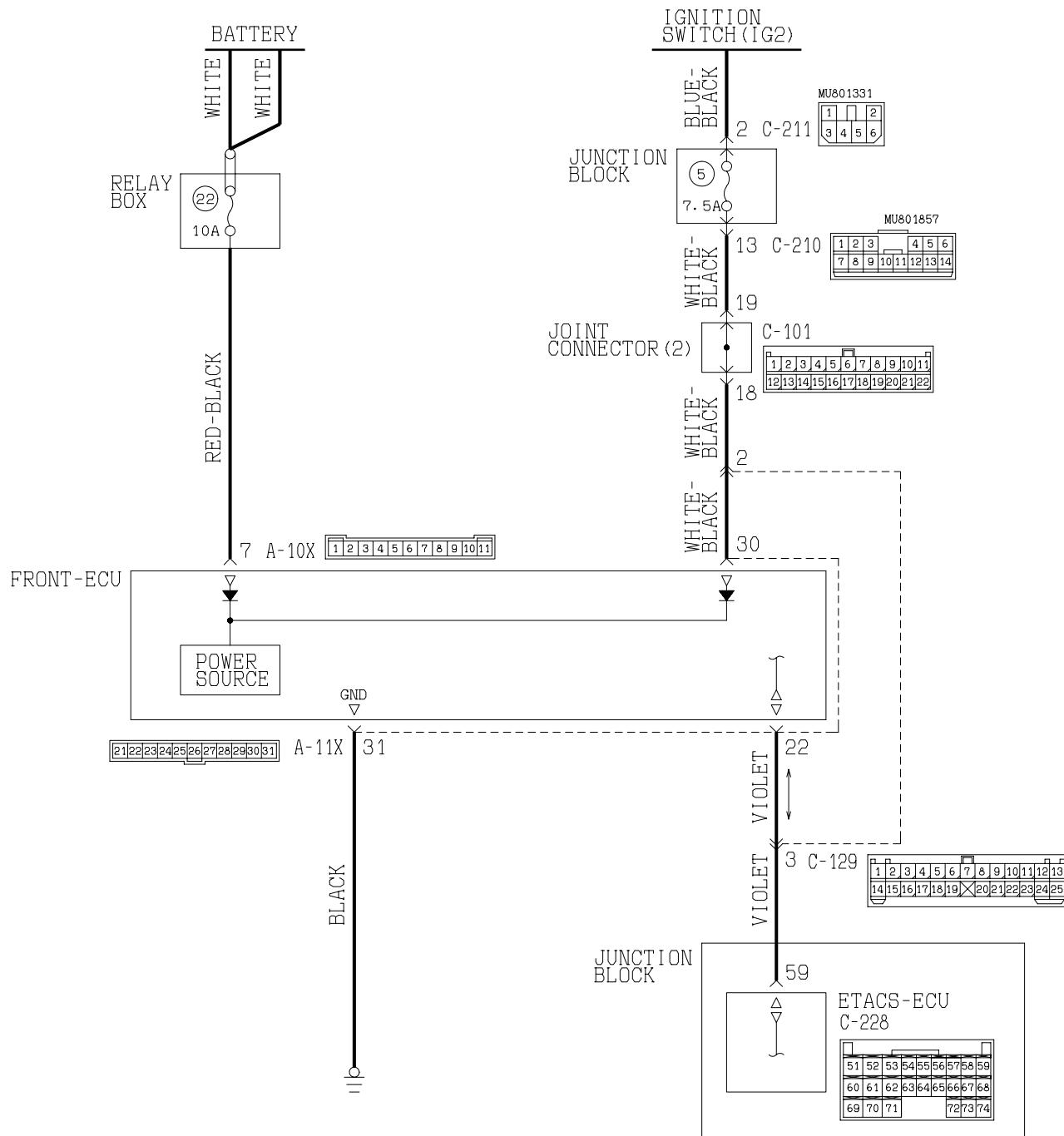
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The system should communicate with the ETACS-ECU normally.

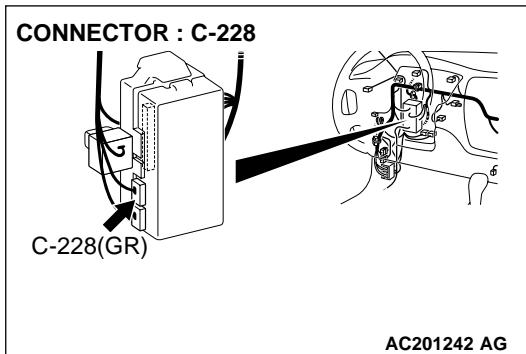
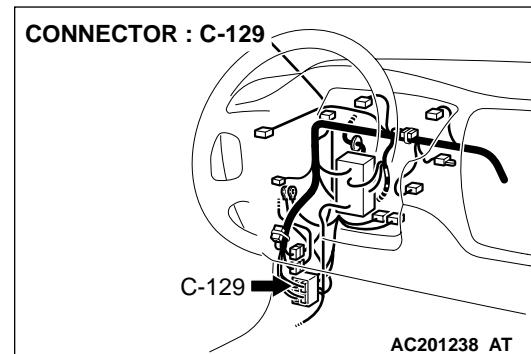
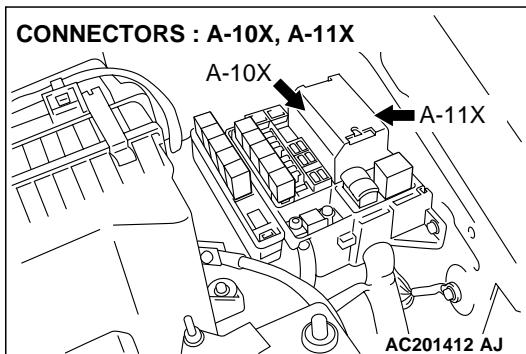


INSPECTION PROCEDURE A-4: Communication with the front-ECU is not possible.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Front-ECU Power Supply and SWS Communication Circuit





CIRCUIT OPERATION

- The power supply to the front-ECU is provided by the battery and the ignition switch (IG2).
- If the power supply system from the battery is defective, the system operates by the power supply from the ignition switch (IG2).

TECHNICAL DESCRIPTION (COMMENT)

It is suspected that the power supply circuit to the front-ECU is defective, or the wiring harness between the SWS monitor kit and the front-ECU or their connector(s) is damaged. If the battery power supply circuit to the ECU (terminal 7 of the front-ECU) is damaged, also check the power supply circuit from the ignition switch (IG2) (terminal 30 of the front-ECU), and repair if necessary.

TROUBLESHOOTING HINTS

- 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the ETACS-ECU.

CAUTION

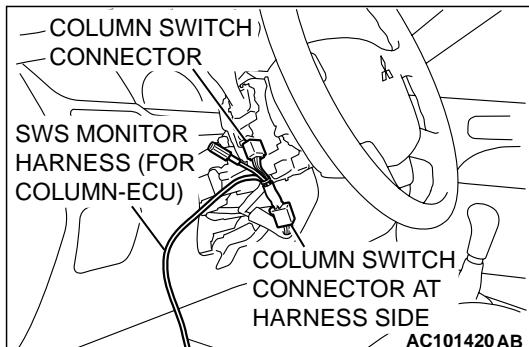
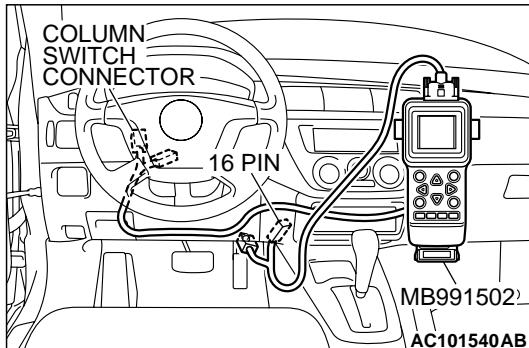
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

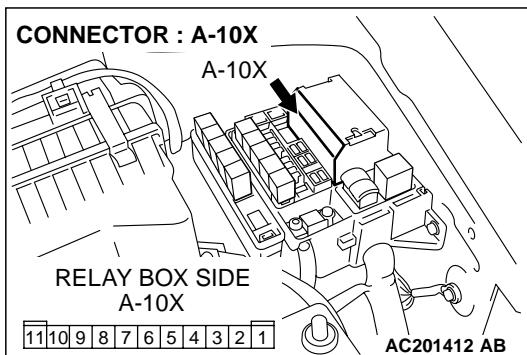
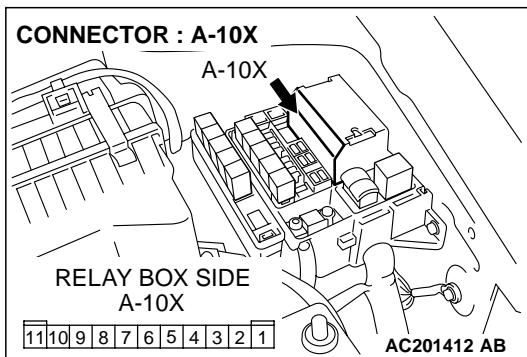
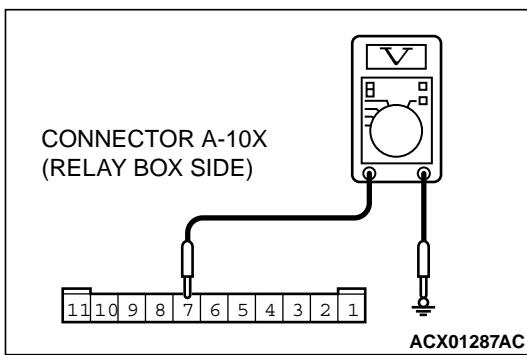
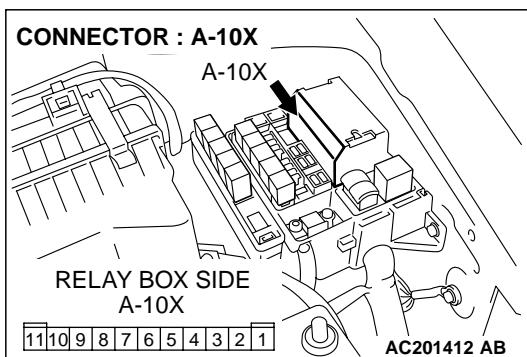
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 according to the procedure below to display "ECU COMM CHK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK."
- (5) Scan tool MB991502 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.54Bb-22](#)."





STEP 2. Check the battery power supply circuit to the front-ECU. Test at front-ECU connector A-10X.

(1) Disconnect front-ECU connector A-10X and measure the voltage available at the relay box side of the connector.

(2) Measure the voltage between terminal 7 and ground.

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

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

- YES :** Go to Step 5.
NO : Go to Step 3.

STEP 3. Check the front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

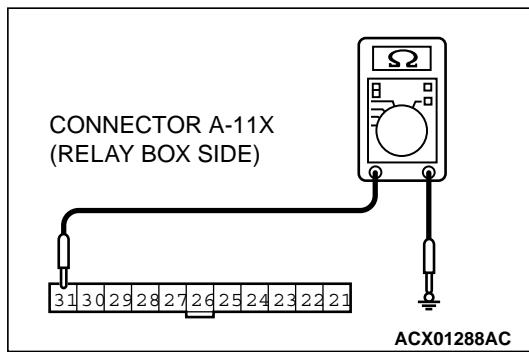
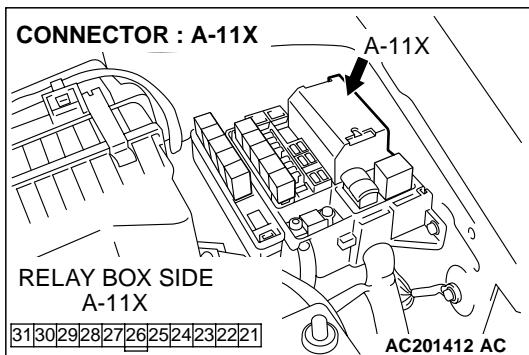
Q: Is the front-ECU connector A-10X in good condition?

- YES :** Go to Step 4.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The system should communicate with the front-ECU normally.

STEP 4. Check the wiring harness between front-ECU connector A-10X (terminal 7) and the battery.

Q: Is the wiring harness between front-ECU connector A-10X (terminal 7) 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. The system should communicate with the front-ECU normally.



STEP 5. Check the ground circuit to the front-ECU. Test at front-ECU connector A-11X.

(1) Disconnect front-ECU connector A-11X and measure the resistance available at the relay box side of the connector.

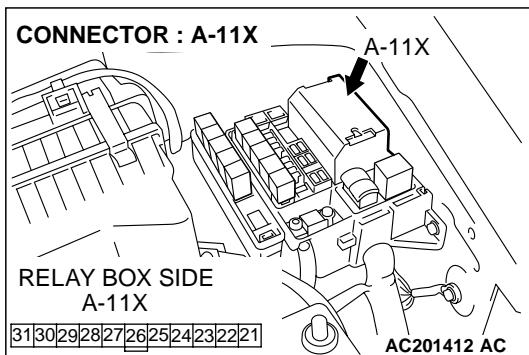
(2) Measure the resistance value between terminal 31 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 8.

NO : Go to Step 6.



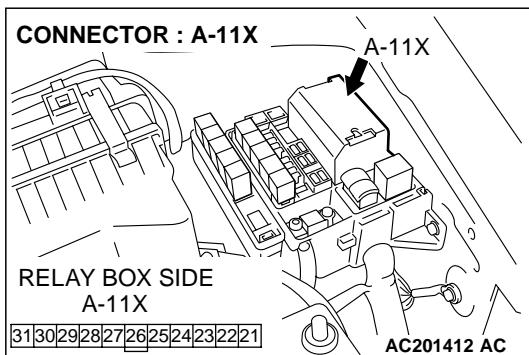
STEP 6. Check the front-ECU connector A-11X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front-ECU connector A-11X 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](#). The system should communicate with the front-ECU normally.



STEP 7. Check the wiring harness between front-ECU connector A-11X (terminal 31) and the ground.

Q: Is the wiring harness between front-ECU connector A-11X (terminal 31) 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. The system should communicate with the front-ECU normally.

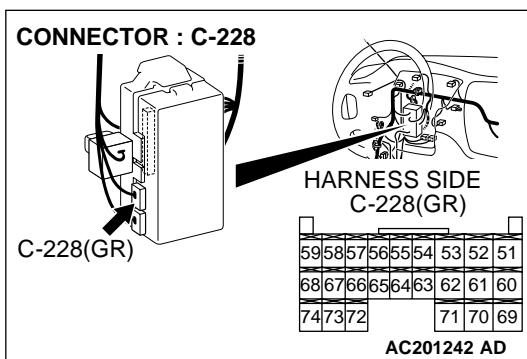
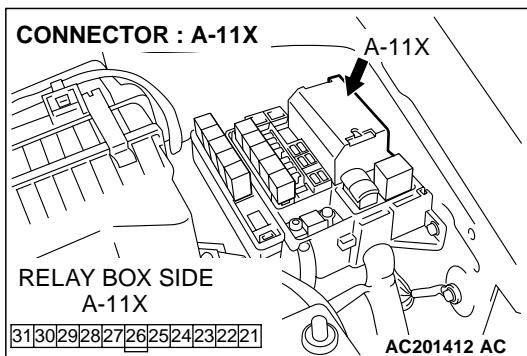
STEP 8. Check the front-ECU connector A-11X and ETACS-ECU connector C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

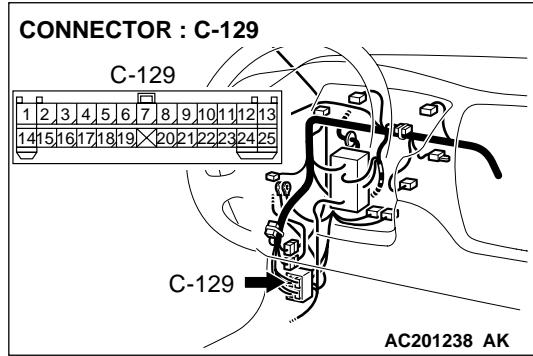
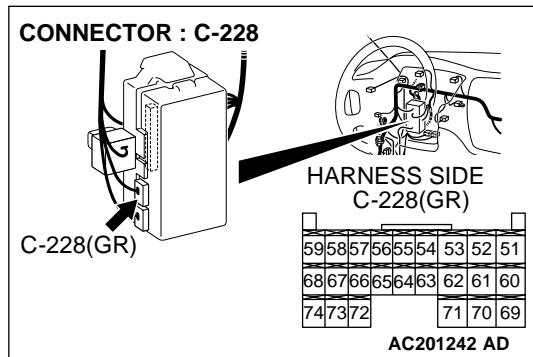
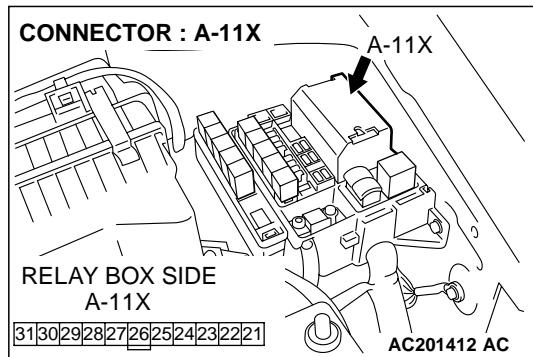
Q: Are front-ECU connector A-11X and ETACS-ECU connector C-228 in good condition?

YES : Go to Step 9.

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

P.00E-2. The system should communicate with the front-ECU normally.





STEP 9. Check the wiring harness between front-ECU connector A-11X (terminal 22) and ETACS-ECU connector C-228 (terminal 59).

NOTE: Also check intermediate connector C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-129 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-ECU connector A-11X (terminal 22) and ETACS-ECU connector C-228 (terminal 59) in good condition?

YES : Go to Step 10.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The system should communicate with the front-ECU normally.

STEP 10. Replace the ECU.

- (1) Replace the front-ECU.
- (2) The system should communicate with the front-ECU normally.

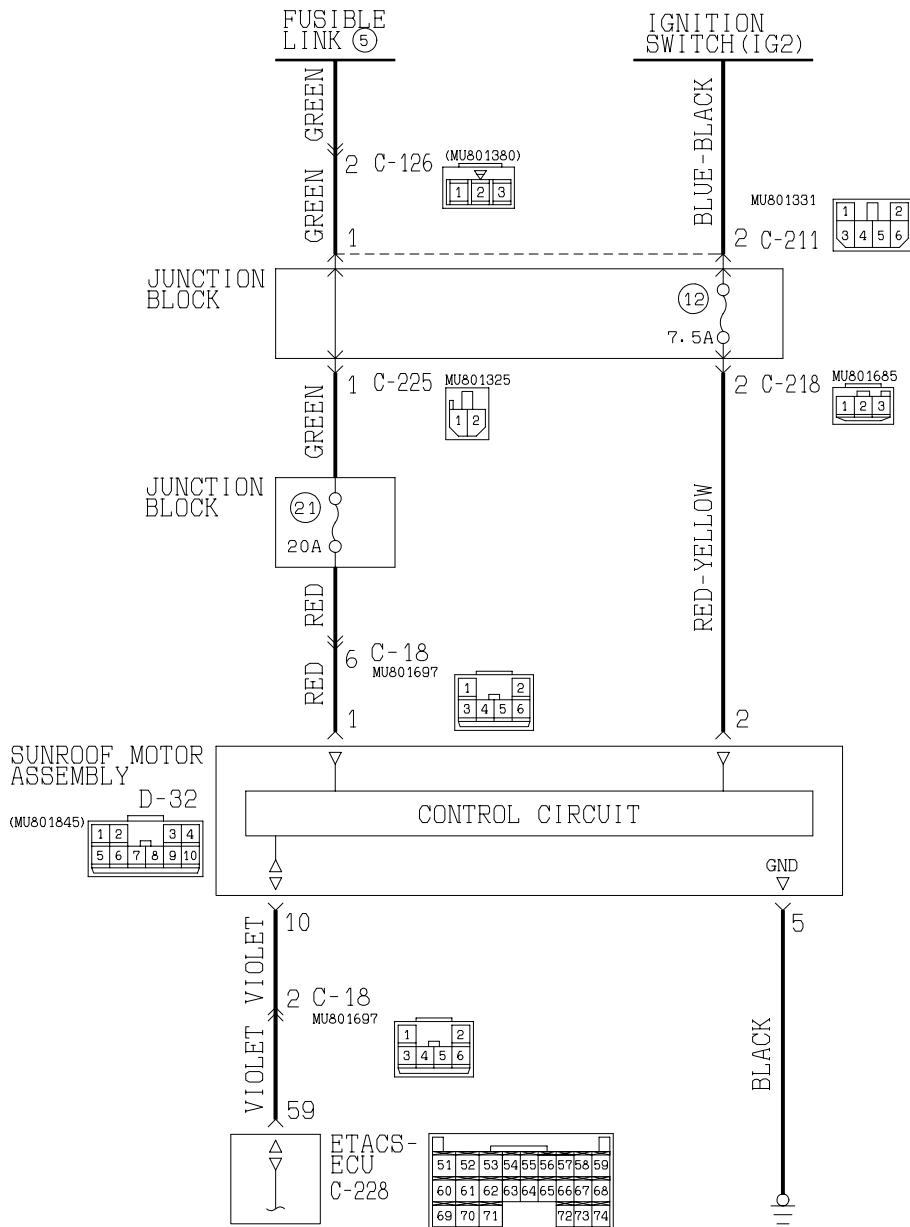
Q: Can the system communicate with the front-ECU?

YES : No action is necessary and testing is complete.

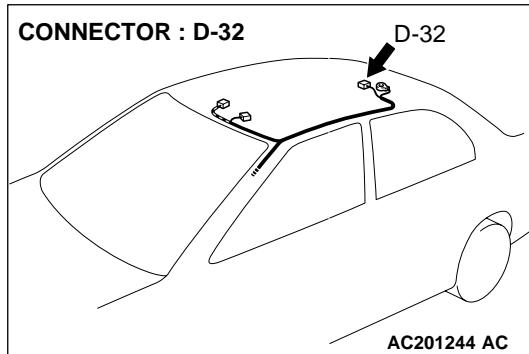
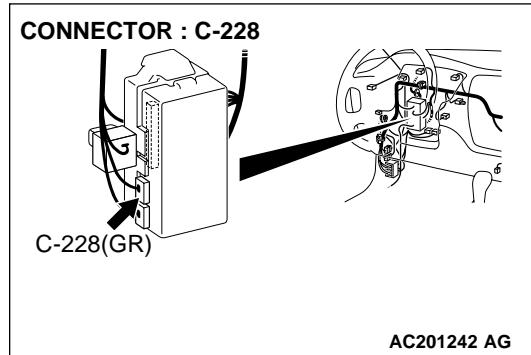
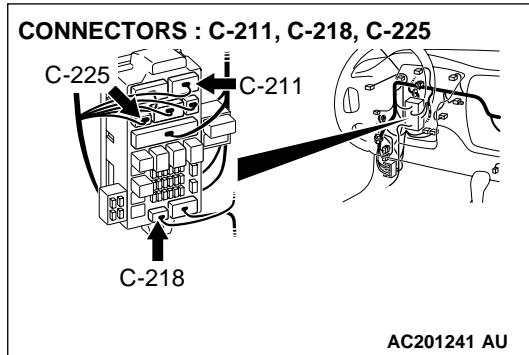
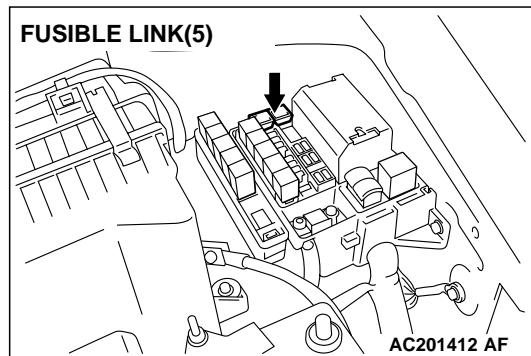
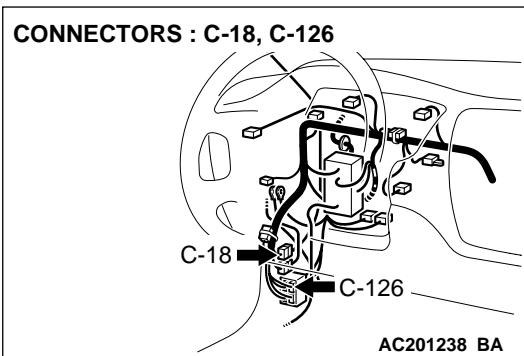
NO : Replace the ETACS-ECU. The system should communicate with the front-ECU normally.

INSPECTION PROCEDURE A-5: Communication with the sunroof motor assembly (sunroof-ECU) is not possible.

Sunroof Motor Power Supply and SWS Communication Circuit



W3J01M09AA



CIRCUIT OPERATION

- Power to the sunroof motor assembly is supplied through and fusible link (5).
- When the ignition switch (IG2) signal is on, the sunroof motor assembly is ready to operate.

TECHNICAL DESCRIPTION (COMMENT)

The power supply circuit or the communication circuit to the sunroof motor assembly or the sunroof motor assembly may be defective.

TROUBLESHOOTING HINTS

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

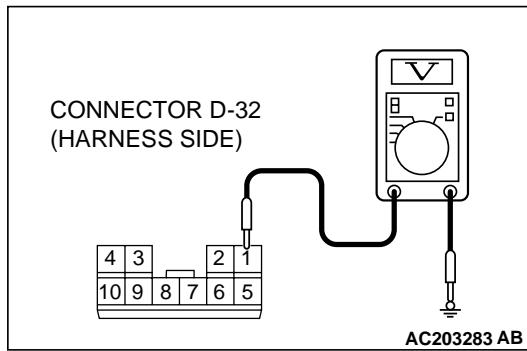
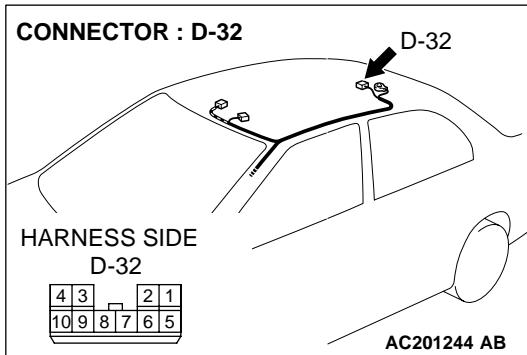
DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

STEP 1. Check the fusible link (5) line of power supply circuit to the sunroof motor assembly. Test at sunroof motor assembly connector D-32.

(1) Disconnect sunroof motor assembly connector D-32 and measure the voltage available at the wiring harness side of the connector.



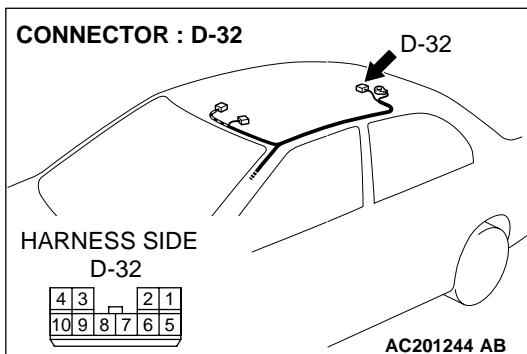
(2) Measure the voltage between terminal 1 and ground by backprobing.

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

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

YES : Go to Step 4.

NO : Go to Step 2.



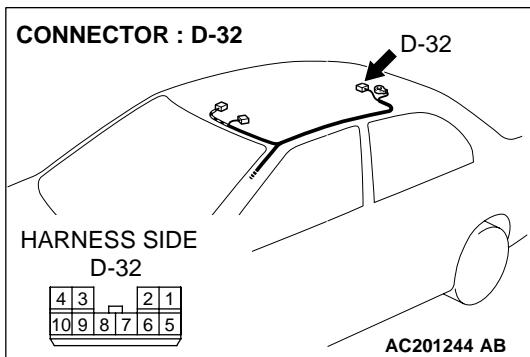
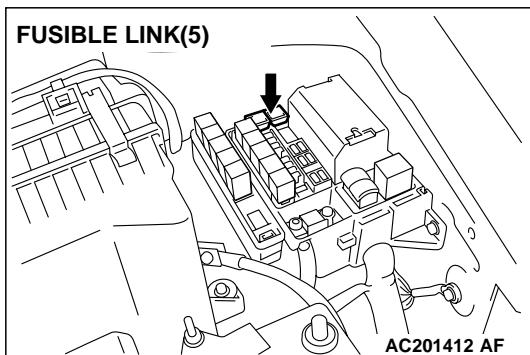
STEP 2. Check sunroof motor assembly connector D-32 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof motor assembly connector D-32 in good condition?

YES : Go to Step 3.

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

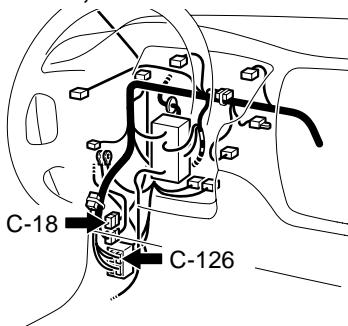
[P.00E-2](#). The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.



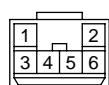
STEP 3. Check the wiring harness between sunroof motor assembly connector D-32 (terminal 1) and fusible link (5).

NOTE: Also check intermediate connectors C-18, C-126, junction block connectors C-211 and C-225 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-18, C-126, junction block connector C-211 or C-225 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

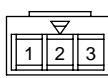
CONNECTORS : C-18, C-126



C-18



C-126



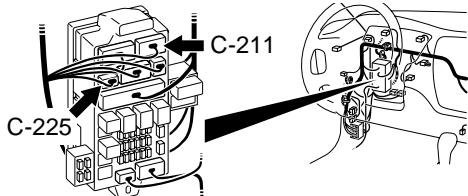
AC201348 AE

Q: Is the wiring harness between sunroof motor assembly connector D-32 (terminal 1) and fusible link (5) in good condition?

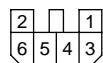
YES : No action is necessary and testing is complete.

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. The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.

CONNECTORS : C-211, C-225



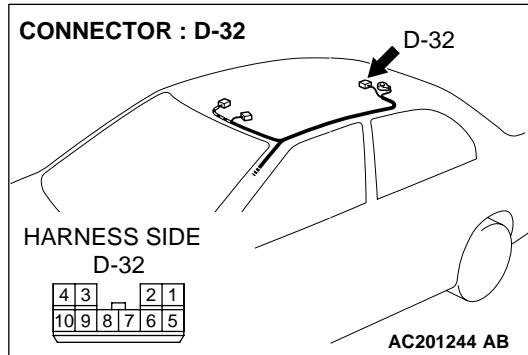
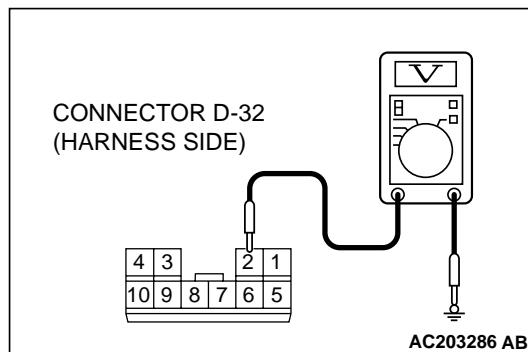
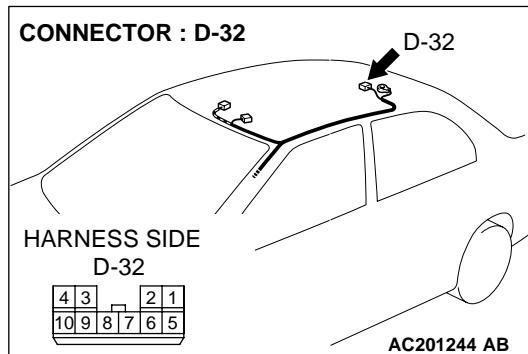
HARNESS SIDE
C-211



HARNESS SIDE
C-225



AC201352 AI



STEP 4. Check the ignition switch (IG2) circuit to the sunroof motor assembly. Test at sunroof motor assembly connector D-32.

- (1) Disconnect sunroof motor assembly connector D-32 and measure the voltage available at the wiring harness side of the connector.
- (2) Turn the ignition switch to the "ON" position.

(3) Measure the voltage between terminal 2 and ground by backprobing.

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

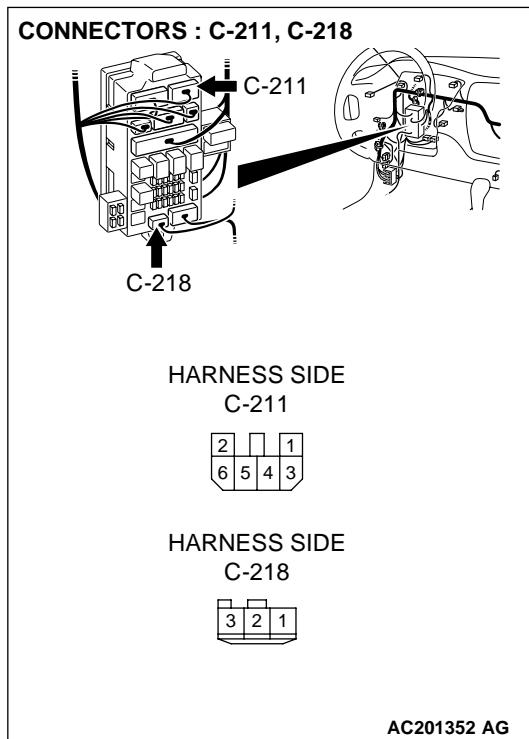
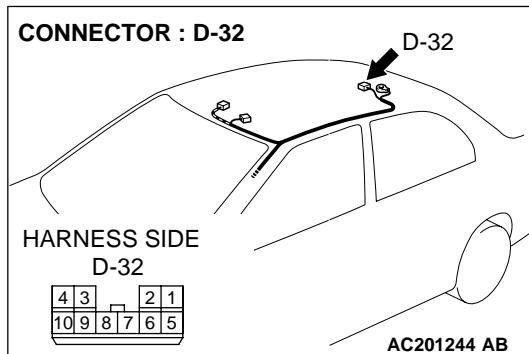
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

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

STEP 5. Check sunroof motor assembly connector D-32 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof motor assembly connector D-32 in good condition?

- YES :** Go to Step 6.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.



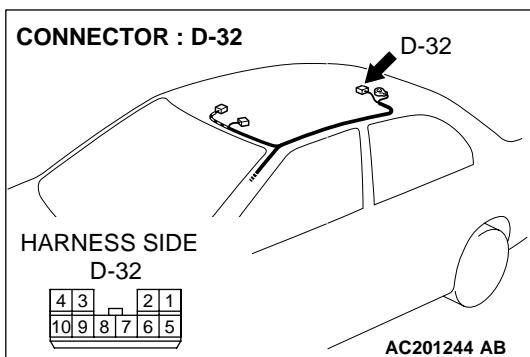
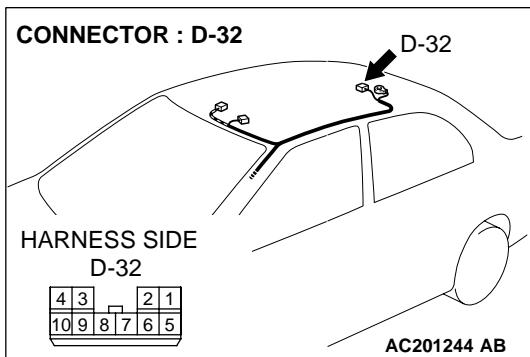
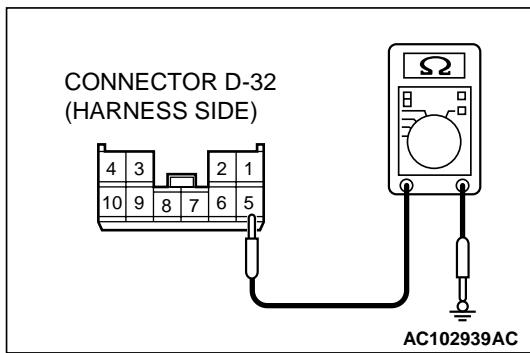
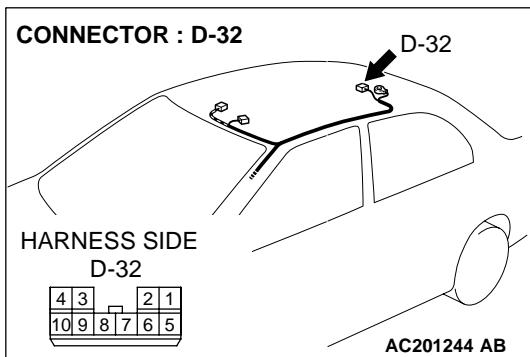
STEP 6. Check the wiring harness between sunroof motor assembly connector D-32 (terminal 2) and ignition switch (IG2).

NOTE: Also check junction block connectors C-211 and C-218 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-211 or C-218 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 sunroof motor assembly connector D-32 (terminal 2) and the ignition switch (IG2) 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. The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.



STEP 7. Check the ground circuit to the sunroof motor assembly. Test at sunroof motor assembly connector D-32.

(1) Disconnect sunroof motor assembly connector D-32 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 5 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 10.

NO : Go to Step 8.

STEP 8. Check sunroof motor assembly connector D-32 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof motor assembly connector D-32 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. The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.

STEP 9. Check the wiring harness between sunroof motor connector D-32 (terminal 5) and ground.

Q: Is the wiring harness between sunroof motor assembly connector D-32 (terminal 5) 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. The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.

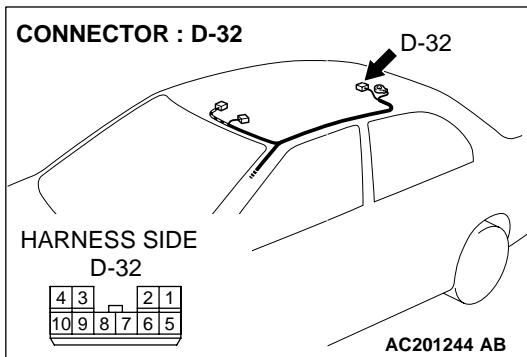
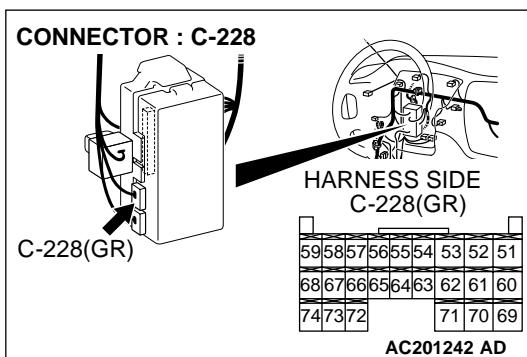
STEP 10. Check sunroof motor assembly connector D-32 and ETACS-ECU connector C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

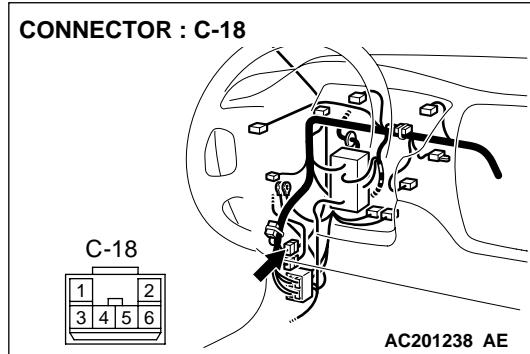
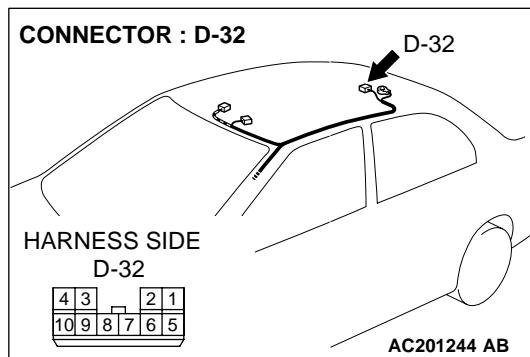
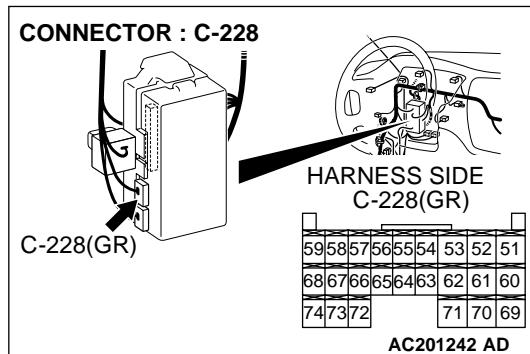
Q: Are sunroof motor assembly connector D-32 and ETACS-ECU connector C-228 in good condition?

YES : Go to Step 11.

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

P.00E-2. The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.





STEP 11. Check the wiring harness between sunroof motor assembly connector D-32 (terminal 10) and ETACS-ECU connector C-228 (terminal 59).

NOTE: Also check intermediate connector C-18 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-18 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 sunroof motor assembly connector D-32 (terminal 10) and ETACS-ECU connector C-228 (terminal 59) in good condition?

YES : Go to Step 12.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.

STEP 12. Replace the sunroof motor assembly.

- (1) Replace the sunroof motor assembly.
- (2) The system should communicate with the sunroof motor assembly normally.

Q: Can the system communicate with the sunroof motor assembly?

YES : No action is necessary and testing is complete.

NO : Replace the ETACS-ECU. The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.

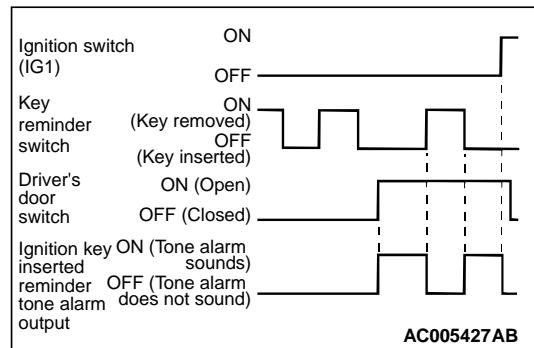
TONE ALARM

GENERAL DESCRIPTION THE CONCERNING TONE ALARM

M1549021000047

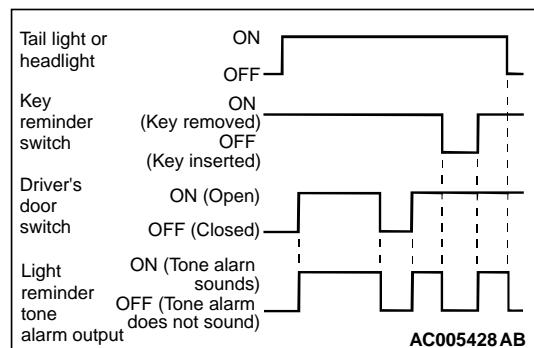
The ECU related to the alarm function types and various control functions are as follows.

FUNCTION	CONTROL ECU
Ignition key reminder tone alarm function	ETACS-ECU
Light reminder tone alarm function	ETACS-ECU, column switch
Seat belt tone alarm function	ETACS-ECU



Ignition key reminder tone alarm function

When the driver's door is opened with the ignition key inserted in the ignition key cylinder (ignition switch is in the OFF position,) the tone alarm sounds intermittently (horning sound) to indicate that the ignition key has not been removed.

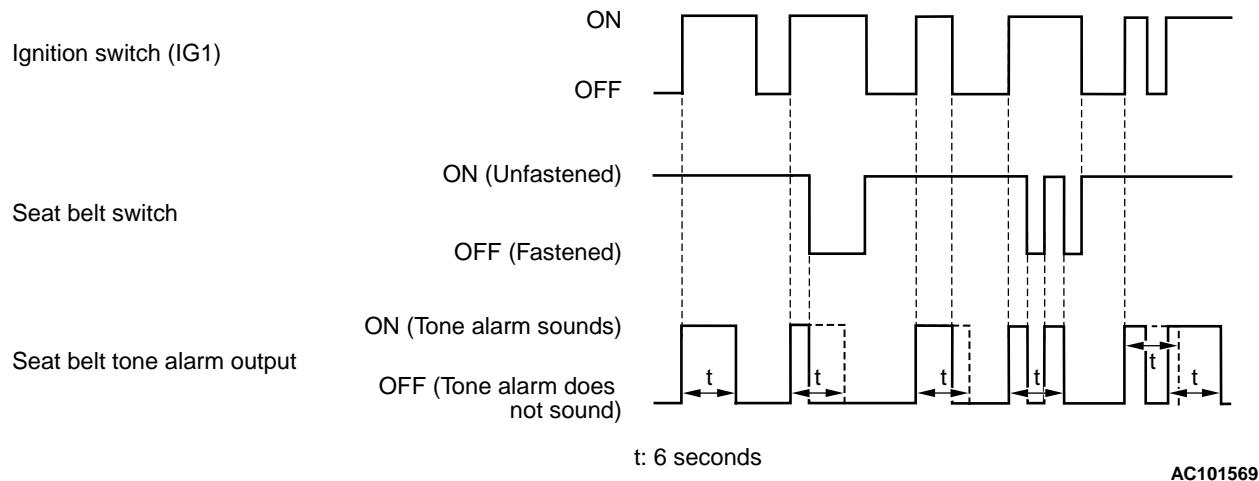
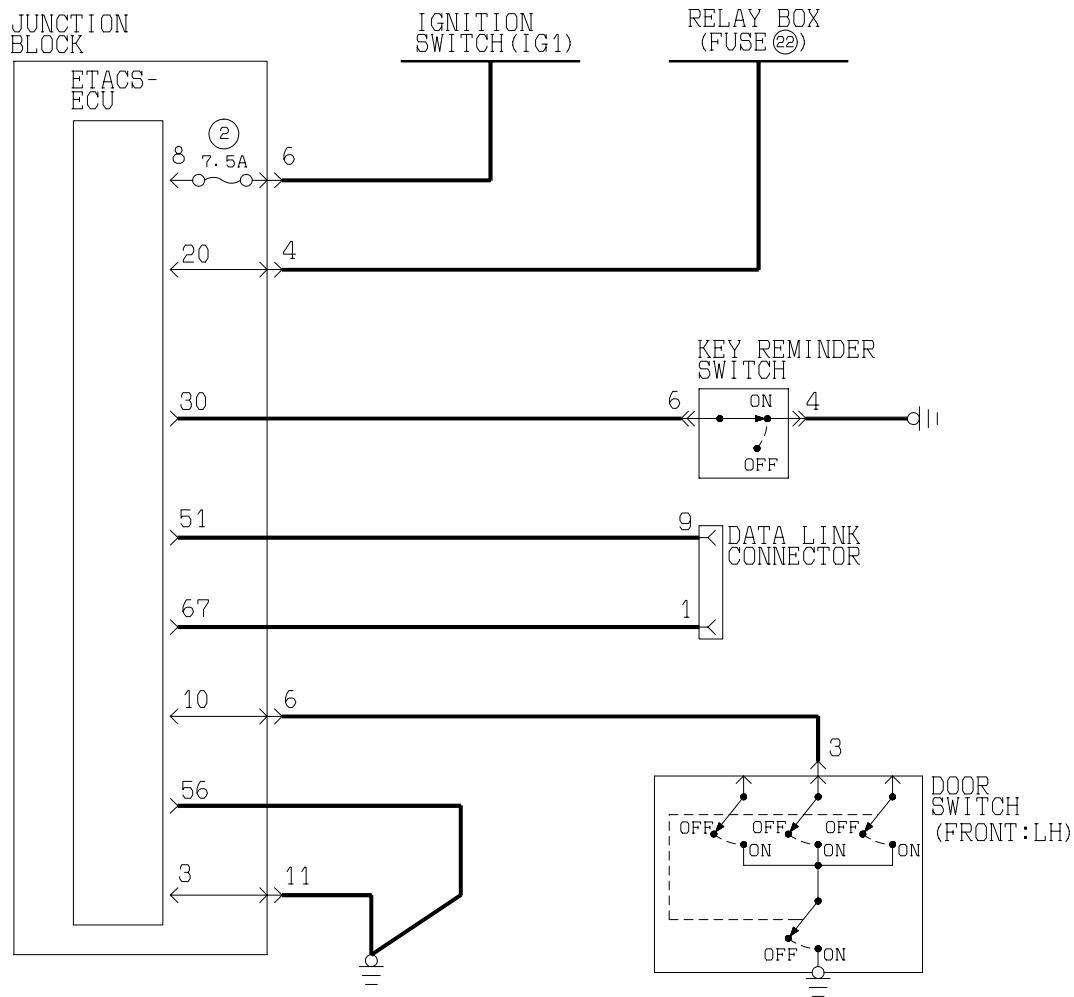


Light reminder tone alarm function

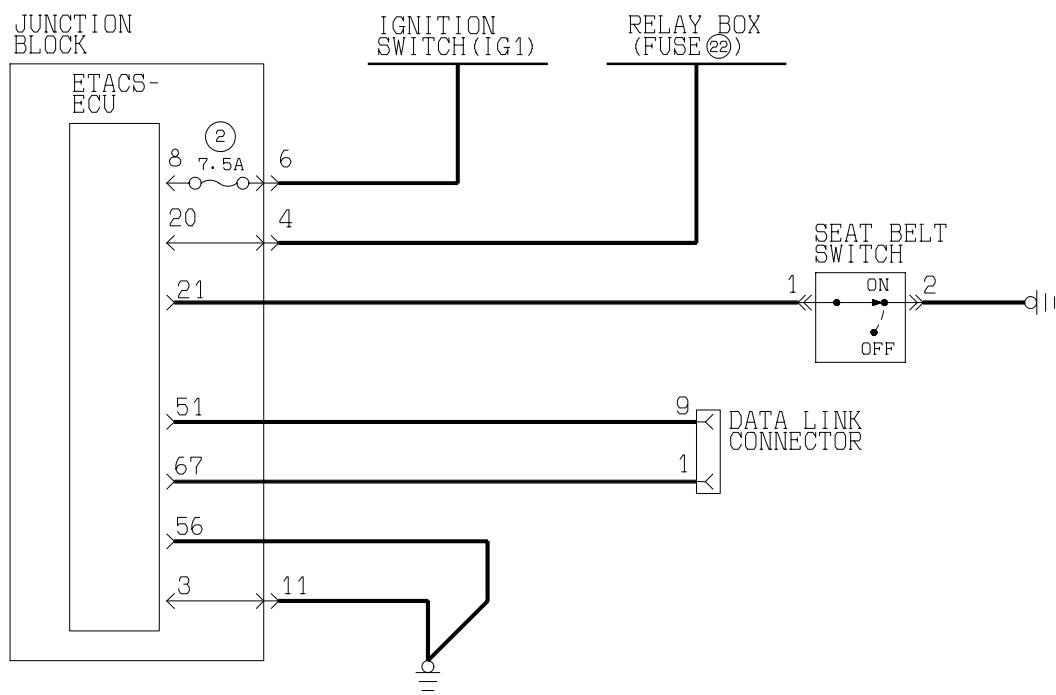
When the taillight or headlight is ON, if the ignition key is removed and the driver's door is opened, a tone alarm will sound continuously to warn that the light is illuminated. However, if the taillight or headlight has been turned off by the headlight automatic-shutdown function, the tone alarm will not sound.

Seat belt tone alarm function

When the ignition switch is turned to ON position without fastening the driver's seat belt (driver's seat belt switch off), the tone alarm will sound for approximately six seconds to warn the driver to fasten the seat belt. When the driver's seat belt are fastened or ignition switch is turned to OFF position, the tone alarm will stop sounding.

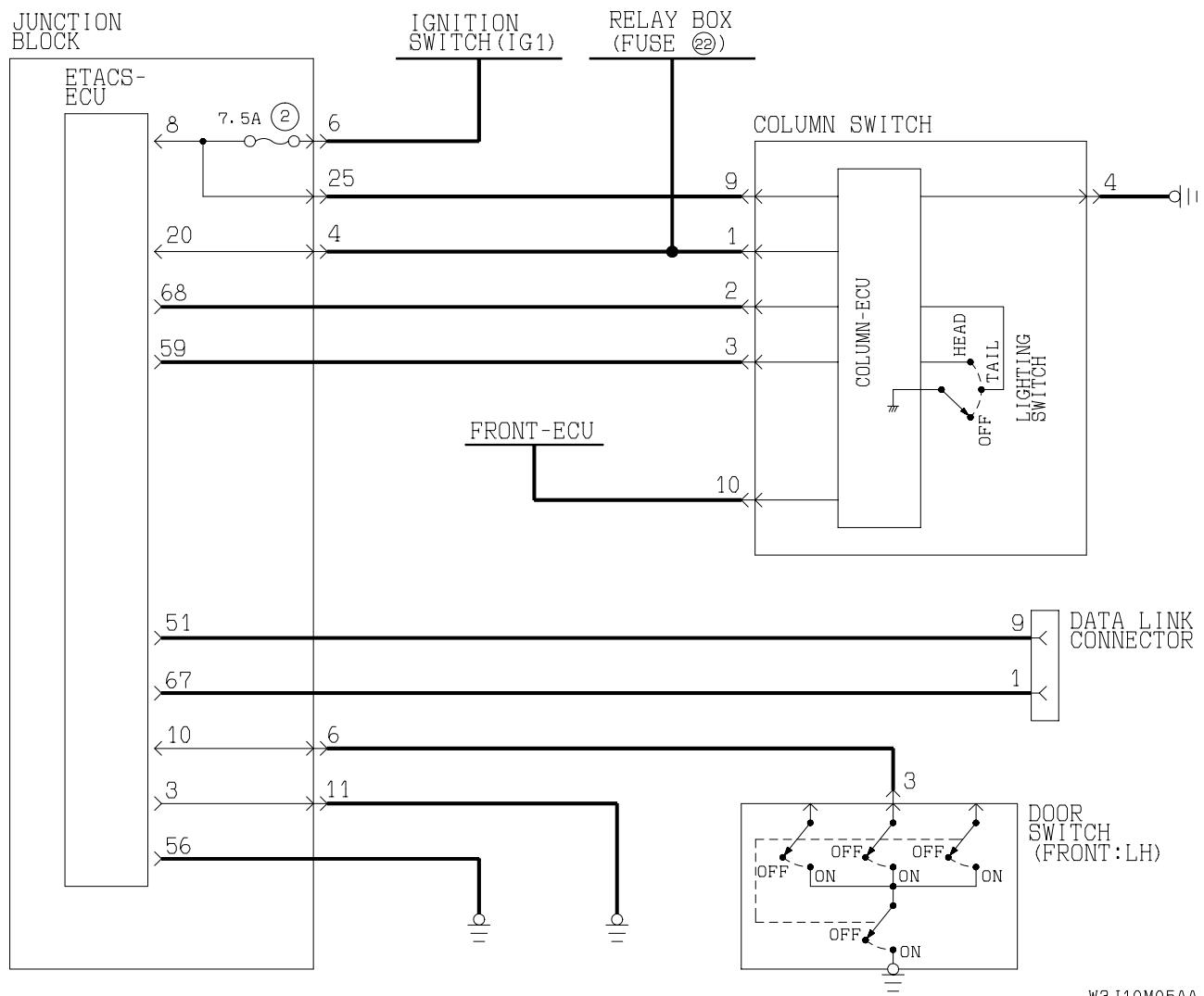
**General circuit diagram for the ignition key reminder tone alarm function**

General circuit diagram for the light reminder tone alarm function



W3J10M01AA

General circuit diagram for the seat belt tone alarm function

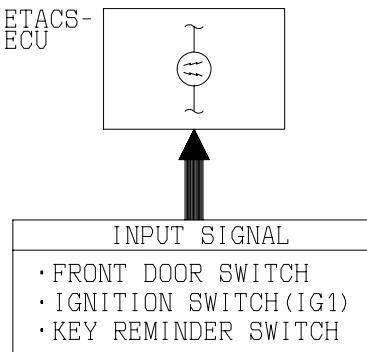


W3J10M05AA

INSPECTION PROCEDURE B-1: Tone Alarm: Ignition key reminder tone alarm function does not work normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Ignition Key Reminder Tone Alarm Function



W1Q15M06AA

CIRCUIT OPERATION

The ETACS-ECU operates the ignition key reminder tone alarm function (sounds the tone alarm intermittently), based on input signals from the following switches:

- Ignition switch (IG1): OFF
- Key reminder switch: OFF
- Driver's door switch: ON

The ETACS-ECU operates the ignition key reminder tone alarm function (sounds the tone alarm intermittently) if any of the following conditions are satisfied:

- Ignition switch: LOCK position (key inserted)
- Driver's door: OPEN

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- The key reminder switch may be defective
- The front door switches 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the ETACS-ECU.

 CAUTION

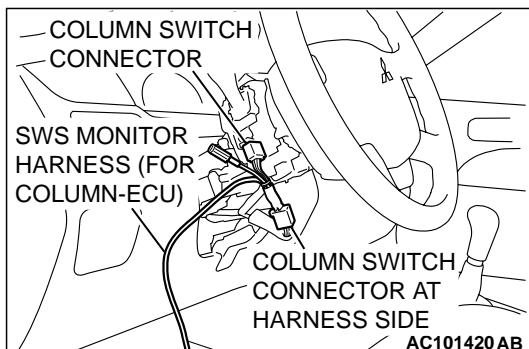
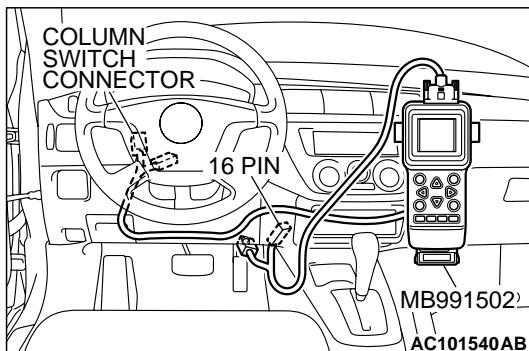
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 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 MB991502 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.54Bb-22](#)."



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

Check the input signals from the following switches:

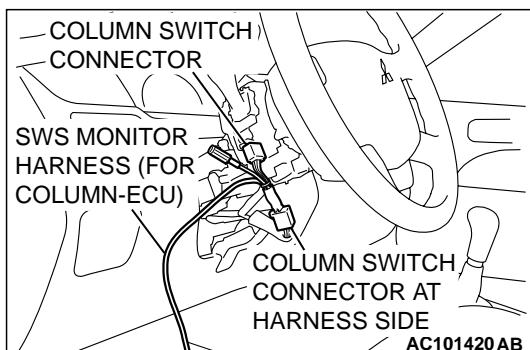
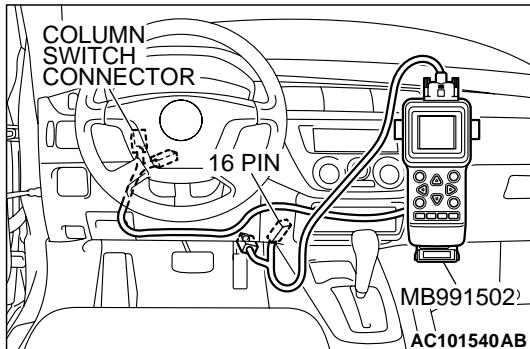
- Ignition switch: OFF (key inserted)
- Driver's door: open
- Front passenger's door: closed

Operate scan tool MB991502 according to the procedure below to display "KEY RMND. ALM."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "BUZZER."
6. Select "KEY RMND. ALM."

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

NOTE: The scan tool display changes when the driver's or the front passenger's door is opened. If any of the doors is open, the system can not be checked correctly.



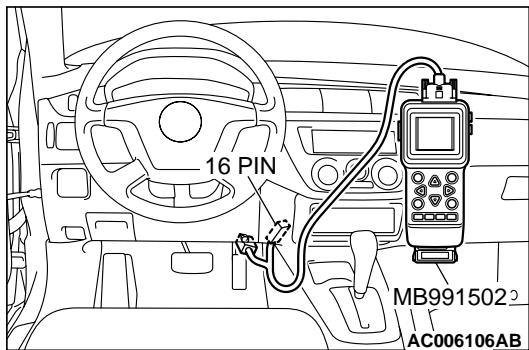
ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 30	IG SW (IG1)	OFF
ITEM 32	FRONT DOOR SW	ON
ITEM 43	BUZZER	ON

Q: Are normal conditions displayed on the "IG SW (IG1)", "FRONT DOOR SW" and "BUZZER"?

YES : Replace the ETACS-ECU. The ignition key reminder tone alarm function should now work normally.

NO :

- Normal condition is not displayed on the "IG SW (IG1)": Refer to Inspection Procedure M-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) [P.54Bc-6](#)."
- Normal condition is not displayed on the "FRONT DOOR SW": Refer to Inspection Procedure M-4 "ETACS-ECU does not receive a signal from the driver's or the front passenger's door switch [P.54Bc-24](#)."
- Normal condition is not displayed on the "BUZZER": Go to Step 3.

**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 MB991502 according to the procedure below to display "PULSE CHECK."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."
 - Check whether scan tool MB991502 sounds or not when the ignition key is removed and reinserted.

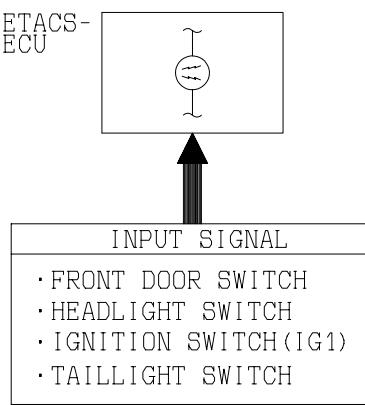
Q: Does scan tool MB991502 sound when the ignition key is removed and reinserted?

YES : Replace the ETACS-ECU. The ignition key reminder tone alarm function should now work normally.

NO : Refer to Inspection Procedure N-1 "ETACS-ECU does not receive a signal from the key reminder switch [P.54Bc-45](#)."

INSPECTION PROCEDURE B-2: Tone Alarm: Light reminder tone alarm function does not work normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor [P.54Ba-7](#)."

Light Reminder Tone Alarm Function

W1Q15M07AA

CIRCUIT OPERATION

The ETACS-ECU operates the light reminder tone alarm function intermittently according to the following signals:

- Ignition switch (IG1): OFF
- Front door switch (LH): ON
- Taillight switch: ON

- Headlight switch: ON

The ETACS-ECU operates the light reminder tone alarm function intermittently under the following conditions.

- Ignition switch: LOCK position (key removed)
- Driver's door: OPEN
- Lighting Switch: Tail or Head position

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- The front door switches may be defective

- 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the following ECUs:

- ETACS-ECU
- Column-ECU

CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.

- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 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."

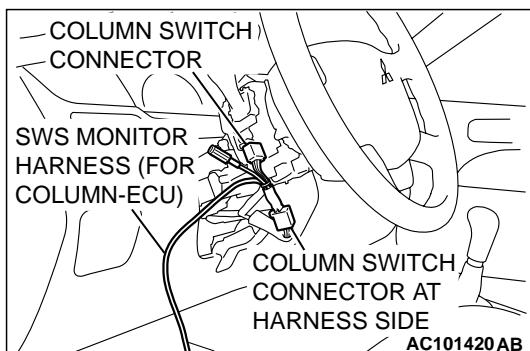
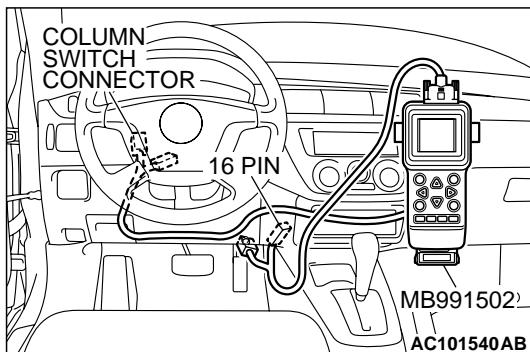
- (5) Scan tool MB991502 should show "OK" on the "ECU COMM CHK" menus for both the "ETACS ECU" and the "COLUMN ECU" menus.

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

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

"NG" is displayed on the "ETACS ECU" menu : Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is not possible [P.54Bb-22](#)."

"NG" is displayed on the "COLUMN ECU" menu : Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is not possible [P.54Bb-13](#)."



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

Check the input signals from the following switches:

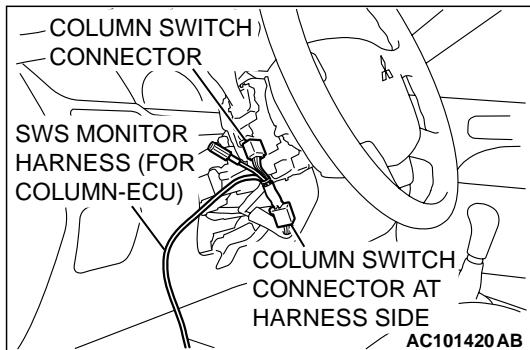
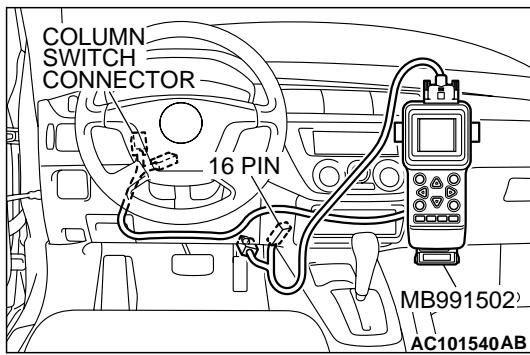
- Ignition switch: OFF (key removed)
- Lighting switch: TAIL or HEAD
- Driver's door: open
- Front passenger's door: closed

Operate scan tool MB991502 according to the procedure below to display "LGT MONI. ALRM."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "BUZZER."
6. Select "LGT MONI. ALRM."

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

NOTE: The scan tool display changes when the driver's or the front passenger's door is opened. If any of the doors is open, the system can not be checked correctly.



ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 00	HEADLIGHT SW	Either of items is ON
ITEM 01	TAILLIGHT SW	
ITEM 30	IG SW (IG1)	OFF
ITEM 32	FRONT DOOR SW	ON
ITEM 35	H/L AUTO-CUT	OFF
ITEM 43	BUZZER	ON

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

YES : Replace the ETACS-ECU. The light reminder tone alarm function should now work normally.

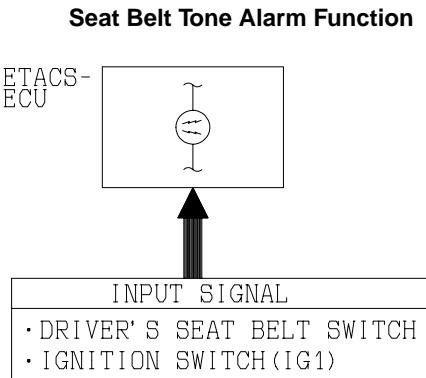
- NO :**
- Normal condition is not displayed on the "HEADLIGHT SW": Refer to Inspection Procedure M-5 "ETACS-ECU does not receive a signal from the headlight switch [P.54Bc-32](#)."
 - Normal condition is not displayed on the "TAILLIGHT SW": Refer to Inspection Procedure M-5 "ETACS-ECU does not receive a signal from the taillight switch [P.54Bc-32](#)."
 - Normal condition is not displayed on the "IG SW (IG1)": Refer to Inspection Procedure M-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) [P.54Bc-6](#)."
 - Normal condition is not displayed on the "FRONT DOOR SW": Refer to Inspection Procedure M-4 "ETACS-ECU does not receive a signal from the

driver's or the front passenger's door switch
[P.54Bc-24.](#)"

- 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.54Bb-340.](#)"
- Normal condition is not displayed on the "BUZZER": Replace the ETACS-ECU. The light reminder tone alarm function should now work normally.

INSPECTION PROCEDURE B-3: Tone Alarm: Seat belt tone alarm function does not work normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor [P.54Ba-7.](#)"



W2J08M04AA

CIRCUIT OPERATION

The ETACS-ECU operates the seat belt tone alarm function intermittently according to signals from the following switches:

- Ignition switch (IG1): ON
- Driver's seat belt switch: ON

The ETACS-ECU operates the seat belt tone alarm function intermittently under the following conditions:

- Ignition switch: ON or START
- Driver's seat belt: UNFASTENED

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- The driver's seat belt 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the ETACS-ECU.

 **CAUTION**

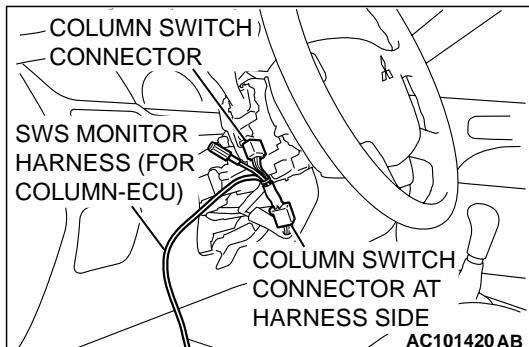
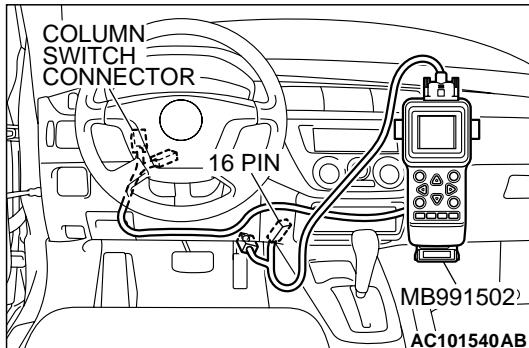
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) When the ignition switch is turned to the "ON" position.
- (4) Operate scan tool MB991502 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 MB991502 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.54Bb-22](#)."



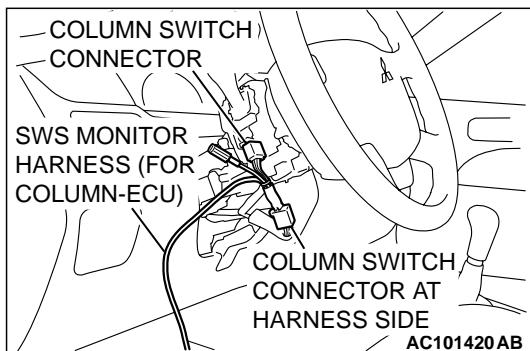
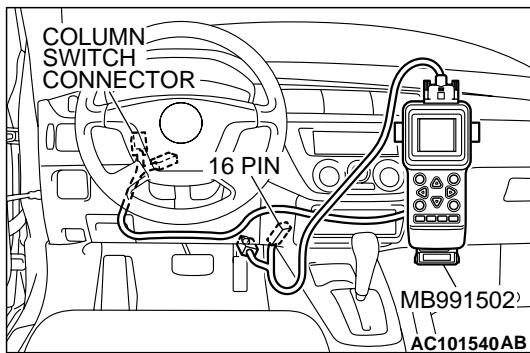
STEP 2. Check the input signal by using "DATA LIST" menu of the SWS monitor.

Turn the ignition switch to the "ON" position before checking input signals from the ignition switch (IG1).

Operate scan tool MB991502 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

Q: Is normal condition displayed on the "IG SW (IG1)"?

YES : Go to Step 3.

NO : Refer to Inspection Procedure M-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) [P.54Bc-6](#)."

STEP 3. Check the input signal by using the pulse check mode of the monitor.

Check input signal from the driver's side seat belt switch.

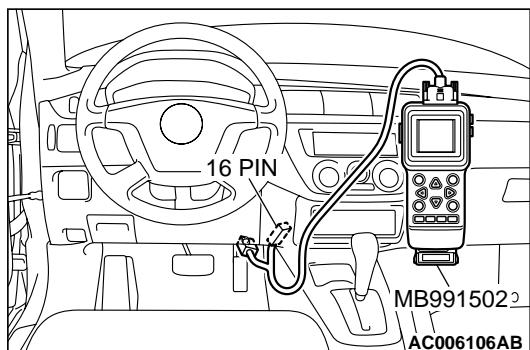
Operate scan tool MB991502 according to the procedure below to display "PULSE CHECK."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."
 - When the driver's seat belt is unfastened, check if scan tool MB991502 sounds or not.

Q: Does scan tool MB991502 sound when the driver's side seat belt is unfastened?

YES : Replace the ETACS-ECU. Verify that the seat belt tone alarm function works normally.

NO : Refer to Inspection Procedure N-3 "ETACS-ECU does not receive a signal from the driver's side seat belt switch [P.54Bc-55](#)."

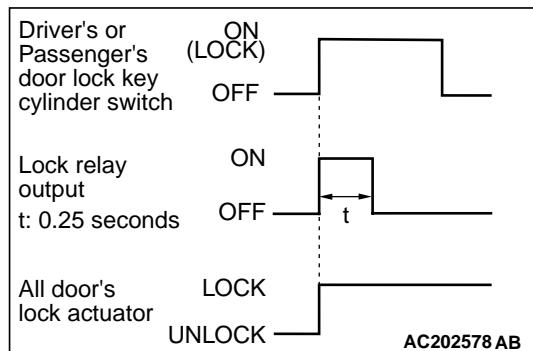


CENTRAL DOOR LOCKING SYSTEM**GENERAL DESCRIPTION CONCERNING THE CENTRAL DOOR LOCKING SYSTEM**

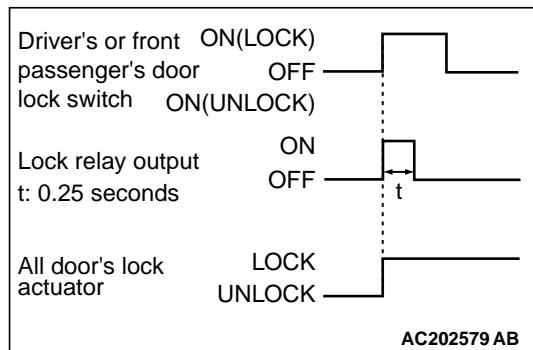
M1549021100066

The following ECUs affect the functions and control of the central door locking system.

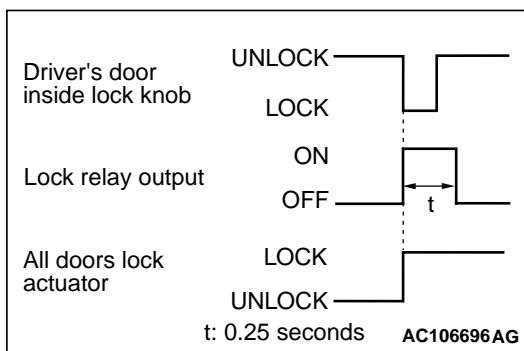
FUNCTIONS	CONTROL ECU
Door lock function	Operating the driver's or front passenger's door lock cylinder
	Operating the driver's or front passenger's door lock switch
	Operating the driver's door inside lock knob
Door unlock function	Operating the driver's door lock key cylinder
	Operating the front passenger's door lock key cylinder
	Operating the driver's or front passenger's door lock switch

DOOR LOCK FUNCTION**Operating the driver's or front passenger's door lock key cylinder**

When you insert the ignition key to the driver's or front passenger's door lock key cylinder and turn the key clockwise to lock the door, the ETACS-ECU energizes its door lock relay for 0.25 second to activate all the door lock actuators. Then all the doors will be locked.

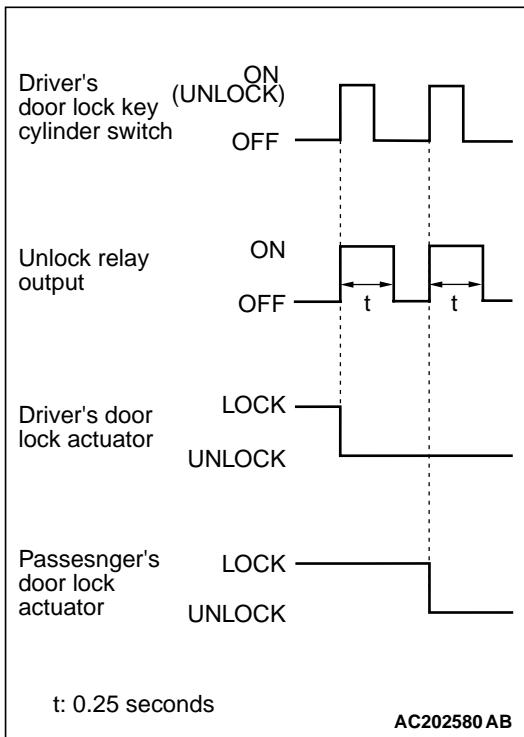
**Operating the driver's or front passenger's door lock switch**

When the door is locked by driver's or front passenger's door lock switch, the ETACS-ECU energizes its door lock relay for 0.25 second to activate all the door lock actuators. Then all the doors will be locked.



Operating the driver's door inside lock knob

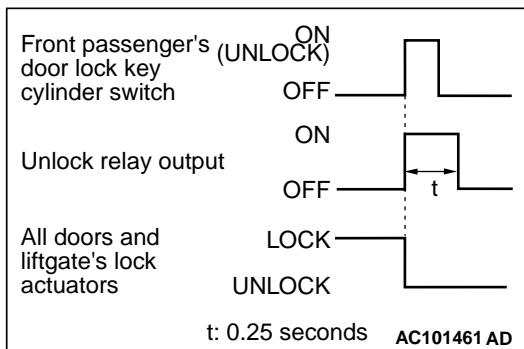
When the door is locked by driver's door inside lock knob, the ETACS-ECU energizes its door lock relay for 0.25 second to activate all the door lock actuators. Then all the doors will be locked.



Operating the driver's door lock key cylinder

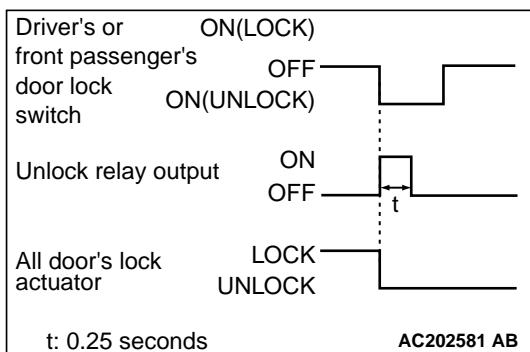
When you insert the ignition key to the driver's door lock key cylinder and turn the key counterclockwise to unlock the door, the ETACS-ECU energizes its door unlock relay for 0.25 second to activate only the driver's door lock actuator. Then only the driver's door will be unlocked.

When you turn the key counterclockwise again, the ETACS-ECU energizes its door unlock relay for 0.25 second to activate all the door lock actuator. Then all the doors will be unlocked.



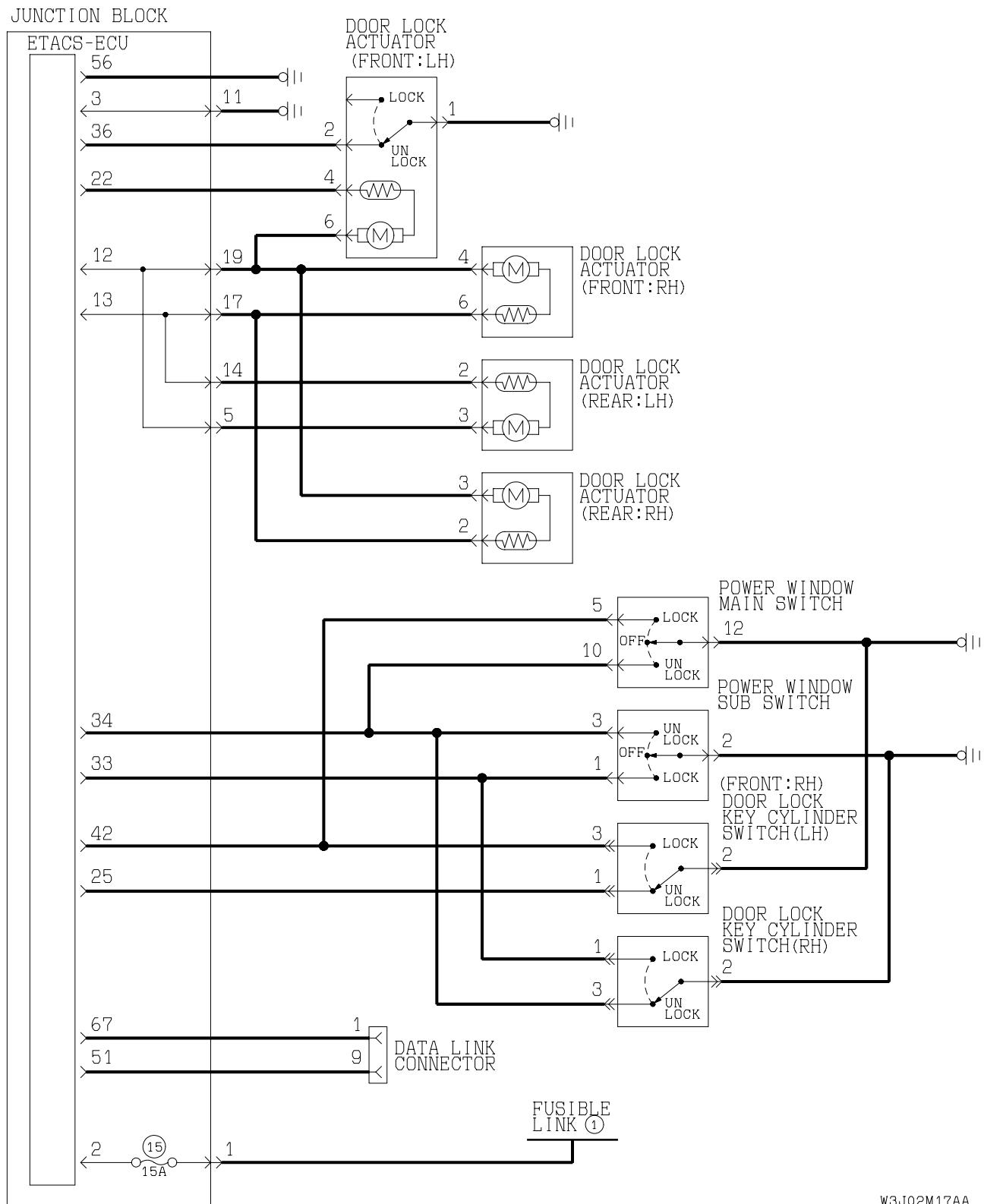
Operating the front passenger's door lock key cylinder

When you insert the ignition key to the front passenger's door lock key cylinder and turn the key counterclockwise to unlock the door, the ETACS-ECU energizes its door unlock relay for 0.25 second to activate all the door lock actuators. Then all the doors will be unlocked.

Operating the driver's or front passenger's door lock switch

When the door is unlocked by driver's or front passenger's door lock switch, the ETACS-ECU energizes its door unlock relay for 0.25 second to activate all the door lock actuators. Then all the doors will be unlocked.

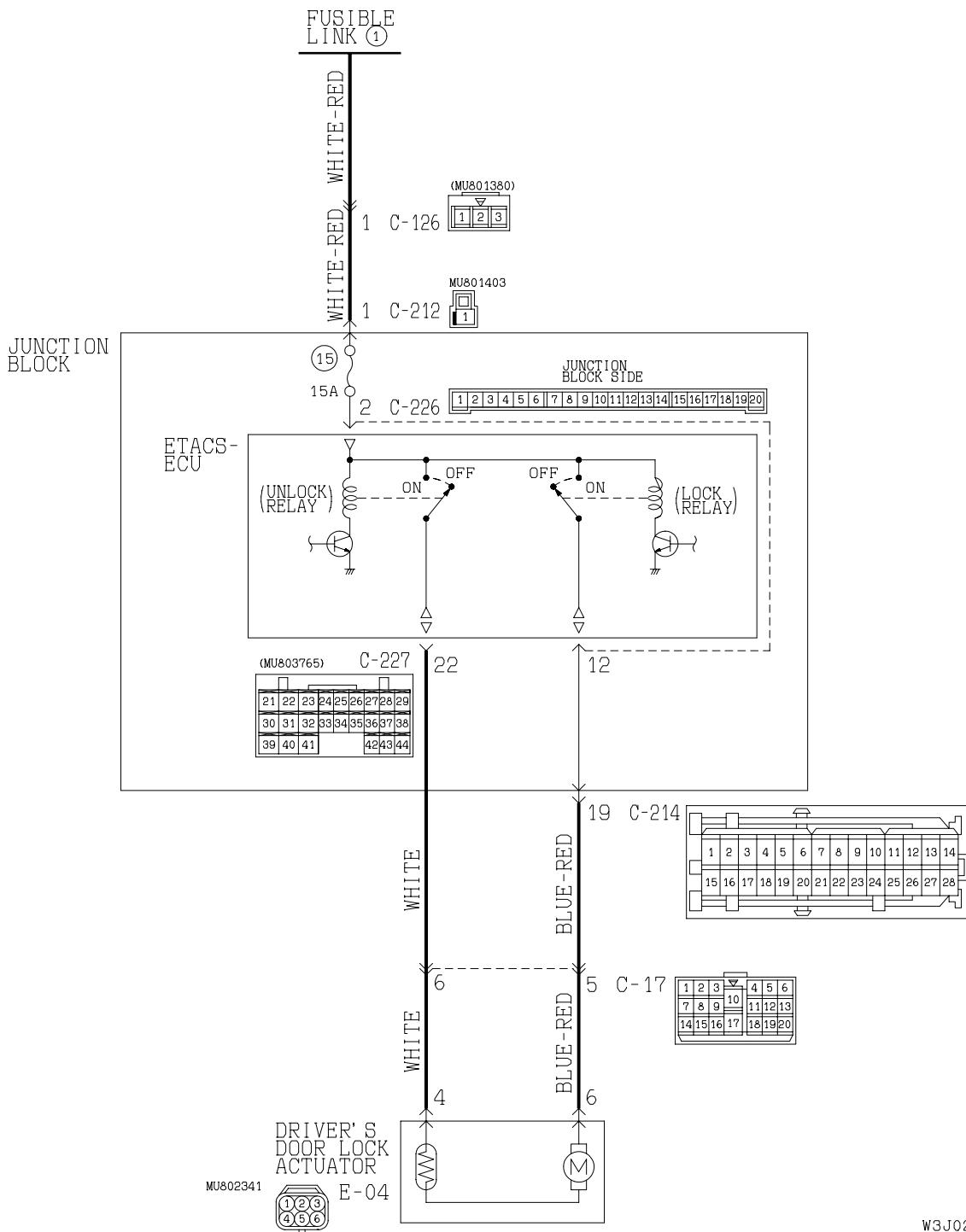
General circuit diagram for the central door locking system



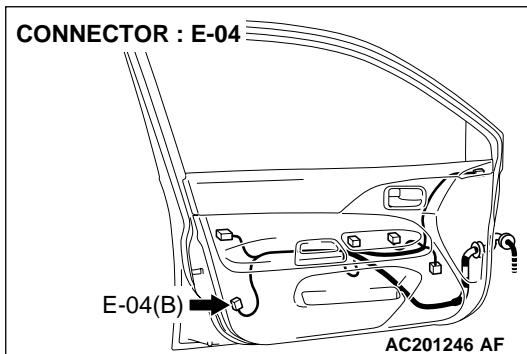
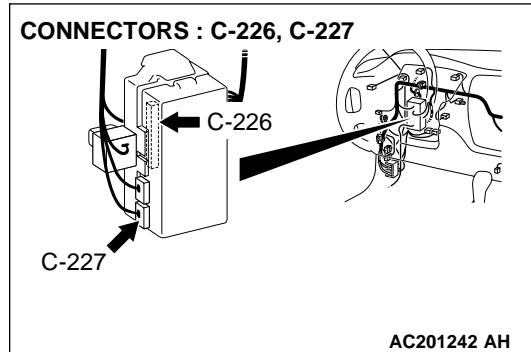
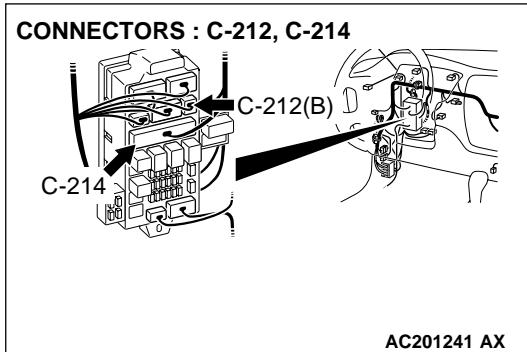
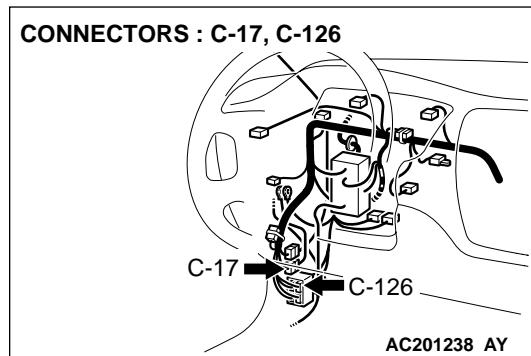
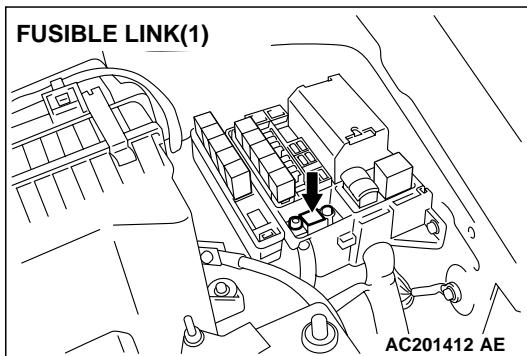
W3J02M17AA

INSPECTION PROCEDURE C-1: Central Door Locking System: The central door lock system does not work at all.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."



W3J02M23AA



CIRCUIT OPERATION

- The ETACS-ECU operates the central door lock system according to the following signals:
 - Driver's or passenger's door lock actuator switch
 - Driver's side door lock key cylinder switch
 - Door lock switch, which is incorporated in the power window main switch or power window sub switch (front RH)

- The ETACS-ECU locks or unlocks all the doors by operating the central door lock relay (incorporated in the ECU) in response to input signals.

TROUBLESHOOTING HINTS

- 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:**

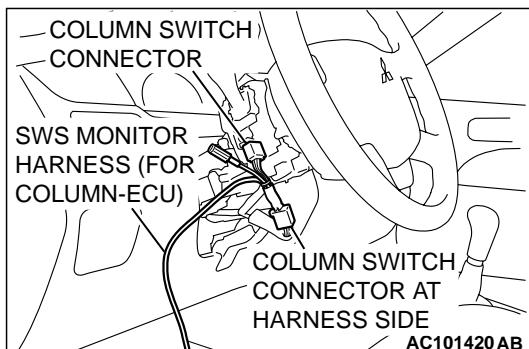
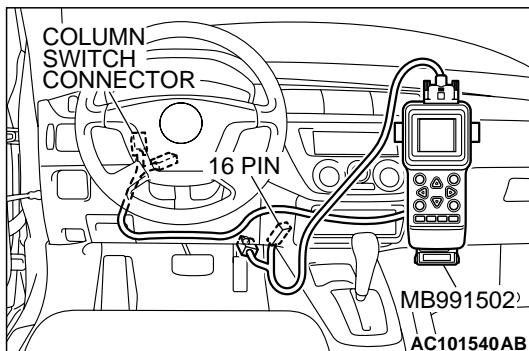
- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the ETACS-ECU.

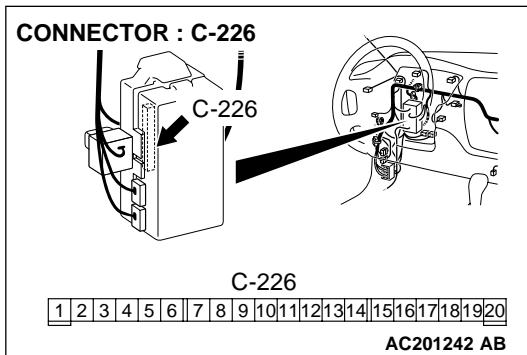
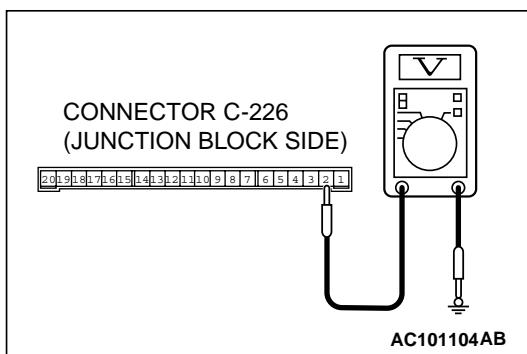
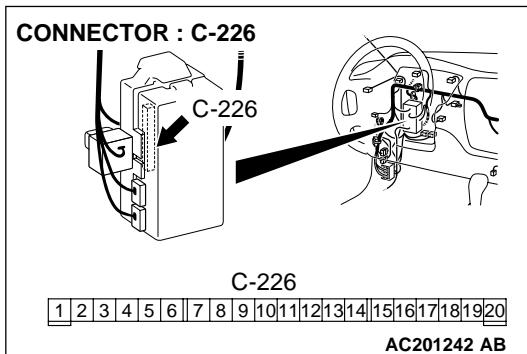
 CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.



- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 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 MB991502 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.54Bb-22](#)."



STEP 2. Check the fusible link (1) line of power supply circuit to the ETACS-ECU. Test at ETACS-ECU connector C-226.

(1) Disconnect ETACS-ECU connector C-226 and measure the voltage available at the junction block side of the connector.

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

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

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

YES : Go to Step 5.

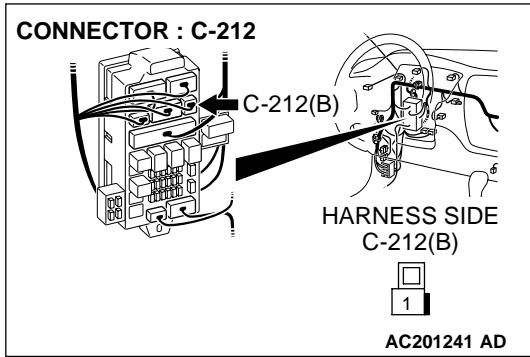
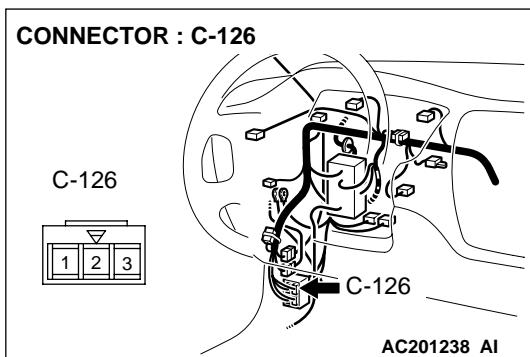
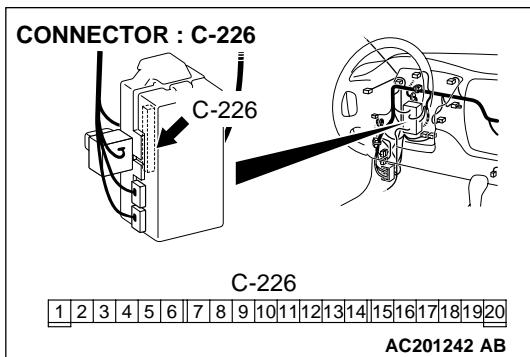
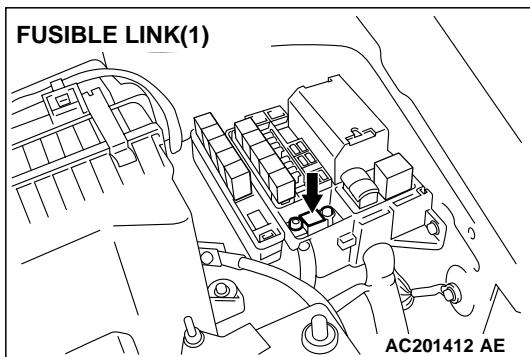
NO : Go to Step 3.

STEP 3. Check ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-226 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 central door locking system works normally.



STEP 4. Check the wiring harness between ETACS-ECU connector C-226 (terminal 2) and fusible link (1).

NOTE: Also check junction block connector C-212 and intermediate connector C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-212 or intermediate connectors C-126 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 C-226 (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 central door locking system works normally.

STEP 5. Check ETACS-ECU connectors C-226, C-227 and driver's door lock actuator connector E-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

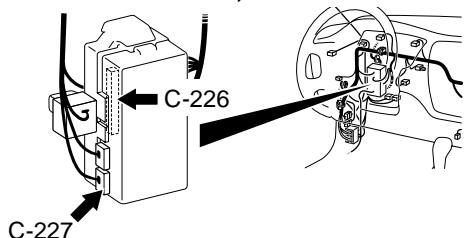
Q: Are ETACS-ECU connectors C-226, C-227 and driver's door lock actuator connector E-04 in good condition?

YES : Go to Step 6.

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

P.00E-2. Verify that the central door locking system works normally.

CONNECTORS : C-226, C-227

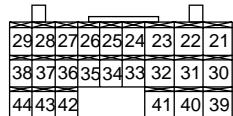


C-226

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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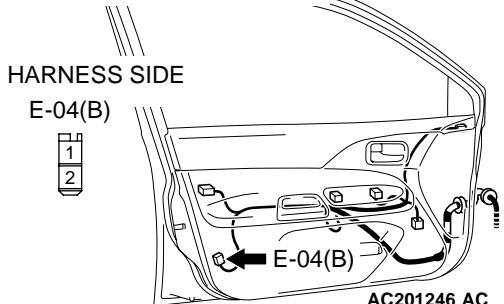
HARNESS SIDE

C-227



AC201353 AB

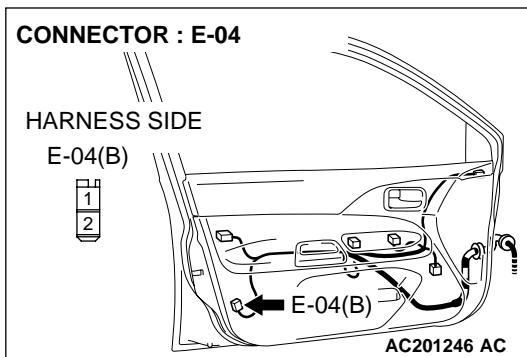
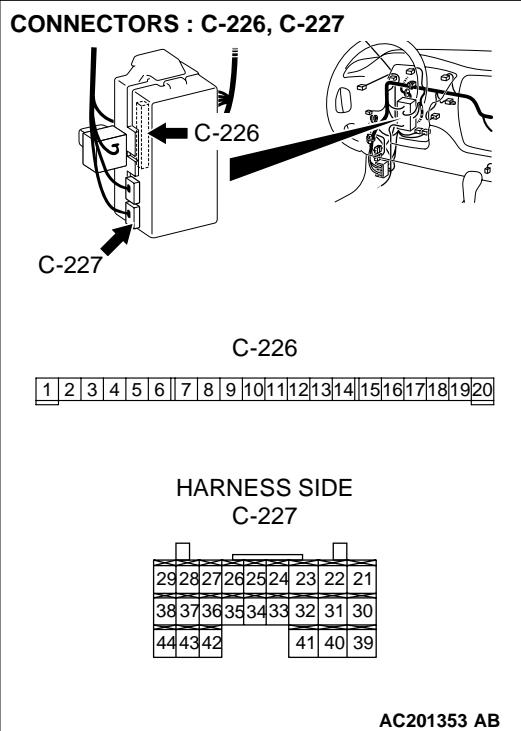
CONNECTOR : E-04

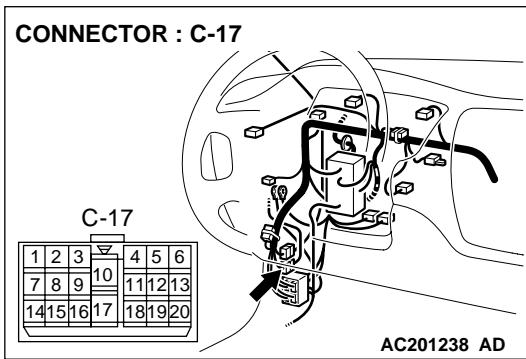


AC201246 AC

STEP 6. Check the wiring harness from ETACS-ECU connectors C-226 (terminal 12), C-227 (terminal 22) and driver's door lock actuator connector E-04 (terminal 6 and 4).

NOTE: Also check junction block connector C-214 and intermediate connector C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-214 or intermediate connectors C-17 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

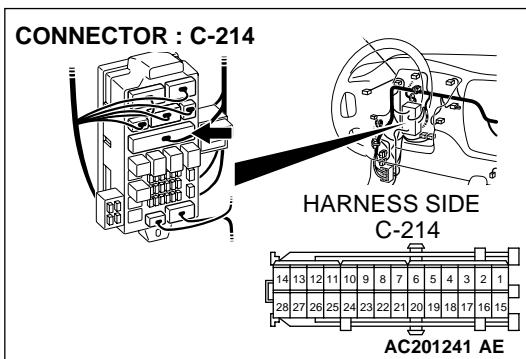




Q: Is the wiring harness from ETACS-ECU connectors C-226 (terminal 12), C-227 (terminal 22) and driver's door lock actuator connector E-04 (terminal 6 and 4) in good condition?

YES : Replace the ETACS-ECU. Verify that the central door locking system works 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 central door locking system works normally.

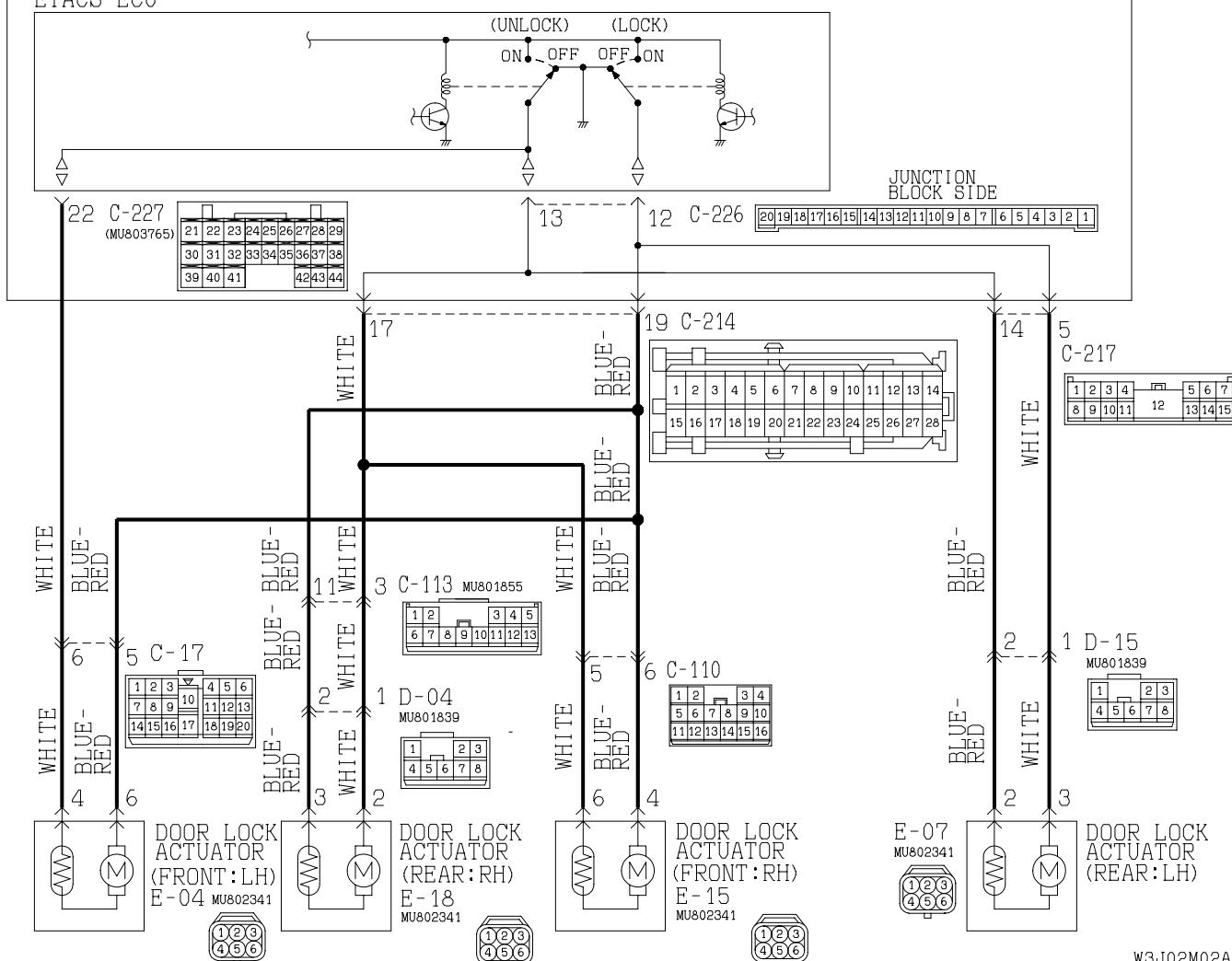


INSPECTION PROCEDURE C-2: Central Door Locking System: Some doors do not lock or unlock.

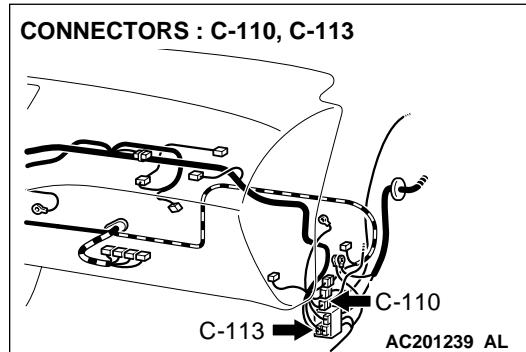
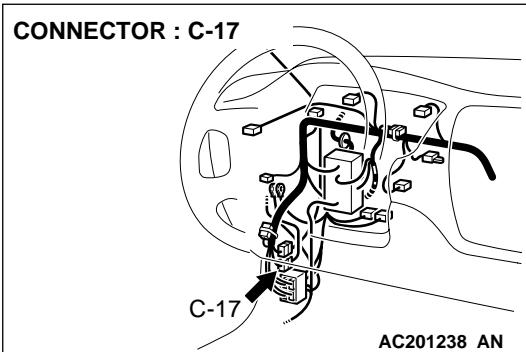
Central Door Lock Circuit

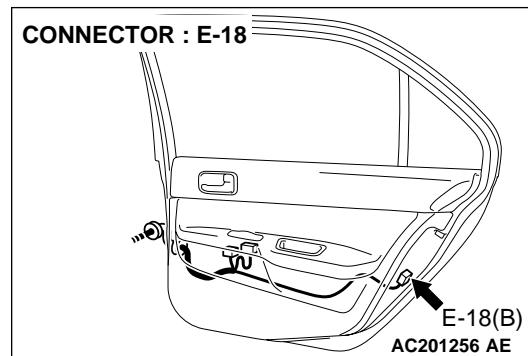
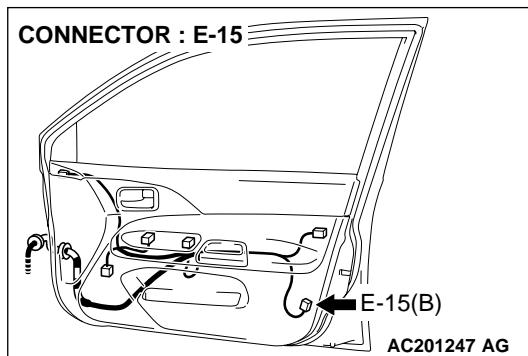
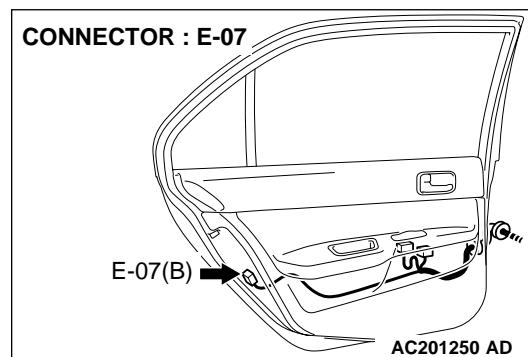
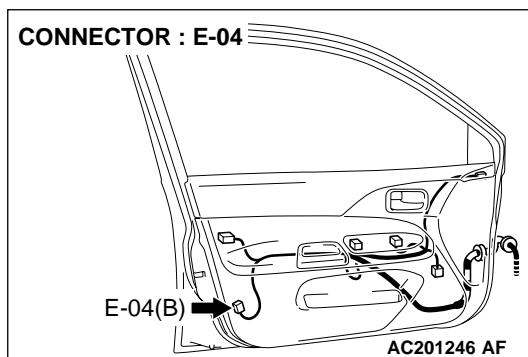
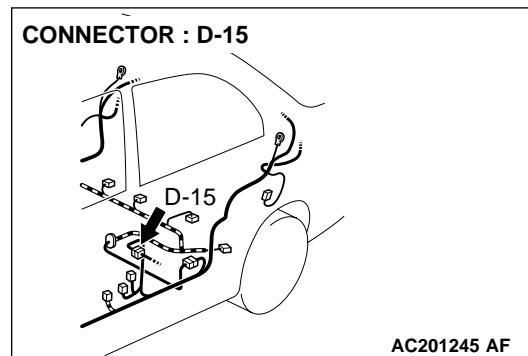
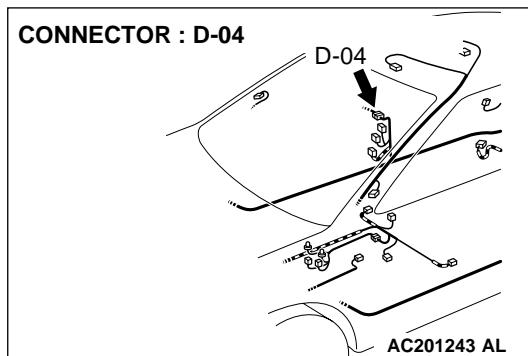
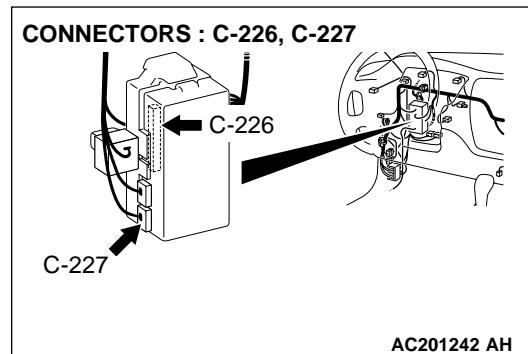
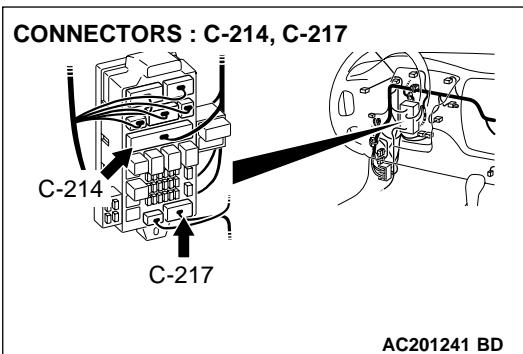
JUNCTION BLOCK

ETACS-ECU



W3J02M02AA





CIRCUIT OPERATION

- The ETACS-ECU operates the central door lock system according to the following signals:
 - Driver's door lock actuator switch
 - Driver's or passenger's door lock key cylinder switch

- Door lock switch, which is incorporated in the power window main switch or power window sub switch (front RH)
- The ETACS-ECU locks or unlocks all the doors by operating the central door lock relay (incorporated in the ECU) in response to input signals.

TECHNICAL DESCRIPTION (COMMENT)

The wiring harness between the door lock actuator or the ETACS-ECU and the door lock actuator may be defective.

TROUBLESHOOTING HINTS

- The driver's door lock actuator, front passenger's door lock actuator or rear door lock actuator 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

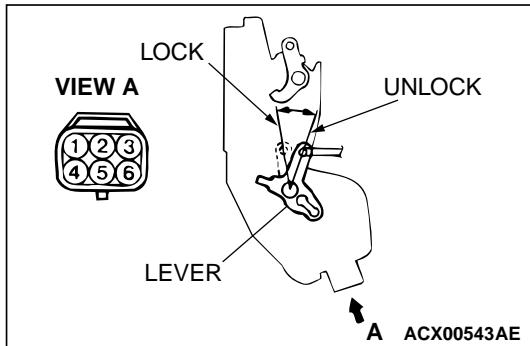
STEP 1. Verify which door lock is defective.**Q: Which of the door locks is defective?**

Driver's door : Go to Step 2.

Front passenger's door : Go to Step 5.

Rear door (LH) : Go to Step 8.

Rear door (RH) : Go to Step 11.

**STEP 2. Check the driver's door lock actuator.**

1. Remove the driver's door lock actuator, and check it. Refer to GROUP 42 – Door Handle and Latch [P.42-46](#).
2. Follow the table below to check the driver's door lock actuator for correct operation.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	<ul style="list-style-type: none"> • Connect terminal 4 to the positive battery terminal • Connect terminal 6 to the negative battery terminal 	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	<ul style="list-style-type: none"> • Connect terminal 6 to the positive battery terminal • Connect terminal 4 to the negative battery terminal 	The lever moves from the "UNLOCK" position to the "LOCK" position.

Q: Does the driver's door lock actuator work normally?

YES : Go to Step 3.

NO : Replace the driver's door lock actuator. Verify that all the doors can be locked and unlocked normally.

STEP 3. Check ETACS-ECU connectors C-226, C-227 and driver's door lock actuator connector E-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

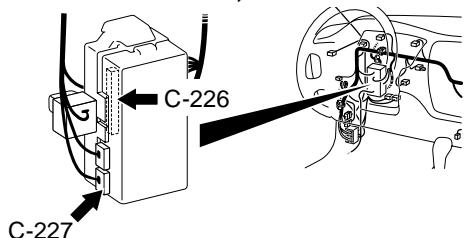
Q: Are ETACS-ECU connectors C-226, C-227 and driver's door lock actuator connector E-04 in good condition?

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 all the doors can be locked and unlocked normally.

CONNECTORS : C-226, C-227

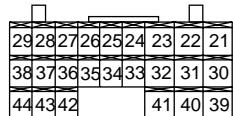


C-226

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

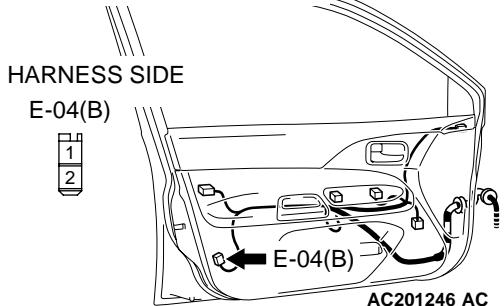
HARNESS SIDE

C-227



AC201353 AB

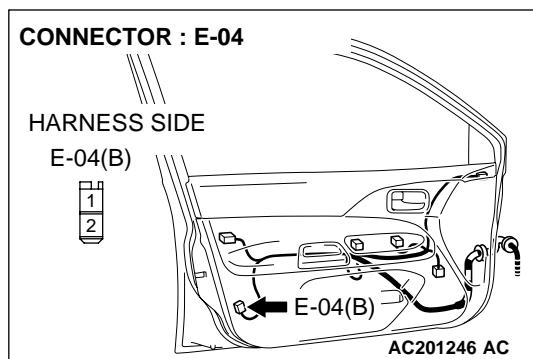
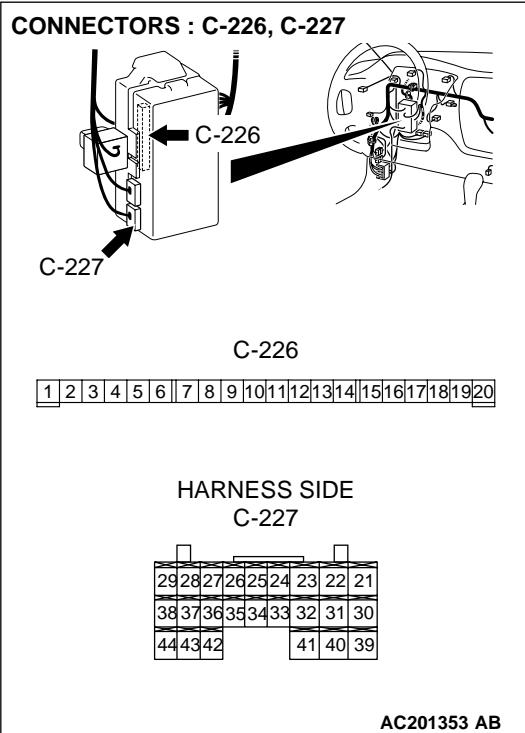
CONNECTOR : E-04

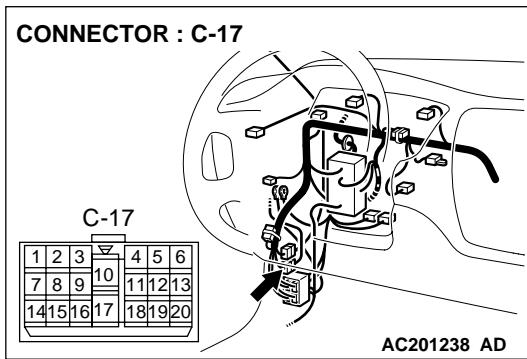


AC201246 AC

STEP 4. Check the wiring harness from ETACS-ECU connectors C-226 (terminal 12), C-227 (terminal 22) and driver's door lock actuator connector E-04 (terminal 6 and 4).

NOTE: Also check junction block connector C-214 and intermediate connector C-17. If junction block connector C-214 or intermediate connector C-17 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

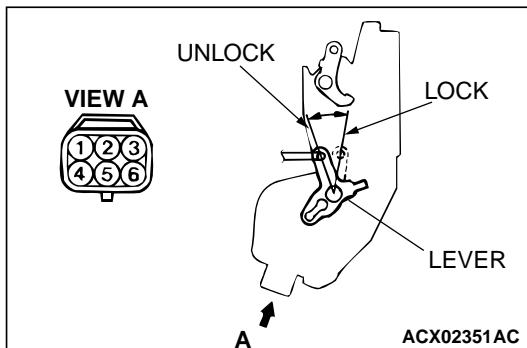
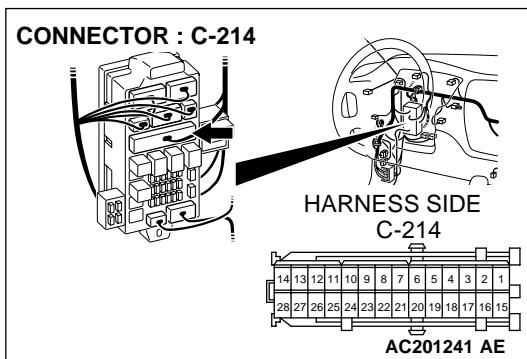




Q: Is the wiring harness from ETACS-ECU connectors C-226 (terminal 12), C-227 (terminal 22) and driver's door lock actuator connector E-04 (terminal 6 and 4) in good condition?

YES : Replace the ETACS-ECU. Verify that all the doors can be locked and unlocked 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 all the doors can be locked and unlocked normally.



STEP 5. Check the front passenger's door lock actuator.

1. Remove the passenger's door lock actuator, and check it. Refer to GROUP 42 – Door Handle and Latch P.42-46.
2. Follow the table below to check the passenger's door lock actuator for correct operation.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	<ul style="list-style-type: none"> • Connect terminal 6 to the positive battery terminal • Connect terminal 4 to the negative battery terminal 	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	<ul style="list-style-type: none"> • Connect terminal 4 to the positive battery terminal • Connect terminal 6 to the negative battery terminal 	The lever moves from the "UNLOCK" position to the "LOCK" position.

Q: Is the front passenger's seat door lock actuator normal?

YES : Go to Step 6.

NO : Replace the front passenger's seat door lock actuator. Verify that all the doors can be locked and unlocked normally.

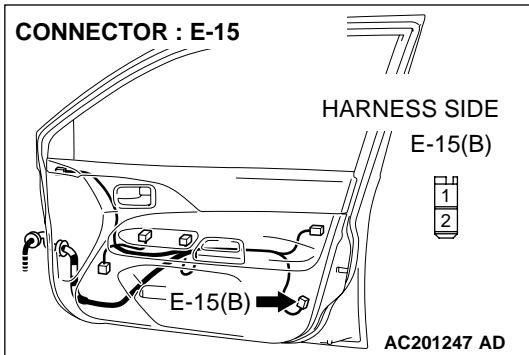
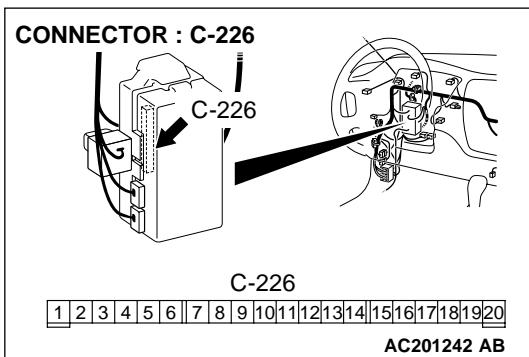
STEP 6. Check ETACS-ECU connector C-226 and front passenger's door lock actuator connector E-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are ETACS-ECU connector C-226 and passenger's seat door lock actuator connector E-15 in good condition?

YES : Go to Step 7.

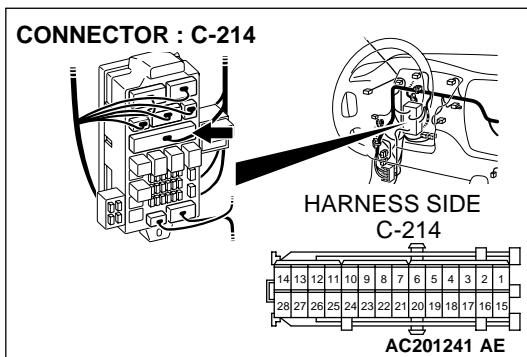
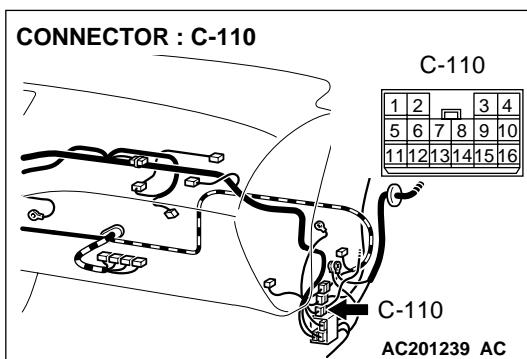
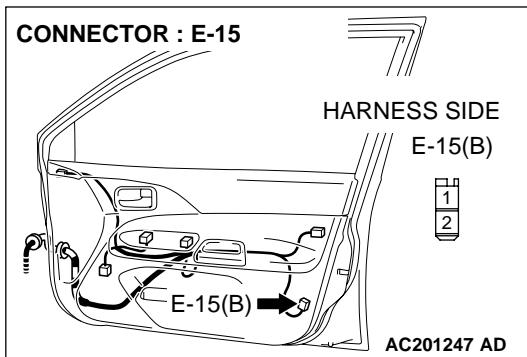
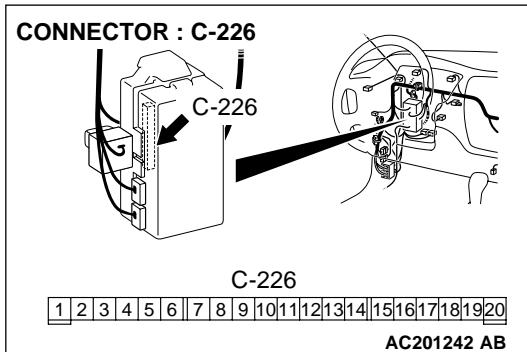
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

P.00E-2. Verify that all the doors can be locked and unlocked normally.



STEP 7. Check the wiring harness from ETACS-ECU connector C-226 (terminal 12 and 13) and front passenger's door lock actuator connector E-15 (terminal 4 and 6).

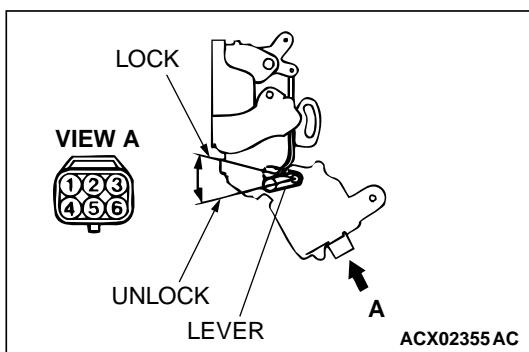
NOTE: Also check junction block connector C-214 and intermediate connector C-110 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-214 or intermediate connector C-110 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness from ETACS-ECU connector C-226 (terminal 12 and 13) and front passenger's door lock actuator connector E-15 (terminal 4 and 6) in good condition?

YES : Replace the ETACS-ECU. Verify that all the doors can be locked and unlocked 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 all the doors can be locked and unlocked normally.

**STEP 8. Check the rear door lock actuator (LH).**

1. Remove the rear door lock actuator (LH), and check it. Refer to GROUP 42 – Door Handle and Latch P.42-46.
2. Follow the table below to check the rear door lock actuator (LH) for correct operation.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	<ul style="list-style-type: none"> • Connect terminal 2 to the positive battery terminal • Connect terminal 3 to the negative battery terminal 	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	<ul style="list-style-type: none"> • Connect terminal 3 to the positive battery terminal • Connect terminal 2 to the negative battery terminal 	The lever moves from the "UNLOCK" position to the "LOCK" position.

Q: Does the rear door lock actuator (LH) work normally?

YES : Go to Step 9.

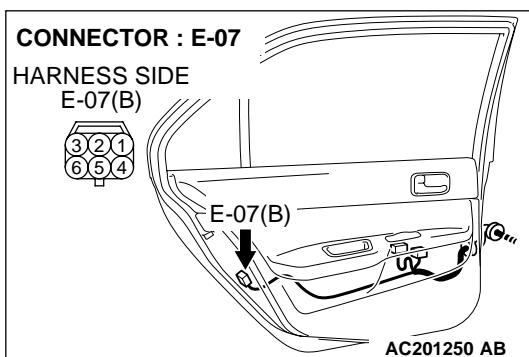
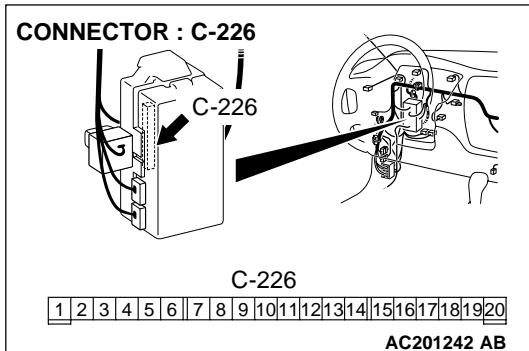
NO : Replace the rear door lock actuator (LH). Verify that all the doors can be locked and unlocked normally.

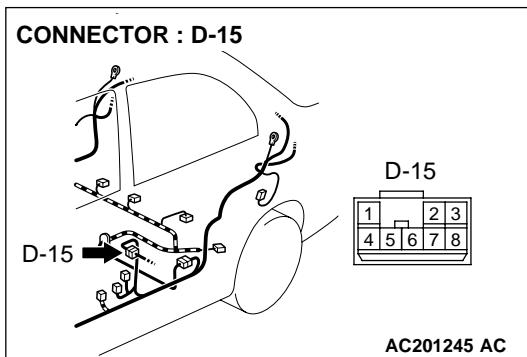
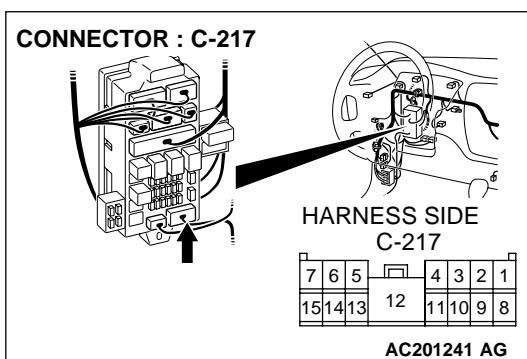
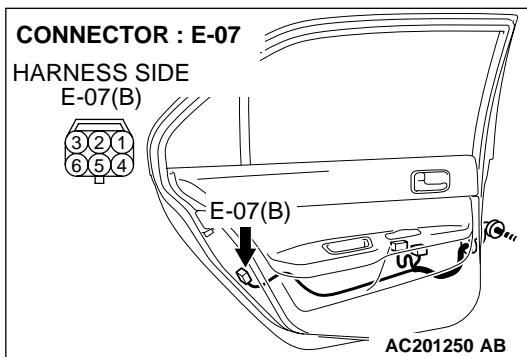
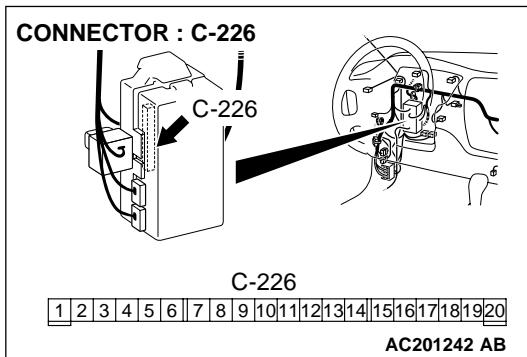
STEP 9. Check ETACS-ECU connector C-226 and rear door lock actuator (LH) connector E-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are ETACS-ECU connector C-226 and rear door lock actuator (LH) connector E-07 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 all the doors can be locked and unlocked normally.





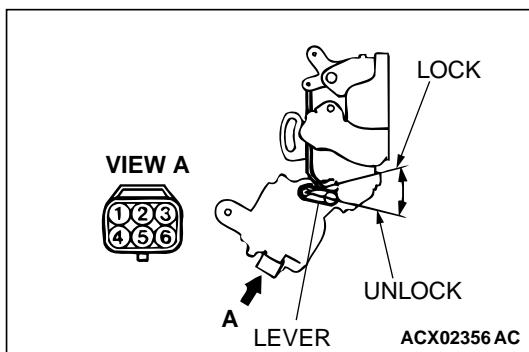
STEP 10. Check the wiring harness from ETACS-ECU connector C-226 (terminal 12 and 13) and rear door lock actuator (LH) connector E-07 (terminal 3 and 2).

NOTE: Also check junction block connector C-217 and intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-217 or intermediate connector D-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 ETACS-ECU connector C-226 (terminal 12 and 13) and rear door lock actuator (LH) connector E-07 (terminal 3 and 2) in good condition?

YES : Replace the ETACS-ECU. Verify that all the doors can be locked and unlocked 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 all the doors can be locked and unlocked normally.

**STEP 11. Check the rear door lock actuator (RH).**

1. Remove the rear door lock actuator (RH), and check it. Refer to GROUP 42 – Door Handle and Latch P.42-46.
2. Follow the table below to check the rear door lock actuator (RH) for correct operation.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	<ul style="list-style-type: none"> • Connect terminal 3 to the positive battery terminal • Connect terminal 2 to the negative battery terminal 	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	<ul style="list-style-type: none"> • Connect terminal 2 to the positive battery terminal • Connect terminal 3 to the negative battery terminal 	The lever moves from the "UNLOCK" position to the "LOCK" position.

Q: Does the rear door lock actuator (RH) work normally?

YES : Go to Step 12.

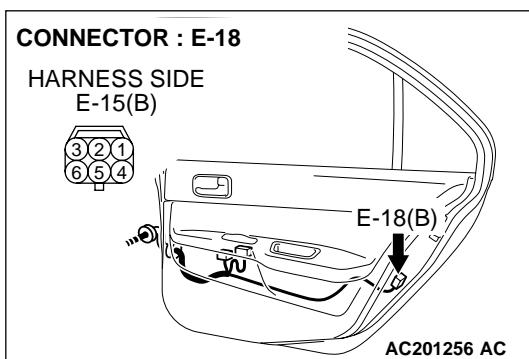
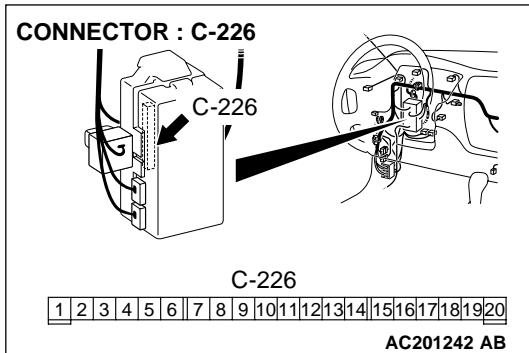
NO : Replace the rear door lock actuator (RH). Verify that all the doors can be locked and unlocked normally.

STEP 12. Check ETACS-ECU connector C-226 and rear door lock actuator (RH) connector E-18 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are ETACS-ECU connector C-226 and rear door lock actuator (RH) connector E-18 in good condition?

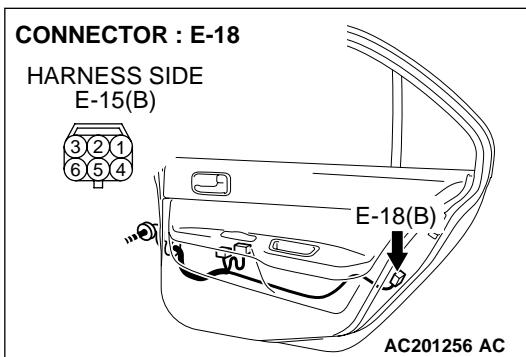
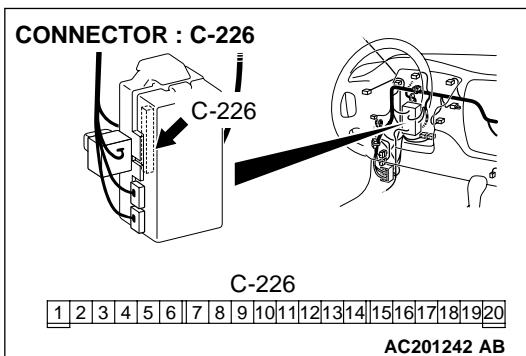
YES : Go to Step 13.

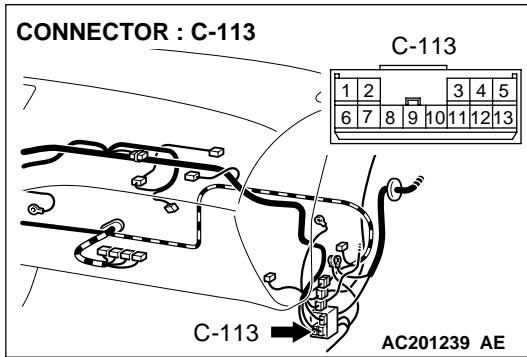
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors can be locked and unlocked normally.



STEP 13. Check the wiring harness from ETACS-ECU connector C-226 (terminal 12 and 13) and rear door lock actuator (RH) connector E-18 (terminal 3 and 2).

NOTE: Also check junction block connector C-214, intermediate connectors C-113 and D-04 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-214, intermediate connector C-113 or D-04 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

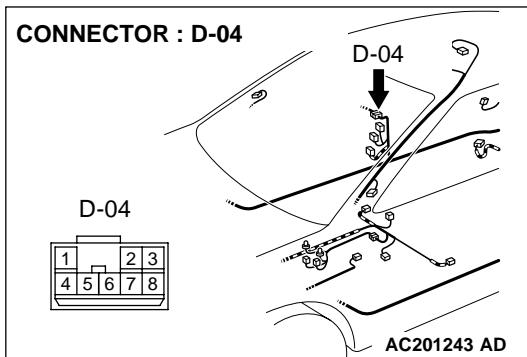
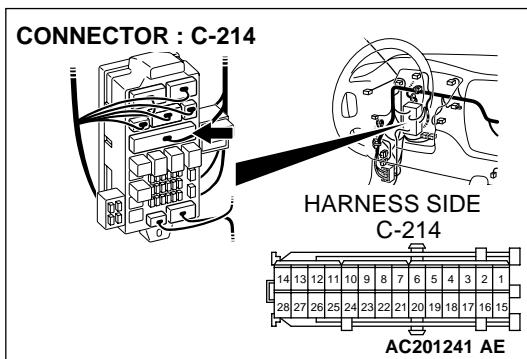




Q: Is the wiring harness between ETACS-ECU connector C-226 (terminal 12 and 13) and rear door lock actuator (RH) connector E-18 (terminal 3 and 2) in good condition?

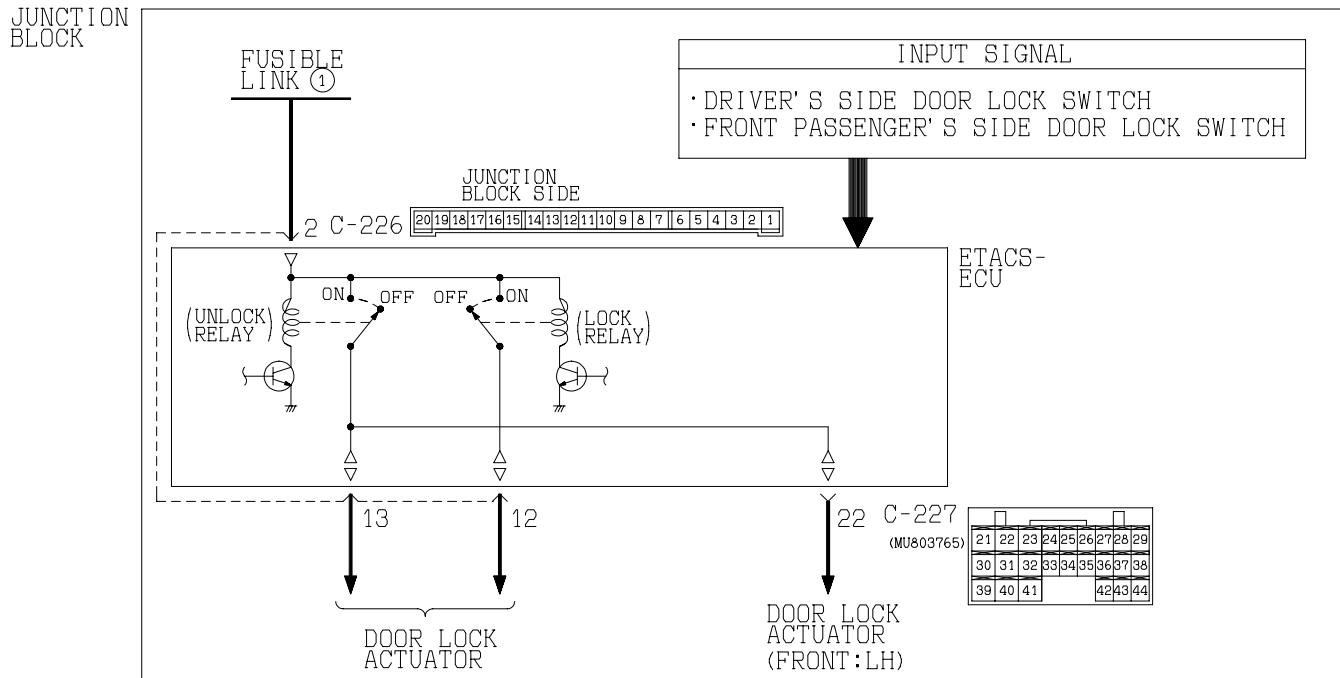
YES : Replace the ETACS-ECU. Verify that all the doors can be locked and unlocked normally.

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 all the doors can be locked and unlocked normally.



INSPECTION PROCEDURE C-3: Central Door Locking System: All the doors do not lock or unlock with just the door lock switch operation.

Central Door Lock (Door Lock Switch) Circuit



W3J02M03AA

TECHNICAL DESCRIPTION (COMMENT)

The door lock switch (built into the power window switch) or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The power window switch (door lock 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
- MB991502: Scan Tool (MUT-II)

Check the input signal by using the pulse check mode of the monitor.

Check the input signals from the door lock switch:

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate scan tool MB991502 as follows:

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

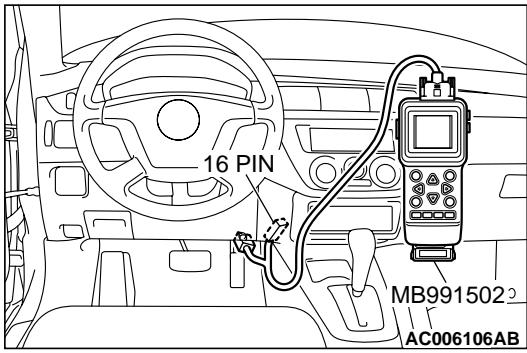
- (3) Move the driver's or the front passenger's door lock switch from "LOCK" to "UNLOCK" or vice versa.
- (4) Check scan tool MB991502 sounds or not.

Q: Does scan tool MB991502 sound when the driver's or the front passenger's door lock switch is moved from "LOCK" to "UNLOCK" or vice versa?

YES : Replace the ETACS-ECU. All the doors should be locked and unlocked by the door lock switch.

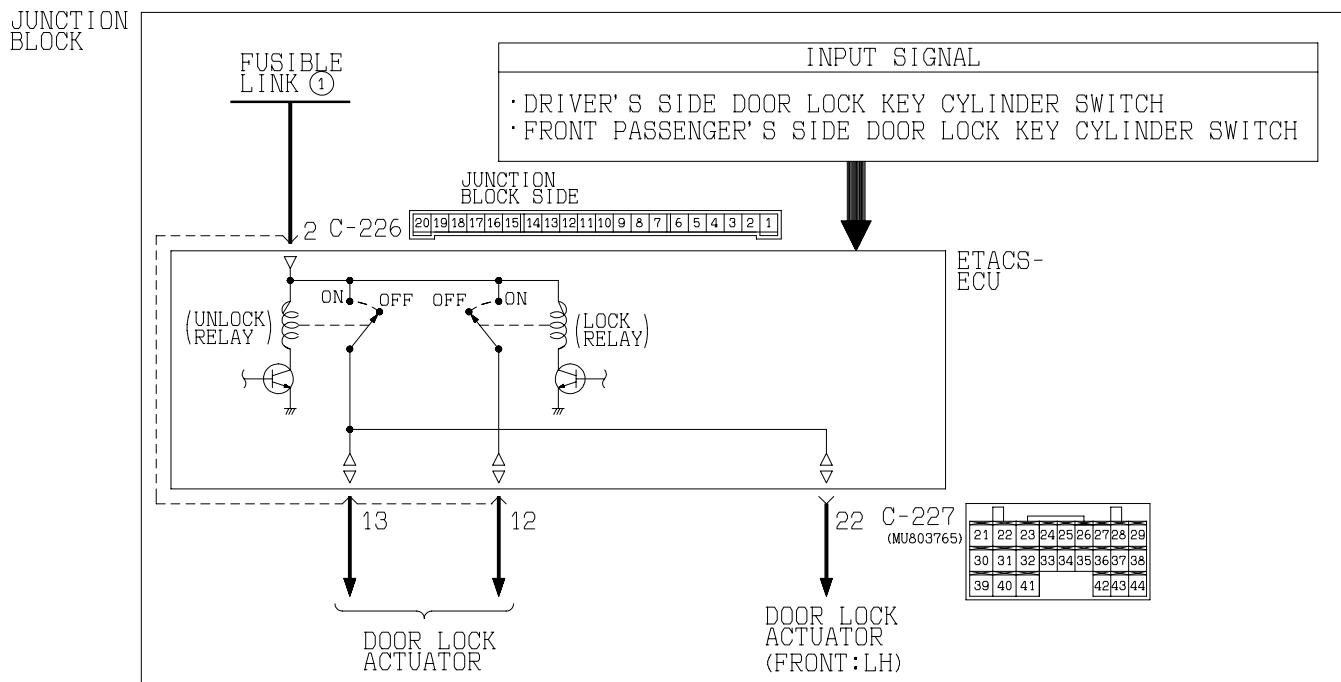
NO : Refer to Inspection Procedure N-7 "ETACS-ECU does not receive a signal from the door lock switch (incorporated in the power window main switch)

[P.54Bc-83.](#)



INSPECTION PROCEDURE C-4: Central Door Locking System: All the doors do not lock or unlock with just the door lock key cylinder key operation.

Central Door Lock (Door Lock Key Cylinder Switch) Circuit



W3J02M04AA

TECHNICAL DESCRIPTION (COMMENT)

The door lock switch (built into the power window switch) or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The power window switch (door lock 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:

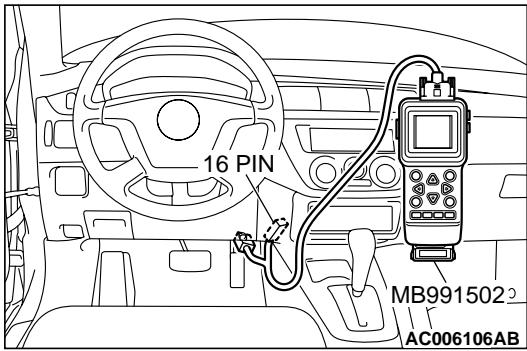
- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

Check the input signal by using the pulse check mode of the monitor.

Check the input signals from the door lock key cylinder switch.

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.



- (1) Connect scan tool MB991502 to the data link connector.
- (2) Use the driver's or passenger's door lock key cylinder to lock and unlock the doors.
- (3) Operate the MUT-II according to the procedure below to display "PULSE CHECK."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

- (4) Check scan tool MB991502 sounds or not.

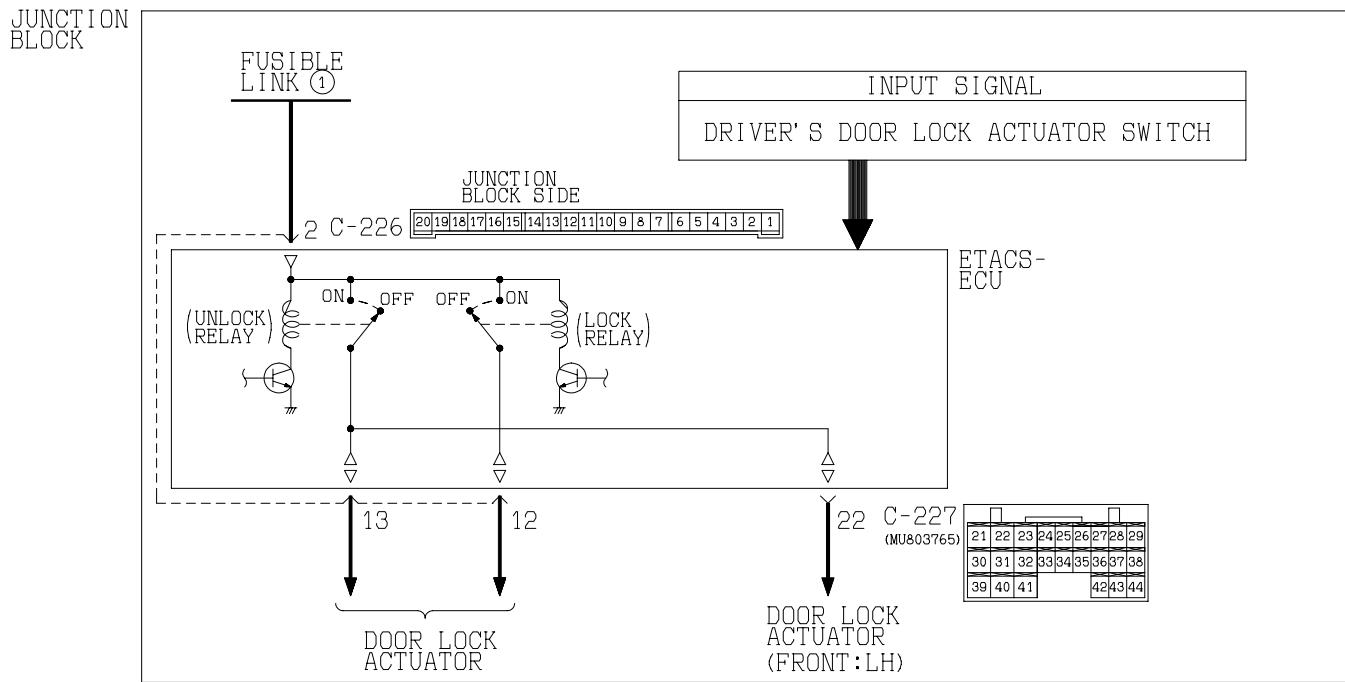
Q: When the doors are locked and unlocked by using the driver's or front passenger's door lock key cylinder, does scan tool MB991502 sound?

YES : Replace the ETACS-ECU. All the doors should be locked and unlocked by using each door lock key cylinder switch.

NO : Refer to Inspection Procedure N-5 "ETACS-ECU does not receive a signal from the driver's door, front passenger's door or the back door lock key cylinder switch [P.54Bc-68](#)."

INSPECTION PROCEDURE C-5: Central Door Locking System: All the doors do not lock or unlock with just the driver's inside lock knob operation.

Central Door Lock (Door Lock Actuator) Circuit



W3J02M05AA

TECHNICAL DESCRIPTION

The driver's door lock actuator switch or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- 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
- MB991502: Scan Tool (MUT-II)

Check the input signal by using the pulse check mode of the monitor.

Check the input signals from the driver's door lock actuator switch.

CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Lock or unlock the driver's inside lock knob.
- (3) Operate the MUT-II as follows:

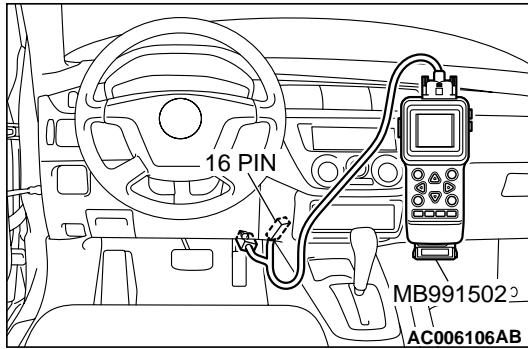
1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

- (4) Check scan tool MB991502 sounds or not.

Q: Does scan tool MB991502 sound when the driver's inside lock knob is locked or unlocked?

YES : Replace the ETACS-ECU. Check that all the doors can be locked or unlocked by operating the driver's inside lock knob.

NO : Refer to Inspection Procedure N-6 "ETACS-ECU does not receive a signal from the driver's door lock actuator switch [P.54Bc-78](#)."



POWER WINDOWS

GENERAL DESCRIPTION CONCERNING THE POWER WINDOWS

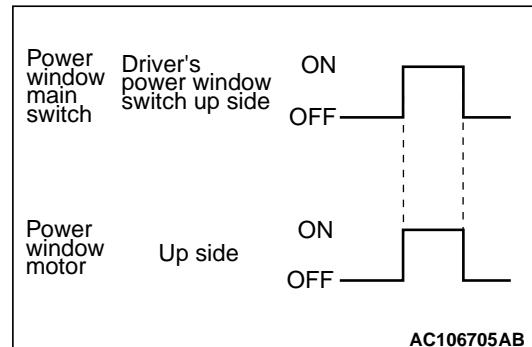
M1549021900051

The following ECUs affect the functions and control of the power windows.

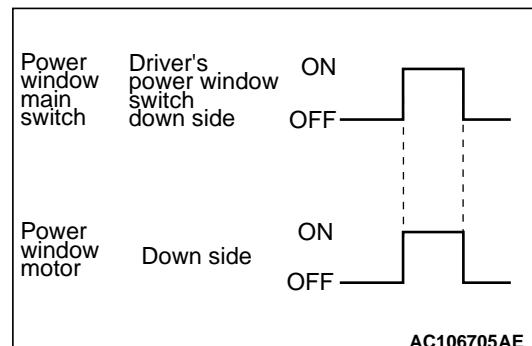
Function	Control ECU
Power window main switch function	Raises the driver's power window
	Lowers the driver's power window
	Lowers the driver's power window by one-shot down function
	Raises the passenger's power window
	Lowers the passenger's power window
Power window sub switch function	Raises the passenger's power window
	Lowers the passenger's power window
Power window timer function	ETACS-ECU

POWER WINDOW MAIN SWITCH FUNCTION

Raises the driver's power window

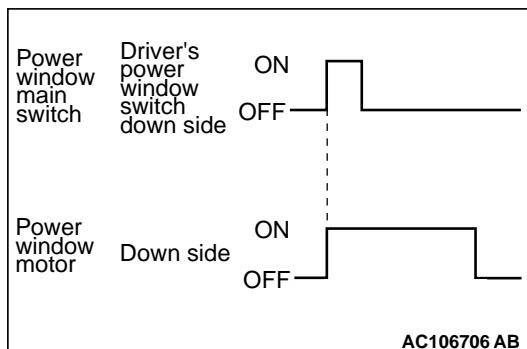


When the driver's power window switch on the power window main switch is pulled up, the system energizes its respective power window motor, and then driver's window glass rises.

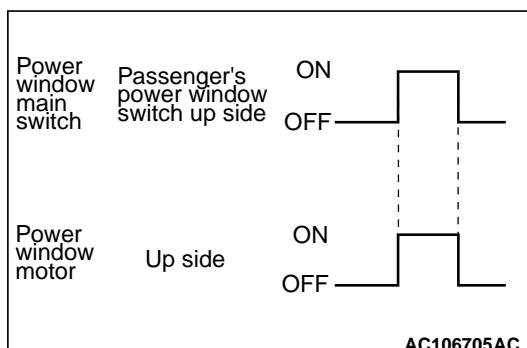


Lower the driver's power window

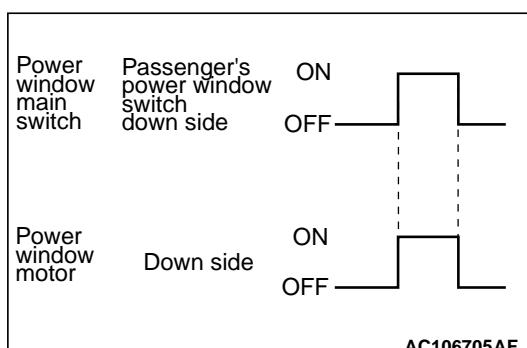
When the driver's power window switch on the power window main switch is pushed down, the system energizes its respective power window motor, and then driver's window glass lowers.

Lowers the driver's power window by one-shot down function

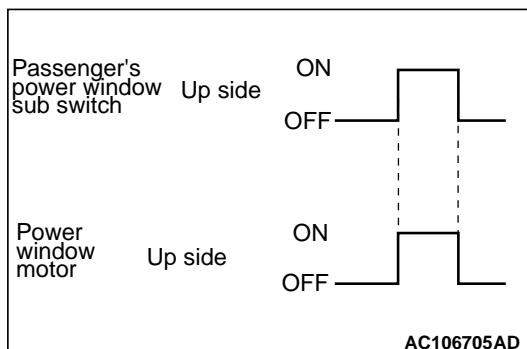
When the driver's power window switch on the power window main switch is pushed down fully, the system energizes its respective power window motor, and then driver's window glass moves to its lowest position.

**Raises the passenger's power window**

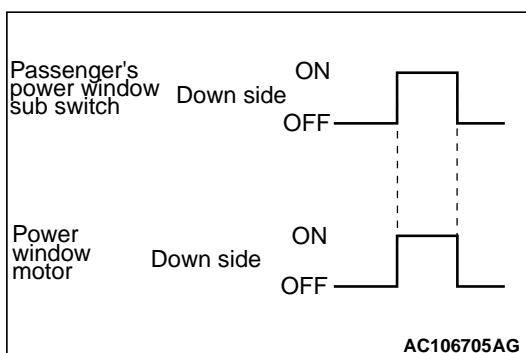
When the passenger's power window switch on the power window main switch is pulled up, the system energizes its respective power window motor, and then passenger's window glass rises.

**Lowers the passenger's power window**

When the passenger's power window switch on the power window main switch is pushed down, the system energizes its respective power window motor, and then passenger's window glass lowers.

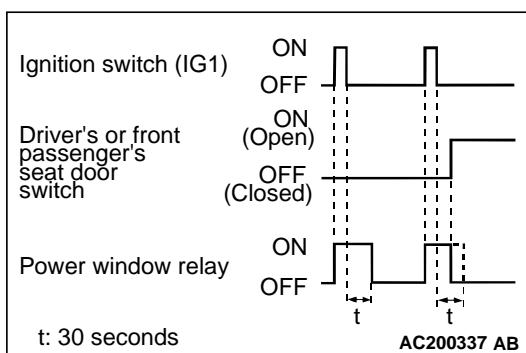
**POWER WINDOW SUB SWITCH FUNCTION****Raises the passenger's power window**

When the power window sub switch is pulled up, the system energizes its respective power window motor, and then passenger's window glass rises.



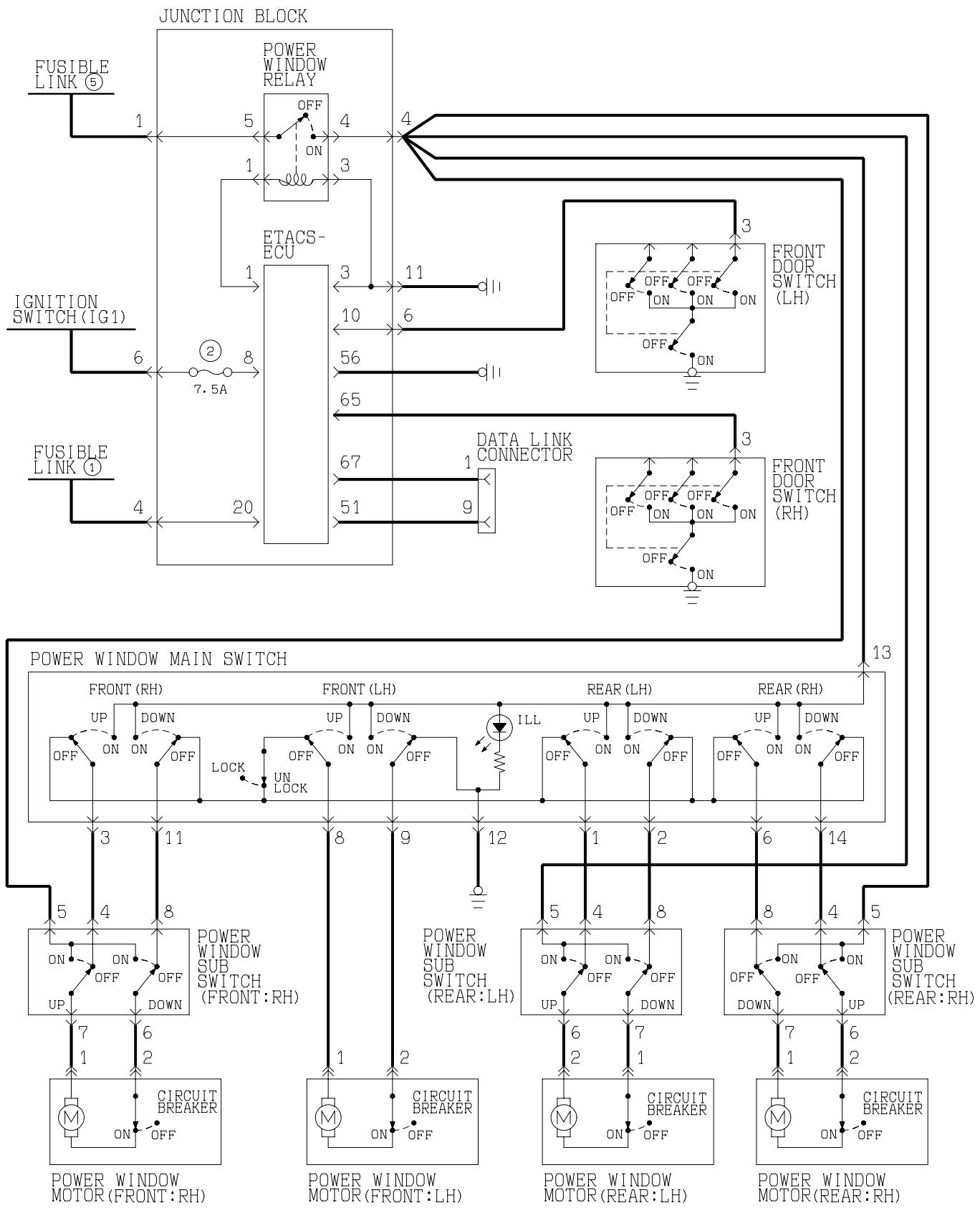
Lowers the passenger's power window

When the power window sub switch is pushed down, the system energizes its respective power window motor, and then passenger's window glass lowers.



POWER WINDOW TIMER FUNCTION

When the ignition switch is turned to the "ON" position, the power window relay is turned ON. After the ignition switch is turned OFF, the system continues to turn ON the power window relay for about 30 seconds and to enable the opening and closing of the door window by the power window switch. When the driver's or front passenger's door is opened while the timer is in operation, the power window relay will be turned OFF.

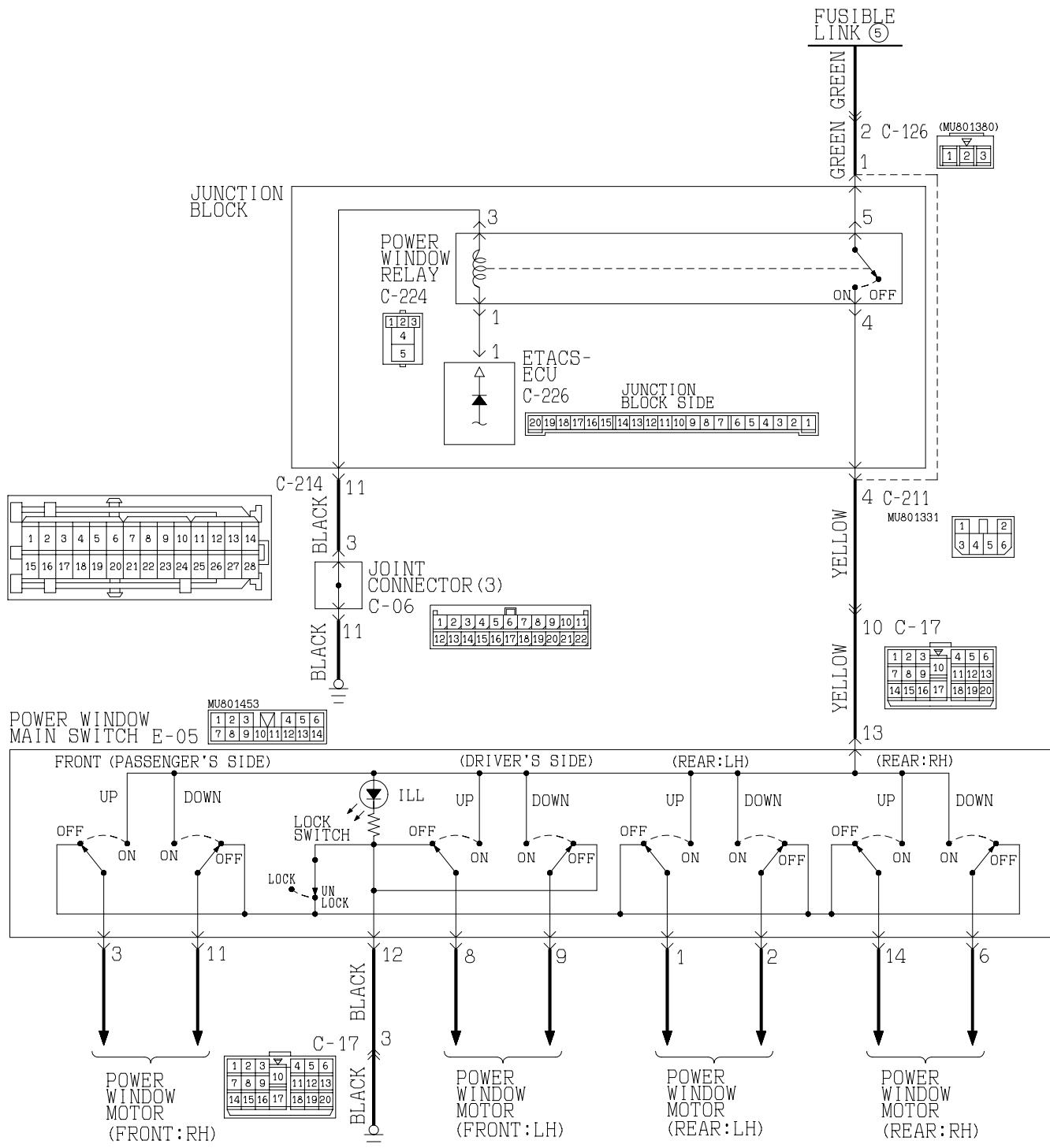
General circuit diagram for the power windows


W3J02M18AA

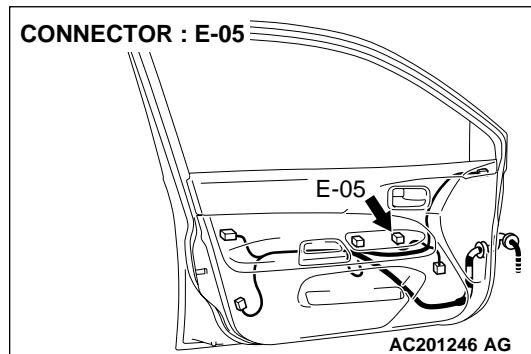
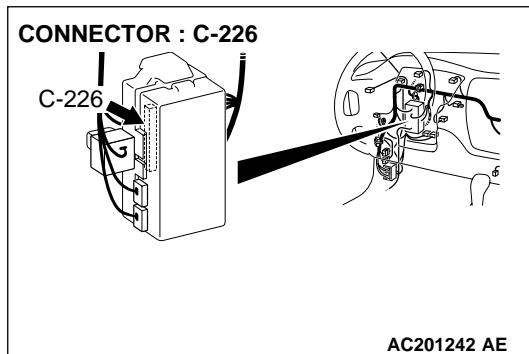
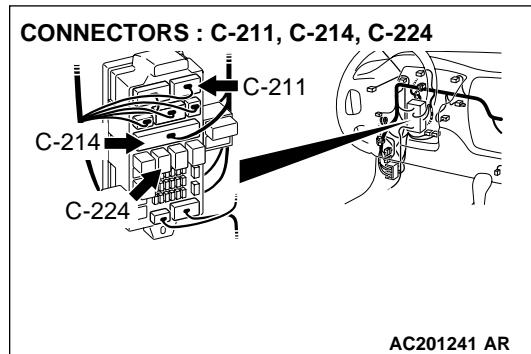
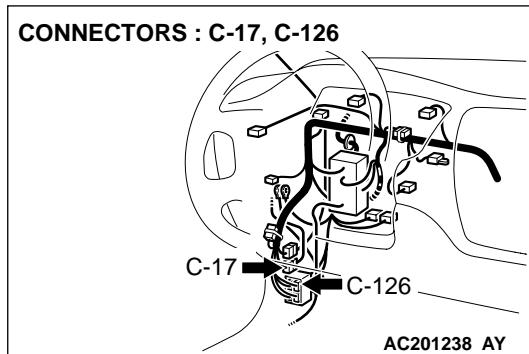
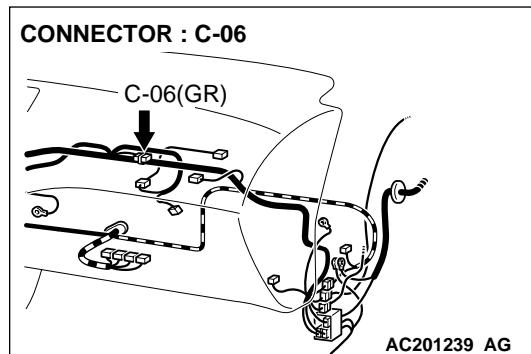
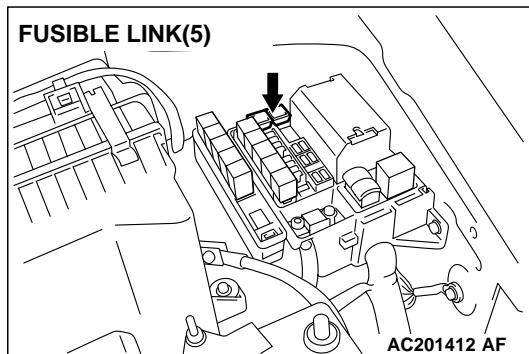
INSPECTION PROCEDURE D-1: Power Windows: Power windows do not work at all.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Power Window Relay Circuit



W3J02M06AA



CIRCUIT OPERATION

The ETACS-ECU turns on the power window relay (installed on the junction block) to activate the power windows when the ignition switch (IG1) is turned to the "ON" position.

TROUBLESHOOTING HINTS

- The power window relay 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the ETACS-ECU.

CAUTION

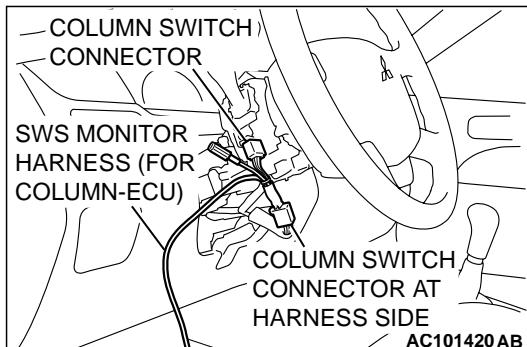
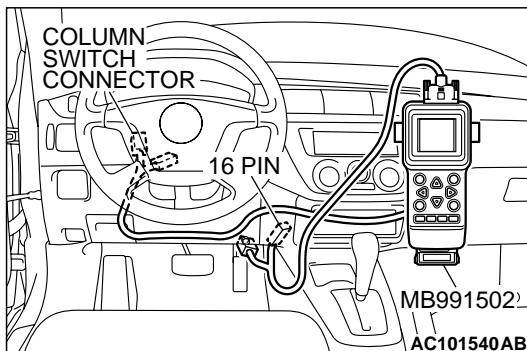
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

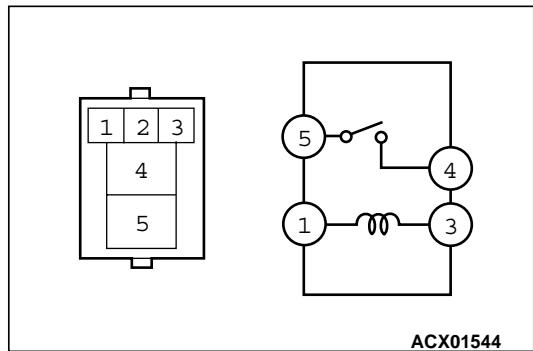
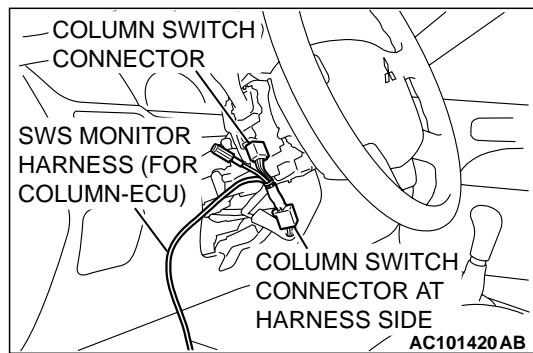
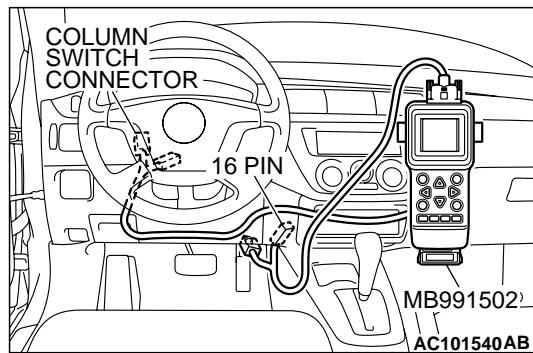
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "ON" position.
- (4) Operate scan tool MB991502 according to the procedure below to display "ECU COMM CHK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK."
- (5) Scan tool MB991502 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.54Bb-22](#)."





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

turn the ignition switch to the "ON" position before checking input signals from the ignition switch (IG1).

(1) Operate the MUT-II as follows:

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "DATA LIST."
5. Select "ETACS ECU."

(2) 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

Q: Is normal condition displayed?

YES : Go to Step 3.

NO : Refer to Inspection Procedure M-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) P.54Bc-6."

STEP 3. Check the power window relay.

BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	4 – 5	Open circuit
<ul style="list-style-type: none"> • Connect terminal 3 to the positive battery terminal • Connect terminal 1 to the negative battery terminal 	4 – 5	Less than 2 ohms

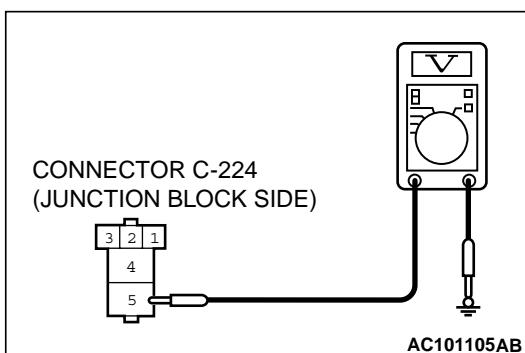
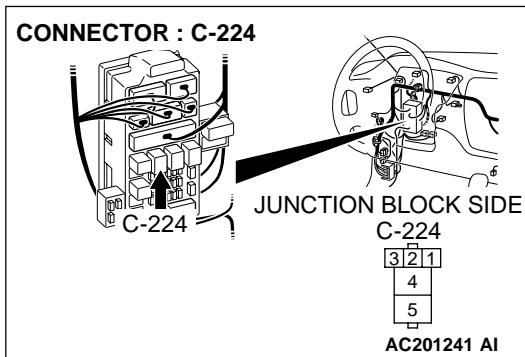
Q: Is the power window relay normal?

YES : Go to Step 4.

NO : Replace the power window relay. Verify that the power windows work normally.

STEP 4. Check the fusible link (5) line of power supply circuit to the power window relay. Test at power window relay connector C-224.

(1) Disconnect power window relay connector C-224 and measure the voltage available at the junction block side of the connector.

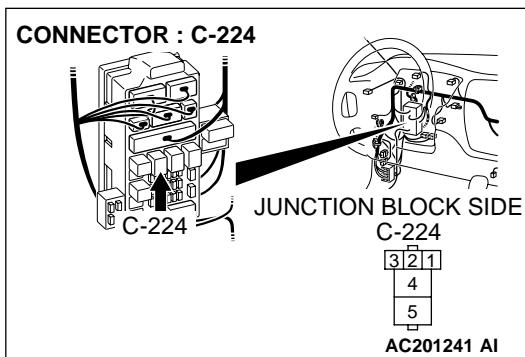


(2) Measure the voltage between terminal 5 and ground.

- The voltage should equal 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 5.



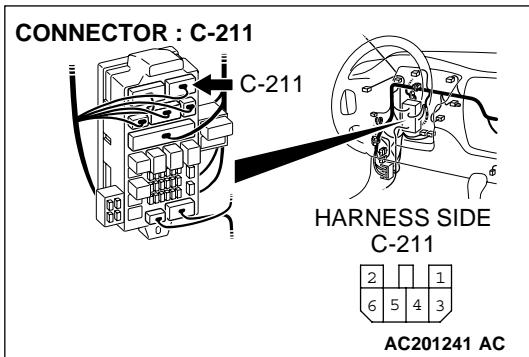
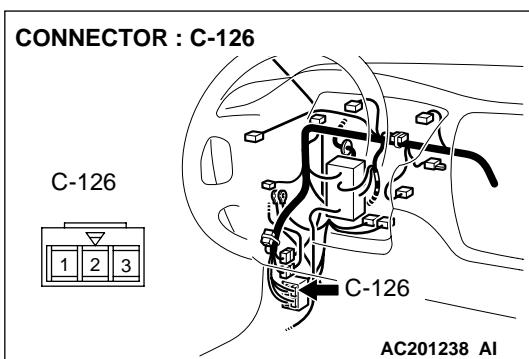
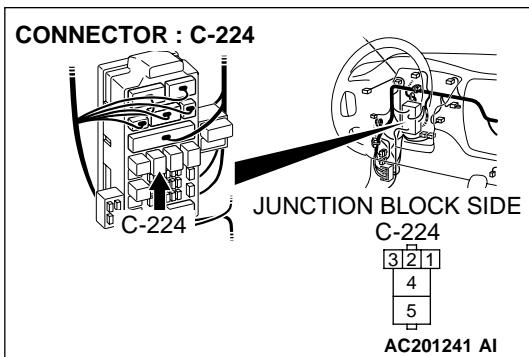
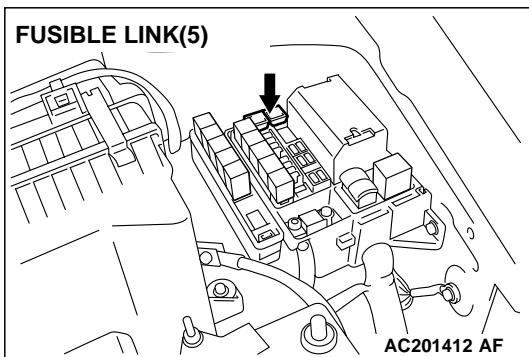
STEP 5. Check power window relay connector C-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power window relay connector C-224 in good condition?

YES : Go to Step 6.

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

[P.00E-2](#). Verify that the power windows work normally.



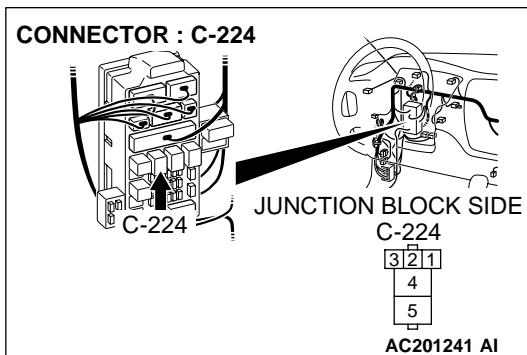
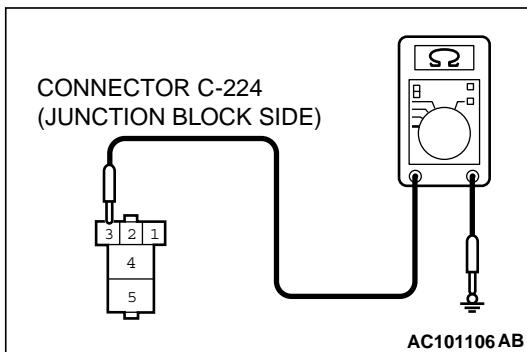
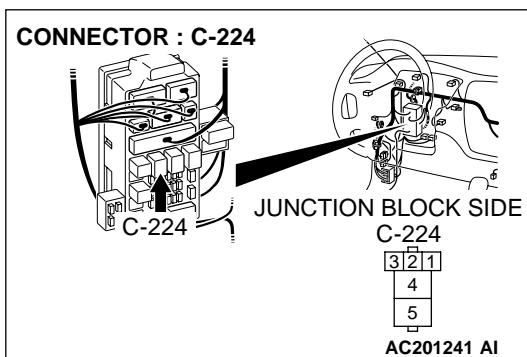
STEP 6. Check the wiring harness between power window relay connector C-224 (terminal 5) and fusible link (5).

NOTE: Also check junction block connector C-211 and intermediate connector C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-211 or intermediate connectors C-126 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 power window relay connector C-224 (terminal 5) and fusible link (5) 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 power windows work normally.



STEP 7. Check the ground circuit to the power window relay. Test at power window relay connector C-224

(1) Disconnect power window relay connector C-224 and measure the resistance available at the junction block 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 10.

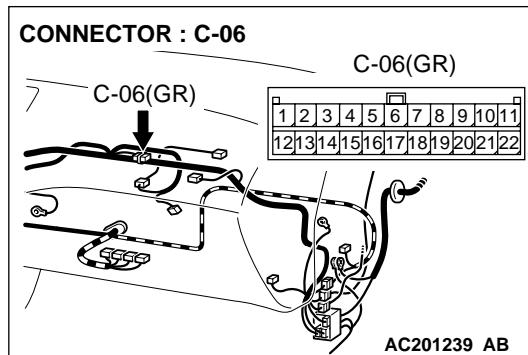
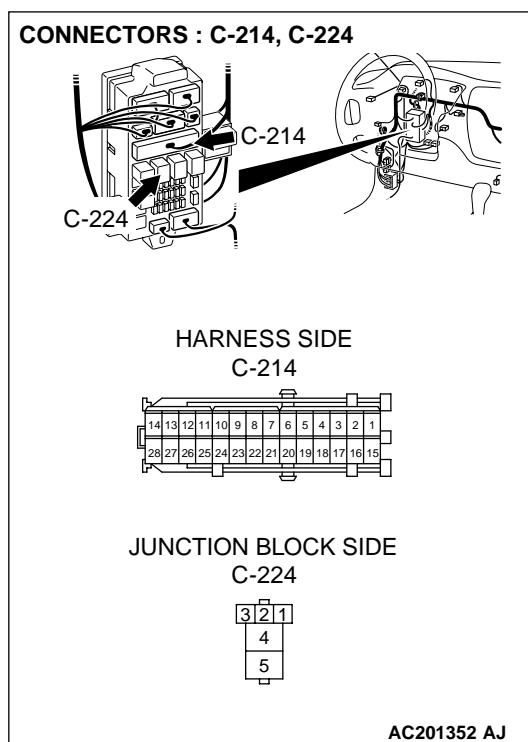
NO : Go to Step 8.

STEP 8. Check power window relay connector C-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power window relay connector C-224 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 power windows work normally.



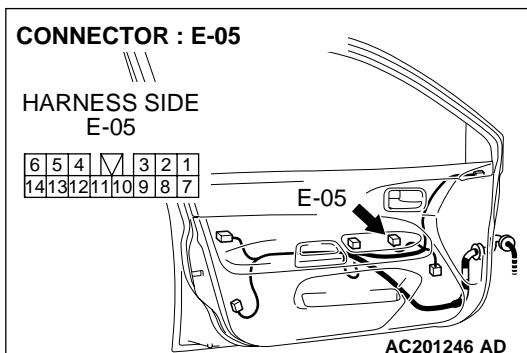
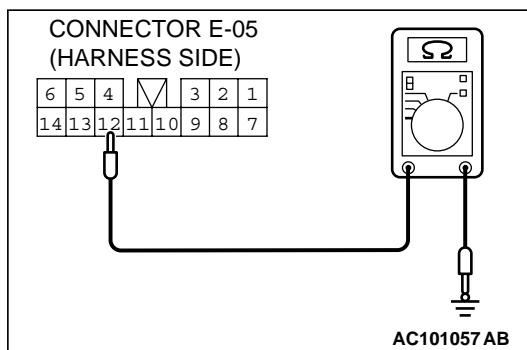
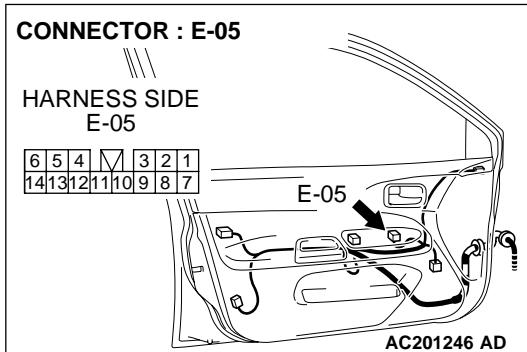
STEP 9. Check the wiring harness between power window relay connector C-224 (terminal 3) and ground.

NOTE: Also check junction block connector C-214 and joint connector C-06 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-214 or joint connectors C-06 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 power window relay connector C-224 (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 power windows work normally.



STEP 10. Check the ground circuit to the power window main switch. Test at power window main switch connector E-05.

(1) Disconnect power window main switch connector E-05 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 12 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 13.

NO : Go to Step 11.

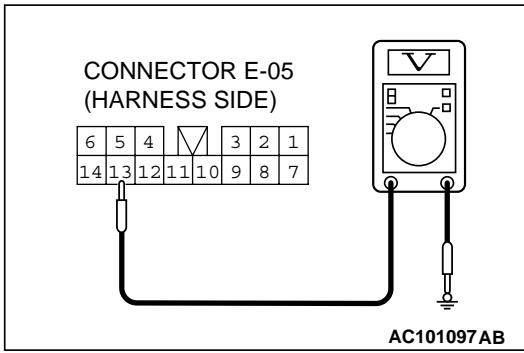
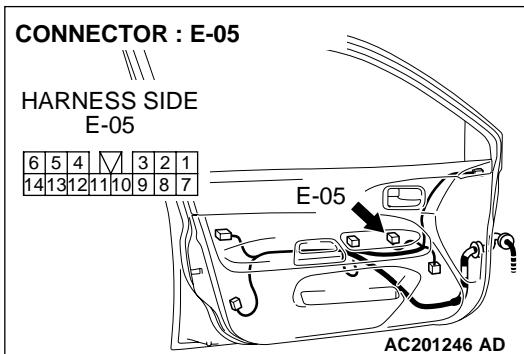
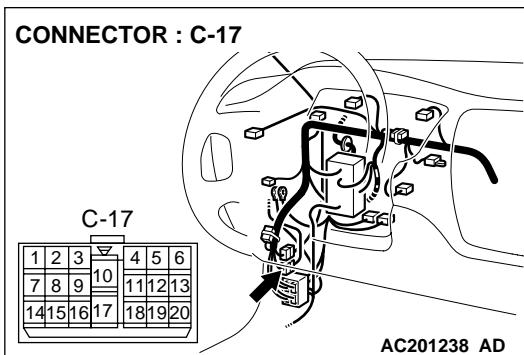
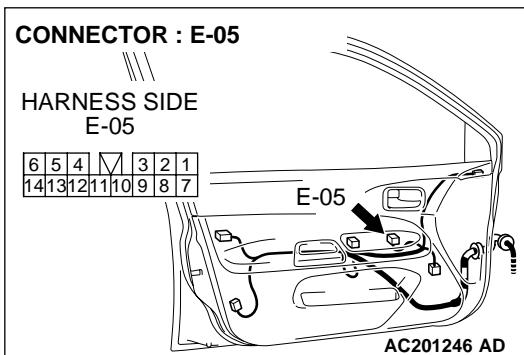
STEP 11. Check power window main switch connector E-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power window main switch connector E-05 in good condition?

YES : Go to Step 12.

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

[P.00E-2](#). Verify that the power windows work normally.



STEP 12. Check the wiring harness between power window main switch E-05 (terminal 12) and ground.

NOTE: Also check intermediate connector C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-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 power window main switch connector E-05 (terminal 12) 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 power windows work normally.

STEP 13. Check the battery power supply circuit to the power window main switch. Test at power window main switch connector E-05.

(1) Disconnect power window main switch connector E-05 and measure the voltage available at the wiring harness side of the connector.

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

(3) Measure the voltage between terminal 13 and ground.

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

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

YES : Replace the power window main switch. Verify that the power windows work normally.

NO : Go to Step 14.

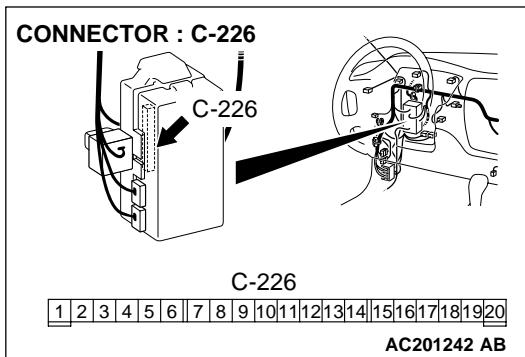
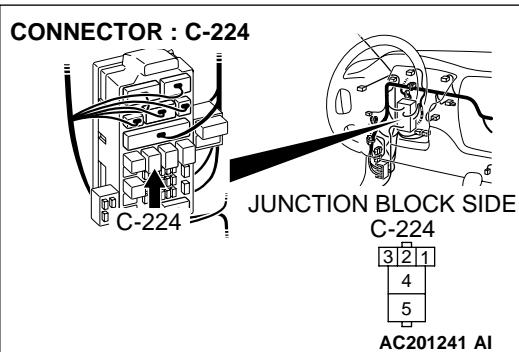
STEP 14. Check power window relay connector C-224 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window relay connector C-224 and ETACS-ECU connector C-226 in good condition?

YES : Go to Step 15.

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

P.00E-2. Verify that the power windows work normally.



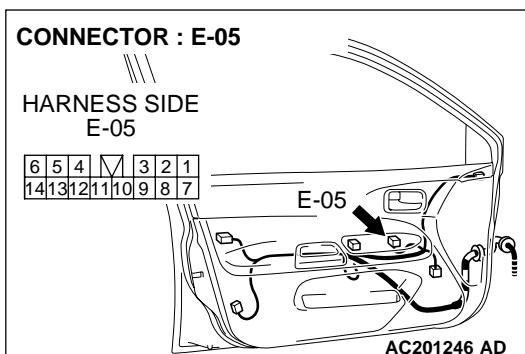
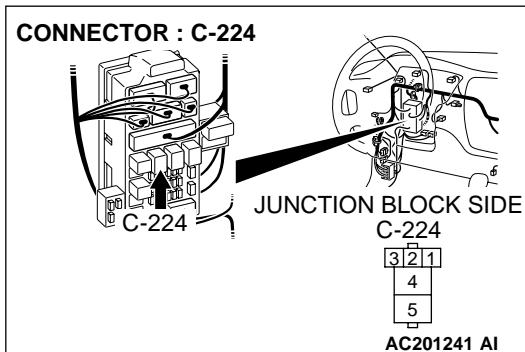
STEP 15. Check power window relay connector C-224 and power window main switch connector E-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window relay connector C-224 and power window main switch connector E-05 in good condition?

YES : Go to Step 16.

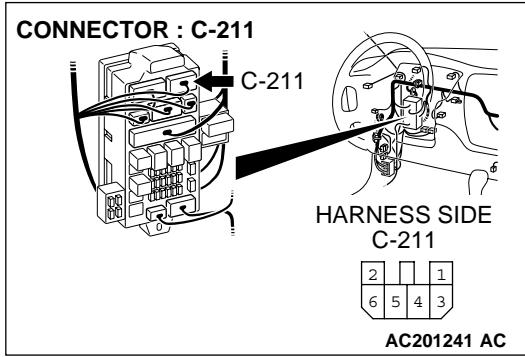
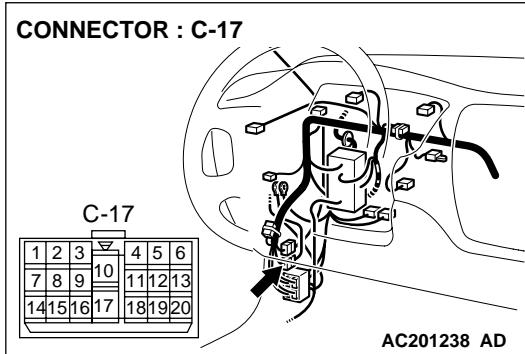
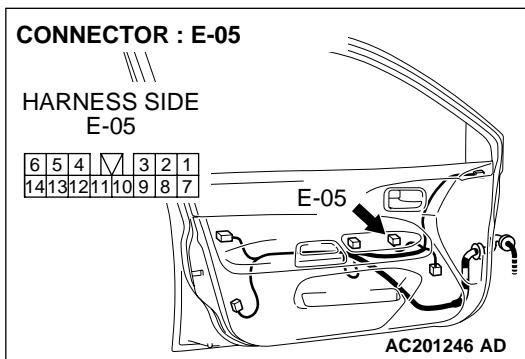
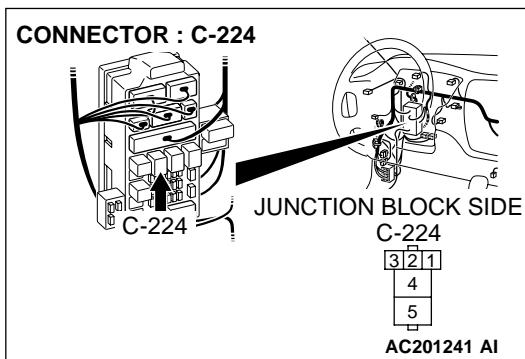
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

P.00E-2. Verify that the power windows work normally.



STEP 16. Check the wiring harness between power window relay connector C-224 (terminal 4) and power window main switch connector E-05 (terminal 13).

NOTE: Also check junction block connector C-211 and intermediate connector C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-211 or intermediate connectors C-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 power window relay connector C-224 (terminal 4) and power window main switch connector E-05 (terminal 13) in good condition?

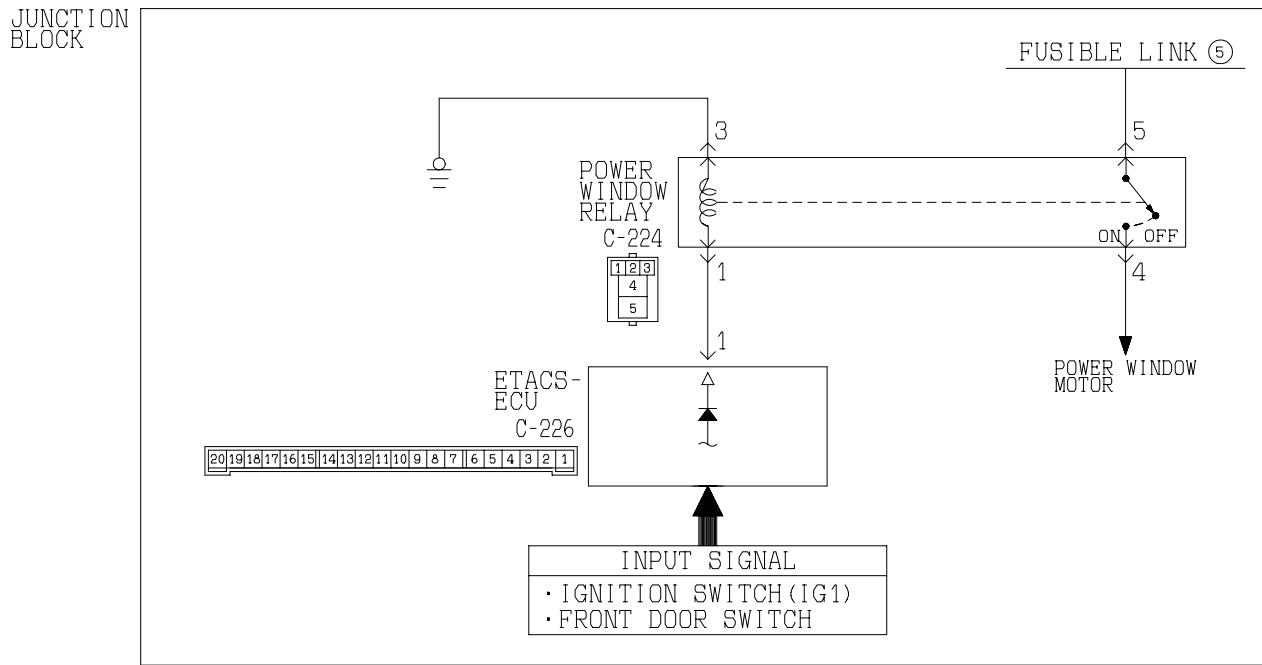
YES : Replace the ETACS-ECU. Verify that the power windows work normally.

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 power windows work normally.

INSPECTION PROCEDURE D-2: Power Windows: The power window timer function does not work normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Power Window Timer Function Circuit



W3J02M07AA

CIRCUIT OPERATION

The ETACS-ECU operates the power window timer function according to the following signals:

- Ignition switch (IG1)
- Front door switch

TECHNICAL DESCRIPTION (COMMENT)

If the power window timer function does not work normally, its input circuit, the ETACS-ECU or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- The front door switches 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the ETACS-ECU.

 **CAUTION**

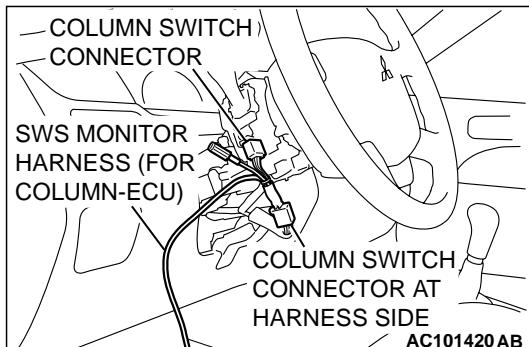
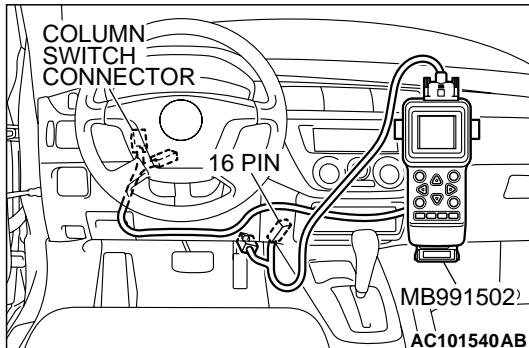
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 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 MB991502 should show "OK" on the "ECU COMM CHK" menu for the "ETACS ECU" menu.

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

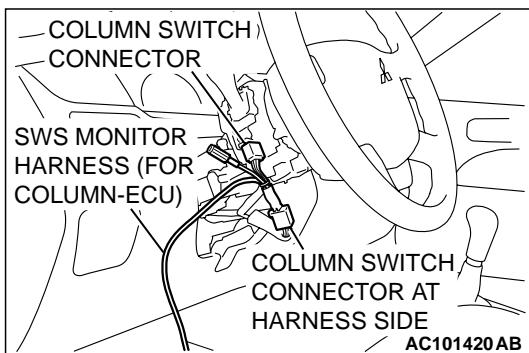
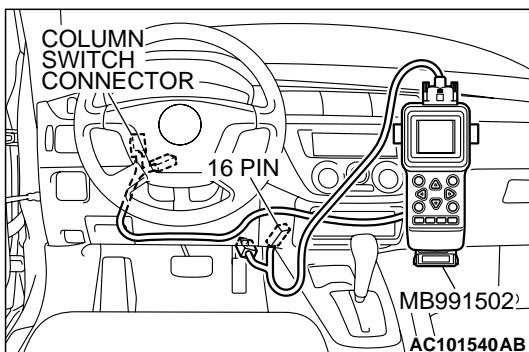
YES : Go to Step 2.

NO : Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is not possible [P.54Bb-22](#)."



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

- (1) Check the input signals from the following switches:
- Ignition switch: ON to OFF
 - Driver's and front passenger's doors: closed
- (2) Operate scan tool MB991502 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."
- (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)	OFF
ITEM 32	FRONT DOOR SW	OFF

Q: Are normal conditions displayed on the "IG SW (IG1)" and "FRONT DOOR SW"?

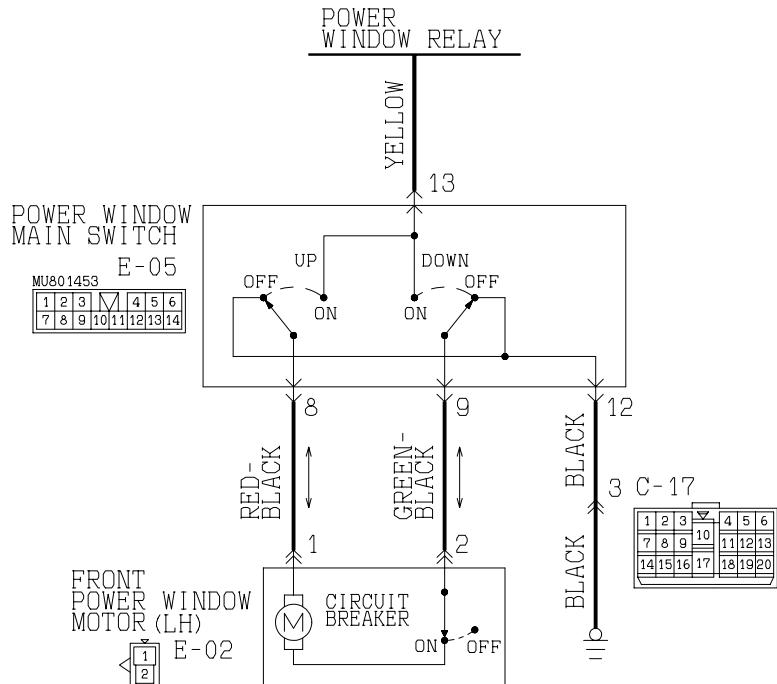
YES : Replace the ETACS-ECU. Verify that the power window timer works normally.

NO :

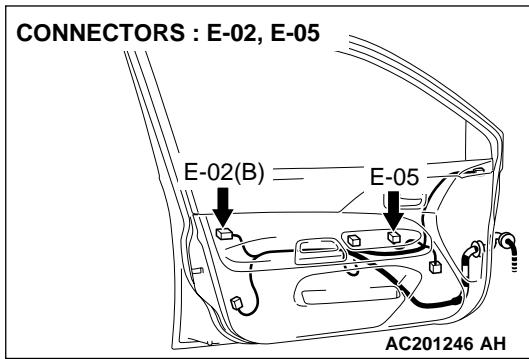
- Normal condition is not displayed on the "IG SW (IG1)": Refer to Inspection Procedure M-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1)[P.54Bc-6](#)."
- Normal condition is not displayed on the "FRONT DOOR SW": Refer to Inspection Procedure M-4 "ETACS-ECU does not receive a signal from the driver's or the front passenger's door switch [P.54Bc-24](#)."

INSPECTION PROCEDURE D-3: Power Windows: Only front door window (LH) does not work normally by operating the power window main switch.

Power Window (front: LH) Circuit



W2J08M07AA



CIRCUIT OPERATION

The front power window motor (LH) opens or closes the door window (LH) when the power window main switch is moved to "UP" or "DOWN" position.

TECHNICAL DESCRIPTION (COMMENT)

The power window main switch or the front power window motor (LH) may be defective.

TROUBLESHOOTING HINTS

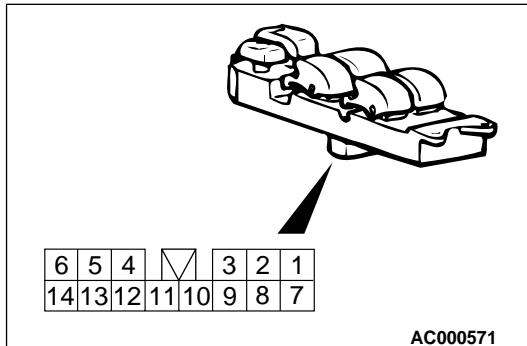
- The power window main switch may be defective
- The power window motor (front: LH) may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tool:**

- MB991223: Harness Set

STEP 1. Check the power window main switch.

- (1) Remove the power window main switch. Refer to GROUP 42, Door-Door Trim and Waterproof Film [P.42-37](#).
- (2) Check continuity while power window main switch is moved to "UP" and "DOWN" position.



FRONT (LH) SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UP	8 – 13, 9 – 12	Less than 2 ohms
OFF	8 – 9 – 12	Less than 2 ohms
DOWN	8 – 12, 9 – 13	Less than 2 ohms

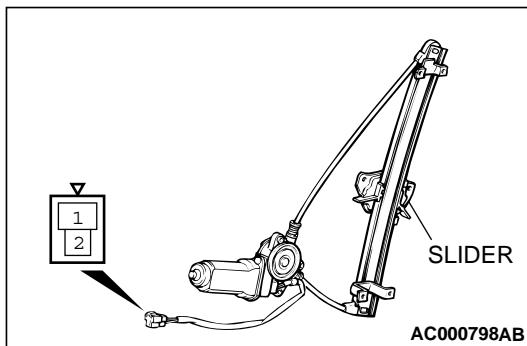
Q: Is the power window main switch normal?

YES : Go to Step 2.

NO : Replace the power window main switch. When the power window main switch is operated, the front power window (LH) should open and close normally.

STEP 2. Check the front power window motor (LH).

- (1) Remove the front power window motor (LH). Refer to GROUP 42, Door-Door Glass and Regulator [P.42-43](#).
- (2) Connect a battery to the motor terminal, and check that the motor runs freely.

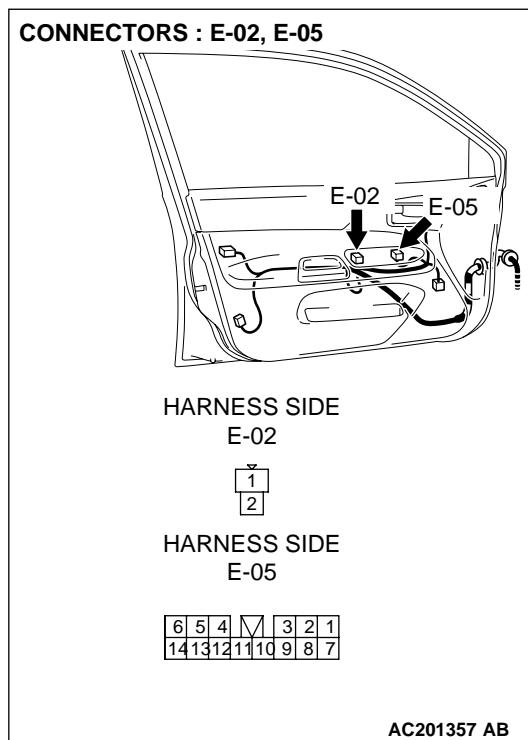


TESTER CONNECTION	SLIDER POSITION
<ul style="list-style-type: none"> • Connect terminal 1 to the positive battery terminal • Connect terminal 2 to the negative battery terminal 	UP
<ul style="list-style-type: none"> • Connect terminal 2 to the positive battery terminal • Connect terminal 1 to the negative battery terminal 	DOWN

Q: Is the front power window motor (LH) normal?

YES : Go to Step 3.

NO : Replace the front power window motor (LH). When the power window main switch is operated, the front power window (LH) should open and close normally.

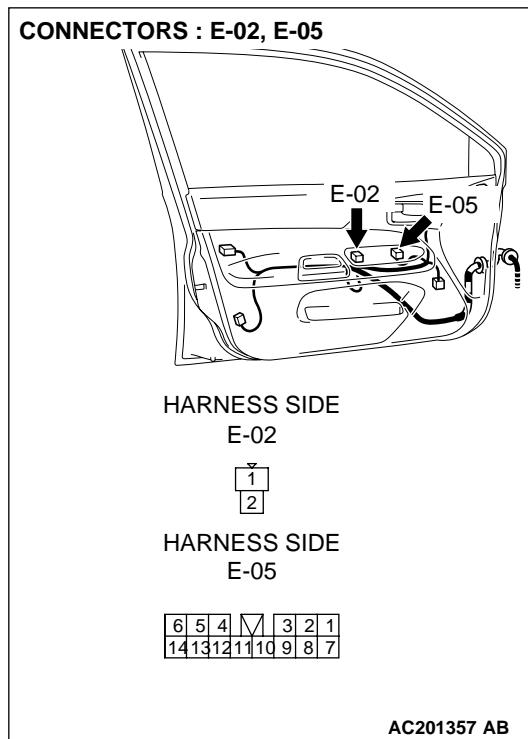


STEP 3. Check power window main switch connector E-05 and front power window motor (LH) connector E-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window main switch connector E-05 and front power window motor (LH) connector E-02 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. When the power window main switch is operated, the front power window (LH) should open and close normally.



STEP 4. Check the wiring harness between power window main switch connector E-05 (terminal 8 and 9) and front power window motor (LH) connector E-02 (terminal 1 and 2).

Q: Is the wiring harness between power window main switch connector E-05 (terminal 8 and 9) and front power window motor (LH) connector E-02 (terminal 1 and 2) in good condition?

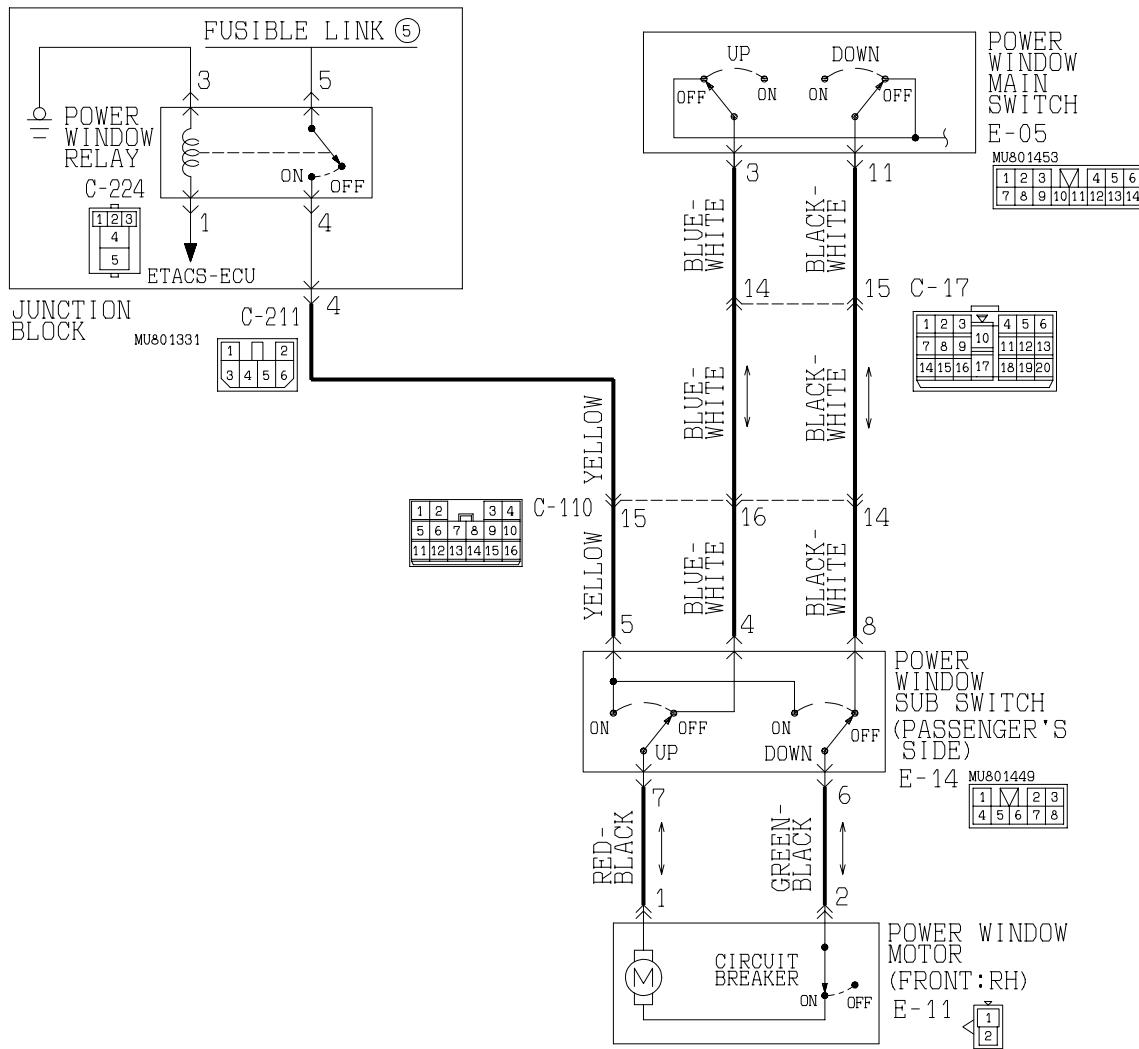
YES : No action is necessary and testing is complete.

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. When the power window main switch is operated, the front power window (LH) should open and close normally.

INSPECTION PROCEDURE D-4: Power Windows: Power windows does not work normally by operating the front passenger's and rear passenger's sub switches.

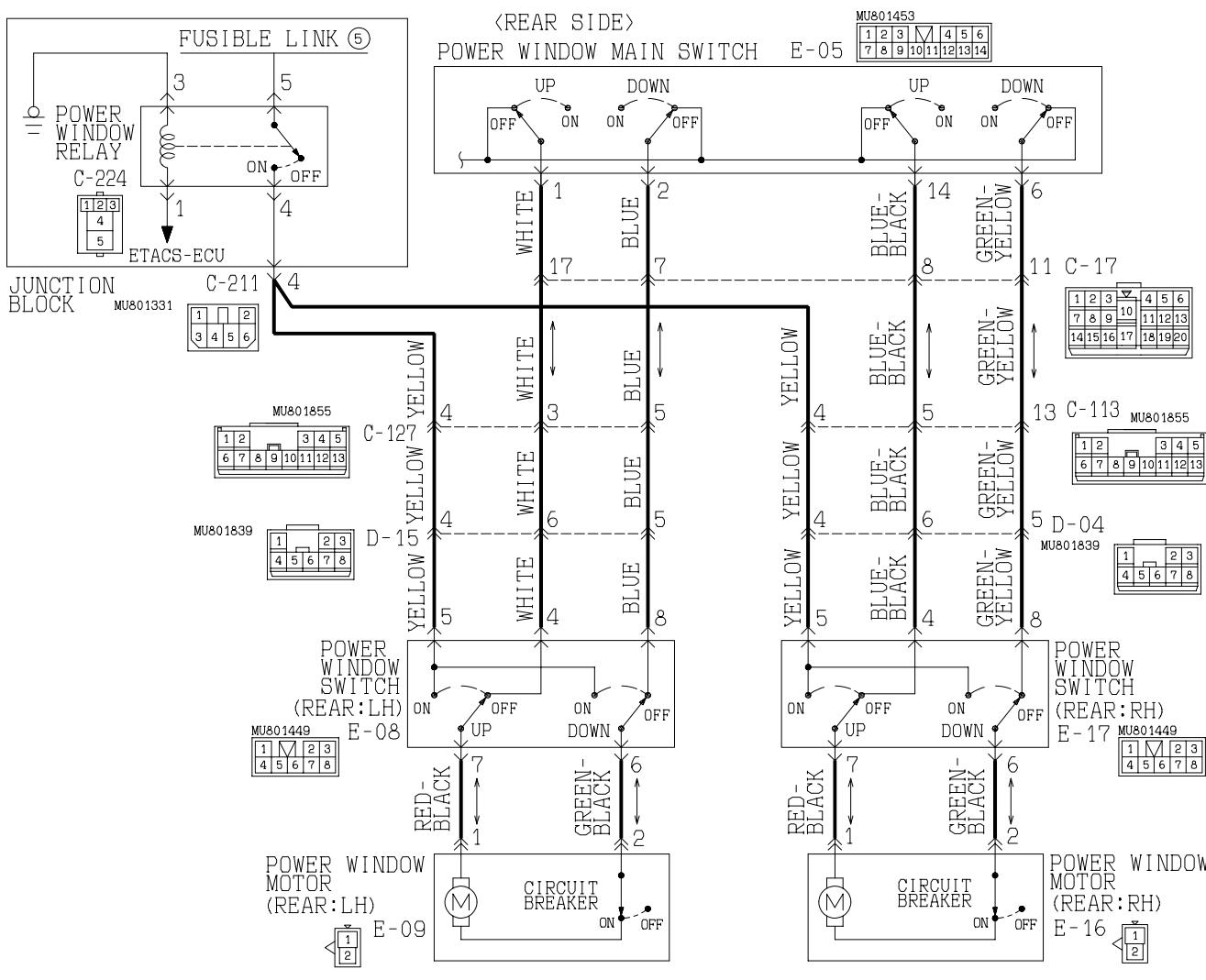
Power Window Sub Switch Circuit

< PASSENGER'S SIDE >

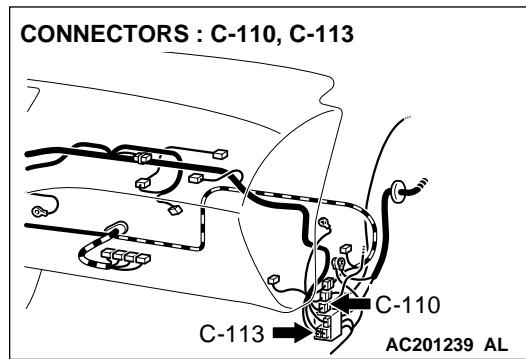
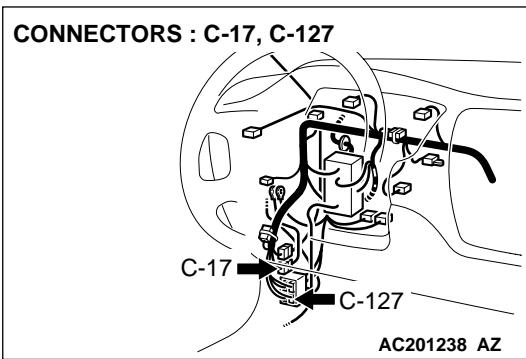


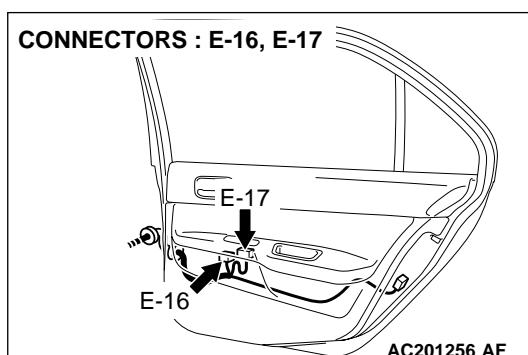
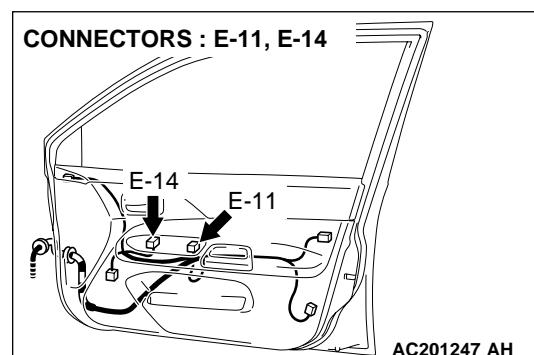
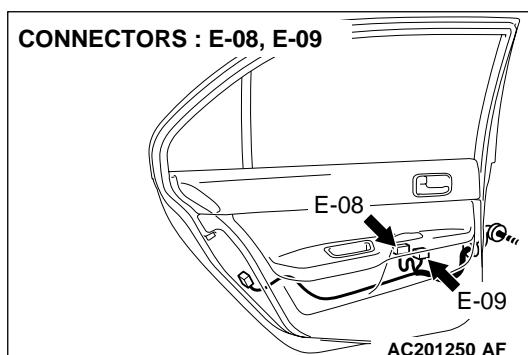
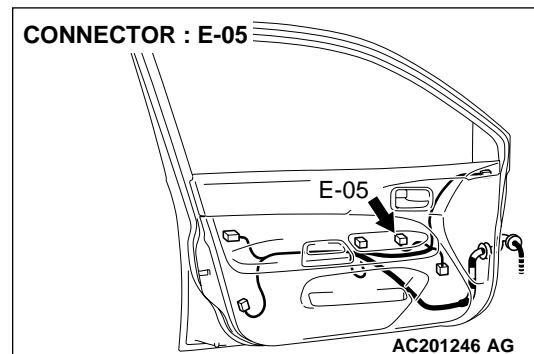
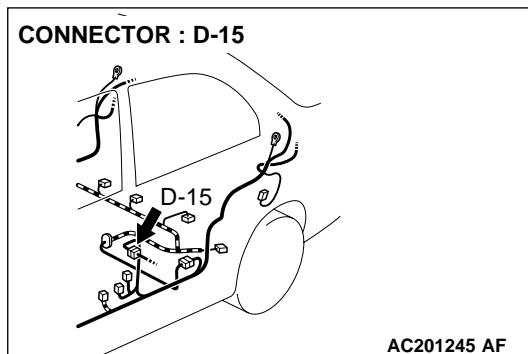
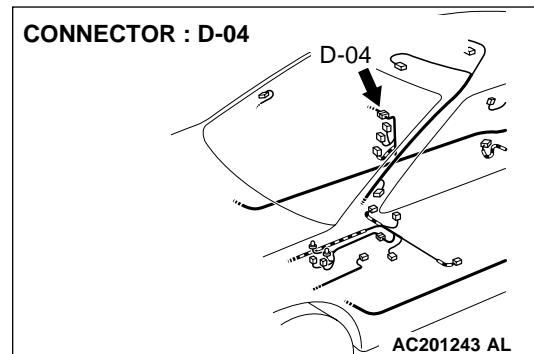
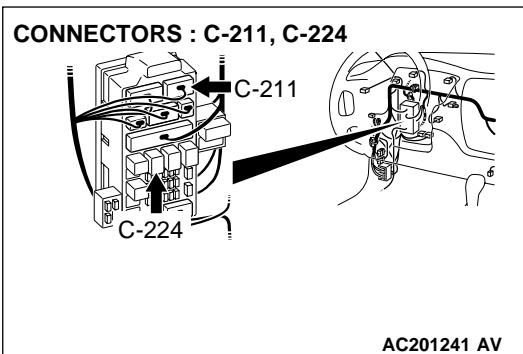
W2J08M34AA

Power Window Sub Switch Circuit



W2J08M33AA





CIRCUIT OPERATION

Power window motors open or close the door windows when the front passenger's or rear passenger's sub switch is moved to "UP" or "DOWN" position.

TECHNICAL DESCRIPTION (COMMENT)

A power window sub-switch or power window motor may be defective. Alternatively, the power window lock switch (incorporated in the power window main switch) may remain pressed to "LOCK" position.

TROUBLESHOOTING HINTS

- The power window main switch may be defective
- The front power window sub-switch (RH) may be defective
- The rear power window sub-switch (LH) may be defective
- The rear power window sub-switch (RH) may be defective
- The front power window motor (RH) may be defective
- The rear power window motor (LH) may be defective
- The rear power window motor (RH) may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

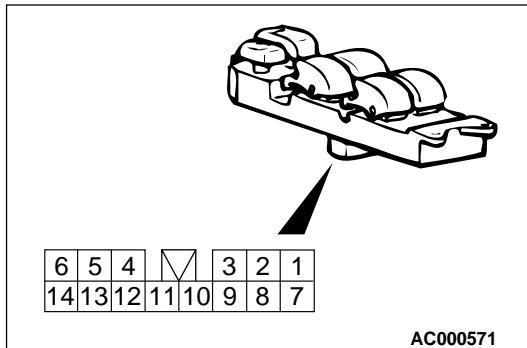
DIAGNOSIS**Required Special Tool:**

- MB991223: Harness Set

STEP 1. Check each switch on the power window main switch for continuity.

(1) Remove the power window main switch. Refer to GROUP 42, Door-Door Trim and Waterproof Film [P.42-37](#).

(2) Check continuity when each switch on the power window main switch is operated to "UP" or "DOWN" position.



SWITCHES TO BE CHECKED	SWITCH POSITION		TESTER CONNECTION	SPECIFIED CONDITION
	power window lock switch	Power window switches to be checked		
front power window (RH)	lock	UP	3 – 13	Less than 2 ohms
		OFF	3 – 11	Less than 2 ohms
		DOWN	11 – 13	Less than 2 ohms
	unlock	UP	3 – 13, 11 – 12	Less than 2 ohms
		OFF	3 – 11, 3 – 12, 11 – 12	Less than 2 ohms
		DOWN	3 – 12, 11 – 13	Less than 2 ohms
rear power window (LH)	lock	UP	1 – 13	Less than 2 ohms
		OFF	1 – 2	Less than 2 ohms
		DOWN	2 – 13	Less than 2 ohms
	unlock	UP	1 – 13, 2 – 12	Less than 2 ohms
		OFF	1 – 2, 1 – 12, 2 – 12	Less than 2 ohms
		DOWN	1 – 12, 2 – 13	Less than 2 ohms

SWITCHES TO BE CHECKED	SWITCH POSITION		TESTER CONNECTION	SPECIFIED CONDITION
	power window lock switch	Power window switches to be checked		
rear power window (RH)	lock	UP	13 – 14	Less than 2 ohms
		OFF	6 – 14	Less than 2 ohms
		DOWN	6 – 13	Less than 2 ohms
	unlock	UP	13 – 14, 6 – 12	Less than 2 ohms
		OFF	6 – 12, 6 – 14, 12 – 14	Less than 2 ohms
		DOWN	6 – 13, 12 – 14	Less than 2 ohms

Q: Is the power window main switch normal?

YES : Go to Step 2.

NO : Replace the power window main switch. When the power window sub-switch is operated, the power windows should open or close normally.

STEP 2. Check the power window lock switch.

Q: Is the power window lock switch at the "UNLOCK" position?

YES : Go to Step 3.

NO : Operate the power window lock switch to the "UNLOCK" position? When the power window sub-switch is operated, the power windows should open or close normally.

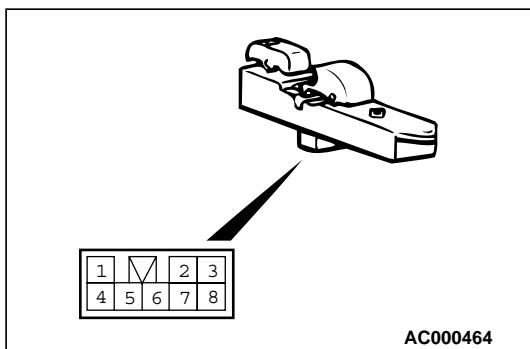
STEP 3. Check which door window is not opened or closed

Q: Which door window is opened or closed?

Passenger's side : Go to Step 4.

Rear passenger (LH) : Go to Step 17.

Rear passenger (RH) : Go to Step 30.

**STEP 4. Check the front power window sub-switch (RH) for continuity.**

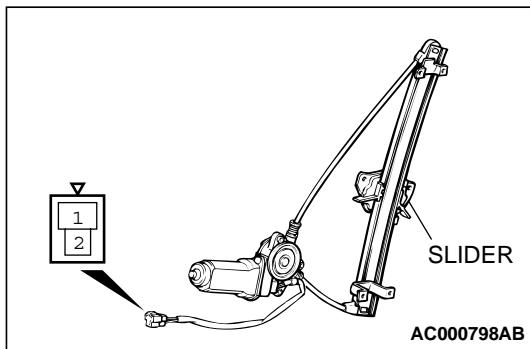
- (1) Remove the front power window sub-switch (RH). Refer to GROUP 42, Door-Door Trim and Waterproof Film P.42-37.
- (2) Check continuity when the front power window sub-switch (RH) is operated to "UP" or "DOWN" position.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UP	5 – 7, 6 – 8	Less than 2 ohms
OFF	4 – 7, 6 – 8	Less than 2 ohms
DOWN	4 – 7, 5 – 6	Less than 2 ohms

Q: Is the front power window sub-switch (RH) normal?

YES : Go to Step 5.

NO : Replace the front power window sub-switch (RH). When the front power window sub-switch (RH) is operated, the front power window (RH) should open or close normally.

**STEP 5. Check the front power window motor (RH).**

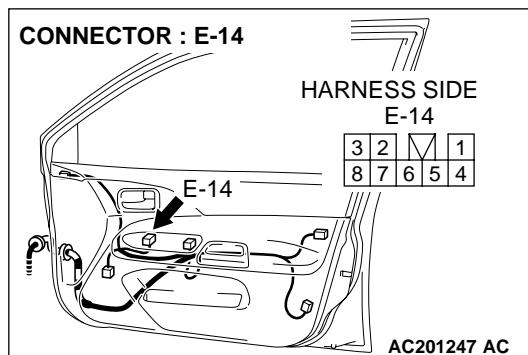
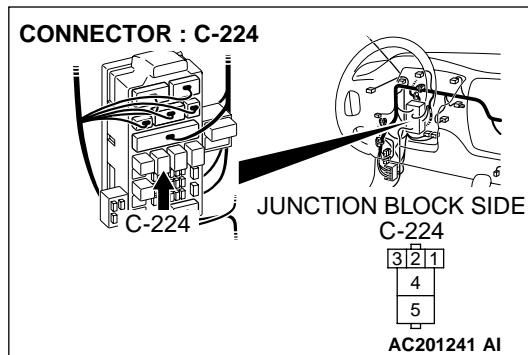
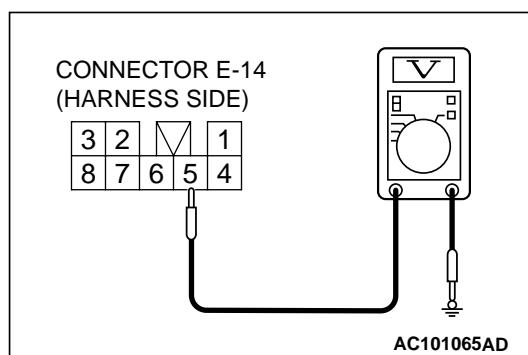
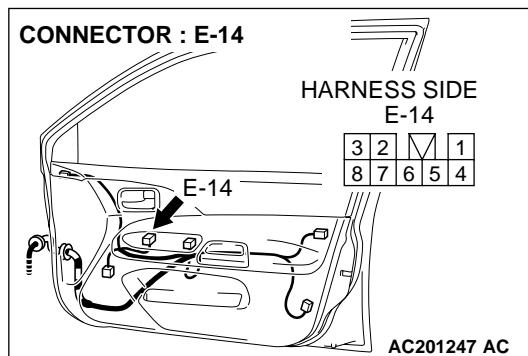
- (1) Remove the front power regulator assembly (RH). Refer to GROUP 42, Door-Door Glass and Regulator P.42-43.
- (2) Connect a battery to the motor terminal, and check that the motor runs freely.

TESTER CONNECTION	SLIDER POSITION
<ul style="list-style-type: none"> • Connect terminal 1 to the positive battery terminal • Connect terminal 2 to the negative battery terminal 	UP
<ul style="list-style-type: none"> • Connect terminal 2 to the positive battery terminal • Connect terminal 1 to the negative battery terminal 	DOWN

Q: Is the front power window motor (RH) normal?

YES : Go to Step 6.

NO : Replace the front power regulator assembly (RH). When the front power window sub-switch (RH) is operated, the front power window (RH) should open or close normally.



STEP 6. Check the battery power supply circuit to the front power window sub-switch (RH). Test at front power window sub-switch (RH) connector E-14.

- (1) Disconnect front power window sub-switch (RH) connector E-14 and measure the voltage available at the wiring harness side of the connector.
- (2) Turn the ignition switch to the "ON" position.

(3) Measure the voltage between terminal 5 and ground.

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

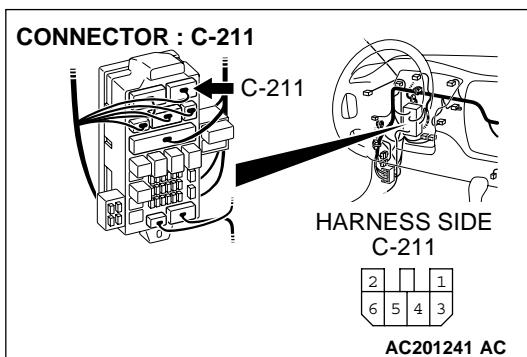
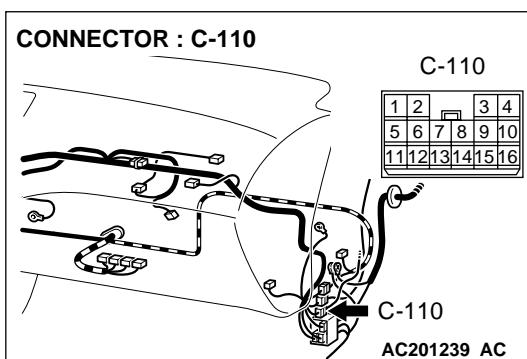
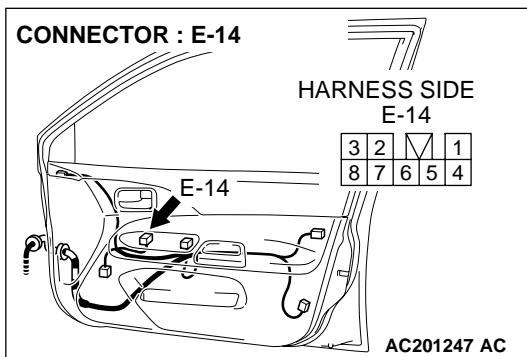
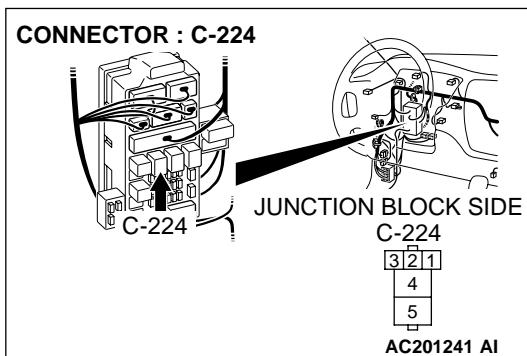
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

- YES :** Go to Step 9.
NO : Go to Step 7.

STEP 7. Check power window relay connector C-224 and front power window sub-switch connector E-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window relay connector C-224 and front power window sub-switch (RH) connector E-14 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. When the front power window sub-switch (RH) is operated, the front power window (RH) should open or close normally.



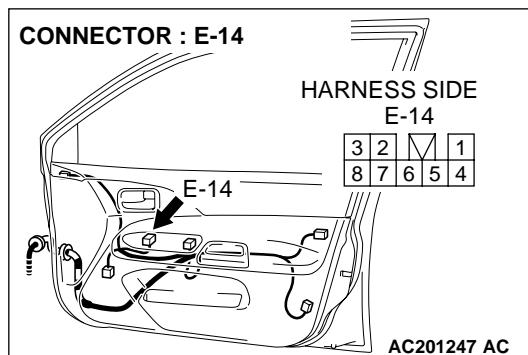
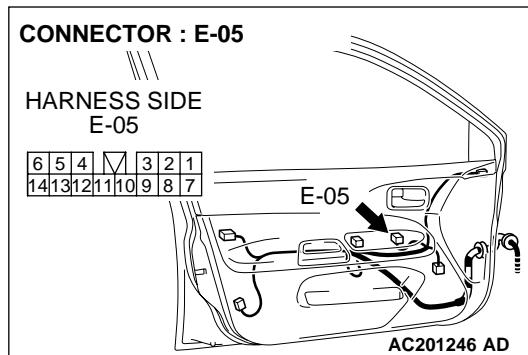
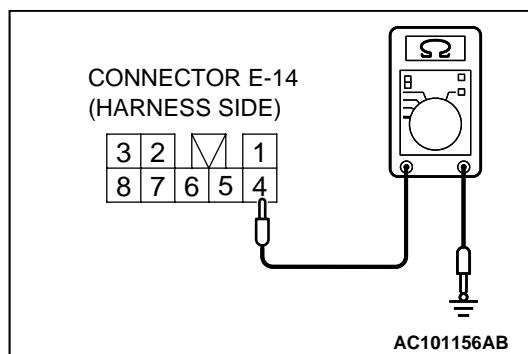
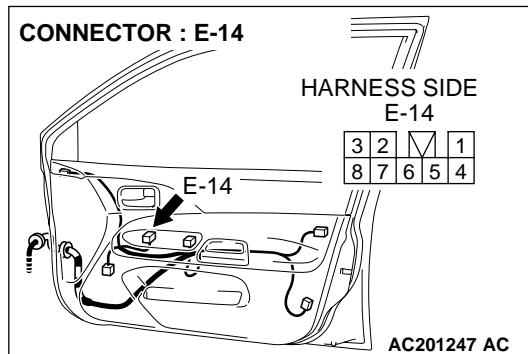
STEP 8. Check the wiring harness between power window relay connector C-224 (terminal 4) and front power window sub-switch (RH) connector E-14 (terminal 5).

NOTE: Also check junction block connector C-211 and intermediate connector C-110 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-211 or intermediate connectors C-110 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 power window relay connector C-224 (terminal 4) and front power window sub-switch (RH) connector E-14 (terminal 5) 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. When the front power window sub-switch (RH) is operated, the front power window (RH) should open or close normally.



STEP 9. Check the ground circuit to the front power window sub-switch (RH). Test at front power window sub-switch (RH) connector E-14.

(1) Disconnect front power window sub-switch (RH) connector E-14 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 12.

NO : Go to Step 10.

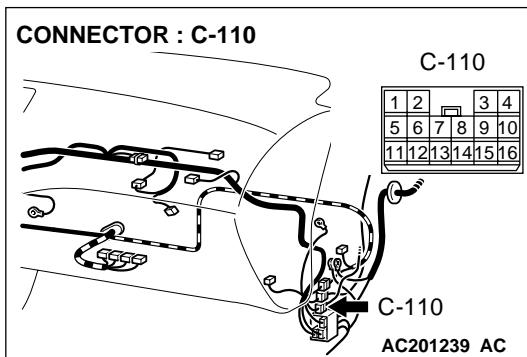
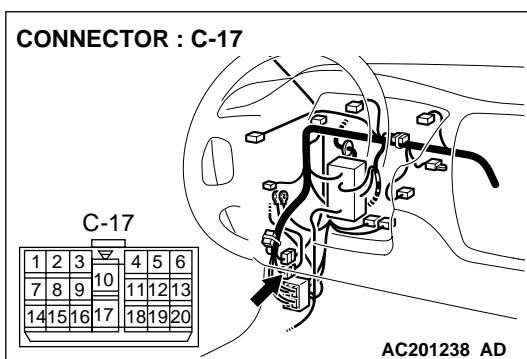
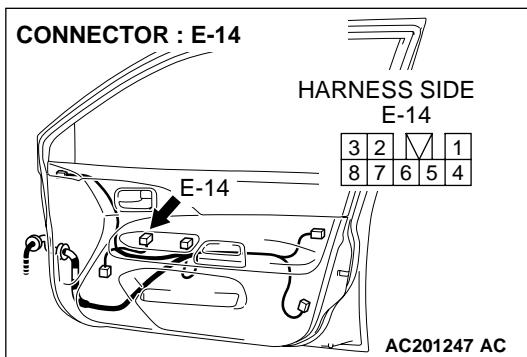
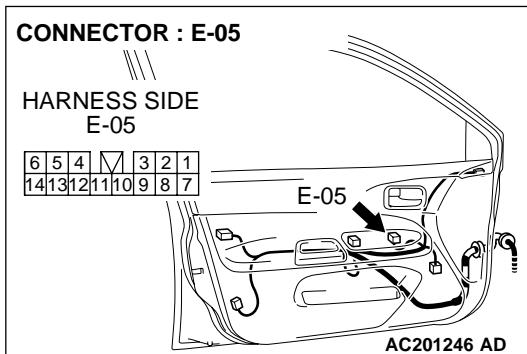
STEP 10. Check power window main switch connector E-05 and front power window sub-switch (RH) connector E-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window main switch connector E-05 and front power window sub-switch (RH) connector E-14 in good condition?

YES : Go to Step 11.

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

[P.00E-2](#). When the front power window sub-switch (RH) is operated, the front power window (RH) should open or close normally.



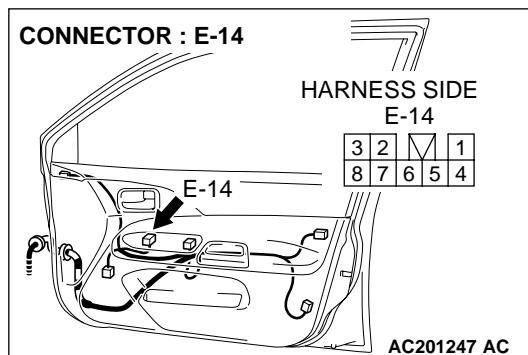
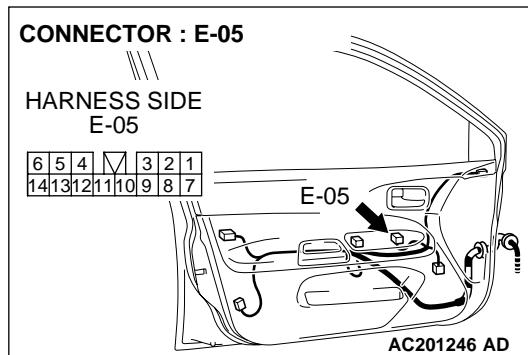
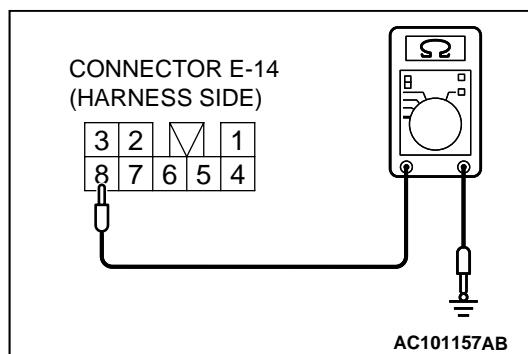
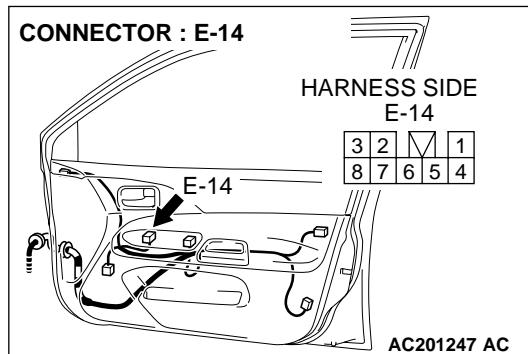
STEP 11. Check the wiring harness between power window main switch connector E-05 (terminal 3) and front power window sub-switch (RH) connector E-14 (terminal 4).

NOTE: Also check intermediate connectors C-110 and C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-110 or C-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 power window main switch connector E-05 (terminal 3) and front power window sub-switch (RH) connector E-14 (terminal 4) in good condition?

YES : Replace the power window main switch. When the front power window sub-switch (RH) is operated, the front power window (RH) should open or close 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. When the front power window sub-switch (RH) is operated, the front power window (RH) should open or close normally.



STEP 12. Check the ground circuit to the front power window sub-switch (RH). Test at front power window sub-switch (RH) connector E-14.

(1) Disconnect front power window sub-switch (RH) connector E-14 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 8 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 13.

STEP 13. Check power window main switch connector E-05 and front power window sub-switch (RH) connector E-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window main switch connector E-05 and front power window sub-switch (RH) connector E-14 in good condition?

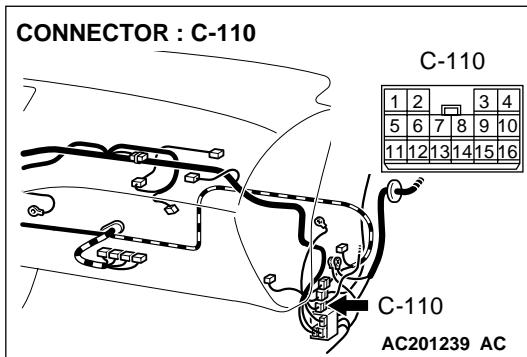
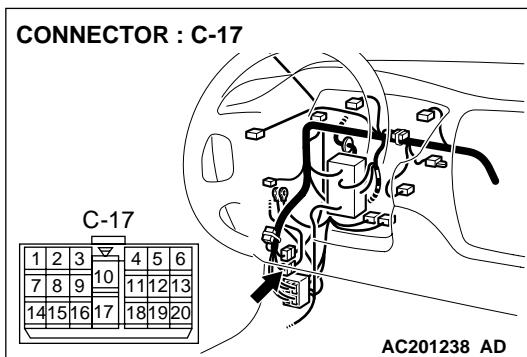
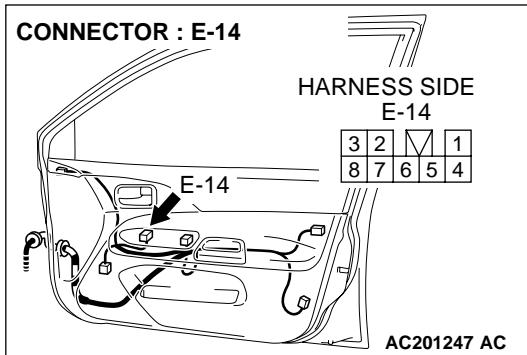
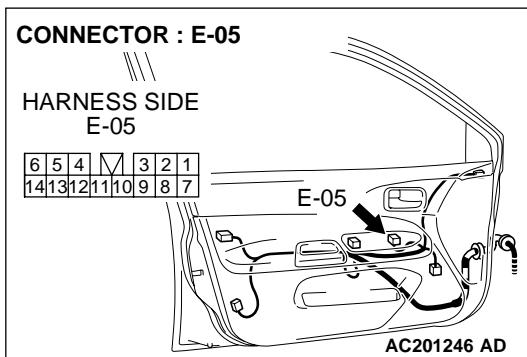
YES : Go to Step 14.

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

[P.00E-2](#). When the front power window sub-switch (RH) is operated, the front power window (RH) should open or close normally.

STEP 14. Check the wiring harness between power window main switch connector E-05 (terminal 11) and front power window sub-switch (RH) connector E-14 (terminal 8).

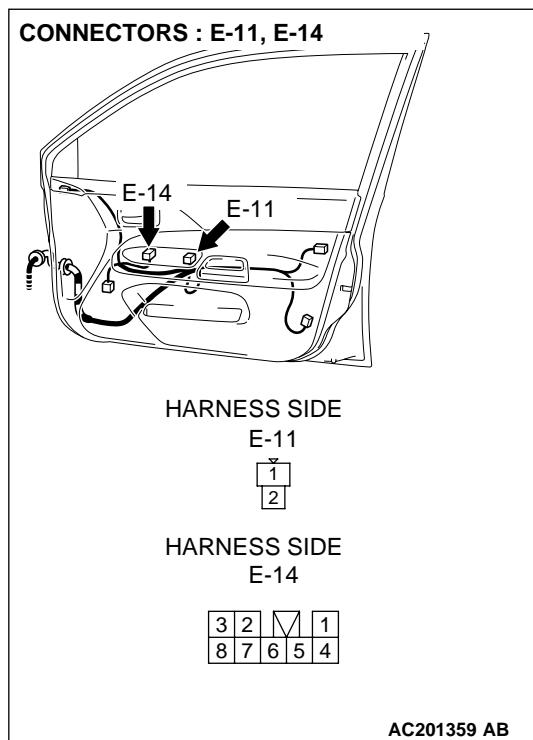
NOTE: Also check intermediate connectors C-110 and C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-110 or C-17 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between power window main switch connector E-05 (terminal 11) and front power sub-switch (RH) connector E-14 (terminal 8) in good condition?

YES : Replace the power window main switch. When the front power window sub-switch (RH) is operated, the front power window (RH) should open or close 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. When the front power window sub-switch (RH) is operated, the front power window (RH) should open or close normally.

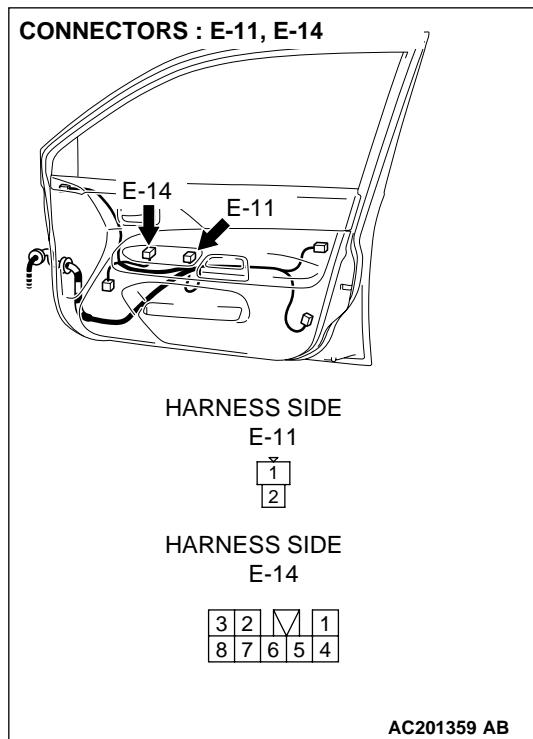


STEP 15. Check front power window sub-switch (RH) connector E-14 and front power window motor (RH) connector E-11 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are front power window sub-switch (RH) connector E-14 and front power window motor (RH) connector E-11 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. When the front power window sub-switch (RH) is operated, the front power window (RH) should open or close normally.



STEP 16. Check the wiring harness between front power window sub-switch (RH) connector E-14 (terminal 6 and 7) and front power window motor (RH) connector E-11 (terminal 2 and 1).

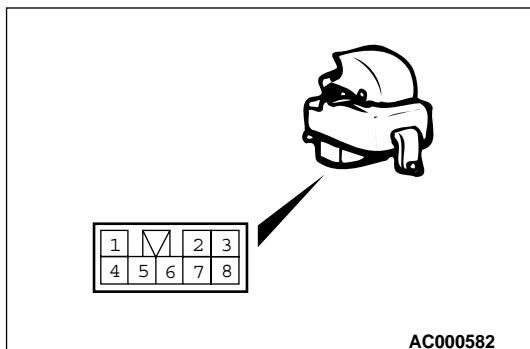
Q: Is the wiring harness between front power window main switch (RH) connector E-14 (terminal 6 and 7) and front power window motor (RH) connector E-11 (terminal 2 and 1) in good condition?

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. When the front power window sub-switch (RH) is operated, the front power window (RH) should open or close normally.

STEP 17. Check the rear power window sub-switch (LH) for continuity.

- (1) Remove the rear power window sub-switch (LH). Refer to GROUP 42, Door-Door Trim and Waterproof Film [P.42-37](#).
- (2) Check continuity when the rear power window sub-switch (LH) is operated to "UP" or "DOWN" position.



SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UP	5 – 7, 6 – 8	Less than 2 ohms
OFF	4 – 7, 6 – 8	Less than 2 ohms
DOWN	4 – 7, 5 – 6	Less than 2 ohms

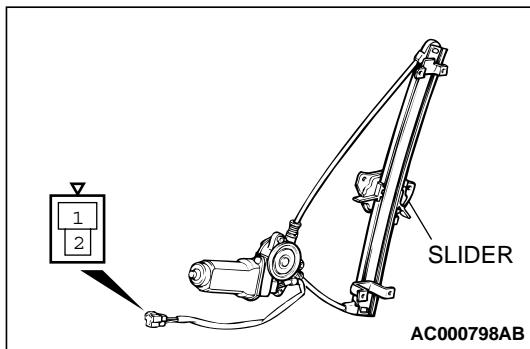
Q: Is the rear power window sub-switch (LH) normal?

YES : Go to Step 18.

NO : Replace the rear power window sub-switch (LH). When the rear power window sub-switch (LH) is operated, the rear power window (LH) should open or close normally.

STEP 18. Check the rear power window motor (LH).

- (1) Remove the rear power regulator assembly (LH). Refer to GROUP 42, Door-Door Glass and Regulator [P.42-43](#).
- (2) Connect a battery to the motor terminal, and check that the motor runs freely.

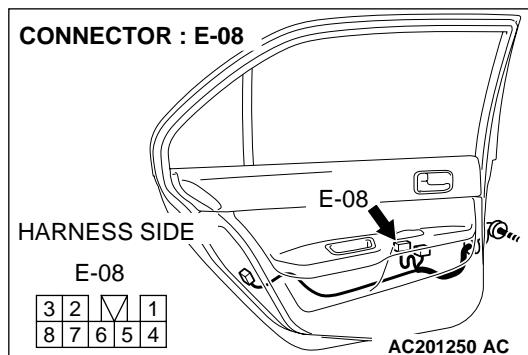
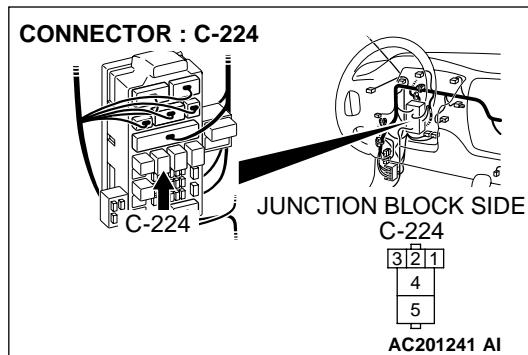
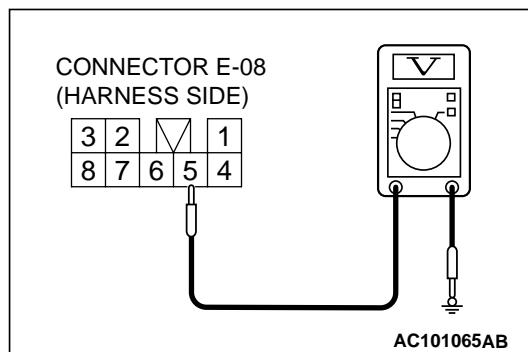
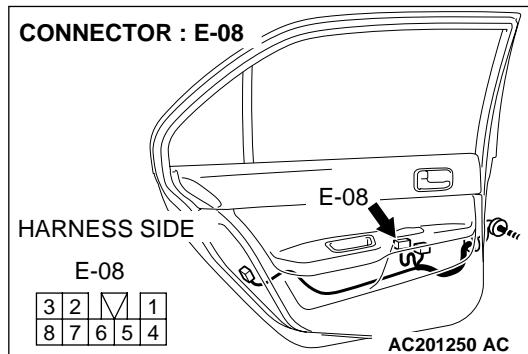


TESTER CONNECTION	SLIDER POSITION
<ul style="list-style-type: none"> • Connect terminal 1 to the positive battery terminal • Connect terminal 2 to the negative battery terminal 	UP
<ul style="list-style-type: none"> • Connect terminal 2 to the positive battery terminal • Connect terminal 1 to the negative battery terminal 	DOWN

Q: Is the rear power window motor (LH) normal?

YES : Go to Step 19.

NO : Replace the rear power regulator assembly (LH). When the rear power window sub-switch (LH) is operated, the rear power window (LH) should open or close normally.



STEP 19. Check the battery power supply circuit to the rear power window sub-switch (LH). Test at rear power window sub-switch (LH) connector E-08.

- (1) Disconnect rear power window sub-switch (LH) connector E-08 and measure the voltage available at the wiring harness side of the connector.
- (2) Turn the ignition switch to the "ON" position.

(3) Measure the voltage between terminal 5 and ground.

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

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

- YES :** Go to Step 22.
NO : Go to Step 20.

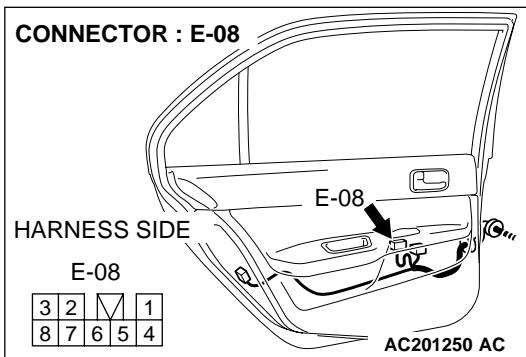
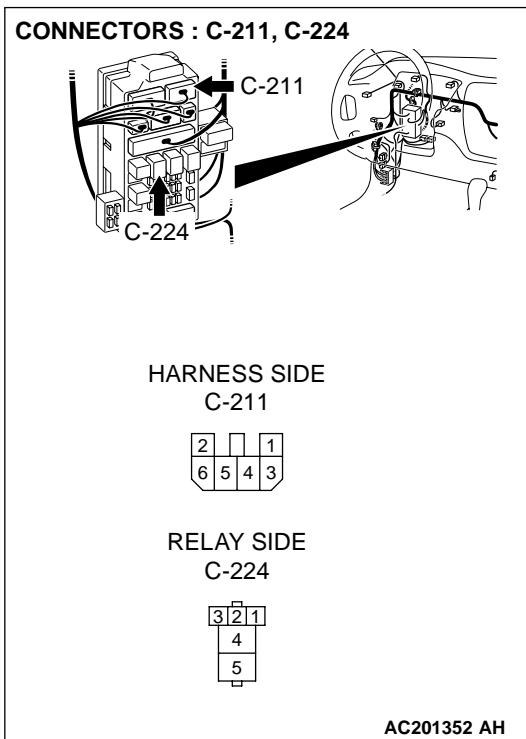
STEP 20. Check power window relay connector C-224 and rear power window sub-switch (LH) connector E-08 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

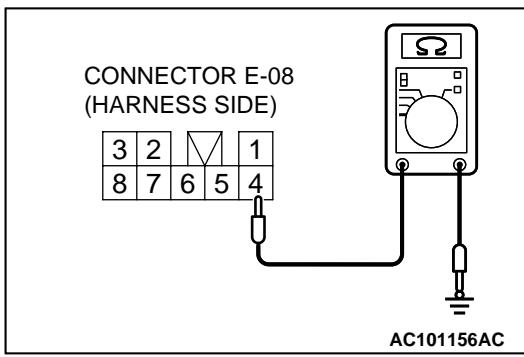
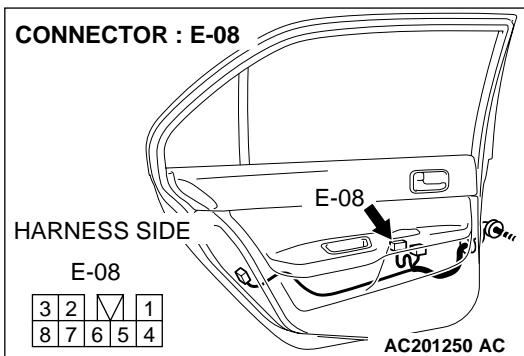
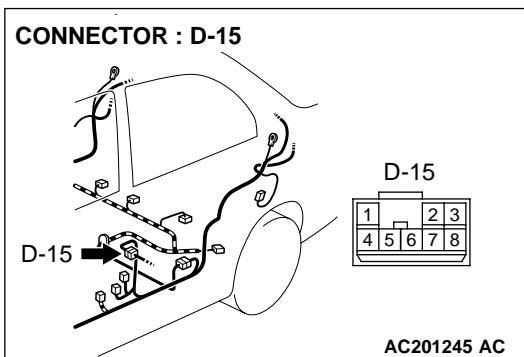
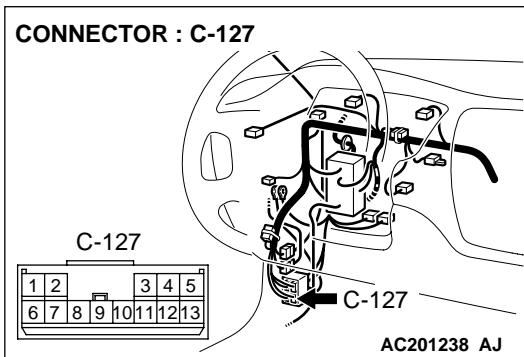
Q: Are power window relay connector C-224 and rear power window sub-switch (LH) connector E-08 in good condition?

- YES :** Go to Step 21.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the rear power window sub-switch (LH) is operated, the rear power window (LH) should open or close normally.

STEP 21. Check the wiring harness between power window relay connector C-224 (terminal 4) and rear power window sub-switch (LH) connector E-08 (terminal 5).

NOTE: Also check junction block connector C-211 and intermediate connectors C-127 and D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-211, intermediate connector C-127 or D-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 power window relay connector C-224 (terminal 4) and rear power window sub-switch (LH) connector E-08 (terminal 5) 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. When the rear power window sub-switch (LH) is operated, the rear power window (LH) should open or close normally.

STEP 22. Check the ground circuit to the rear power window sub-switch (LH). Test at rear power window sub-switch (LH) connector E-08.

(1) Disconnect rear power window sub-switch (LH) connector E-08 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 25.

NO : Go to Step 23.

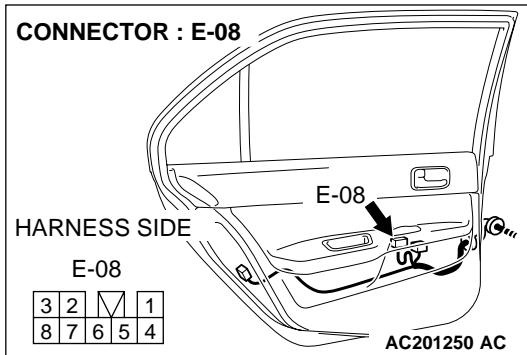
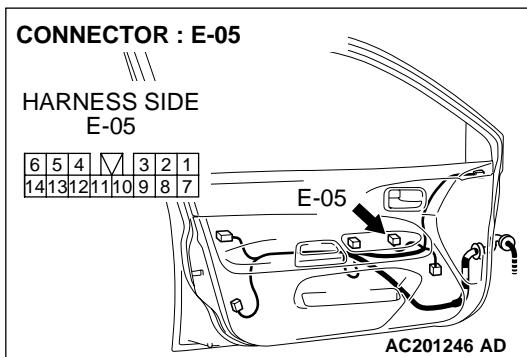
STEP 23. Check power window main switch connector E-05 and rear power window sub-switch (LH) connector E-08 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window main switch connector E-05 and rear power window sub-switch (LH) connector E-08 in good condition?

YES : Go to Step 24.

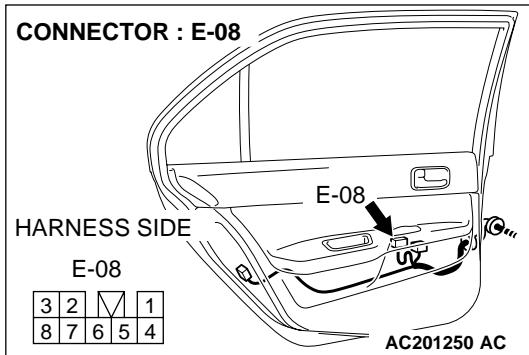
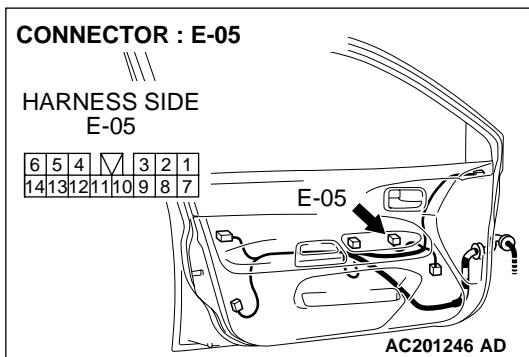
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

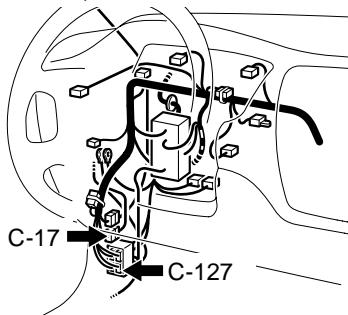
P.00E-2. When the rear power window sub-switch (LH) is operated, the rear power window (LH) should open or close normally.



STEP 24. Check the wiring harness between power window main switch connector E-05 (terminal 1) and rear power window sub-switch (LH) connector E-08 (terminal 4).

NOTE: Also check intermediate connectors, D-15, C-127 and C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-15, C-127 or C-17 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.



CONNECTORS : C-17, C-127

C-17

1	2	3	4	5	6
7	8	9	10	11	12
14	15	16	17	18	19
15	16	17	18	19	20

C-127

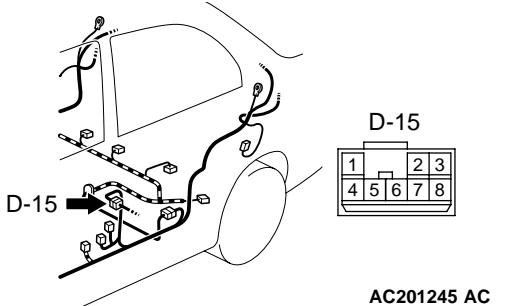
1	2		3	4	5
6	7	8	9	10	11
11	12	13			

AC201348 AD

Q: Is the wiring harness between power window main switch connector E-05 (terminal 1) and rear power sub-switch (LH) connector E-08 (terminal 4) in good condition?

YES : Replace the power window main switch. When the rear power window sub-switch (LH) is operated, the rear power window (LH) should open or close normally.

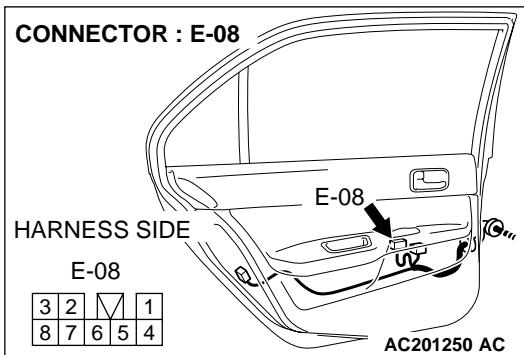
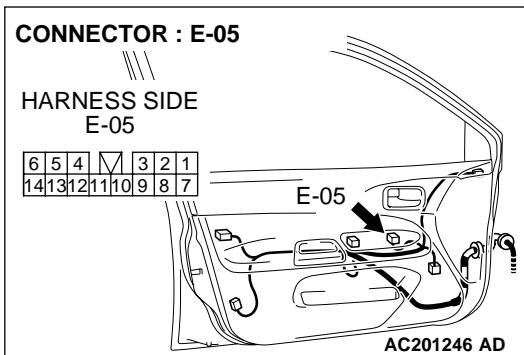
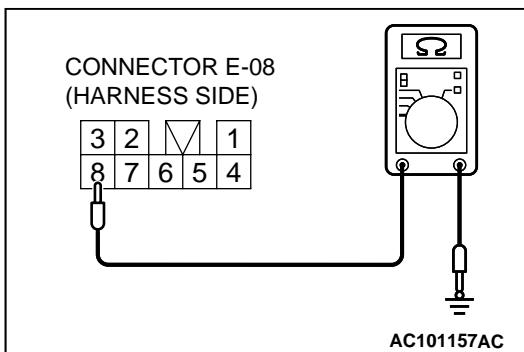
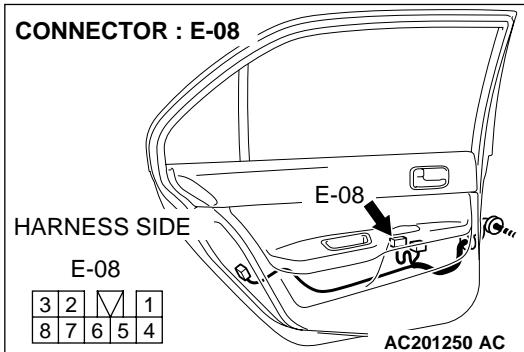
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. When the rear power window sub-switch (LH) is operated, the rear power window (LH) should open or close normally.

CONNECTOR : D-15

D-15

1	2	3
4	5	6

AC201245 AC



STEP 25. Check the ground circuit to the rear power window sub-switch (LH). Test at rear power window sub-switch (LH) connector E-08.

(1) Disconnect rear power window sub-switch (LH) connector E-08 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 8 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 28.

NO : Go to Step 26.

STEP 26. Check power window main switch connector E-05 and rear power window sub-switch (LH) connector E-08 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window main switch connector E-05 and rear power window sub-switch (LH) connector E-08 in good condition?

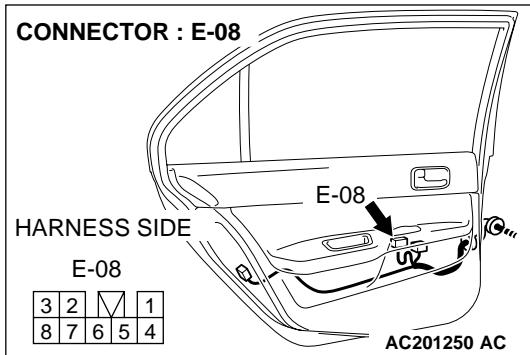
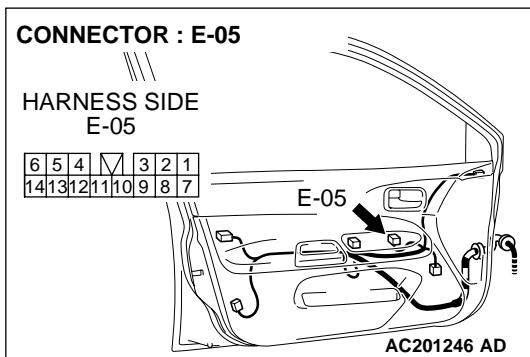
YES : Go to Step 27.

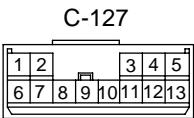
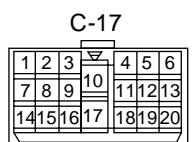
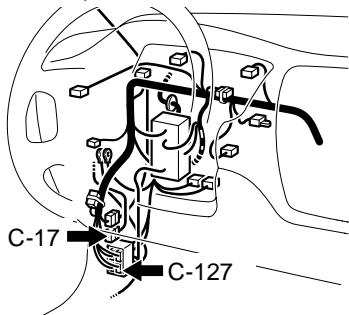
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

P.00E-2. When the rear power window sub-switch (LH) is operated, the rear power window (LH) should open or close normally.

STEP 27. Check the wiring harness between power window main switch connector E-05 (terminal 2) and rear power window sub-switch (LH) connector E-08 (terminal 8).

NOTE: Also check intermediate connectors, D-15, C-127 and C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-15, C-127 or C-17 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.



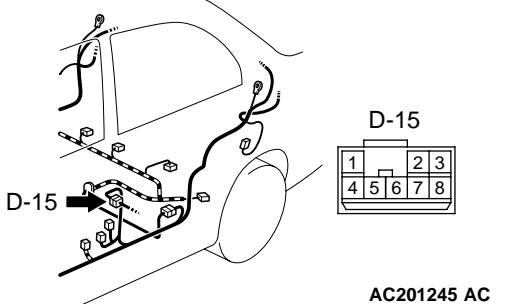
CONNECTORS : C-17, C-127

AC201348 AD

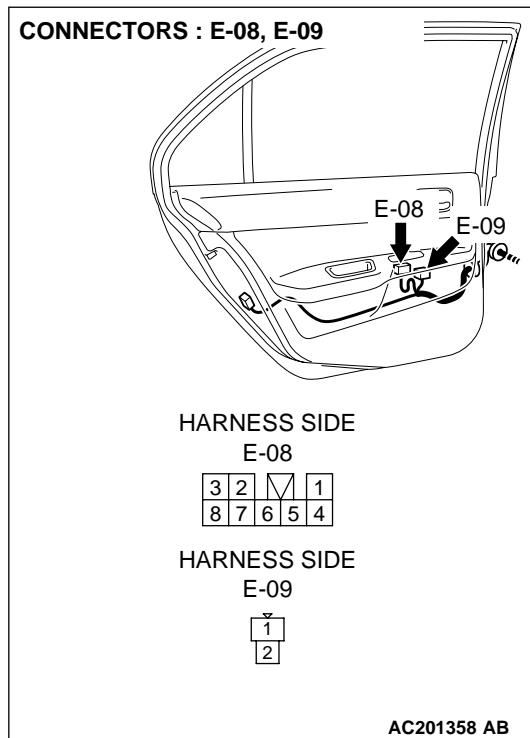
Q: Is the wiring harness between power window main switch connector E-05 (terminal 2) and rear power sub-switch (LH) connector E-08 (terminal 8) in good condition?

YES : Replace the power window main switch. When the rear power window sub-switch (LH) is operated, the rear power window (LH) should open or close 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. When the rear power window sub-switch (LH) is operated, the rear power window (LH) should open or close normally.

CONNECTOR : D-15

AC201245 AC

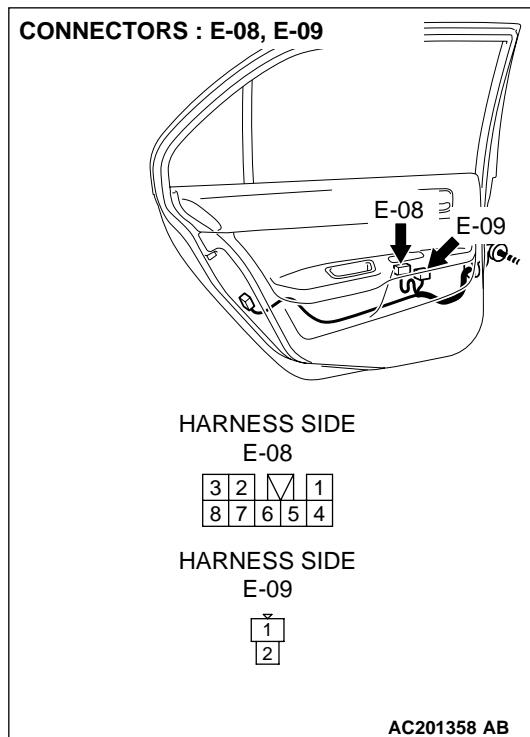


STEP 28. Check rear power window sub-switch (LH) connector E-08 and rear power window motor (LH) connector E-09 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are rear power window sub-switch (LH) connector E-08 and rear power window motor (LH) connector E-09 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. When the rear power window sub-switch (LH) is operated, the rear power window (LH) should open or close normally.

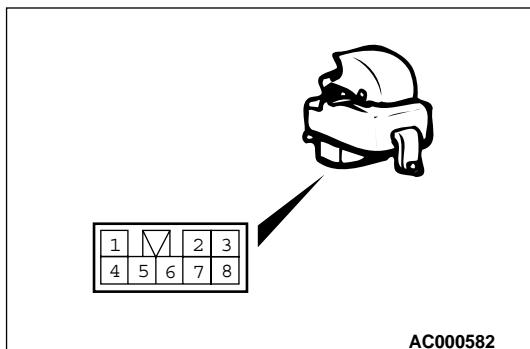


STEP 29. Check the wiring harness between rear power window sub-switch (LH) connector E-08 (terminal 6 and 7) and rear power window motor (LH) connector E-09 (terminal 2 and 1).

Q: Is the wiring harness between rear power window main switch (LH) connector E-08 (terminal 6 and 7) and rear power window motor (LH) connector E-09 (terminal 2 and 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. When the rear power window sub-switch (LH) is operated, the rear power window (LH) should open or close normally.

**STEP 30. Check the rear power window sub-switch (RH) for continuity.**

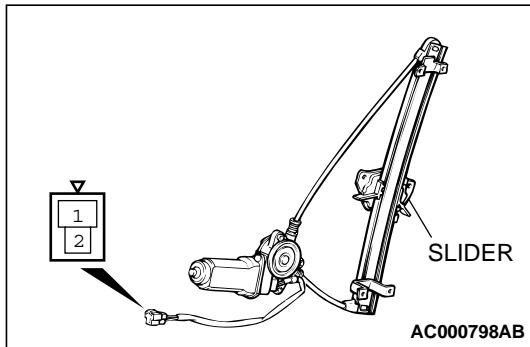
- (1) Remove the rear power window sub-switch (RH). Refer to GROUP 42, Door-Door Trim and Waterproof Film [P.42-37](#).
- (2) Check continuity when the rear power window sub-switch (RH) is operated to "UP" or "DOWN" position.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UP	5 – 7, 6 – 8	Less than 2 ohms
OFF	4 – 7, 6 – 8	Less than 2 ohms
DOWN	4 – 7, 5 – 6	Less than 2 ohms

Q: Is the rear power window sub-switch (RH) normal?

YES : Go to Step 31.

NO : Replace the rear power window sub-switch (RH). When the rear power window sub-switch (RH) is operated, the rear power window (RH) should open or close normally.

**STEP 31. Check the rear power window motor (RH).**

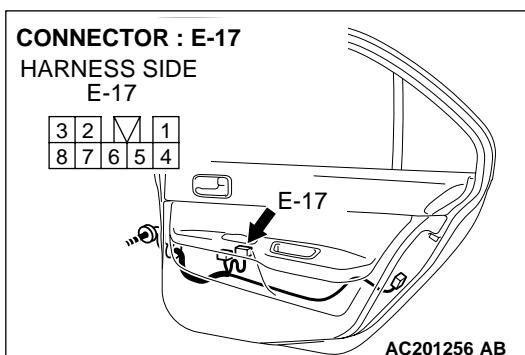
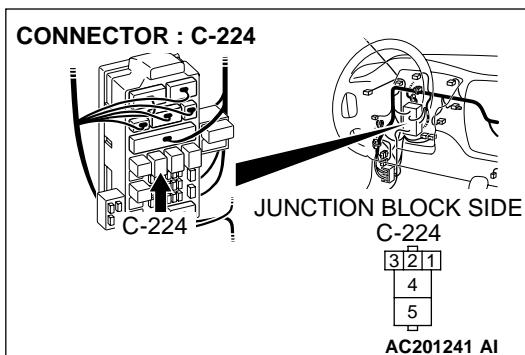
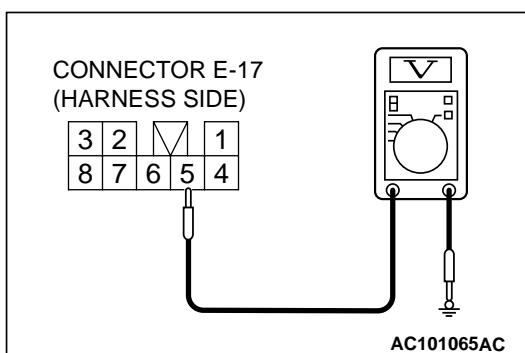
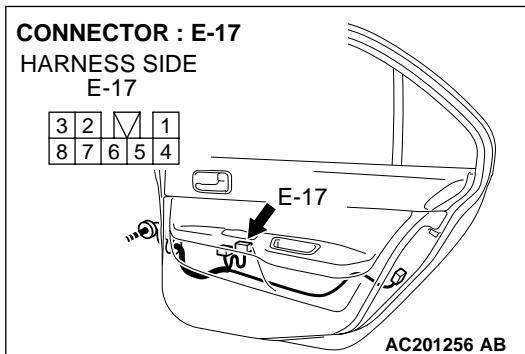
- (1) Remove the rear power regulator assembly (RH). Refer to GROUP 42, Door-Door Glass and Regulator [P.42-43](#).
- (2) Connect a battery to the motor terminal, and check that the motor runs freely.

TESTER CONNECTION	SLIDER POSITION
<ul style="list-style-type: none"> • Connect terminal 1 to the positive battery terminal • Connect terminal 2 to the negative battery terminal 	UP
<ul style="list-style-type: none"> • Connect terminal 2 to the positive battery terminal • Connect terminal 1 to the negative battery terminal 	DOWN

Q: Is the rear power window motor (RH) normal?

YES : Go to Step 32.

NO : Replace the rear power regulator assembly (RH). When the rear power window sub-switch (RH) is operated, the rear power window (RH) should open or close normally.



STEP 32. Check the battery power supply circuit to the rear power window sub-switch (RH). Test at rear power window sub-switch (RH) connector E-17.

- (1) Disconnect rear power window sub-switch (RH) connector E-17 and measure the voltage available at the wiring harness side of the connector.
- (2) Turn the ignition switch to the "ON" position.

(3) Measure the voltage between terminal 5 and ground.

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

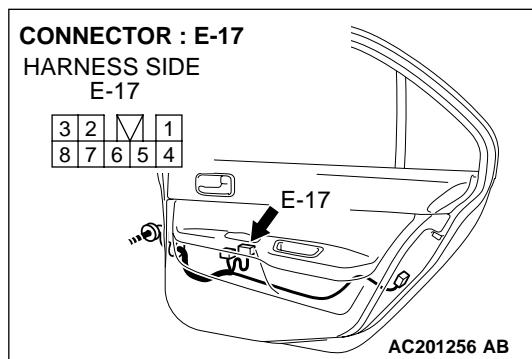
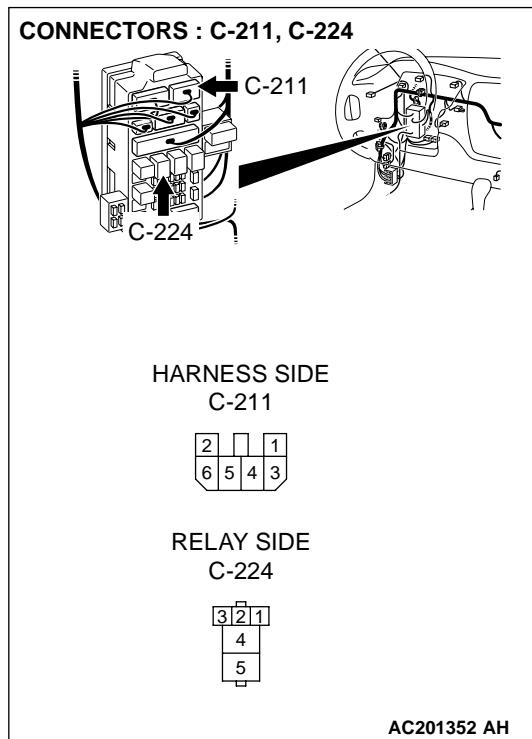
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

- YES :** Go to Step 35.
NO : Go to Step 33.

STEP 33. Check power window relay connector C-224 and rear power window sub-switch (RH) connector E-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

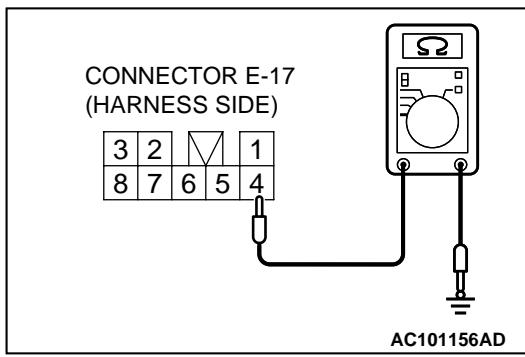
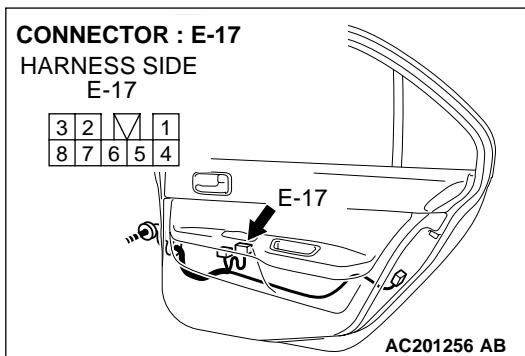
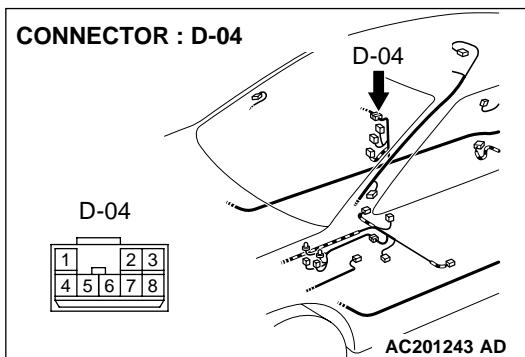
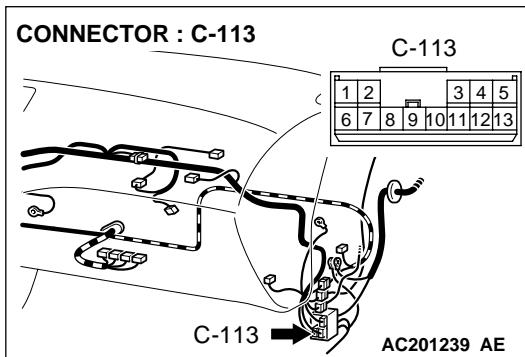
Q: Are power window relay connector C-224 and rear power window sub-switch (RH) connector E-17 in good condition?

- YES :** Go to Step 34.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the rear power window sub-switch (RH) is operated, the rear power window (RH) should open or close normally.



STEP 34. Check the wiring harness between power window relay connector C-224 (terminal 4) and rear power window sub-switch (RH) connector E-17 (terminal 5).

NOTE: Also check junction block connector C-211 and intermediate connectors C-113 and D-04 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-211, intermediate connector C-113 or D-04 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 power window relay connector C-224 (terminal 4) and rear power window sub-switch (RH) connector E-17 (terminal 5) 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. When the rear power window sub-switch (RH) is operated, the rear power window (RH) should open or close normally.

STEP 35. Check the ground circuit to the rear power window sub-switch (RH). Test at rear power window sub-switch (RH) connector E-17.

(1) Disconnect rear power window sub-switch (RH) connector E-17 and measure the resistance available at the wiring harness side of the connector.

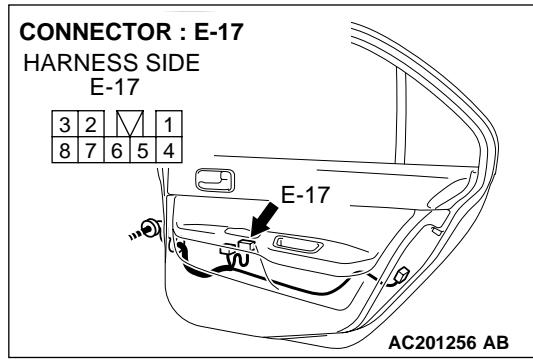
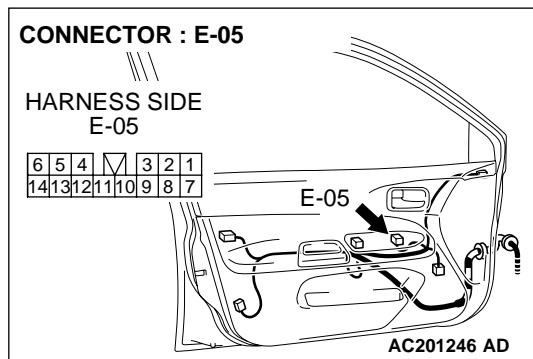
(2) Measure the resistance value between terminal 4 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 38.

NO : Go to Step 36.



STEP 36. Check power window main switch connector E-05 and rear power window sub-switch (RH) connector E-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window main switch connector E-05 and rear power window sub-switch (RH) connector E-17 in good condition?

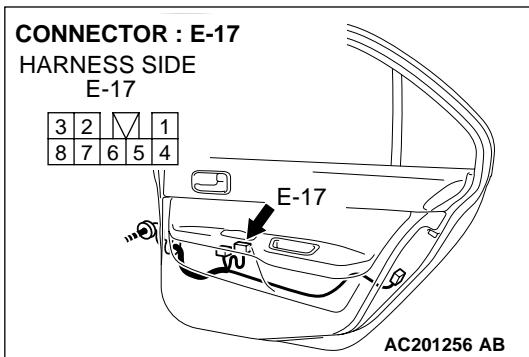
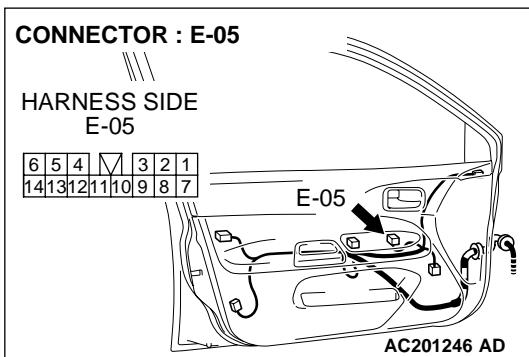
YES : Go to Step 37.

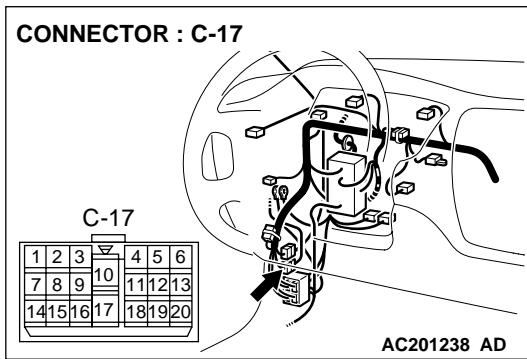
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

P.00E-2. When the rear power window sub-switch (RH) is operated, the rear power window (RH) should open or close normally.

STEP 37. Check the wiring harness between power window main switch connector E-05 (terminal 14) and rear power window sub-switch (RH) connector E-17 (terminal 4).

NOTE: Also check intermediate connectors, C-17, C-113 and D-04 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17, C-113 or D-04 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

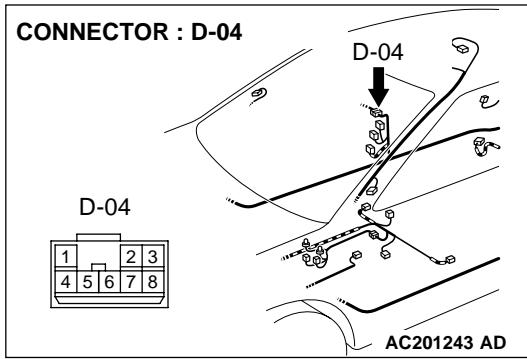
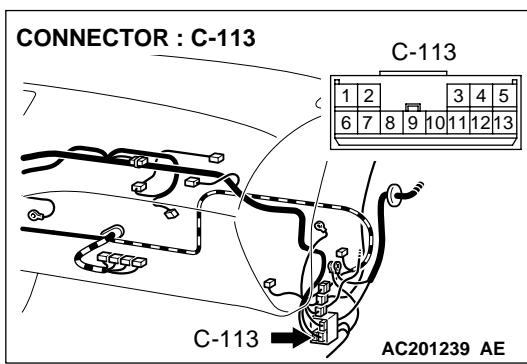


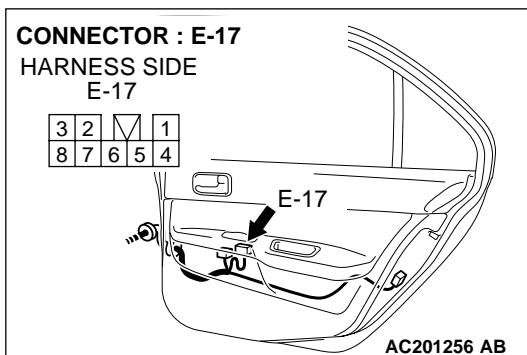
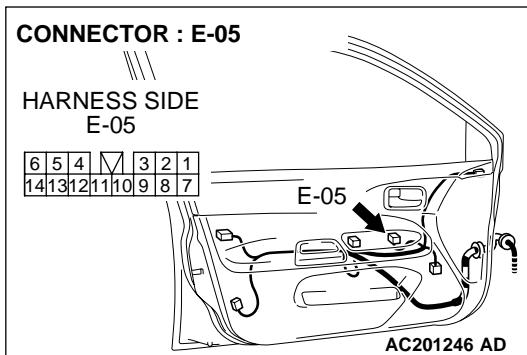
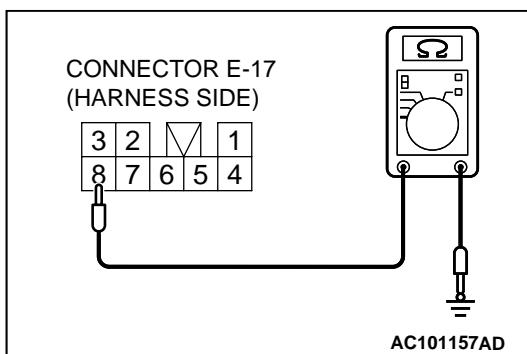
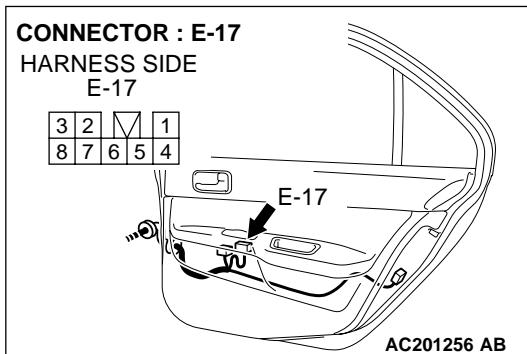


Q: Is the wiring harness between power window main switch connector E-05 (terminal 14) and rear power sub-switch (RH) connector E-17 (terminal 4) in good condition?

YES : Replace the power window main switch. When the rear power window sub-switch (RH) is operated, the rear power window (RH) should open or close 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. When the rear power window sub-switch (RH) is operated, the rear power window (RH) should open or close normally.





STEP 38. Check the ground circuit to the rear power window sub-switch (RH). Test at rear power window sub-switch (RH) connector E-17.

(1) Disconnect rear power window sub-switch (RH) connector E-17 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 8 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 41.

NO : Go to Step 39.

STEP 39. Check power window main switch connector E-05 and rear power window sub-switch (RH) connector E-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window main switch connector E-05 and rear power window sub-switch (RH) connector E-17 in good condition?

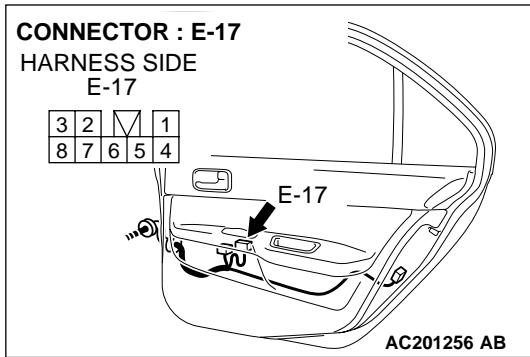
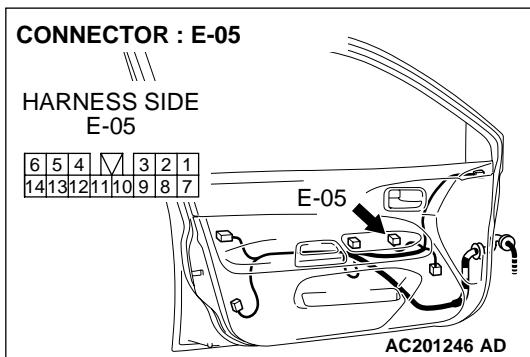
YES : Go to Step 40.

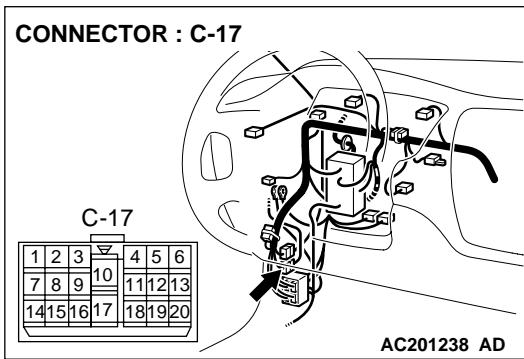
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2](#). When the rear power window sub-switch (RH) is operated, the rear power window (RH) should open or close normally.

STEP 40. Check the wiring harness between power window main switch connector E-05 (terminal 6) and rear power window sub-switch (RH) connector E-17 (terminal 8).

NOTE: Also check intermediate connectors, C-17, C-113 and D-04 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17, C-113 or D-04 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

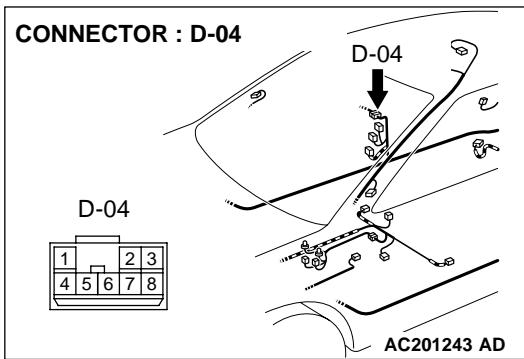
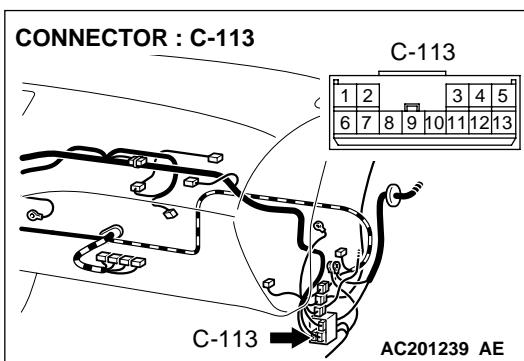


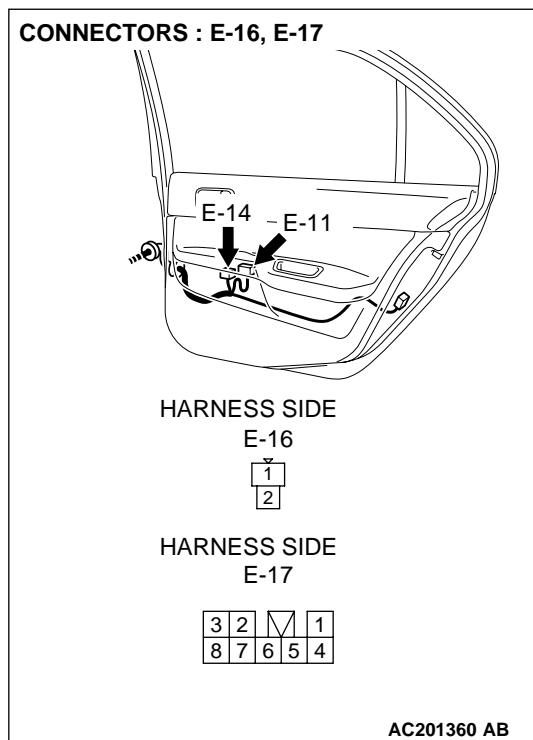


Q: Is the wiring harness between power window main switch connector E-05 (terminal 6) and rear power sub-switch (RH) connector E-17 (terminal 8) in good condition?

YES : Replace the power window main switch. When the rear power window sub-switch (RH) is operated, the rear power window (RH) should open or close 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. When the rear power window sub-switch (RH) is operated, the rear power window (RH) should open or close normally.



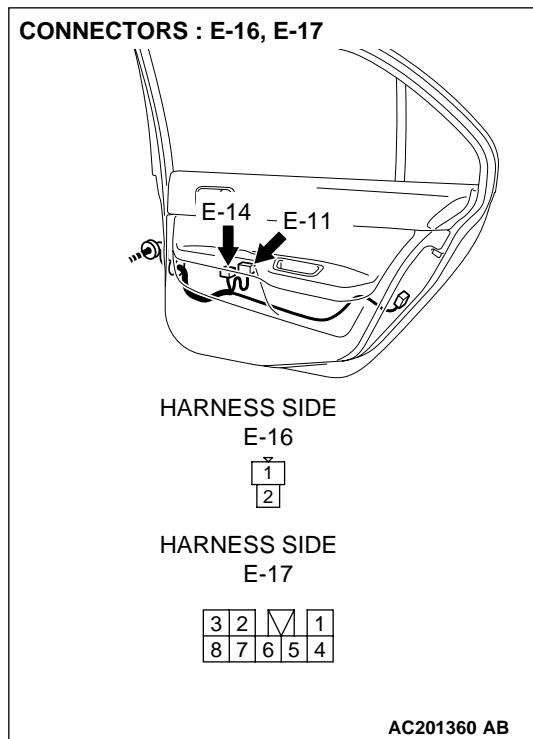


STEP 41. Check rear power window sub-switch (RH) connector E-17 and rear power window motor (RH) connector E-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are rear power window sub-switch (RH) connector E-17 and rear power window motor (RH) connector E-16 in good condition?

YES : Go to Step 42.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the rear power window sub-switch (RH) is operated, the rear power window (RH) should open or close normally.



STEP 42. Check the wiring harness between rear power window sub-switch (RH) connector E-17 (terminal 6 and 7) and rear power window motor (RH) connector E-16 (terminal 2 and 1).

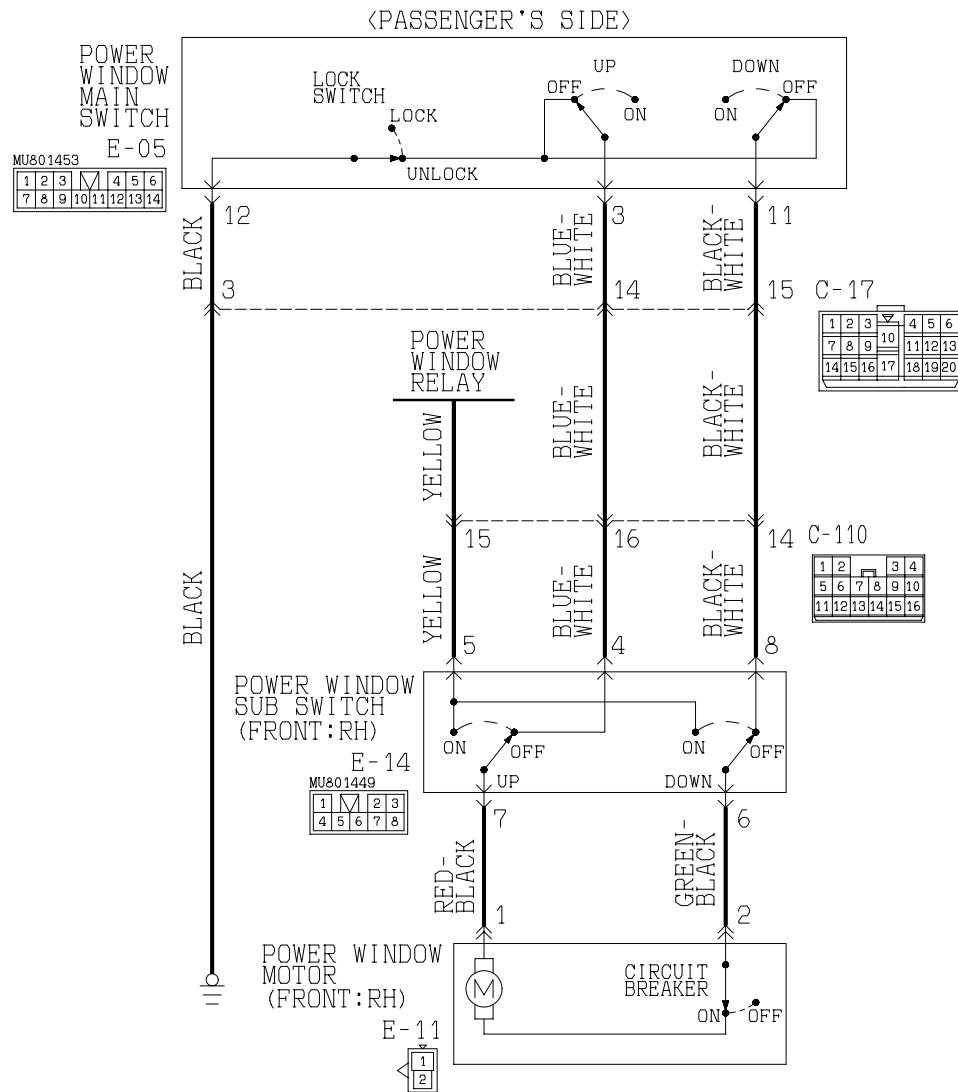
Q: Is the wiring harness between rear power window main switch (RH) connector E-17 (terminal 6 and 7) and rear power window motor (RH) connector E-16 (terminal 2 and 1) in good condition?

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. When the rear power window sub-switch (RH) is operated, the rear power window (RH) should open or close normally.

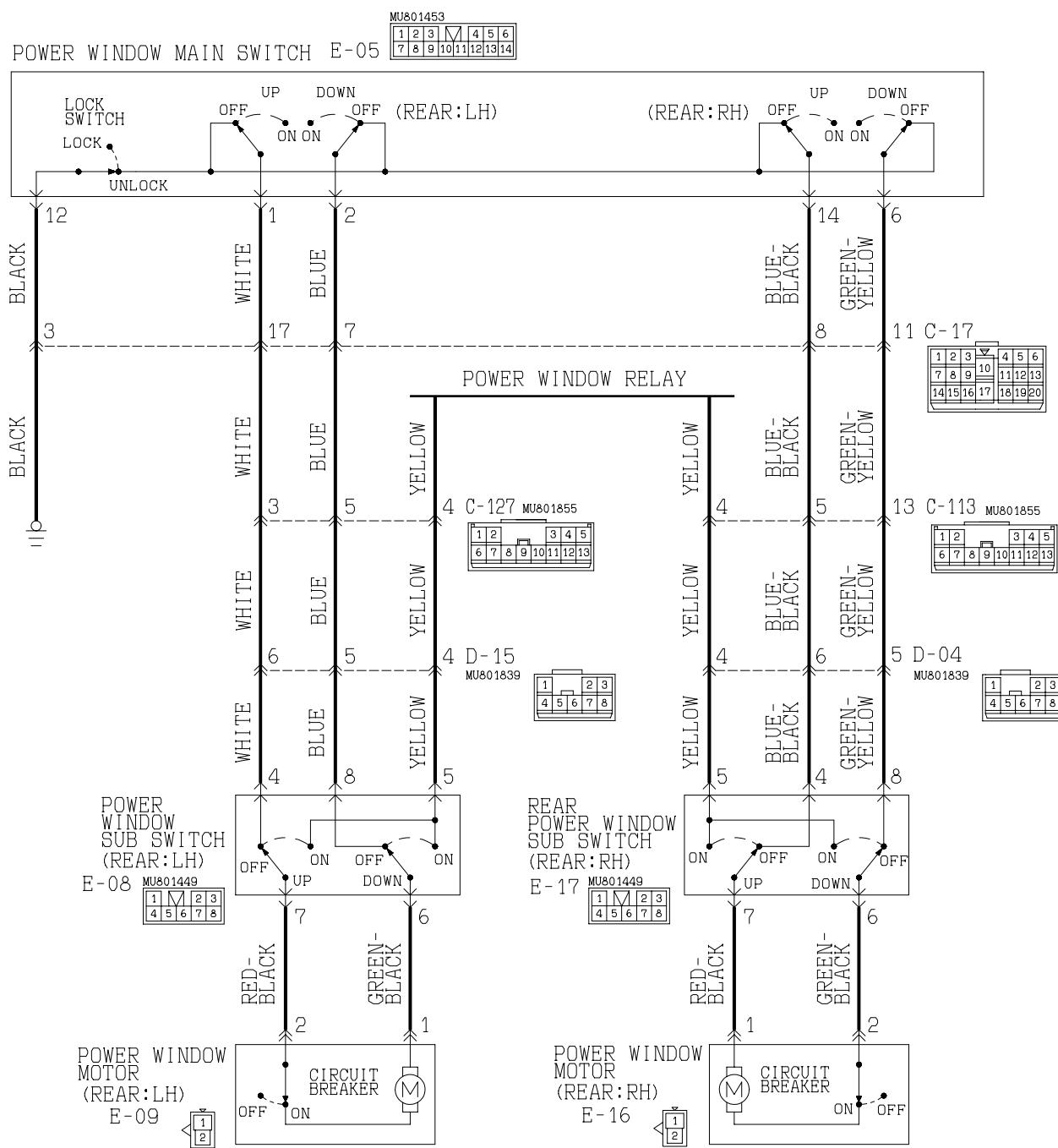
INSPECTION PROCEDURE D-5: Power Windows: Front or rear passenger's power windows do not work at all by operating the power window main switch.

Power Window (front: RH) Circuit



W2J08M08AA

Power Window (Rear) Circuit

**CIRCUIT OPERATION**

When you operate each power window sub-switch for front or rear passengers (incorporated in the power window main switch), the corresponding power window motor operates, thus causing each power window to close or open.

TECHNICAL DESCRIPTION (COMMENT)

If the corresponding power window opens and closes normally when each power window sub-switch is operated, the power window main switch may be defective.

TROUBLESHOOTING HINT

- The power window main switch may be defective

DIAGNOSIS

Verify that power window sub-switches operate normally.

Q: A power window can not work by means of the power window main switch. Can you operate the power window by means of the corresponding power window sub-switch?

YES : Replace the power window main switch. Verify that the front or rear passenger's power window can work normally by means of power window main switch.

NO : Refer to Symptom Chart [P.54Bb-2](#) before resolving this trouble.

KEYLESS ENTRY SYSTEM**GENERAL DESCRIPTION CONCERNING THE KEYLESS ENTRY SYSTEM**

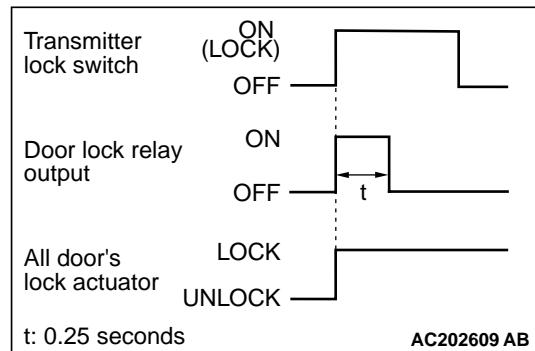
M1549022000051

The following ECUs affect the functions and control of the keyless entry system.

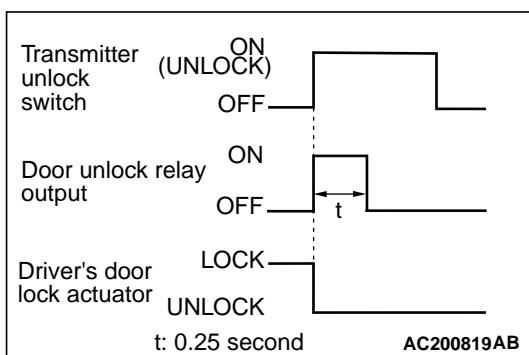
Function	Control ECU
All door lock function	Operating the transmitter lock switch
Driver's door unlock function	Operating the transmitter unlock switch press once
All door unlock function	Operating the transmitter unlock switch press twice
Keyless entry hazard answerback and horn answerback function	ETACS-ECU

ALL DOOR LOCK FUNCTION**Operating the transmitter lock switch**

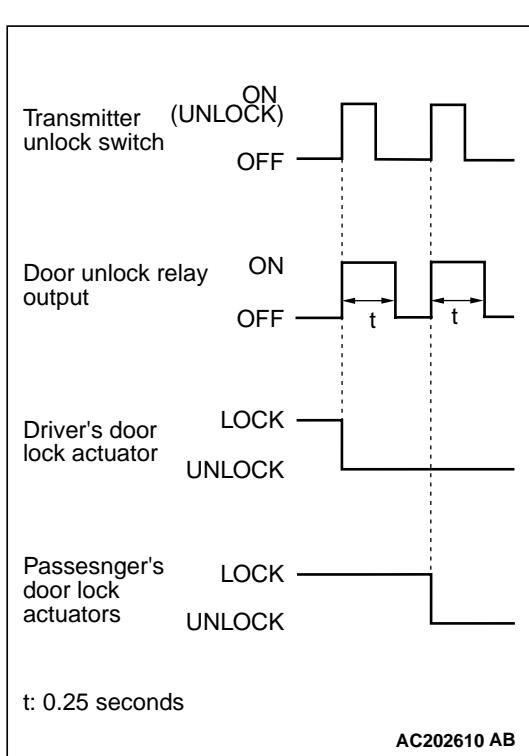
When the transmitter lock switch is pressed, the ETACS-ECU energizes its door lock relay to operate all the door lock actuators for 0.25 second thus causing all doors to be locked.



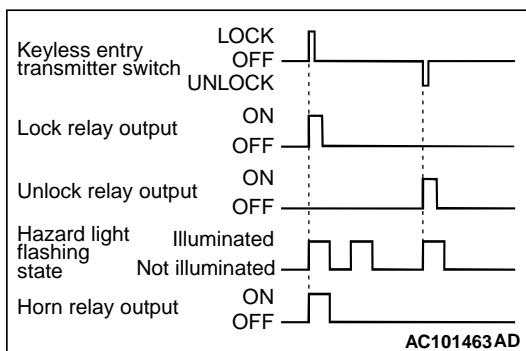
DRIVER'S DOOR UNLOCK FUNCTION

**Operating the transmitter unlock switch press once**

When the transmitter unlock switch is pressed once, the ETACS-ECU energizes its door unlock relay to operate the door lock actuator of the driver's door for 0.25 seconds thus causing only the driver's door to be unlocked.

**ALL DOOR UNLOCK FUNCTION****Operating the transmitter unlock switch press twice**

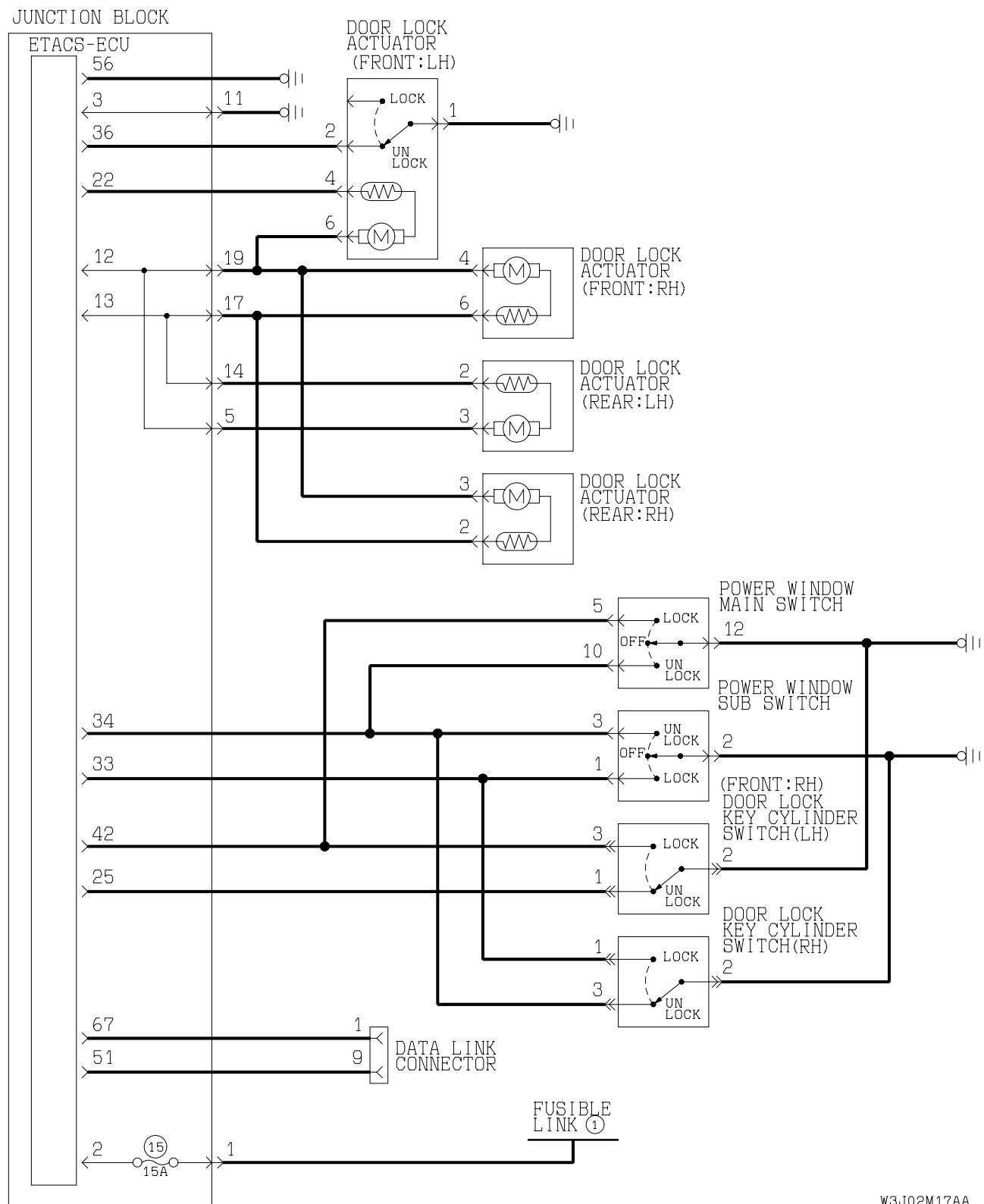
When the transmitter unlock switch is pressed twice, the ETACS-ECU energizes its door unlock relay to operate the driver's door lock actuator and the other door lock actuators for 0.25 seconds each in succession. Then, the doors will be unlocked.

KEYLESS ENTRY HAZARD ANSWERBACK AND HORN ANSWERBACK FUNCTION

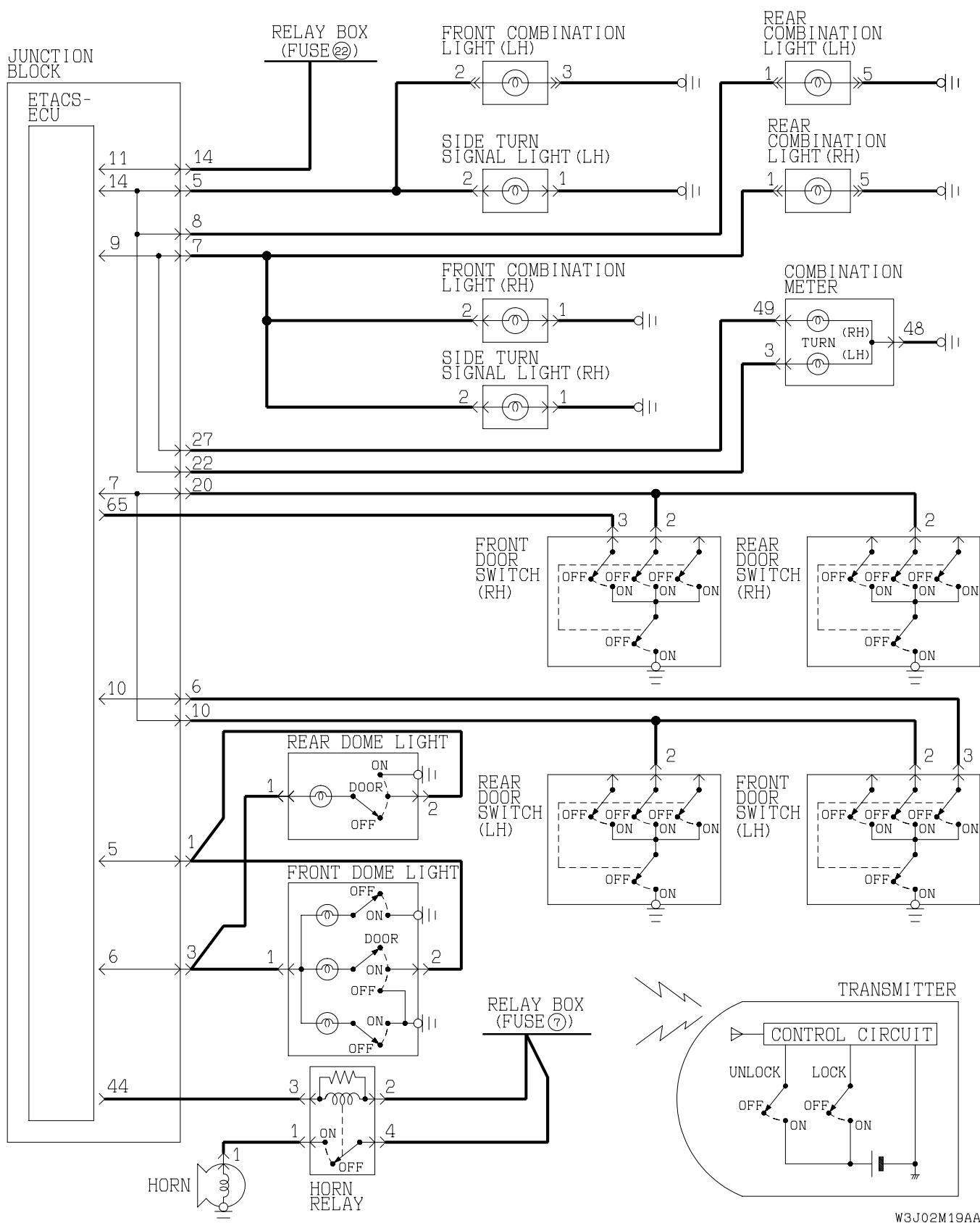
The hazard answerback and horn answerback function which facilities checking of lock or unlock operations even during day-time is provided. When the lock signal is input from the keyless entry transmitter to the ETACS-ECU, the hazard light flashes twice and horn sounds once. When the unlock signal is input, hazard light flashes once.

NOTE: Hazard answerback function can be disabled by the configuration function (Refer to P.54Ba-23.)

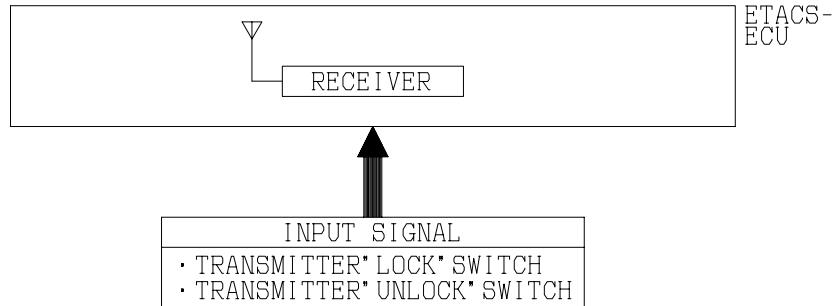
General circuit diagram for the keyless entry system



W3J02M17AA



W3J02M19AA

INSPECTION PROCEDURE E-1: Keyless Entry System: Keyless entry system does not operate.**Transmitter ("LOCK"/"UNLOCK") Input Signal**

W2J08M49AA

CIRCUIT OPERATION

A receiver is incorporated in the ETACS-ECU. This receiver receives a lock or unlock signal from the transmitter.

TROUBLESHOOTING HINTS

- The transmitter may be defective
- The ETACS-ECU may be defective

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

STEP 1. Verify the central door locking system.**Q: Does the central door locking system work normally?****YES :** Go to Step 2.**NO :** Refer to Inspection Procedure C-1 "Central door locking system does not work at all [P.54Bb-64.](#)"

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

Check input signals from the transmitter.

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate scan tool MB991502 as follows:

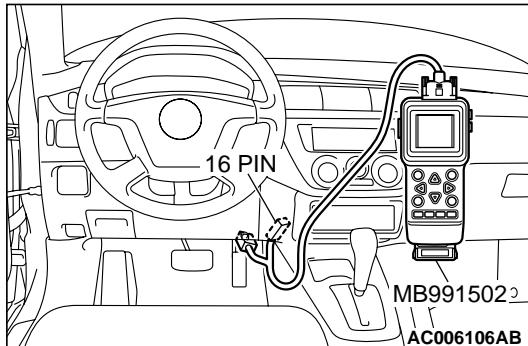
1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

- (3) Push the transmitter "LOCK" or "UNLOCK" switch.
- (4) Check that scan tool MB991502 sounds

Q: When the transmitter "LOCK" or "UNLOCK" switch is turned ON, does scan tool MB991502 sound?

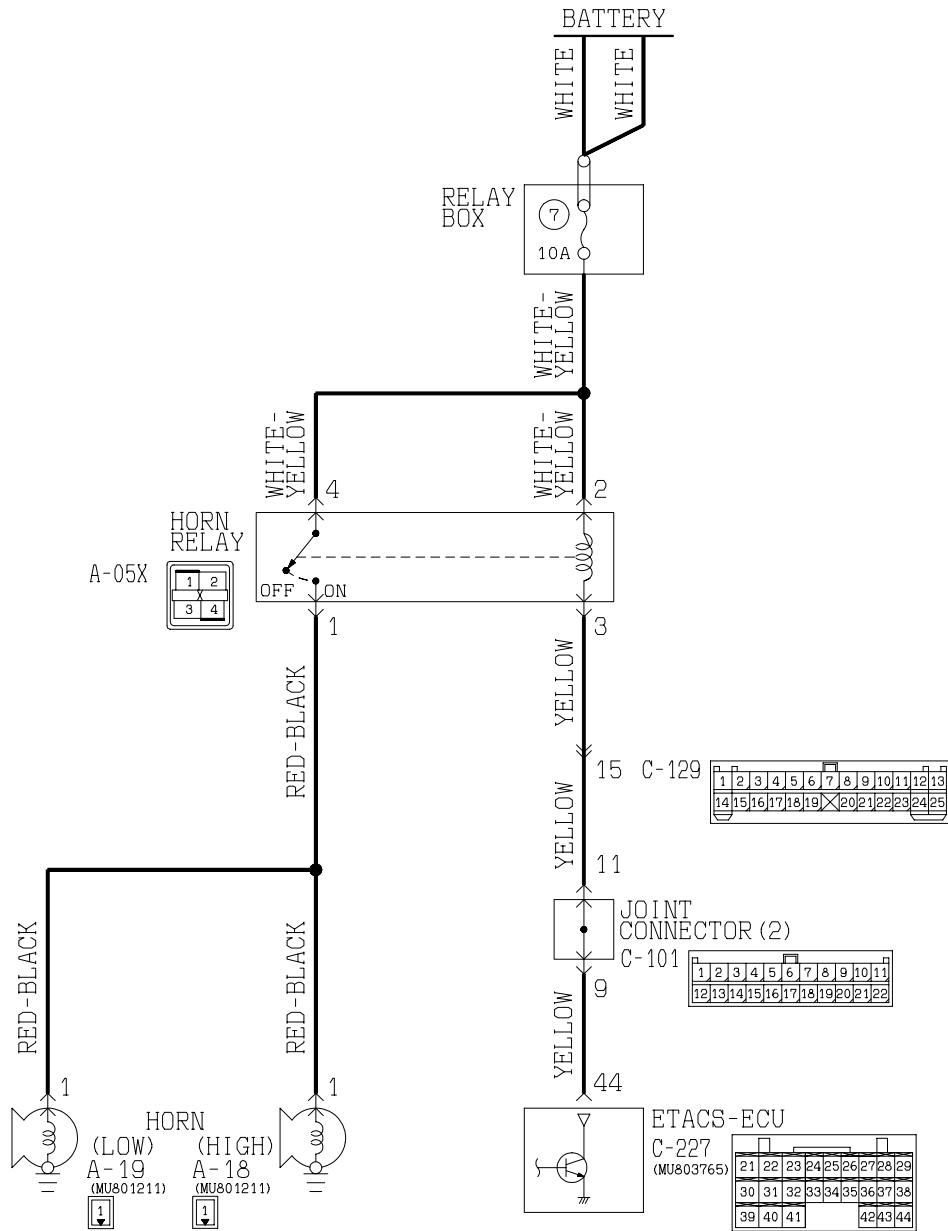
YES : Replace the ETACS-ECU. All the doors can be locked or unlocked by means of the transmitter.

NO : Refer to Inspection Procedure N-9 "ETACS-ECU does not receive a signal from the lock or unlock switch [P.54Bc-99](#)."

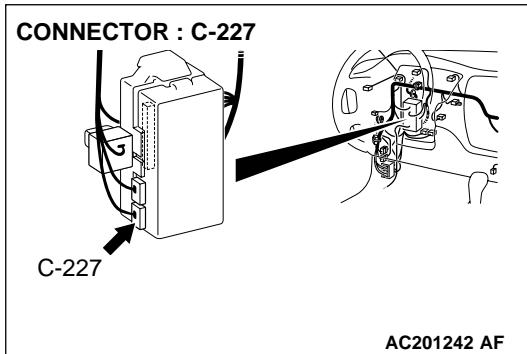
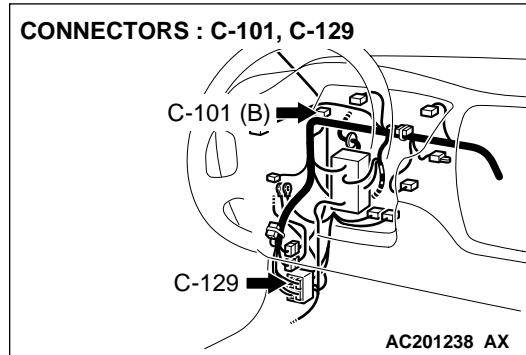
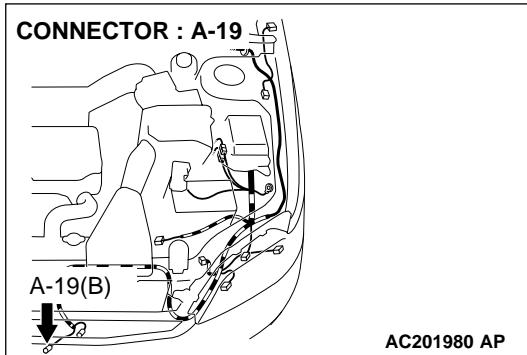
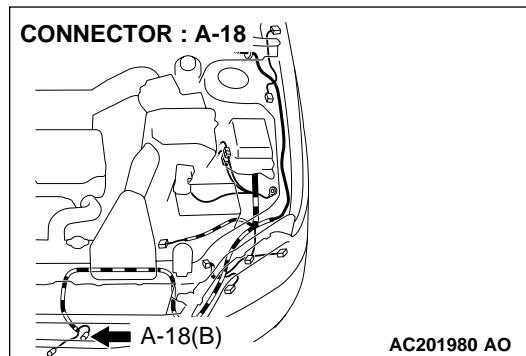
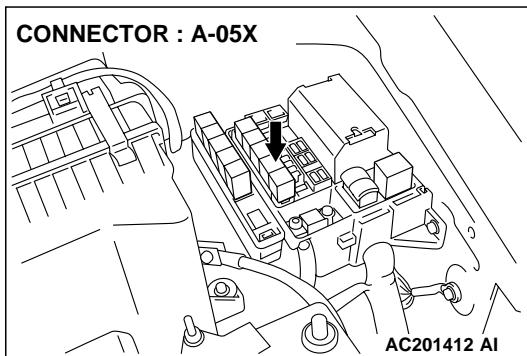


INSPECTION PROCEDURE E-2: Keyless Entry System: The front dome light, the turn-signal lights and the horn do not operate through the answerback function.

Horn Drive Circuit



W3J11M11AA



CIRCUIT OPERATION

The ETACS-ECU operates the following functions when it receives lock or unlock signal from the transmitter:

- Dome light answerback function
- Turn-signal light answerback function
- Horn answerback function

TECHNICAL DESCRIPTION (COMMENT)

The turn-signal lights and horn answerback functions can be disabled or enabled. However, the dome light answerback function can not be disabled.

TROUBLESHOOTING HINTS

- The turn-signal light may be defective
- The dome light may be defective
- The horn 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
- MB991502: Scan Tool (MUT-II)

STEP 1. Verify the keyless entry system.**Q: Does the keyless entry system work normally?****YES :** Go to Step 2.**NO :** Refer to Inspection Procedure E-1 "Keyless entry system does not work normally [P.54Bb-156](#)."

STEP 2. Check the configuration function.**Q: Has the answerback function been enabled by means of the adjustment function?****YES :** Go to Step 3.**NO :** Enable the answerback function by means of the adjustment function. Verify that the answerback functions work normally.

STEP 3. Verify trouble symptom.**Q: Which answerback function is defective?****Only the dome light :** Go to Step 4.**Only the turn-signal lights :** Go to Step 5.**Only the horn :** Go to Step 6.**None of the dome light and the turn-signal lights and the horn :** Replace the ETACS-ECU. Verify that the answerback functions work normally.

STEP 4. Verify the dome light.**Q: Does the dome light illuminate normally?****YES :** Replace the ETACS-ECU. Verify that the answerback functions work normally.**NO :** Refer to Inspection Procedure L-1 "Front dome light, rear dome light and luggage compartment light do not illuminate or go out normally [P.54Bb-401](#)."

STEP 5. Verify the hazard warning light.**Q: Does the hazard warning light work normally?****YES :** Replace the ETACS-ECU. Verify that the answerback functions work normally.**NO :** Refer to Inspection Procedure K-2 "Hazard warning lights do not flash when the hazard warning light switch is turned on [P.54Bb-365](#)."

STEP 6. Verify the horn operation.**Q: Does the horn work normally?****YES :** Go to Step 19.**NO :** Go to Step 7.

STEP 7. Verify which horn is defective.

Q: Which horn does not sound?

horn (HIGH) : Go to Step 8.

horn (LOW) : Go to Step 11.

horn (HIGH or LOW) : Go to Step 15.

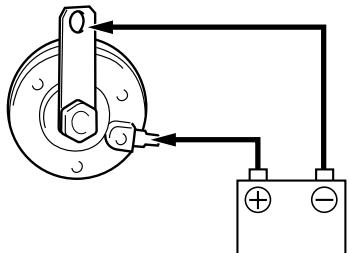
STEP 8. Check the horn.

Connect the battery as shown, and Verify that the horn sounds.

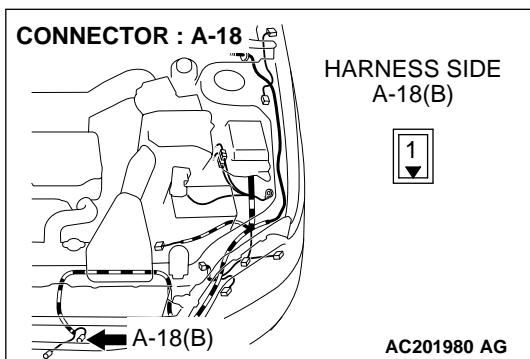
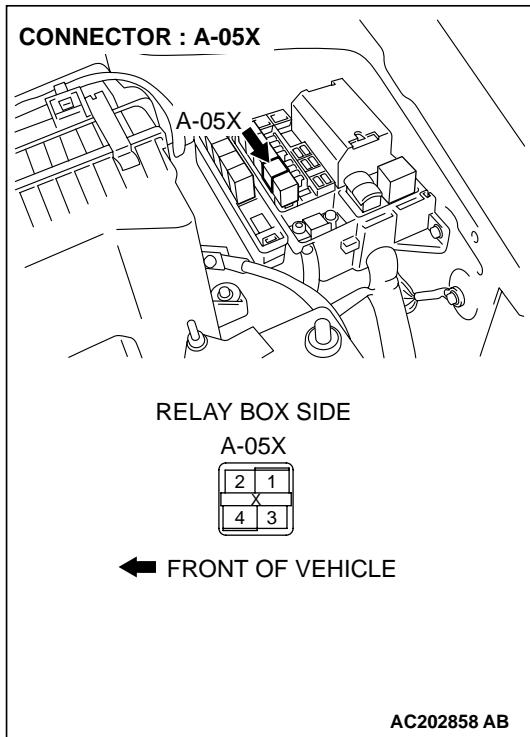
Q: Is the horn normal?

YES : Go to Step 9.

NO : Replace the horn. Verify that the horn sounds normally.



ACX02352

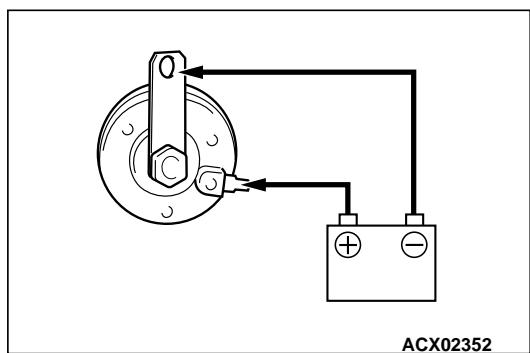
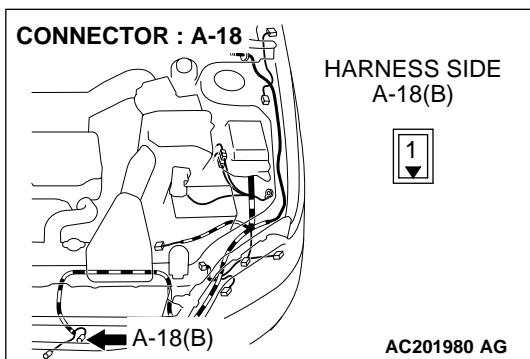
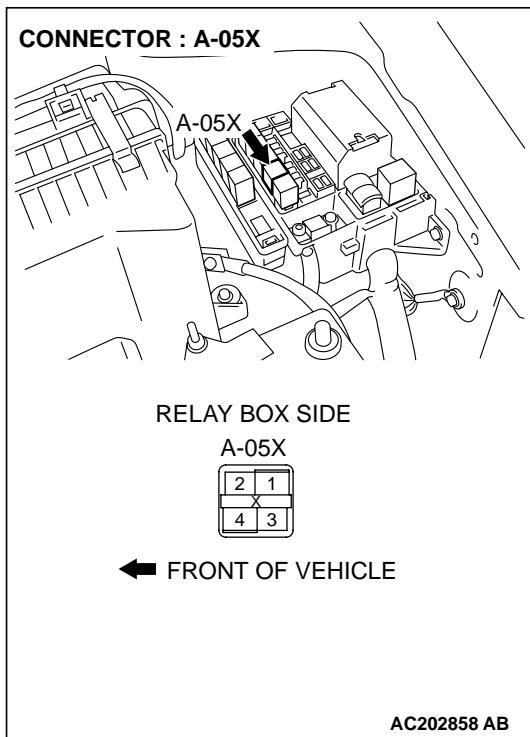


STEP 9. Check horn relay connector A-05X and horn (HIGH) connector A-18 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are horn relay connector A-05X and horn (HIGH) connector A-18 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 horn sounds normally.



STEP 10. Check the wiring harness between horn relay connector A-05X (terminal 1) and horn (HIGH) connector A-18 (terminal 1).

Q: Is the wiring harness between horn relay connector A-10X (terminal 1) and horn (HIGH) connector A-18 (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 horn sounds normally.

STEP 11. Check the horn.

Connect the battery as shown, and Verify that the horn sounds.

Q: Is the horn normal?

YES : Go to Step 12.

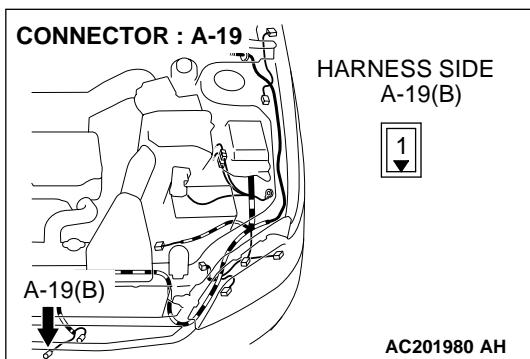
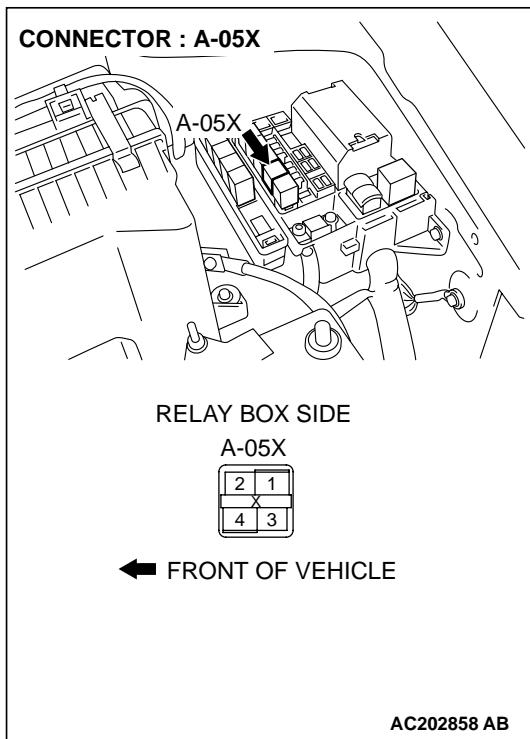
NO : Replace the horn. Verify that the horn sounds normally.

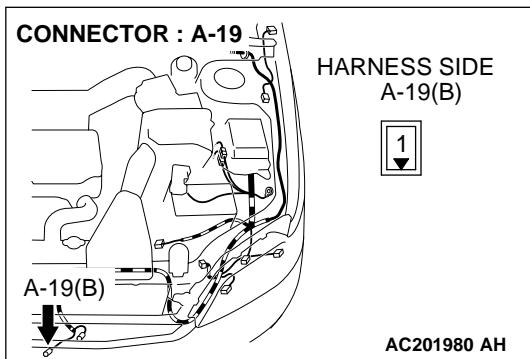
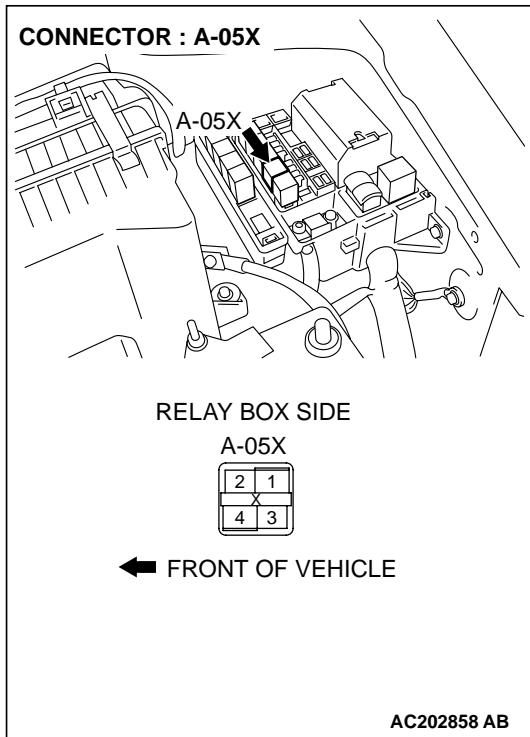
STEP 12. Check horn relay connector A-05X and horn (LOW) connector A-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are horn relay connector A-05X and horn (LOW) connector A-19 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 horn sounds normally.





STEP 13. Check the wiring harness between horn relay connector A-05X (terminal 1) and horn (LOW) connector A-19 (terminal 1).

Q: Is the wiring harness between horn relay connector A-05X (terminal 1) and horn (LOW) connector A-19 (terminal 1) in good condition?

YES : Go to Step 14.

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

STEP 14. Check the fit of the horn.

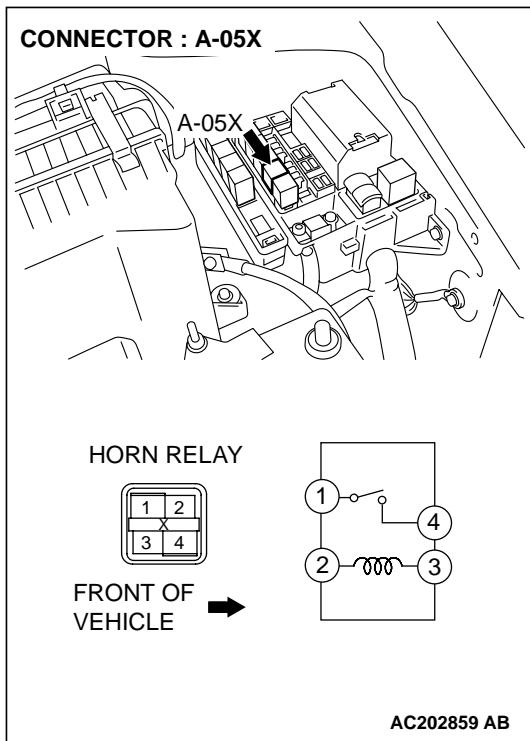
When the theft-alarm system is triggered, check the fit of the horn (HIGH or LOW) which does not sound.

NOTE: The horn is grounded to the vehicle body via its mounting bolt.

Q: Is the horn installed correctly.

YES : No action is necessary and testing is complete.

NO : Install the horn correctly. Verify that the horn sounds normally.

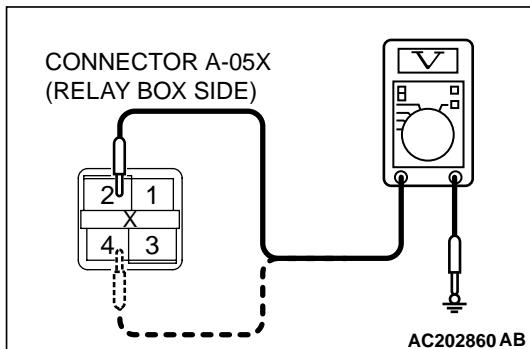
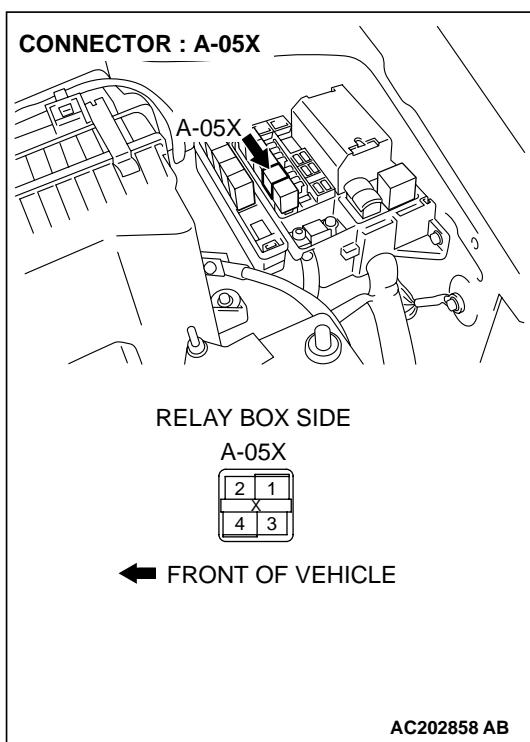
STEP 15. Check the horn relay.

BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	1 – 4	Open circuit
• Connect terminal 2 to the positive battery terminal • Connect terminal 3 to the negative battery terminal	1 – 4	Less than 2 ohms

Q: Is the horn relay normal?

YES : Go to Step 16.

NO : Replace the horn relay. Verify that the horn sounds normally.



STEP 16. Check the battery power supply circuit to the horn relay. Test at horn relay connector A-05X.

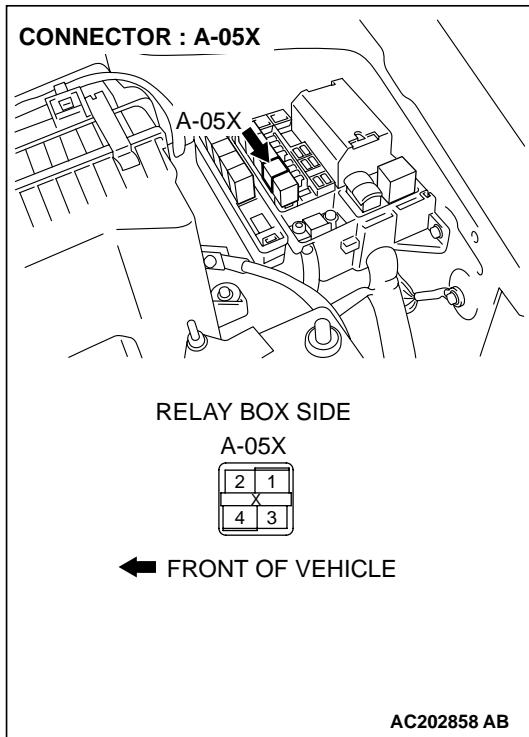
- (1) Disconnect horn relay connector A-05X and measure the voltage available at the relay box side of the connector.

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

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

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

- YES :** No action is necessary and testing is complete.
NO : Go to Step 17.



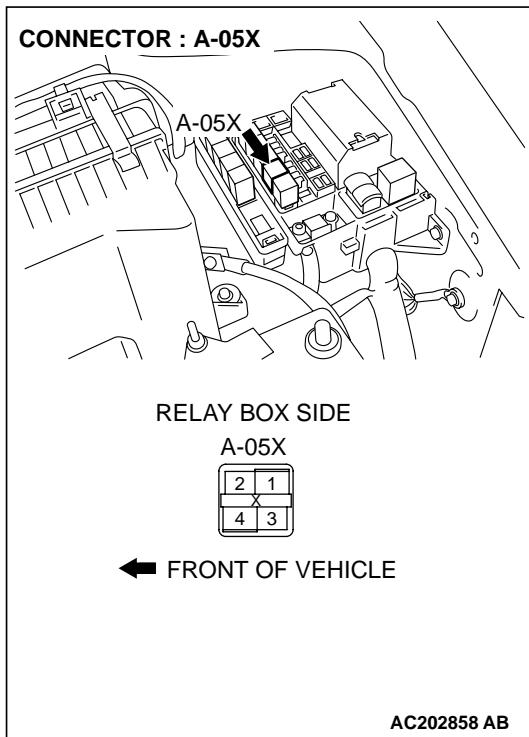
STEP 17. Check horn relay connector A-05X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are horn relay connector A-05X in good condition?

YES : Go to Step 18.

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

[P.00E-2](#). Verify that the horn sounds normally.



STEP 18. Check the wiring harness between horn relay connector A-05X (terminal 2 and 4) and the battery.

Q: Is the wiring harness between horn relay connector A-05X (terminal 2 and 4) and the battery in good condition?

YES : No action is necessary and testing is complete.

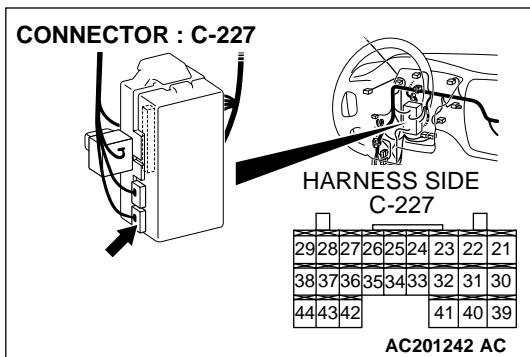
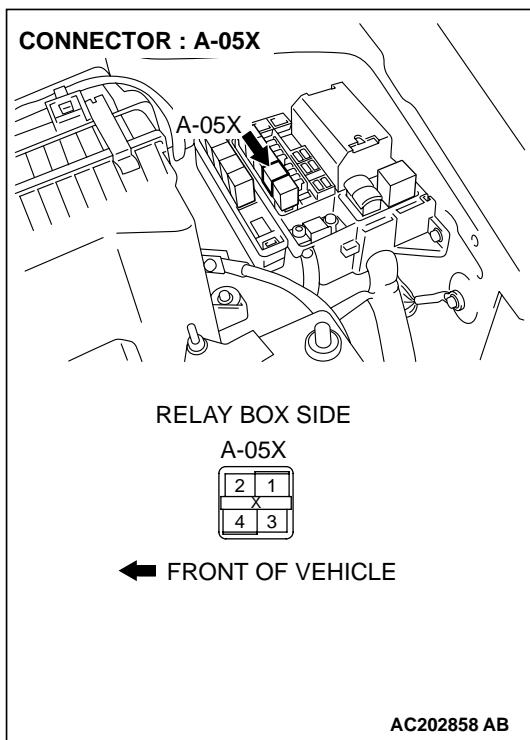
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the horn sounds normally.

STEP 19. Check rear horn relay connector A-05X and ETACS-ECU connector C-227 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are horn relay connector A-05X and ETACS-ECU connector C-227 in good condition?

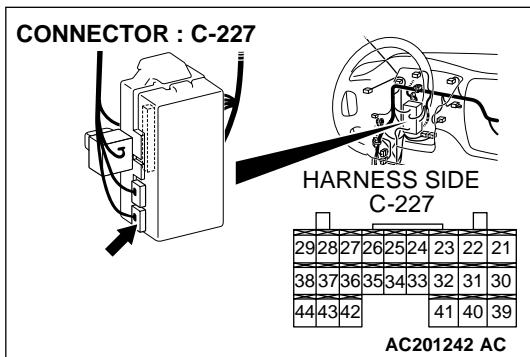
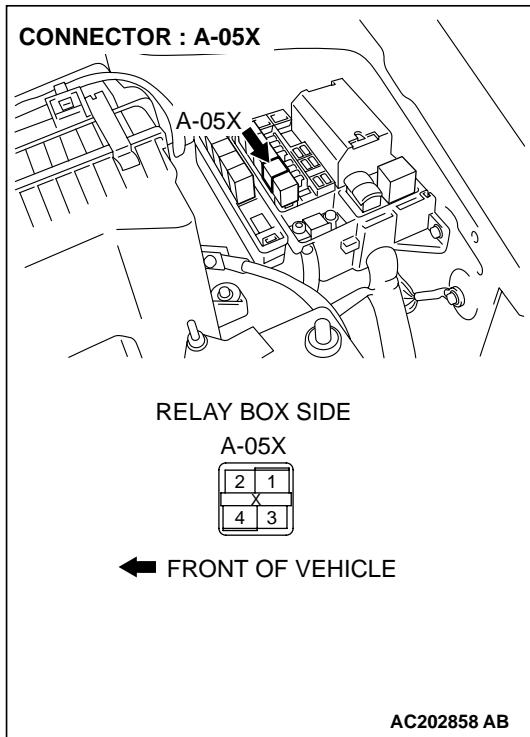
YES : Go to Step 20.

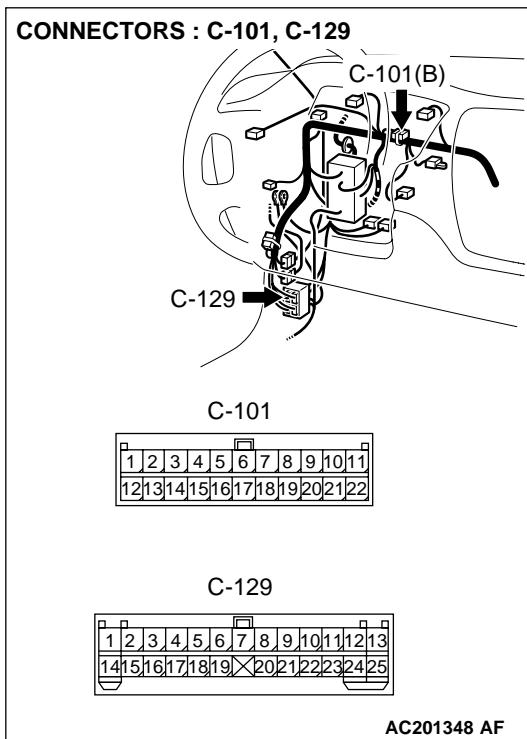
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the horn sounds normally.



STEP 20. Check the wiring harness between horn relay connector A-05X (terminal 3) and ETACS-ECU connector C-227 (terminal 44).

NOTE: Also check intermediate connector C-129 and joint connector C-101 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-129 or joint connector C-101 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).





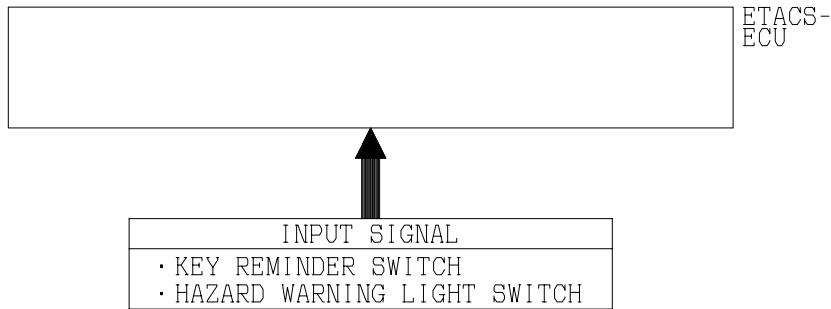
Q: Is the wiring harness between horn relay connector A-05X (terminal 3) and ETACS-ECU connector C-227 (terminal 44) in good condition?

YES : Replace the ETACS-ECU. Verify that the horn sounds 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 horn sounds normally.

INSPECTION PROCEDURE E-3: Keyless Entry System: Encrypted code cannot be registered.

Encrypted Tranmitter Code Register Mode



W2J08M50AA

CIRCUIT OPERATION

The ETACS-ECU operates the encrypted code register mode according to the following signals:

- Key reminder switch
- Hazard warning light switch

TECHNICAL DESCRIPTION (COMMENT)

Is the encrypted code register mode can not be set, the input circuits from the switches described in "CIRCUIT OPERATION" or the ETACS-ECU may be defective.

If the encrypted code register mode can be set but the transmitter can not be registered, the transmitter or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The key reminder switch may be defective
- The hazard warning light switch may be defective
- The transmitter 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
- MB991502: Scan Tool (MUT-II)

STEP 1. Verify trouble symptom.**Q: Can the encrypted code register mode be set?****YES :** Go to Step 3.**NO :** Go to Step 2.**STEP 2. Check the input signal by using the pulse check mode of the monitor.**

Check the input signals from the following switches:

- Key reminder switch
- Hazard warning light switch

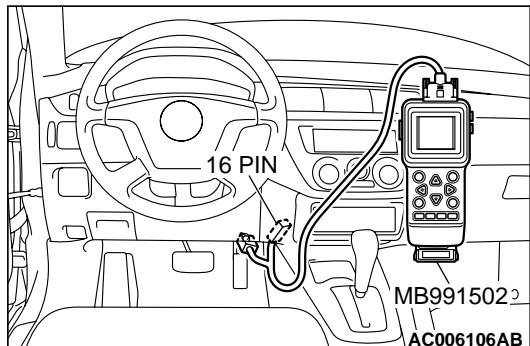
 CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate scan tool MB991502 as follows:

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

- (3) Check scan tool MB991502 sounds or not.
- (4) If the switches (see table below), which are applicable for the input signal check, are operated.



ITEM NAME	CHECK CONDITION
Key reminder switch	Remove and reinsert the ignition key
Hazard warning light switch	Turn the hazard warning light switch from the "OFF" to "ON" position.

Q: When the key reminder switch and the hazard warning light switch are operated, does scan tool MB991502 sound in each case?**YES :** Replace the ETACS-ECU. Verify that the encrypted code can be registered in the transmitter.

- NO :**
- Scan tool MB991502 does not sound when the ignition key is removed and reinserted.: Refer to Inspection Procedure N-1 "ETACS-ECU does not receive a signal from the key reminder switch [P.54Bc-45](#)."
 - Scan tool MB991502 does not sound when the hazard warning light switch is turned from "OFF" to "ON.".: Refer to Inspection Procedure N-2 "ETACS-ECU does not receive a signal from the hazard warning light switch [P.54Bc-50](#)."

STEP 3. Check the transmitter.

Q: When the transmitter's battery is replaced, can the encrypted code be registered?

YES : No action is necessary and testing is complete.

NO : Replace the transmitter. If the encrypted code can not be registered by means of the new transmitter, replace the ETACS-ECU. Verify that the encrypted code can be registered in the transmitter.

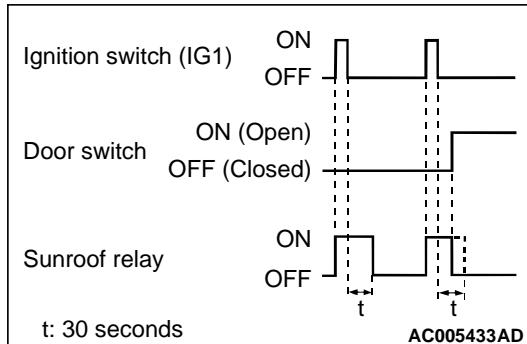
SUNROOF

GENERAL DESCRIPTION CONCERNING THE SUNROOF

M1549021200052

The following ECUs affect the functions and control of the sunroof.

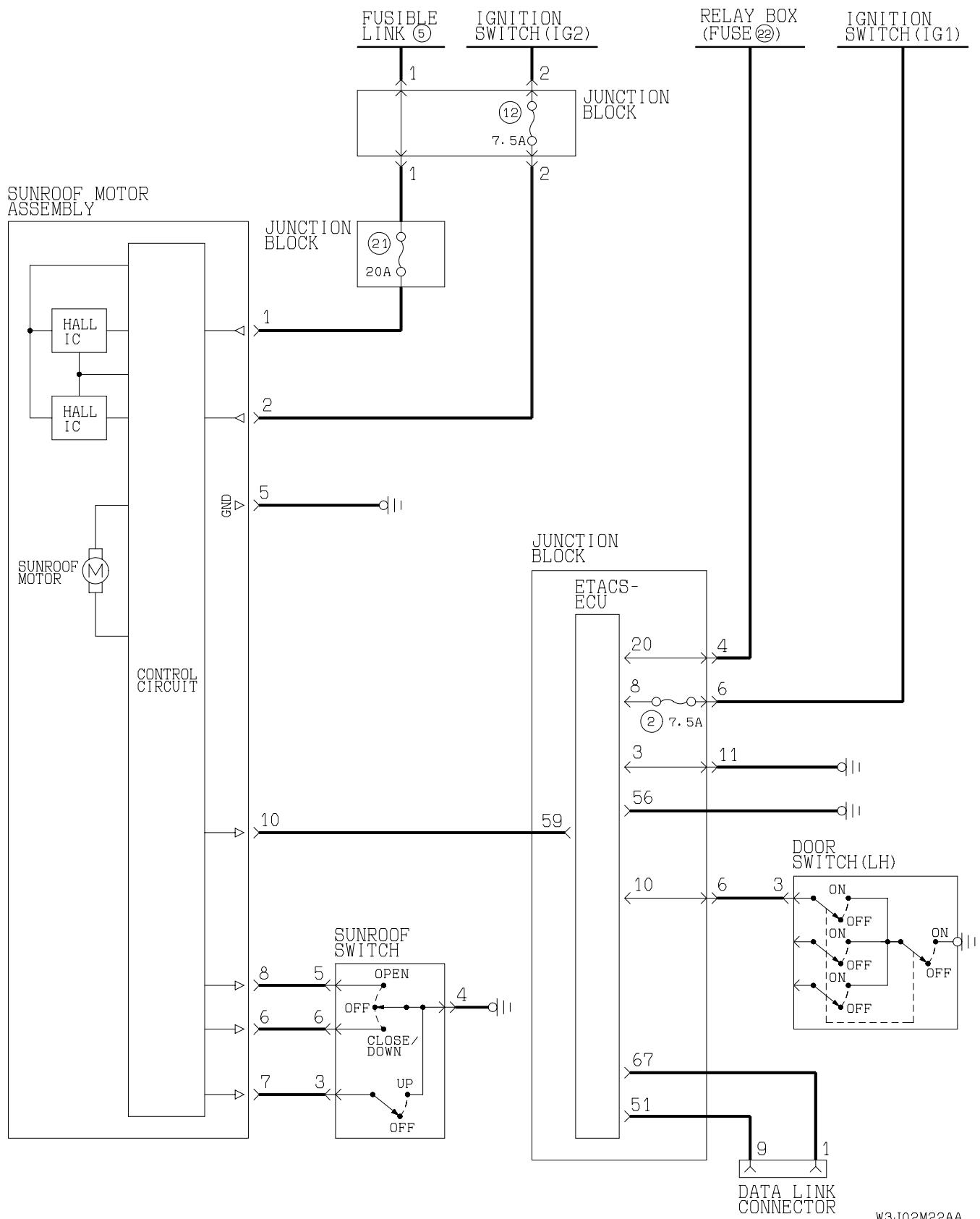
FUNCTION	CONTROL ECU
Sunroof timer function	ETACS-ECU, sunroof motor assembly



Sunroof timer function

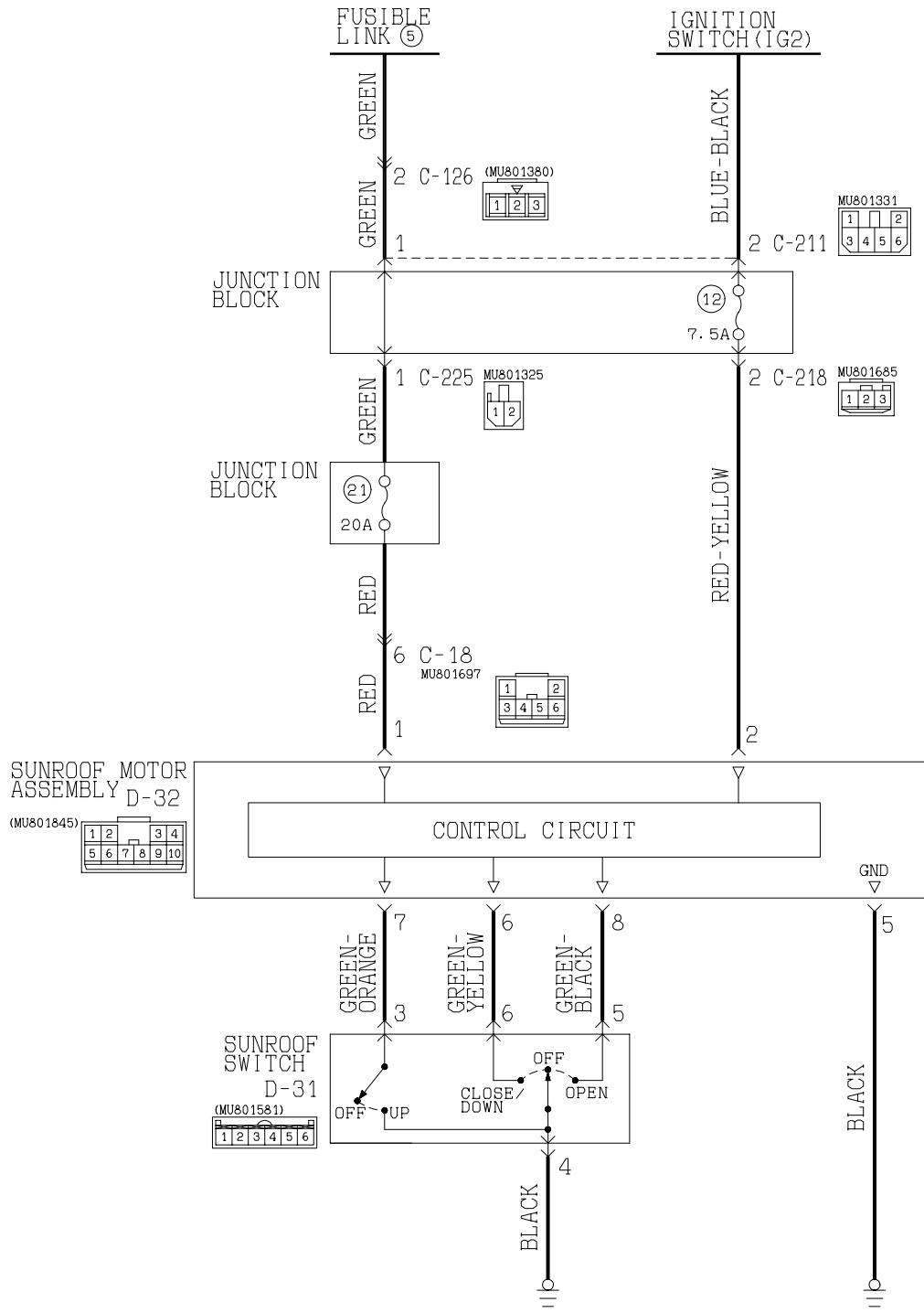
After the ignition switch is turned OFF, the system continues to turn ON the sunroof relay for about 30 seconds and to enable the opening and closing of the sunroof by the sunroof switch. When the driver's or front passenger's door is opened while the timer is in operation, the sunroof relay will be turned OFF and the sunroof timer function will be finished. As for the sunroof functions, refer to GROUP 42 – Sunroof [P.42-66](#).

General circuit diagram regarding the sunroof

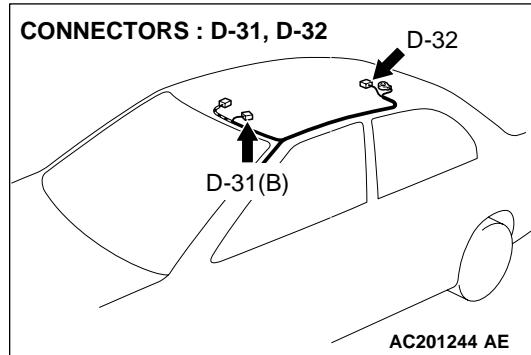
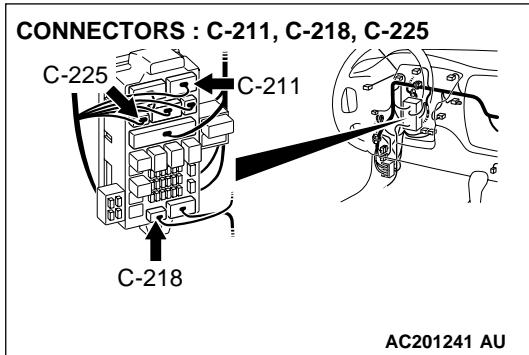
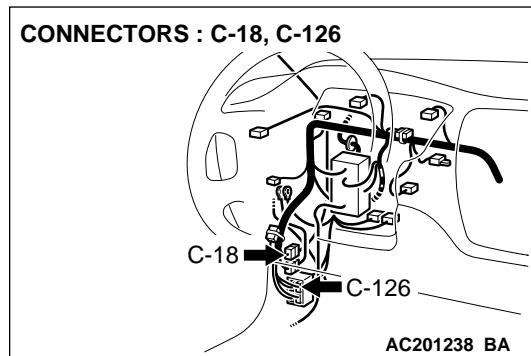
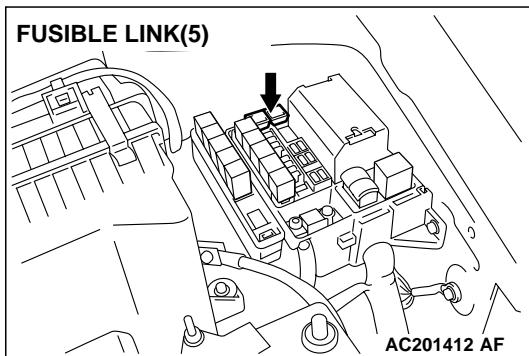


INSPECTION PROCEDURE F-1: Sunroof: Sunroof does not operate.

Sunroof Motor Assembly Power Supply Circuit



W3J02M08AA



CIRCUIT OPERATION

- The sunroof motor assembly is energized through fusible link (5) by the battery.
- When the ignition switch (IG2) signal is on, the sunroof motor assembly is ready to operate.

TROUBLESHOOTING HINTS

- The sunroof switch may be defective
- The sunroof motor assembly may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

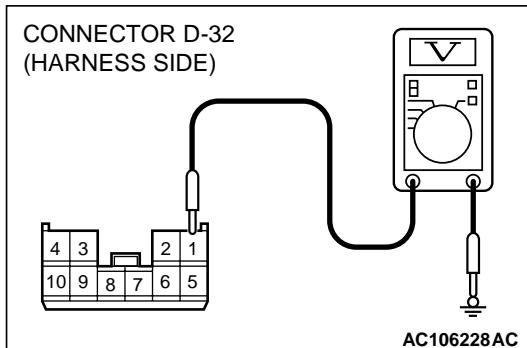
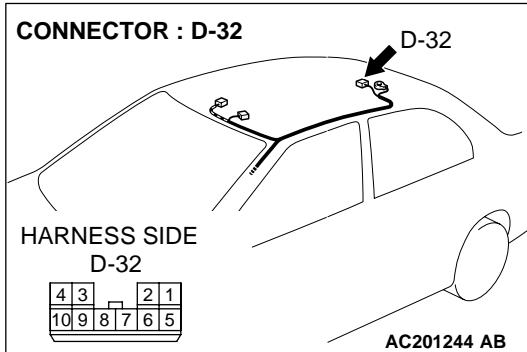
DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

STEP 1. Check the fusible link (5) line of power supply circuit to the sunroof motor assembly. Test at sunroof motor assembly connector D-32.

(1) Disconnect sunroof motor assembly connector D-32 and measure the voltage available at the wiring harness side of the connector.



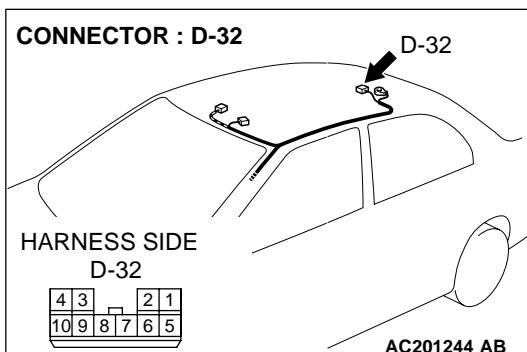
(2) Measure the voltage between terminal 1 and ground.

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

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

YES : Go to Step 4.

NO : Go to Step 2.

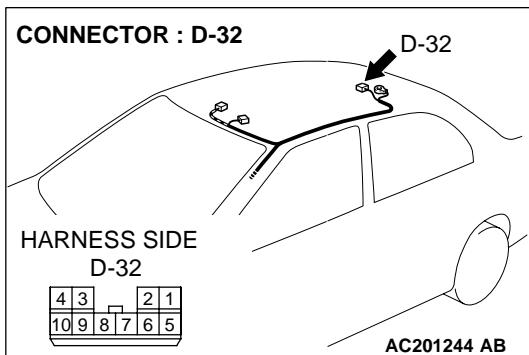
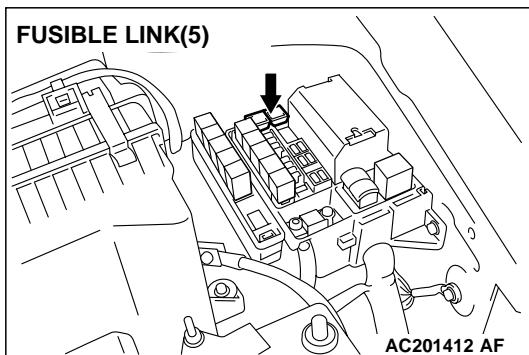


STEP 2. Check the sunroof motor assembly connector D-32 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof motor assembly connector D-32 in good condition?

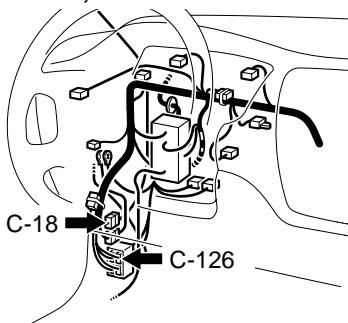
YES : Go to Step 3.

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

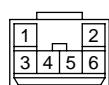


STEP 3. Check the harness wires between sunroof motor assembly connector D-32 (terminal 1) and fusible link (5).

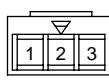
NOTE: Also check intermediate connectors C-18, C-126, junction block connectors C-211 and C-225 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-18, C-126, junction block connector C-211 or C-225 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

CONNECTORS : C-18, C-126

C-18



C-126

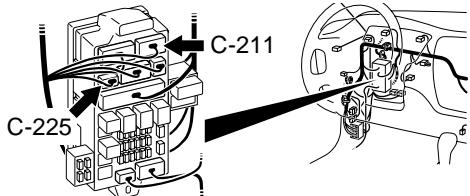
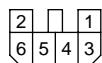


AC201348 AE

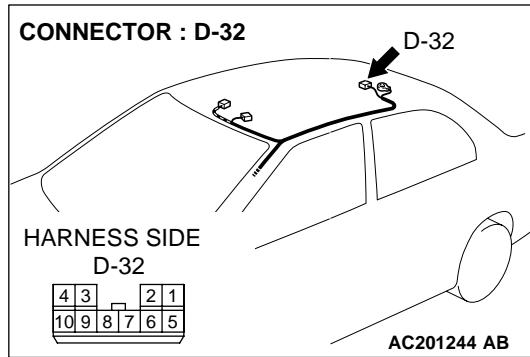
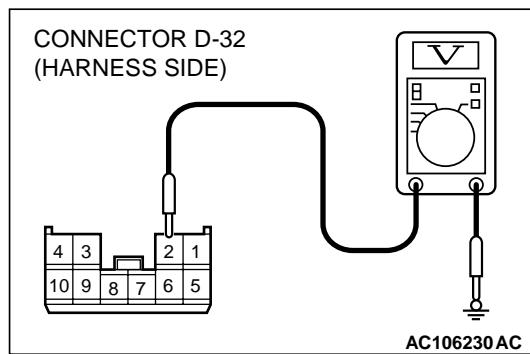
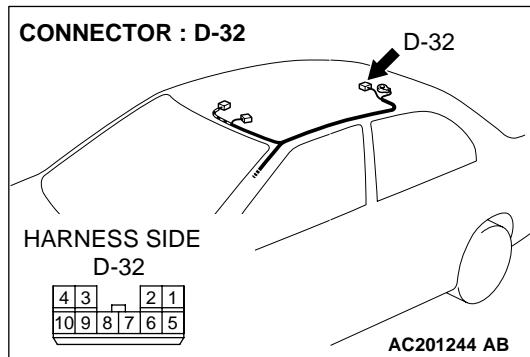
Q: Are the harness wires between sunroof motor assembly connector D-32 (terminal 1) and fusible link (5) in good condition?

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. The sunroof should now work normally.

CONNECTORS : C-211, C-225HARNESS SIDE
C-211HARNESS SIDE
C-225

AC201352 AI



STEP 4. Check the ignition switch (IG2) circuit to the sunroof motor assembly. Test at sunroof motor assembly connector D-32.

- (1) Disconnect sunroof motor assembly connector D-32 and measure the voltage available at the wiring harness side of the connector.
- (2) Turn the ignition switch to "ON" position.

- (3) Measure the voltage between terminal 2 and ground.

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

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

YES : Go to Step 7.

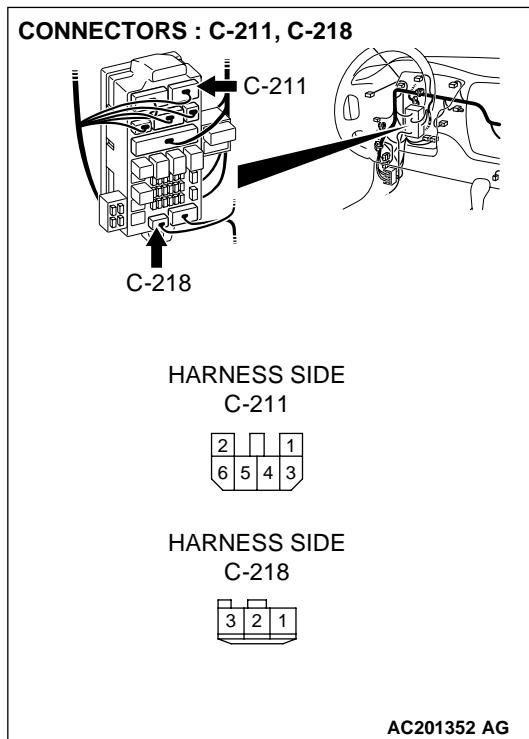
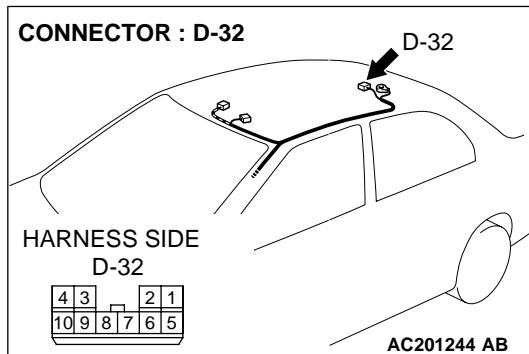
NO : Go to Step 5.

STEP 5. Check the sunroof motor assembly connector D-32 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof motor assembly connector D-32 in good condition?

YES : Go to Step 6.

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



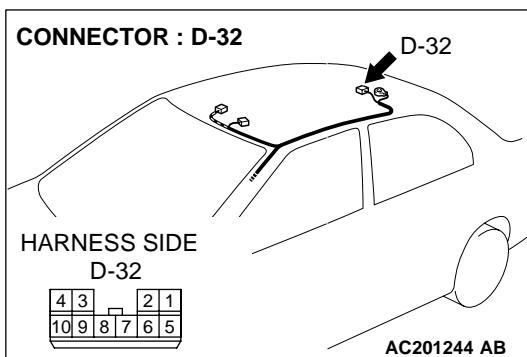
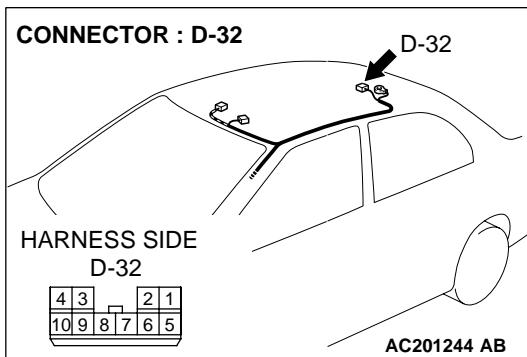
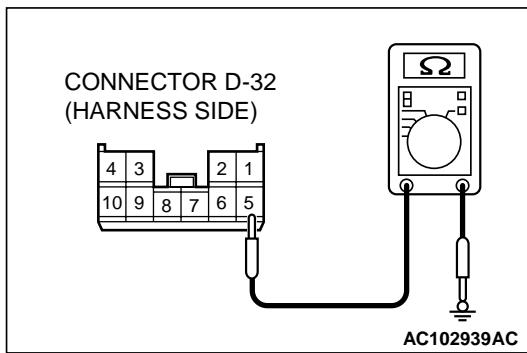
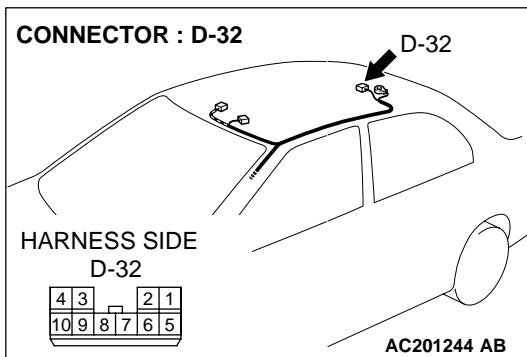
STEP 6. Check the harness wires between sunroof motor assembly connector D-32 (terminal 2) and ignition switch (IG2).

NOTE: Also check junction block connectors C-211 and C-218 for loose, corroded, or damaged terminals, or terminals pushed back in the connector, check the wires. If junction block connector C-211 or C-218 are damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between sunroof motor assembly connector D-32 (terminal 2) and ignition switch (IG2) 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. The sunroof should now work normally.



STEP 7. Check the ground circuit to the sunroof motor assembly. Test at sunroof motor assembly connector D-32.

(1) Disconnect sunroof motor assembly connector D-32 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance between terminal 5 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 10.

NO : Go to Step 8.

STEP 8. Check the sunroof motor assembly connector D-32 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof motor assembly connector D-32 in good condition?

YES : Go to Step 9.

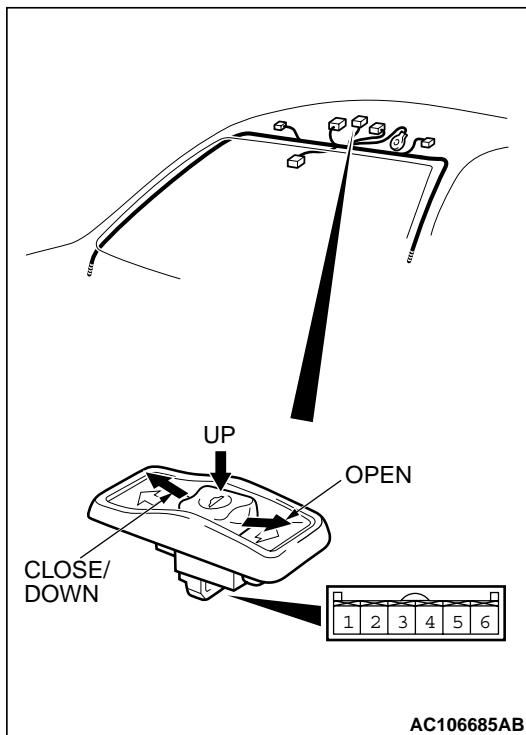
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The sunroof should now work normally.

STEP 9. Check the harness wire between sunroof motor assembly connector D-32 (terminal 5) and ground.

Q: Is the harness wire between sunroof motor assembly connector D-32 (terminal 5) 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. The sunroof should now work normally.

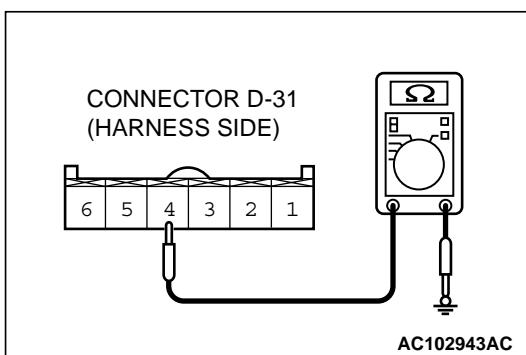
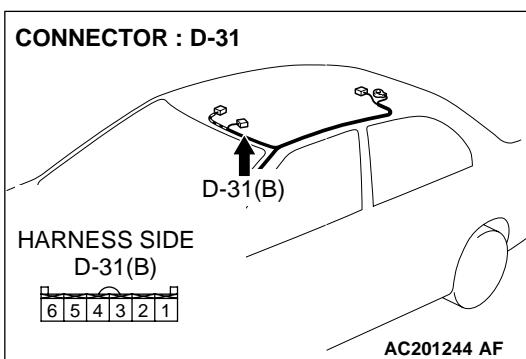
STEP 10. Check the sunroof switch.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Off	3 – 4, 4 – 5, 4 – 6	Open circuit
Tilt up	3 – 4	Less than 2 ohms
Open	4 – 5	Less than 2 ohms
Slide closed, Tilt down	4 – 6	Less than 2 ohms

Q: Does the check above meet the table?

YES : Go to Step 11.

NO : Replace the sunroof switch. The sunroof should now work normally.



STEP 11. Check the ground circuit to the sunroof switch.
Test at sunroof switch connector D-31.

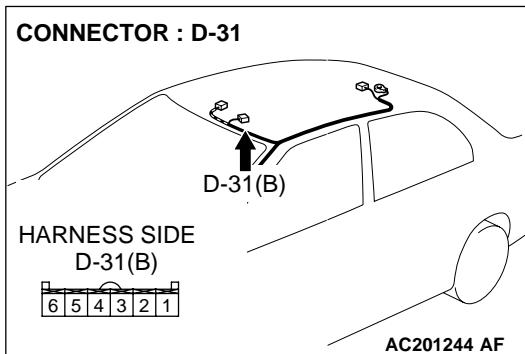
(1) Disconnect sunroof switch connector D-31 and measure the resistance available at the wiring component side of the connector.

(2) Measure the resistance 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 14.

NO : Go to Step 12.

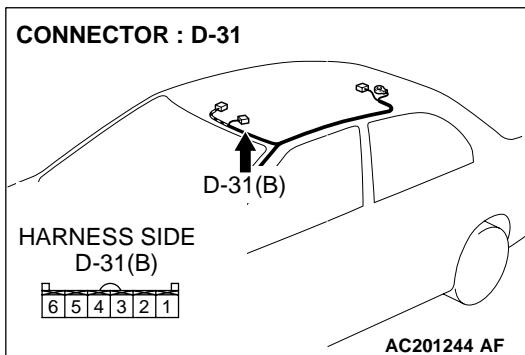


STEP 12. Check the sunroof switch connector D-31 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof switch connector D-31 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. The sunroof should now work normally.

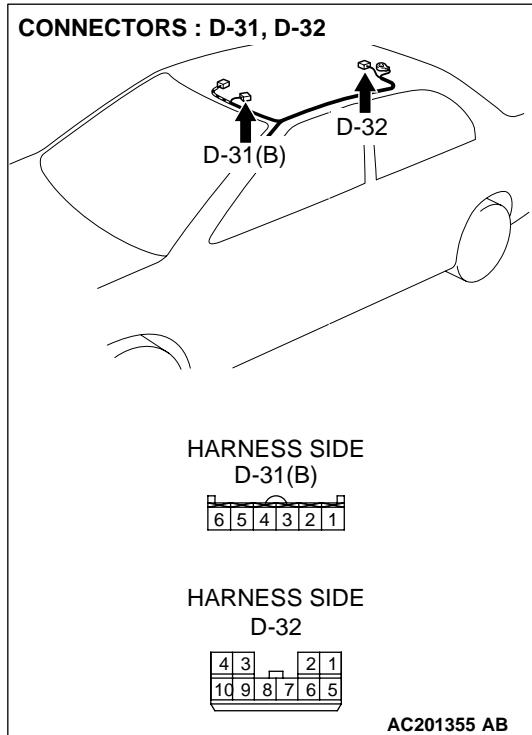


STEP 13. Check the harness wire between sunroof switch connector D-31 (terminal 4) and ground.

Q: Is the harness wire between sunroof switch connector D-31 (terminal 4) 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. The sunroof should now work normally.



STEP 14. Check the sunroof switch connector D-31 and sunroof motor assembly connector D-32 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

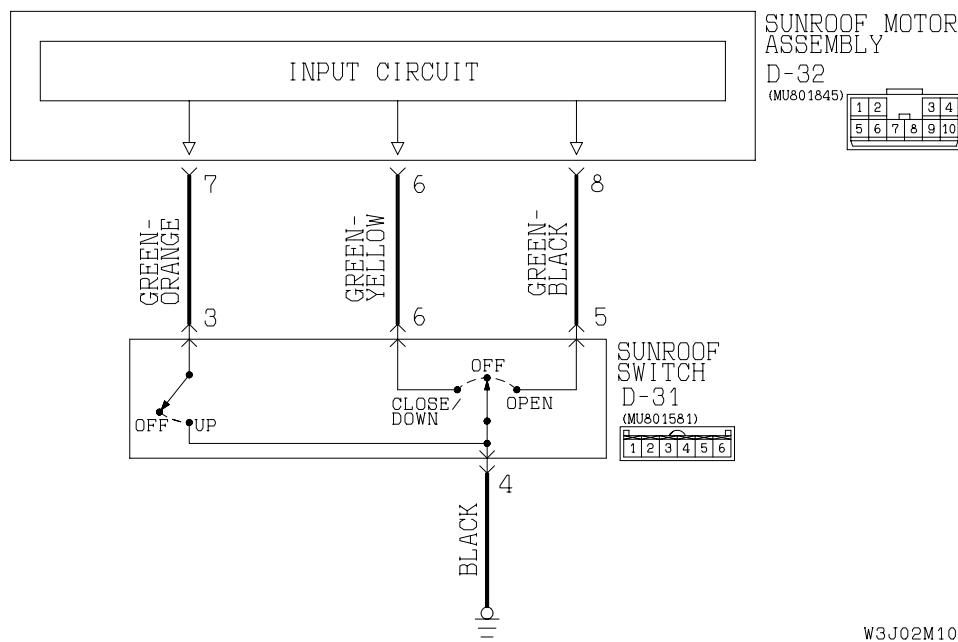
Q: Are sunroof switch connector D-31 and sunroof motor assembly connector D-32 in good condition?

YES : Replace the sunroof motor assembly. The sunroof should now work normally.

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

INSPECTION PROCEDURE F-2: Sunroof: Any of the sunroof switch positions is defective.

Sunroof Switch Circuit



TECHNICAL DESCRIPTION (COMMENT)

The sunroof switch or the sunroof motor assembly may be defective.

TROUBLESHOOTING HINTS

- The sunroof switch may be defective
- The sunroof motor assembly 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
- MB991502: Scan Tool (MUT-II)

Check the input signal by using the pulse check mode of the monitor.

Check the input signals from the sunroof switch.

 CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate scan tool MB991502 according to the procedure below to display "PULSE CHECK."

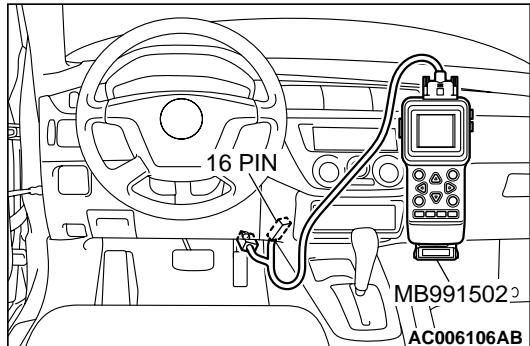
1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

- (3) When each function of the sunroof switch is operated (turned on), check that scan tool MB991502 sounds.

Q: Does scan tool MB991502 sound when the sunroof switch is operated?

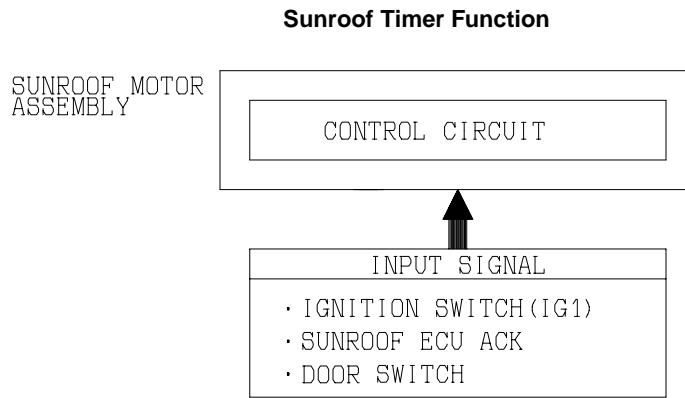
YES : Replace the sunroof motor assembly. Verify that the sunroof works at all positions normally.

NO : Refer to Inspection Procedure M-8 "ETACS-ECU does not receive any signal from the up, open or close/down switch [P.54Bc-41](#)."



INSPECTION PROCEDURE F-3: Sunroof: Sunroof timer function does not work normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."



W3S12M02AA

CIRCUIT OPERATION

- The sunroof timer function works according to the signals from the following switches:
 - Ignition switch (IG1): OFF
 - Driver's and passenger's door switch: OFF
- Vehicle condition
 - Ignition switch: LOCK position
 - Driver's and passenger's door: Closed
- When a front door is opened and closed while the sunroof timer function is on, the sunroof operative duration will be changed.

TECHNICAL DESCRIPTION (COMMENT)

If the sunroof timer function does not work normally, the input circuits from the switches described in "CIRCUIT OPERATION", the sunroof motor assembly, the ETACS-ECU or the SWS communication line may be defective.

TROUBLESHOOTING HINTS

- The driver's or passenger's door switch may be defective
- The sunroof motor assembly 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

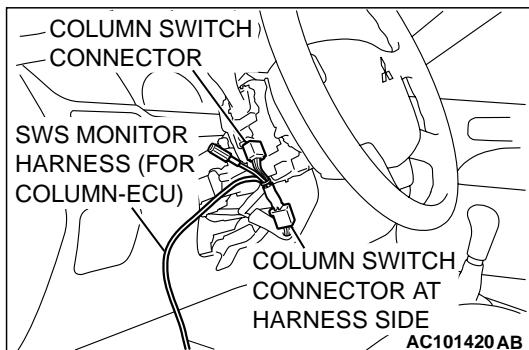
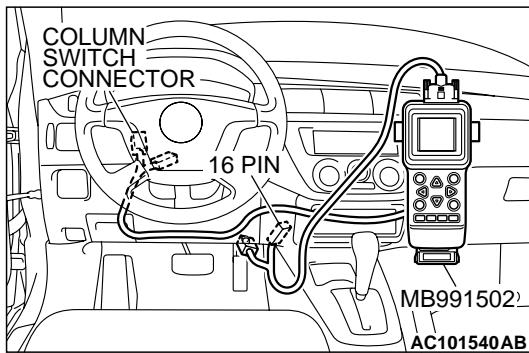
STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the following ECUs:

- ETACS-ECU
- Sunroof motor assembly (sunroof-ECU)

 CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.



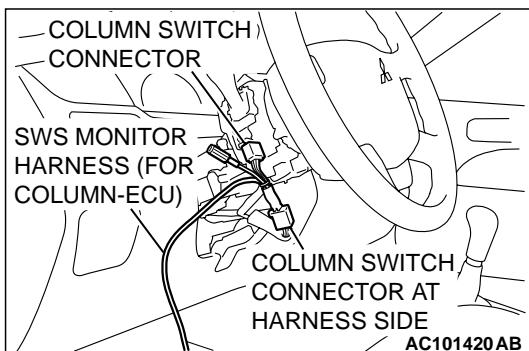
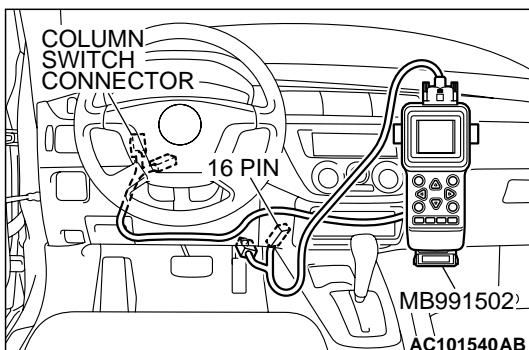
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 according to the procedure below to display "ECU COMM CHK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK."
- (5) Scan tool MB991502 should show "OK" on the "ECU COMM CHK" menus for both the "ETACS ECU" and the "SUNROOF ECU" menus.

Q: Is "OK" displayed on both the "ETACS ECU" and "SUNROOF ECU" menu?

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

"NG" is displayed on the "ETACS ECU" menu : Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is not possible [P.54Bb-22](#)."

"NG" is displayed on the "SUNROOF ECU" menu : Refer to Inspection Procedure A-5 "Communication with sunroof motor (sunroof-ECU) is not possible [P.54Bb-37](#)."



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

- (1) Turn the ignition switch to the "OFF" position to check the input signals from the following switches.
- (2) Operate scan tool MB991502 according to the procedure below to display "SUNROOF-OPE."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "SUNROOF."
 6. Select "SUNROOF-OPE."
- (3) Check that normal conditions are displayed on the items described in the table below.

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM 30	IG SW (IG1)	OFF
ITEM 72	S/R ECU ACK	NORMAL ACK

Q: Are normal conditions displayed on the "IG SW (IG1)" and "S/R ECU ACK"?

YES : Replace the sunroof motor assembly. Verify that the sunroof timer function works normally.

NO :

- Normal condition is not displayed on the "IG SW(IG1)": Refer to Inspection Procedure M-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) [P.54Bc-6](#)."
- Normal condition is not displayed on the "S/R ECU ACK": Replace the sunroof motor assembly. Verify that the sunroof timer function works normally.

INSPECTION PROCEDURE F-4: Sunroof: Safety mechanism does not function.**TECHNICAL DESCRIPTION (COMMENT)**

The sunroof motor assembly monitors load condition according to the current, which runs in the motor. If a predetermined current is exceeded, the sunroof motor reverses due to safety mechanism. If the sunroof motor does not reverse when an excessive load is applied, the sunroof motor assembly may be defective.

TROUBLESHOOTING HINT

The sunroof motor assembly may be defective

DIAGNOSIS

Replace the sunroof motor assembly.

The sunroof safety mechanism should now work normally.

WINDSHIELD WIPER AND WASHER**GENERAL DESCRIPTION CONCERNING THE WINDSHIELD WIPER AND WASHER**

M1549021500053

The following ECUs affect the functions and control of the windshield wiper and washer.

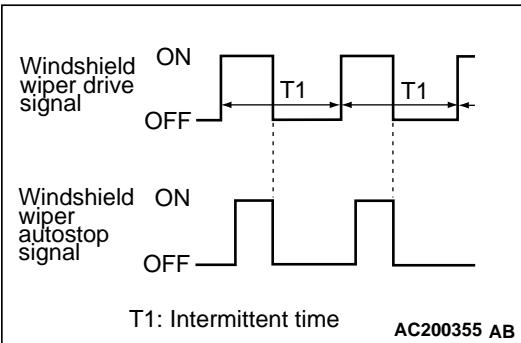
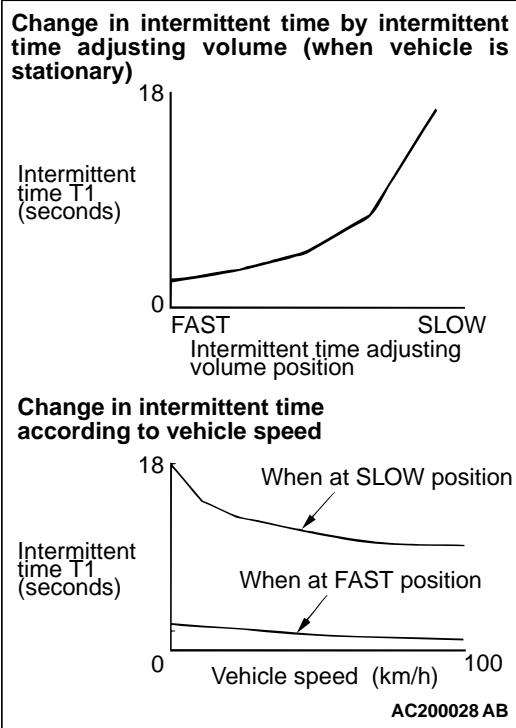
FUNCTION	CONTROL ECU
Intermittent control (Vehicle speed-dependent variable type)	ETACS-ECU, front-ECU, column switch
Mist wiper control	Front-ECU, column switch
Low speed wiper, high speed wiper control	Front-ECU, column switch
Washer control	Front-ECU, column switch

WINDSHIELD WIPER AND WASHER CONTROL FUNCTION

Intermittent control (Vehicle speed-dependent variable type)

The ETACS-ECU calculates the intermittent time according to the vehicle speed calculated from the windshield wiper intermittent time adjusting knob and vehicle speed signal (ECM <M/T> or PCM <A/T>.) and sends it to the front ECU as SWS data.

NOTE: The vehicle speed-dependent function can be disabled by the adjustment procedures of SWS function (Refer to P.54Ba-23).

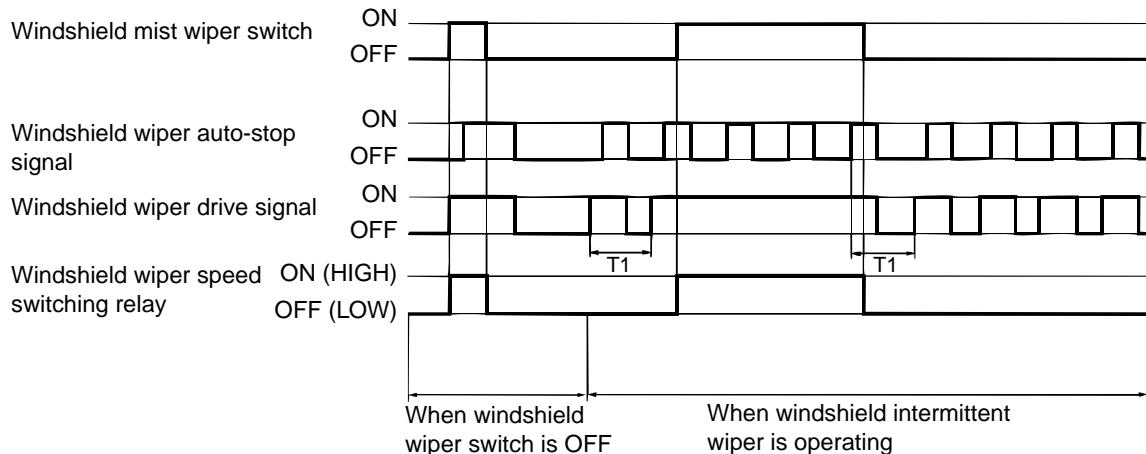


Mist wiper control

When the ignition switch is at the ACC or ON position, if the windshield mist wiper switch of the column switch is turned ON, the front-ECU turns ON the windshield wiper drive signal. At the same time, the wiper speed switching relay is turned ON (HIGH-SPEED). While the windshield mist wiper switch is ON, the windshield wiper will operate at high speed. Then, if the windshield mist wiper switch is turned off, the wiper operates at low speed until it stops at the predetermined park position.

When the windshield mist switch is turned on briefly, the wiper operates at low speed once.

At the point the windshield mist switch is turned ON, if the windshield wiper has been operating intermittently, the same operations as the above will be performed while the windshield mist wiper switch is ON. After the windshield mist wiper switch goes OFF, the intermittent operations will be set again T1 seconds after the windshield wiper auto-stop signal is turned ON last.



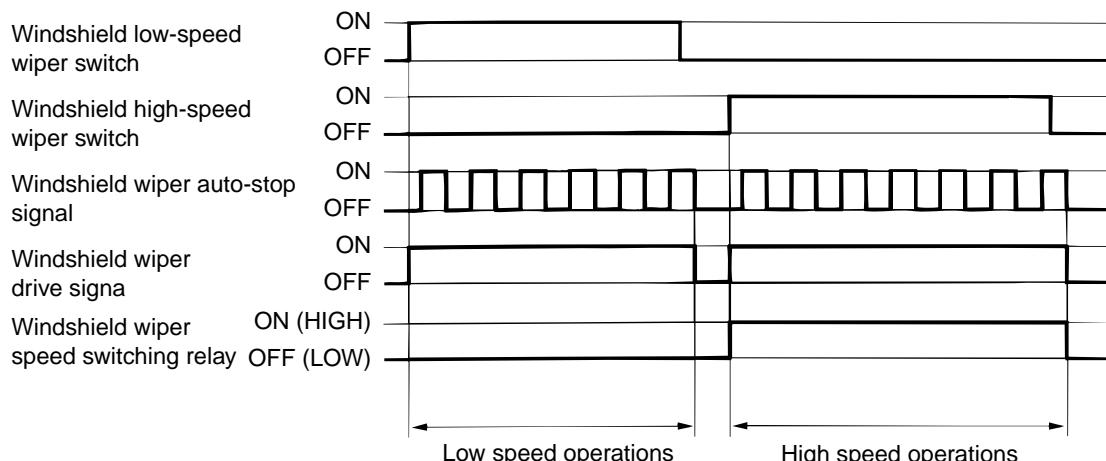
AC200047AB

T1: Intermittent time

Low speed wiper, high speed wiper control

When the ignition switch is at the ACC or ON position, if the windshield low speed wiper switch of the column switch is turned ON, the front-ECU turns ON the windshield wiper drive signal, turns OFF (LOW) the windshield wiper speed switching relay, and operates the windshield wiper at low speed. Next,

when the windshield high speed wiper switch is turned ON, the windshield wiper drive signal is turned ON, the windshield wiper speed switching relay is turned ON (HIGH), and the windshield wiper is operated at high speed.



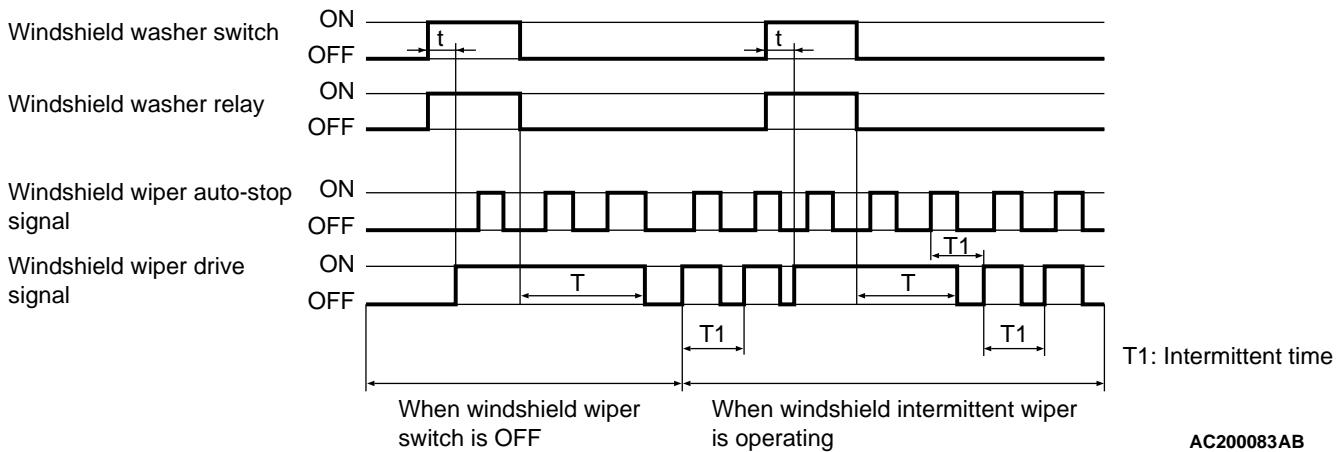
AC005437AB

Washer control

When the ignition switch is at the ACC or ON position, if the windshield washer switch of the column switch is turned ON, the front-ECU turns ON the windshield washer relay. The windshield wiper drive signal is turned ON in 0.3 seconds until 3 seconds after the windshield washer switch goes OFF to

operate the windshield wiper continuously. When the windshield washer switch is turned ON, if the windshield wiper is operating intermittently, intermittent operations will be continued after continuous operations.

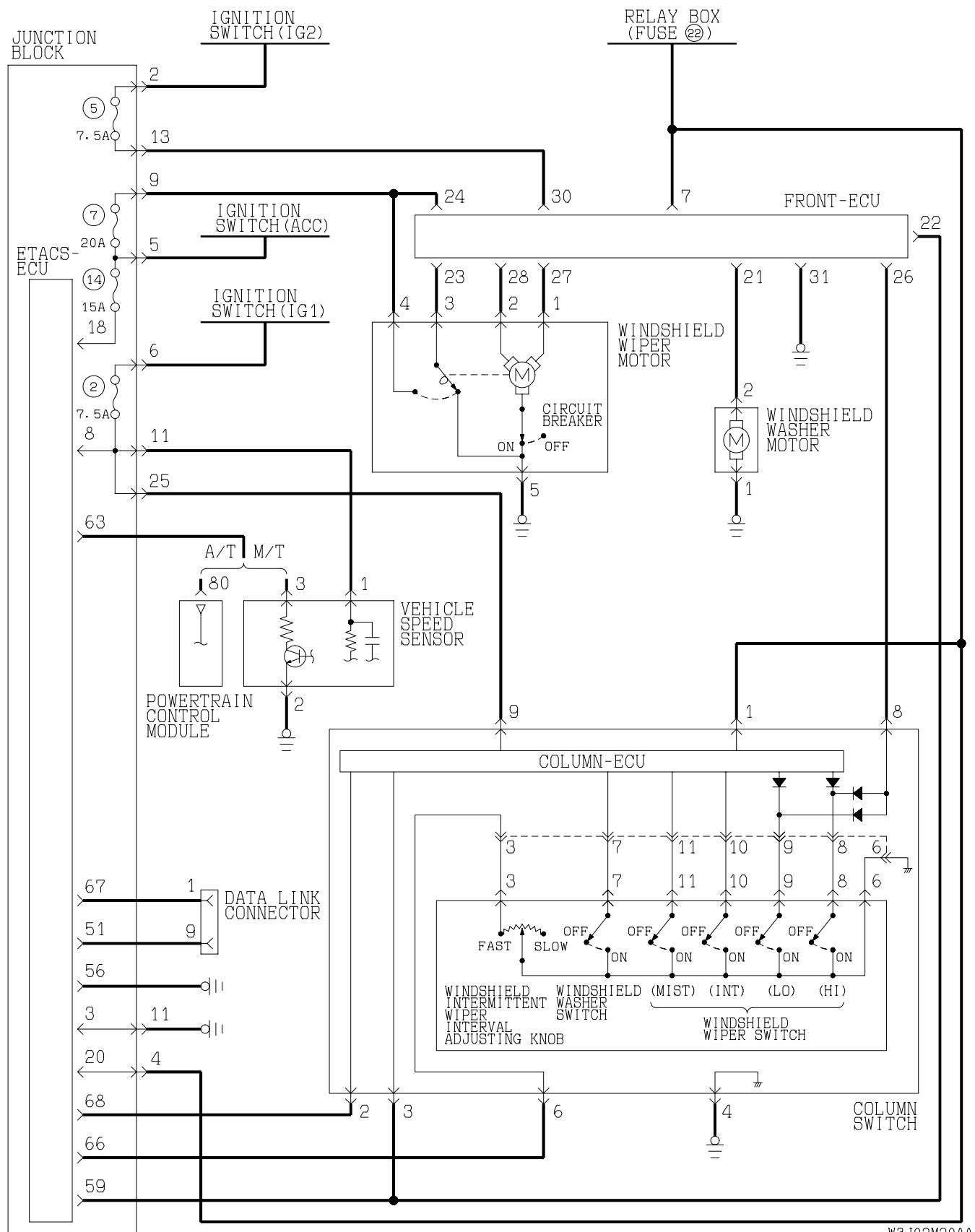
NOTE: The wiper drive signal output time varies according to the conditions. Refer to the following table for details.



AC200083AB

	When wiper switch is OFF				When wiper switch is INT				When wiper switch is LOW or HIGH
t	0.3 seconds or less	0.3 - 0.5 seconds	0.5 - 0.7 seconds	0.7 seconds	Less than 0.2 seconds	0.3 - 0.5 seconds	0.5 - 0.7 seconds	0.7 seconds	—
T	0 second	1 second	2 seconds	3 seconds	0 second	1 second	2 seconds	3 seconds	3 seconds

General circuit diagram for the windshield wiper and washer

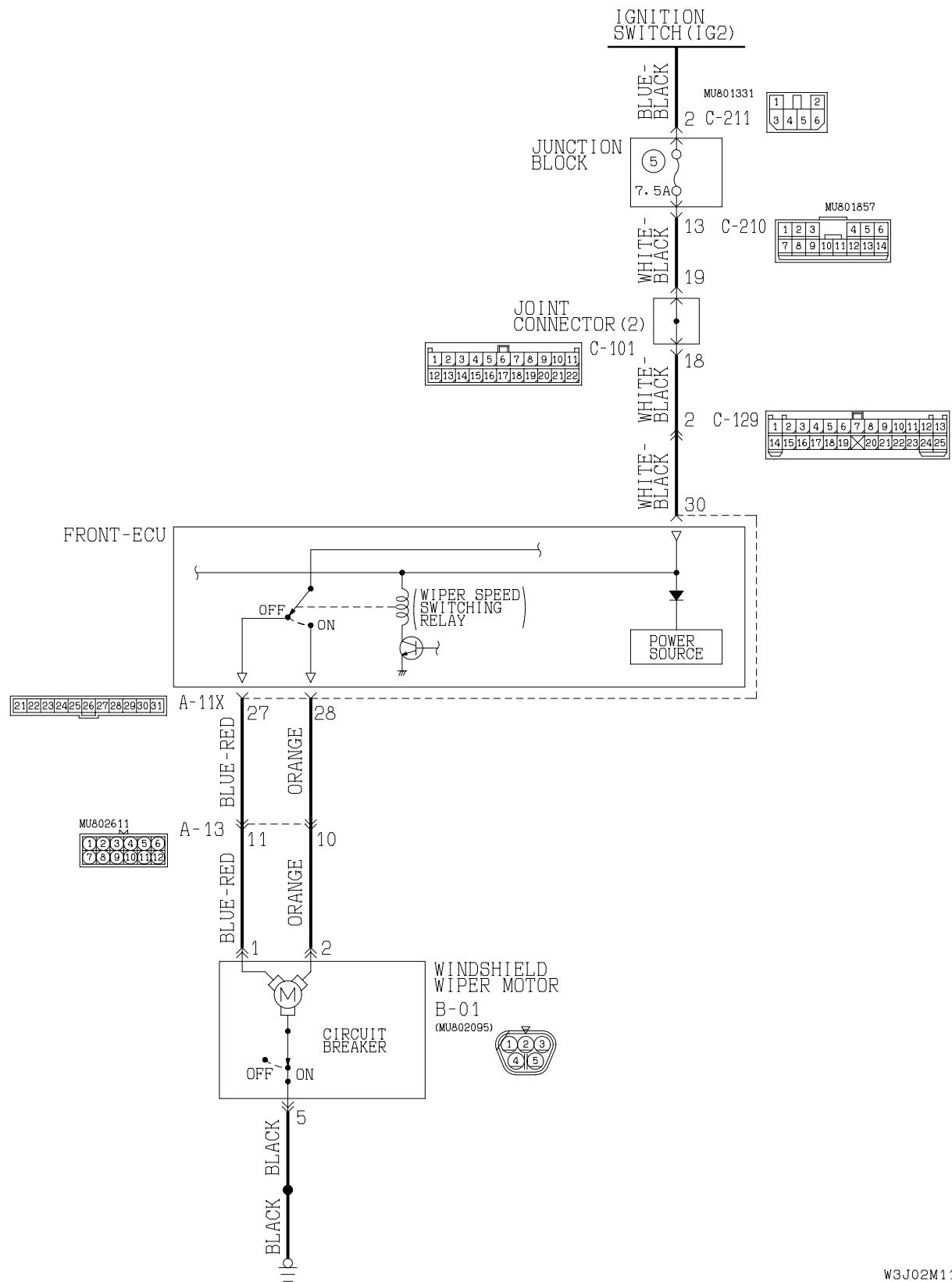


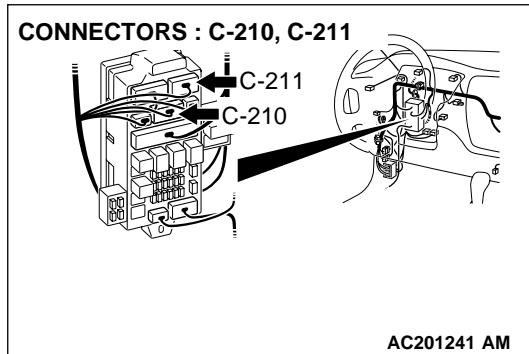
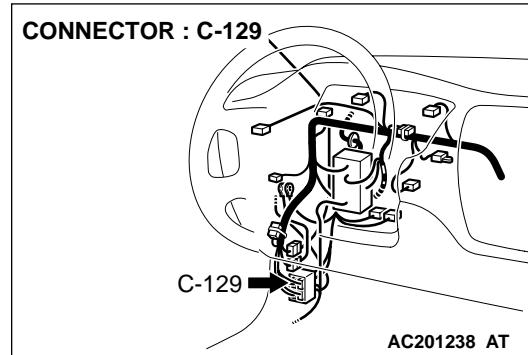
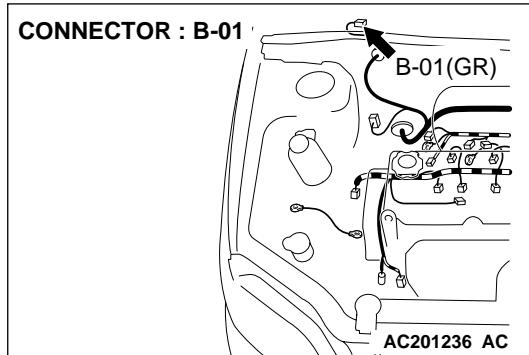
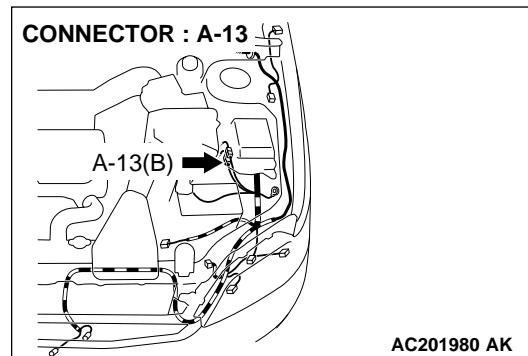
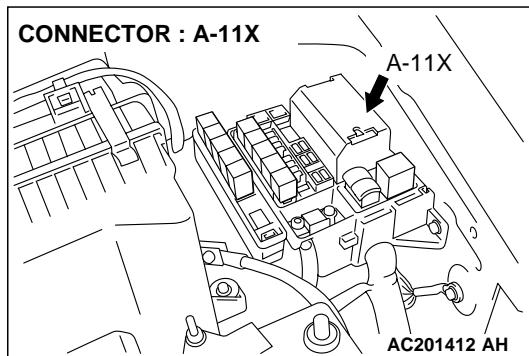
W3J02M20AA

INSPECTION PROCEDURE G-1: Windshield Wiper and Washer: Windshield wipers does no not work at all.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor [P.54Ba-7](#)."

Windshield Wiper Motor Circuit





CIRCUIT OPERATION

- The windshield wiper and washer switch sends a signal through the column-ECU (incorporated in the column switch) to the front-ECU. If the column-ECU sends a windshield wiper and washer switch "ON" signal to the front-ECU, the front-ECU turns on the relay (incorporated in the front-ECU), thus causing the windshield wiper and washer motor to be turned on.
- If the SWS communication line is defective, the front-ECU operates windshield wiper motor by using the other communication lines (wiper backup circuit) instead of that line. In this case, the windshield wiper works at low speed regardless of the windshield wiper and washer switch positions ("LOW" or "HIGH").

TECHNICAL DESCRIPTION (COMMENT)

If the windshield wiper does not work at all, the windshield wiper motor, column switch (windshield wiper and washer switch) or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- The wiper motor may be defective
- The column switch may be defective (windshield wiper and washer switch)
- 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

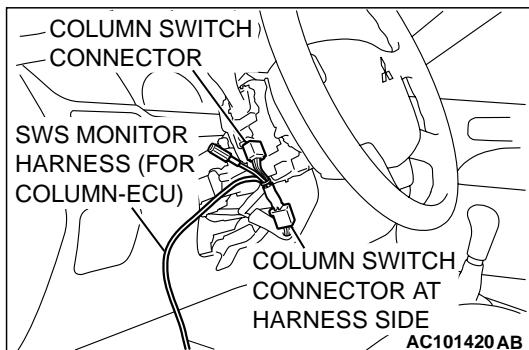
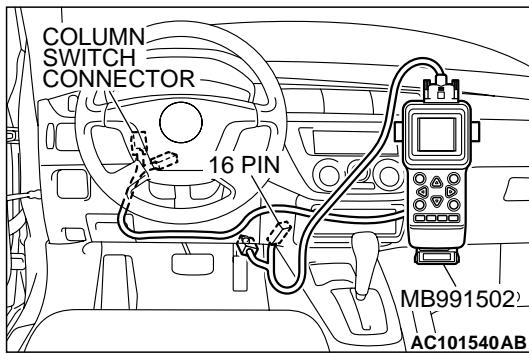
STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the following ECUs:

- Column-ECU
- Front-ECU

 CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.



- (1) Connect scan tool MB991502 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 MB991502 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 MB991502 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"?

"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.54Bb-13](#)."

"NG" is displayed on the "FRONT ECU" menu : Refer to Inspection procedure A-4 "Communication with front-ECU is not possible [P.54Bb-30](#)."

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

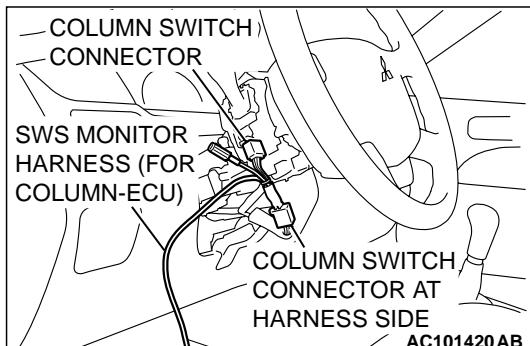
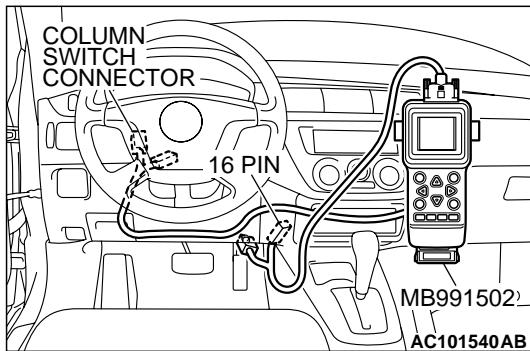
Check the input signals from the following switches:

- ignition switch: ACC
- windshield wiper switch: INT

Operate scan tool MB991502 according to the procedure below to display "F.WIPER INT."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "WIPER."
6. Select "F.WIPER INT."

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

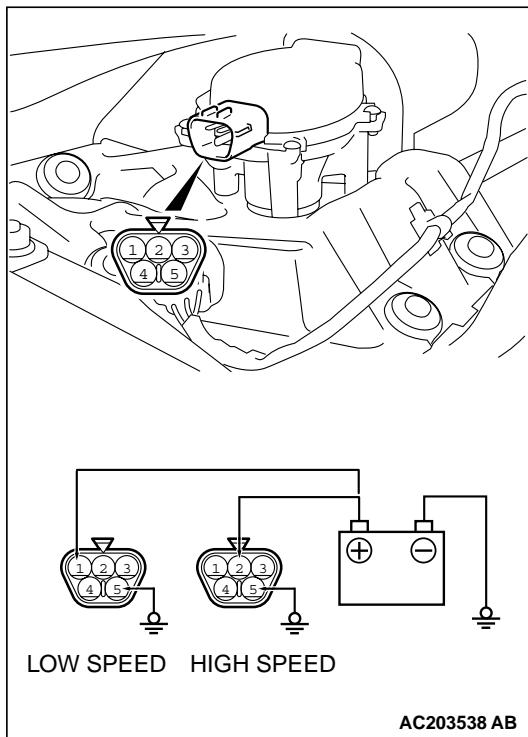


ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 05	INT WIPER SW	ON
ITEM 70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK

Q: Are normal conditions displayed on the "INT WIPER SW" and "FRONT ECU ACK"?

YES : Go to Step 3.

- No :**
- Normal condition is not displayed on the "INT WIPER SW": Replace the column switch. Verify that the windshield wiper works normally.
 - Normal condition is not displayed on the "FRONT ECU ACK": Replace the front-ECU. Verify that the windshield wiper works normally.

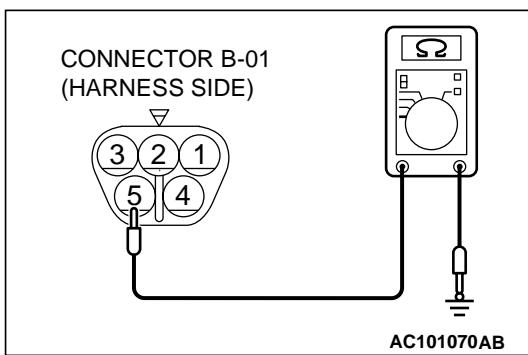
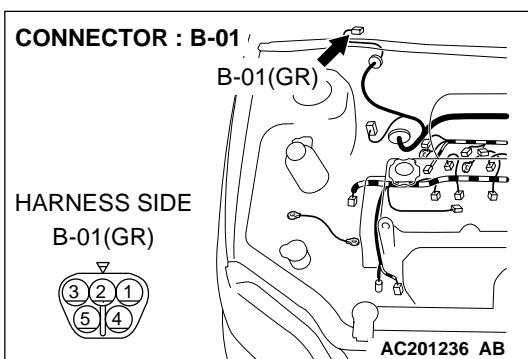
**STEP 3. Check the windshield wiper motor.**

- (1) Disconnect windshield wiper motor connector B-01.
- (2) Connect a battery to the windshield wiper motor as shown. Then check the windshield wiper motor operates normally at high and low speeds.

Q: Does the windshield wiper motor operate normally?

YES : Go to Step 4.

NO : Replace the windshield wiper motor. Verify that the windshield wiper works normally.

**STEP 4. Check the ground circuit to the windshield wiper motor. Test at the connector B-01.**

- (1) Disconnect windshield wiper motor connector B-01 and measure the resistance available at the wiring harness side of the connector.

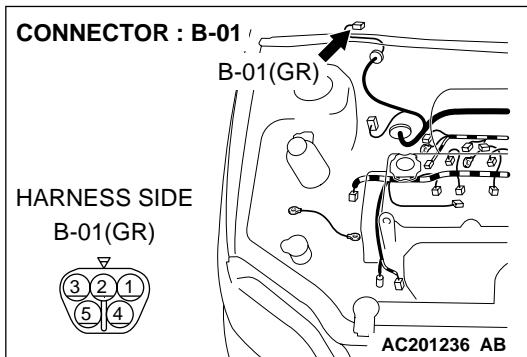
- (2) Measure the resistance value between terminal 5 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 7.

NO : Go to Step 5.

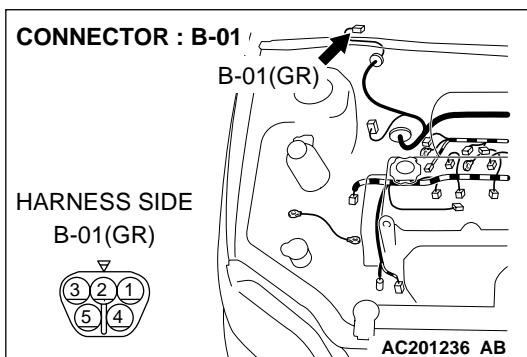


STEP 5. Check windshield wiper motor connector B-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is windshield wiper motor connector B-01 in good condition?

YES : Go to Step 6.

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

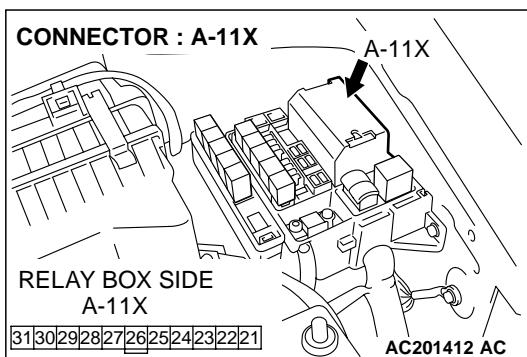


STEP 6. Check the wiring harness between windshield wiper motor connector B-01 (terminal 5) and ground.

Q: Is the wiring harness between windshield wiper motor connector B-01 (terminal 5) and ground in good condition?

YES : No action is necessary and testing is complete.

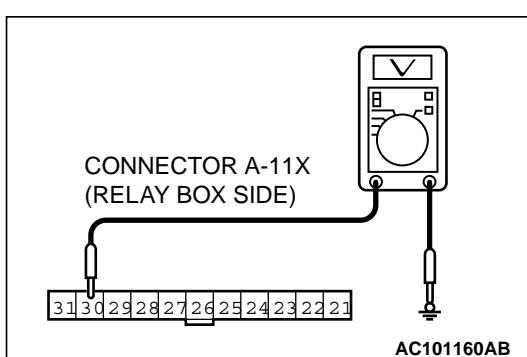
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the windshield wiper works normally.



STEP 7. Check the ignition switch (IG2) circuit to the front-ECU. Test at front-ECU connector A-11X.

(1) Disconnect front-ECU A-11X and measure the voltage available at the relay box side of the connector.

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



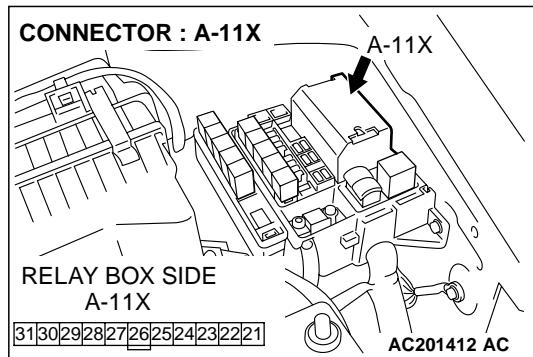
(3) Measure the voltage between terminal 30 and ground.

- The voltage should equal 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 windshield wiper works normally.

NO : Go to Step 8.

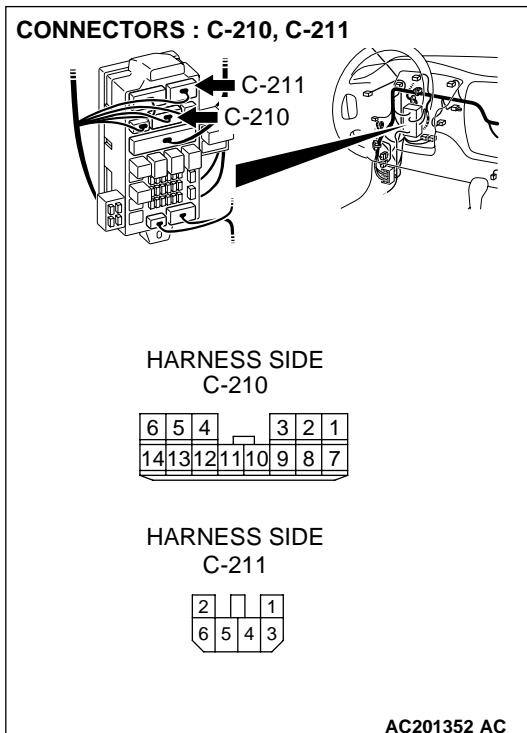
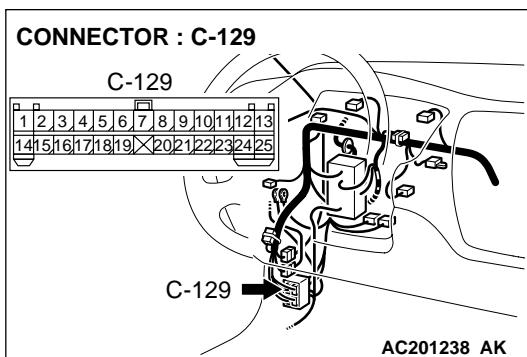
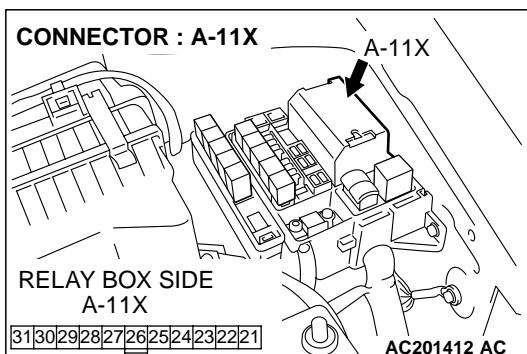


STEP 8. Check the front-ECU connector A-11X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front-ECU connector A-11X 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 windshield wiper works normally.

**STEP 9. Check the wiring harness between front-ECU connector A-11X (terminal 30) and the ignition switch (IG2).**

NOTE: Also check intermediate connector C-129, junction block connectors C-210 and C-211 and joint connector C-101 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-129, junction block connector C-210 or C-211 or joint connector C-101 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-ECU connector A-11X (terminal 30) and the ignition switch (IG2) in good condition?

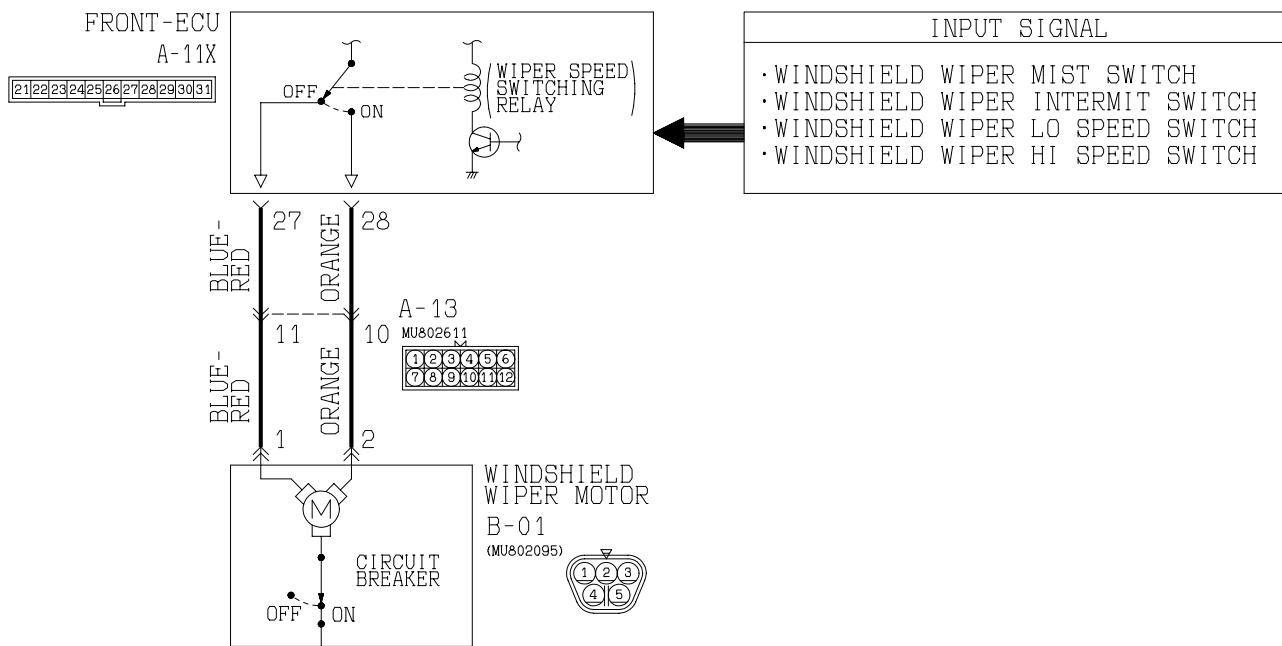
YES : No action is necessary and testing is complete.

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 windshield wiper works normally.

INSPECTION PROCEDURE G-2: Windshield Wiper and Washer: The windshield wipers do not work when the windshield wiper switch is at "INT" or "MIST" position or the windshield washer switch is at "ON" position. However, the wipers work at low speed when the windshield wiper switch is at "LO" or "HI."

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Windshield Wiper Motor Drive Circuit



W2J08M52AA

TECHNICAL DESCRIPTION (COMMENT)

This system may be at fail-safe mode as the SWS communication line is defective.

If the system can not receive any signal from the column switch (windshield wiper and washer switch) due to a open circuit in the SWS communication line or other reasons, the system will enter the fail-safe mode when the ignition switch is at the "ACC" position.

TROUBLESHOOTING HINTS

- The column switch may be defective (windshield wiper and washer switch)
- 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

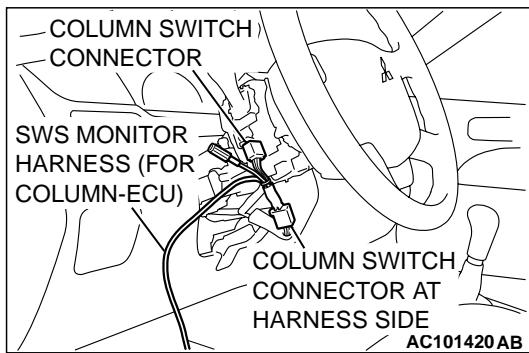
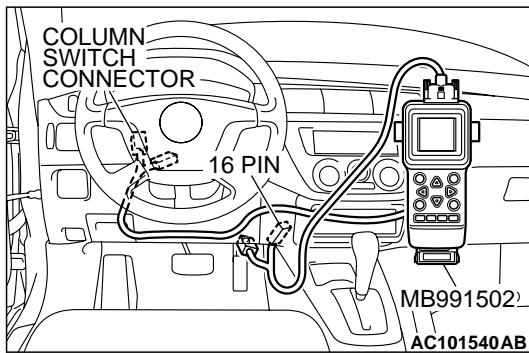
Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the following ECUs:

- Column-ECU
- Front-ECU

CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.



- (1) Connect scan tool MB991502 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 MB991502 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 MB991502 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?

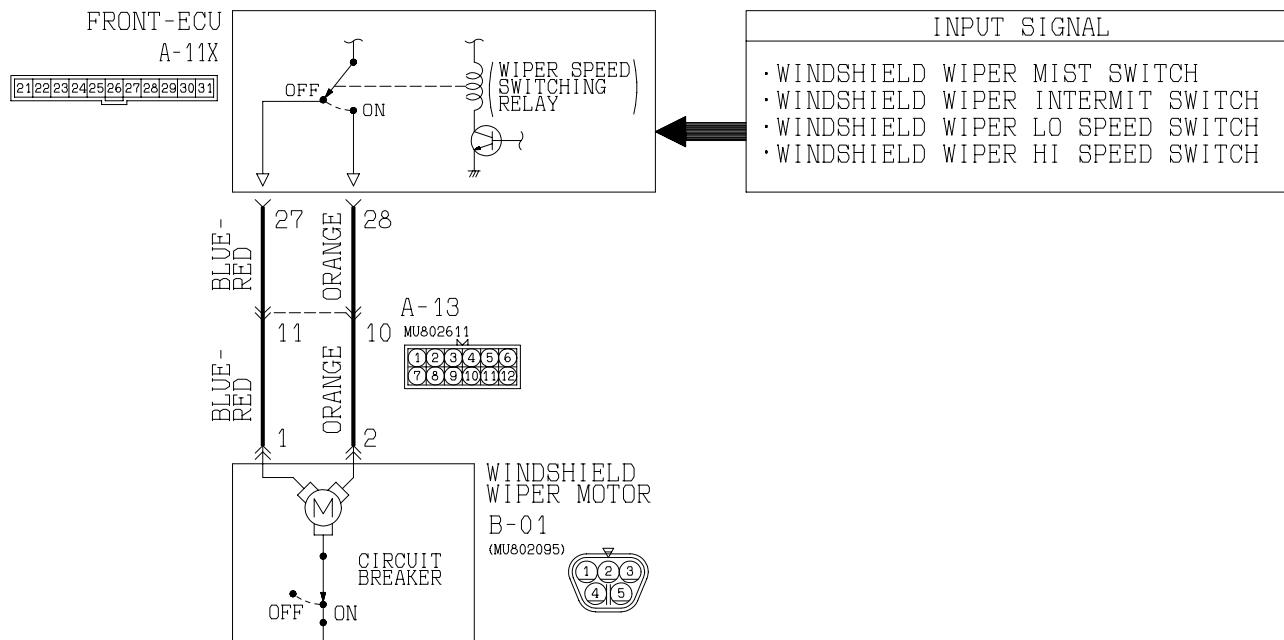
"OK" are displayed for all the items : Replace the front-ECU. Check that the windshield wiper works normally.

"NG" is displayed on the "COLUMN ECU" menu : Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is not possible [P.54Bb-13](#)."

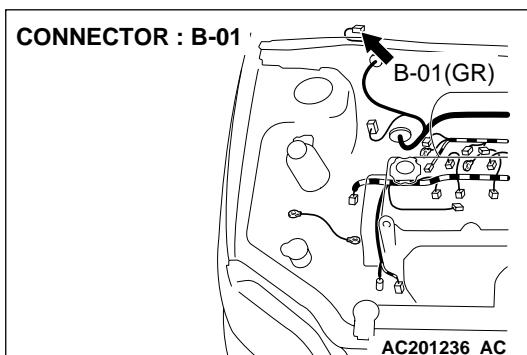
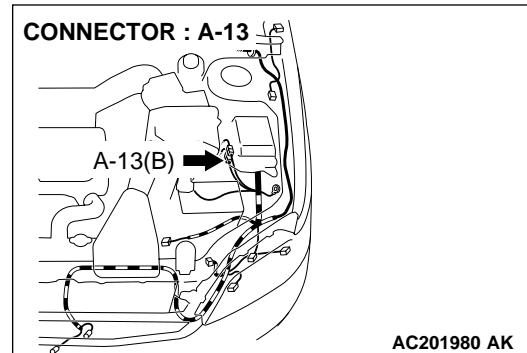
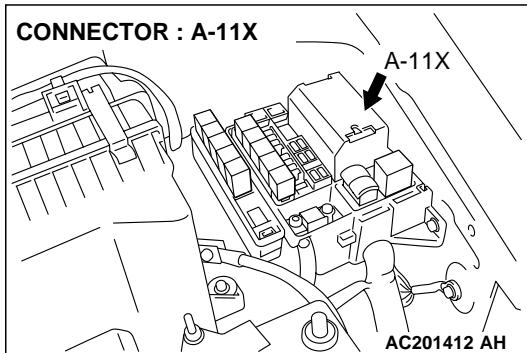
"NG" is displayed on the "FRONT ECU" menu : Refer to Inspection procedure A-4 "Communication with front-ECU is not possible [P.54Bb-30](#)."

INSPECTION PROCEDURE G-3: Windshield Wiper and Washer: Any of the windshield wiper switch positions is defective.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Windshield Wiper Motor Drive Circuit

W2J08M52AA



TECHNICAL DESCRIPTION (COMMENT)

If either of the windshield wiper switch positions is defective, the windshield wiper motor, column switch (windshield wiper and washer switch) or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- The wiper motor may be defective
- The column switch may be defective (windshield wiper and washer switch)
- 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

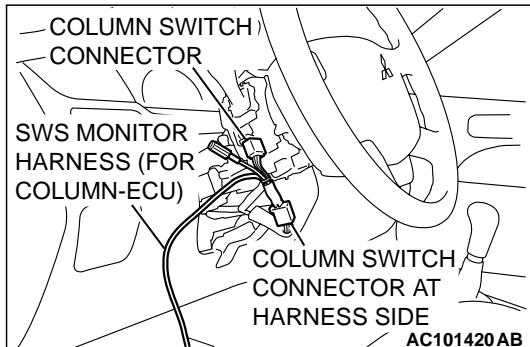
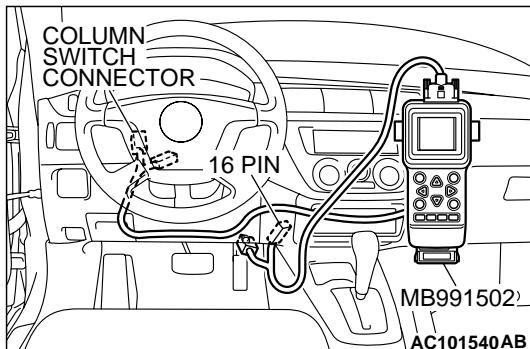
STEP 1. Check the input signal by using "DATA LIST" menu of the SWS monitor.

Turn the ignition switch to the "ACC" position before checking input signals from the windshield wiper switch.

 CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate scan tool MB991502 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."
- (4) Check that normal conditions are displayed on the items described in the table below.

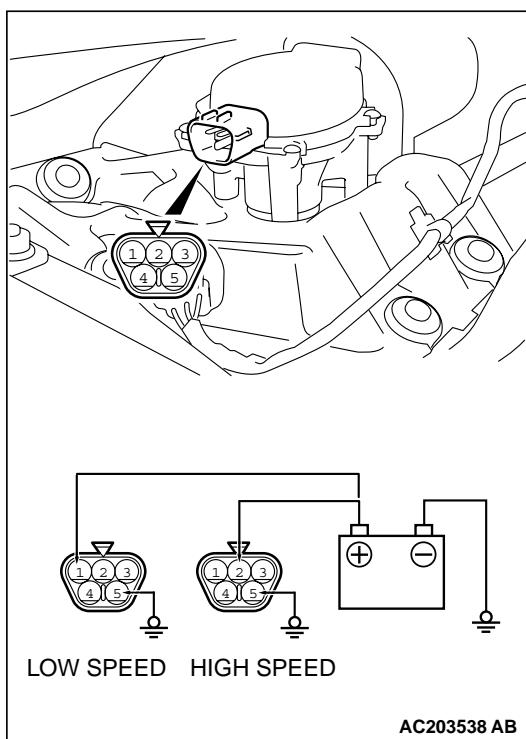


ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 05	INT WIPER SW	ON
ITEM 06	LO WIPER SW	ON
ITEM 07	HI WIPER SW	ON
ITEM 08	MIST WIPER SW	ON

Q: Is normal condition displayed when the windshield wiper switch is moved to each position?

YES : Go to Step 2.

NO : Refer to Inspection Procedure M-6 "ETACS-ECU does not receive a signal from the windshield mist switch [P.54Bc-34](#)."



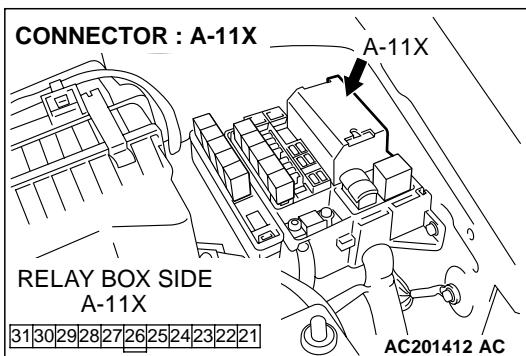
STEP 2. Check the windshield wiper motor.

- (1) Disconnect windshield wiper motor connector B-01.
- (2) Connect a battery to the windshield wiper motor as shown. Then check the windshield wiper motor operates normally at high and low speeds.

Q: Does the windshield wiper motor operate normally?

YES : Go to Step 3.

NO : Replace the windshield wiper motor. Verify that the windshield wiper operates normally when the windshield wiper switch is moved to each position.

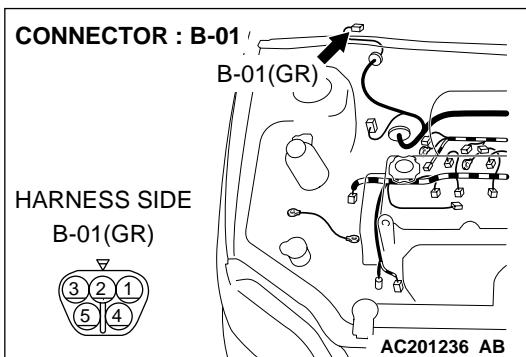


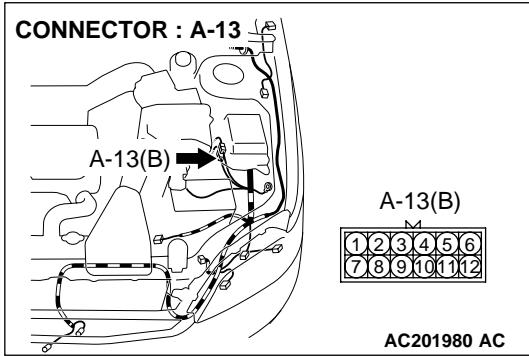
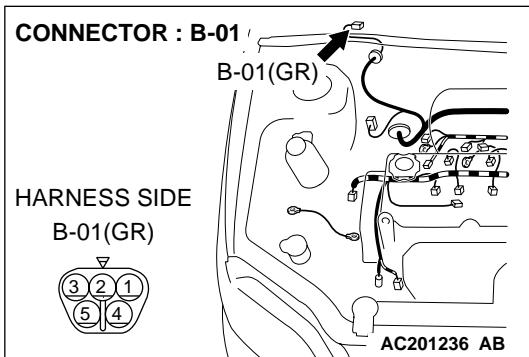
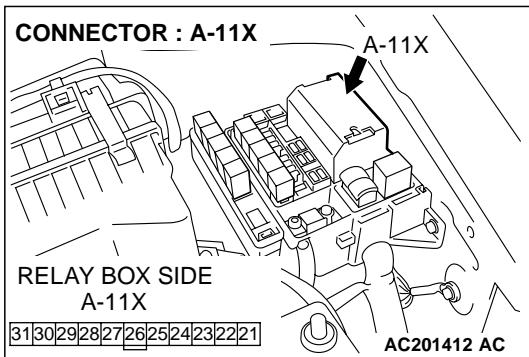
STEP 3. Check windshield wiper motor connector B-01 and front-ECU connector A-11X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are windshield wiper motor connector B-01 and front-ECU connector A-11X 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 windshield wiper operates normally when the windshield wiper switch is moved to each position.





STEP 4. Check the wiring harness between windshield wiper motor connector B-01 (terminal 1 and 2) and front-ECU connector A-11X (terminal 27 and 28).

NOTE: Also check intermediate connector A-13 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors A-13 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

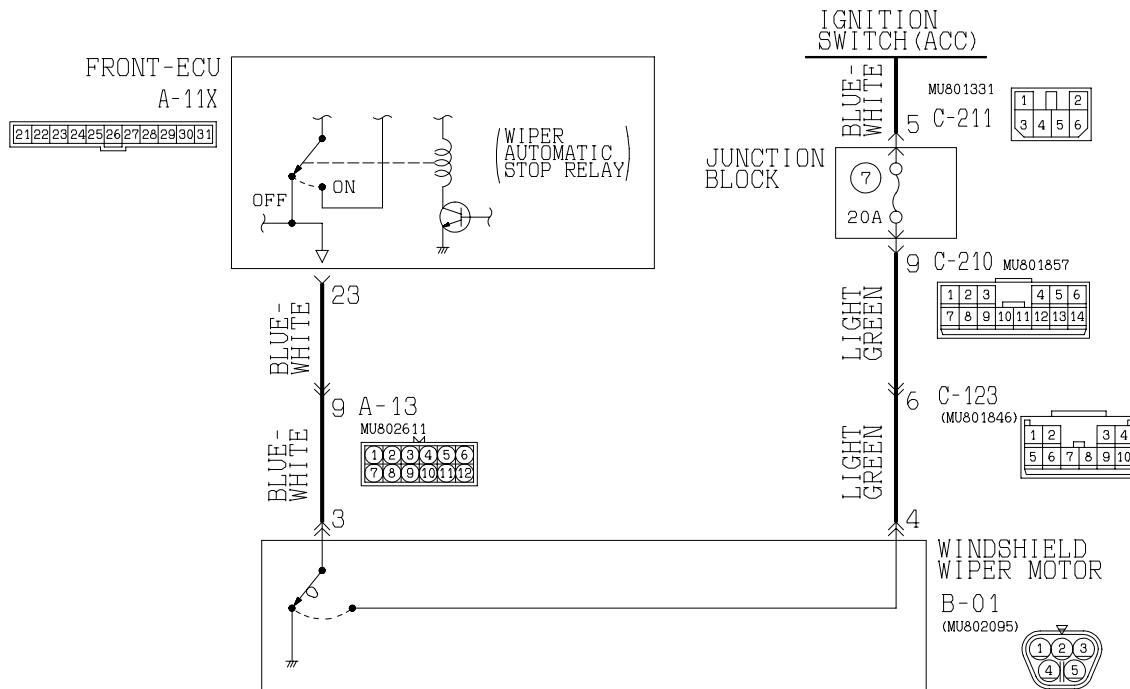
Q: Is the wiring harness between windshield wiper motor connector B-01 (terminal 1 and 2) and front-ECU connector A-11X (terminal 27 and 28) in good condition?

YES : No action is necessary and testing is complete.

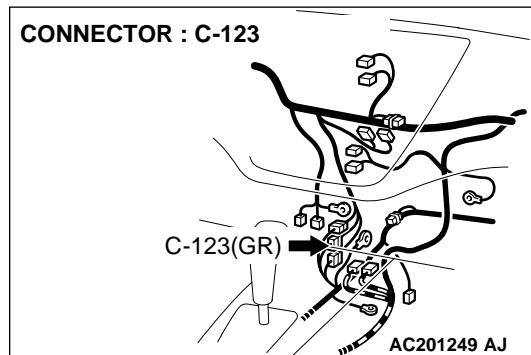
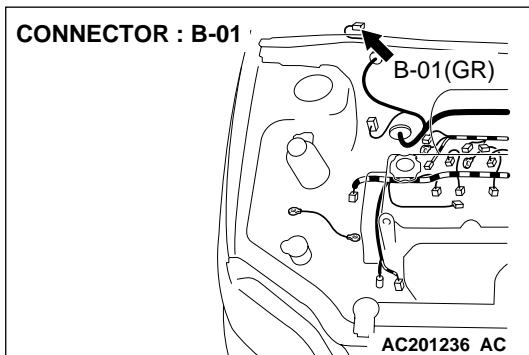
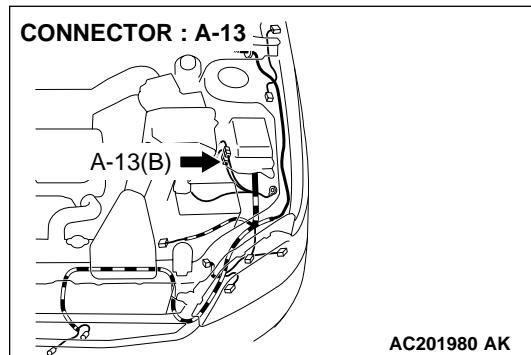
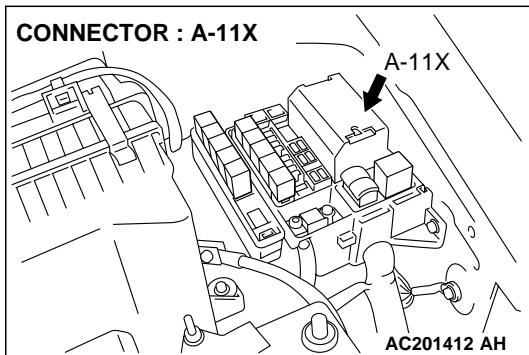
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the windshield wiper operates normally when the windshield wiper switch is moved to each position.

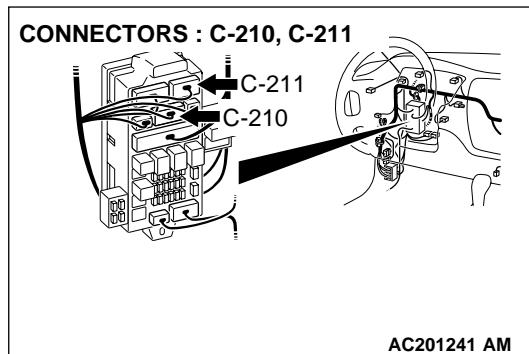
INSPECTION PROCEDURE G-4: Windshield Wiper and Washer: The windshield wipers does not stop at the predetermined park position.

Windshield Wiper Automatic Stop Relay Circuit



W2J08M53AA



**TECHNICAL DESCRIPTION (COMMENT)**

If the windshield wiper does not stop at predetermined park position, the windshield wiper motor or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- The windshield wiper motor 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 Tool:**

MB991223: Harness Set

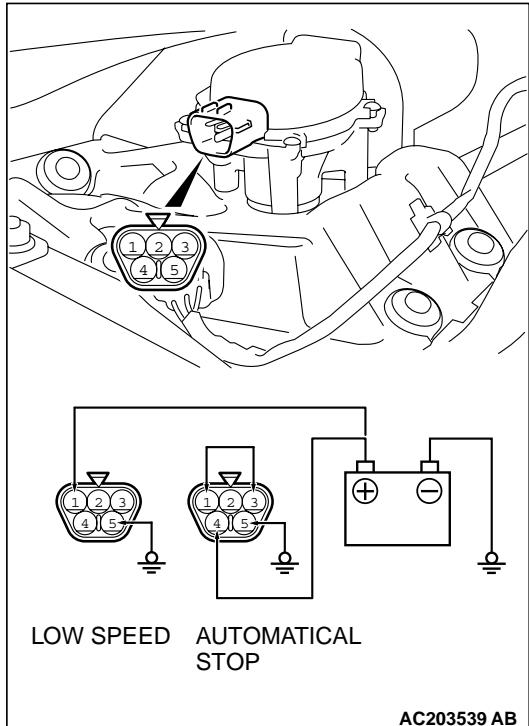
STEP 1. Check the windshield wiper motor.

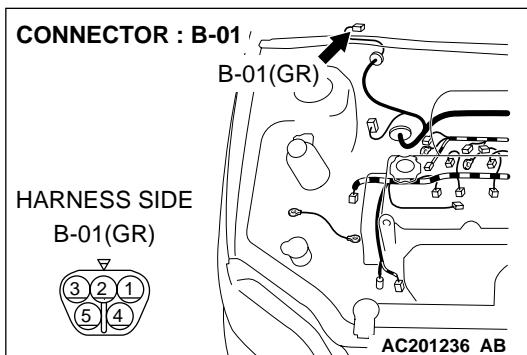
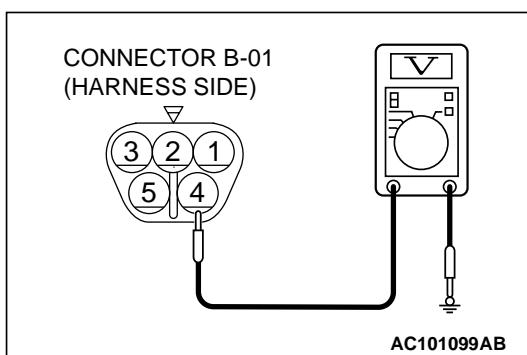
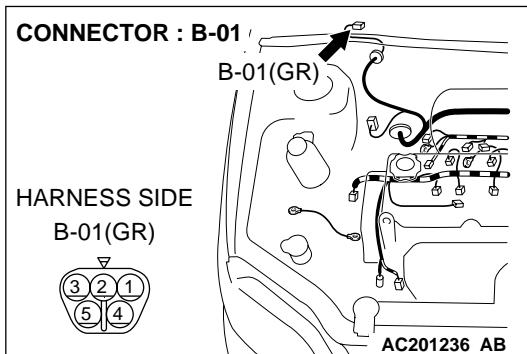
- (1) Disconnect windshield wiper motor connector B-01.
- (2) Connect a vehicle speed to operate the wipers at low speed. While the wipers are working, disconnect the battery at positions other than the predetermined park position to stop the wiper motor.
- (3) When the battery is connected as shown, the motor should run at low speed, and then stop at the predetermined park position.

Q: Does the windshield wiper motor operate normally?

YES : Go to Step 2.

NO : Replace the windshield wiper motor. The windshield wiper should stop at the predetermined park position.





STEP 2. Check the battery power supply circuit to the windshield wiper motor. Test at the windshield wiper motor connector B-01.

- (1) Disconnect windshield wiper motor connector B-01 and measure the voltage available at the component side of the connector.
- (2) Turn the ignition switch to the "ACC" position.

(3) Measure the voltage between terminal 4 and ground by backprobing.

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

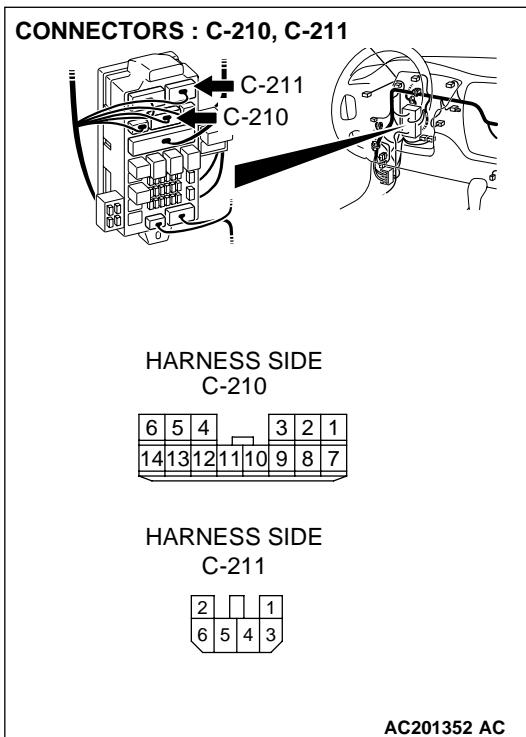
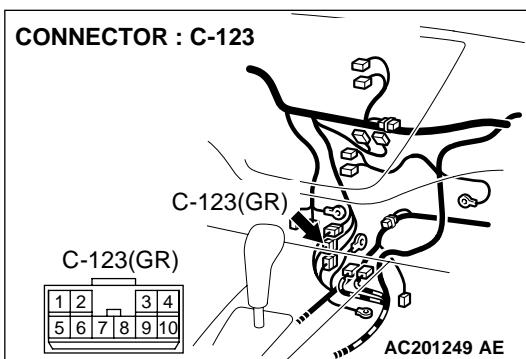
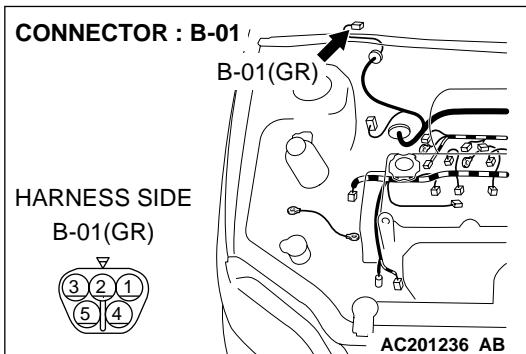
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 5.
NO : Go to Step 3.

STEP 3. Check windshield wiper motor connector B-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is windshield wiper motor connector B-01 in good condition?

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



STEP 4. Check the wiring harness between windshield wiper motor connector B-01 (terminal 4) and the ignition switch (ACC).

NOTE: Also check intermediate connector C-123, junction block connectors C-210 and C-211 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-123 or junction block connector C-210 or C-211 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 windshield wiper motor connector B-01 (terminal 4) and the ignition switch (ACC) 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. The windshield wiper should stop at the predetermined park position.

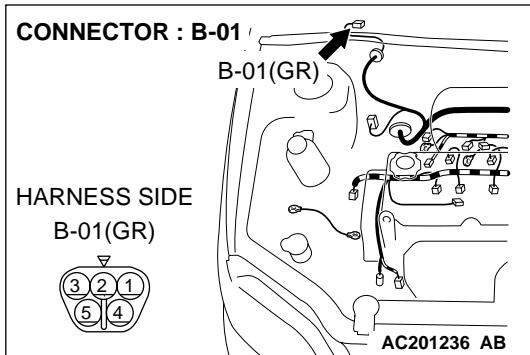
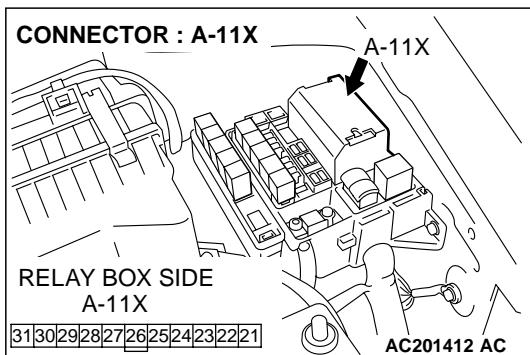
STEP 5. Check windshield wiper motor connector B-01 and front-ECU connector A-11X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

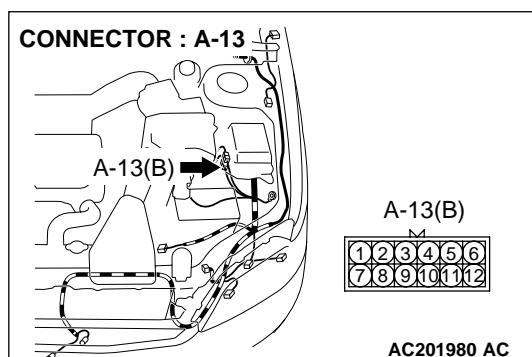
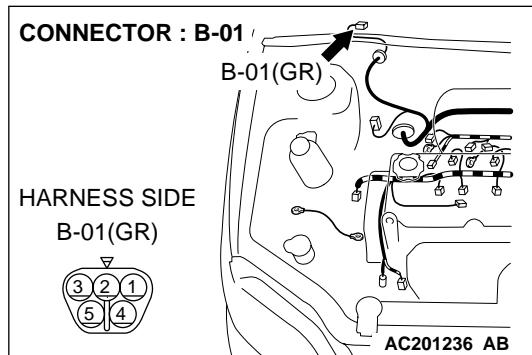
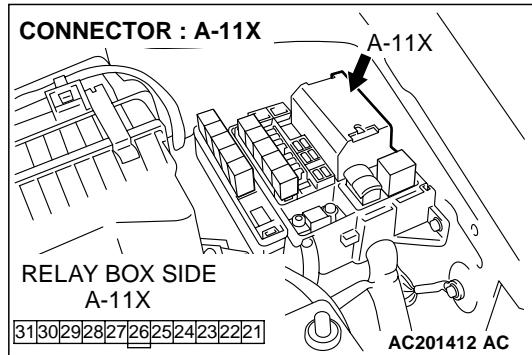
Q: Are windshield wiper motor connector B-01 and front-ECU connector A-11X in good condition?

YES : Go to Step 6

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

P.00E-2. The windshield wiper should stop at the predetermined park position.





STEP 6. Check the wiring harness between windshield wiper motor connector B-01 (terminal 3) and front-ECU connector A-11X (terminal 23).

NOTE: Also check intermediate connector A-13 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors A-13 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 windshield wiper motor connector B-01 (terminal 3) and front-ECU connector A-11X (terminal 23) in good condition?

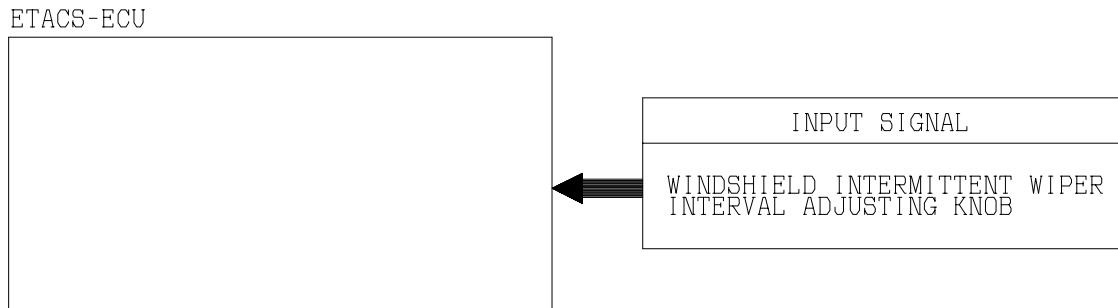
YES : Replace the front-ECU.

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. Replace the front-ECU.

INSPECTION PROCEDURE G-5: Windshield Wiper and Washer: The windshield intermittent wiper interval is not changed by operating the windshield intermittent wiper interval adjusting knob or according to the vehicle speed.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Windshield Intermittent Wiper Interval Adjusting Knob Input Signal



W2J08M54AA

TECHNICAL DESCRIPTION (COMMENT)

If the windshield intermittent wiper interval is not changed by operating the windshield intermittent wiper interval adjusting knob or according to the vehicle speed, the column switch, the ETACS-ECU or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- The column switch may be defective (windshield wiper and washer switch)
- 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

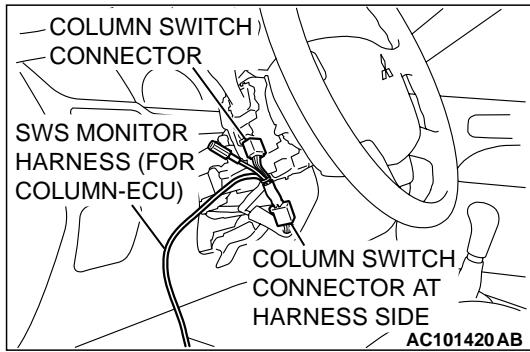
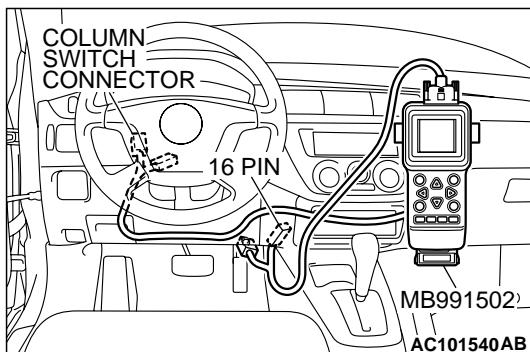
STEP 1. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

Set each switch to the following condition to check input signals from the windshield intermittent wiper interval adjusting knob:

- Ignition switch: ACC
- Windshield wiper switch: INT
- Vehicle speed: 0 km/h (mph)

 CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.



- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate scan tool MB991502 according to the procedure below to display "F.WIPER INT."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "WIPER."
 6. Select "F.WIPER INT."
- (4) Check that normal conditions are displayed on the items described in the table below.

NOTE: Also check that the windshield wiper interval changes smoothly when the windshield intermittent wiper interval adjusting knob is rotated from "SLOW" to "FAST" positions.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 37	INT WIPER TIME	2.4 – 18.0 s

Q: Does the value change within the normal range when the windshield intermittent wiper interval adjusting knob is rotated?

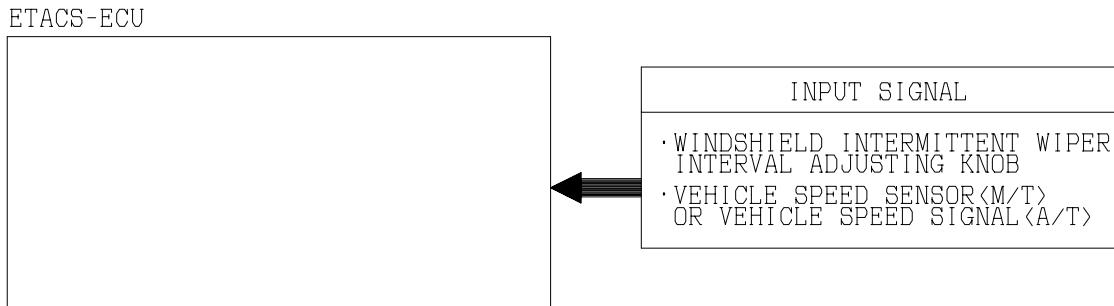
YES : Replace the front-ECU. Check that the windshield intermittent wiper interval changes according to the vehicle speed or while the windshield intermittent wiper interval adjusting knob is rotated.

NO : Refer to Inspection Procedure M-6 "ETACS-ECU does not receive a signal from the windshield mist switch [P.54Bc-34](#)."

INSPECTION PROCEDURE G-6: Windshield Wiper and Washer: The windshield intermittent wiper interval is not changed according to the vehicle speed.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Windshield Intermittent Wiper Circuit



W2J08M55AA

TECHNICAL DESCRIPTION (COMMENT)

If the windshield intermittent wiper interval is not changed according to the vehicle speed, the ETACS-ECU or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Check the input signal by using the pulse check mode of the monitor.

Check the input signals from the vehicle speed sensor <M/T> or the vehicle speed signal <A/T>.

 **CAUTION**

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate scan tool MB991502 according to the procedure below to display "PULSE CHECK."

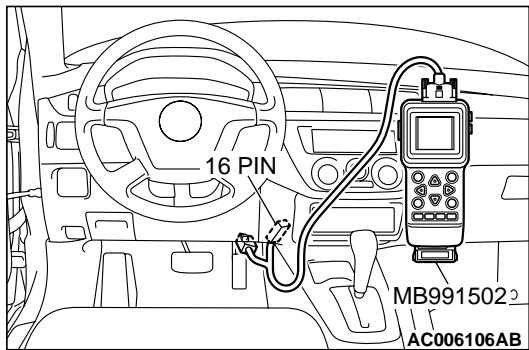
1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

- (3) Check that scan tool MB991502 sounds when the vehicle speed exceeds 10 km/h (6.2 mph).

Q: Does scan tool MB991502 sound when the vehicle speed exceeds 10 km/h (6.2 mph)?

YES : Go to Step 2.

NO : Refer to Inspection Procedure N-8 "ETACS-ECU does not receive a signal from the vehicle speed sensor <M/T>[P.54Bc-93](#)" or "ETACS-ECU does not receive a signal from the vehicle speed signal <A/T>[P.54Bc-96](#) ."



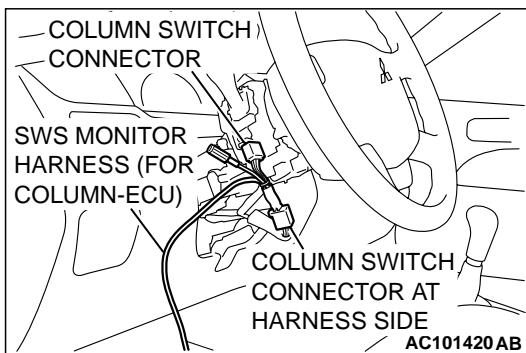
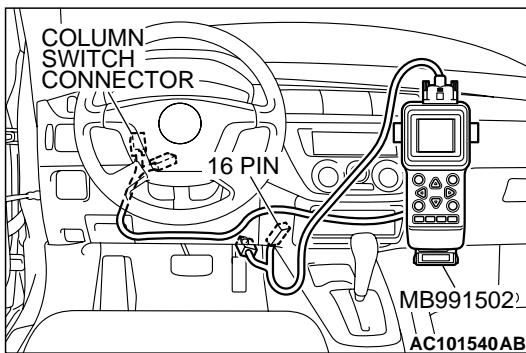
STEP 2. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

Set each switch to the following condition to check input signals from the windshield intermittent wiper interval adjusting knob:

- Ignition switch: ACC
- Windshield wiper switch: INT
- Intermittent wiper adjusting knob: SLOW side

 CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.



(1) Connect SWS monitor kit MB991862 to the column switch connector.

(2) Operate scan tool MB991502 according to the procedure below to display "F.WIPER INT."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "WIPER."
6. Select "F.WIPER INT."

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

NOTE: Also check that the wiper interval changes smoothly when the vehicle is accelerated from 0 km/h (0 mph) to 25 km/h (15.5 mph).

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 37	INT WIPER TIME	18.0 – 12.0 s

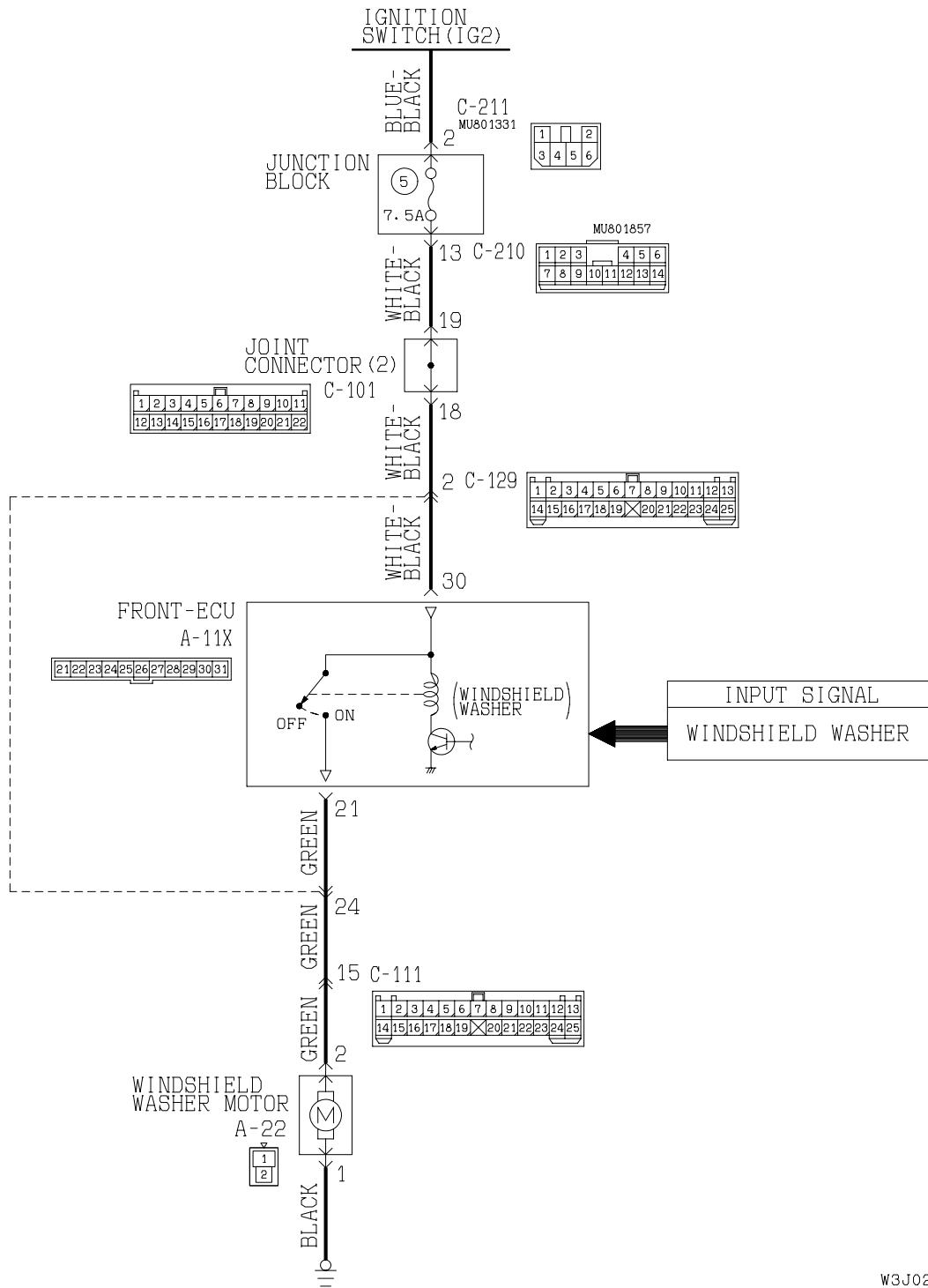
Q: Does the value change within the normal range when the windshield intermittent wiper interval adjusting knob is rotated?

YES : Replace the front-ECU. The windshield intermittent wiper interval should change according to the vehicle speed.

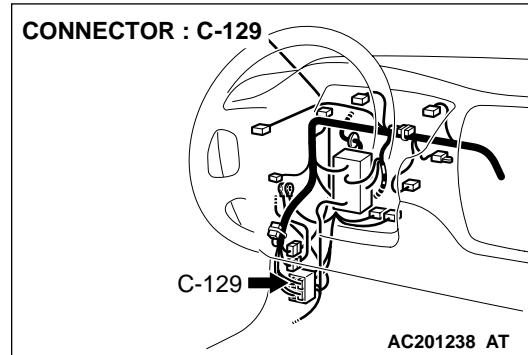
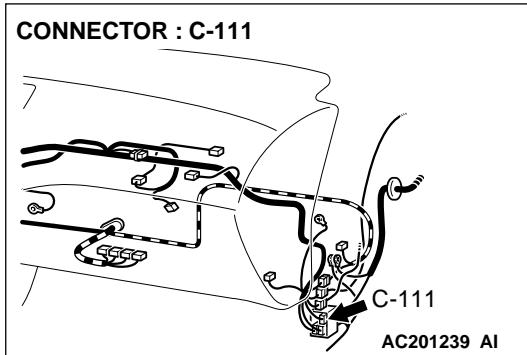
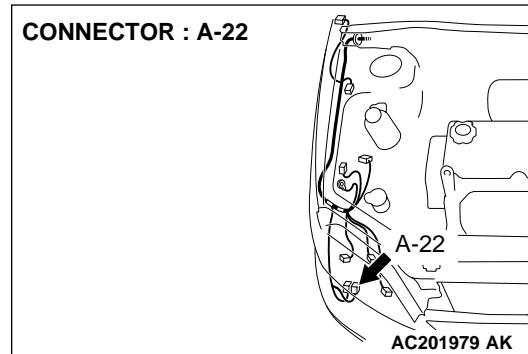
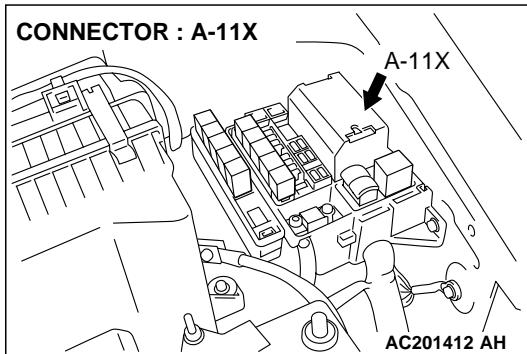
NO : Replace the ETACS-ECU. The windshield intermittent wiper interval should change according to the vehicle speed.

INSPECTION PROCEDURE G-7: Windshield Wiper and Washer: Windshield washer does not work.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Windshield Washer Motor Circuit

W3J02M12AA



CIRCUIT OPERATION

The windshield washer switch sends a signal through the column-ECU (incorporated in the column switch) to the front-ECU. If the column-ECU sends a windshield washer switch "ON" signal to the front-ECU, the front-ECU turns on the relay (incorporated in the front-ECU), thus causing the windshield washer motor to be turned on.

TECHNICAL DESCRIPTION (COMMENT)

If the windshield washer does not work normally, the windshield washer motor, the column switch (windshield wiper and washer switch) or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- The windshield washer motor may be defective
- The column switch may be defective (windshield wiper and washer switch)
- 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Verify the windshield wiper.

Q: Does the windshield wiper operate normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure F-1 "Windshield wiper does not work at all [P.54Bb-195](#)."

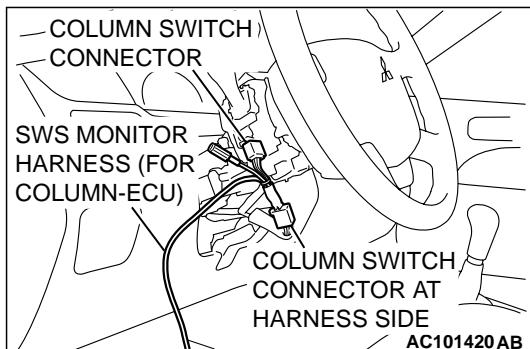
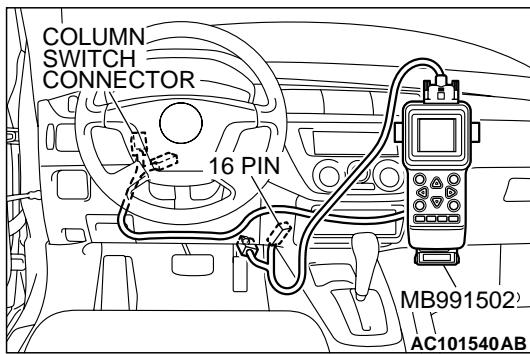
STEP 2. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the following ECUs:

- Column-ECU
- Front-ECU

 CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.



- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the LOCK" (OFF) position.
- (4) Operate scan tool MB991502 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 MB991502 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 3.

"NG" is displayed on the "COLUMN ECU" menu : Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is not possible [P.54Bb-13.](#)"

"NG" is displayed on the "FRONT ECU" menu : Refer to Inspection procedure A-4 "Communication with front-ECU is not possible [P.54Bb-30.](#)"

STEP 3. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

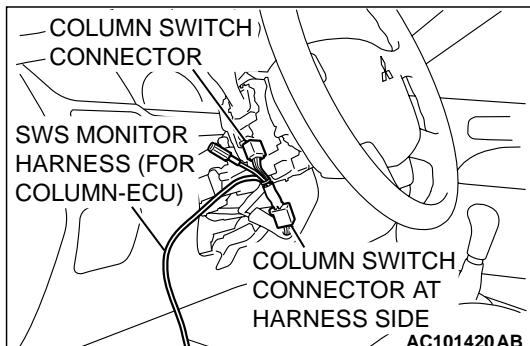
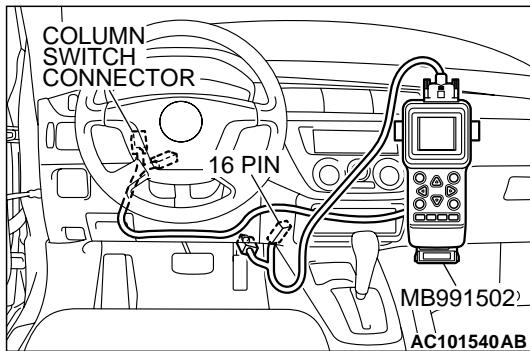
Check the input signals from the following switches:

- Ignition switch: ACC
- Windshield washer switch: ON

Operate scan tool MB991502 according to the procedure below to display "F.WIPER WASH."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "WIPER."
6. Select "F.WIPER WASH."

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



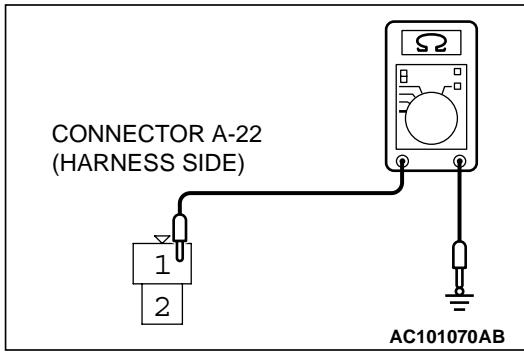
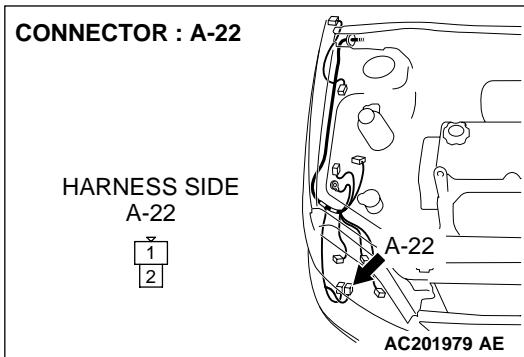
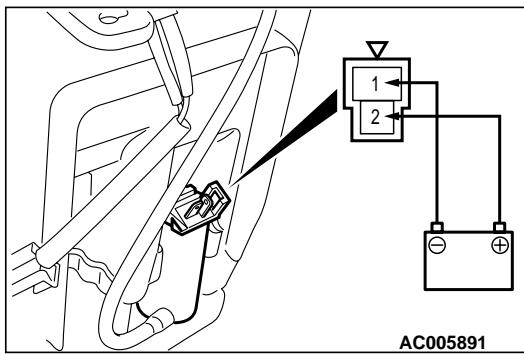
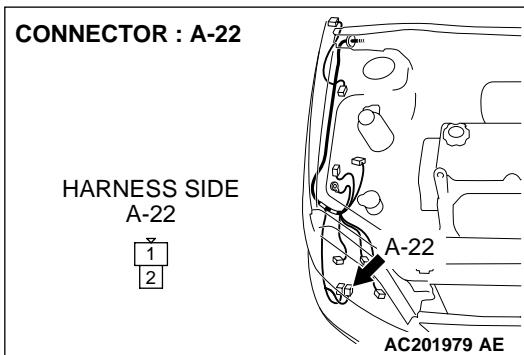
ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 09	FRONT WASH.SW	ON
ITEM 70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK

Q: Are normal conditions displayed on the "FRONT WASH.SW" and "FRONT ECU ACK"?

YES : Go to Step 4.

NO :

- Normal condition is not displayed on the "FRONT WASH.SW": Replace the column switch. Verify that the windshield washer works normally.
- Normal condition is not displayed on the "FRONT ECU ACK": Replace the front-ECU. Verify that the windshield washer works normally.

**STEP 4. Check the windshield washer motor.**

- (1) Disconnect windshield washer motor connector A-22 and measure the voltage available at the windshield washer motor side of the connector.
- (2) Fill the windshield washer tank with washer fluid.

- (3) When battery voltage is applied between terminals 1 and 2, washer fluid should gush out.

Q: Does the windshield washer motor operate normally?

YES : Go to Step 5.

NO : Replace the windshield washer motor. Verify that the windshield washer works normally.

STEP 5. Check the ground circuit to the windshield washer motor. Test at windshield washer motor connector A-22

- (1) Disconnect windshield washer motor connector A-22 and measure the resistance available at the wiring harness side of the connector.

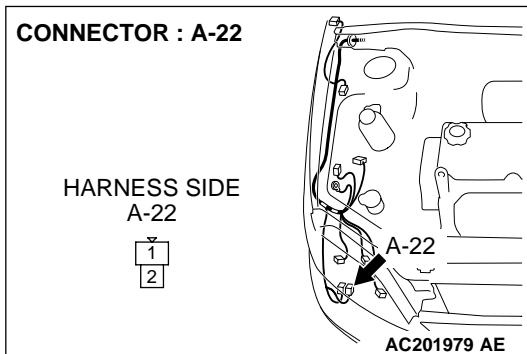
- (2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 8.

NO : Go to Step 6.



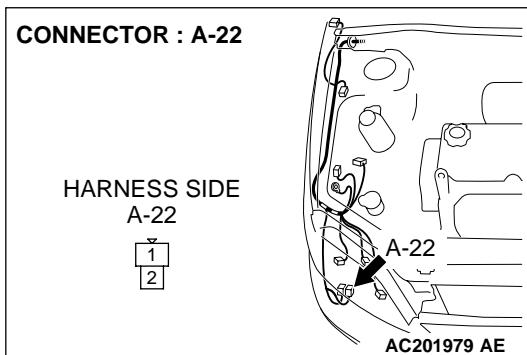
STEP 6. Check windshield washer motor connector A-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is windshield washer motor connector A-22 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 windshield washer works normally.

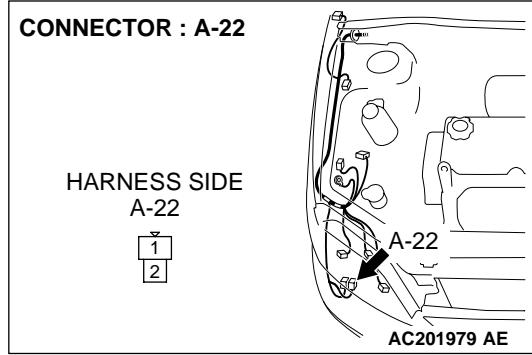
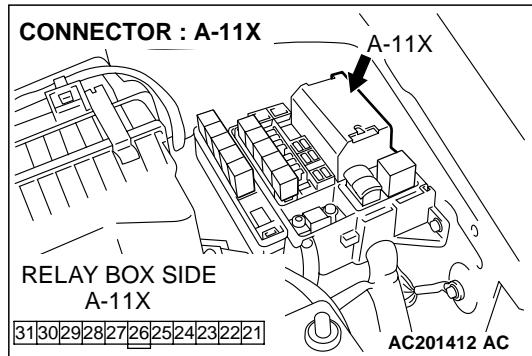


STEP 7. Check the wiring harness between windshield washer motor connector A-22 (terminal 1) and ground.

Q: Is the wiring harness between windshield washer motor connector A-22 (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 windshield washer works normally.



STEP 8. Check windshield washer motor connector A-22 and front-ECU connector A-11X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are windshield washer motor connector A-22 and front-ECU connector A-11X in good condition?

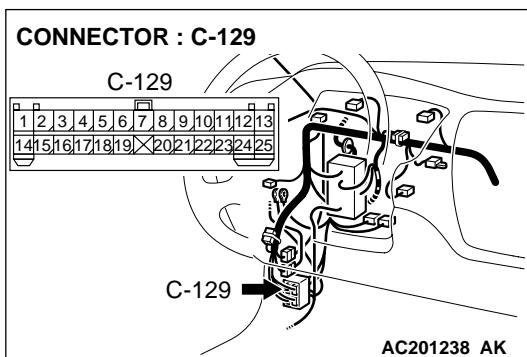
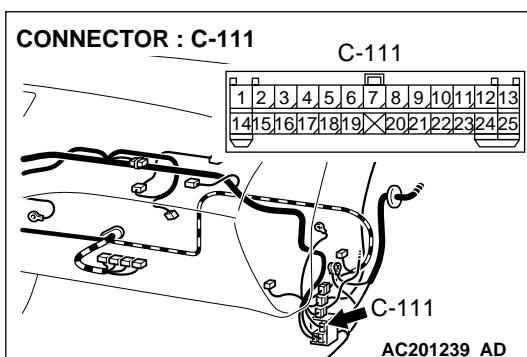
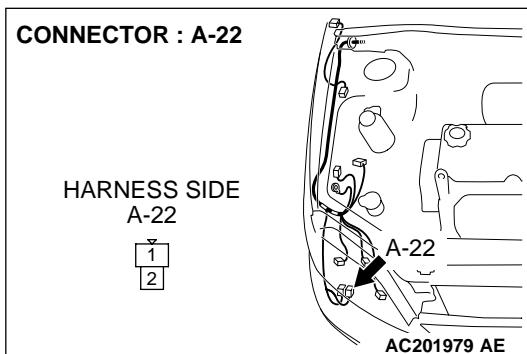
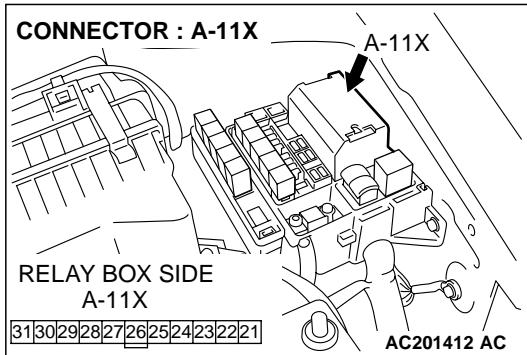
YES : Go to Step 9.

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

[P.00E-2](#). Verify that the windshield washer works normally.

STEP 9. Check the wiring harness between windshield washer motor connector A-22 (terminal 2) and front-ECU connector A-11X (terminal 21).

NOTE: Also check intermediate connectors C-111 and C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-111 or C-129 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 windshield washer motor connector A-22 (terminal 2) and front-ECU connector A-11X (terminal 21) 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 windshield washer works normally.

REAR WIPER AND WASHER**GENERAL DESCRIPTION CONCERNING THE REAR WIPER AND WASHER**

The following ECUs affect the functions and control of the rear wiper and washer.

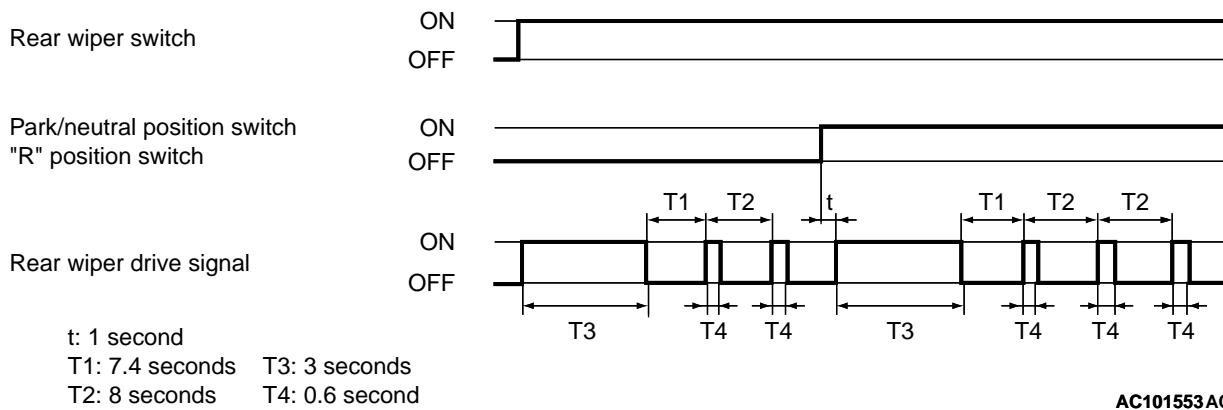
M1549021600050

FUNCTION	CONTROL ECU
Rear wiper control	ETACS-ECU, column switch
Rear washer control	ETACS-ECU, column switch

REAR WIPER AND WASHER CONTROL FUNCTION**Rear wiper control**

If the rear wiper switch of the column switch assembly is turned ON with the ignition switch in the ACC or ON position, the ETACS-ECU will turn the rear wiper drive signal ON for 3 seconds (approximately 2 operations), and then will carry out intermittent operation in a 7.4 to 8 seconds cycle.

If the selector lever is moved to the "R" position when the rear wiper switch of the column switch assembly is turned ON and the ignition switch is in any position other than OFF, the park/neutral position switch "R" position switch turns ON. One second later, the ETACS-ECU turns the rear wiper drive signal ON for 3 seconds (approximately 2 operations), to clear the rear view, and then returns to intermittent operation at a 7.4 to 8 seconds cycle.

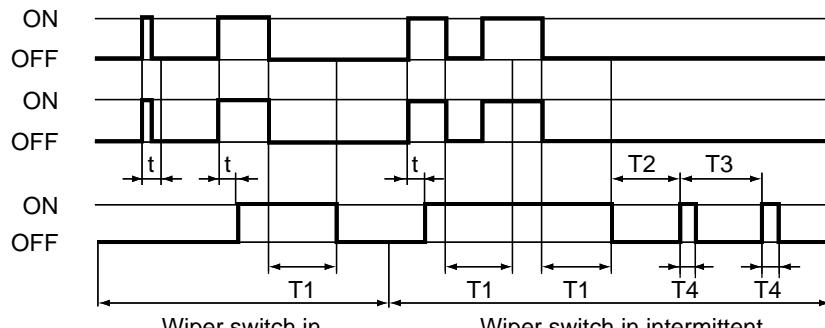


Rear washer control

When the ignition switch is at the ACC or ON position, if the rear washer switch of the column switch is turned ON, the ETACS-ECU turns ON the rear washer relay. The rear wiper drive signal is turned ON in 0.3 seconds until 3 seconds after the rear washer switch goes OFF to operate the rear wiper continuously.

If the rear wiper is in intermittent operation when the rear washer switch is turned ON, 7.4 seconds after the rear wiper drive signal turns OFF, the 8 seconds cycle intermittent operation will continue.

Rear washer switch



t: 0.3 second

T1: 3 seconds

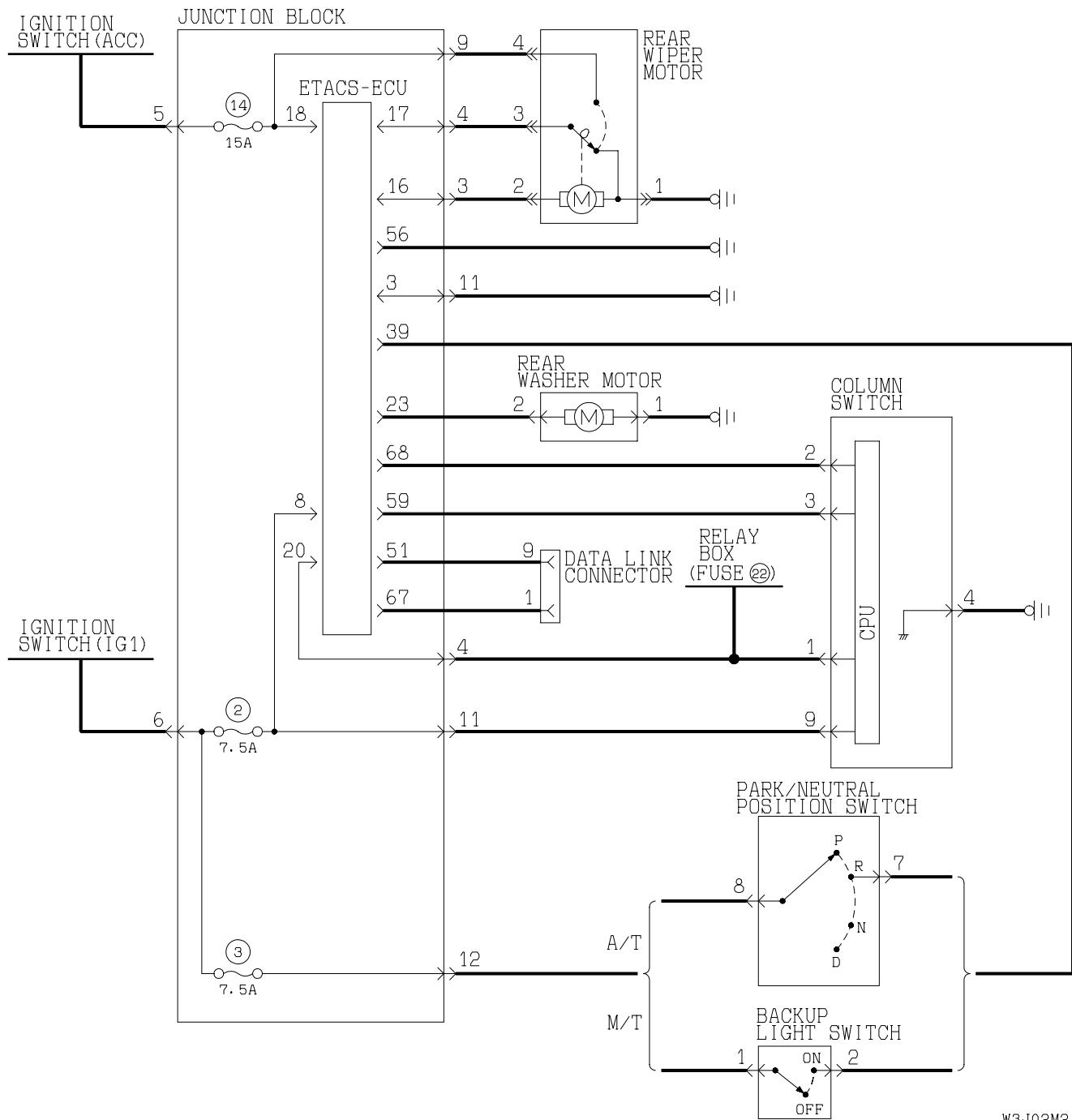
T2: 7.4 seconds

T3: 8 seconds

T4: 0.6 second

AC101554AC

General circuit diagram for rear wiper and washer

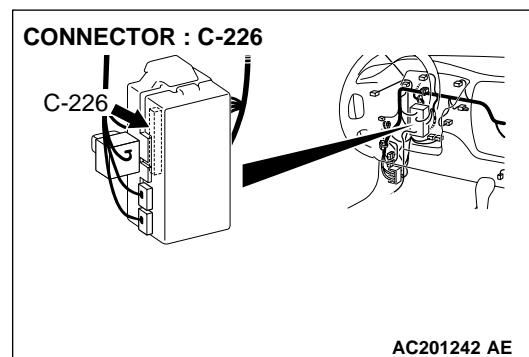
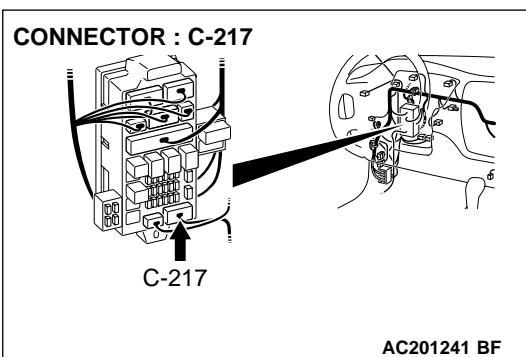
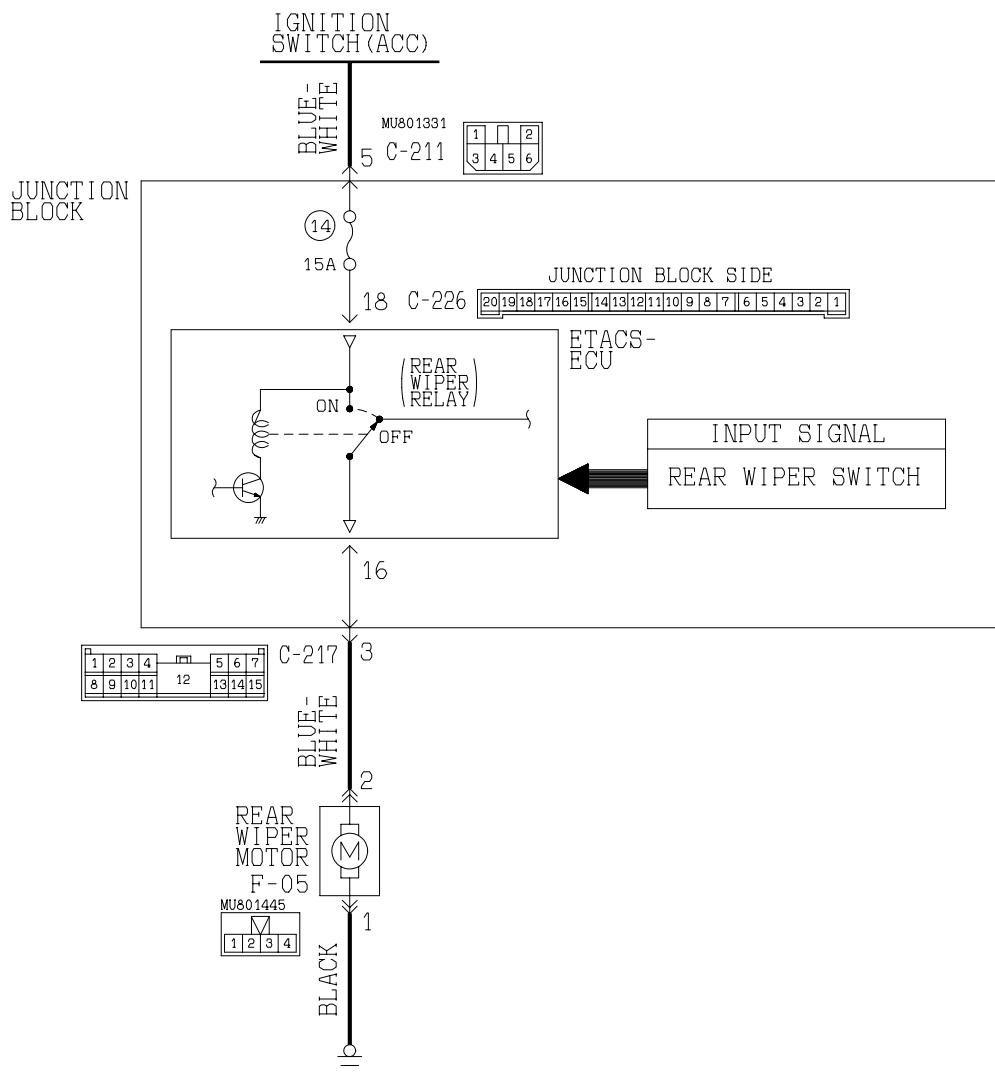


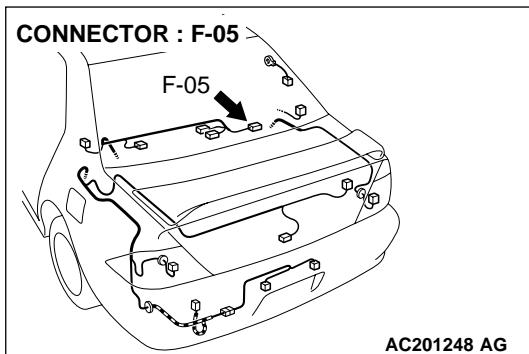
W3J02M21AA

INSPECTION PROCEDURE H-1: Rear Wiper and Washer: Rear wiper does not work at all.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Rear Wiper Motor Power Supply Circuit





CIRCUIT OPERATION

- The rear wiper switch sends a signal through the column-ECU (incorporated in the column switch) to the ETACS-ECU. If the column-ECU sends a rear wiper switch "ON" signal to the ETACS-ECU, the ETACS-ECU turns on the relay (incorporated in the ETACS-ECU), thus causing the rear wiper motor to be turned on.
- The ETACS-ECU operates the rear wiper according to the following switches:
 - Ignition switch (ACC)
 - Rear wiper switch

TECHNICAL DESCRIPTION (COMMENT)

If the rear wiper does not work normally, the input circuit system from the switches, the rear wiper motor, the column switch (windshield wiper and windshield washer switch) or the ETACS-ECU may be defective (refer to "CIRCUIT OPERATION").

TROUBLESHOOTING HINTS

- The rear wiper motor may be defective
- The column switch may be defective (windshield wiper and washer switch)
- 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

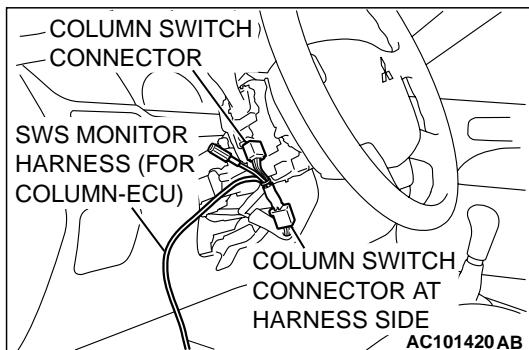
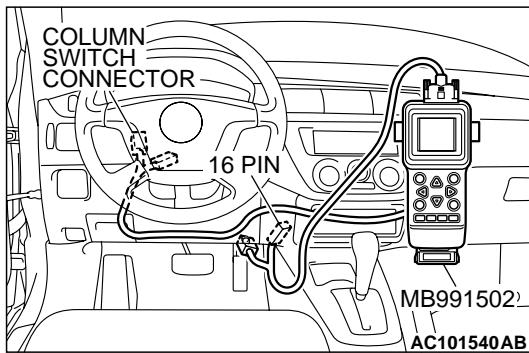
STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the following ECUs:

- ETACS-ECU
- Column-ECU

CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.



- (1) Connect scan tool MB991502 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 MB991502 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 MB991502 should show "OK" on the "ECU COMM CHK" menus for both the "ETACS ECU" and the "COLUMN ECU" menus.

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

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

"NG" is displayed on the "ETACS ECU" menu : Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is not possible [P.54Bb-22](#)."

"NG" is displayed on the "COLUMN ECU" menu : Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is not possible [P.54Bb-13](#)."

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

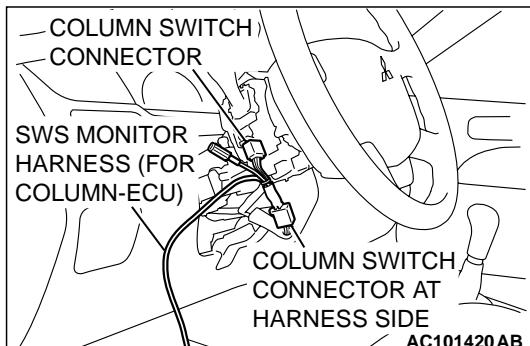
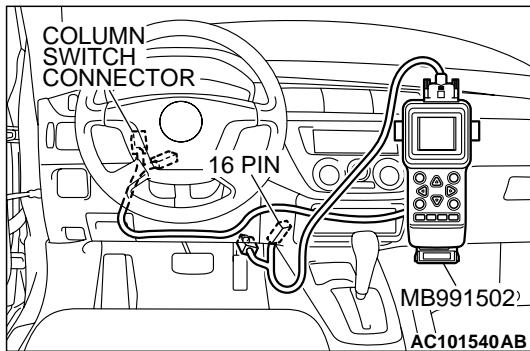
Check the input signals from the following switches:

- ignition switch: ACC
- rear wiper switch: INT

Operate scan tool MB991502 according to the procedure below to display "REAR WIPER."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "REAR WIPER."

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

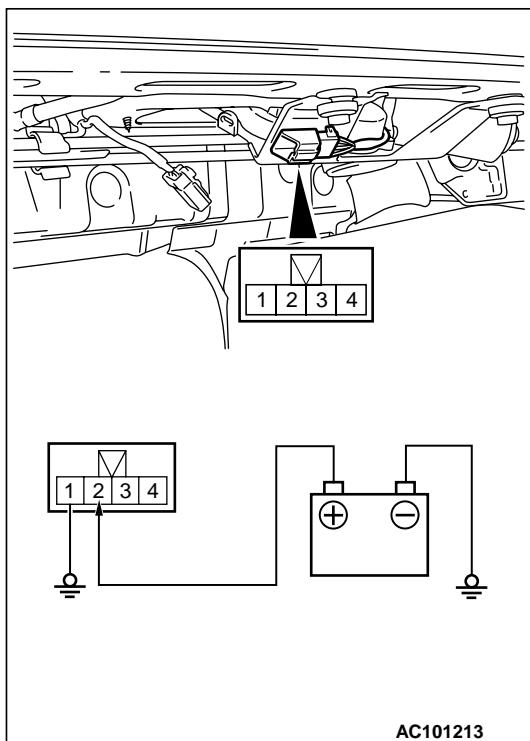


ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 13	REAR WIPER SW	ON
ITEM 31	IG SW (ACC)	ON

Q: Are normal conditions displayed on the "REAR WIPER SW" and "IG SW (ACC)"?

YES : Go to Step 3.

- NO :**
- Normal condition is not displayed on the "REAR WIPER SW": Refer to Inspection Procedure M-6 "ETACS-ECU does not receive a signal from the rear wiper switch [P.54Bc-34](#)."
 - Normal condition is not displayed on the "IG SW (ACC)": Refer to Inspection Procedure M-1 "ETACS-ECU does not receive a signal from the ignition switch (ACC) [P.54Bc-4](#)."

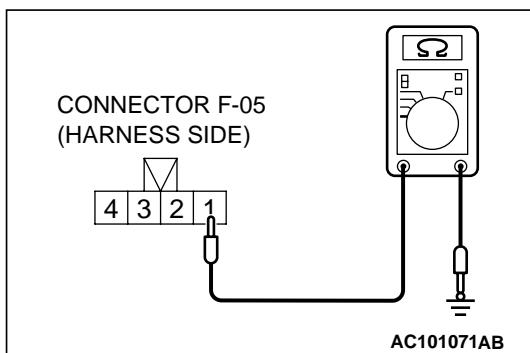
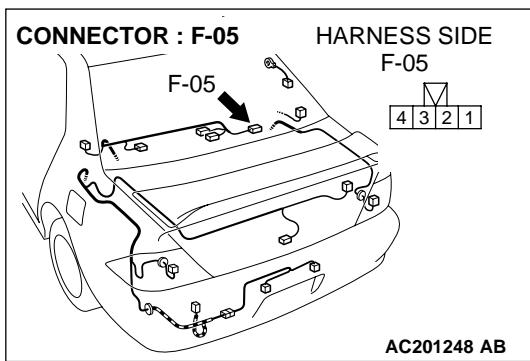
**STEP 3. Check the rear wiper motor.**

- (1) Disconnect rear wiper motor connector F-05.
- (2) Connect the battery to the rear wiper motor, and check the rear wiper motor.

Q: Does the rear wiper motor operate normally?

YES : Go to Step 4.

NO : Replace the rear wiper motor. Verify that the rear wiper works normally.

**STEP 4. Check the ground circuit to the rear wiper motor.
Test at rear wiper motor connector F-05.**

- (1) Disconnect rear wiper motor connector F-05 and measure the resistance available at the wiring harness side of the connector.

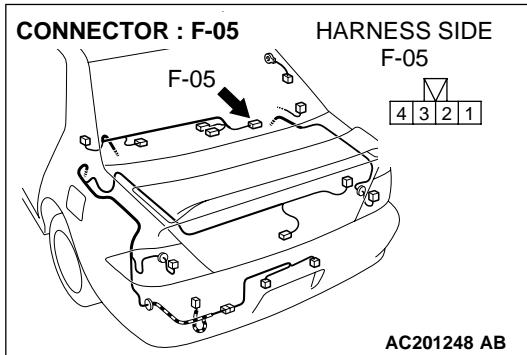
- (2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 7.

NO : Go to Step 5.



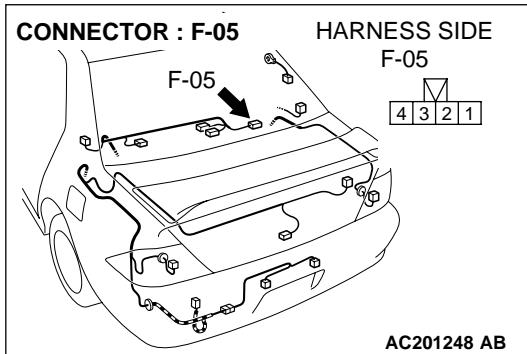
STEP 5. Check rear wiper motor connector F-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear wiper motor connector F-05 in good condition?

YES : Go to Step 6.

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

[P.00E-2](#). Verify that the rear wiper works normally.



STEP 6. Check the wiring harness between rear wiper motor connector F-05 (terminal 1) and ground.

Q: Is the wiring harness between rear wiper motor connector F-05 (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 rear wiper works normally.

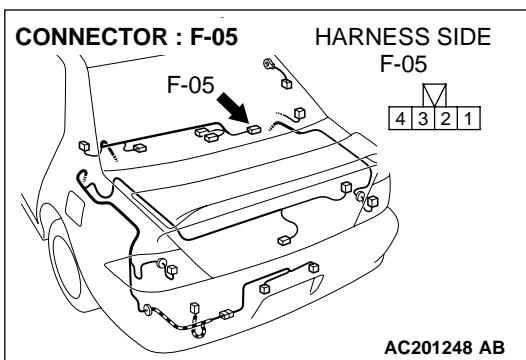
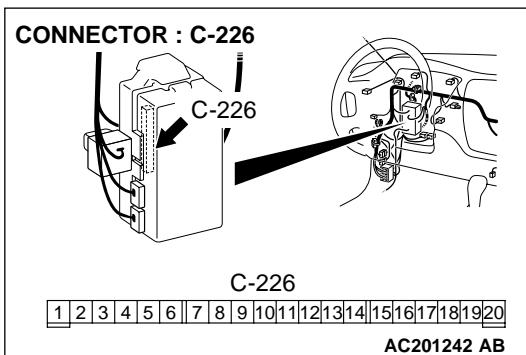
STEP 7. Check rear wiper motor connector F-05 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

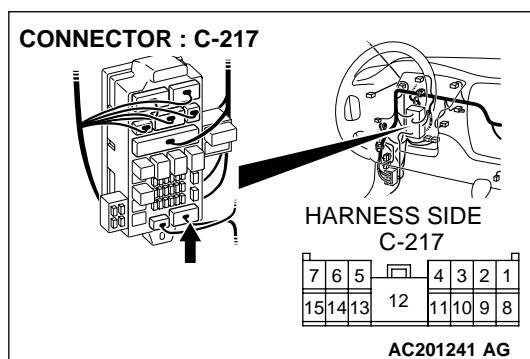
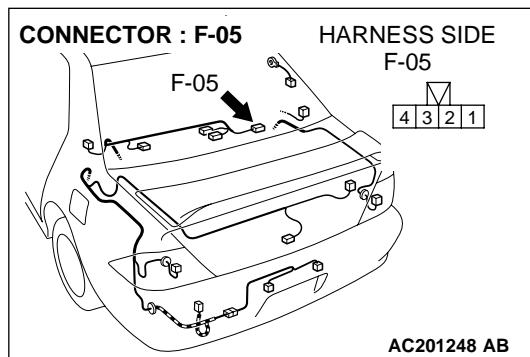
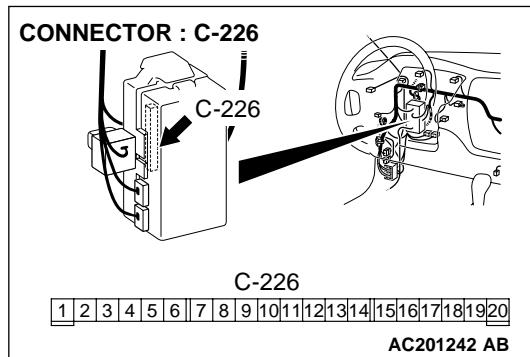
Q: Are rear wiper motor connector F-05 and ETACS-ECU connector C-226 in good condition?

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 rear wiper works normally.





STEP 8. Check the wiring harness between rear wiper motor connector F-05 (terminal 2) and ETACS-ECU connector C-226 (terminal 16).

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

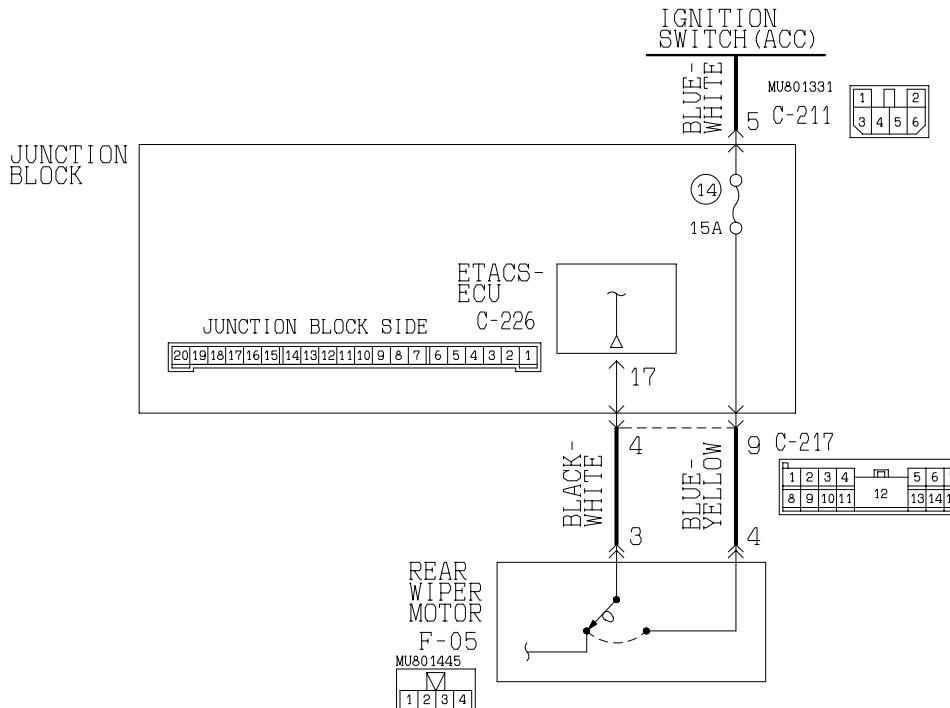
Q: Is the wiring harness between rear wiper motor connector F-05 (terminal 2) and ETACS-ECU connector C-226 (terminal 16) in good condition?

YES : Replace the ETACS-ECU. Verify that the rear wiper works normally.

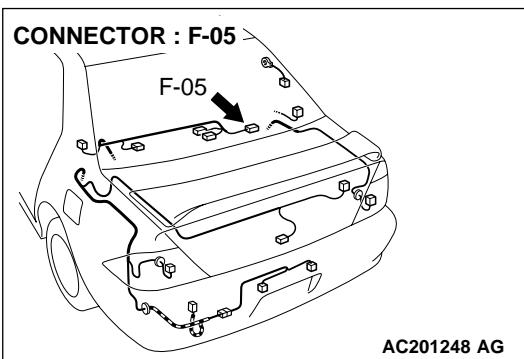
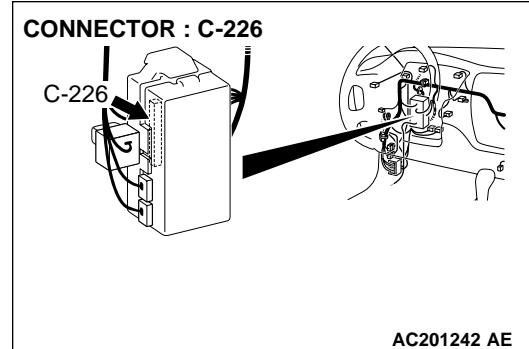
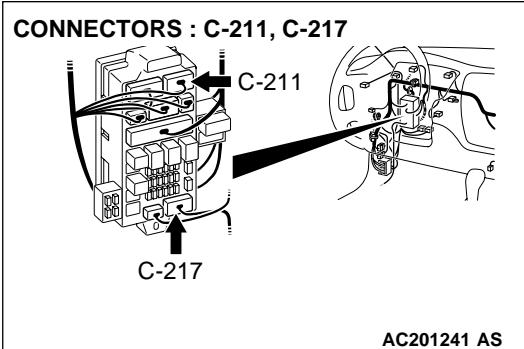
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the rear wiper works normally.

INSPECTION PROCEDURE H-2: Rear Wiper and Washer: Rear wiper does not stop at the predetermined park position.

Rear Wiper Auto Stop Circuit



W3J02M14AA



TECHNICAL DESCRIPTION (COMMENT)

If the rear wiper does not stop at predetermined park position, the rear wiper motor or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The rear wiper motor 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
- MB991502: Scan Tool (MUT-II)

STEP 1. Verify the rear wiper.

Q: Does the rear wiper motor operate (however, the rear wiper does not stop at the predetermined park position)?

YES : Go to Step 2.

NO : Refer to Inspection Procedure G-1 "Rear wiper does not work at all P.54Bb-233."

STEP 2. Check the rear wiper motor.

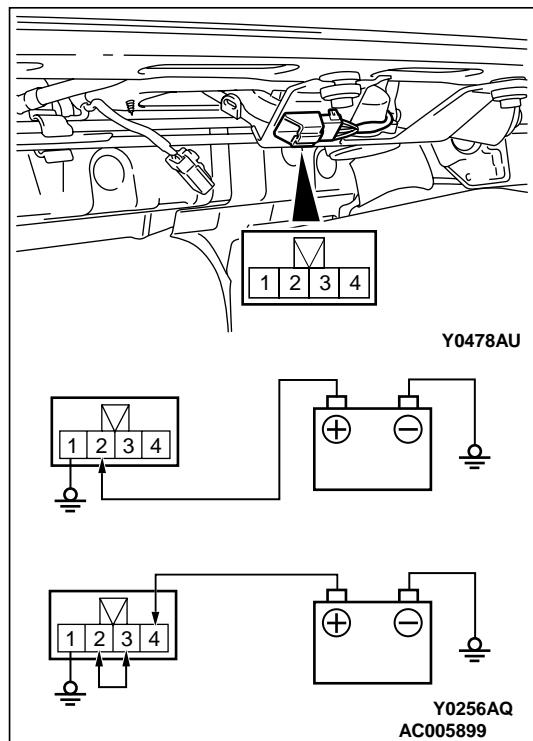
- (1) Disconnect rear wiper motor connector F-05.
- (2) While the rear wiper motor is running, disconnect the battery to stop the motor.

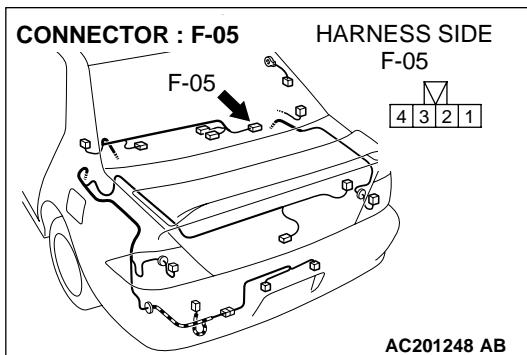
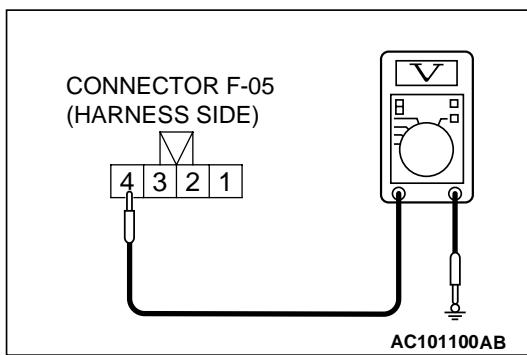
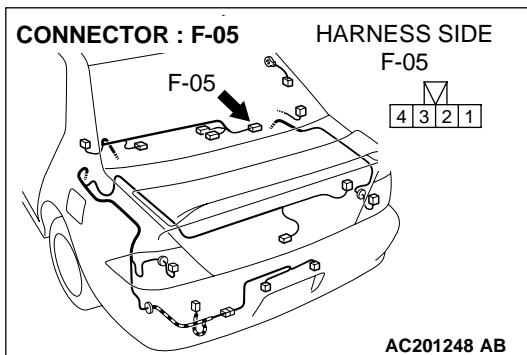
- (3) When the battery is connected as shown, the motor should run again and stop at the predetermined park position.

Q: Does the rear wiper motor operate normally?

YES : Go to Step 3.

NO : Replace the rear wiper motor. If the rear wiper operates normally, it indicates that a correct auto-stop signal is sent from the rear wiper motor.





STEP 3. Check the ignition switch (ACC) circuit to the rear wiper motor. Test at rear wiper motor connector F-05.

- (1) Disconnect rear wiper motor connector F-05 and measure the voltage available at the harness side of the connector.
- (2) Turn the ignition switch to the "ACC" position.

- (3) Measure the voltage between terminal 4 and ground by backprobing.

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

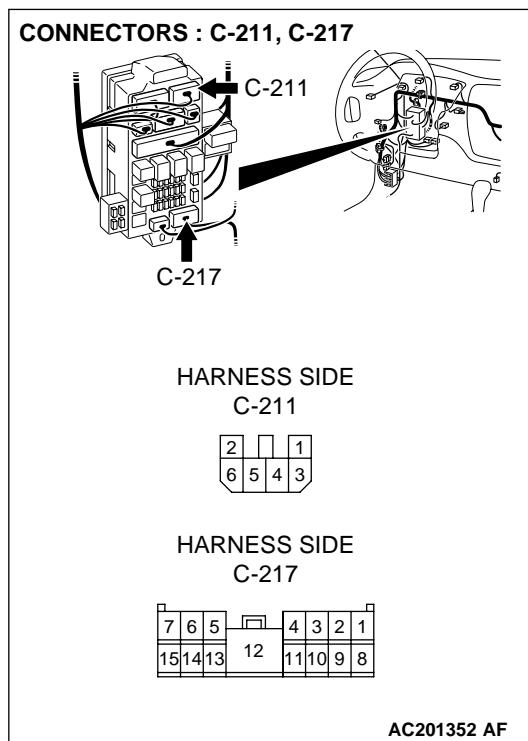
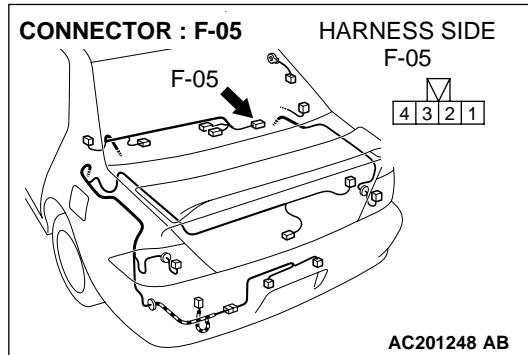
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

- YES :** Go to Step 6.
NO : Go to Step 4.

STEP 4. Check rear wiper motor connector F-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear wiper motor connector F-05 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. If the rear wiper operates normally, it indicates that a correct auto-stop signal is sent from the rear wiper motor.



STEP 5. Check the wiring harness between rear wiper motor connector F-05 (terminal 4) and the ignition switch (ACC).

NOTE: Also check junction block connectors C-211 and C-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-211 or C-217 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 wiper motor connector F-05 (terminal 4) and the ignition switch (ACC) 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. If the rear wiper operates normally, it indicates that a correct auto-stop signal is sent from the rear wiper motor.

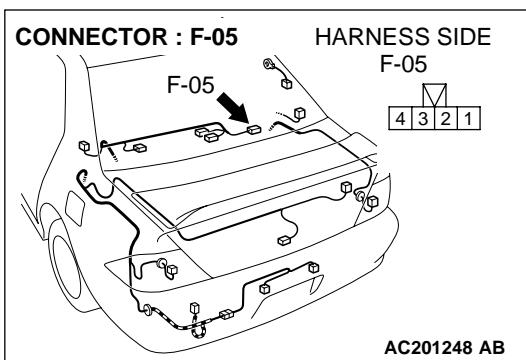
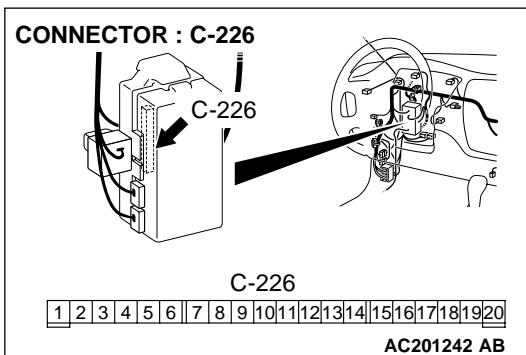
STEP 6. Check rear wiper motor connector F-05 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

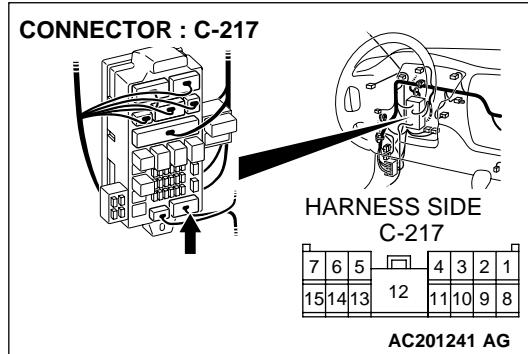
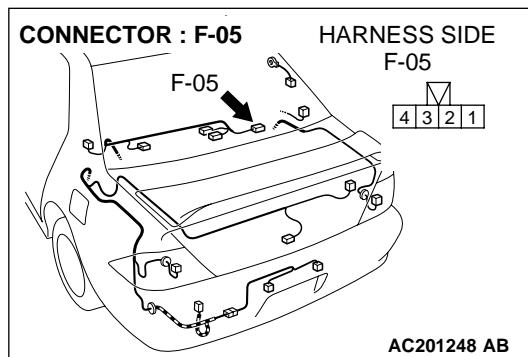
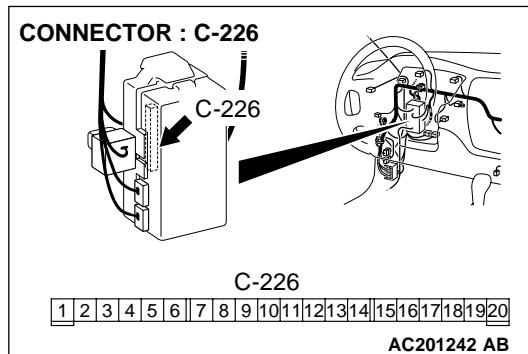
Q: Are rear wiper motor connector F-05 and ETACS-ECU connector C-226 in good condition?

YES : Go to Step 7.

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

[P.00E-2](#). If the rear wiper operates normally, it indicates that a correct auto-stop signal is sent from the rear wiper motor.





STEP 7. Check the wiring harness between rear wiper motor connector F-05 (terminal 3) and ETACS-ECU connector C-226 (terminal 17).

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

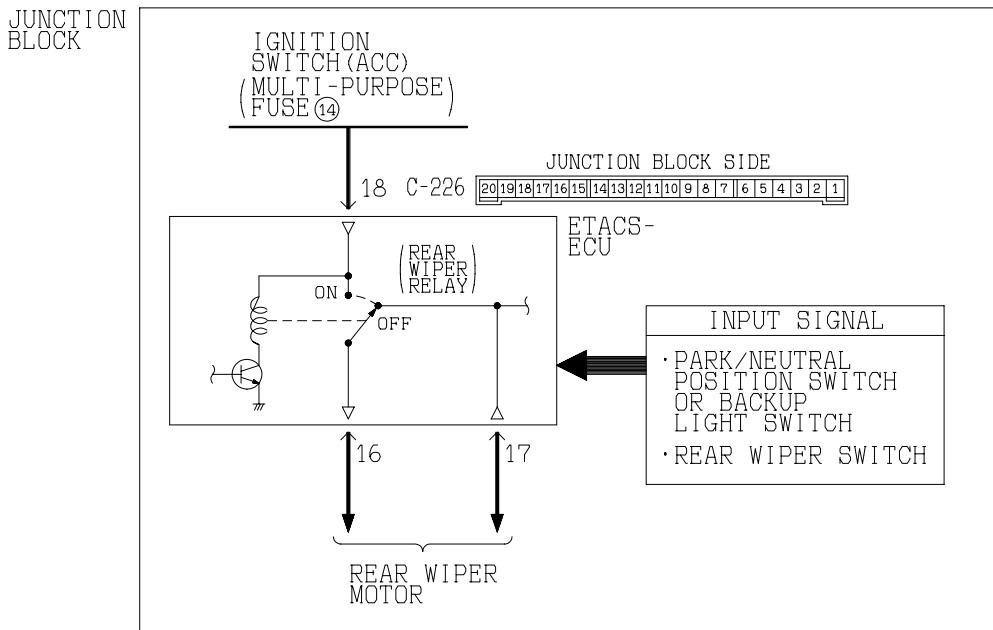
Q: Is the wiring harness between rear wiper motor connector F-05 (terminal 3) and ETACS-ECU connector C-226 (terminal 17) in good condition?

YES : Replace the ETACS-ECU. If the rear wiper operates normally, it indicates that a correct auto-stop signal is sent from the rear wiper motor.

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. If the rear wiper operates normally, it indicates that a correct auto-stop signal is sent from the rear wiper motor.

INSPECTION PROCEDURE H-3: Rear Wiper and Washer: When the selector lever is moved to "R" position during the rear wiper operation, the rear wiper does not operate at the continuous mode.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

"R" Position During Rear Wiper Operation Circuit

W3J02M15AA

CIRCUIT OPERATION

The ETACS-ECU operates the rear wiper consecutively approximately twice when the selector lever is moved to "R" position while the rear wiper is turned on.

TECHNICAL DESCRIPTION (COMMENT)

If the rear wiper does not work consecutively approximately twice, the park/neutral position switch ("R" position) or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The park/neutral position 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
 - MB991502: Scan Tool (MUT-II)
 - MB991862: SWS monitor kit
-

STEP 1. Verify the rear wiper.**Q: Does the rear wiper operate?****YES :** Go to Step 2.**NO :** Refer to Inspection Procedure H-1 "Rear wiper does not work at all [P.54Bb-233](#)."

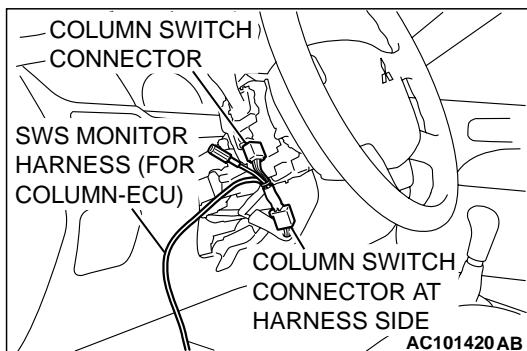
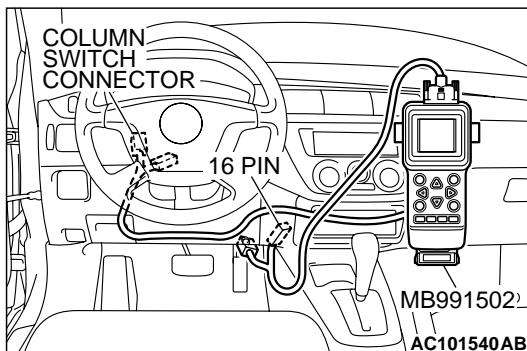
STEP 2. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

Set each switch to the following condition before checking input signal from the park/neutral position switch ("R" position).

- Ignition switch: ON
- Rear wiper switch: ON
- Shift position: R position

 CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.



- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate scan tool MB991502 according to the procedure below to display "REV. INTERLOCK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "REAR WIPER."
 6. Select "REV. INTERLOCK."
- (4) Check that normal conditions are displayed on the item described in the table below.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 41	PNP SW (R)	ON

Q: Is normal condition displayed?

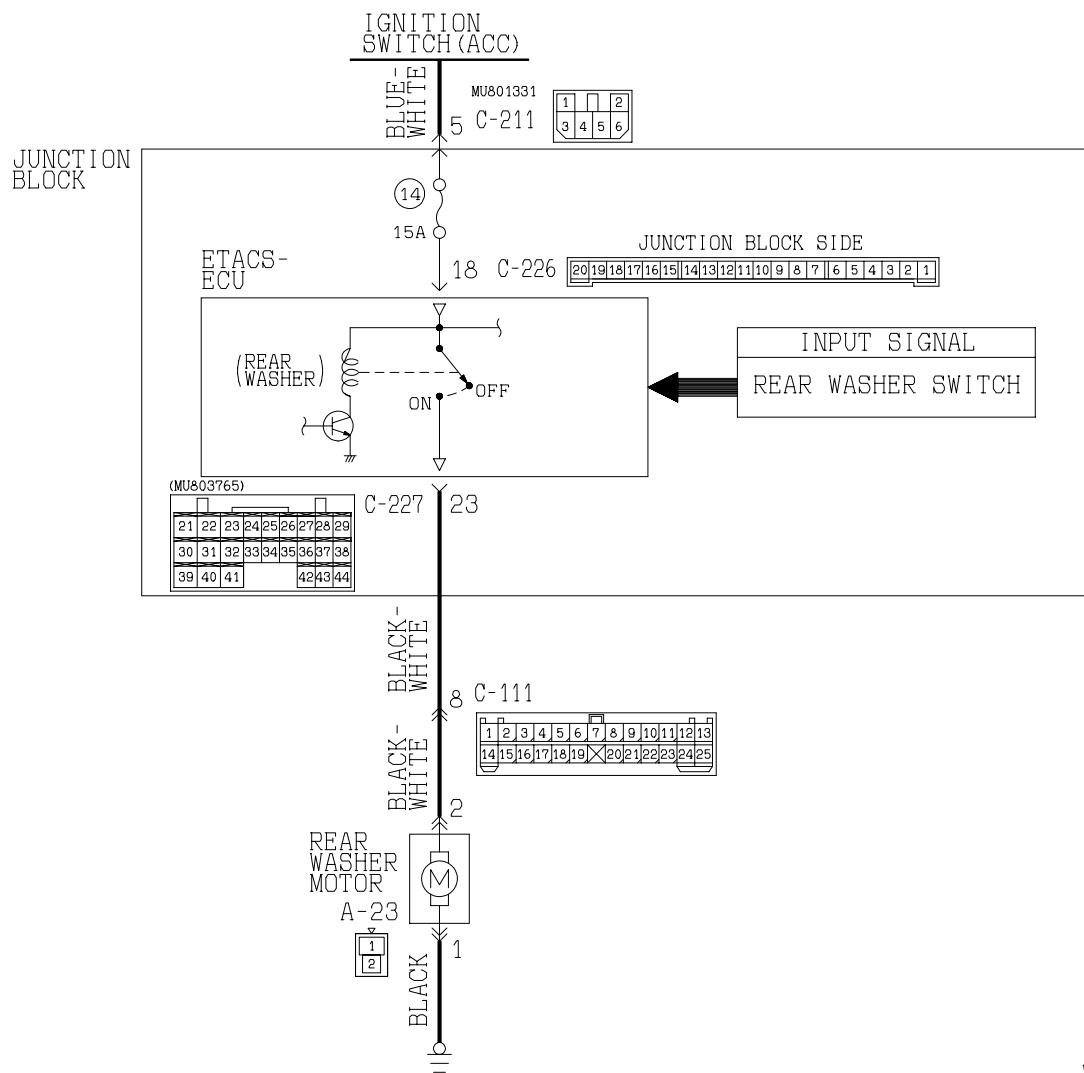
YES : Replace the ETACS-ECU. When the selector lever is moved to the "R" position, the rear wiper should operate consecutively approximately twice.

NO : Refer to Inspection Procedure M-3 "ETACS-ECU does not receive a signal from the backup light switch <M/T>[P.54Bc-10](#)" or Inspection Procedure M-3 "ETACS-ECU does not receive "R" position signal from the park/neutral position switch <A/T>[P.54Bc-17](#)."

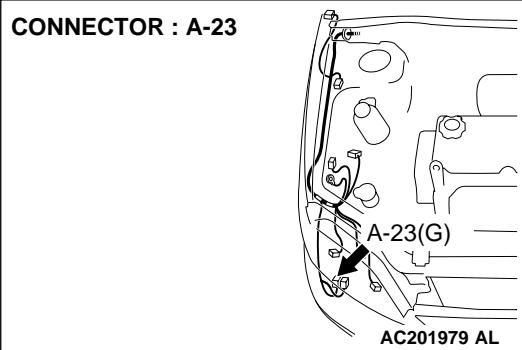
INSPECTION PROCEDURE H-4: Rear Wiper and Washer: Rear washer does not operate.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor [P.54Ba-7](#)."

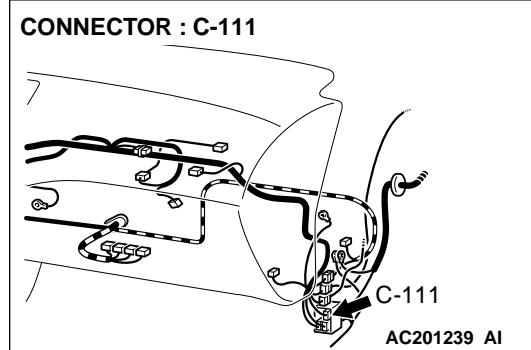
Rear Washer Motor Power Supply Circuit

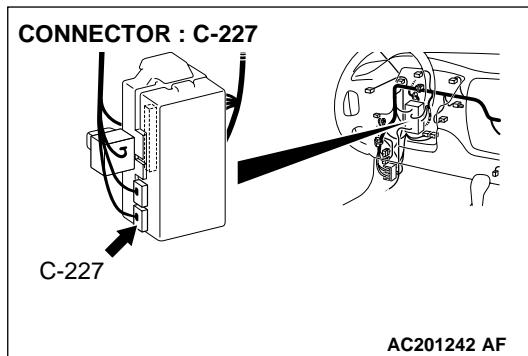


CONNECTOR : A-23



CONNECTOR : C-111





CIRCUIT OPERATION

The rear washer switch sends a signal through the column-ECU (incorporated in the column switch) to the ETACS-ECU. If the column-ECU sends a rear washer switch "ON" signal to the ETACS-ECU, the ETACS-ECU turns on the relay (incorporated in the ETACS-ECU), thus causing the rear washer motor to be turned on.

TECHNICAL DESCRIPTION (COMMENT)

If the rear washer does not work normally, the rear washer motor, the column switch (windshield wiper and washer switch) or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- The rear washer motor may be defective
- The column switch (windshield wiper and washer switch) may be defective
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Verify the rear wiper.

Q: Does the rear wiper operate?

YES : Go to Step 2.

NO : Refer to Inspection Procedure H-1 "Rear wiper does not work at all P.54Bb-233."

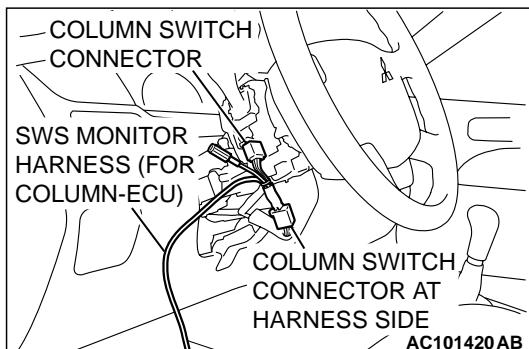
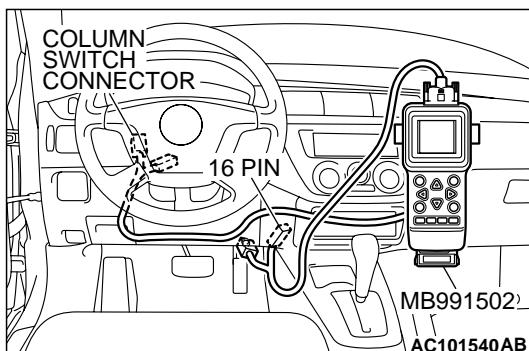
STEP 2. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

Set each switch to the following condition before checking input signals from the rear washer switch:

- Ignition switch: ACC
- Rear washer switch: ON

 CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.



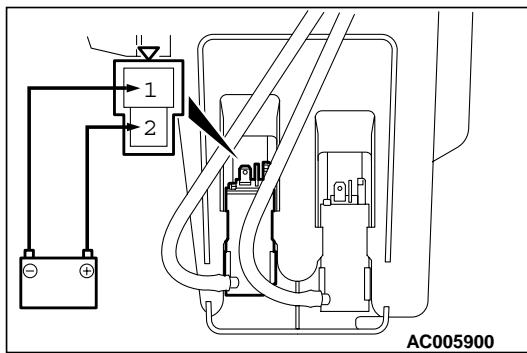
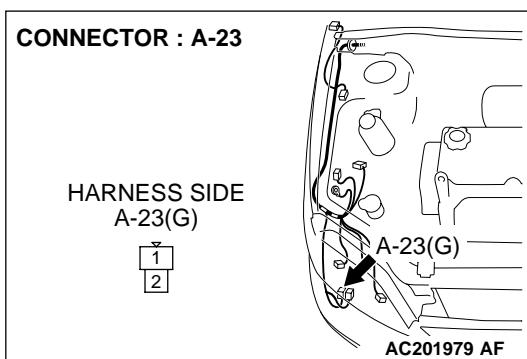
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate scan tool MB991502 according to the procedure below to display "REAR WASHER."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "REAR WIPER."
 6. Select "REAR WASHER."
- (4) Check that normal conditions are displayed on the item described in the table below.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 14	REAR WASH.SW	ON

Q: Is normal conditions displayed?

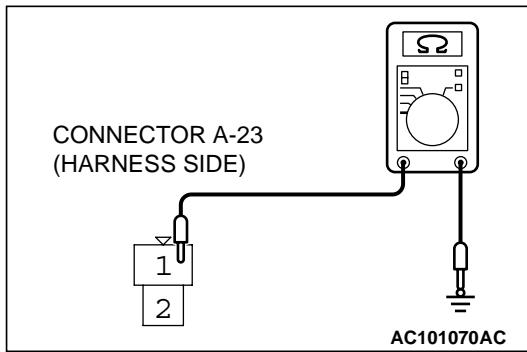
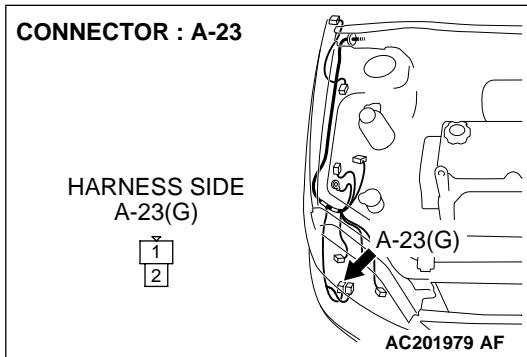
YES : Go to Step 3.

NO : Refer to Inspection Procedure M-6 "ETACS-ECU does not receive a signal from the rear washer switch P.54Bc-34."



STEP 3. Check the rear washer motor.

- (1) Disconnect rear washer motor connector A-23.
- (2) Fill the washer tank with washer fluid.



STEP 4. Check the ground circuit to the rear washer motor.

Test at rear washer motor connector A-23.

- (1) Disconnect rear washer motor connector A-23 and measure the resistance available at the wiring harness side of the connector.

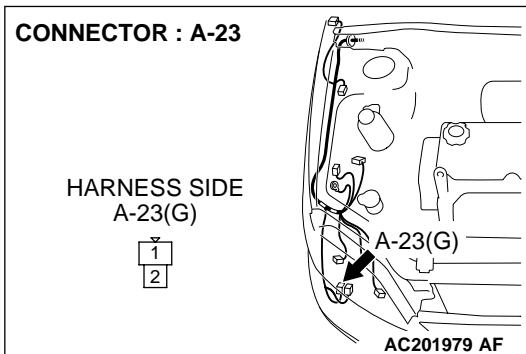
- (2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 7.

NO : Go to Step 5.



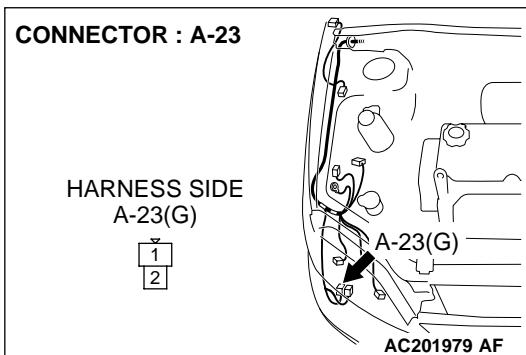
STEP 5. Check rear washer motor connector A-23 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear washer motor connector A-23 in good condition?

YES : Go to Step 6.

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

[P.00E-2](#). Verify that the rear washer works normally.



STEP 6. Check the wiring harness between rear washer motor connector A-23 (terminal 1) and ground.

Q: Is the wiring harness between rear washer motor connector A-23 (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 rear washer works normally.

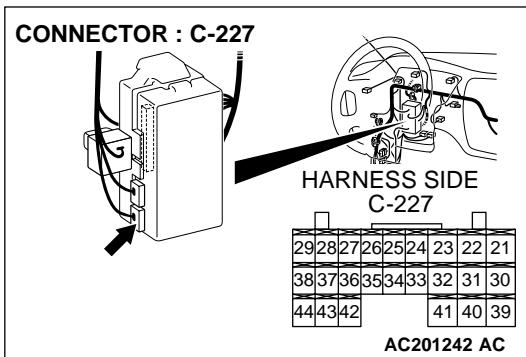
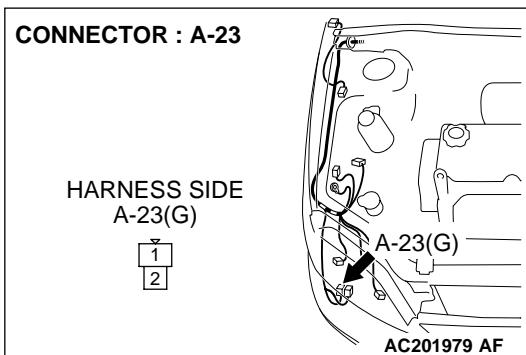
STEP 7. Check rear washer motor connector A-23 and ETACS-ECU connector C-227 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

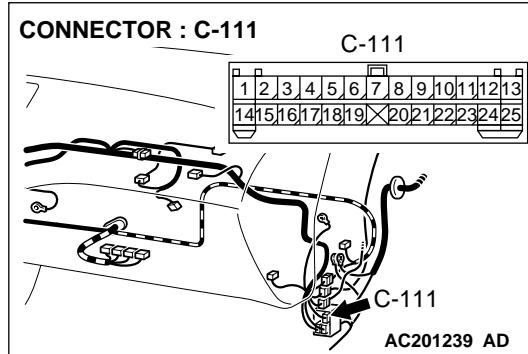
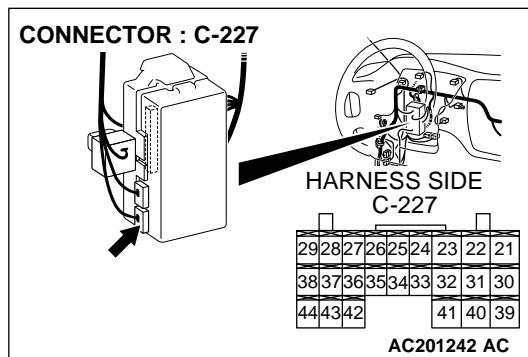
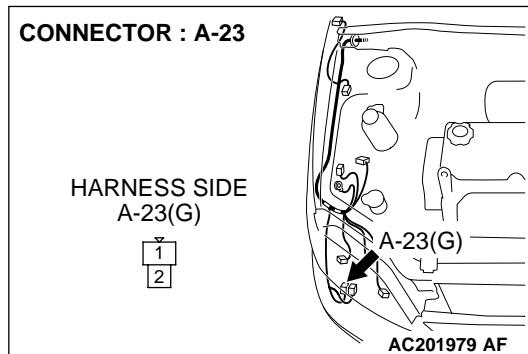
Q: Are rear washer motor connector A-23 and ETACS-ECU connector C-227 in good condition?

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 rear washer works normally.





STEP 8. Check the wiring harness between rear washer motor connector A-23 (terminal 2) and ETACS-ECU connector C-227 (terminal 23).

NOTE: Also check intermediate connector C-111 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-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 washer motor connector A-23 (terminal 2) and ETACS-ECU connector C-227 (terminal 23) in good condition?

YES : Replace the ETACS-ECU. Verify that the rear washer works 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 rear washer works normally.

SEAT BELT WARNING LIGHT**GENERAL DESCRIPTION CONCERNING THE SEAT BELT WARNING LIGHT**

The ECU related to the seat belt warning light function is as follows.

M1549023900024

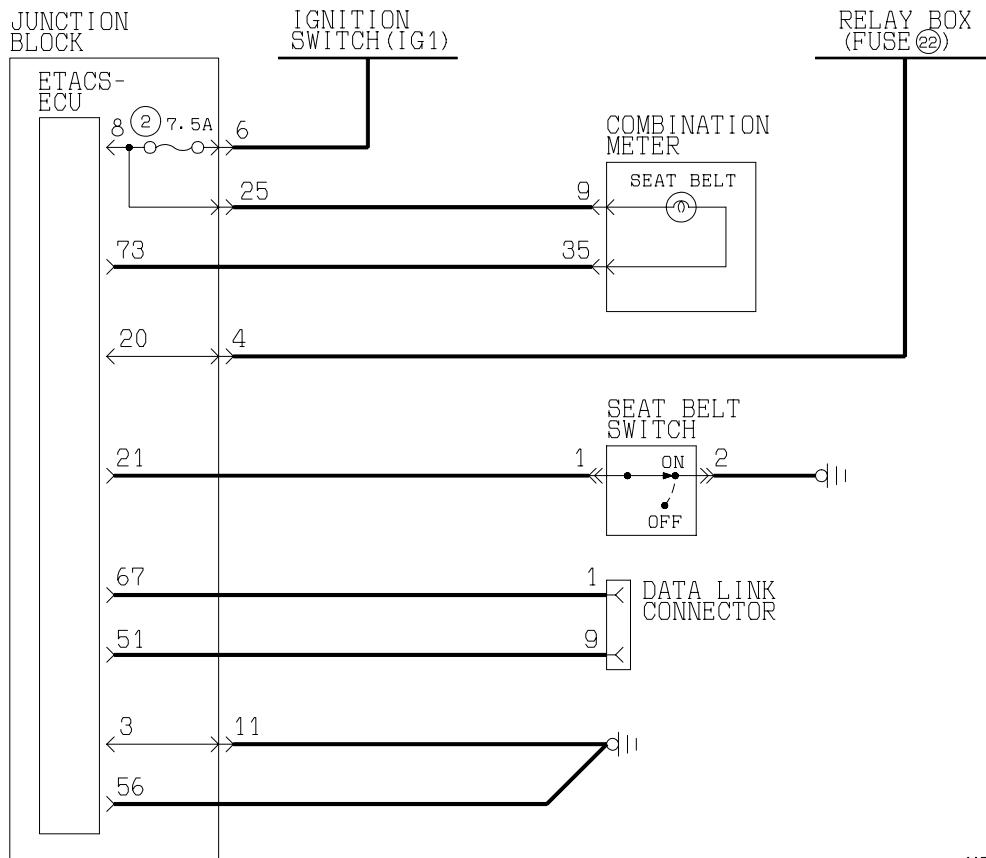
FUNCTION	CONTROL ECU
Seat belt warning light function	ETACS-ECU

Ignition switch (IG1)	ON	
	OFF	
Seat belt switch	ON (Fastened)	
	OFF (Unfastened)	
Seat belt warning light	ON (Illuminated)	
	OFF (Unilluminated)	

AC106176AB

Seat belt warning light function

The seat belt warning light lights up and makes seat belt buckling easier when the ignition switch is ON and the driver's seat belt switch is ON (seat belt is not fastened).

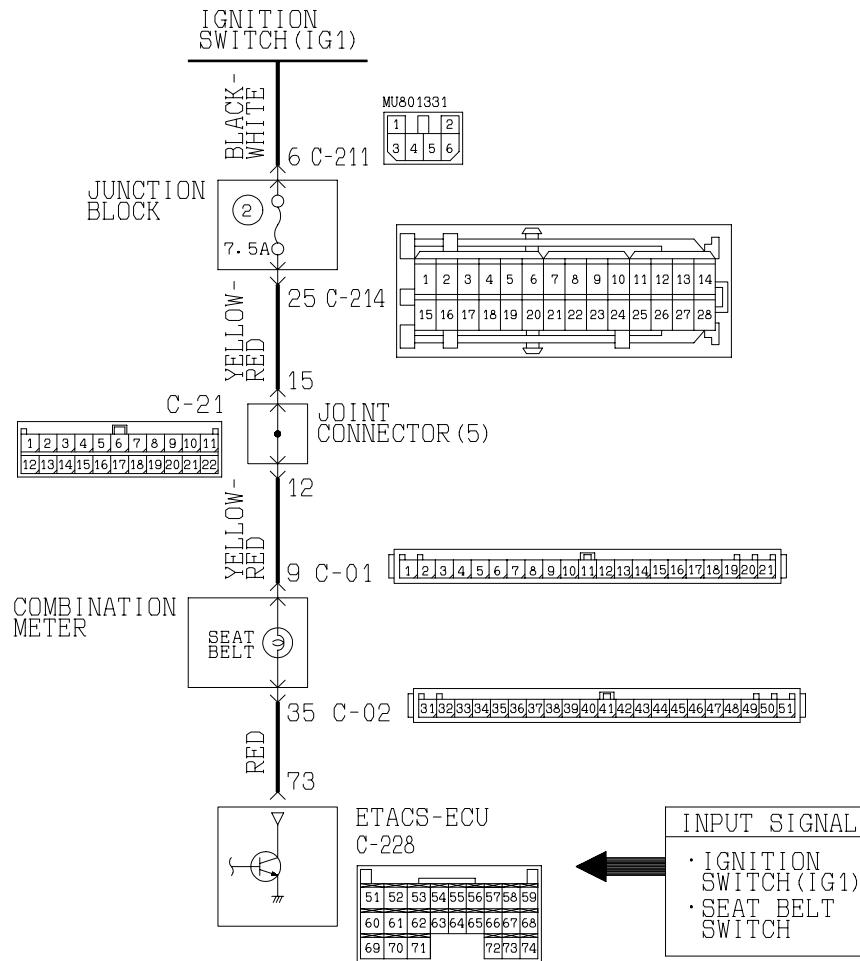
General circuit diagram for the seat belt warning light function

W3J10M02AA

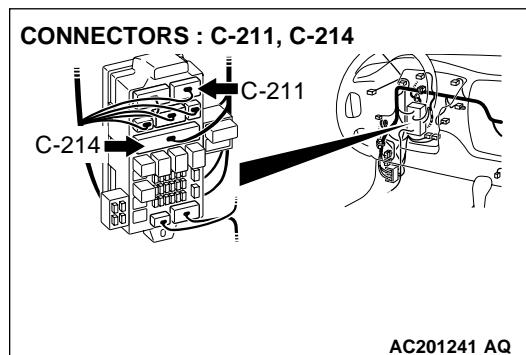
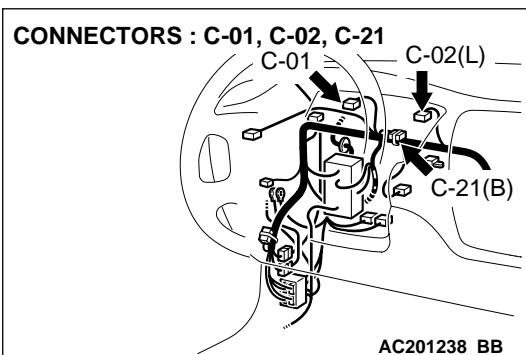
INSPECTION PROCEDURE I-1: Seat Belt Warning Light: The seat belt warning light does not work normally.

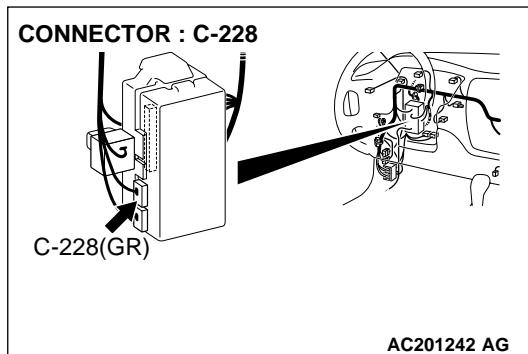
NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Seat Belt Warning Light Circuit



W3J01M10AA





CIRCUIT OPERATION

- The ETACS-ECU operates the seat belt warning light according to the following switch signals:
 - Ignition switch (IG1)
 - Driver's seat belt switch
- If the driver turns the ignition switch to the "ON" position without fastening the seat belt, the seat belt warning light illuminates.

TECHNICAL DESCRIPTION (COMMENT)

If the seat belt warning light does not illuminate, the input circuit, the combination meter (seat belt warning light bulb or printed-circuit board) or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The driver's side seat belt switch may be defective
- The combination meter (seat belt warning light bulb or printed-circuit board) 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the ETACS-ECU.

⚠ CAUTION

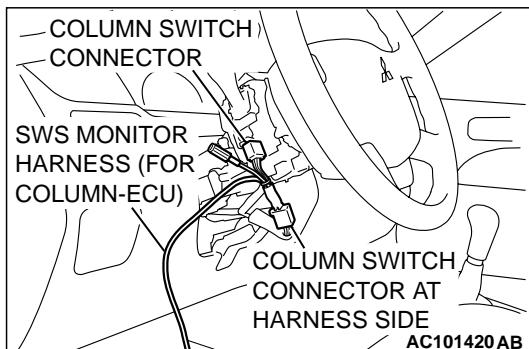
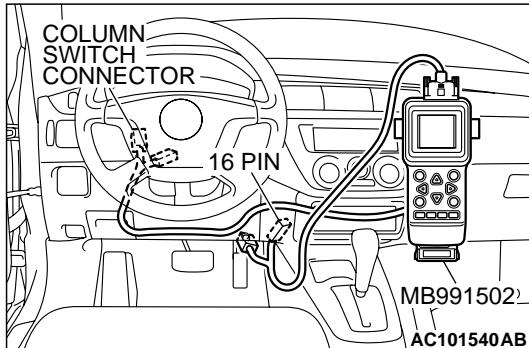
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) When the ignition switch is turned to the "ON" position.
- (4) Operate scan tool MB991502 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 MB991502 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.54Bb-22](#)."



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

Turn the ignition switch to the "ON" position before checking input signals from the ignition switch (IG1).

Operate scan tool MB991502 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."

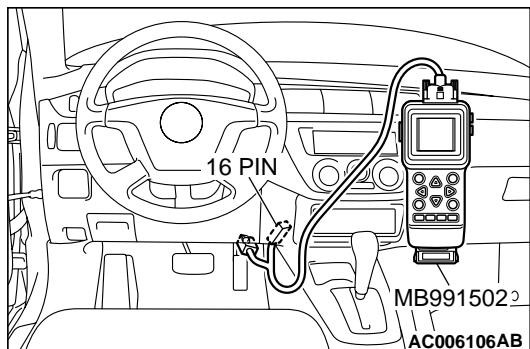
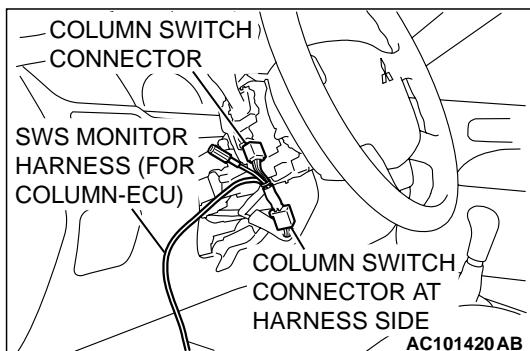
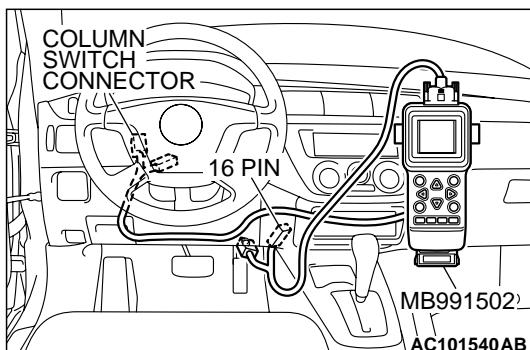
Check that normal conditions are displayed on the items described in the table below.

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

Q: Is normal condition displayed "IG SW (IG1)"?

YES : Go to Step 3.

NO : Refer to Inspection Procedure M-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) [P.54Bc-6](#)."

**STEP 3. Check the input signal by using the pulse check mode of the monitor.**

Check input signal from the driver's side seat belt switch.

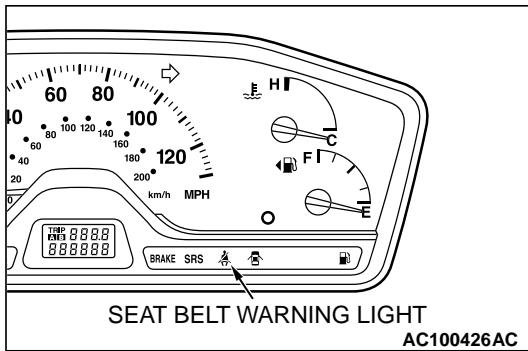
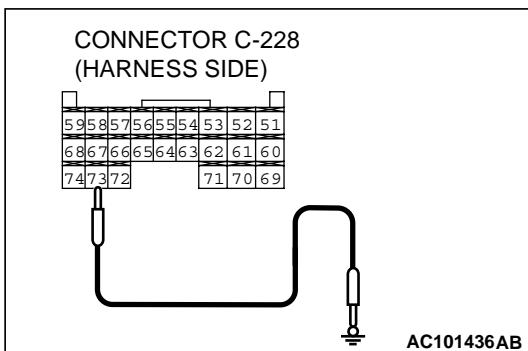
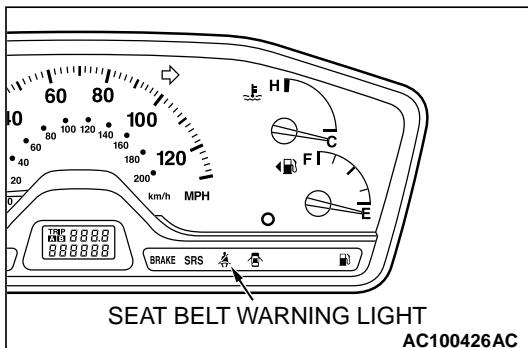
Operate scan tool MB991502 according to the procedure below to display "PULSE CHECK."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."
 - When the driver's seat belt is fastened, check if scan tool MB991502 sounds or not.

Q: Does scan tool MB991502 sound when the driver's side seat belt is fastened?

Yes : Go to Step 4.

No : Refer to Inspection Procedure N-3 "ETACS-ECU does not receive a signal from the driver's side seat belt switch [P.54Bc-55](#)."



STEP 4. Check at ETACS-ECU connector C-228 in order to check the ground circuit to the seat belt warning light.

- (1) Disconnect ETACS-ECU connector C-228, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.

- (3) Connect terminal No.73 to ground.

Q: Does the seat belt warning light illuminate?

YES : Replace the ETACS-ECU. Verify that the seat belt warning light illuminates normally.

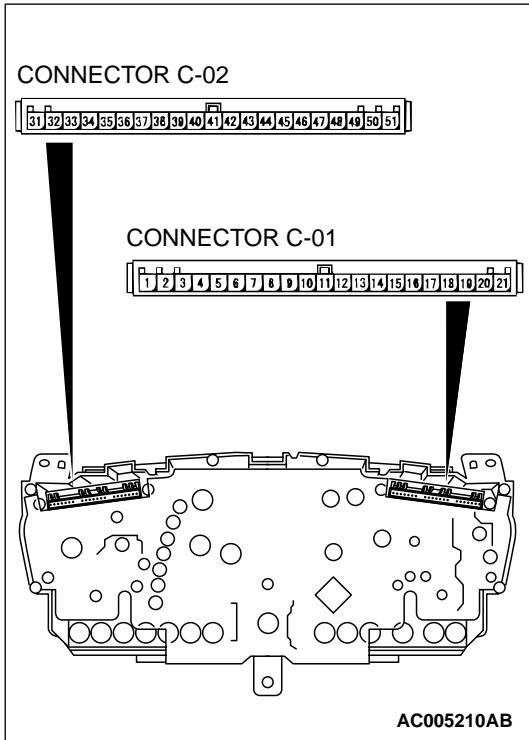
NO : Go to Step 5.

STEP 5. Check the seat belt warning light bulb.

Q: Is the seat belt warning light bulb in good condition?

YES : Go to Step 6.

NO : Replace the bulb. Verify that the seat belt warning light illuminates normally.



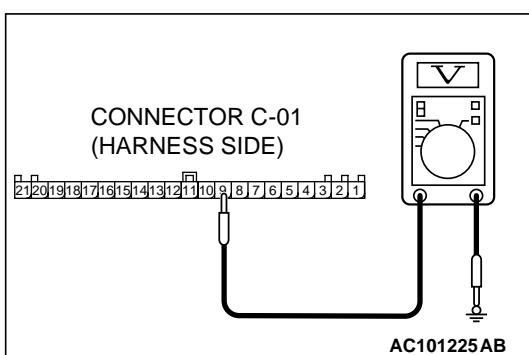
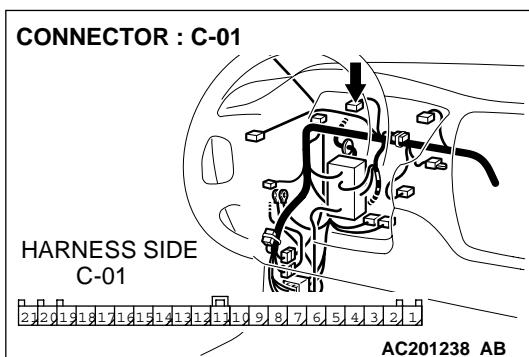
STEP 6. Check the combination meter (printed-circuit board).

- (1) Remove the combination meter.
- (2) Remove the seat belt warning 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 C-01 (terminal 9) and connector C-02 (terminal 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 seat belt warning light illuminates normally.

NO (much the same) : Go to Step 7.



STEP 7. Check the ignition switch (IG1) circuit to the combination meter. Test at combination meter connector C-01.

- (1) Disconnect combination meter connector C-01 and measure the voltage available at the harness side of the connector.
- (2) Turn the ignition switch to the "ON" position.

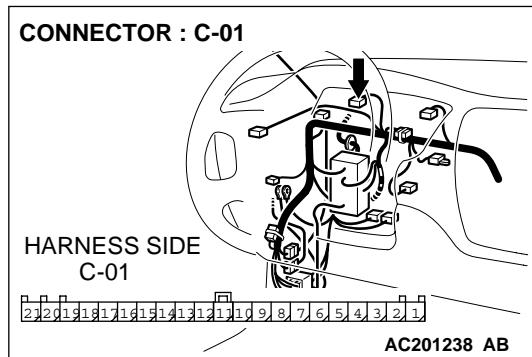
- (3) Measure the voltage between terminal 9 and ground.

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

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

YES : Go to Step 10.

NO : Go to Step 8.

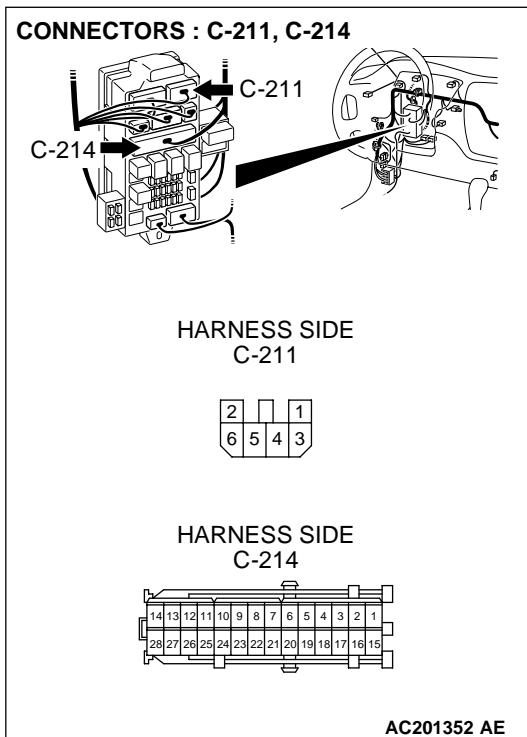
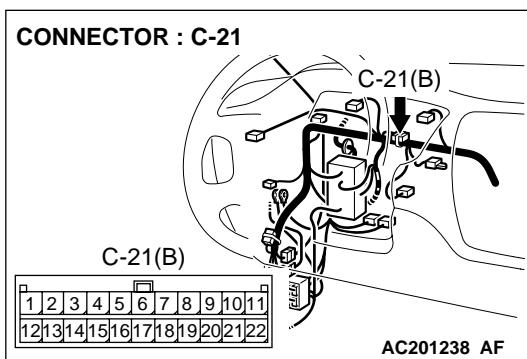
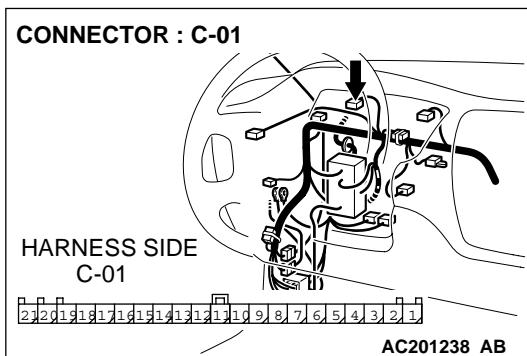


STEP 8. Check combination meter connector C-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-01 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 seat belt warning light illuminates normally.



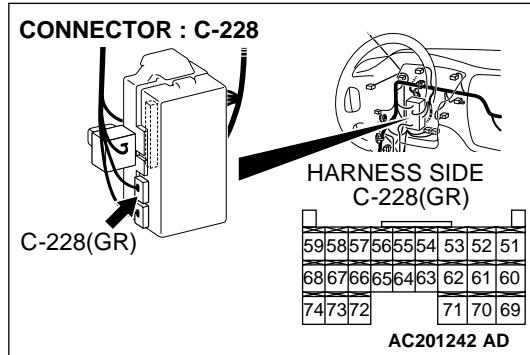
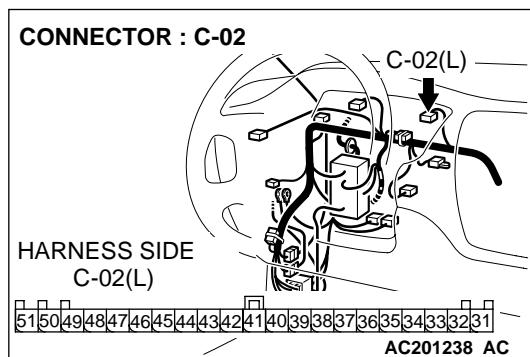
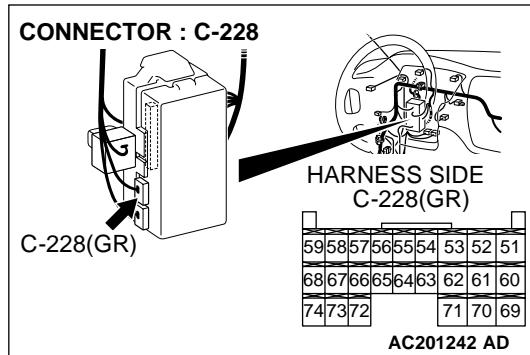
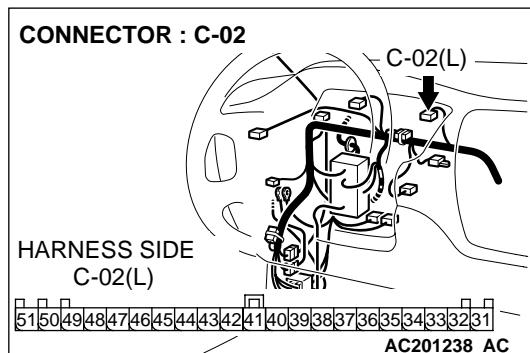
STEP 9. Check the wiring harness between combination meter connector C-01 (terminal 9) and the ignition switch (IG1).

NOTE: Also check junction block connectors C-211, C-214 and joint connector C-21 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-211, C-214 or joint connectors C-21 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector C-01 (terminal 9) and the ignition switch (IG1) 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 seat belt warning light illuminates normally.



STEP 10. Check combination meter connector C-02 and ETACS-ECU connector C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are combination meter connector C-02 and ETACS-ECU connector C-228 in good condition?

YES : Go to Step 11.

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

P.00E-2. Verify that the seat belt warning light illuminates normally.

STEP 11. Check the wiring harness between combination meter connector C-02 (terminal 35) and ETACS-ECU connector C-228 (terminal 73).

Q: Is the wiring harness between combination meter connector C-02 (terminal 35) and ETACS-ECU connector C-228 (terminal 73) 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 seat belt warning light illuminates normally.

HEADLIGHT AND TAILLIGHT**GENERAL DESCRIPTION CONCERNING THE HEADLIGHT AND TAILLIGHT**

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

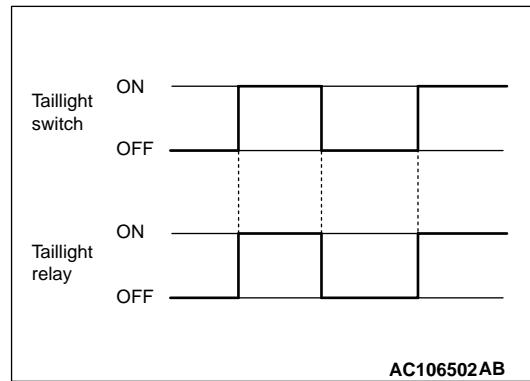
M1549021300026

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 tail light switch signal from the column switch is in the ON state and the built-in taillight replay is in the ON state.

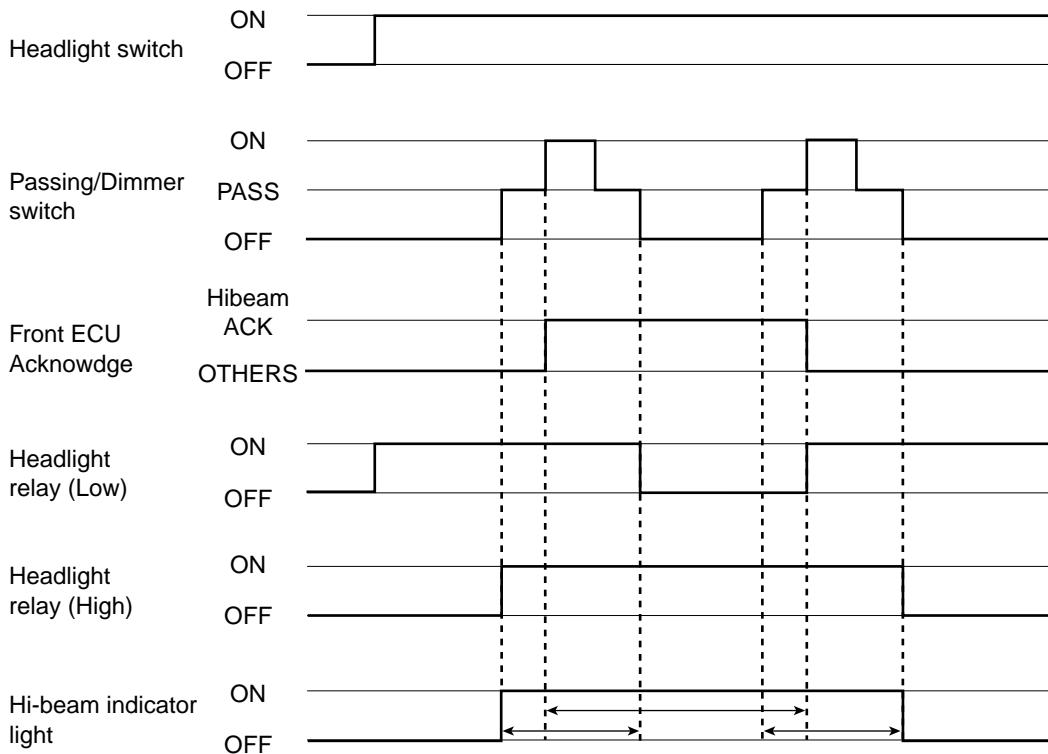
NOTE: This item only considers the taillight light up function and does not take into consideration the other functions. In actual driving, the taillights may be turned off due to the headlight automatic shut-down function. For the details of the headlight automatic shut-down function, refer to its Section.

**Headlights and high-beam indicator light**

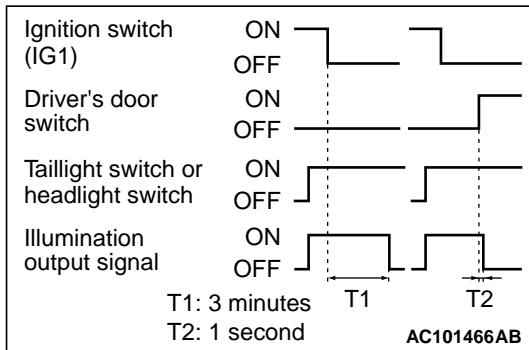
The front ECU lights up the headlight (LOW) when the signal from the column switch to the headlight switch is in the "ON" state and the built-in head light relay (LOW) is in the ON state. If the dimmer switch is turned on while the headlight relay (LOW) is on, the front-ECU turns on the headlight relay (HIGH), 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 light up 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 AD

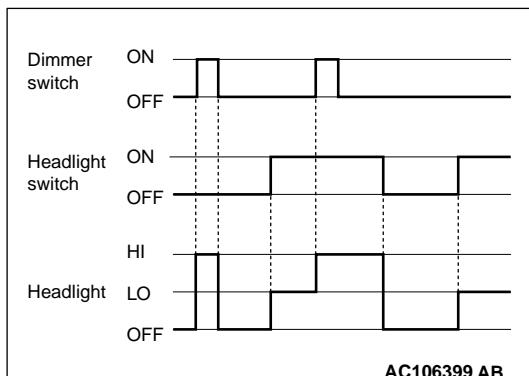


Headlight automatic-shutdown function

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 seat door is opened during these three minutes, the light will go off one second later.

NOTE: This function can be disabled by the configuration function (Refer to P.54Ba-23.)

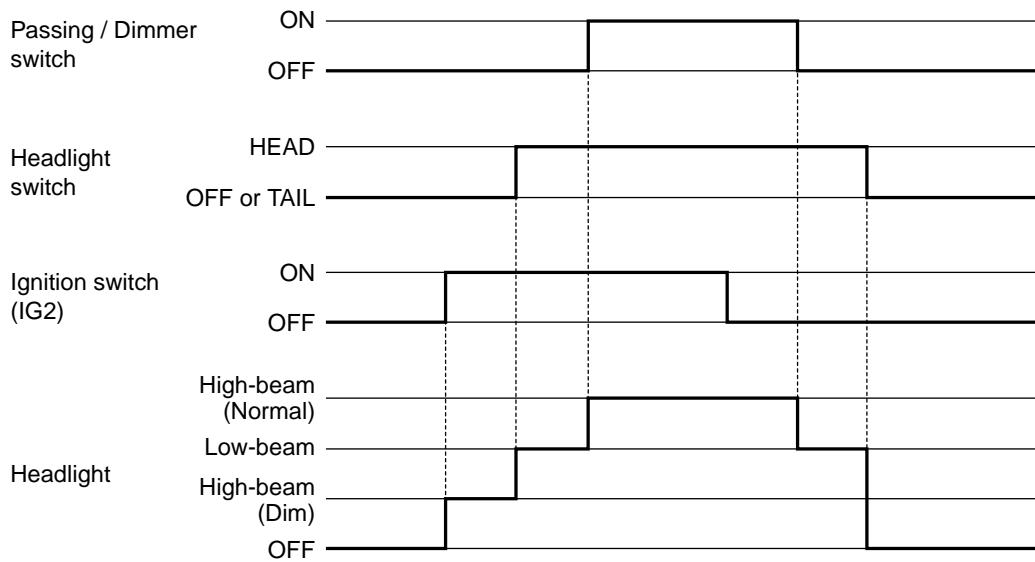


Dimmer automatic reset function

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.

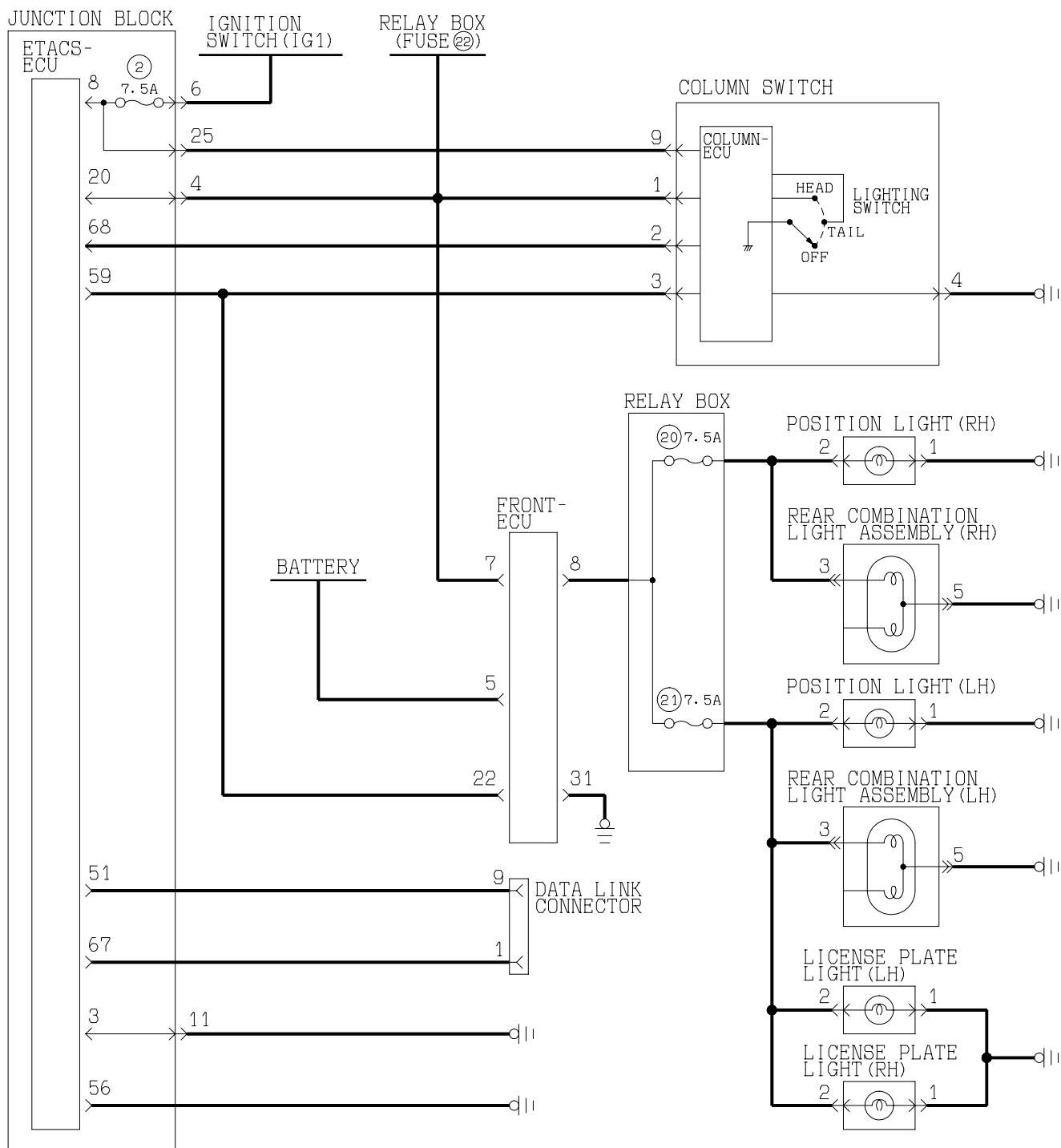
Daytime running light function

The daytime running light-ECU constantly lights up the high beam in a reduced beam state if the ignition switch is in the ON position when the headlight switch is in the "OFF" or "TAIL" position. If the headlights illuminate while the daytime running light function operates, the daytime running light-ECU shut the high-beam down.



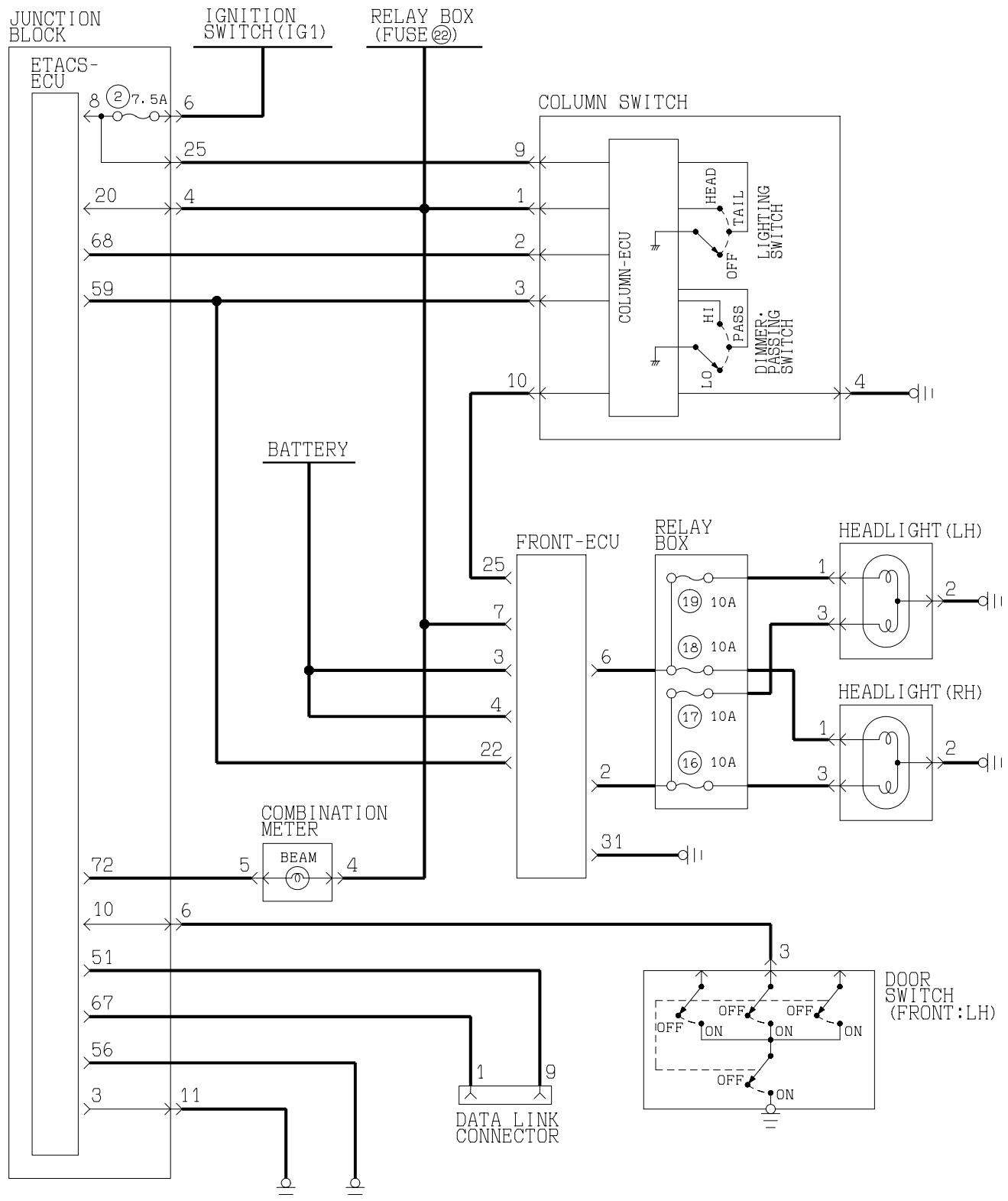
AC201190 AB

General circuit diagram for the taillight



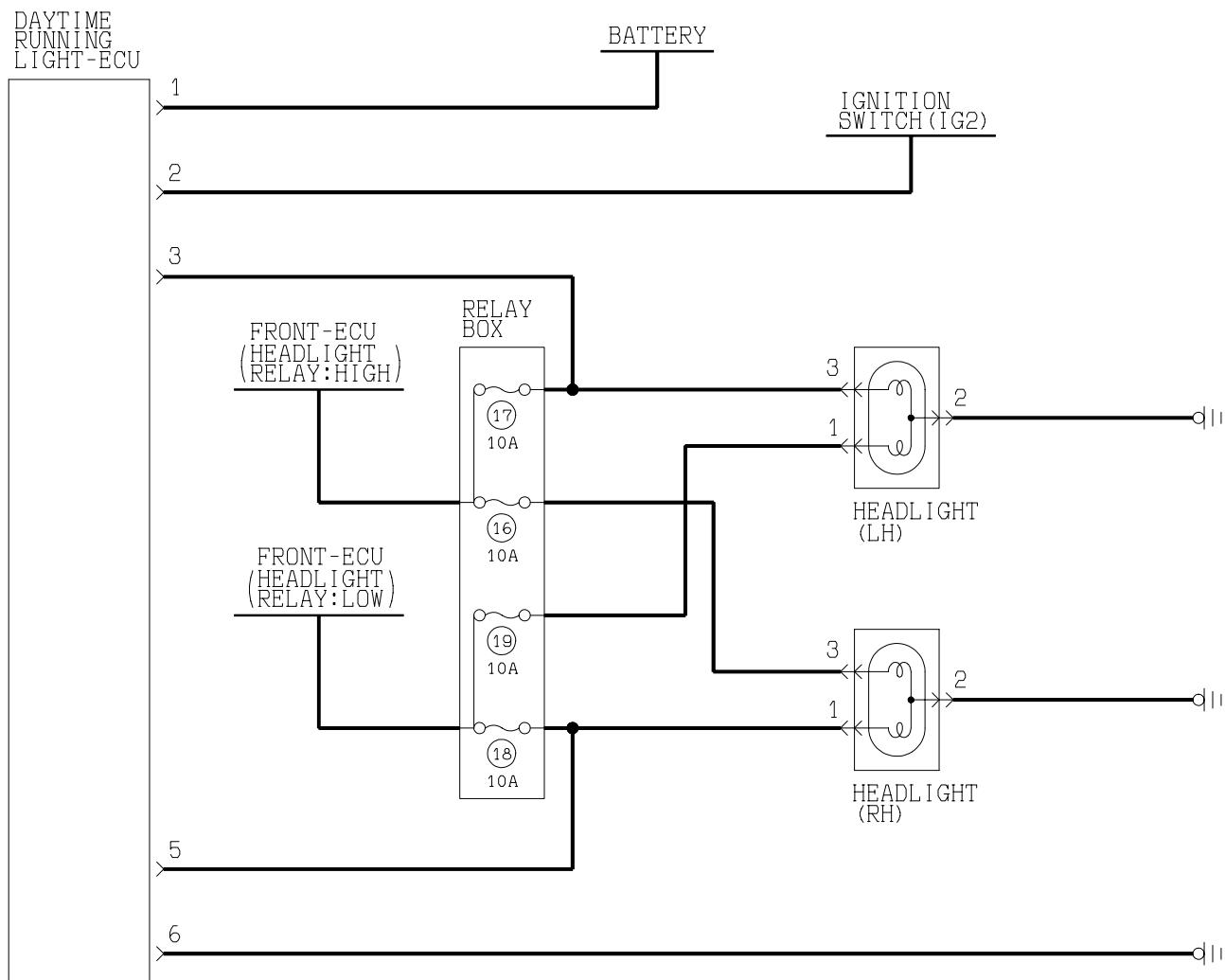
W3J10M03AA

General circuit diagram for the headlight



W3J01M00AA

General circuit diagram for the daytime running light

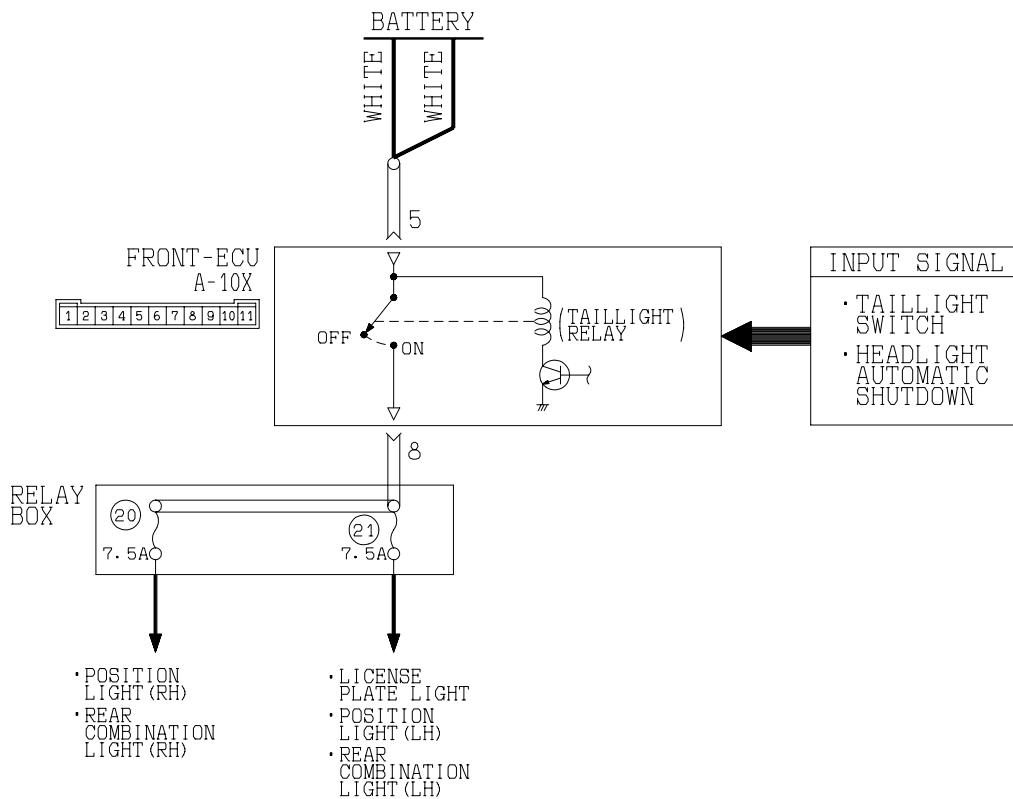


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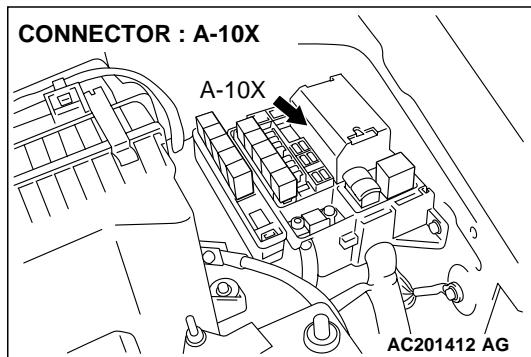
INSPECTION PROCEDURE J-1: Headlight and Taillight : Taillights does not illuminate normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Taillight Relay Circuit



W3J01M11AA



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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

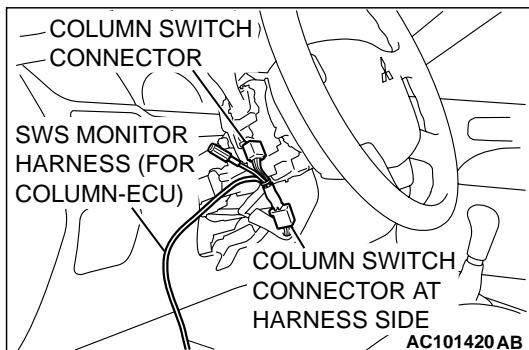
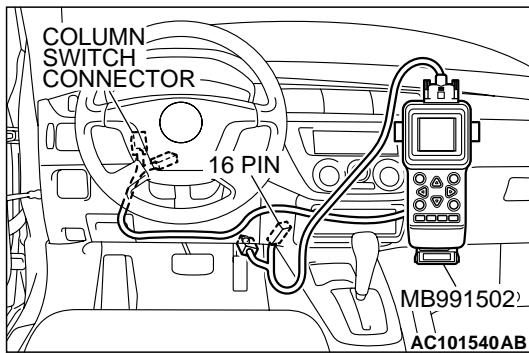
STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the following ECUs:

- Column-ECU
- Front-ECU

 CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.



- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 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 MB991502 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.54Bb-13](#)."

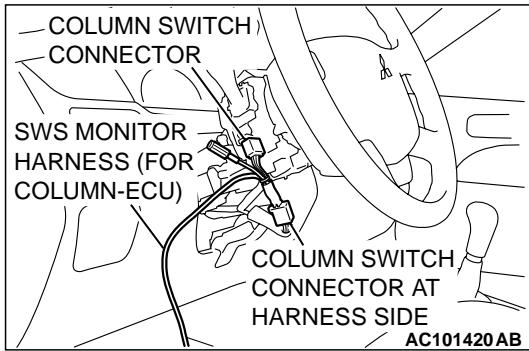
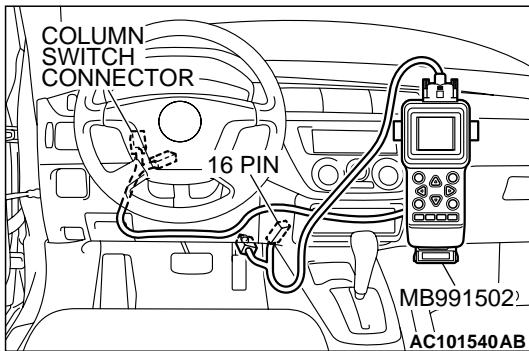
"NG" is displayed on the "FRONT ECU" menu : Refer to Inspection procedure A-4 "Communication with front-ECU is not possible [P.54Bb-30](#)."

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 MB991502 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."

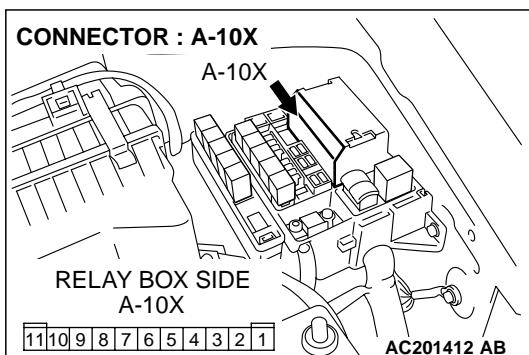
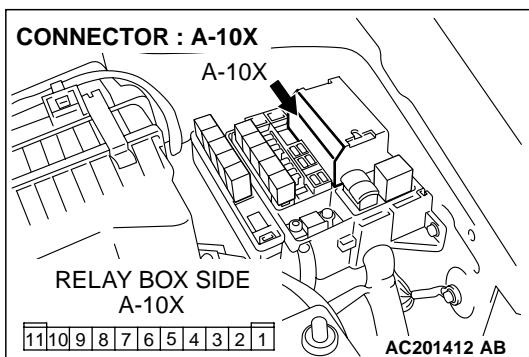
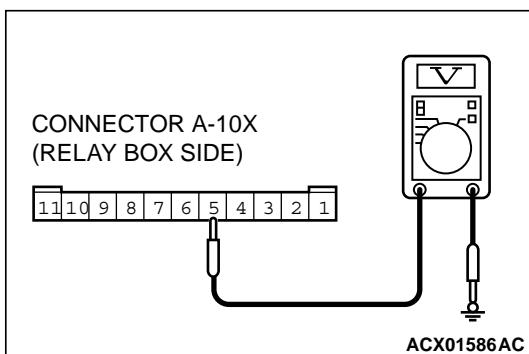
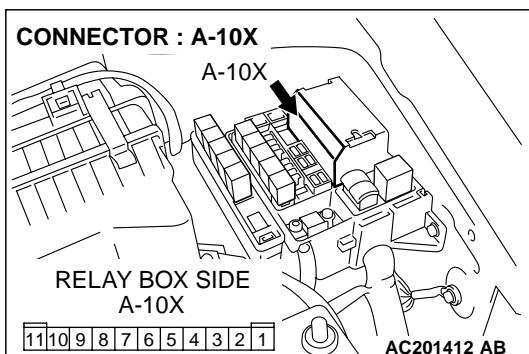
Check that normal conditions are displayed on the items described in the table below.

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"?

YES : Go to Step 3.

- NO :**
- Normal condition is not displayed on the "TAILLIGHT SW": Refer to Inspection Procedure M-5 "ETACS-ECU does not receive a signal from the taillight switch [P.54Bc-32](#)."
 - Normal condition is not displayed on the "H/L AUTO-CUT": Refer to Inspection Procedure J-9 "The headlight automatic shutdown function does not work normally [P.54Bb-340](#)."
 - Normal condition is not displayed on the "FRONT ECU ACK": Replace the front-ECU. Verify that the taillights illuminate normally.



STEP 3. Check the battery power supply circuit to the front-ECU. Test at front-ECU connector A-10X.

(1) Disconnect front-ECU connector A-10X 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 equal 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 4.

STEP 4. Check the front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the front-ECU connector A-10X 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 taillights illuminate normally.

STEP 5. Check the wiring harness between front-ECU connector A-10X (terminal 5) and the battery.

Q: Is the wiring harness between front-ECU connector A-10X (terminal 5) and the battery in good condition?

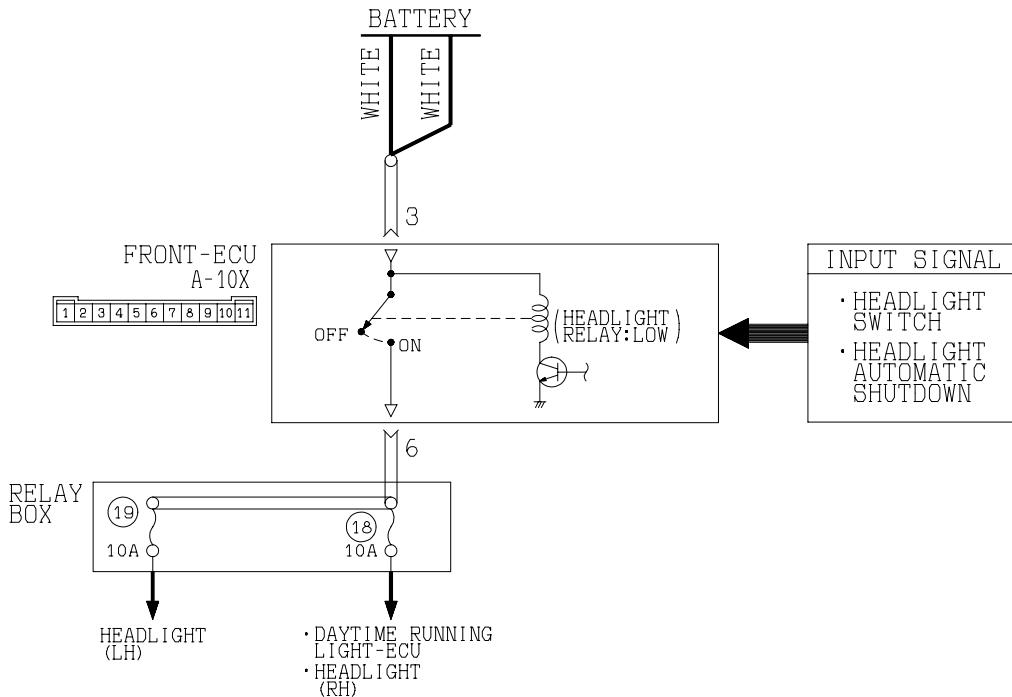
YES : No action is necessary and testing is complete.

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.

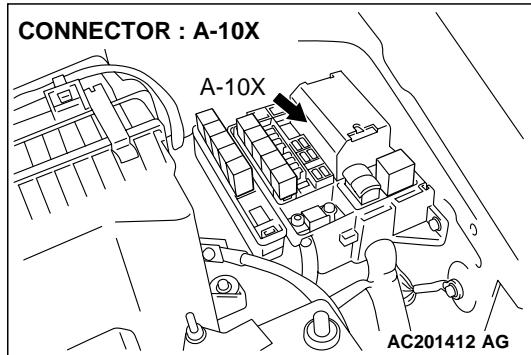
INSPECTION PROCEDURE J-2: Headlight and Taillight: Headlights (low-beam) do not illuminate normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Headlight Relay (Low-beam) Circuit



W3J01M12AA

**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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Use scan tool MB991502 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 MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

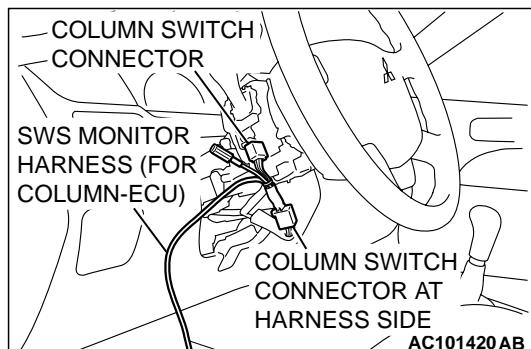
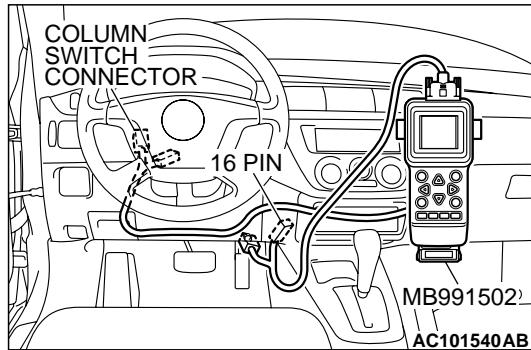
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 according to the procedure below to display "ECU COMM CHK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK."
- (5) Scan tool MB991502 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.54Bb-13."

"NG" is displayed on the "FRONT ECU" menu : Refer to Inspection procedure A-4 "Communication with front-ECU is not possible P.54Bb-30."



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

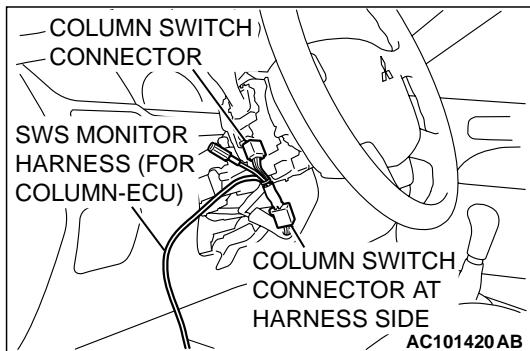
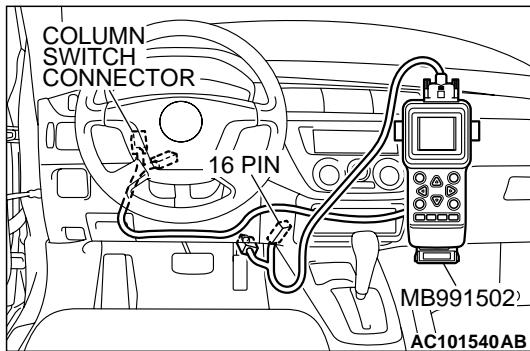
Check the input signals from the following switches:

- Ignition switch: ON
- Lighting switch: HEAD

Operate scan tool MB991502 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.

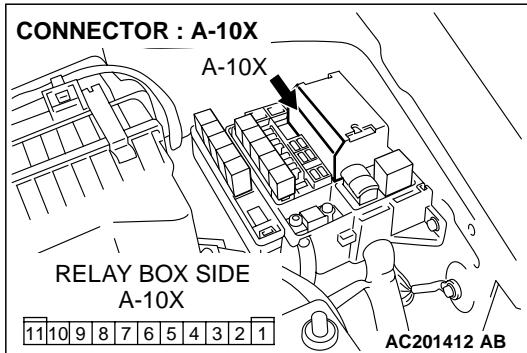
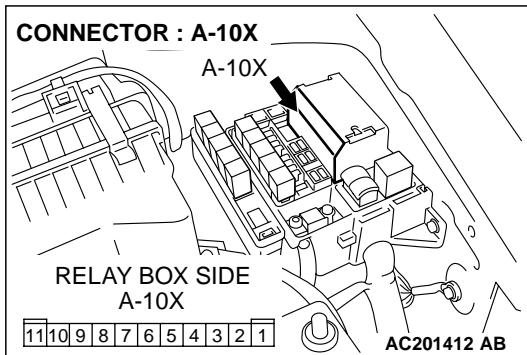
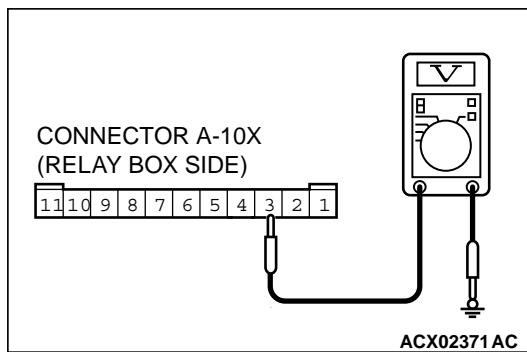
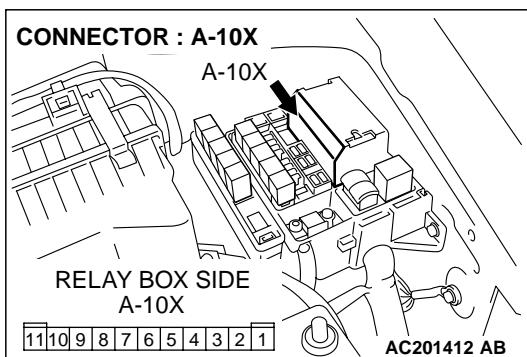


ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 00	HEADLIGHT SW	ON
ITEM 35	H/L AUTO-CUT	OFF
ITEM 70	FRONT ECU ACK	NORMAL ACK

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

YES : Go to Step 3.

- NO :**
- Normal condition is not displayed on the "HEADLIGHT SW": Refer to Inspection Procedure M-5 "ETACS-ECU does not receive a signal from the headlight switch P.54Bc-32."
 - 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.54Bb-340."
 - 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 battery power supply circuit to the front-ECU. Test at front-ECU connector A-10X.

(1) Disconnect front-ECU connector A-10X and measure the voltage available at the relay box side of the connector.

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

- The voltage should equal 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 4.

STEP 4. Check the front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the front-ECU connector A-10X 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 headlights (low-beam) illuminate normally.

STEP 5. Check the wiring harness between front-ECU connector A-10X (terminal 3) and the battery.

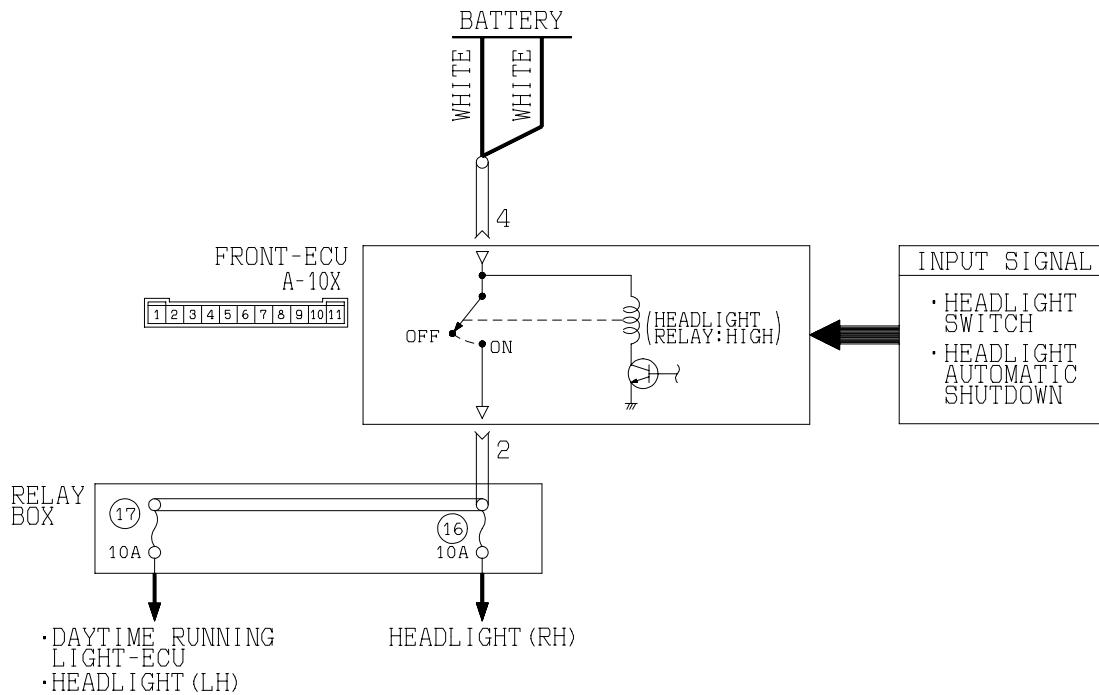
Q: Is the wiring harness between front-ECU connector A-10X (terminal 3) and the battery in good condition?

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

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

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Headlight Relay (High-beam) Circuit

W3J01M13AA

CIRCUIT OPERATION

When the dimmer switch is turned on, the column switch sends a 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

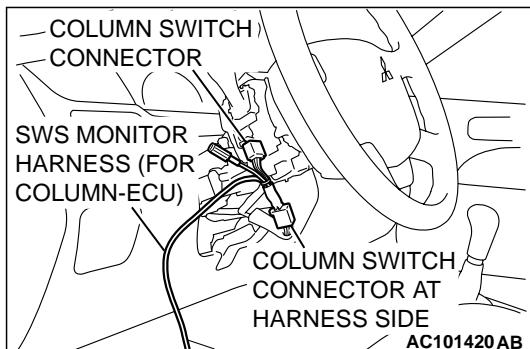
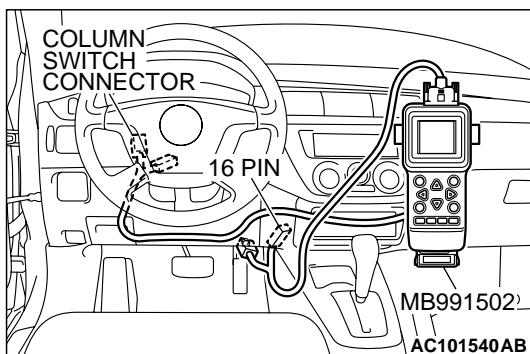
STEP 1. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the following ECUs:

- Column-ECU
- Front-ECU

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.



- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 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 MB991502 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.54Bb-13.](#)"

"NG" is displayed on the "FRONT ECU" menu : Refer to Inspection procedure A-4 "Communication with front-ECU is not possible [P.54Bb-30.](#)"

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

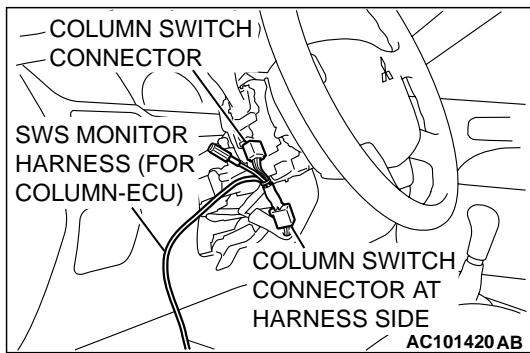
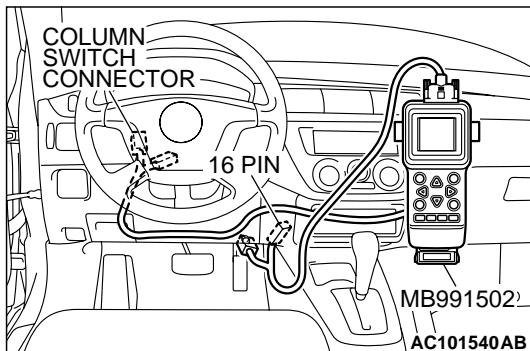
Check the input signals from the following switches:

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

Operate scan tool MB991502 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"?

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

NO :

- Normal condition is not displayed on the "HEADLIGHT SW": Refer to Inspection Procedure M-5 "ETACS-ECU does not receive a signal from the headlight switch [P.54Bc-32](#)."
- Normal condition is not displayed on the "DIMMER SW": Refer to Inspection Procedure M-5 "ETACS-ECU does not receive a signal from the dimmer switch [P.54Bc-32](#)."
- 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.54Bb-340](#)."
- Normal condition is not displayed on the "FRONT ECU ACK": Replace the front-ECU. Verify that the headlights (high-beam) illuminate normally.

INSPECTION PROCEDURE J-4: Headlight and Taillight: When the passing switch is turned "on", the headlights (low-beam or high-beam) do not illuminate.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Verify the headlights.

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

YES : Go to Step 2.

Headlights (low-beam) do not illuminate normally :

Refer to Inspection Procedure J-2 "Headlights (low-beam) do not illuminate normally [P.54Bb-278](#)."

Headlights (high-beam) do not illuminate normally :

Refer to Inspection Procedure J-3 "Headlights (high-beam) do not illuminate normally [P.54Bb-282](#)."

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 MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

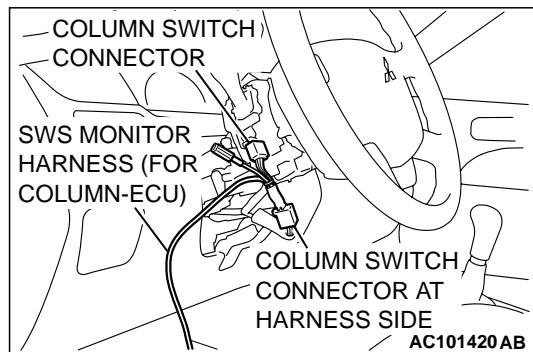
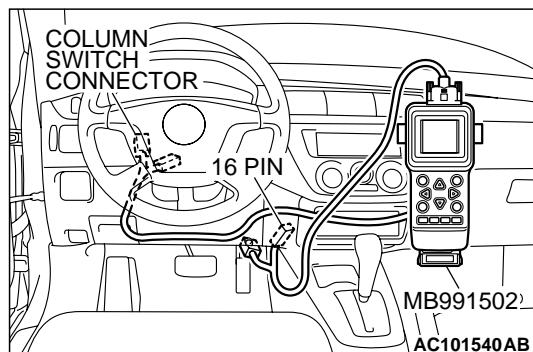
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate scan tool MB991502 according to the procedure below to display "COLUMN ECU."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "DATA LIST."
 5. Select "COLUMN ECU."
- (4) 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 turned "ON", the headlights (low-beam and high-beam) should illuminate normally.

NO : Refer to Inspection Procedure M-5 "ETACS-ECU does not receive a signal from the passing switch [P.54Bc-32](#)."



INSPECTION PROCEDURE J-5: Headlight and Taillight: Headlights do not illuminate when the lighting switch is at "AUTO," "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 MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor [P.54Ba-7](#)."

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
- MB991223: Scan Tool (MUT-II)
- MB991223: SWS Monitor Kit

Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

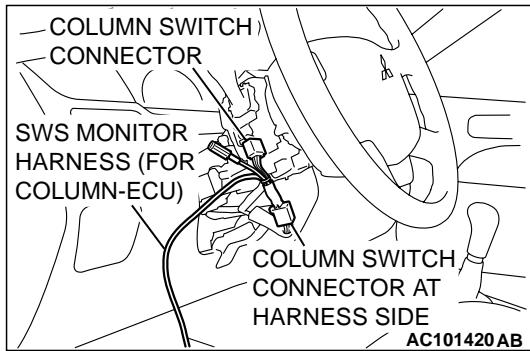
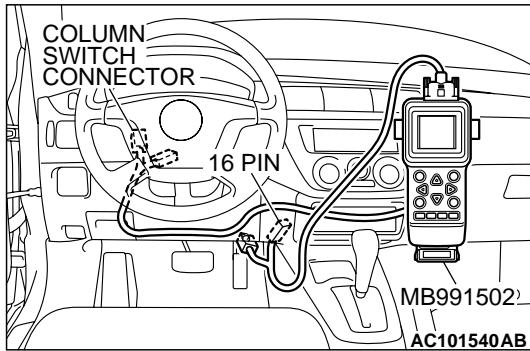
Check the following ECUs:

- ETACS-ECU
- Column-ECU
- Front-ECU

CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 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 MB991502 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.

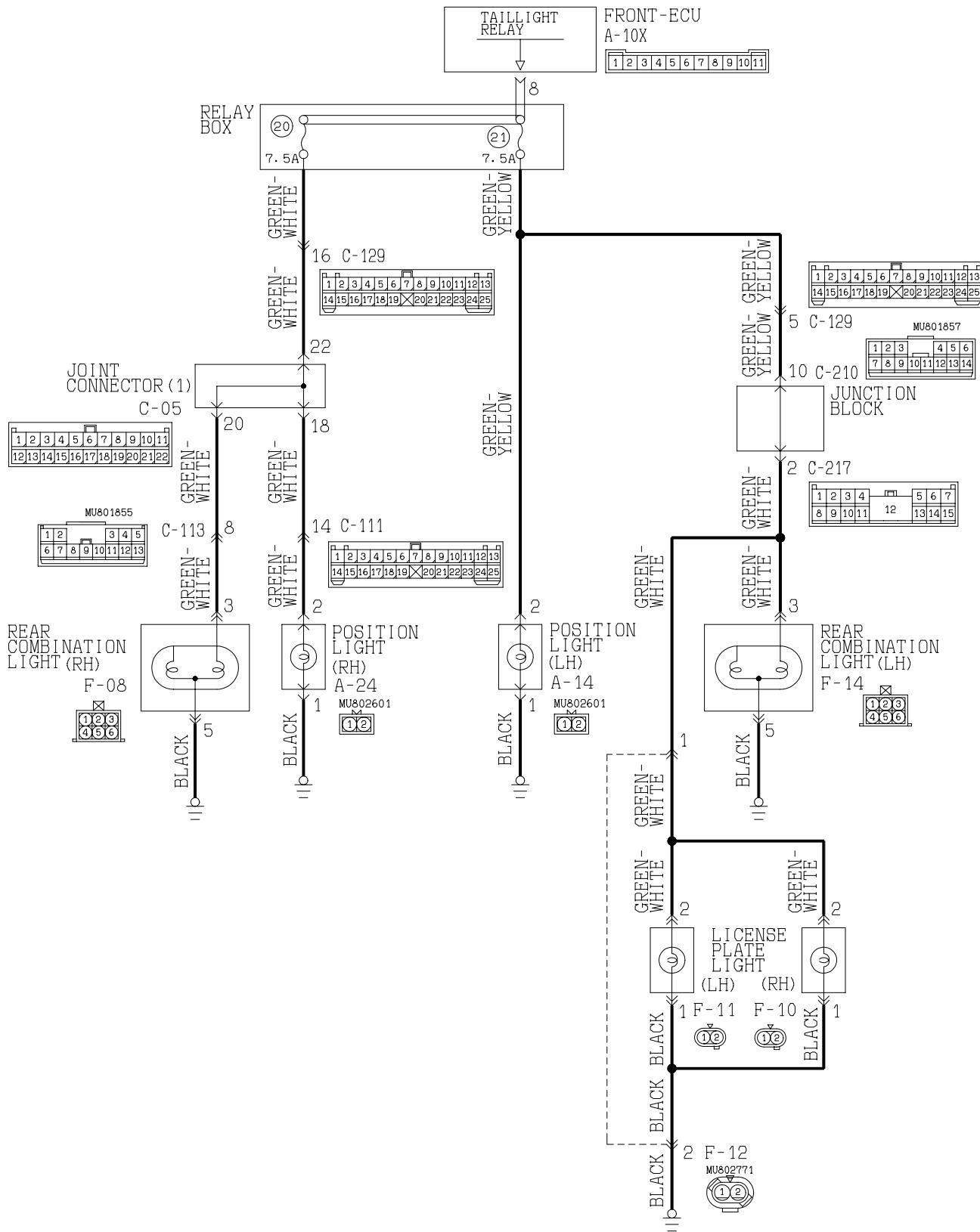
"NG" is displayed on the "ETACS ECU" menu : Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is not possible [P.54Bb-22](#)."

"NG" is displayed on the "COLUMN ECU" menu : Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is not possible [P.54Bb-22](#)."

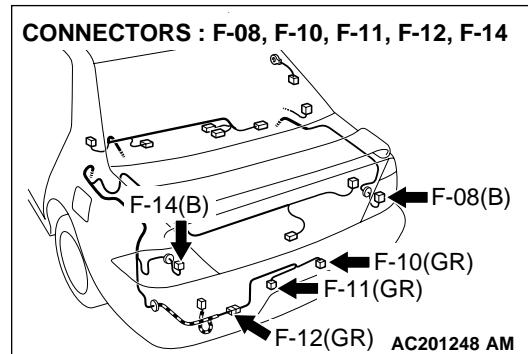
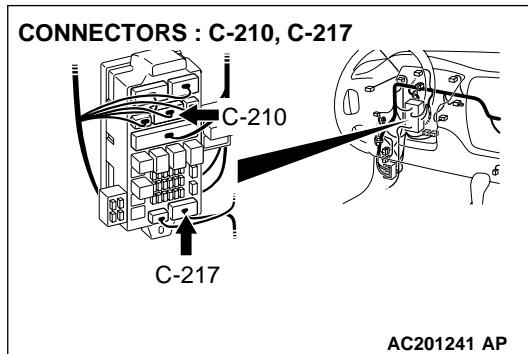
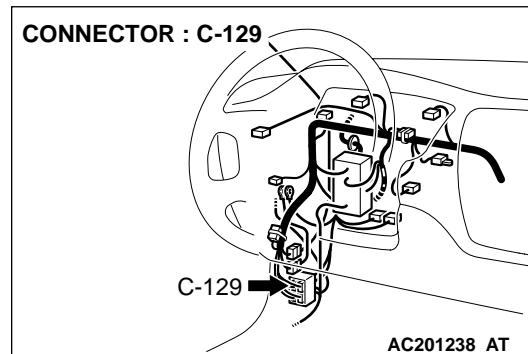
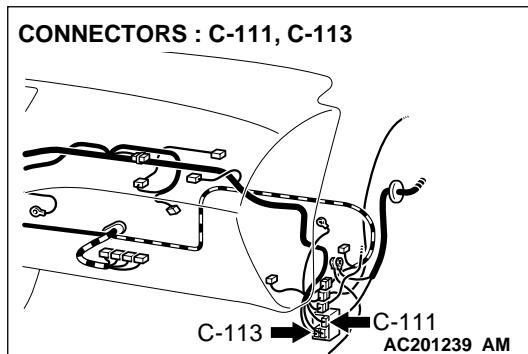
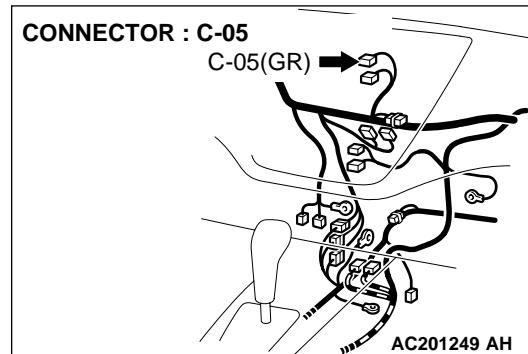
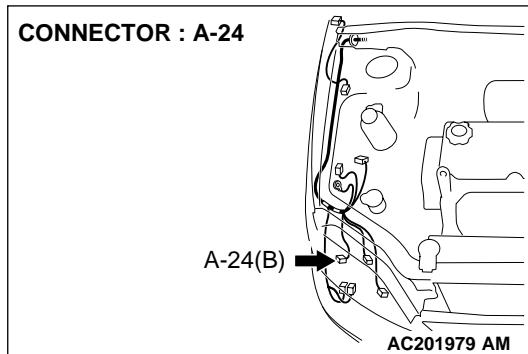
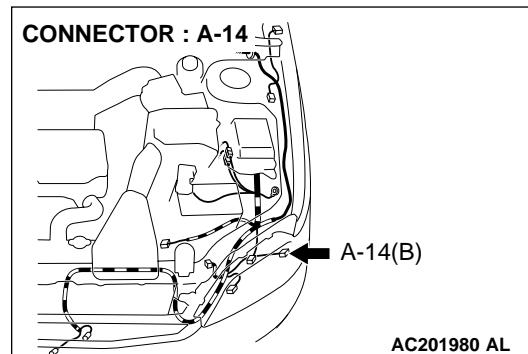
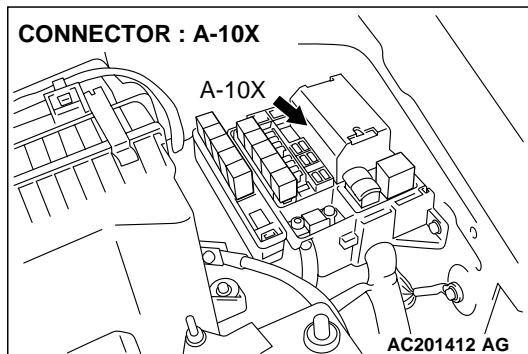
"NG" is displayed on the "FRONT ECU" menu : Refer to Inspection procedure A-4 "Communication with front-ECU is not possible [P.54Bb-30](#)."

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

Taillights, Position Lights and License Plate Lights Circuit



W3J01M14AA



TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- The position light bulb may be defective

- The stop/tailight 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

STEP1. Verify the operation of each light.

Q: Which light does not illuminate?

taillights (LH) and license plate light : Go to Step 2.

position light (RH) and taillights (RH) : Go to Step 4.

position light (LH) : Go to Step 6.

position light (RH) : Go to Step 12.

taillight (LH) : Go to Step 18.

taillight (RH) : Go to Step 24.

license plate lights : Go to Step 30.

license plate light (LH) : Go to Step 35.

license plate light (RH) : Go to Step 41.

position light (LH), taillight (LH) and license plate light : Go to Step 47.

All lights : Refer to Inspection Procedure J-1 "Tail lights do not illuminate [P.54Bb-273](#)."

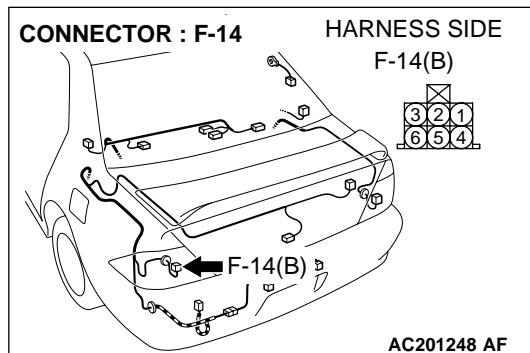
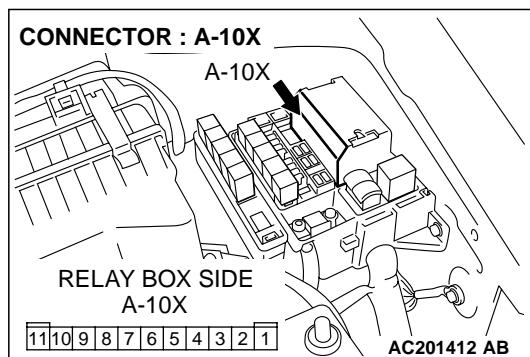
STEP 2. Check taillight (LH) connector F-14 and front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are taillight (LH) connector F-14 and front-ECU connector A-10X in good condition?

YES : Go to Step 3.

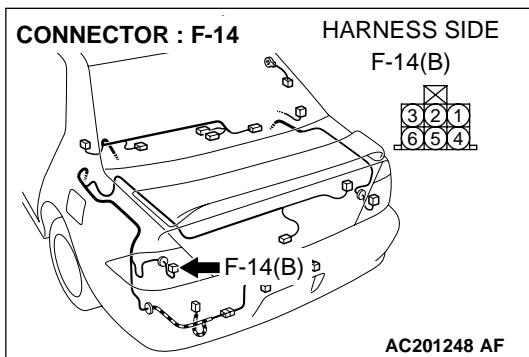
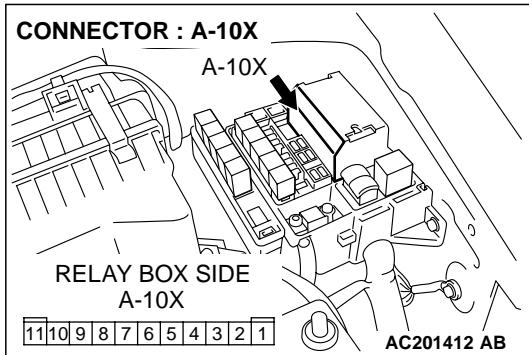
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

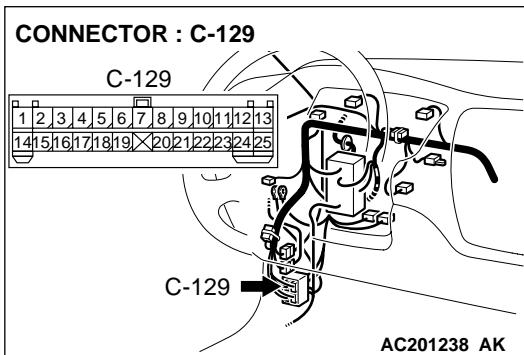
[P.00E-2](#). The taillight (LH) and the license plate lights should illuminate normally.



STEP 3. Check the wiring harness between taillight (LH) connector F-14 (terminal 3) and front-ECU connector A-10X (terminal 8).

NOTE: Also check junction block connectors C-210, C-217 and intermediate connector C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connectors C-210, C-217 or intermediate connector C-129 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

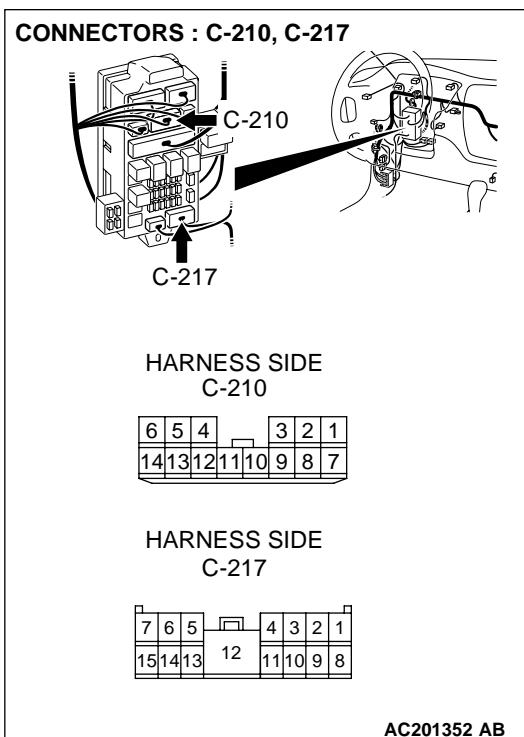




Q: Is the wiring harness between taillight (LH) connector F-14 (terminal 3) and front-ECU connector A-10X (terminal 8) in good condition?

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. The taillight (LH) and the license plate lights should illuminate normally.



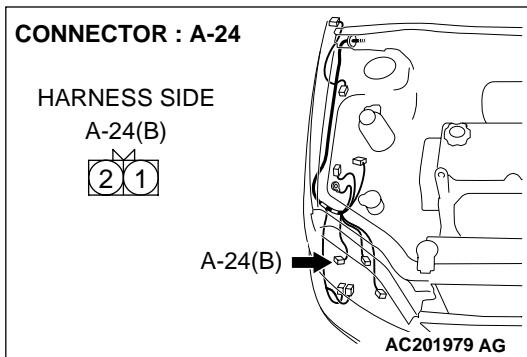
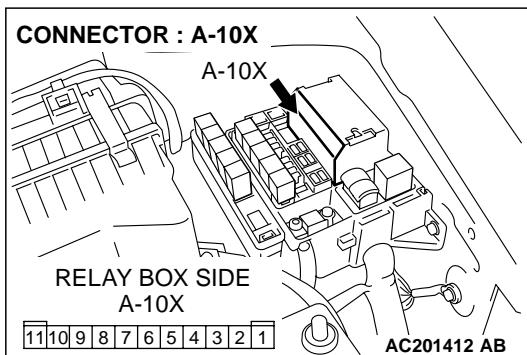
STEP 4. Check position light (RH) connector A-24 and front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

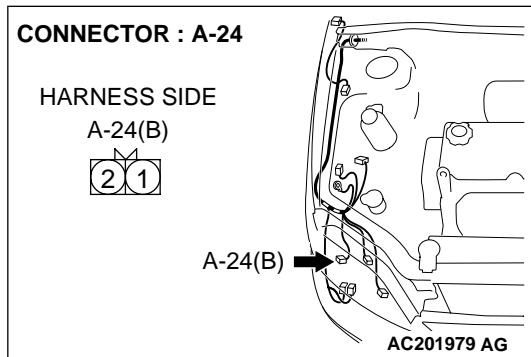
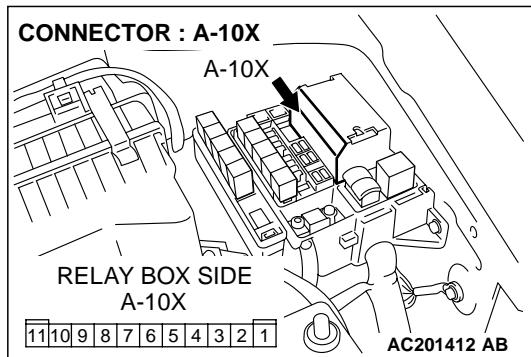
Q: Are position light (RH) connector A-24 and front-ECU connector A-10X in good condition?

YES : Go to Step 5.

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

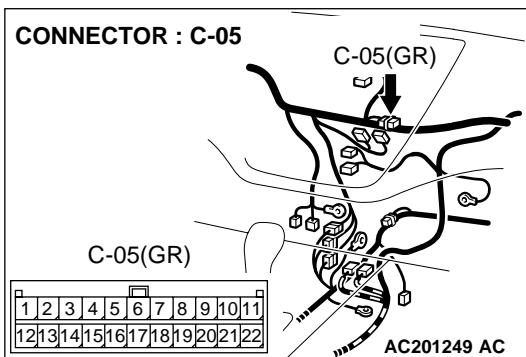
P.00E-2. The position light (RH) and the taillight (RH) should illuminate normally.





STEP 5. Check the wiring harness between position light (RH) connector A-24 (terminal 2) and front-ECU connector A-10X (terminal 8).

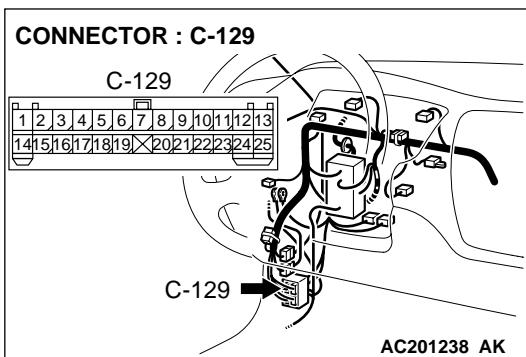
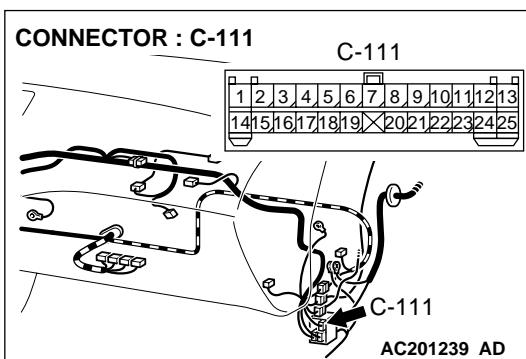
NOTE: Also check joint connector C-05, intermediate connectors C-111 and C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-05, intermediate connectors C-111 or C-129 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between position light (RH) connector A-24 (terminal 2) and front-ECU connector A-10X (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. The position light (RH) and the taillight (RH) should illuminate normally.



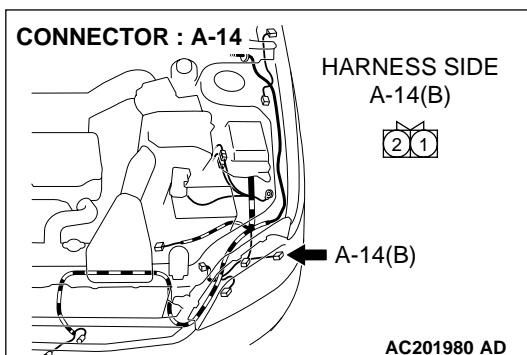
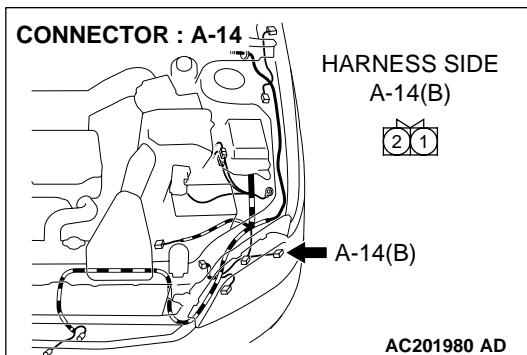
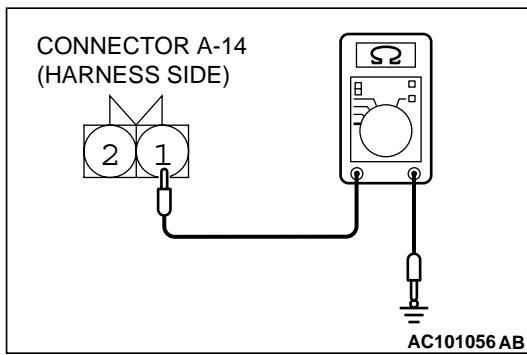
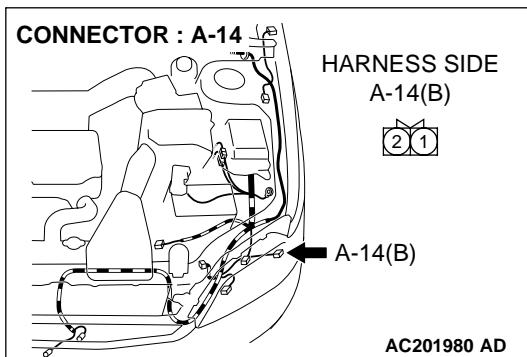
STEP 6. Check the position light bulb (LH).

- (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 7.

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



**STEP 7. Check the ground circuit to the position light (LH).
Test at position light (LH) connector A-14.**

(1) Disconnect position light (LH) connector A-14 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 10.

NO : Go to Step 8.

STEP 8. Check position light (LH) connector A-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is position light (LH) connector A-14 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 (LH) illuminates normally.

STEP 9. Check the wiring harness between position light (LH) connector A-14 (terminal 1) and ground.

Q: Is the wiring harness between position light (LH) connector A-14 (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.

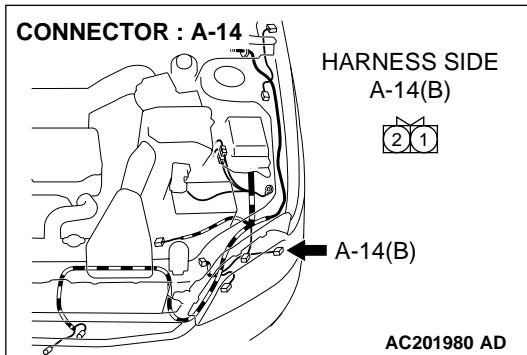
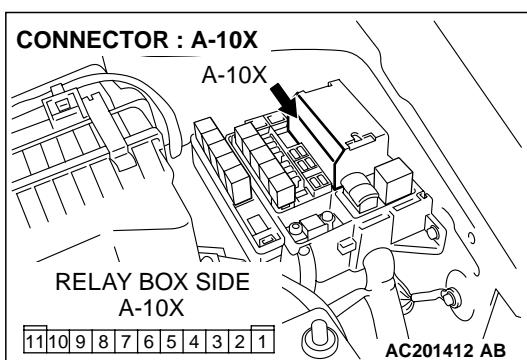
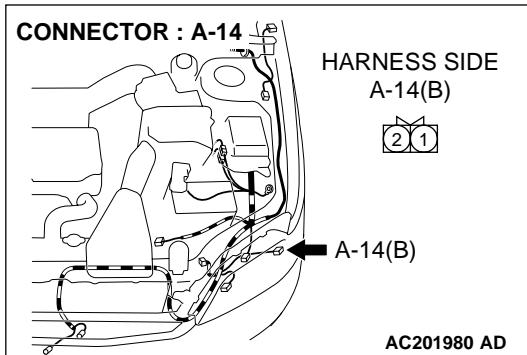
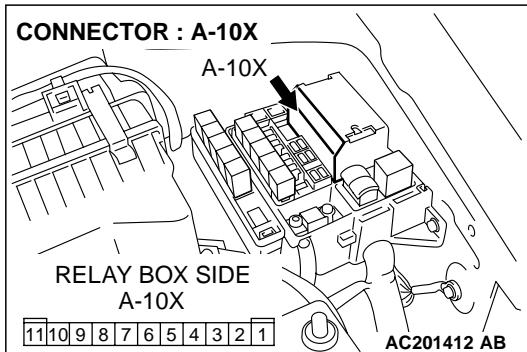
STEP 10. Check position light (LH) connector A-14 and front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are position light (LH) connector A-14 and front-ECU connector A-10X in good condition?

YES : Go to Step 11.

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

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



STEP 11. Check the wiring harness between position light (LH) connector A-14 (terminal 2) and front-ECU connector A-10X (terminal 8).

Q: Is the wiring harness between position light (LH) connector A-14 (terminal 2) and front-ECU connector A-10X (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 12. 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.

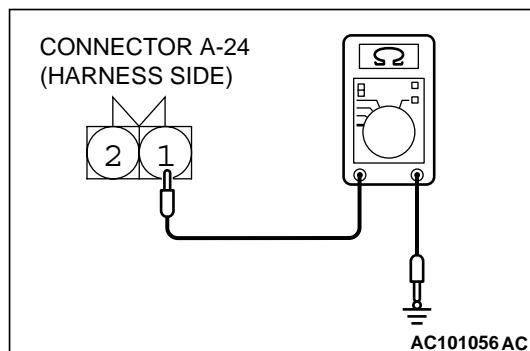
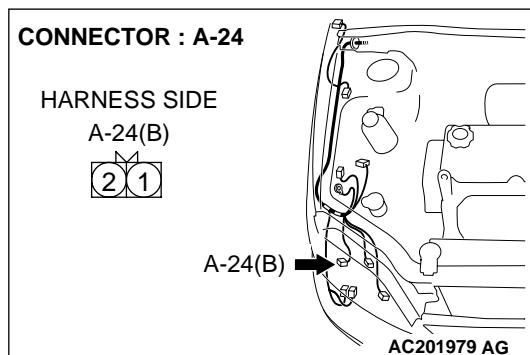
Q: Is the position light bulb (RH) in good condition?

YES : Go to Step 13.

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

STEP 13. Check the ground circuit to the position light (LH). Test at position light (LH) connector A-24.

- (1) Disconnect position light (LH) connector A-24 and measure the resistance available at the wiring harness side of the connector.



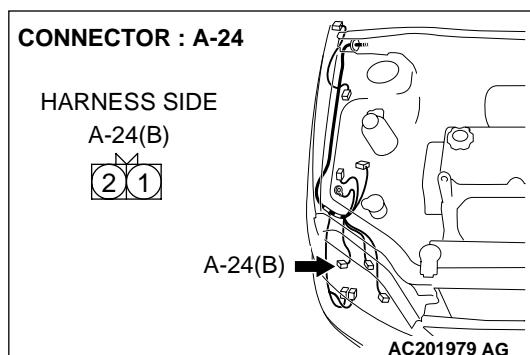
- (2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 16.

NO : Go to Step 14.

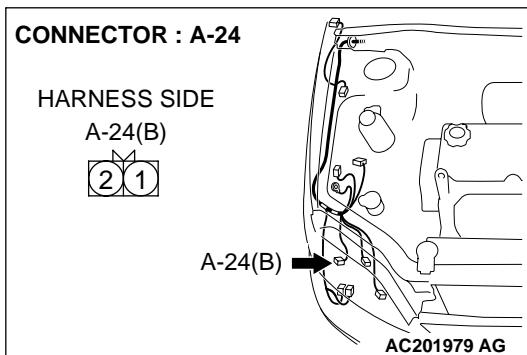
**STEP 14. Check position light (RH) connector A-24 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

Q: Is position light (RH) connector A-24 in good condition?

YES : Go to Step 15.

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

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

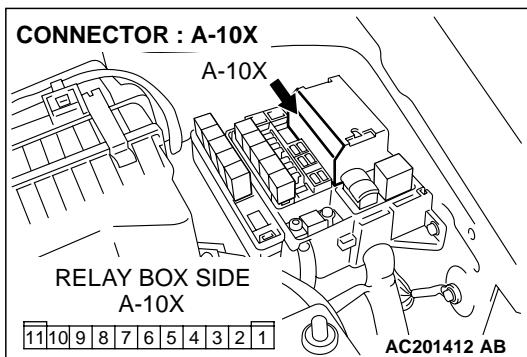


STEP 15. Check the wiring harness between position light (RH) connector A-24 (terminal 1) and ground.

Q: Is the wiring harness between position light (RH) connector A-24 (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.

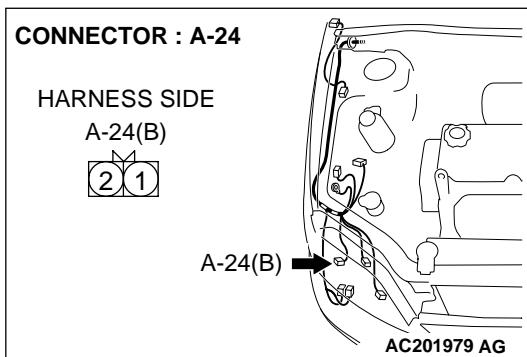


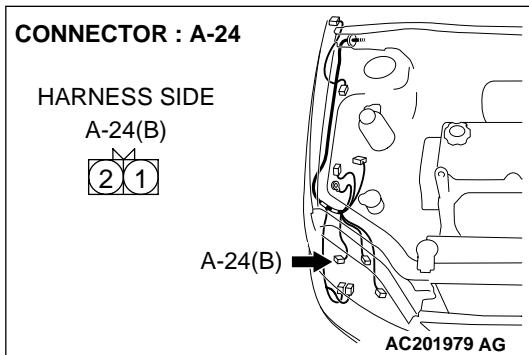
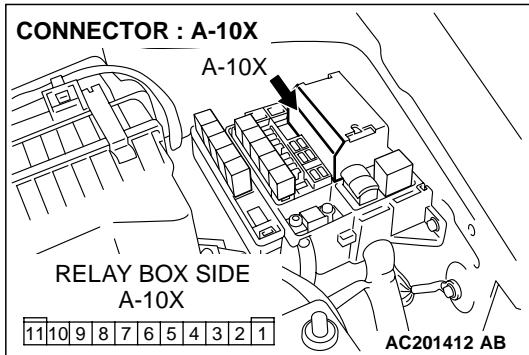
STEP 16. Check position light (RH) connector A-24 and front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are position light (RH) connector A-24 and front-ECU connector A-10X in good condition?

YES : Go to Step 17.

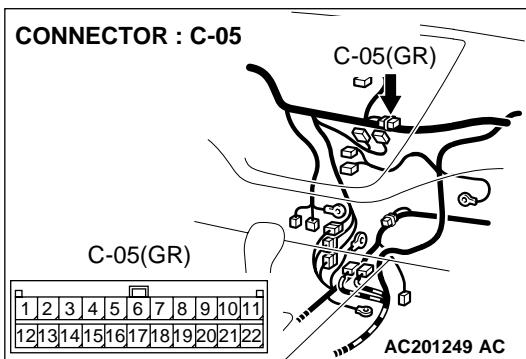
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the position light (RH) illuminates normally.





STEP 17. Check the wiring harness between position light (RH) connector A-24 (terminal 2) and front-ECU connector A-10X (terminal 8).

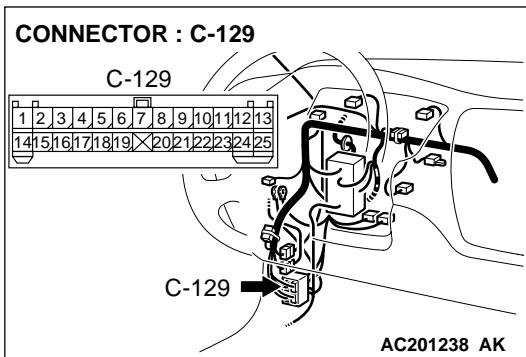
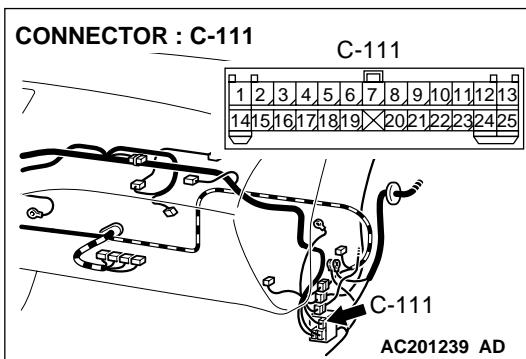
NOTE: Also check joint connector C-05, intermediate connectors C-111 and C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-05, intermediate connectors C-111 or C-129 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between position light (RH) connector A-24 (terminal 2) and front-ECU connector A-10X (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.



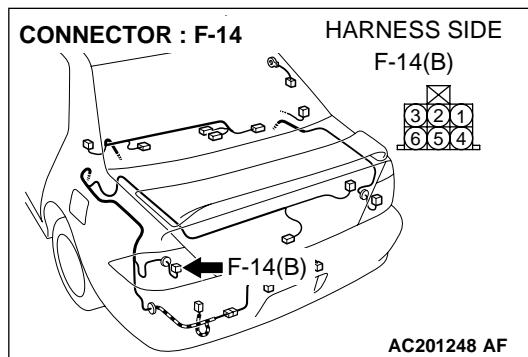
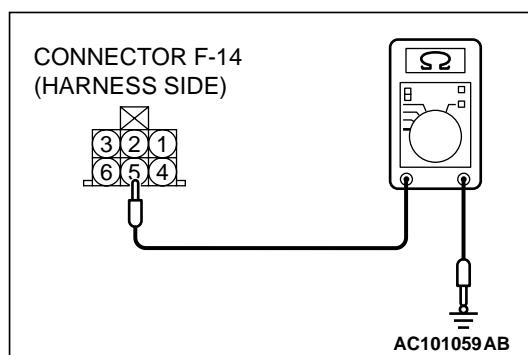
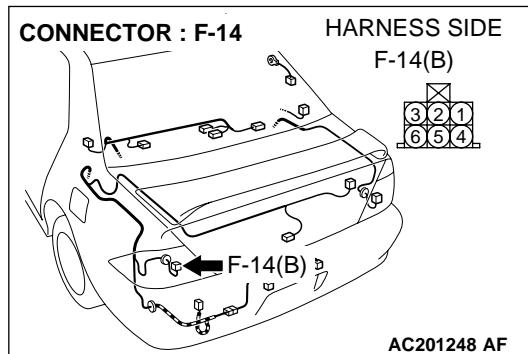
STEP 18. Check the stop/tailight bulb (LH).

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

Q: Is the stop/tailight bulb (LH) in good condition?

YES : Go to Step 19.

NO : Replace the stop/tailight bulb (LH). Verify that the taillights (LH) illuminate normally.



STEP 19. Check the ground circuit to the rear combination light (LH). Test at rear combination light (LH) connector F-14.

(1) Disconnect rear combination light (LH) connector F-14 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 5 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 20.

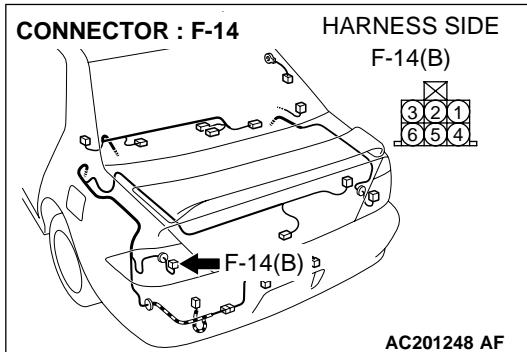
STEP 20. Check rear combination light (LH) connector F-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 21.

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

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

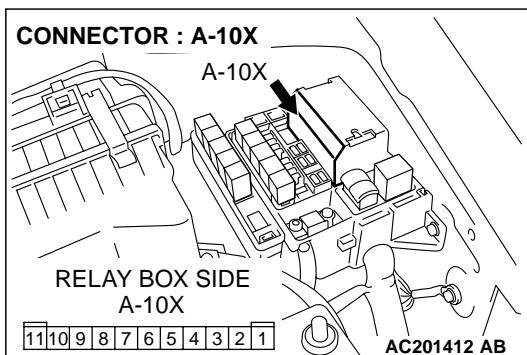


STEP 21. Check the wiring harness between rear combination light (LH) connector F-14 (terminal 5) and ground.

Q: Is the wiring harness between rear combination light (LH) connector F-14 (terminal 5) 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) illuminate normally.

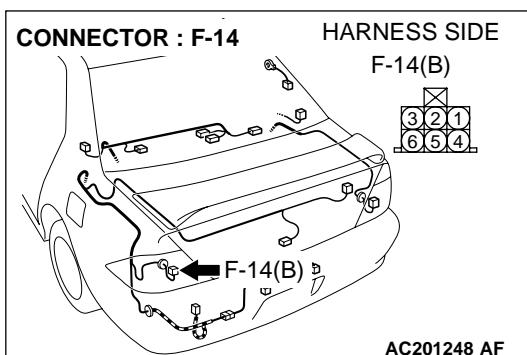


STEP 22. Check rear combination light (LH) connector F-14 and front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are rear combination light (LH) connector F-14 and front-ECU connector A-10X in good condition?

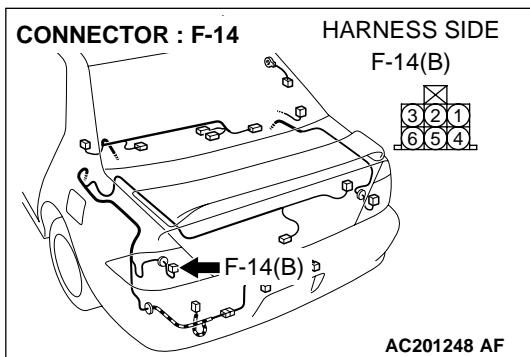
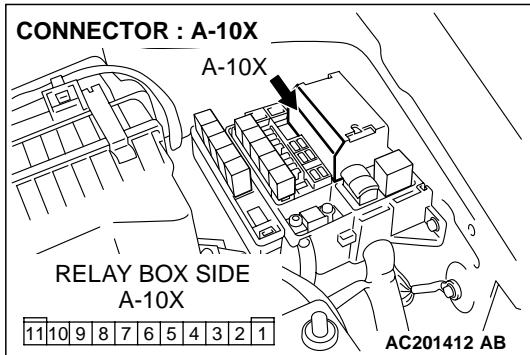
YES : Go to Step 23.

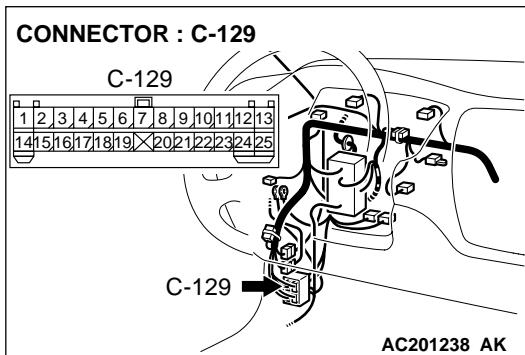
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the taillights (LH) illuminate normally.



STEP 23. Check the wiring harness between rear combination light (LH) connector F-14 (terminal 3) and front-ECU connector A-10X (terminal 8).

NOTE: Also check intermediate connector C-129, junction block connectors C-210 and C-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-129 or junction block connector C-210 or C-217 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

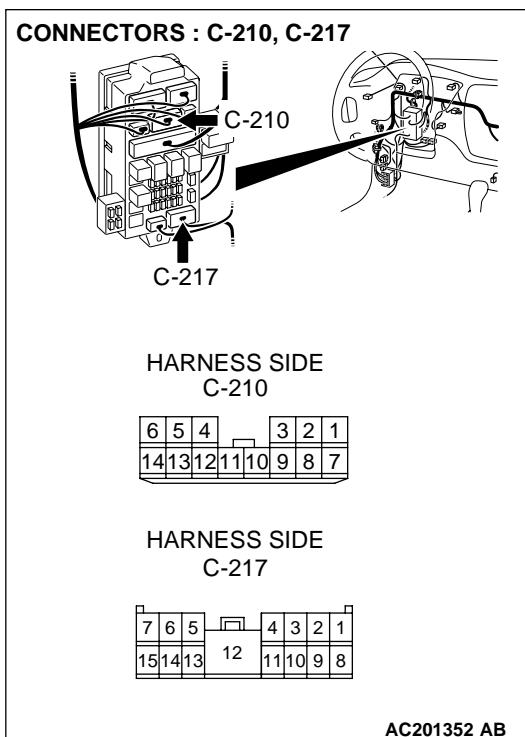




Q: Is the wiring harness between rear combination light (LH) connector F-14 (terminal 3) and front-ECU connector A-10X (terminal 8) in good condition?

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



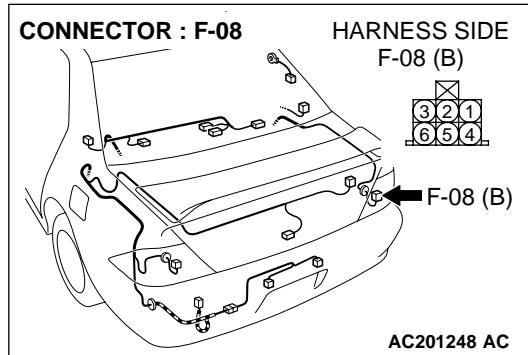
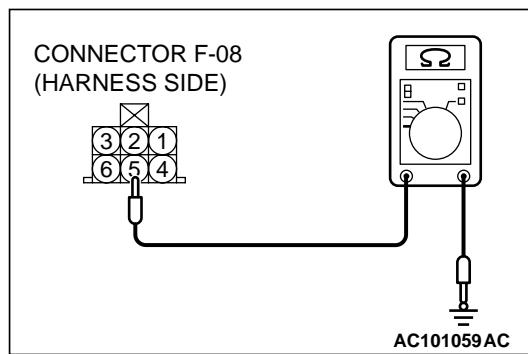
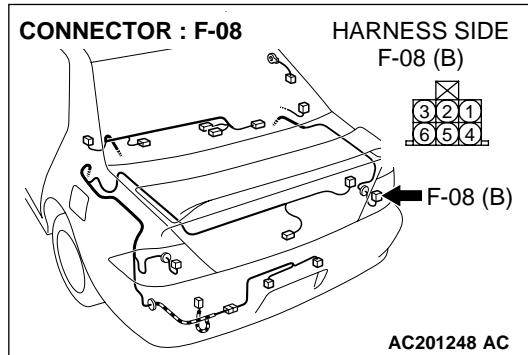
STEP 24. Check the stop/tailight bulb (RH).

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

Q: Is the stop/tailight bulb (RH) in good condition?

YES : Go to Step 25.

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



STEP 25. Check the ground circuit to the rear combination light (RH). Test at rear combination light (RH) connector F-08.

- (1) Disconnect front combination light (RH) connector F-08 and measure the resistance available at the wiring harness side of the connector.

- (2) Measure the resistance value between terminal 5 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 28.

NO : Go to Step 26.

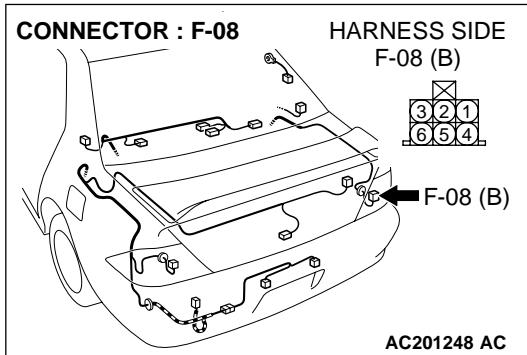
STEP 26. Check rear combination light (RH) connector F-08 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear combination light (RH) connector F-08 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 taillight (RH) illuminates normally.

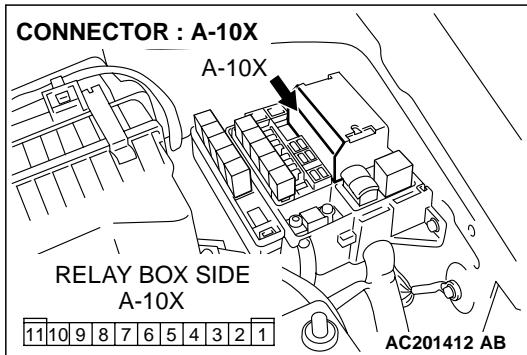


STEP 27. Check the wiring harness between rear combination light (RH) connector F-08 (terminal 5) and ground.

Q: Is the wiring harness between rear combination light (RH) connector F-08 (terminal 5) 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.

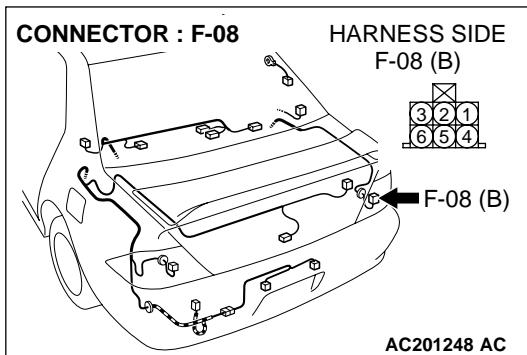


STEP 28. Check rear combination light (RH) connector F-08 and front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are rear combination light (RH) connector F-08 and front-ECU connector A-10X in good condition?

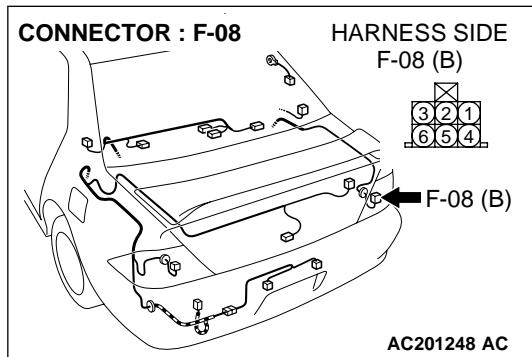
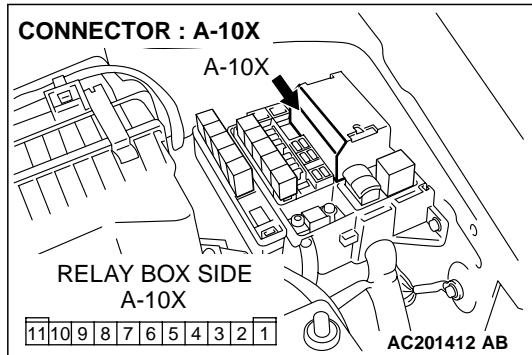
YES : Go to Step 29.

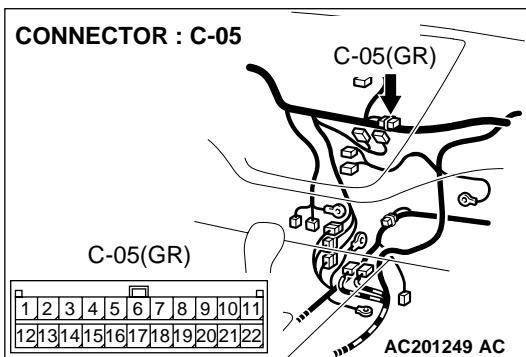
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the taillight (RH) illuminates normally.



STEP 29. Check the wiring harness between rear combination (RH) connector F-08 (terminal 3) and front-ECU connector A-10X (terminal 8).

NOTE: Also check intermediate connectors C-113, C-129 and joint connector C-05 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-113, C-129 or joint connector C-05 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

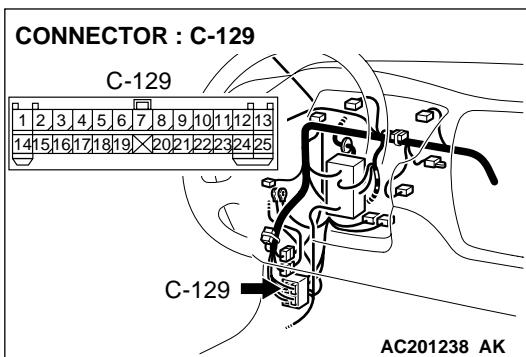
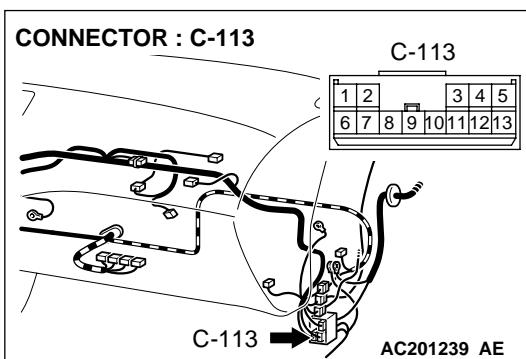


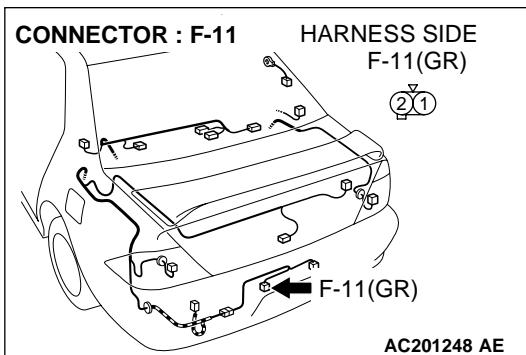
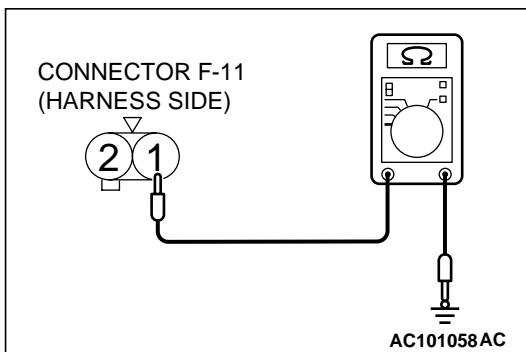
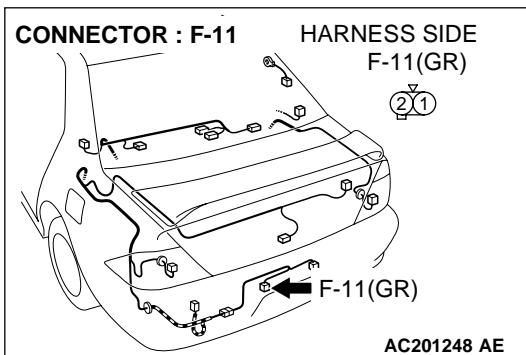


Q: Is the wiring harness between rear combination light (RH) connector F-08 (terminal 3) and front-ECU connector A-10X (terminal 8) in good condition?

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.





STEP 30. Check the ground circuit to the license plate light (LH). Test at license plate light (LH) connector F-11.

(1) Disconnect license plate light (LH) connector F-11 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 33.

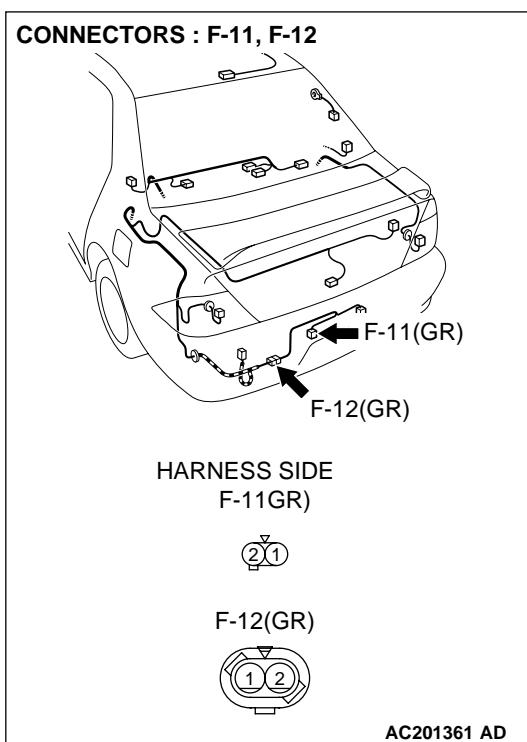
NO : Go to Step 31.

STEP 31. Check license plate light (LH) connector F-11 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is license plate light (LH) connector F-11 in good condition?

YES : Go to Step 32.

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.



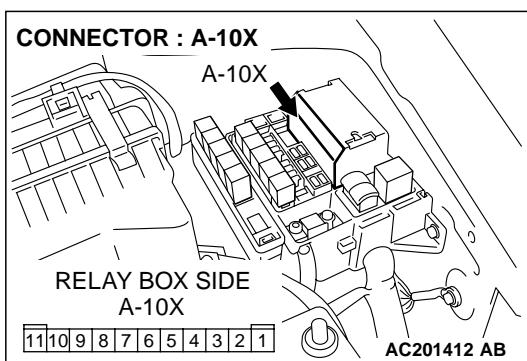
STEP 32. Check the wiring harness between license plate light (LH) connector F-11 (terminal 1) and ground.

NOTE: Also check intermediate connector F-12 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-12 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 (LH) connector F-11 (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.

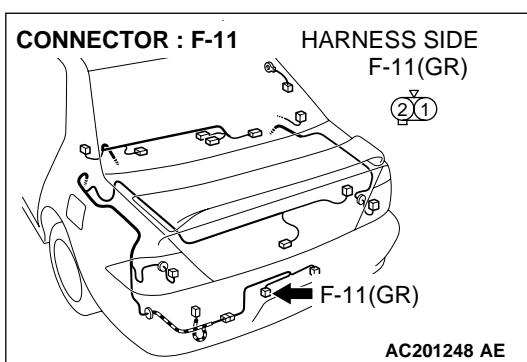


STEP 33. Check license plate light (LH) connector F-11 and front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are license plate light (LH) connector F-11 and front-ECU connector A-10X in good condition?

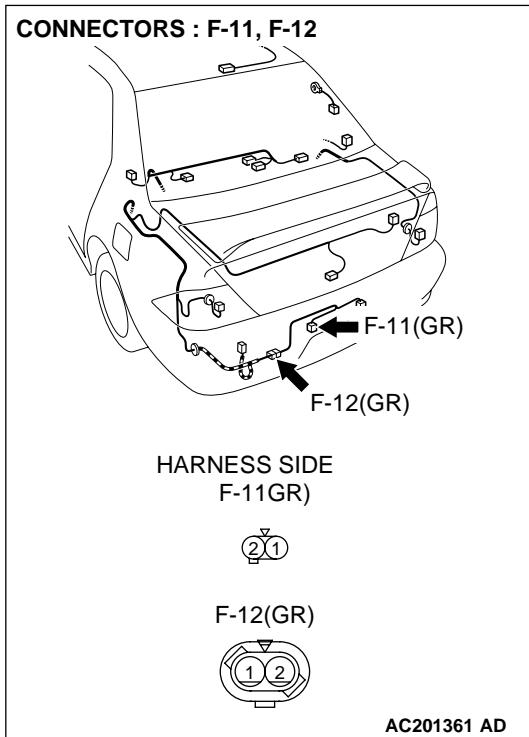
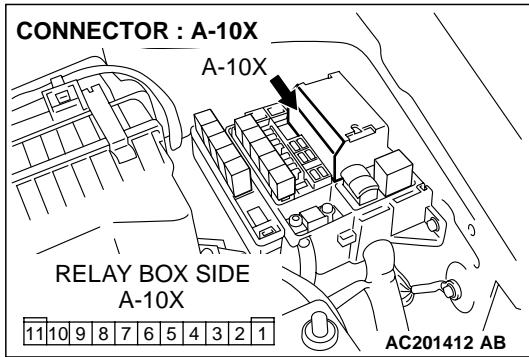
YES : Go to Step 34.

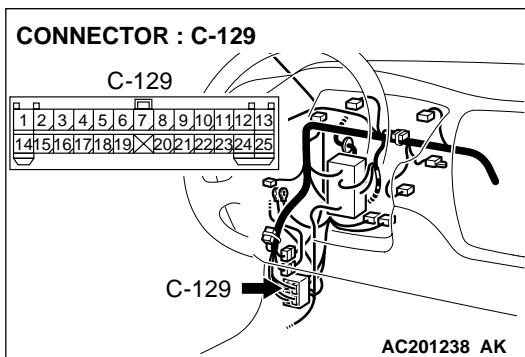
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the license plate lights illuminate normally.



STEP 34. Check the wiring harness between license plate light (LH) connector F-11 (terminal 2) and front-ECU connector A-10X (terminal 8).

NOTE: Also check intermediate connectors C-129, F-12, junction block connectors C-210 and C-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-129, F-12, junction block connector C-210 or C-217 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

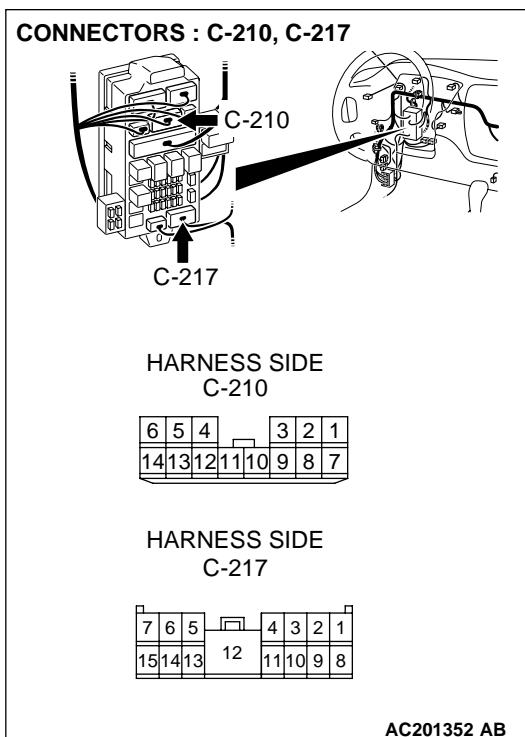




Q: Is the wiring harness between license plate light (LH) connector F-11 (terminal 2) and front-ECU connector A-10X (terminal 8) in good condition?

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.



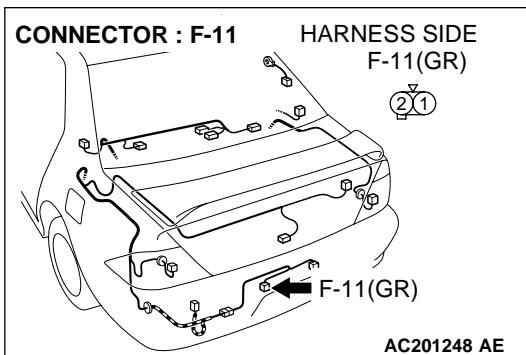
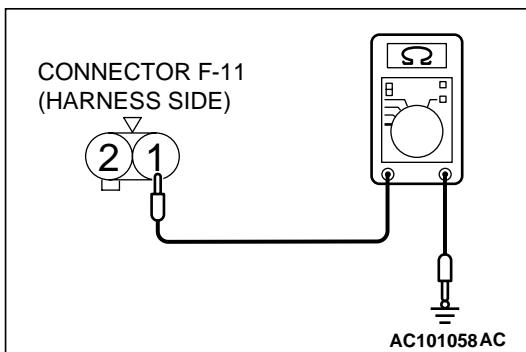
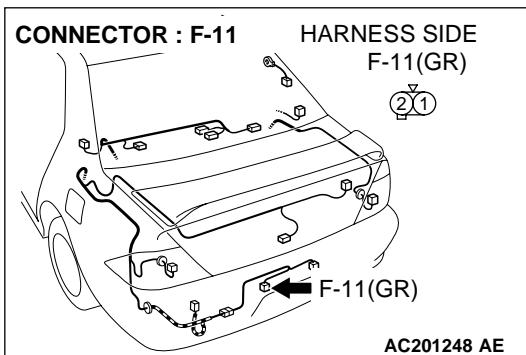
STEP 35. Check the license plate light bulb (LH).

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

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

YES : Go to Step 36.

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



STEP 36. Check the ground circuit to the license plate light (LH). Test at license plate light (LH) connector F-11.

- (1) Disconnect license plate light (LH) connector F-11 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 39.

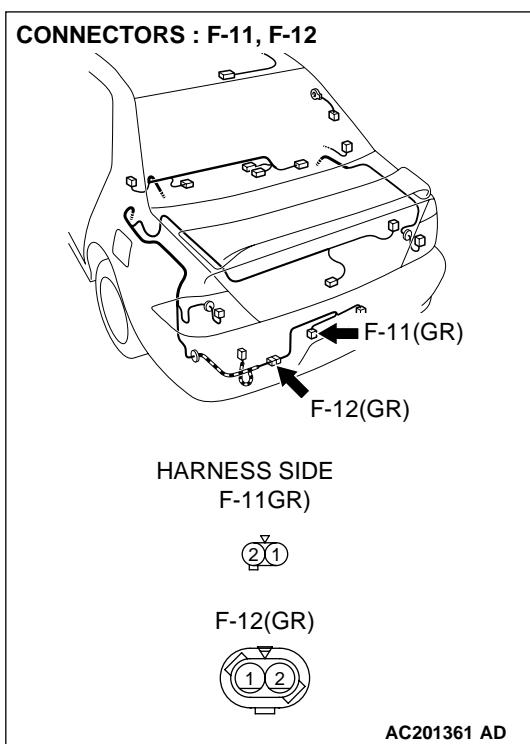
NO : Go to Step 37.

STEP 37. Check license plate light (LH) connector F-11 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is license plate light (LH) connector F-11 in good condition?

YES : Go to Step 38.

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



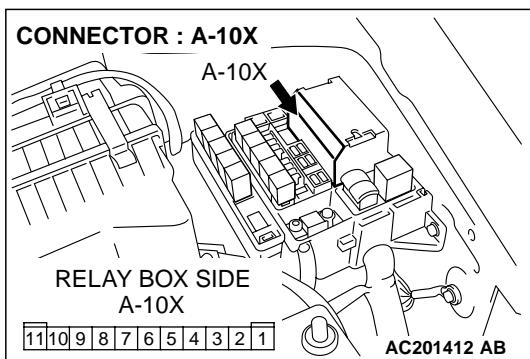
STEP 38. Check the wiring harness between license plate light (LH) connector F-11 (terminal 1) and ground.

NOTE: Also check intermediate connector F-12 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-12 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 (LH) connector F-11 (terminal 1) and ground in good condition?

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

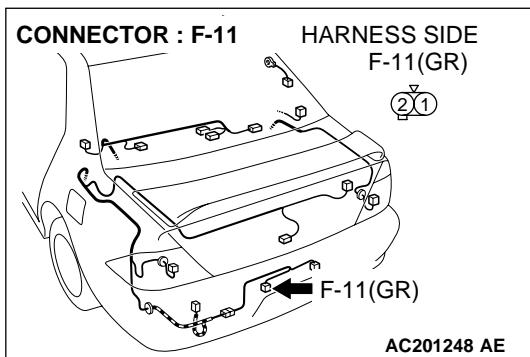


STEP 39. Check license plate light (LH) connector F-11 and front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are license plate light (LH) connector F-11 and front-ECU connector A-10X in good condition?

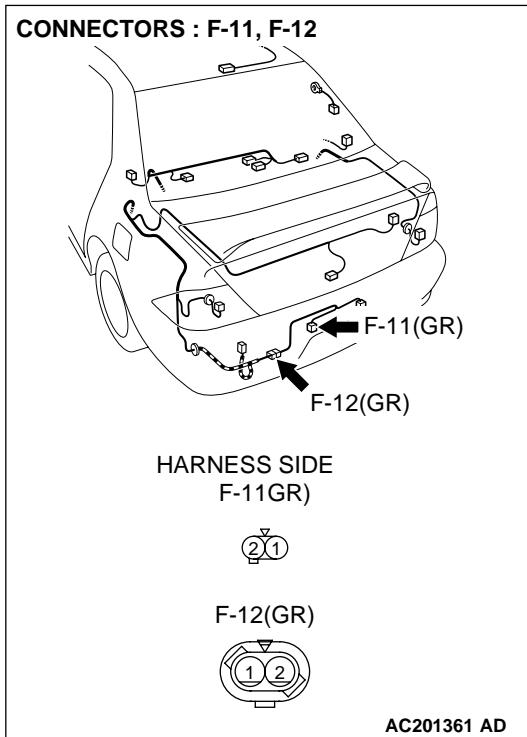
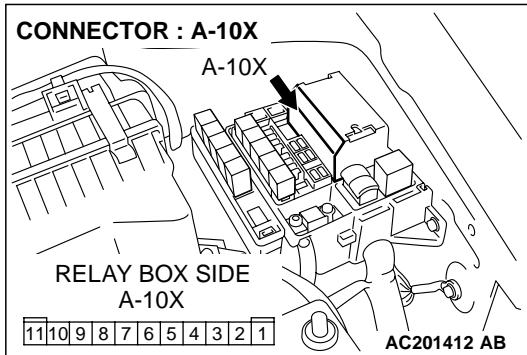
YES : Go to Step 40.

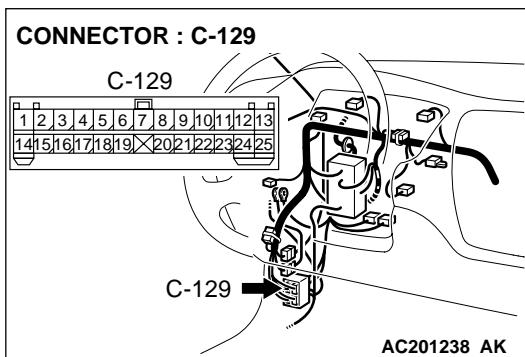
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the license plate lights (LH) illuminate normally.



STEP 40. Check the wiring harness between license plate light (LH) connector F-11 (terminal 2) and front-ECU connector A-10X (terminal 8).

NOTE: Also check intermediate connectors C-129, F-12, junction block connectors C-210 and C-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-129, F-12, junction block connector C-210 or C-217 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

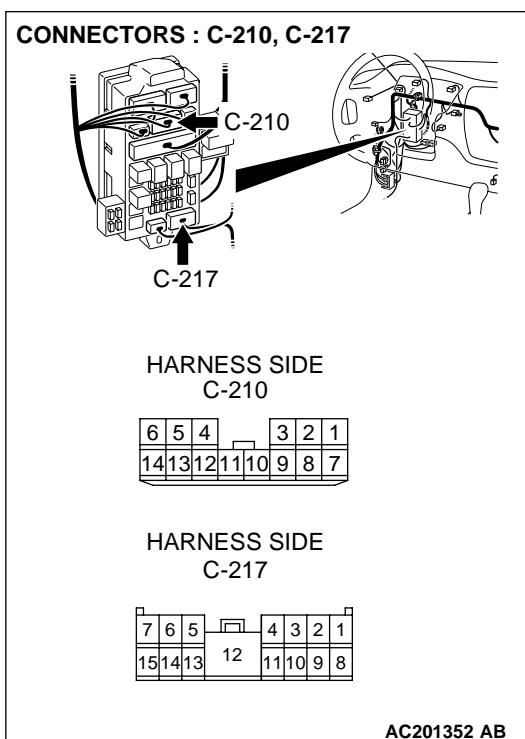




Q: Is the wiring harness between license plate light (LH) connector F-11 (terminal 2) and front-ECU connector A-10X (terminal 8) in good condition?

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



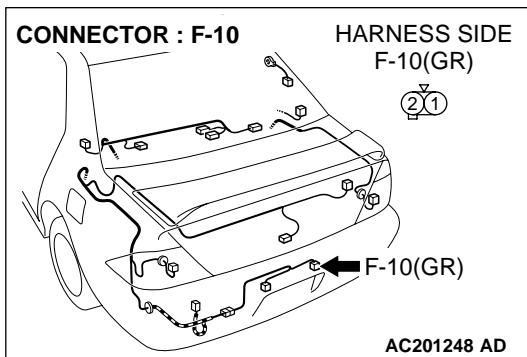
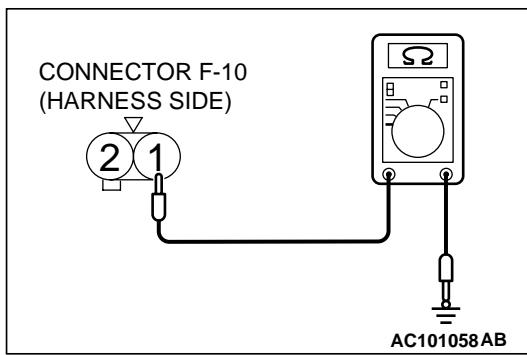
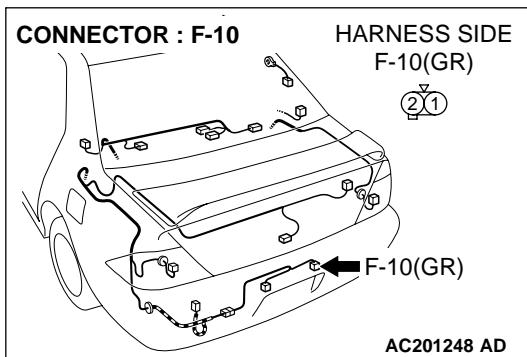
STEP 41. Check the license plate light bulb (RH).

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

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

YES : Go to Step 42.

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



STEP 42. Check the ground circuit to the license plate light (RH). Test at license plate light (RH) connector F-10.

(1) Disconnect license plate light (RH) connector F-10 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 45.

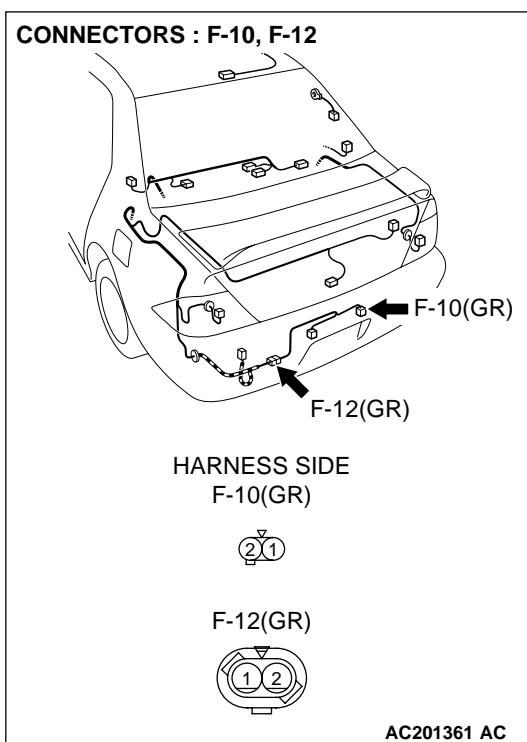
NO : Go to Step 43.

STEP 43. Check license plate light (RH) connector F-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is license plate light (RH) connector F-10 in good condition?

YES : Go to Step 44.

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



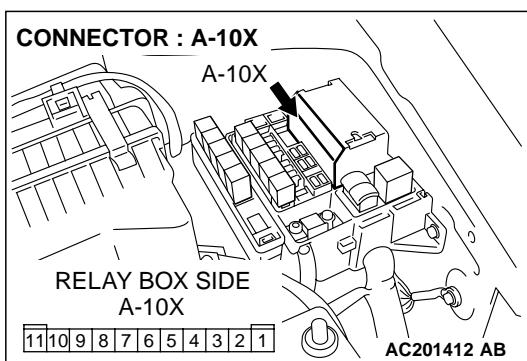
STEP 44. Check the wiring harness between license plate light (RH) connector F-10 (terminal 1) and ground.

NOTE: Also check intermediate connector F-12 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-12 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 (RH) connector F-10 (terminal 1) and ground in good condition?

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

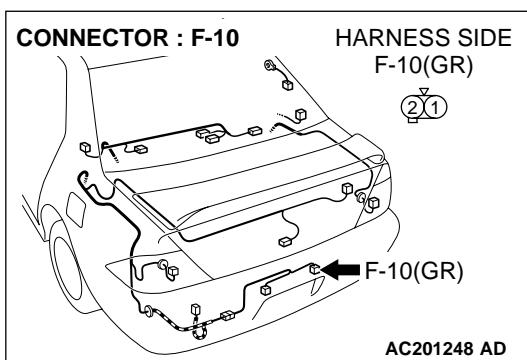


STEP 45. Check license plate light (RH) connector F-10 and front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are license plate light (RH) connector F-10 and front-ECU connector A-10X in good condition?

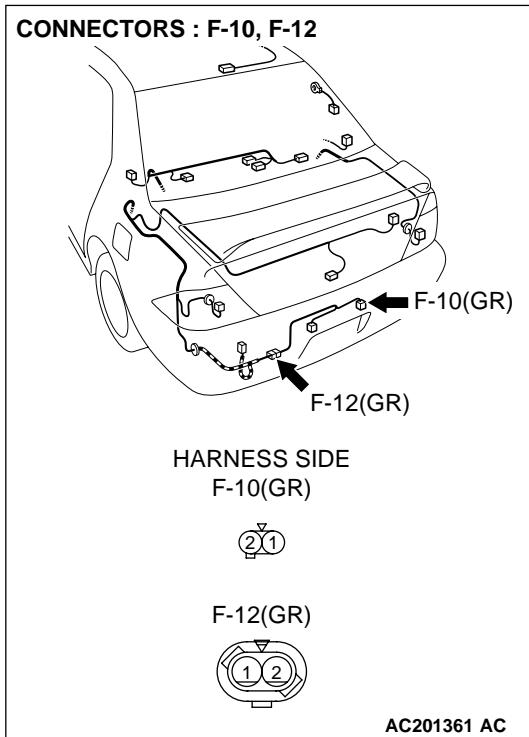
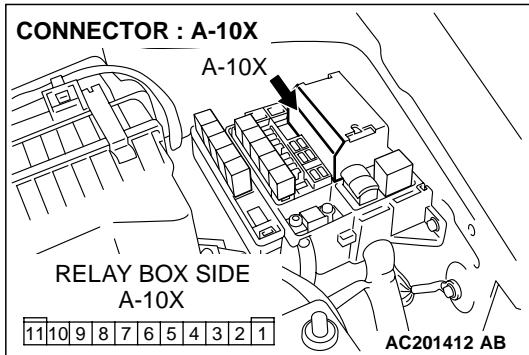
YES : Go to Step 46.

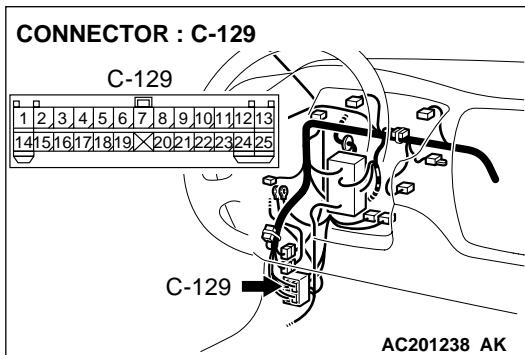
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the license plate lights (RH) illuminate normally.



STEP 46. Check the wiring harness between license plate light (RH) connector F-10 (terminal 2) and front-ECU connector A-10X (terminal 8).

NOTE: Also check intermediate connectors C-129, F-12, junction block connectors C-210 and C-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-129, F-12, junction block connector C-210 or C-217 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

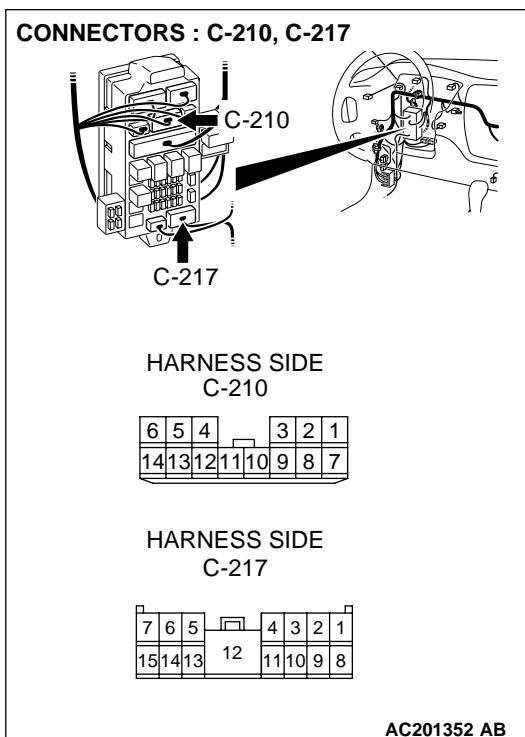




Q: Is the wiring harness between license plate light (RH) connector F-10 (terminal 2) and front-ECU connector A-10X (terminal 8) in good condition?

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



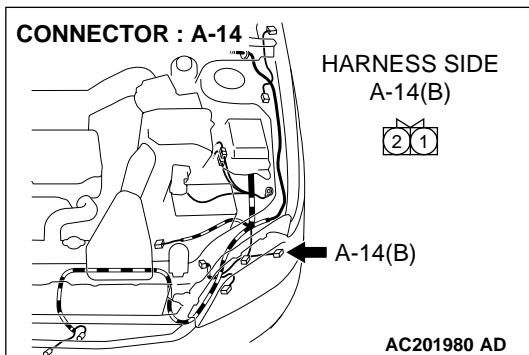
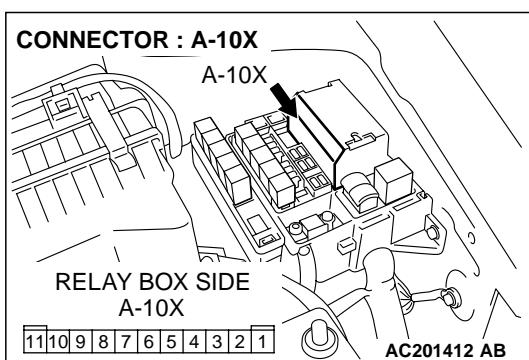
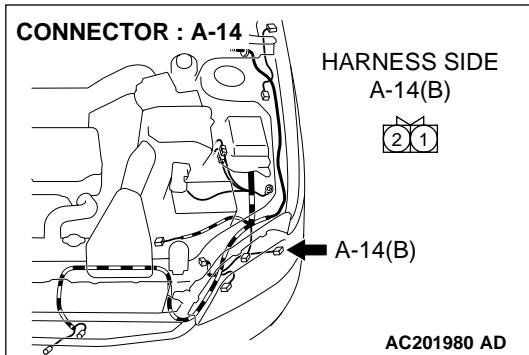
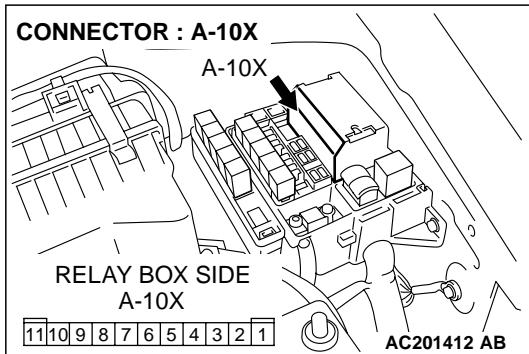
STEP 47. Check position light (LH) connector A-14 and front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are position light (LH) connector A-14 and front-ECU connector A-10X in good condition?

YES : Go to Step 48.

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

P.00E-2. Verify that the position light (LH), taillight (LH), license plate light illuminates normally.



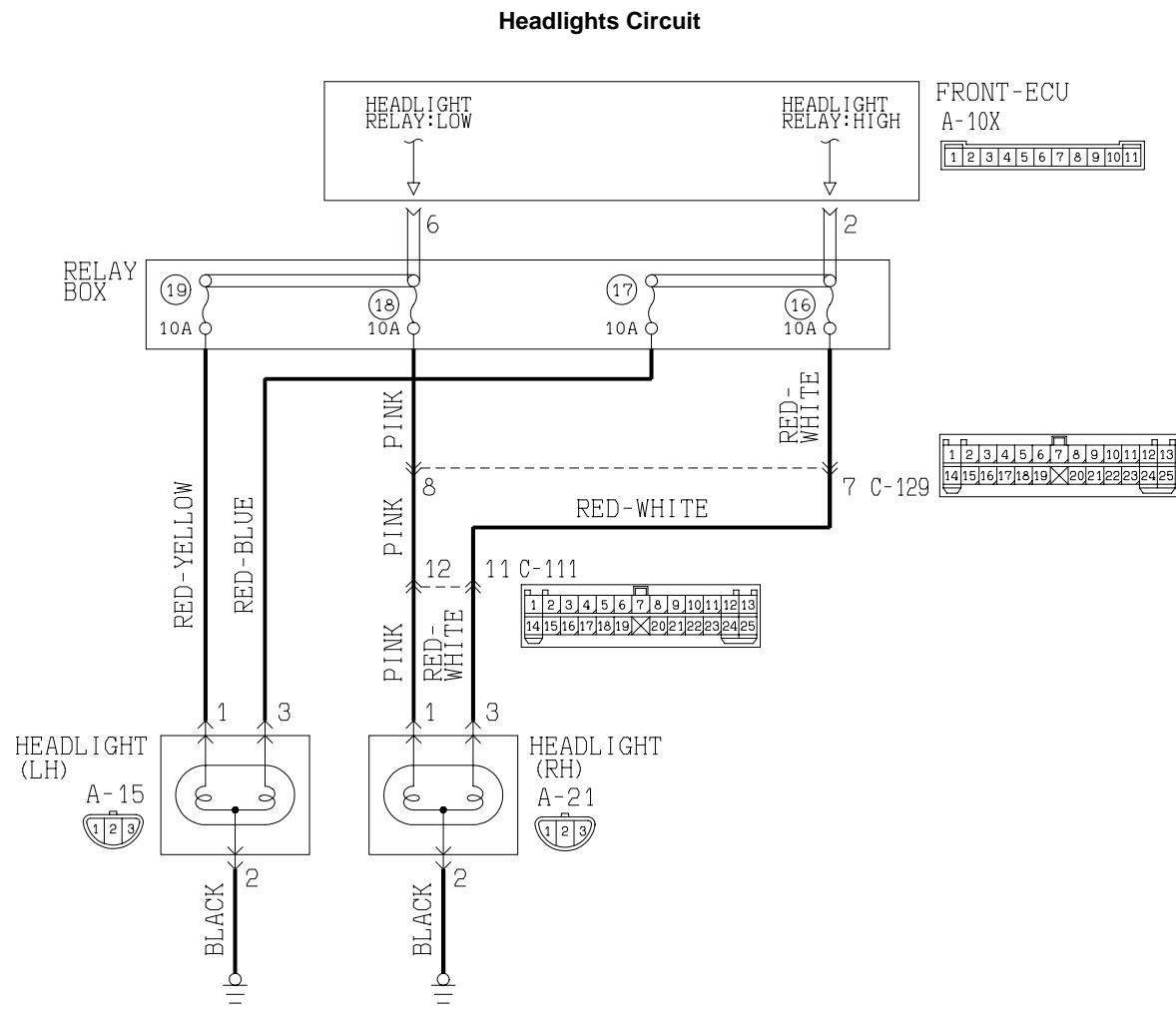
STEP 48. Check the wiring harness between position light (LH) connector A-14 (terminal 2) and front-ECU connector A-10X (terminal 8).

Q: Is the wiring harness between position light (LH) connector A-14 (terminal 2) and front-ECU connector A-10X (terminal 8) in good condition?

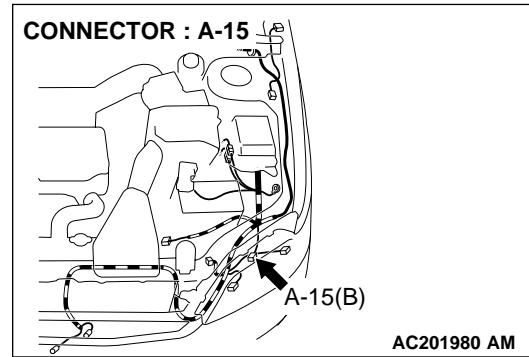
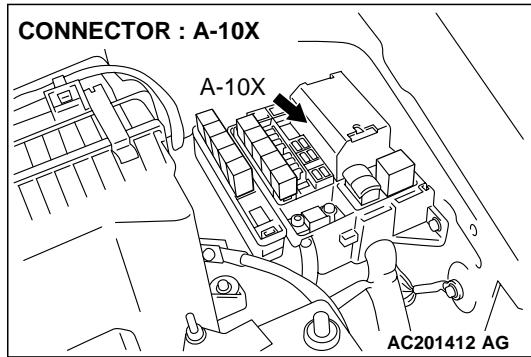
YES : No action is necessary and testing is complete.

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), taillight (LH), license plate light illuminates normally.

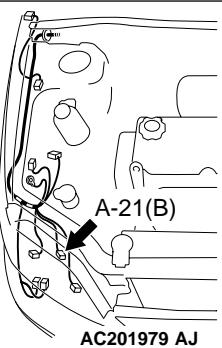
INSPECTION PROCEDURE J-7: Headlight and Taillight: One of the headlights does not illuminate.



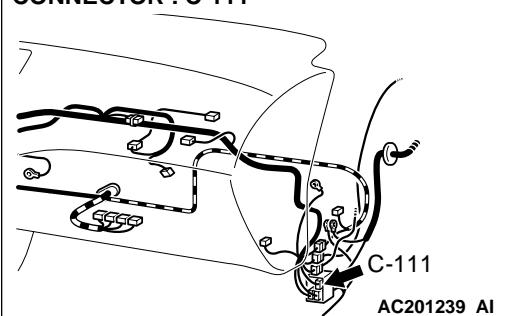
W3J01M15AA



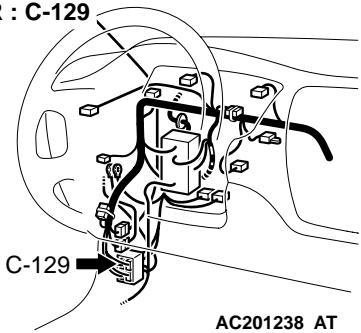
CONNECTOR : A-21



CONNECTOR : C-111



CONNECTOR : C-129

**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: 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.54Bb-278](#)."

High beam (both RH and LH) and high-beam indicator light : Refer to Inspection Procedure J-3 "Headlights (high-beam) do not illuminate [P.54Bb-282](#)."

Only high-beam indicator light : Refer to Inspection Procedure J-8 "The high-beam indicator light does not illuminate [P.54Bb-334](#)."

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.

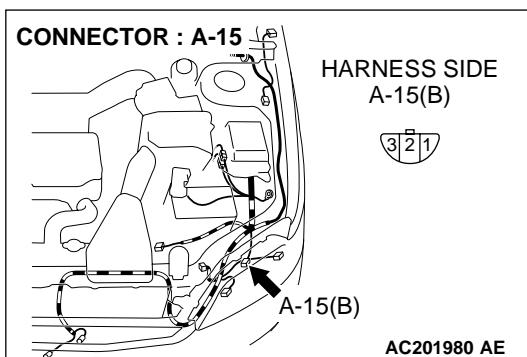
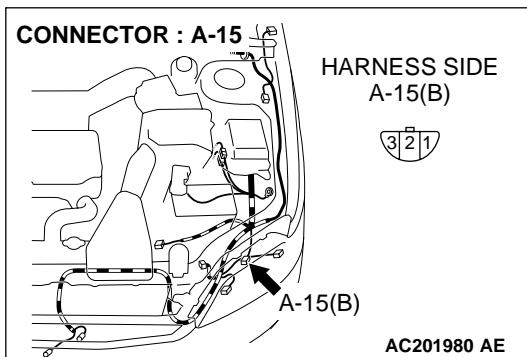
NO : Replace the headlight (LH) bulb. Verify that the headlights illuminate normally.

STEP 3. Check headlight (LH) connector A-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is headlight (LH) connector A-15 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-15 (terminal 2) and ground.

Q: Is the wiring harness between headlight (LH) connector A-15 (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.

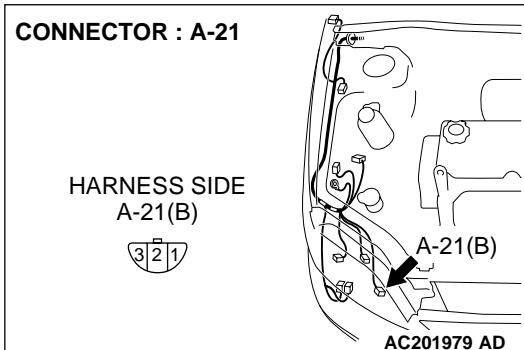
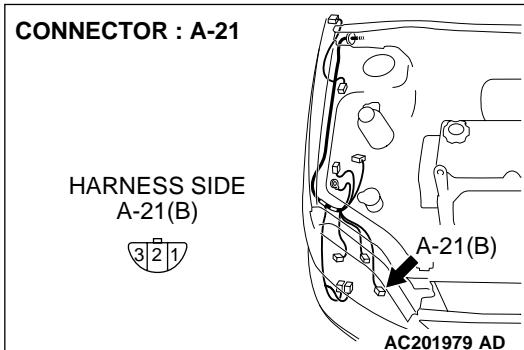
STEP 5. Check headlight (RH) bulb.

- (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-21 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is headlight (RH) connector A-21 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-21 (terminal 2) and ground.

Q: Is the wiring harness between headlight (RH) 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 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.

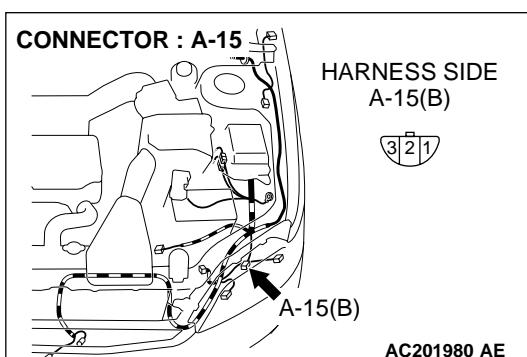
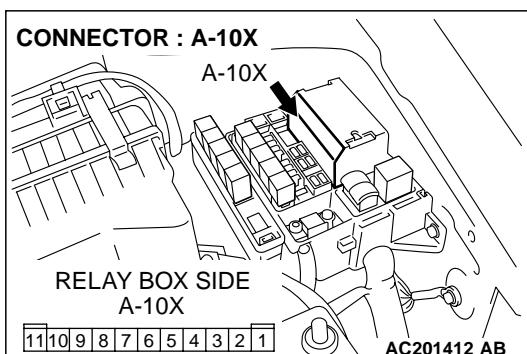
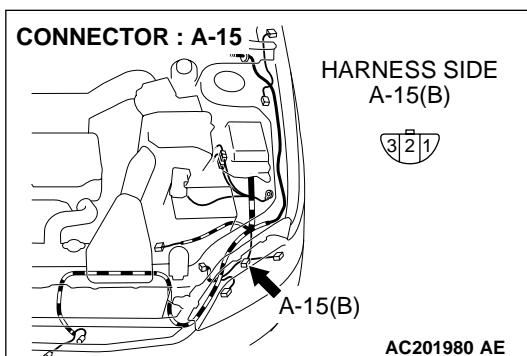
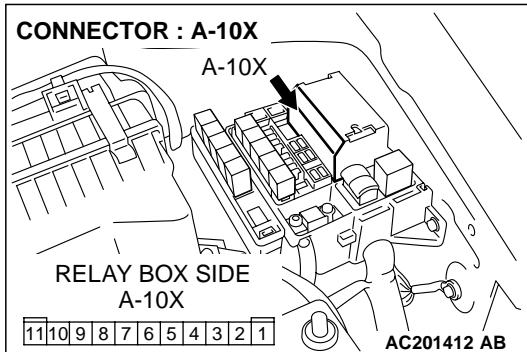
STEP 9. Check headlight (LH) connector A-15 and front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are headlight (LH) connector A-15 and front-ECU connector A-10X 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-15 (terminal 1) and front-ECU connector A-10X (terminal 6).

Q: Is the wiring harness between headlight (LH) connector A-15 (terminal 1) and front-ECU connector A-10X (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.

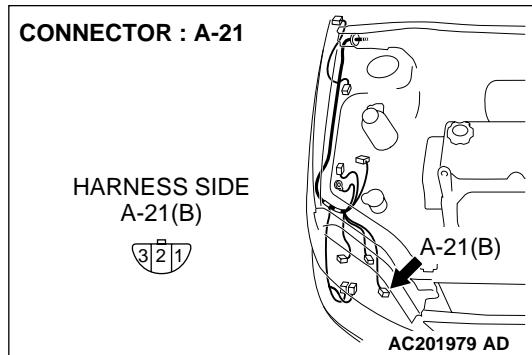
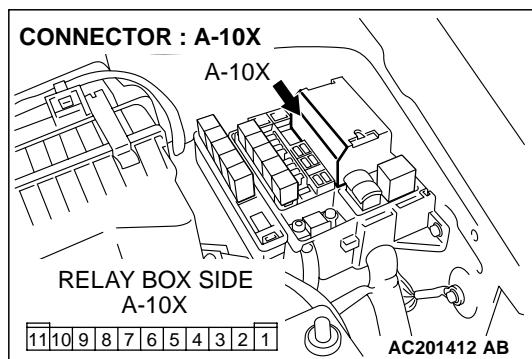
NO : Replace the headlight (RH) bulb. Verify that the headlights illuminate normally.

STEP 12. Check headlight (RH) connector A-21 and front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are headlight (RH) connector A-21 and front-ECU connector A-10X in good condition?

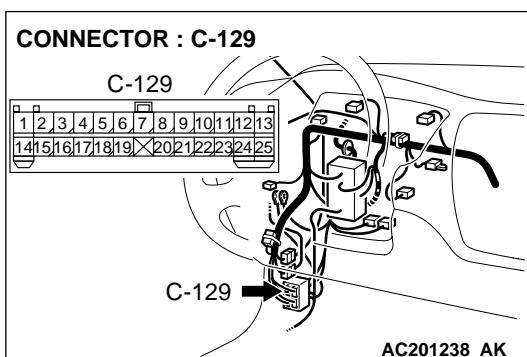
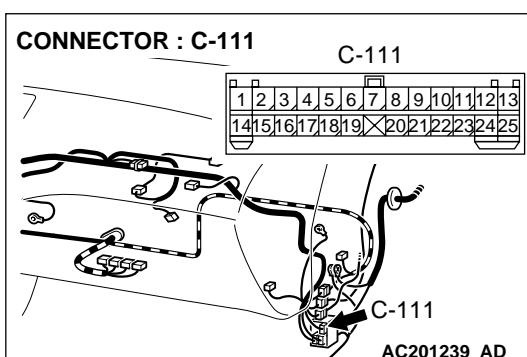
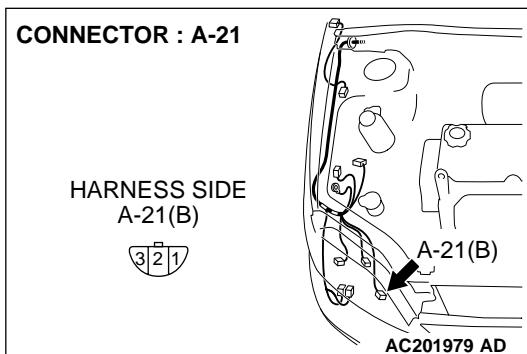
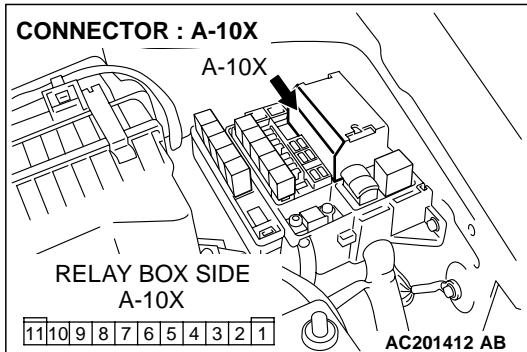
YES : Go to Step 13.

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-21 (terminal 1) and front-ECU connector A-10X (terminal 6).

NOTE: Also check intermediate connectors C-111 and C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-111 or C-129 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 (RH) connector A-21 (terminal 1) and front-ECU connector A-10X (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.

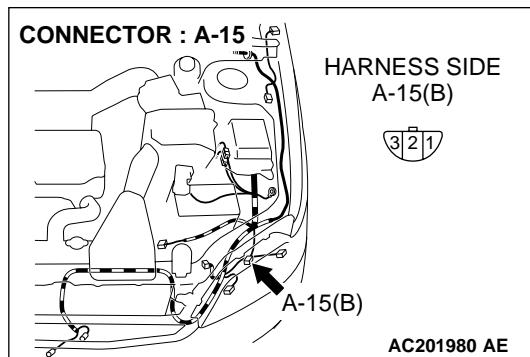
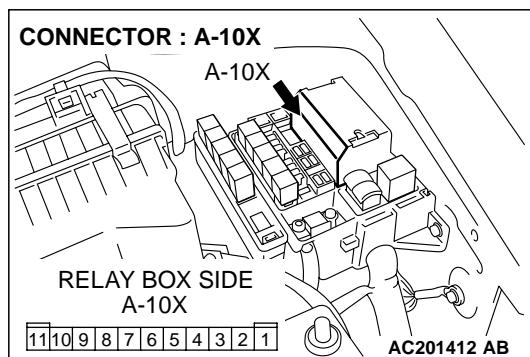
NO : Replace the headlight (LH) bulb. Verify that the headlights illuminate normally.

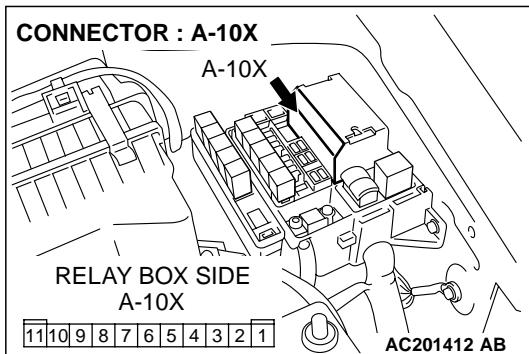
STEP 15. Check headlight (LH) connector A-15 and front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are headlight (LH) connector A-15 and front-ECU connector A-10X 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.



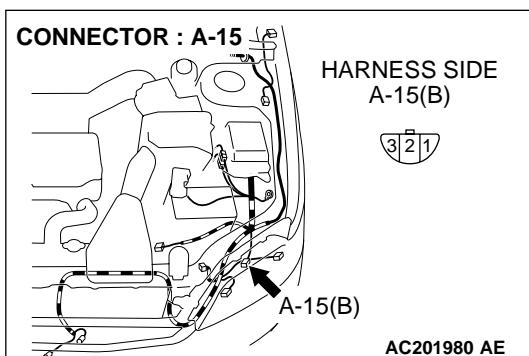


STEP 16. Check the wiring harness between headlight (LH) connector A-15 (terminal 3) and front-ECU connector A-10X (terminal 2).

Q: Is the wiring harness between headlight (LH) connector A-15 (terminal 3) and front-ECU connector A-10X (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.

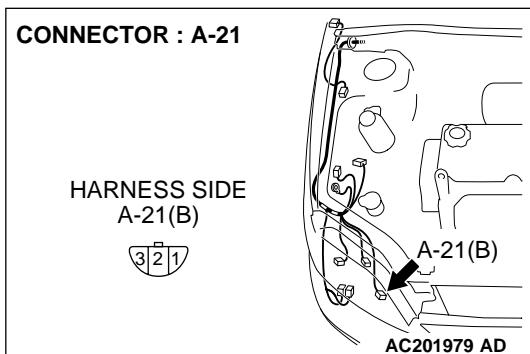
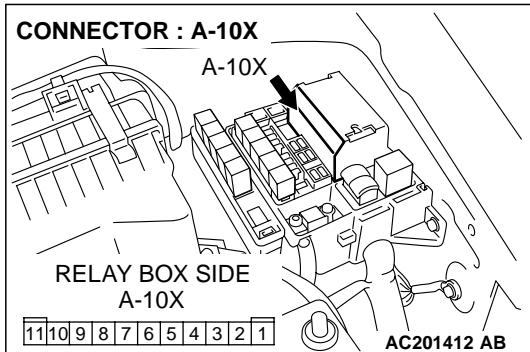
NO : Replace the headlight (RH) bulb. Verify that the headlights illuminate normally.

STEP 18. Check headlight (RH) connector A-21 and front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are headlight (RH) connector A-21 and front-ECU connector A-10X in good condition?

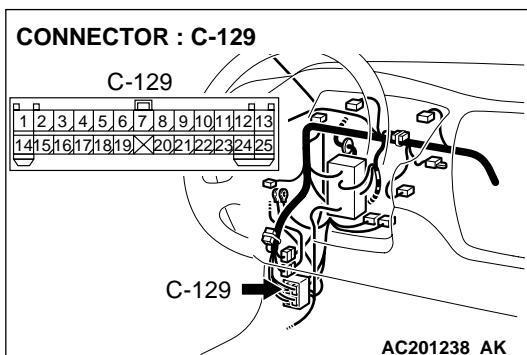
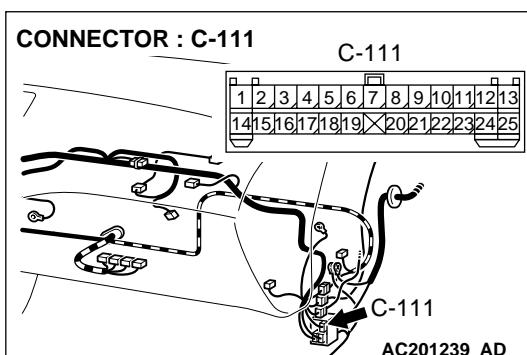
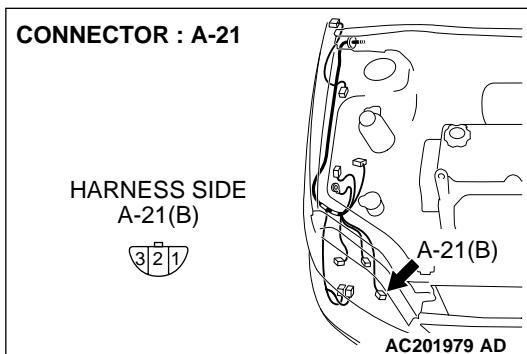
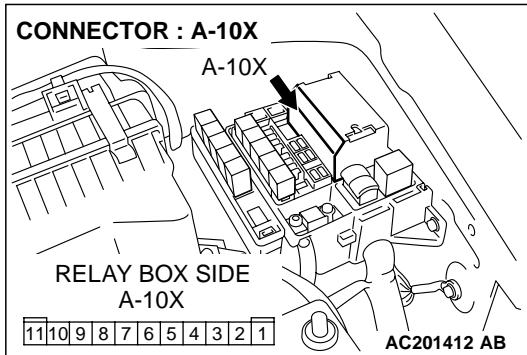
YES : Go to Step 19.

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-21 (terminal 3) and front-ECU connector A-10X (terminal 2).

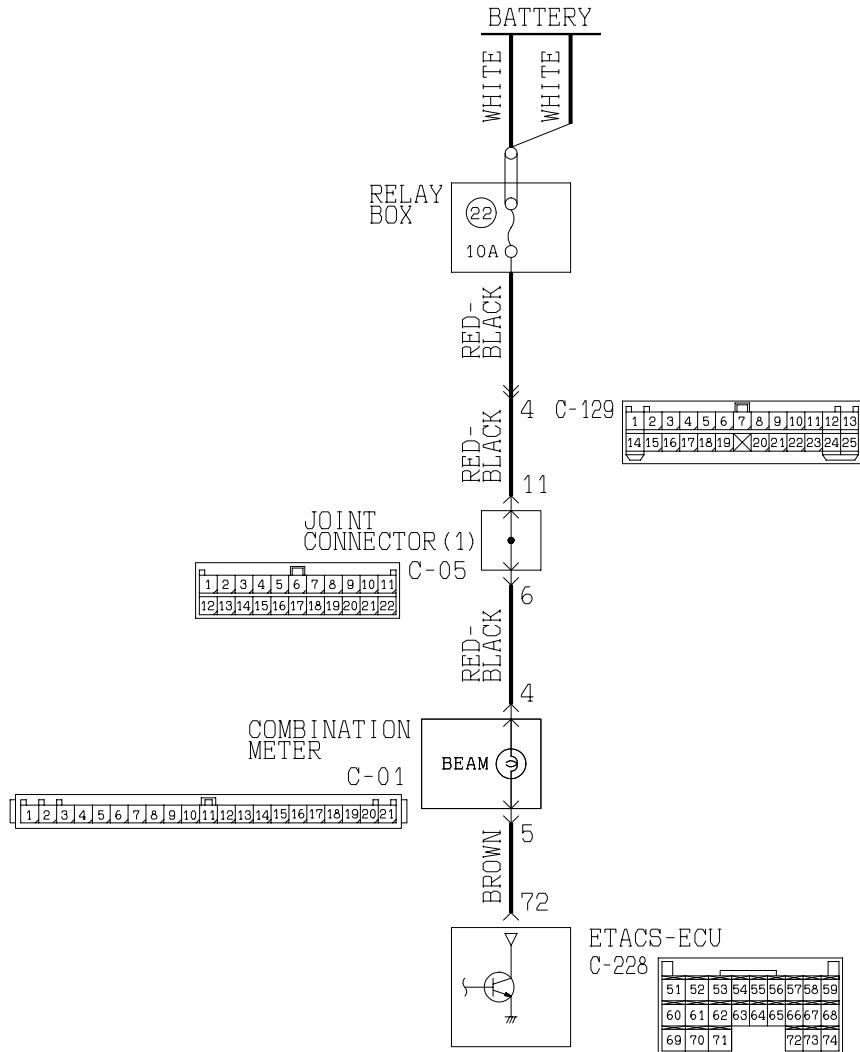
NOTE: Also check intermediate connectors C-111 and C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-111 or C-129 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.



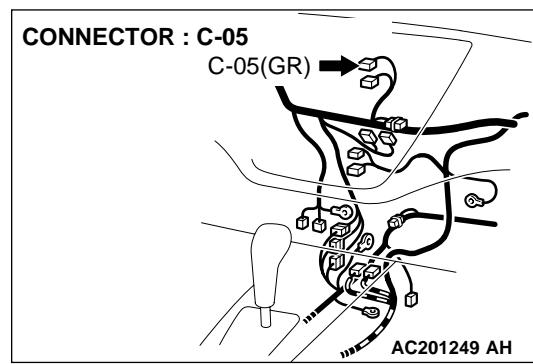
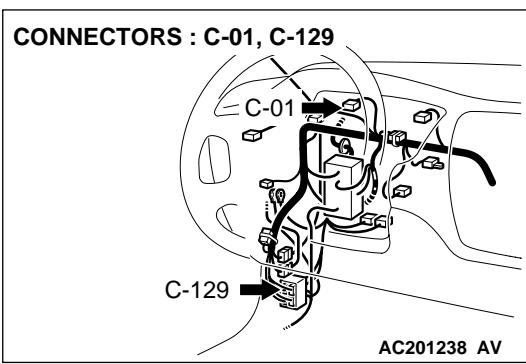
Q: Is the wiring harness between headlight (RH) connector A-21 (terminal 3) and front-ECU connector A-10X (terminal 2) in good condition?

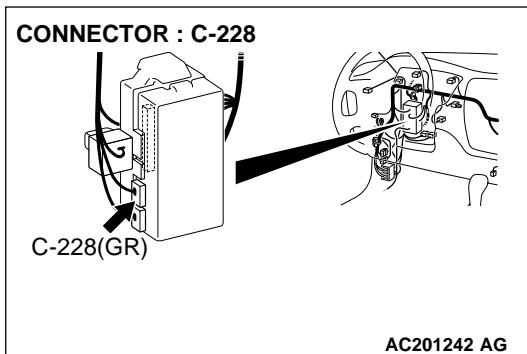
YES : No action is necessary and testing is complete.

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**

W3J01M16AA





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 Tools:

- MB991223: Harness Set

STEP1. Verify the headlight operation.

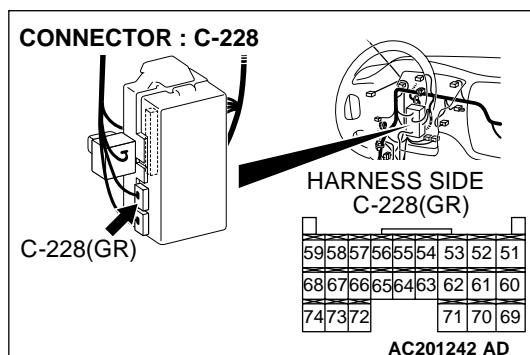
Q: Do the headlights illuminate?

YES : Go to Step 2

NO : Repair the headlights first (Refer to [P.54Bb-2](#)).

STEP 2. Check at ETACS-ECU connector C-228 in order to check the high-beam indicator light circuit.

- (1) Disconnect ETACS-ECU connector C-228, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.

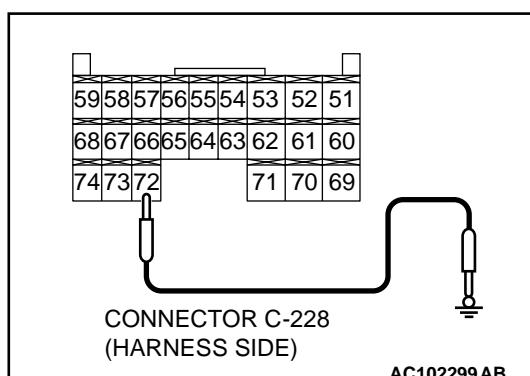


(3) Connect terminal 72 to ground.

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 3



STEP 3. 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 4

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

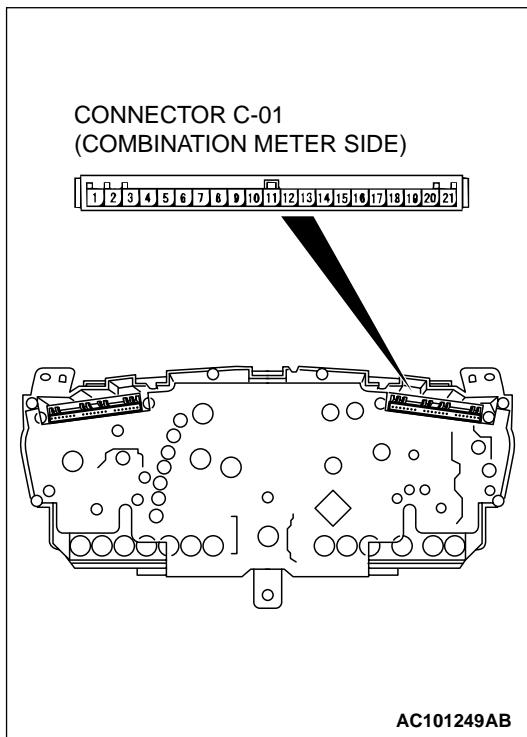
STEP 4. Check the combination meter (printed-circuit board).

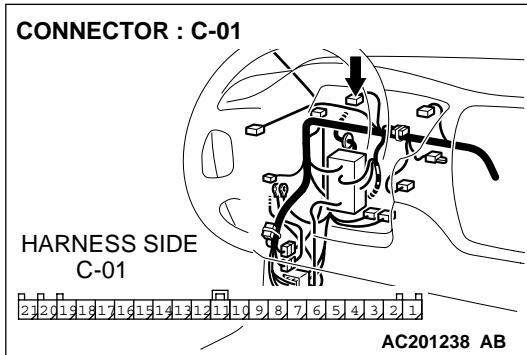
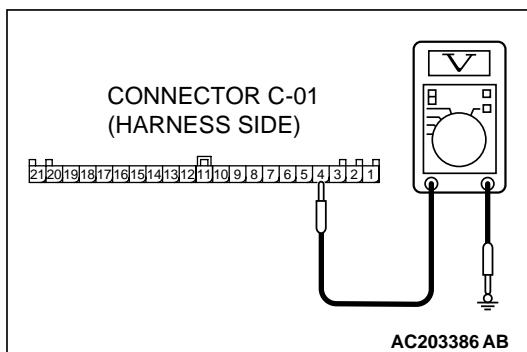
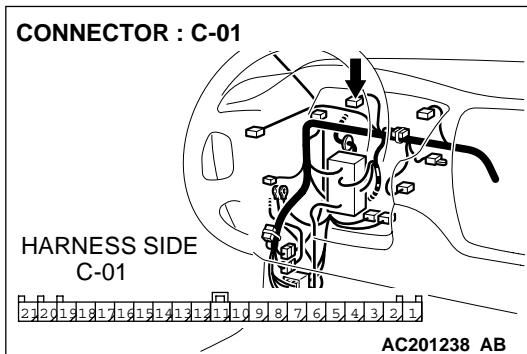
- (1) Remove the combination meter.
- (2) Remove the high-beam indicator light bulb. Then measure the resistance value between the bulb terminals.
- (3) Install the bulb to the combination meter, and then measure the resistance value between connector C-01 terminals 4 and 5. The measured resistance value 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 5





STEP 5. Check the battery power supply circuit to the combination meter. Test at combination meter connector C-01.

(1) Disconnect combination meter connector C-01 and measure the voltage available at the wiring component side of the connector.

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

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

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

YES : Go to Step 8.

NO : Go to Step 6.

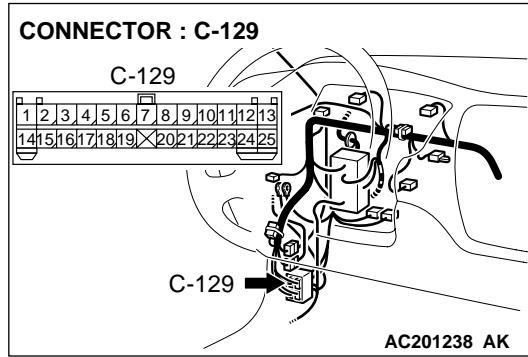
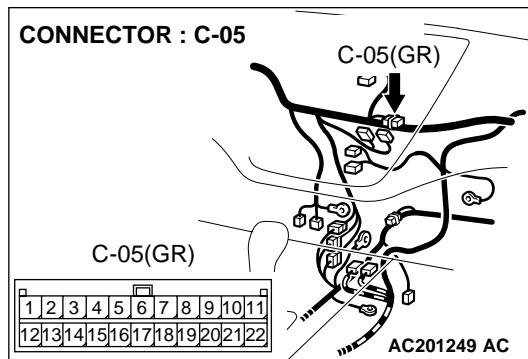
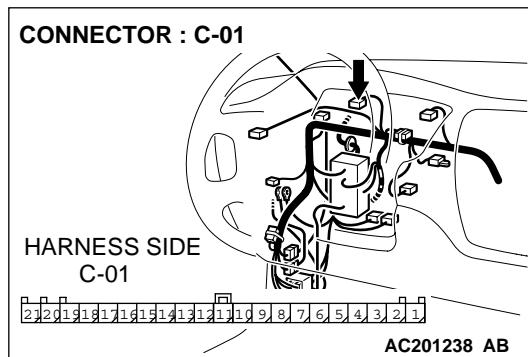
STEP 6. Check combination meter connector C-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-01 in good condition?

YES : Go to Step 7.

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

P.00E-2. Verify that the high-beam indicator light illuminates normally.



STEP 7. Check the wiring harness between combination meter connector C-01 (terminal 4) and the battery.

NOTE: Also check joint connector C-05 and intermediate connector C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-05 or intermediate connectors C-129 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector C-01 (terminal 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 high-beam indicator light illuminates normally.

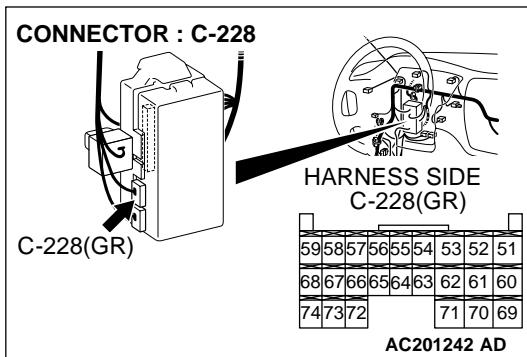
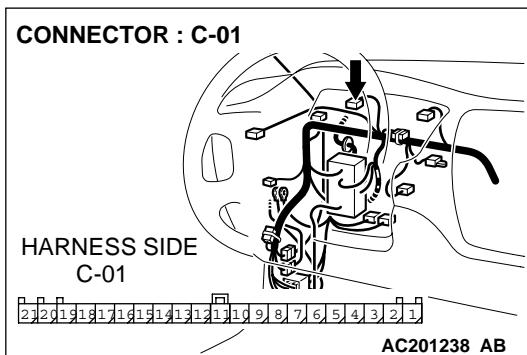
STEP 8. Check combination meter connector C-01 and ETACS-ECU connector C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are combination meter connector C-01 and ETACS-ECU connector C-228 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 high-beam indicator light illuminates normally.

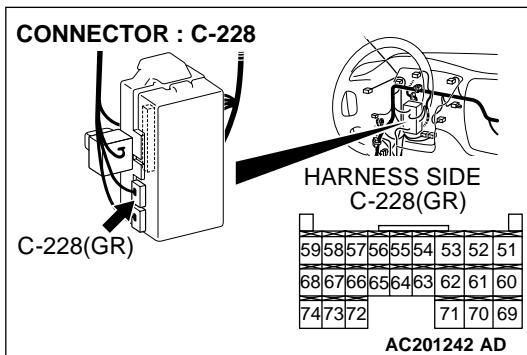
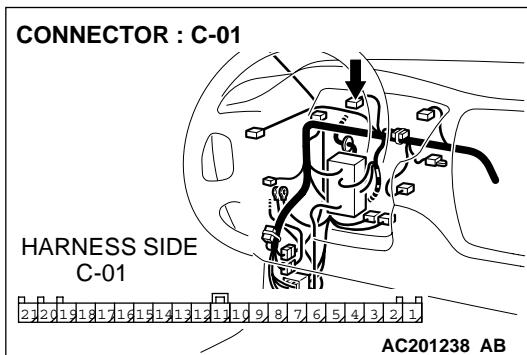


STEP 9. Check the wiring harness between combination meter connector C-01 (terminal 5) and ETACS-ECU connector C-228 (terminal 72).

Q: Is the wiring harness between combination meter connector C-01 (terminal 5) and ETACS-ECU connector C-228 (terminal 72) in good condition?

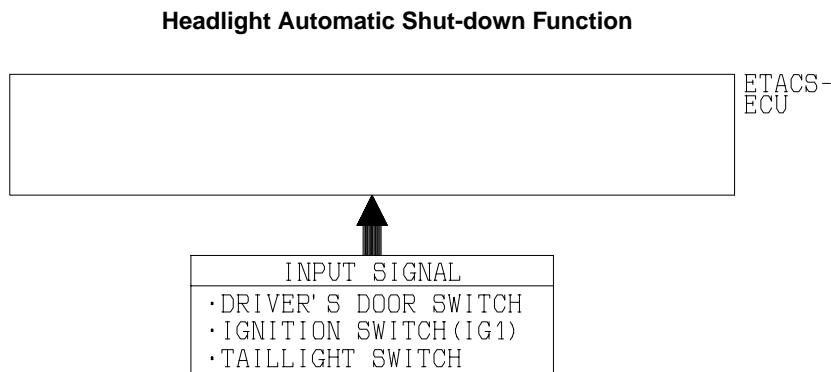
YES : No action is necessary and testing is complete.

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 MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."



W2J08M62AB

CIRCUIT OPERATION

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

- Ignition switch (IG1)
- Driver's door switch
- Tail light 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 (turn-signal light and lighting 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Verify the configuration function.

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 been by means of the adjustment function. Refer to P.54Ba-23.

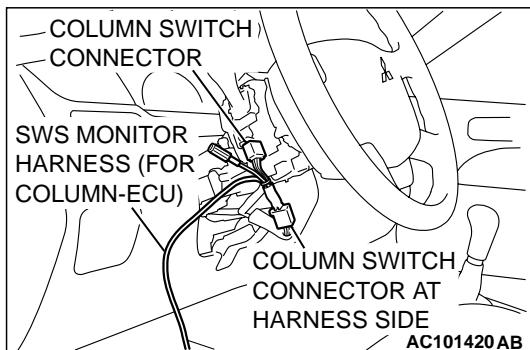
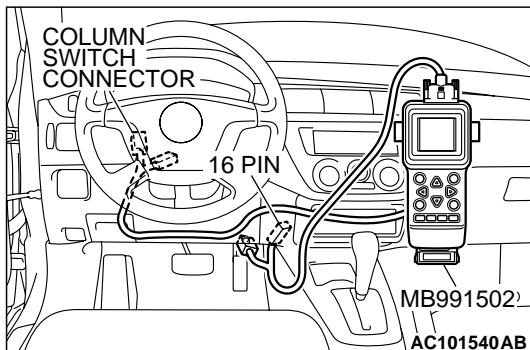
STEP 2. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

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 MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.



- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate scan tool MB991502 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."

- (4) 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

- (5) 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"?

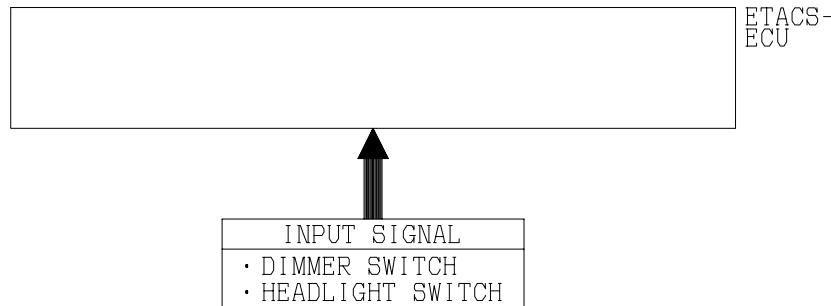
YES : Replace the front-ECU. Verify that the headlight automatic shutdown function now works normally.

- NO :**
- Normal condition is not displayed on the "TAIL LIGHT SW": Refer to Inspection Procedure M-5 "ETACS-ECU does not receive a signal from the taillight switch [P.54Bc-32](#)."
 - Normal condition is not displayed on the "IG SW (IG1)": Refer to Inspection Procedure M-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) [P.54Bc-6](#)."

- Normal condition is not displayed on the "FRONT DOOR SW": Refer to Inspection Procedure M-4 "ETACS-ECU does not receive a signal from the driver's or the front passenger's door switch P.54Bc-24."
- 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.

Headlight (Dimmer/Passing) Input Signal



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

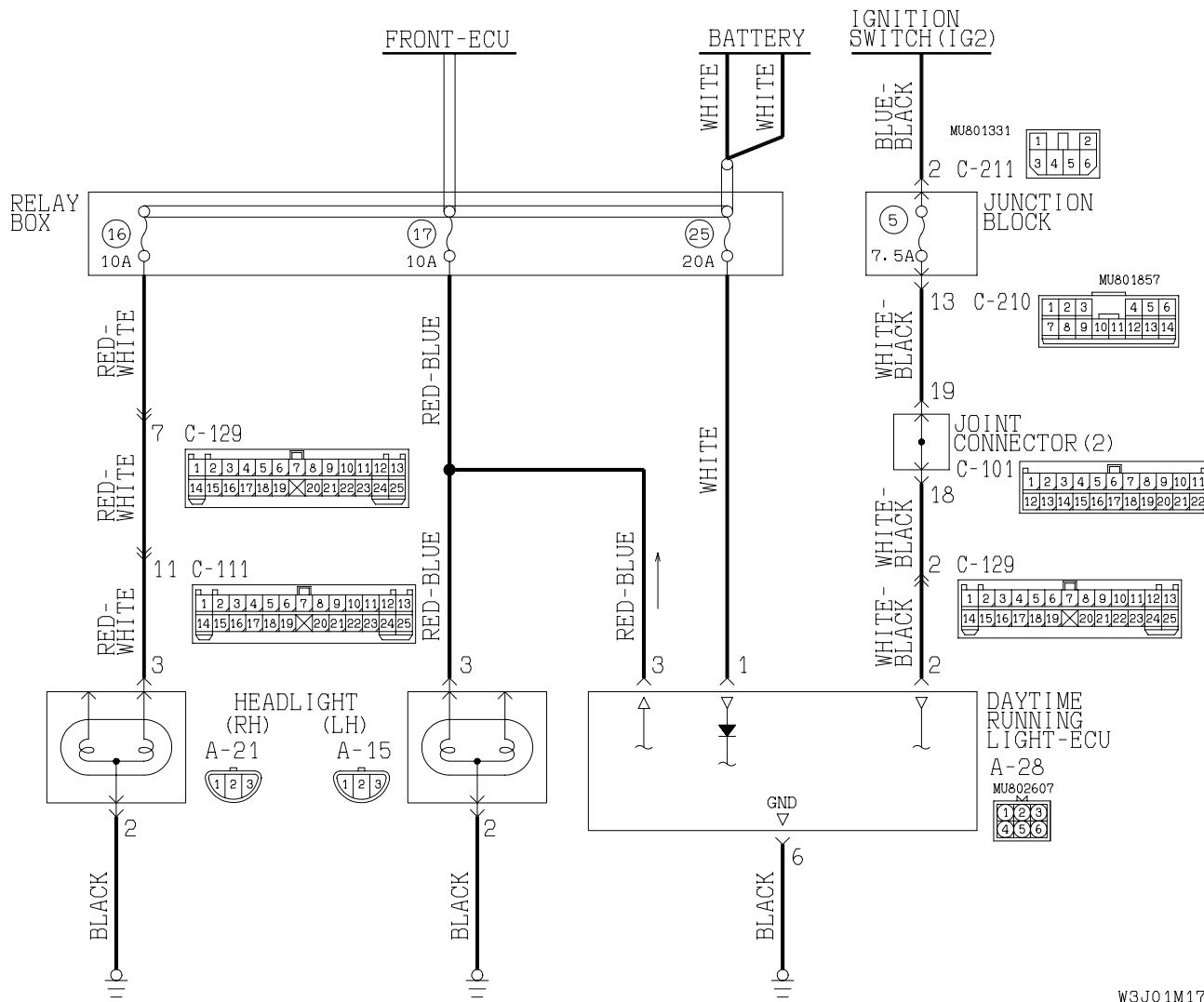
DIAGNOSIS

Replace the front-ECU.

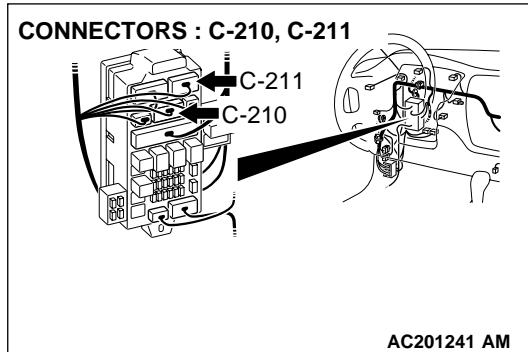
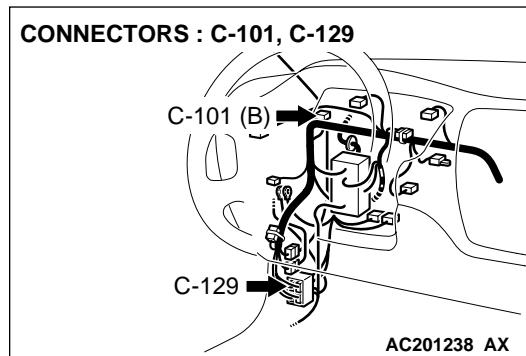
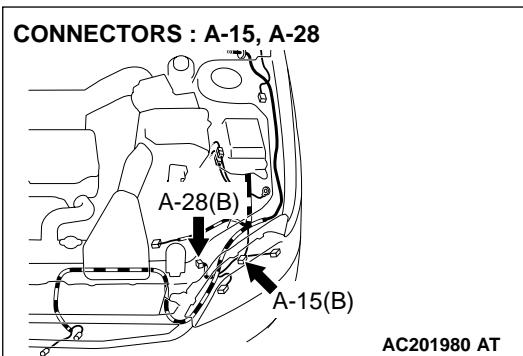
Verify that the headlight dimmer switch automatic resetting function works normally.

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

Daytime Running Light Circuit



W3J01M17AA



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
- MB991502: Scan Tool (MUT-II)

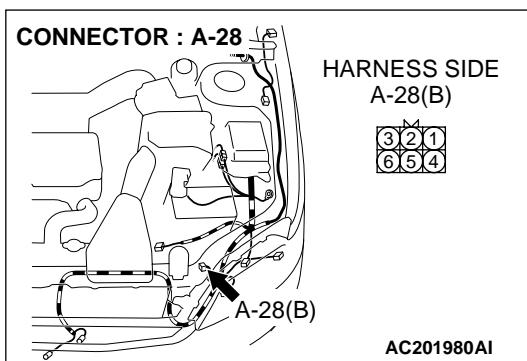
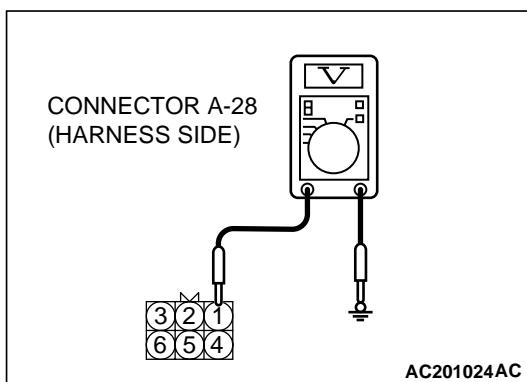
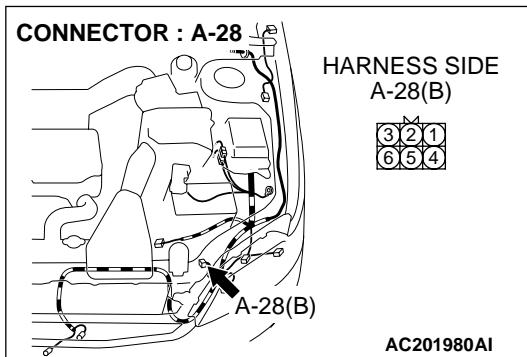
STEP 1. Verify the headlight (high-beam) operation.

Check to see that the headlight (high-beam) lights up properly when operating the dimmer switch while the headlight switch is ON.

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

YES : Go to Step 2 .

NO : Refer to Inspection Procedure J-7 "One of the headlights does not illuminate [P.54Bb-323](#)."



STEP 2. Check the battery power supply circuit to the daytime running light-ECU. Test at daytime running light-ECU connector A-28.

(1) Disconnect daytime running light-ECU connector A-28 and measure the voltage available at the wiring harness side of the connector.

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

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

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

YES : Go to Step 5 .

NO : Go to Step 3 .

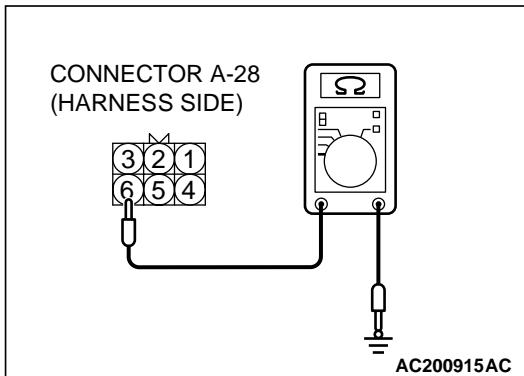
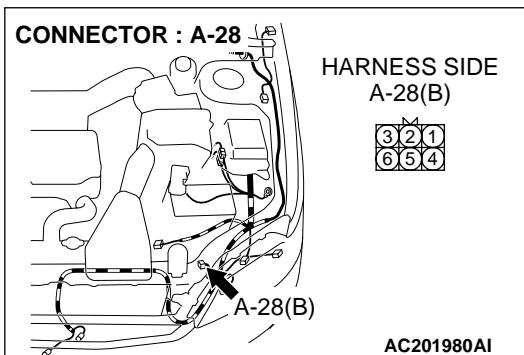
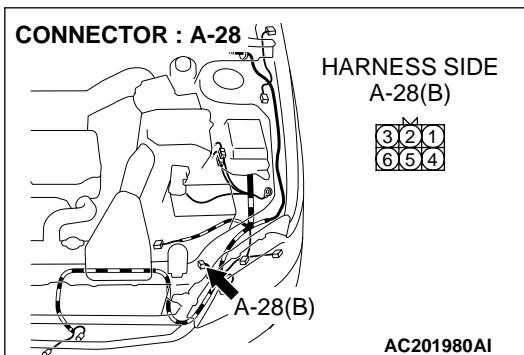
STEP 3. Check daytime running light-ECU connector A-28 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the daytime running light-ECU connector A-28 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. The daytime running light function should now work normally.



STEP 4. Check the wiring harness between daytime running light-ECU connector A-28 (terminal 1) and battery.

Q: Is the wiring harness between daytime running light-ECU connector A-28 (terminal 1) and 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. The daytime running light function should now work normally.

STEP 5. Check the ground circuit to the daytime running light-ECU. Test at daytime running light-ECU connector A-28.

(1) Disconnect daytime running light-ECU connector A-28 and measure the resistance available at the wiring harness side of the connector.

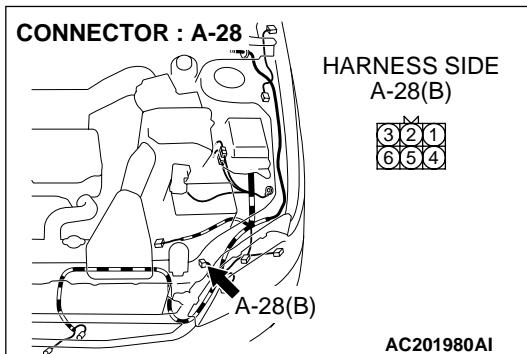
(2) Measure the resistance value between terminal 6 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 8 .

NO : Go to Step 6 .



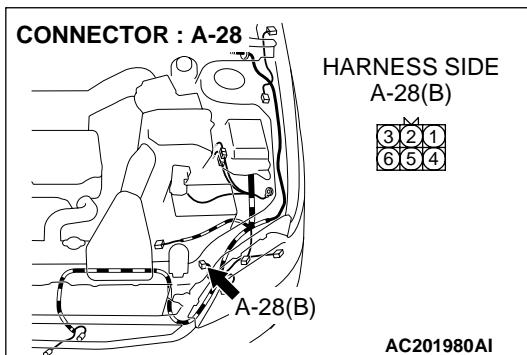
STEP 6. Check daytime running light-ECU connector A-28 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the daytime running light-ECU connector A-28 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](#). The daytime running light function should now work normally.

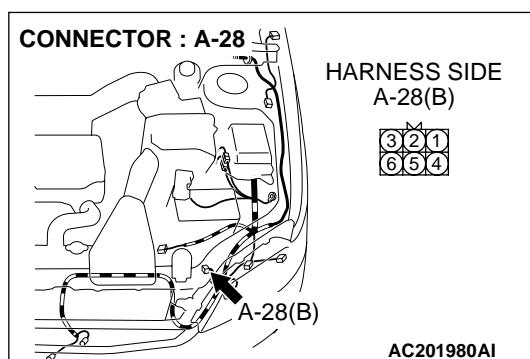
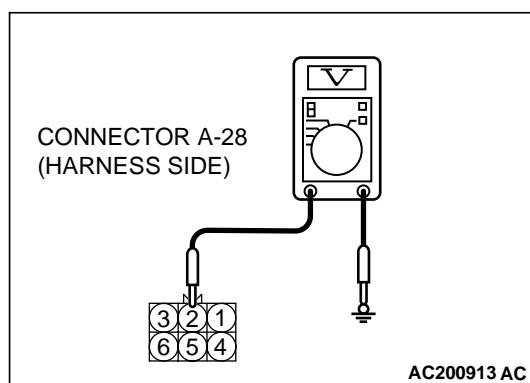
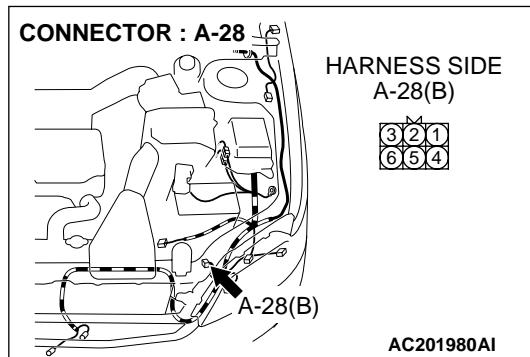


STEP 7. Check the wiring harness between daytime running light-ECU connector A-28 (terminal 6) and ground.

Q: Is the wiring harness between daytime running light-ECU connector A-28 (terminal 6) 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. The daytime running light function should now work normally.



STEP 8. Check the ignition switch (IG2) line of the power supply circuit to the daytime running light-ECU. Test at daytime running light-ECU connector A-28.

- (1) Disconnect daytime running light-ECU connector A-28 and measure the voltage available at the wiring harness side of the connector.
- (2) Turn the ignition switch to the "ON" position.

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

- The voltage should equal 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 9 .

STEP 9. Check daytime running light-ECU connector A-28 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the daytime running light-ECU connector A-28 in good condition?

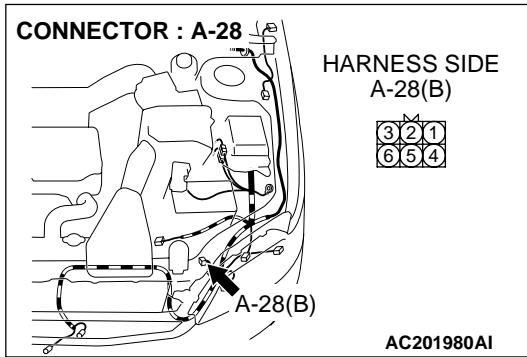
YES : Go to Step 10 .

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

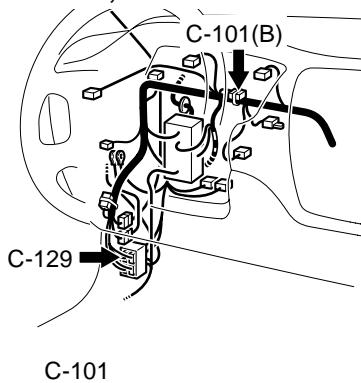
[P.00E-2](#). The daytime running light function should now work normally.

STEP 10. Check the wiring harness between daytime running light-ECU connector A-28 (terminal 2) and the ignition switch (IG2).

NOTE: Also check junction block connectors C-210, C-211, joint connector C-101 and intermediate connector C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-210, C-211, joint connector C-101 or intermediate connector C-129 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.



CONNECTORS : C-101, C-129



C-101

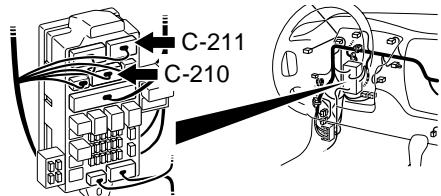
1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22

C-129

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	X	20	21	22	23	24	25

AC201348 AF

CONNECTORS : C-210, C-211

HARNESS SIDE
C-210

6	5	4		3	2	1
14	13	12	11	10	9	8

HARNESS SIDE
C-211

2		1
6	5	4

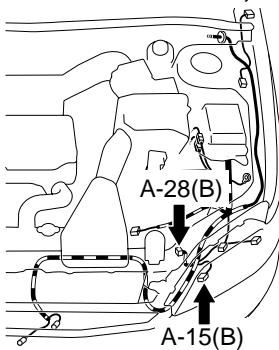
AC201352 AC

Q: Is the wiring harness between daytime running light-ECU connector A-28 (terminal 2) and the ignition switch (IG2) 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. The daytime running light function should now work normally.

CONNECTORS : A-15, A-28



HARNESS SIDE
A-15(B)



HARNESS SIDE
A-28(B)



AC201982 AB

STEP 11. Check daytime running light-ECU connector A-28 and headlight (LH) connector A-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

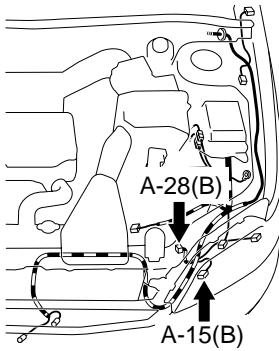
Q: Is the daytime running light-ECU connector A-28 and headlight connector A-15 in good condition?

YES : Go to Step 12 .

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

P.00E-2. The daytime running light function should now work normally.

CONNECTORS : A-15, A-28



HARNESS SIDE
A-15(B)



HARNESS SIDE
A-28(B)



AC201982 AB

STEP 12. Check the wiring harness between daytime running light-ECU connector A-28 (terminal 3) and the headlight (LH) connector A-15 (terminal 3).

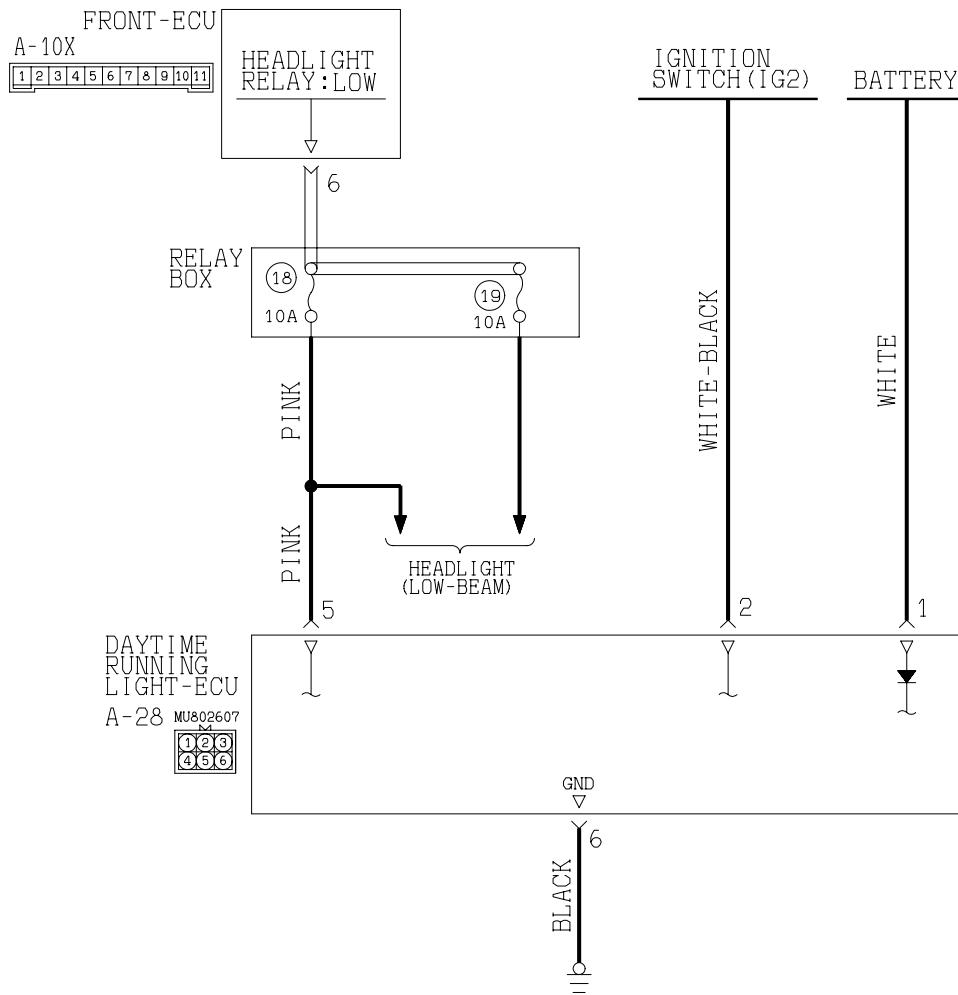
Q: Is the wiring harness between daytime running light-ECU connector A-28 (terminal 3) and the headlight (LH) connector A-15 (terminal 3) in good condition?

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

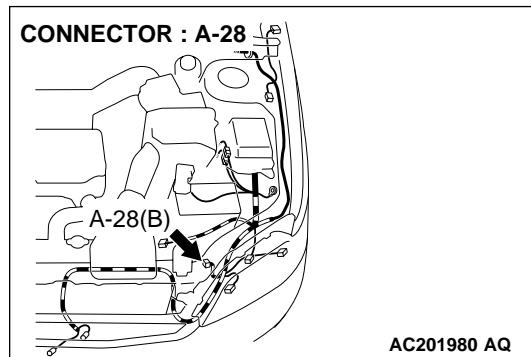
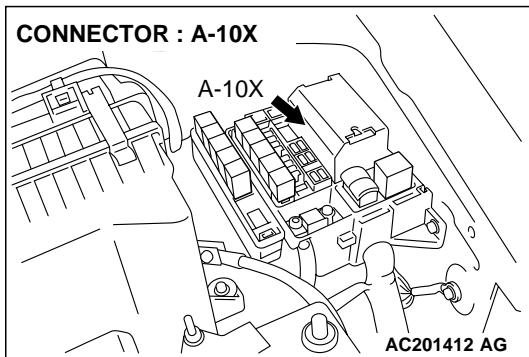
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The daytime running light function should now work normally.

**INSPECTION PROCEDURE J-12: Headlight and Taillight: When the daytime running light function is operating, the headlights (high-beam) continue lighting even if the headlight switch turns on.
<vehicles with daytime running light function>**

Daytime Running Light Power Supply Circuit



W3J01M18AA

**TECHNICAL DESCRIPTION (COMMENT)**

The daytime running light-ECU may be defective if the daytime running light function does not operate normally.

TROUBLESHOOTING HINTS

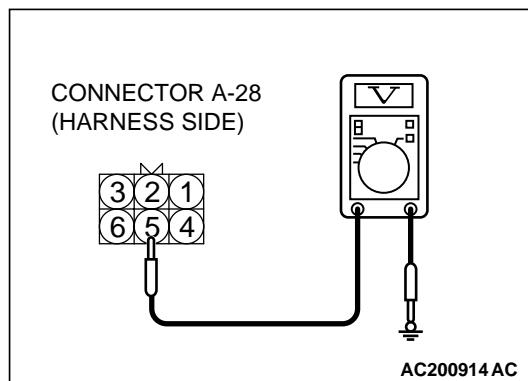
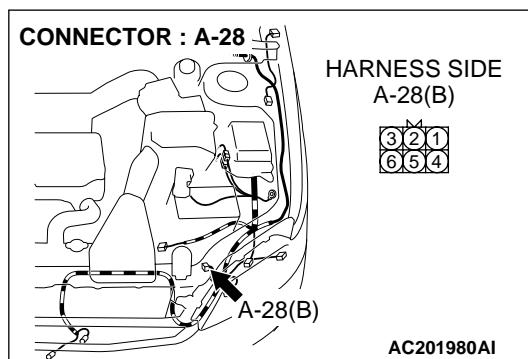
- The daytime running light-ECU may be defective

- 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
- MB991502: Scan Tool (MUT-II)

STEP 1. Check the headlight relay (low) circuit to the daytime running light-ECU. Test at daytime running light-ECU connector A-28.



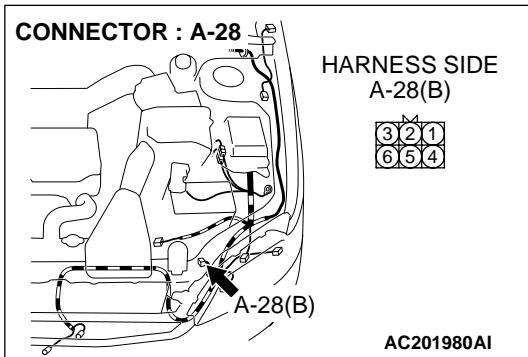
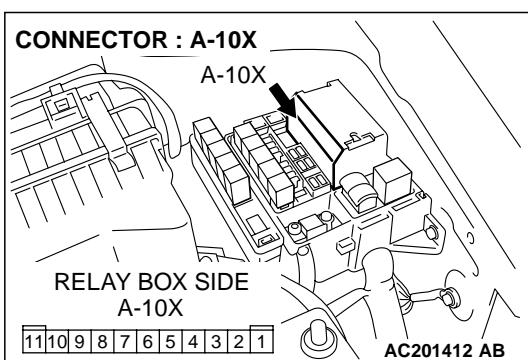
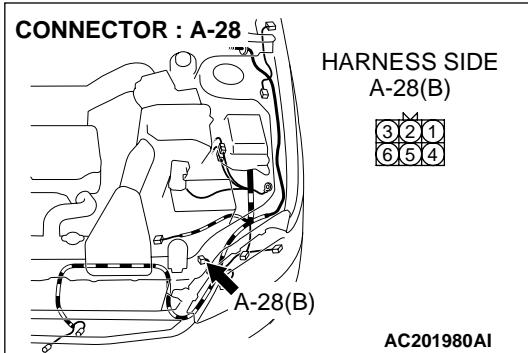
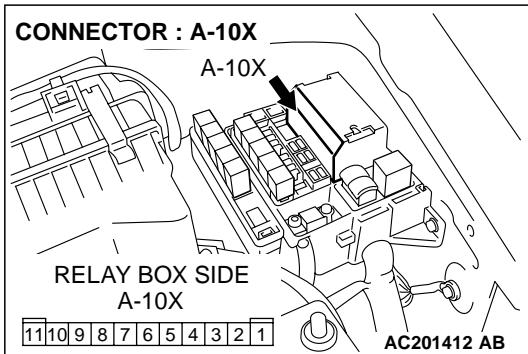
(3) Measure the voltage between terminal 5 and ground.

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

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

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

NO : Go to Step 2 .



STEP 2. Check daytime running light-ECU connector A-28 and front-ECU connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the daytime running light-ECU connector A-28 and front-ECU connector A-10X 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. The daytime running light function should now work normally.

STEP 3. Check the wiring harness between daytime running light-ECU connector A-28 (terminal 5) and the front-ECU connector A-10X (terminal 6).

Q: Is the wiring harness between daytime running light-ECU connector A-28 (terminal 5) and the front-ECU connector A-10X (terminal 6) in good condition?

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

FLASHER TIMER

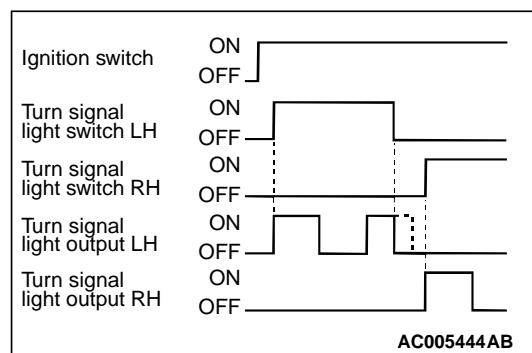
GENERAL DESCRIPTION CONCERNING THE FLASHER TIMER

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

M1549023600023

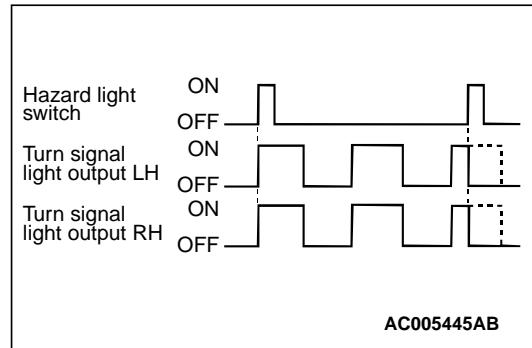
Function	CONTROL ECU
Turn signal light	ETACS-ECU, column switch
Hazard light	ETACS-ECU

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.

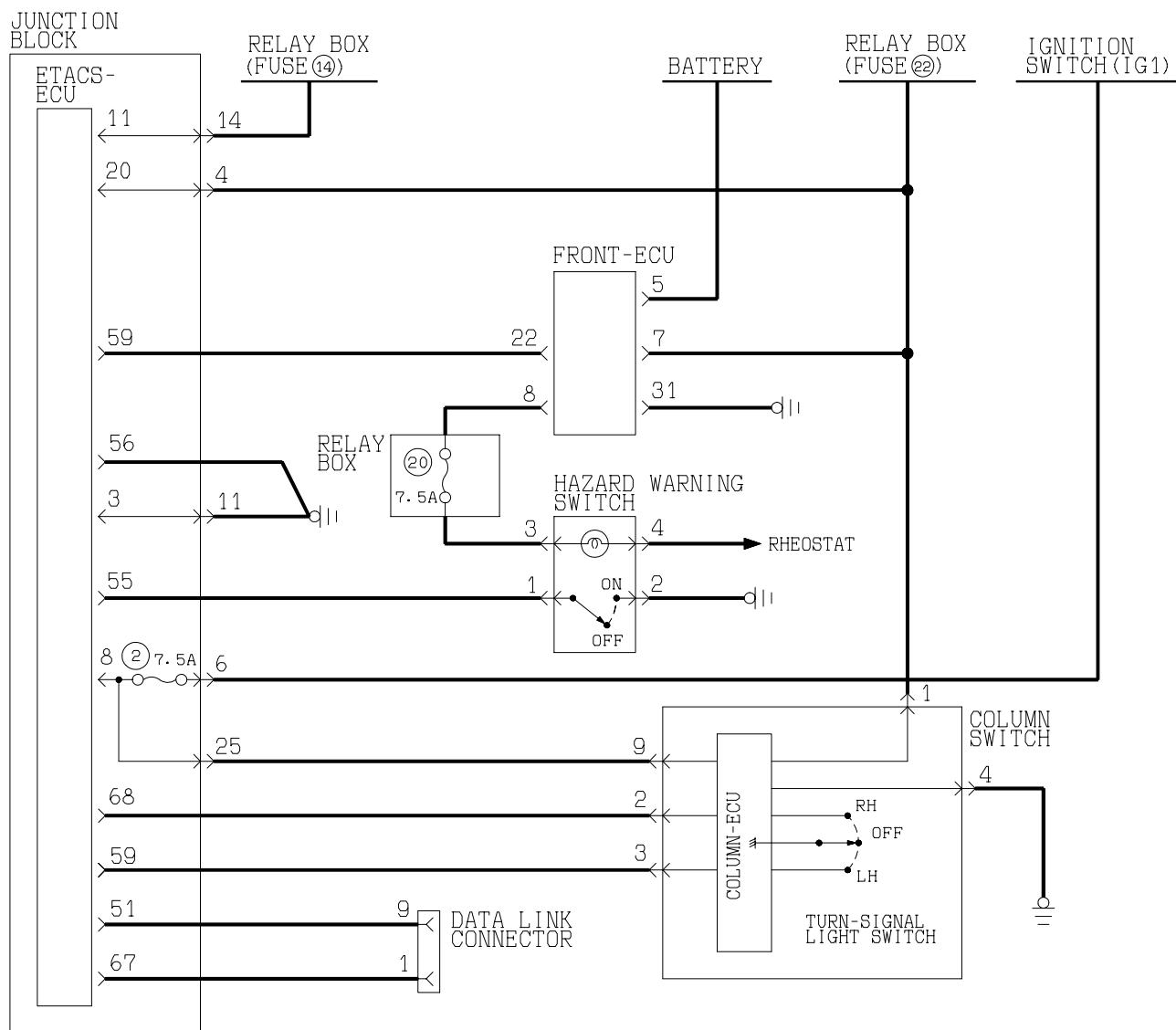


Hazard light

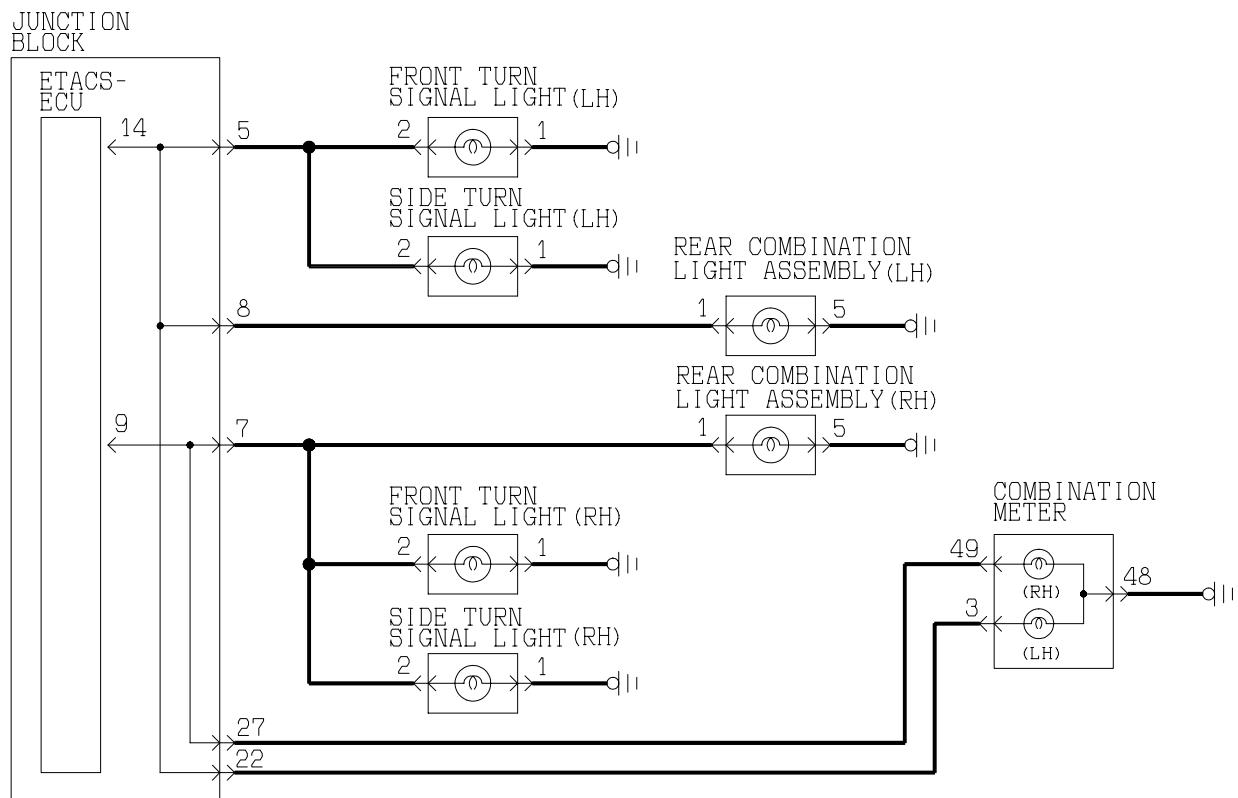
The hazard lights output (flashing) is turned ON when the hazard switch is turned OFF to ON. When the switch is turned ON again, the output is turned OFF.

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

General circuit diagram for the turn signal light and hazard light



W3J01M01AA

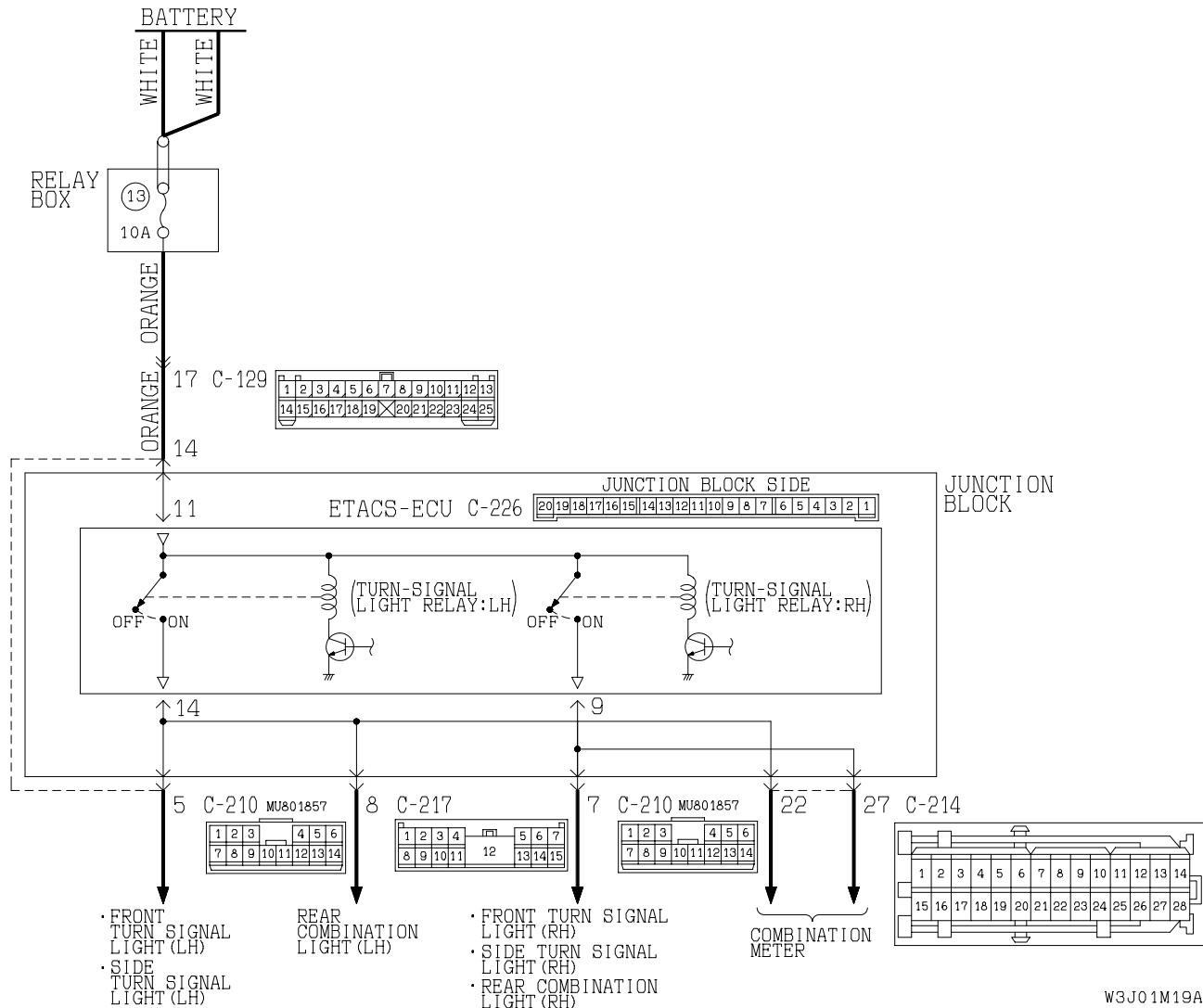


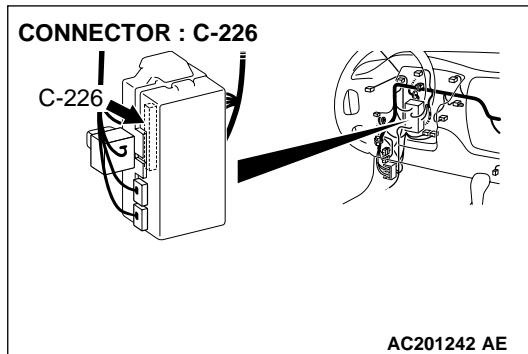
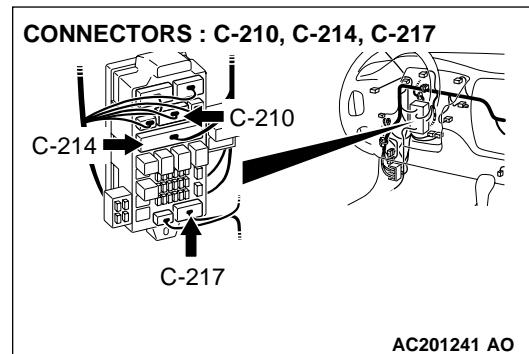
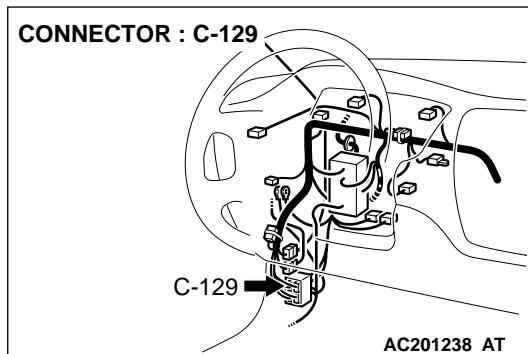
W3J01M02AA

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

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Turn-signal Light Power Supply Circuit





CIRCUIT OPERATION

- The turn-signal light switch sends a 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)

If 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

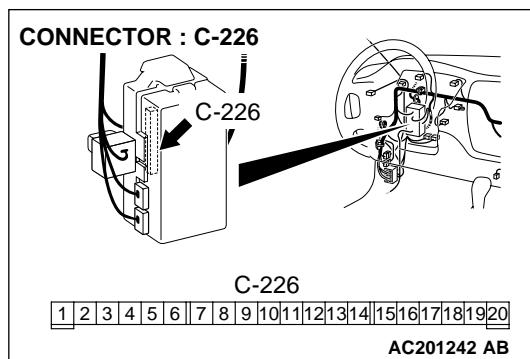
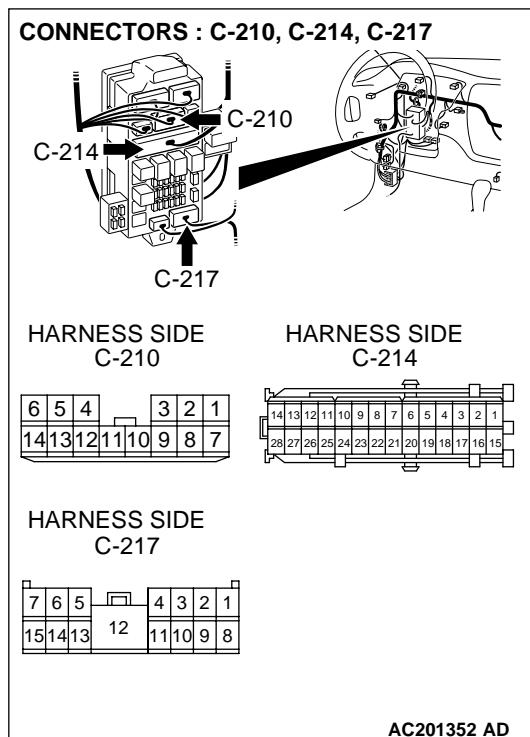
STEP 1. Verify the hazard warning light.

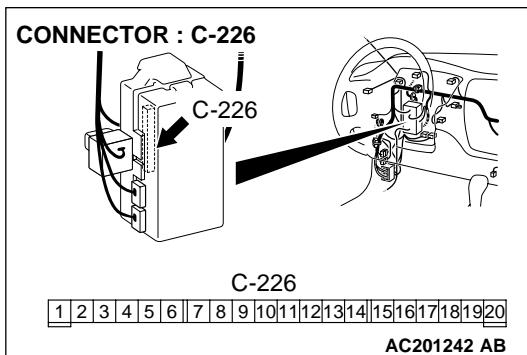
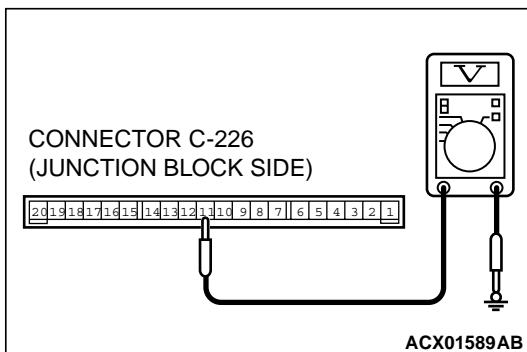
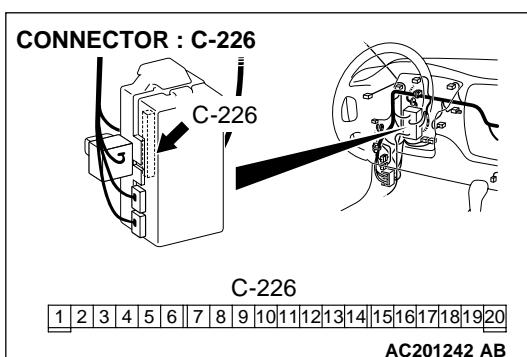
Q: Does the hazard warning light work normally?

YES : Go to Step 7.

NO : Go to Step 2.

STEP 2. Verify the turn-signal lights.**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 C-226, junction block connectors C-210, C-214 and C-217 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q: Are ETACS-ECU connector C-226, junction block connectors C-210, C-214 and C-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 the battery power supply circuit to the ETACS-ECU. Test at ETACS-ECU connector C-226.

(1) Disconnect ETACS-ECU connector C-226 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 equal 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.

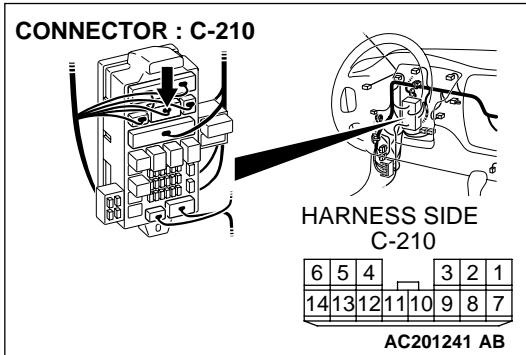
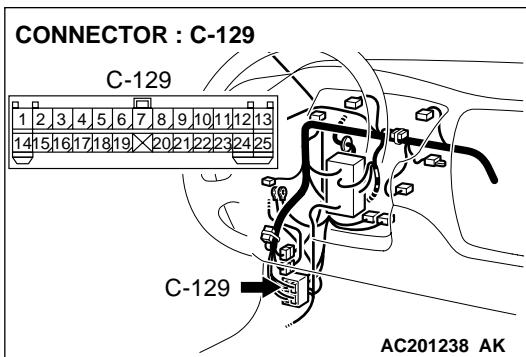
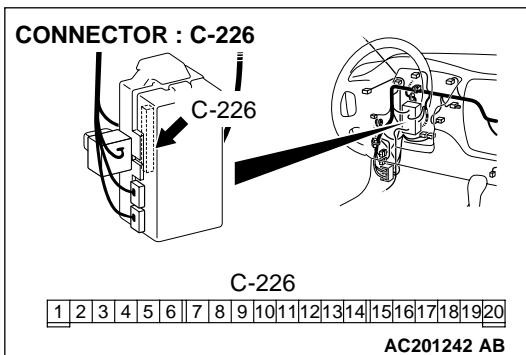
NO : Go to Step 5.

STEP 5. Check ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-226 in good condition?

YES : Go to Step 6.

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



STEP 6. Check the wiring harness between ETACS-ECU connector C-226 (terminal 11) and the battery.

NOTE: Also check intermediate connector C-129 and junction block connector C-210 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-129 or junction block connector C-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 ETACS-ECU connector C-226 (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.

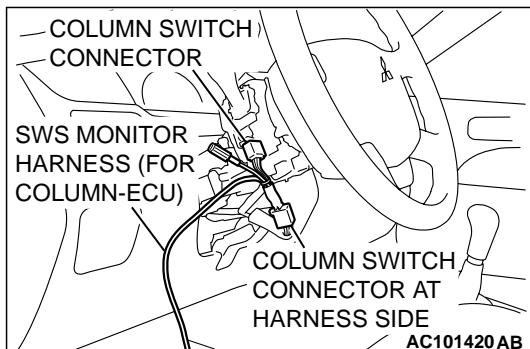
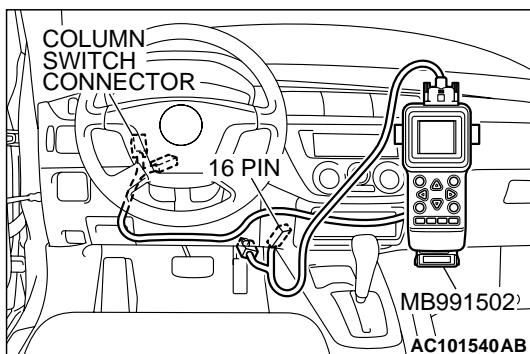
Check the input signals from the following switches:

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

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate scan tool MB991502 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."
- (4) Check that normal conditions are displayed on the items described in the table below.



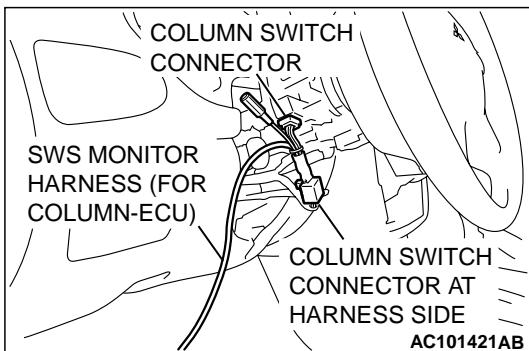
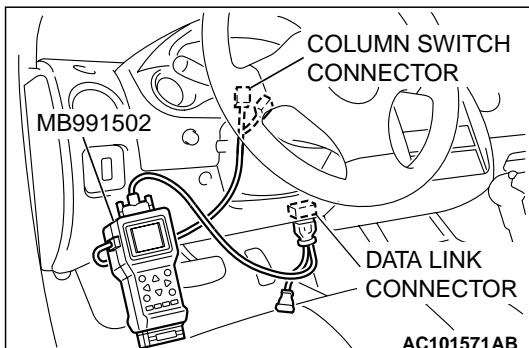
ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 10	T/S RH SW	ON
ITEM 30	IG SW (IG1)	ON

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

YES : Go to Step 8.

NO :

- Normal condition is not displayed on the "T/S RH SW": Refer to Inspection Procedure M-5 "ETACS-ECU does not receive a signal from the turn-signal RH switch [P.54Bc-32](#)."
- Normal condition is not displayed on the "IG SW (IG1)": Refer to Inspection Procedure M-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) [P.54Bc-6](#)."



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

Check the input signal from the turn-signal light switch (LH). Operate scan tool MB991502 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."

Check that normal condition is displayed on the item described in the table below.

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

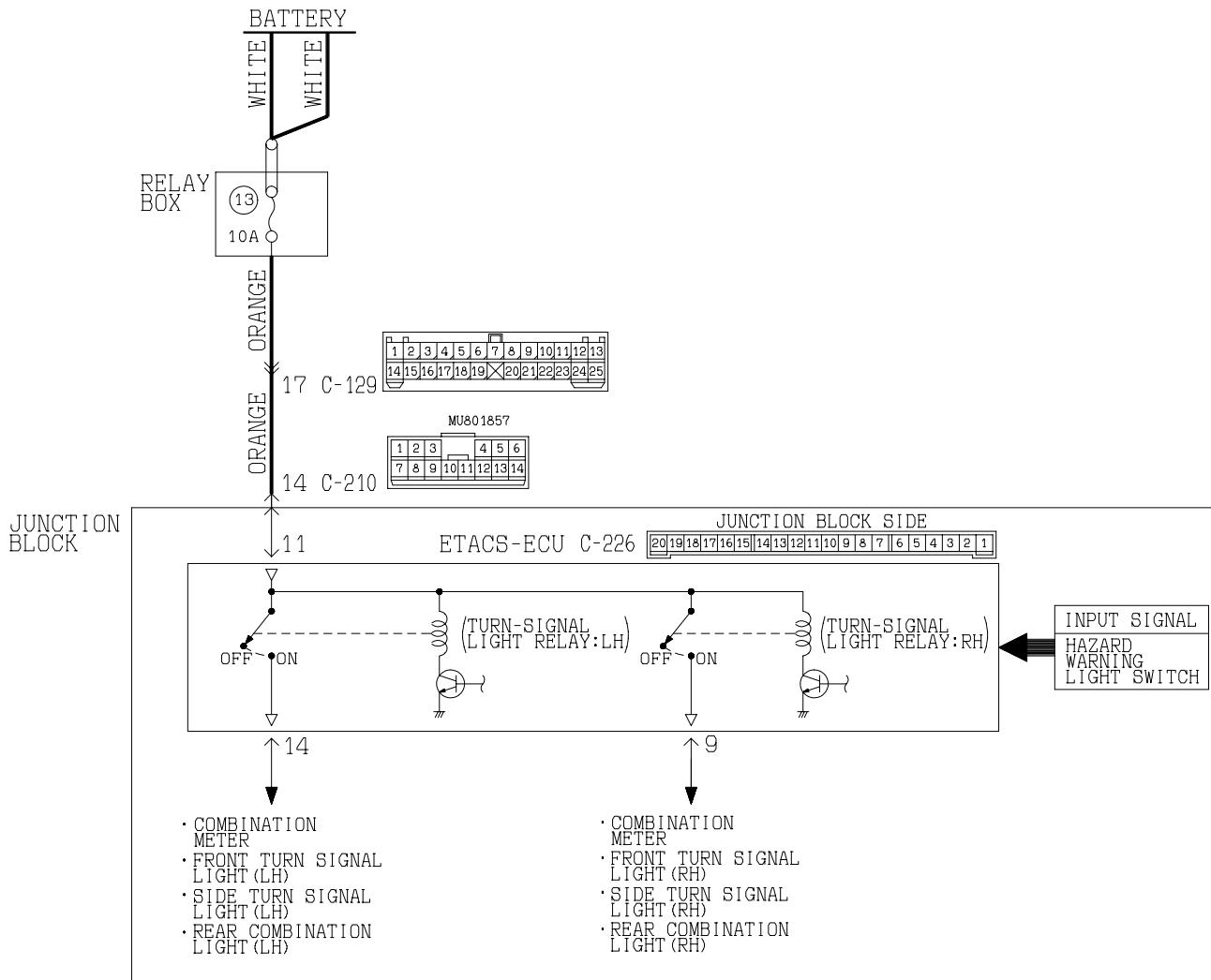
Q: Do the scan tool display the items "T/S LH SW" is normal condition?

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

NO : Refer to Inspection Procedure M-5 "ETACS-ECU does not receive any signal from the taillight switch, the headlight switch, the passing light switch, the dimmer switch, the turn-signal light switch or switch P.54Bc-32."

INSPECTION PROCEDURE K-2: Flasher Timer: Hazard warning lights do not flash when the hazard warning light switch is turned on.

Hazard Warning Light Circuit



W3J01M20AA

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
- MB991502: Scan Tool (MUT-II)

STEP 1. Verify the turn-signal lights.

Q: Do the turn-signal lights illuminate normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure K-1 "Turn-signal lights does not flash when the turn-signal light switch is turned on [P.54Bb-358](#)."

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 MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate scan tool MB991502 according to the procedure below to display "PULSE CHECK."

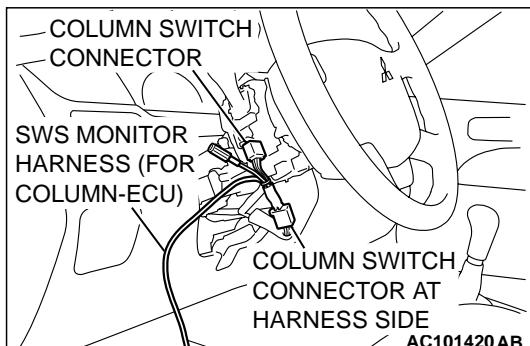
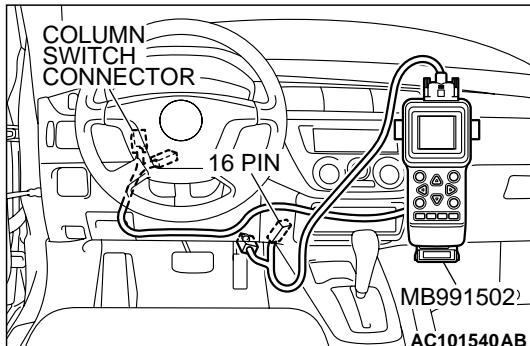
1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

- (3) Check that scan tool MB991502 sounds when the hazard warning light switch is turned from "OFF" to "ON."

Q: Does scan tool MB991502 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.

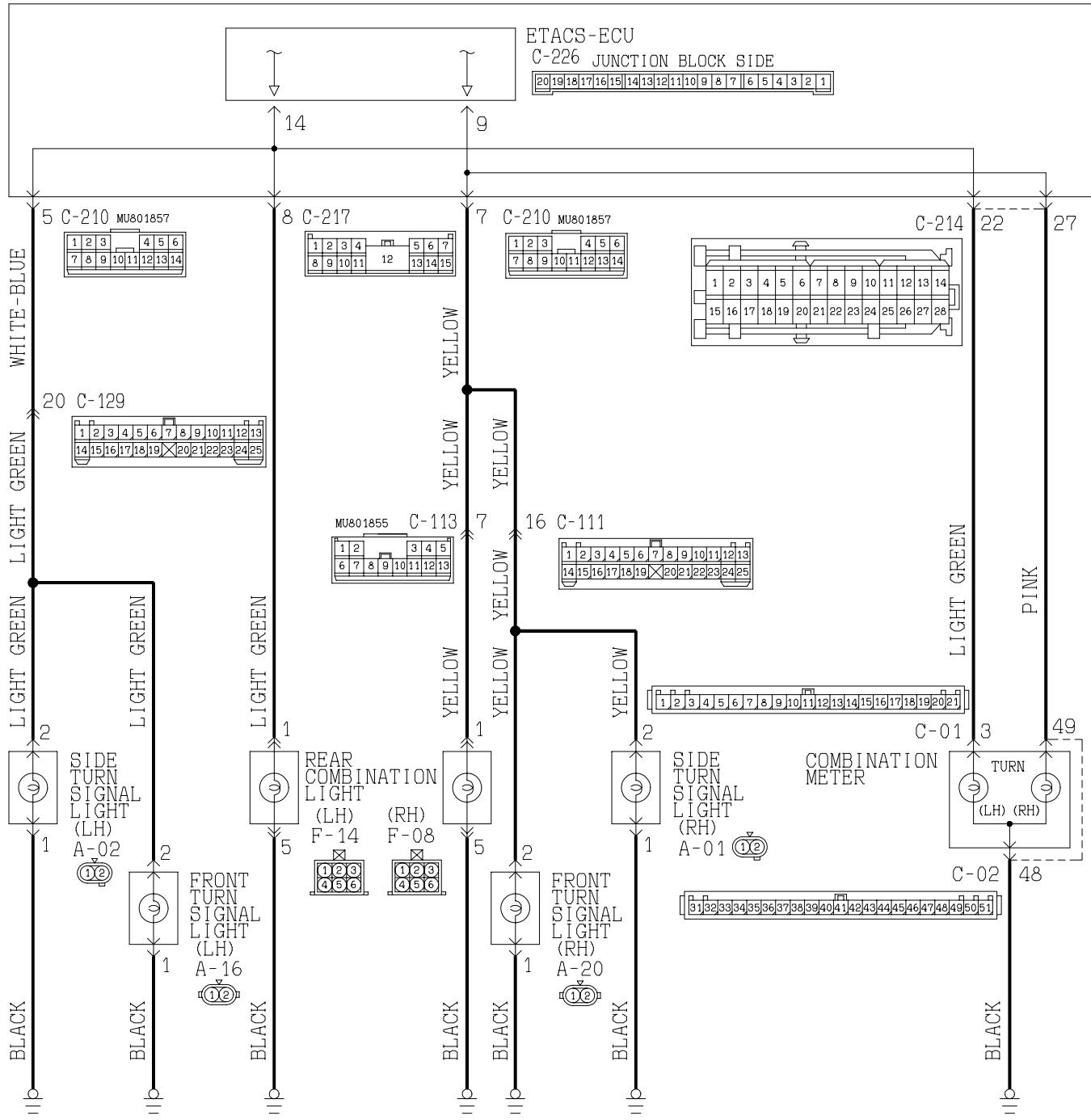
NO : Refer to Inspection Procedure N-2 "ETACS-ECU does not receive a signal from the hazard warning light switch [P.54Bc-50](#)."



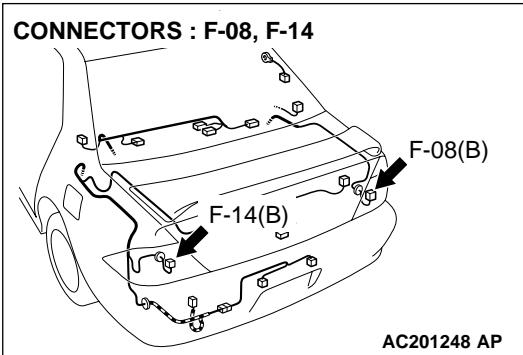
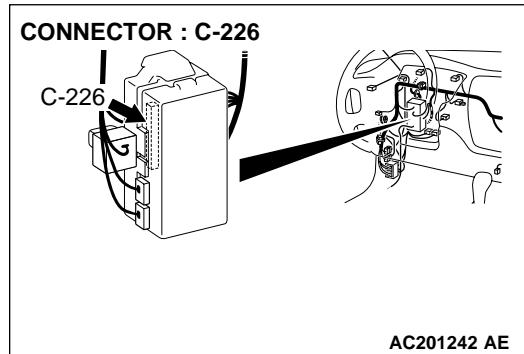
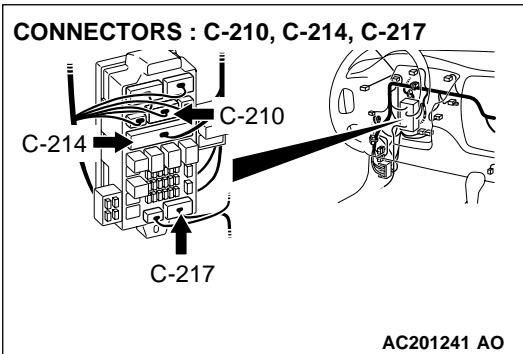
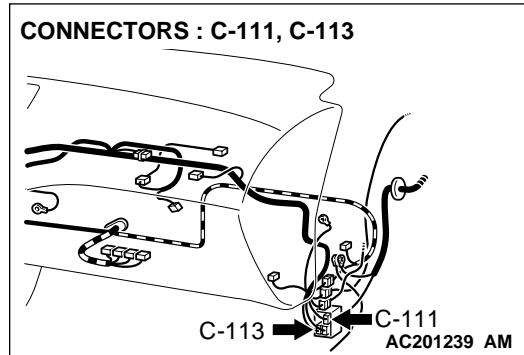
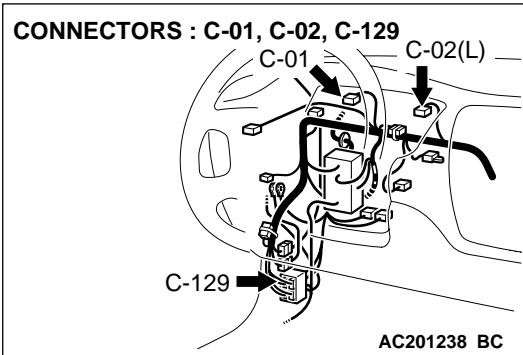
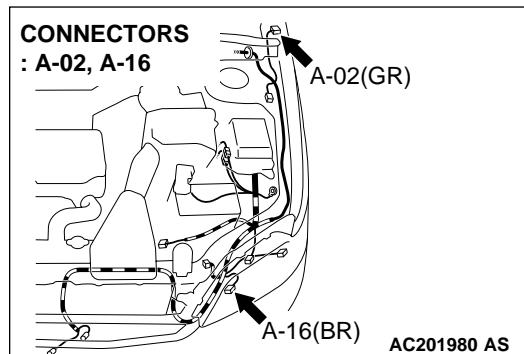
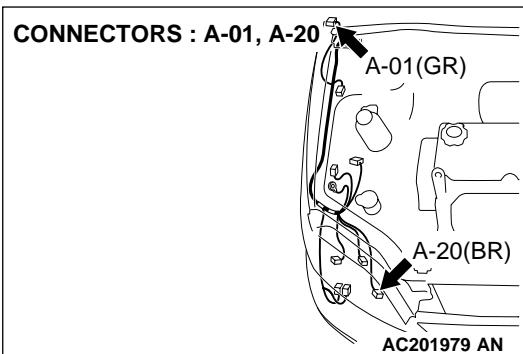
INSPECTION PROCEDURE K-3: Flasher Timer: The right or left turn-signal light does not illuminate.

Turn-signal Light Circuit

JUNCTION BLOCK



W3J01M21AA



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: Harness Set

STEP 1. Check the hazard warning light.

Q: Which turn-signal light does not illuminate?

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

Front turn-signal light (RH) and side turn-signal light (RH) : Go to Step 4.

front turn-signal light (LH) : Go to Step 6.

front turn-signal light (RH) : Go to Step 12.

side turn-signal light (LH) : Go to Step 18.

side turn-signal light (RH) : Go to Step 24.

rear combination light (LH) : Go to Step 30.

rear combination light (RH) : Go to Step 36.

combination meter (LH) : Go to Step 42.

combination meter (RH) : Go to Step 44.

Combination meter (both right and left) : Go to Step 46

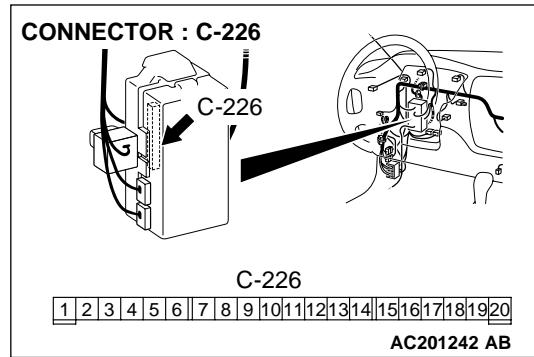
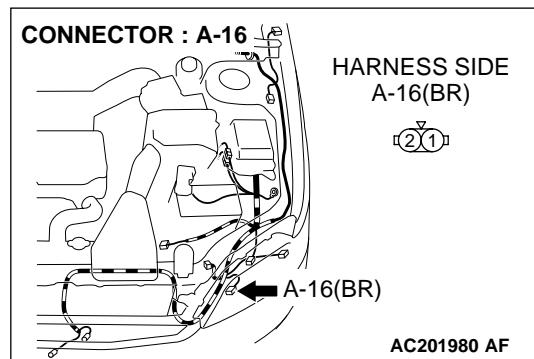
front turn-signal light (RH), side turn-signal light (RH)

and rear combination light (RH) : Go to Step 48.

LH side only : Refer to Inspection Procedure K-1 "Turn-signal lights does not flash when the turn-signal light switch is turned on [P.54Bb-358](#)."

RH side only : Refer to Inspection Procedure K-1 "Turn-signal lights does not flash when the turn-signal light switch is turned on [P.54Bb-358](#)."

Both LH and RH sides : Refer to Inspection Procedure K-2 "Hazard warning light does not illuminate [P.54Bb-365](#)."



STEP 2. Check front turn-signal light (LH) connector A-16 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are front turn-signal light (LH) connector A-16 and ETACS-ECU connector C-226 in good condition?

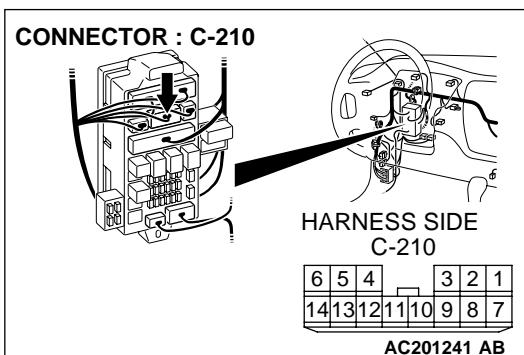
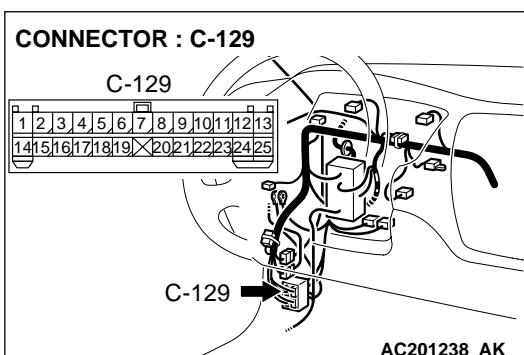
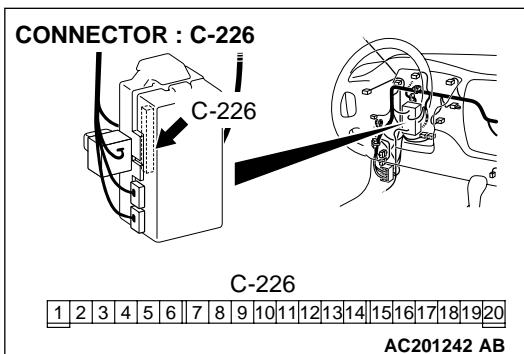
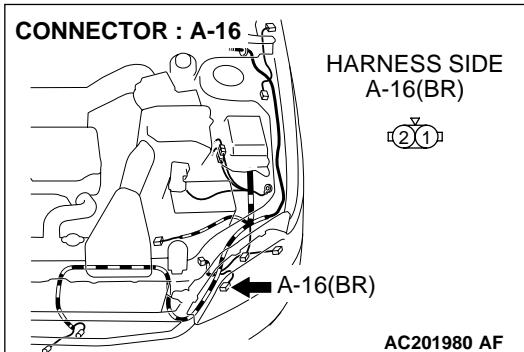
YES : Go to Step 3.

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

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

STEP 3. Check the wiring harness between front turn-signal light (LH) connector A-16 (terminal 2) and ETACS-ECU connector C-226 (terminal 14).

NOTE: Also check intermediate connector C-129 and junction block connector C-210 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-129 or junction block connector C-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 front turn-signal light (LH) connector A-16 (terminal 2) and ETACS-ECU connector C-226 (terminal 14) 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.

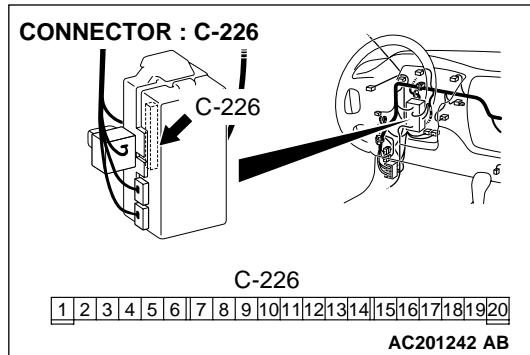
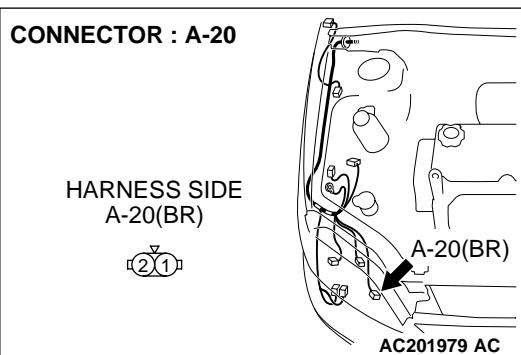
STEP 4. Check front turn-signal light (RH) connector A-20 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are front turn-signal light (RH) connector A-20 and ETACS-ECU connector C-226 in good condition?

YES : Go to Step 5.

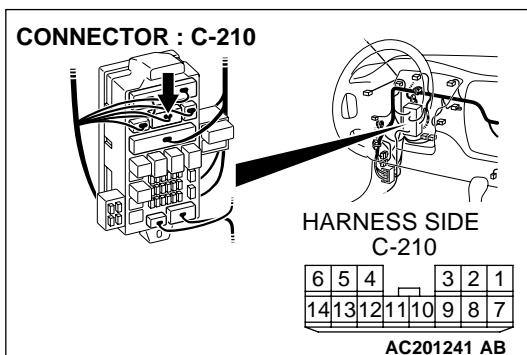
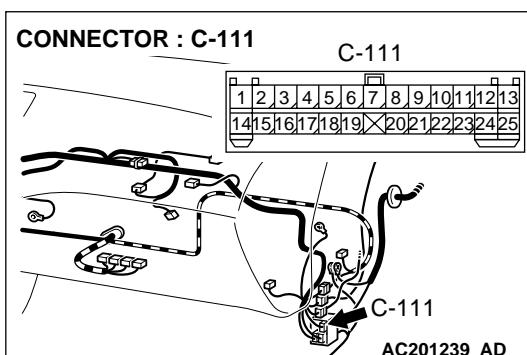
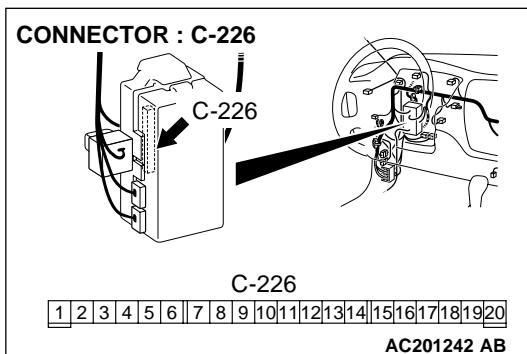
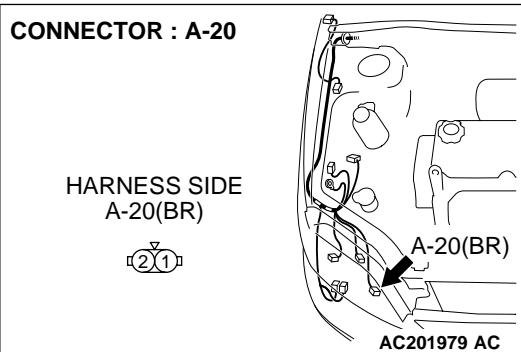
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

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



STEP 5. Check the wiring harness between front turn-signal light (RH) connector A-20 (terminal 2) and ETACS-ECU connector C-226 (terminal 9).

NOTE: Also check junction block connector C-210 and intermediate connector C-111 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-210 or intermediate connector C-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 front turn-signal light (RH) connector A-20 (terminal 2) and ETACS-ECU connector C-226 (terminal 9) 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 6. 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.

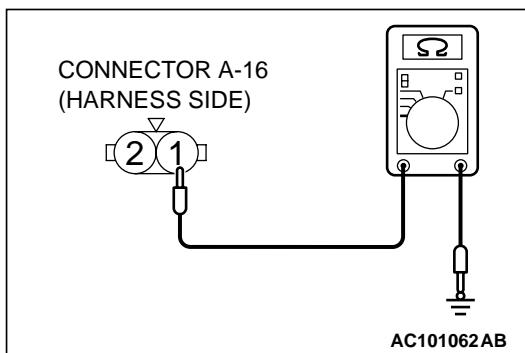
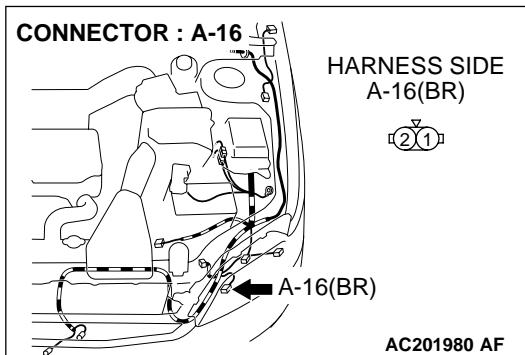
Q: Is the front turn-signal (LH) light bulb in good condition?

YES : Go to Step 7.

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

STEP 7. Check the ground circuit to the front turn signal light (LH). Test at front turn-signal light (LH) connector A-16.

- (1) Disconnect front turn-signal light (LH) connector A-16 and measure the resistance available at the wiring harness side of the connector.



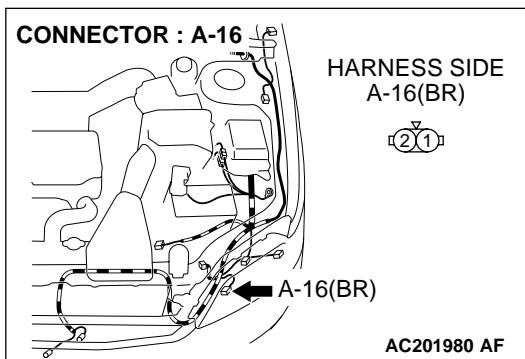
- (2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 10.

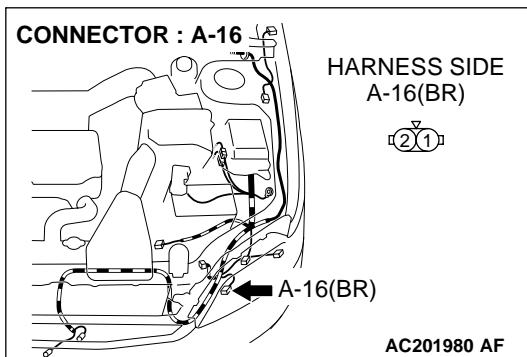
NO : Go to Step 8.

**STEP 8. Check front turn-signal light (LH) connector A-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

Q: Is the front turn-signal (LH) connector A-16 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 turn-signal lights illuminate normally.

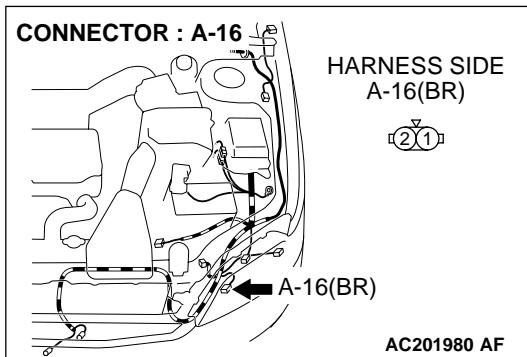


STEP 9. Check the wiring harness between front turn-signal light (LH) connector A-16 (terminal 1) and ground.

Q: Is the wiring harness between front turn-signal light (LH) connector A-16 (terminal 1) 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.

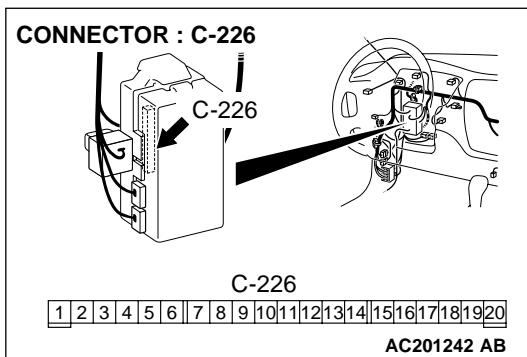


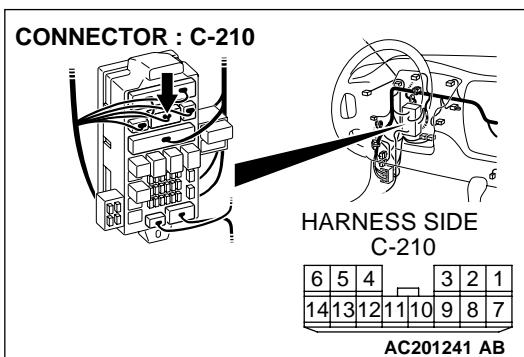
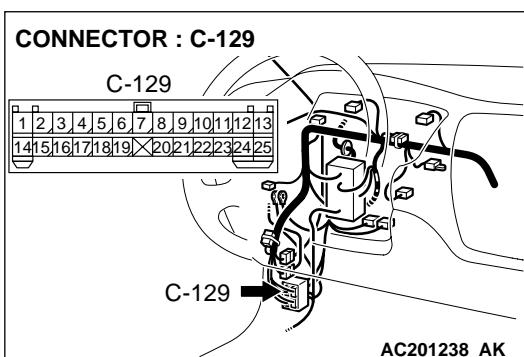
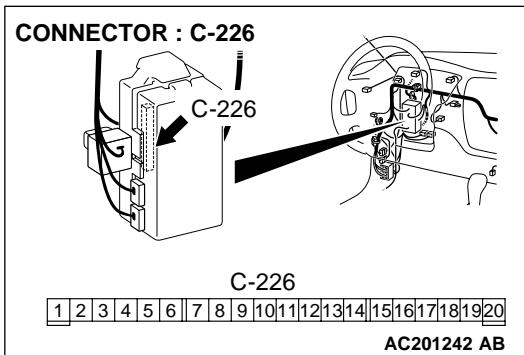
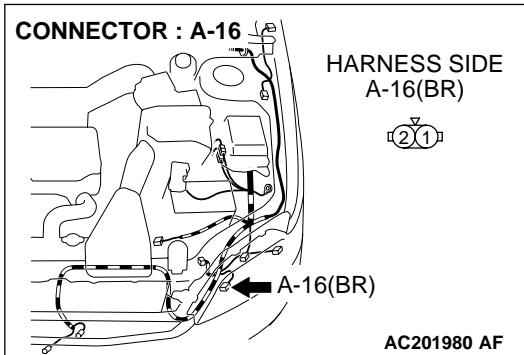
STEP 10. Check front turn-signal light (LH) connector A-16 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are front turn-signal light (LH) connector A-16 and ETACS-ECU connector C-226 in good condition?

YES : Go to Step 11.

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





STEP 11. Check the wiring harness between front turn-signal light (LH) connector A-16 (terminal 2) and ETACS-ECU connector C-226 (terminal 14).

NOTE: Also check junction block connector C-210 and intermediate connector C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-210 or intermediate connector C-129 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-16 (terminal 2) and ETACS-ECU connector C-226 (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 12. 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.

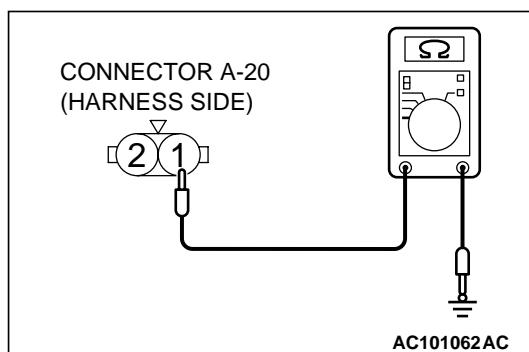
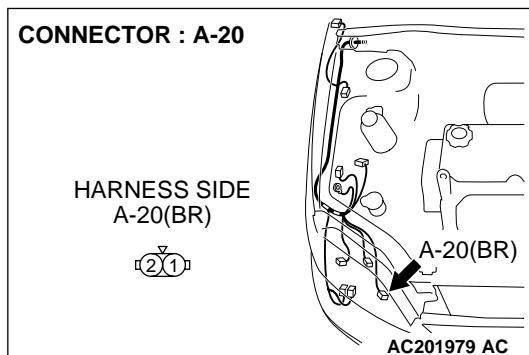
Q: Is the front turn-signal (RH) light bulb in good condition?

YES : Go to Step 13.

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

STEP 13. Check the ground circuit to the front turn-signal light (RH). Test at front turn-signal light (RH) connector A-20.

- (1) Disconnect front turn-signal light (RH) connector A-20 and measure the resistance available at the wiring harness side of the connector.



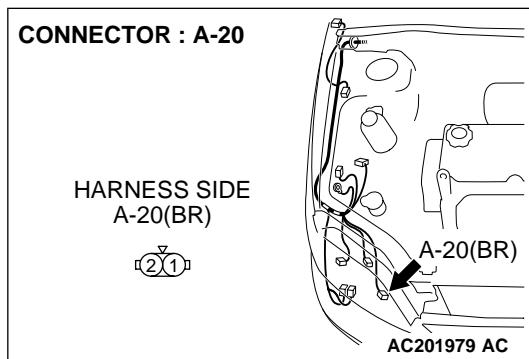
- (2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 16.

NO : Go to Step 14.

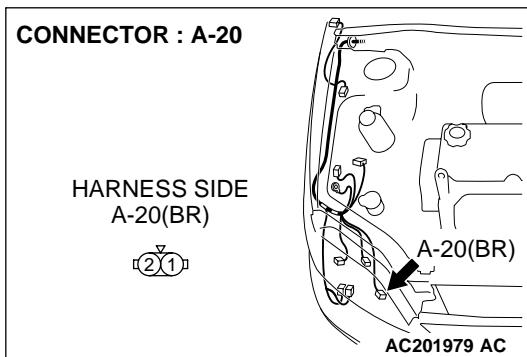


STEP 14. Check front turn-signal light (RH) connector A-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the front turn-signal (RH) connector A-20 in good condition?

YES : Go to Step 15.

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

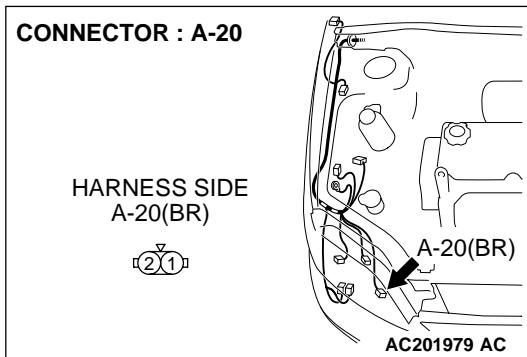


STEP 15. Check the wiring harness between front turn-signal light (RH) connector A-20 (terminal 1) and ground.

Q: Is the wiring harness between front turn-signal light (RH) connector A-20 (terminal 1) 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.

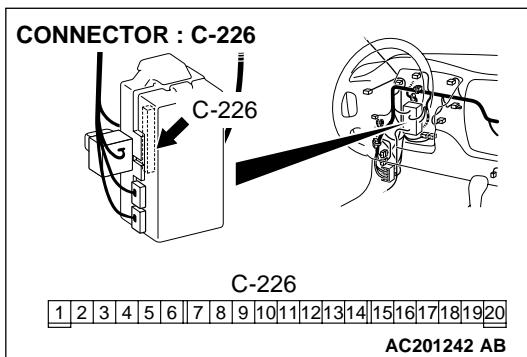


STEP 16. Check front turn-signal light (RH) connector A-20 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are front turn-signal light (RH) connector A-20 and ETACS-ECU connector C-226 in good condition?

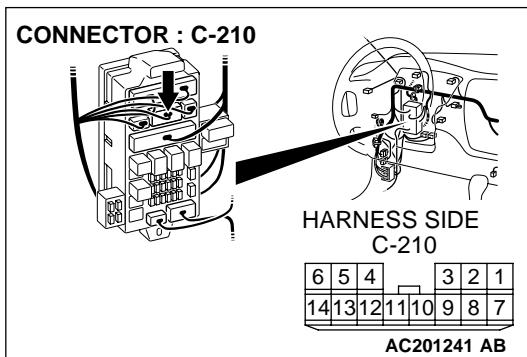
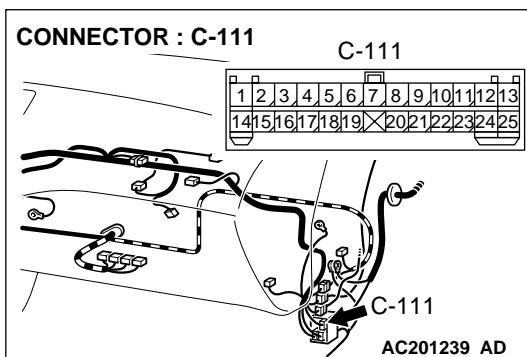
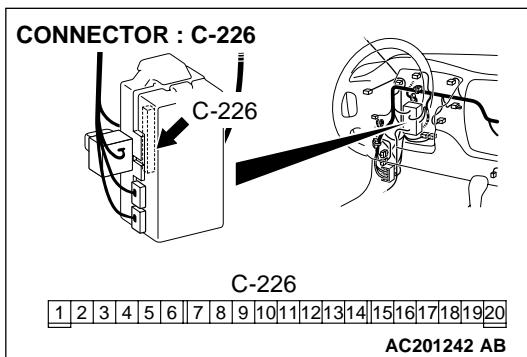
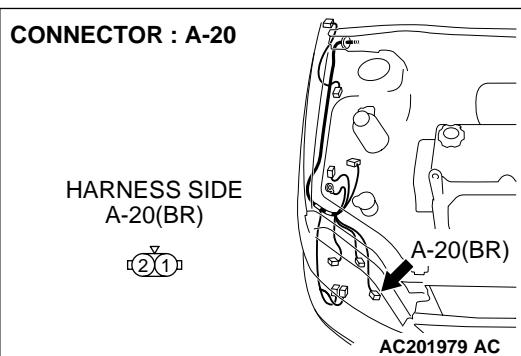
YES : Go to Step 17.

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 17. Check the wiring harness between front turn-signal light (RH) connector A-20 (terminal 2) and ETACS-ECU connector C-226 (terminal 9).

NOTE: Also check junction block connector C-210 and intermediate connector C-111 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-210 or intermediate connector C-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 front turn-signal light (RH) connector A-20 (terminal 2) and ETACS-ECU connector C-226 (terminal 9) 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 18. Check the side turn-signal light bulb (LH).

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

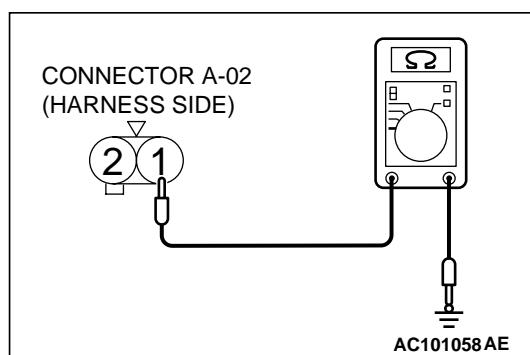
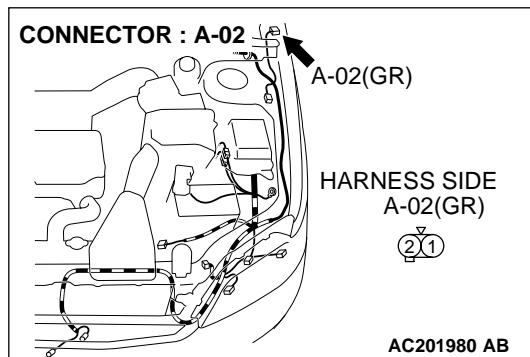
Q: Is the side turn-signal light (LH) bulb in good condition?

YES : Go to Step 19.

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

STEP 19. Check the ground circuit to the side turn-signal light (LH). Test at side turn-signal light (LH) connector A-02.

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



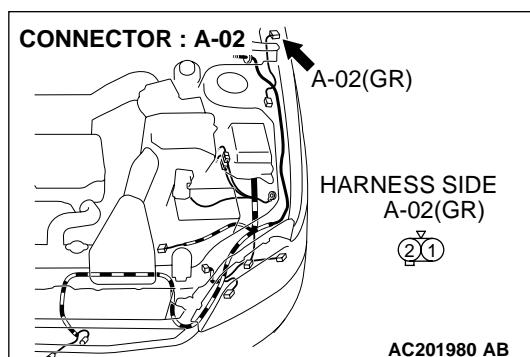
- (2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 22.

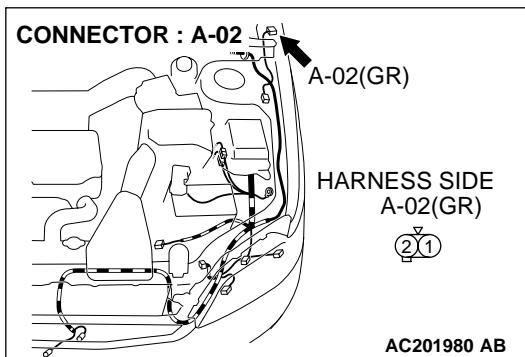
NO : Go to Step 20.

**STEP 20. Check side turn-signal light (LH) connector A-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

Q: Is the side turn-signal light (LH) connector A-02 in good condition?

YES : Go to Step 21.

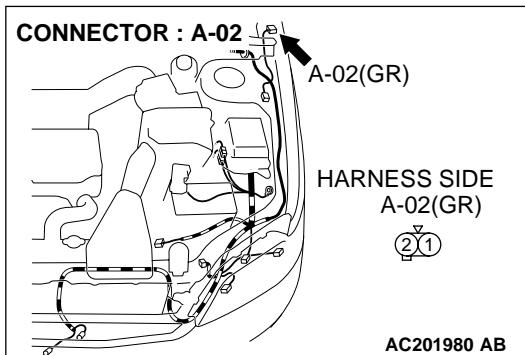
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the turn-signal lights illuminate normally.



STEP 21. Check the wiring harness between side turn-signal light (LH) connector A-02 (terminal 1) and ground.
Q: Is the wiring harness between side turn-signal light (LH) connector A-02 (terminal 1) 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.

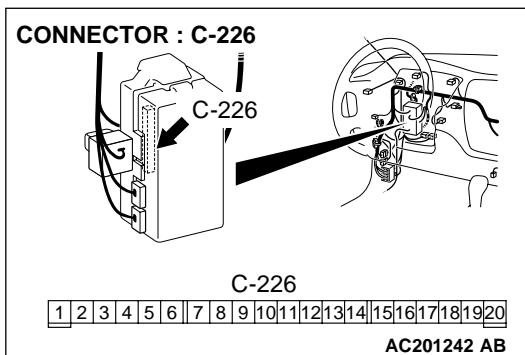


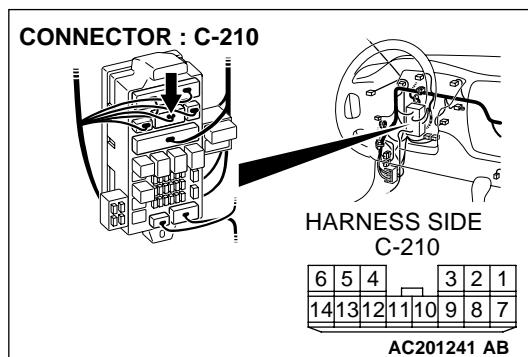
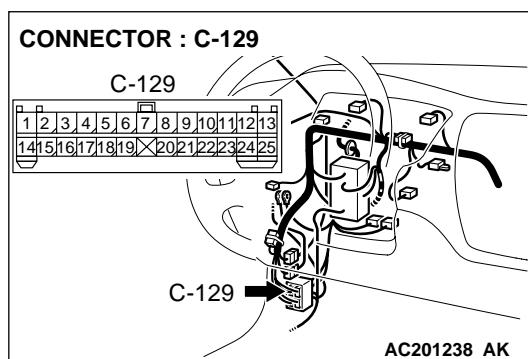
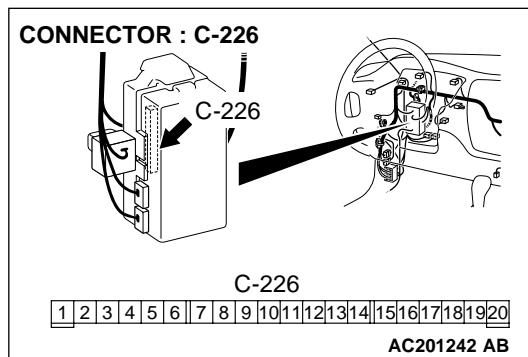
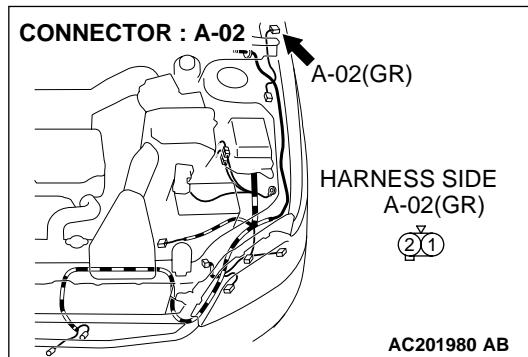
STEP 22. Check side turn-signal light (LH) connector A-02 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are side turn-signal light (LH) connector A-02 and ETACS-ECU connector C-226 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 turn-signal lights illuminate normally.





STEP 23. Check the wiring harness between side turn-signal light (LH) connector A-02 (terminal 2) and ETACS-ECU connector C-226 (terminal 14).

NOTE: Also check junction block connector C-210 and intermediate connector C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-210 or intermediate connector C-129 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 turn-signal light (LH) connector A-02 (terminal 2) and ETACS-ECU connector C-226 (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 24. Check the side turn-signal light bulb (RH).

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

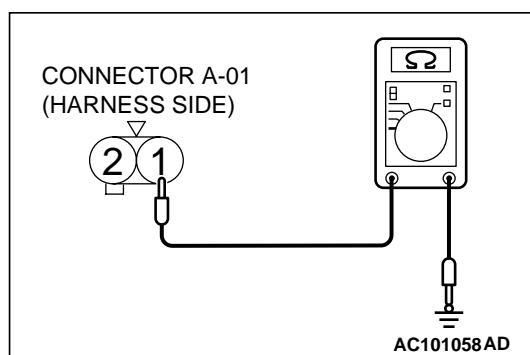
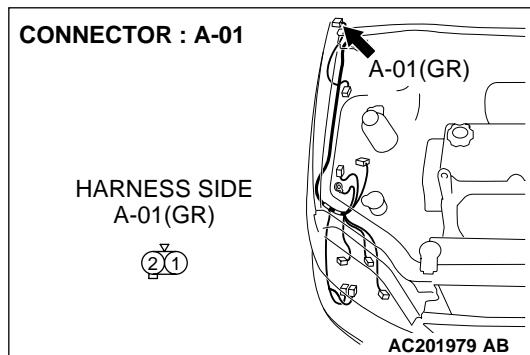
Q: Is the side turn-signal light (RH) bulb in good condition?

YES : Go to Step 25.

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

STEP 25. Check the ground circuit to the side turn-signal light (RH). Test at side turn-signal light (RH) connector A-01.

- (1) Disconnect side turn-signal light (RH) connector A-01 and measure the resistance available at the wiring harness side of the connector.



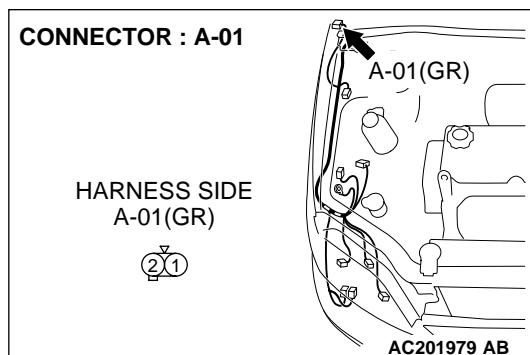
- (2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 28.

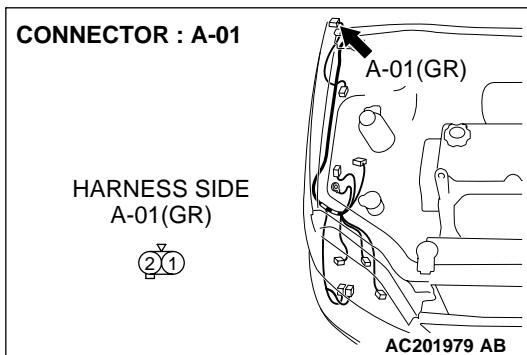
NO : Go to Step 26.

**STEP 26. Check side turn-signal light (RH) connector A-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

Q: Is the side turn-signal light (RH) connector A-01 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.

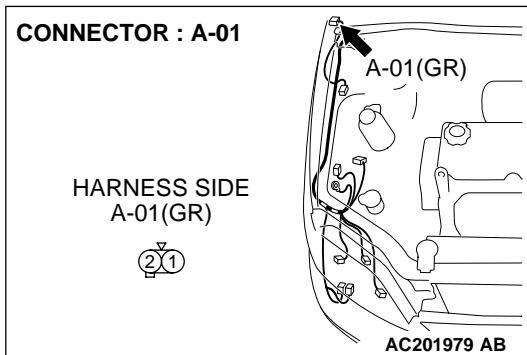


STEP 27. Check the wiring harness between side turn-signal light (RH) connector A-01 (terminal 1) and ground.

Q: Is the wiring harness between side turn-signal light (RH) connector A-01 (terminal 1) 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.

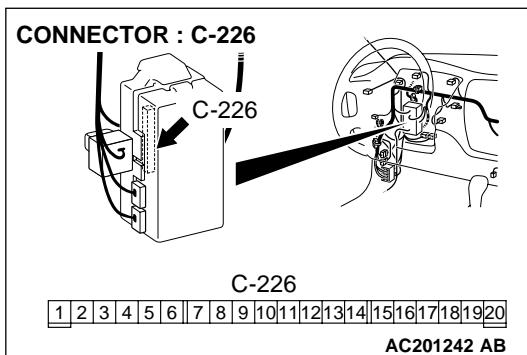


STEP 28. Check side turn-signal light (RH) connector A-01 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are side turn-signal light (RH) connector A-01 and ETACS-ECU connector C-226 in good condition?

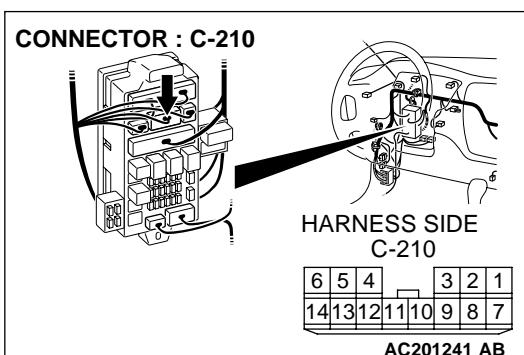
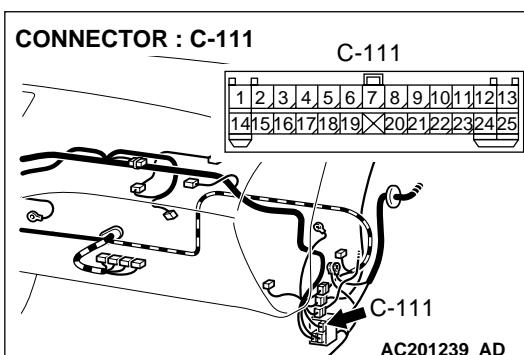
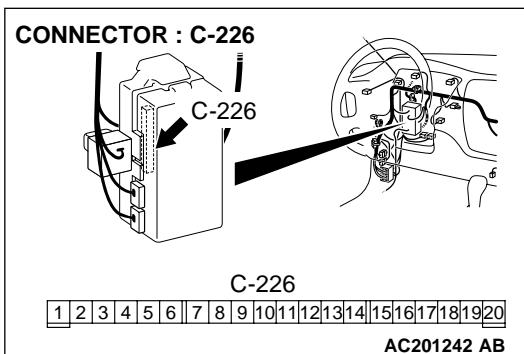
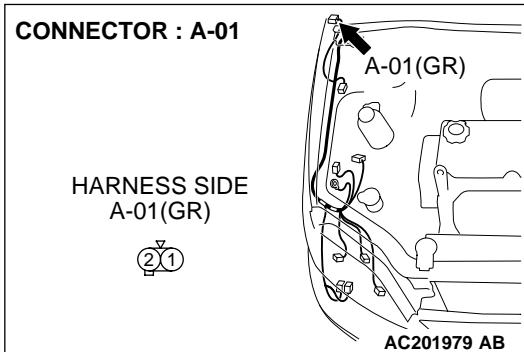
YES : Go to Step 29.

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 side turn-signal light (RH) connector A-01 (terminal 2) and ETACS-ECU connector C-226 (terminal 9).

NOTE: Also check junction block connector C-210 and intermediate connector C-111 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-210 or intermediate connector C-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 turn-signal light (RH) connector A-01 (terminal 2) and ETACS-ECU connector C-226 (terminal 9) 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 30. 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.

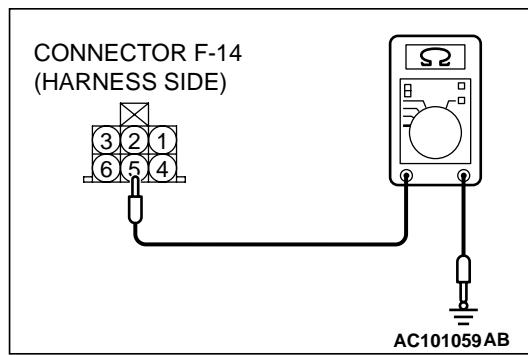
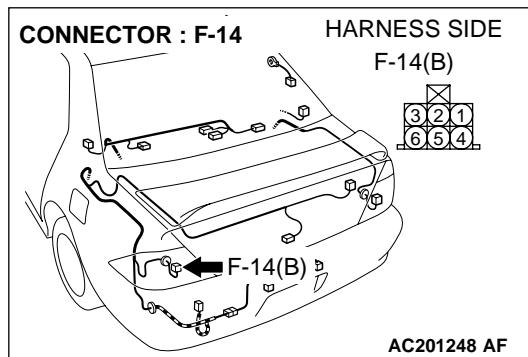
Q: Is the rear turn-signal (LH) light bulb in good condition?

YES : Go to Step 31.

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

STEP 31. Check the ground circuit to the rear turn-signal light (LH). Test at rear combination light (LH) connector F-14.

- (1) Disconnect rear combination light (LH) connector F-14 and measure the resistance available at the wiring harness side of the connector.



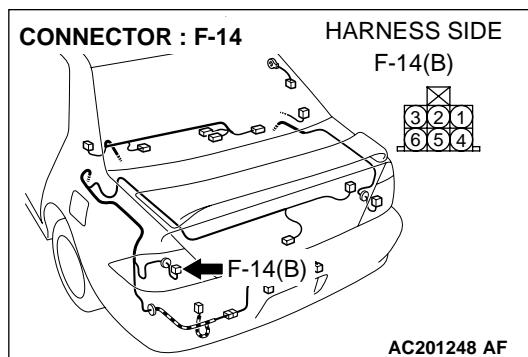
- (2) Measure the resistance value between terminal 5 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 34.

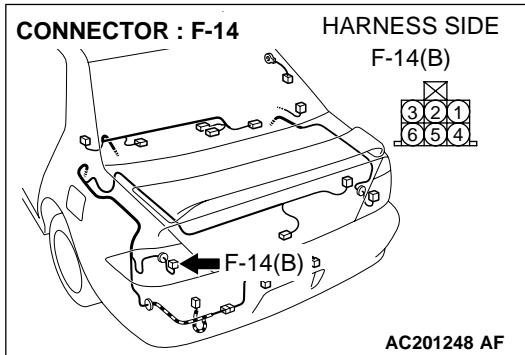
NO : Go to Step 32.

**STEP 32. Check rear combination light (LH) connector F-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

Q: Is rear combination light (LH) connector F-14 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.

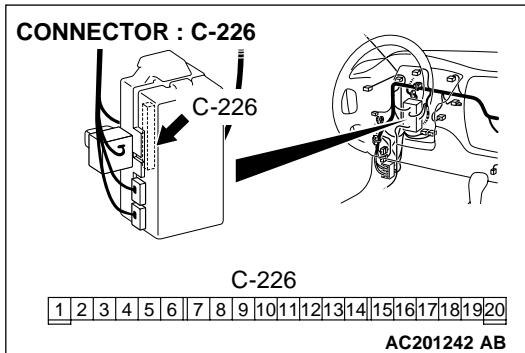


STEP 33. Check the wiring harness between rear combination light (LH) connector F-14 (terminal 5) and ground.

Q: Is the wiring harness between rear combination light (LH) connector F-14 (terminal 5) 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.

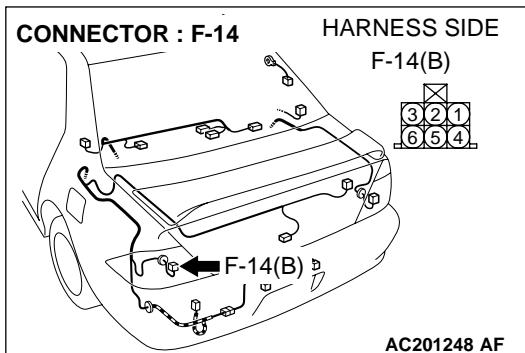


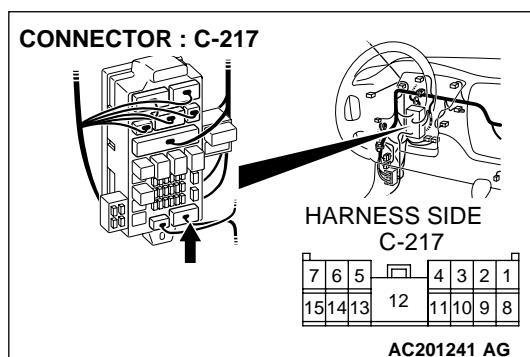
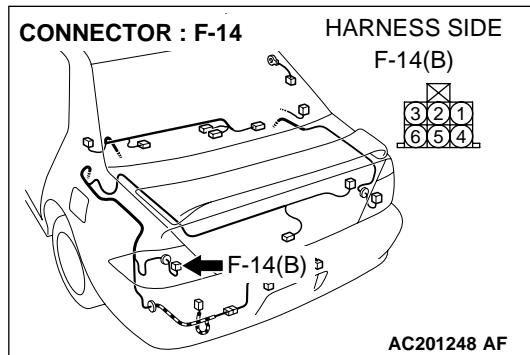
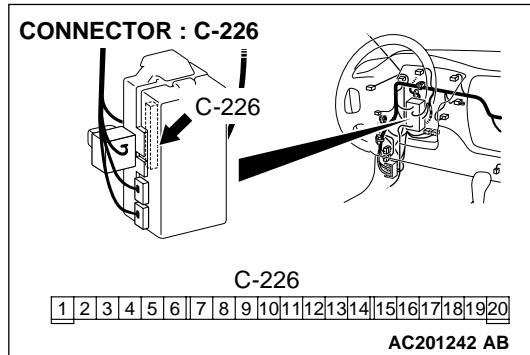
STEP 34. Check rear combination light (LH) connector F-14 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are rear combination light (LH) connector F-14 and ETACS-ECU connector C-226 in good condition?

YES : Go to Step 35.

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 35. Check the wiring harness between rear combination light (LH) connector F-14 (terminal 1) and ETACS-ECU connector C-226 (terminal 14).

NOTE: Also check junction block connector C-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-217 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 F-14 (terminal 1) and ETACS-ECU connector C-226 (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.

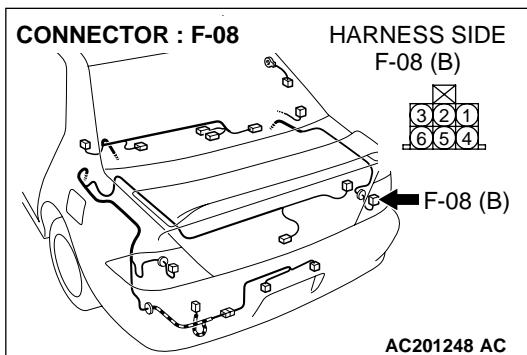
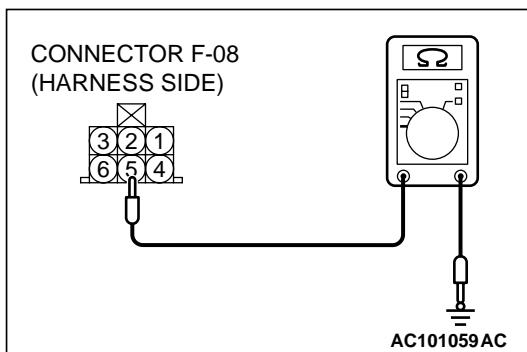
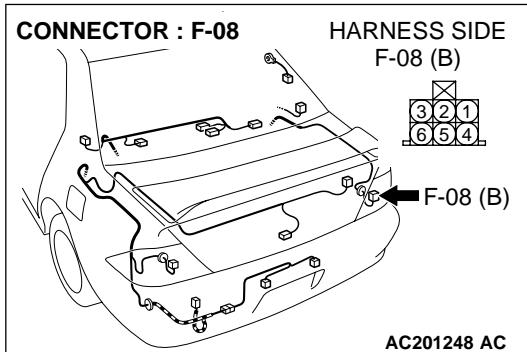
STEP 36. Check the rear turn-signal light bulb (RH).

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

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

YES : Go to Step 37.

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



STEP 37. Check the ground circuit to the rear turn-signal light (RH). Test at rear combination light (RH) connector F-08.

(1) Disconnect rear combination light (LH) connector F-08 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 5 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 40.

NO : Go to Step 38.

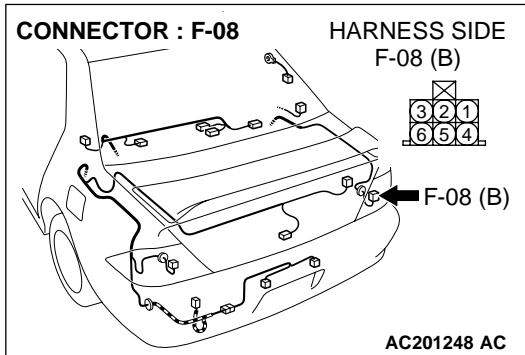
STEP 38. Check rear combination light (RH) connector F-08 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear combination light (RH) connector F-08 in good condition?

YES : Go to Step 39.

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.

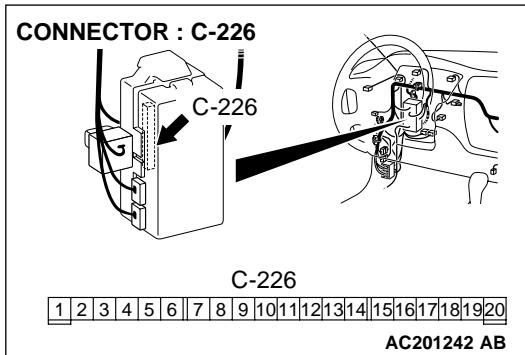


STEP 39. Check the wiring harness between rear combination light (RH) connector F-08 (terminal 5) and ground.

Q: Is the wiring harness between rear combination light (RH) connector F-08 (terminal 5) 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.



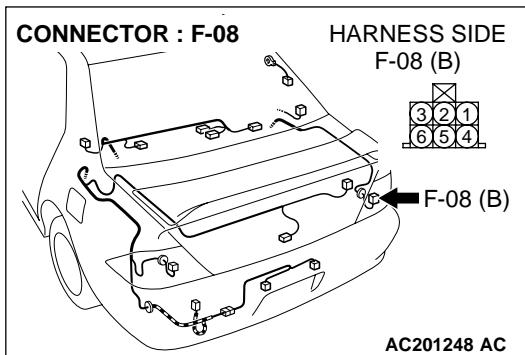
STEP 40. Check rear combination light (RH) connector F-08 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

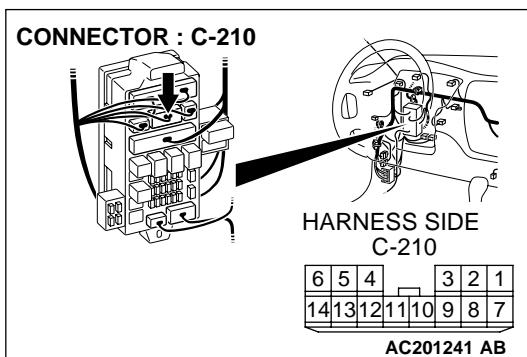
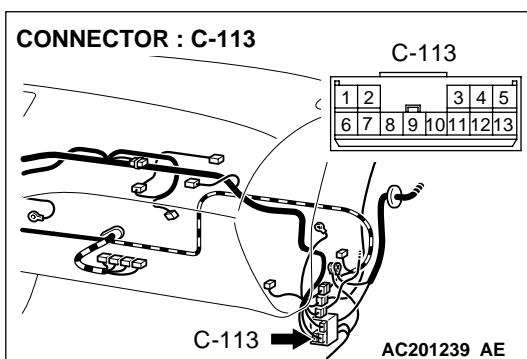
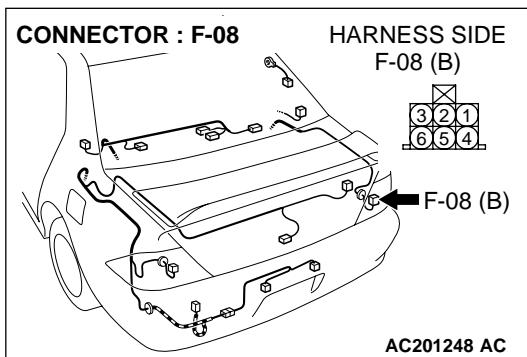
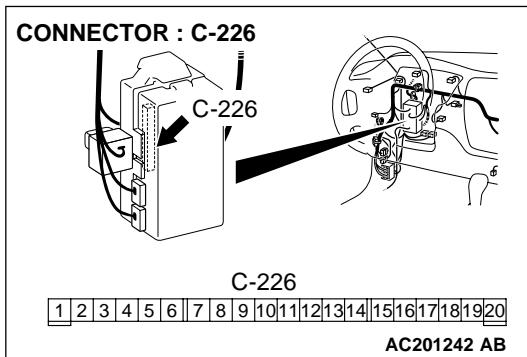
Q: Are rear combination light (RH) connector F-08 and ETACS-ECU connector C-226 in good condition?

YES : Go to Step 41.

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 41. Check the wiring harness between rear combination light (RH) connector F-08 (terminal 1) and ETACS-ECU connector C-226 (terminal 9).

NOTE: Also check junction block connector C-210 and intermediate connector C-113 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-210 or intermediate connector C-113 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 F-08 (terminal 1) and ETACS-ECU connector C-226 (terminal 9) 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.

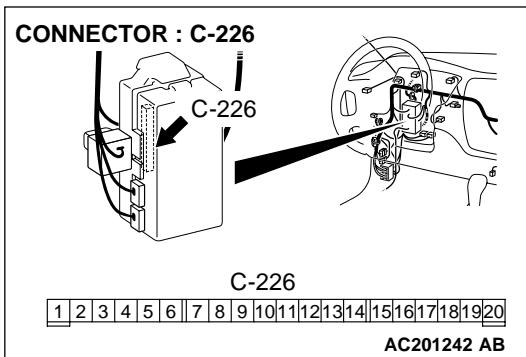
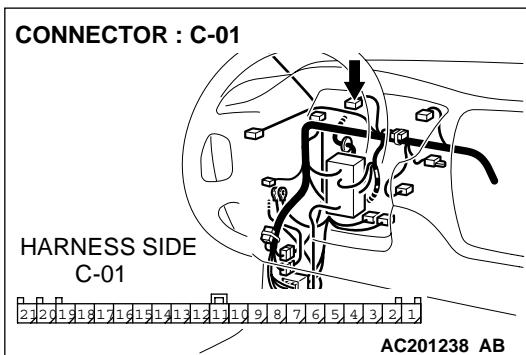
STEP 42. Check combination meter connector C-01 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are combination meter connector C-01 and ETACS-ECU connector C-226 in good condition?

YES : Go to Step 43.

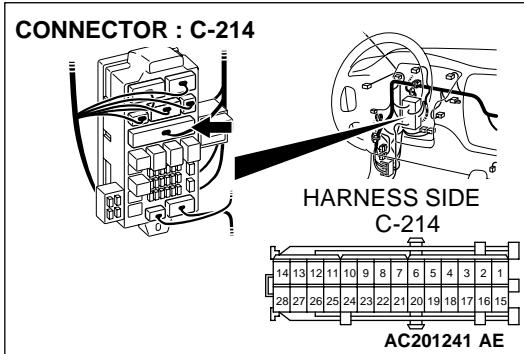
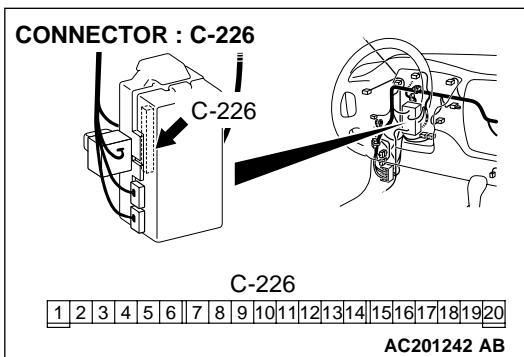
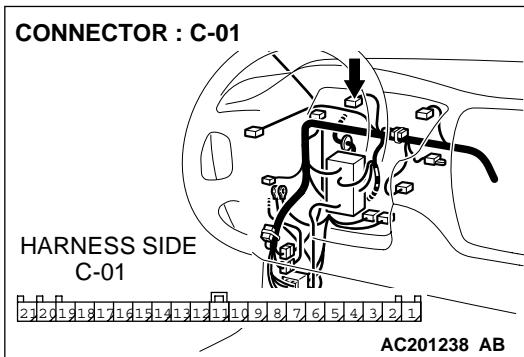
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

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



STEP 43. Check the wiring harness between combination meter connector C-01 (terminal 3) and ETACS-ECU connector C-226 (terminal 14).

NOTE: Also check junction block connector C-214 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-214 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between combination meter connector C-01 (terminal 3) and ETACS-ECU connector C-226 (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.

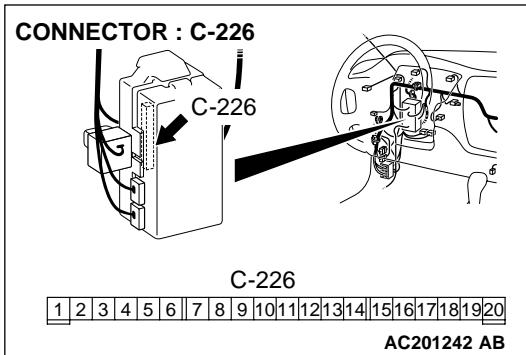
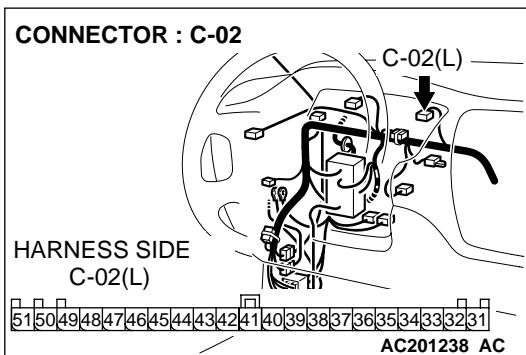
STEP 44. Check combination meter connector C-02 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

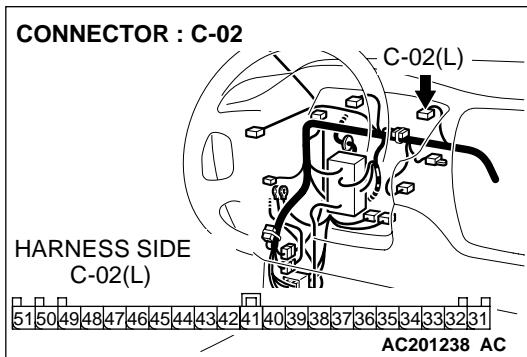
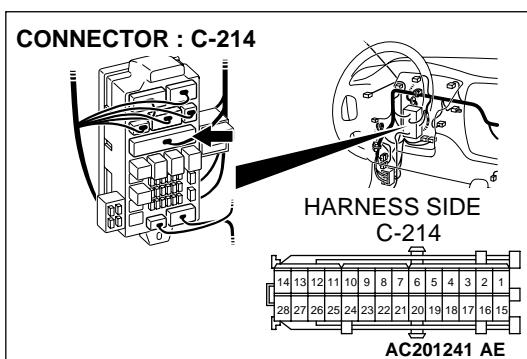
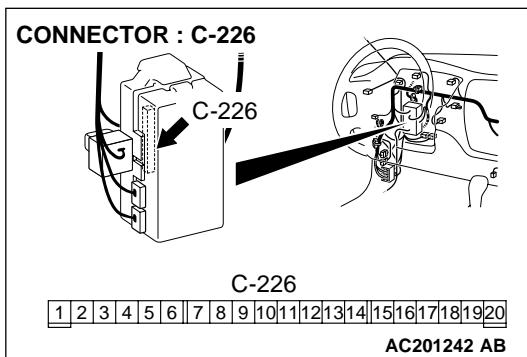
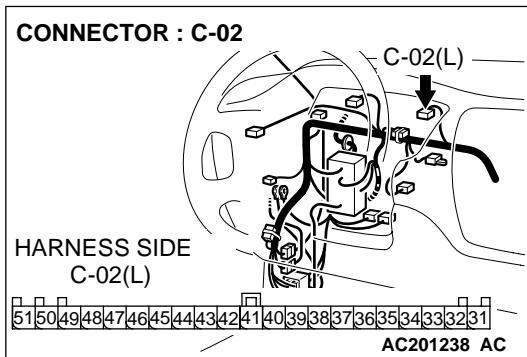
Q: Are combination meter connector C-02 and ETACS-ECU connector C-226 in good condition?

YES : Go to Step 45.

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 45. Check the wiring harness between combination meter connector C-02 (terminal 49) and ETACS-ECU connector C-226 (terminal 9).

NOTE: Also check junction block connector C-214 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-214 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector C-02 (terminal 49) and ETACS-ECU connector C-226 (terminal 9) in good condition?

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

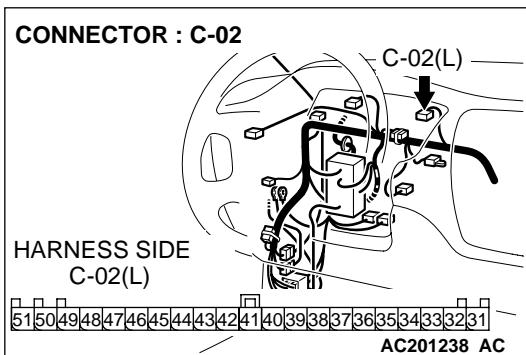
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the turn-signal lights illuminate normally.

STEP 46. Check combination meter connector C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-02 in good condition?

YES : Go to Step 47.

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.

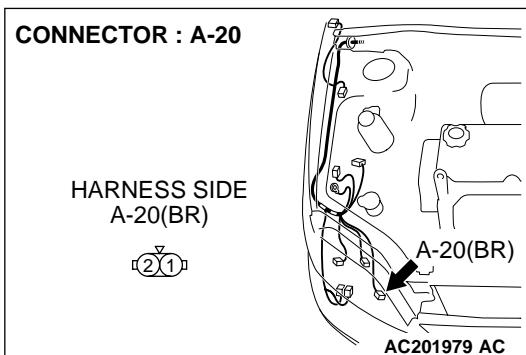


STEP 47. Check the wiring harness between combination meter connector C-02 (terminal 48) and ground.

Q: Is the wiring harness between combination meter connector C-02 (terminal 48) 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.

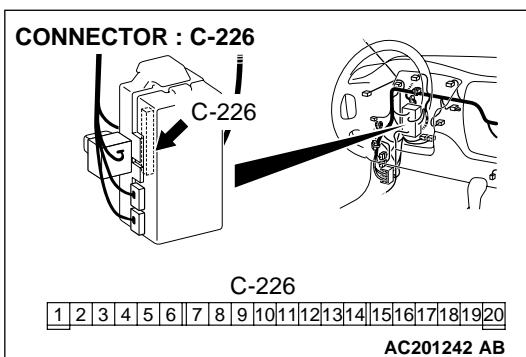


STEP 48. Check front turn-signal light (RH) connector A-20 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are front turn-signal light (RH) connector A-20 and ETACS-ECU connector C-226 in good condition?

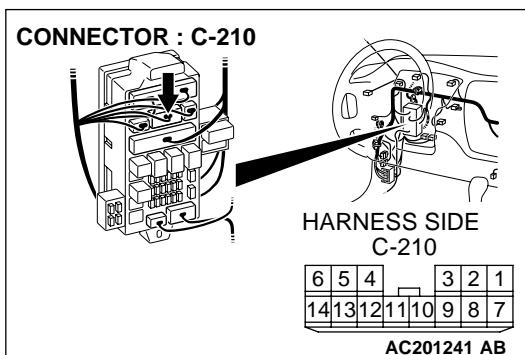
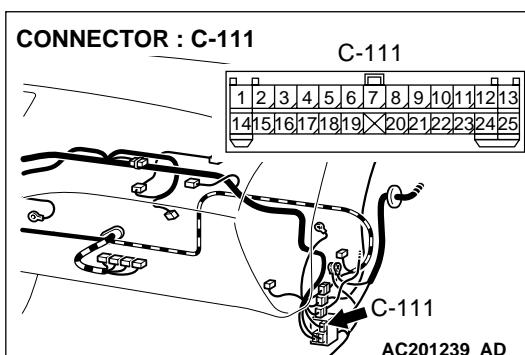
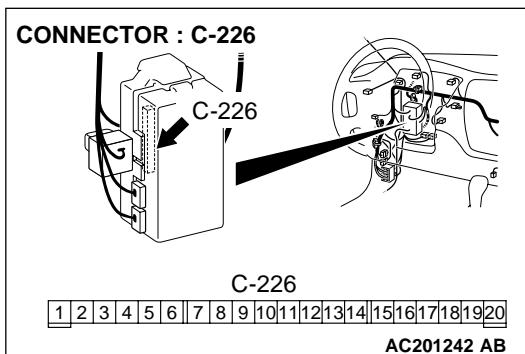
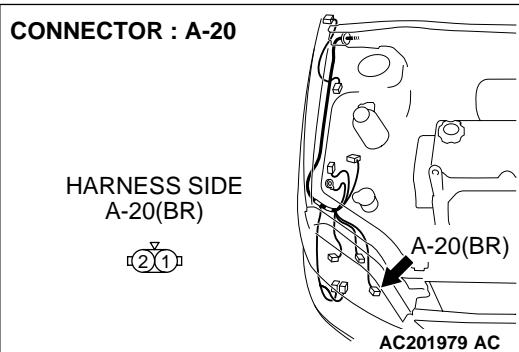
YES : Go to Step 49.

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



STEP 49. Check the wiring harness between front turn-signal light (RH) connector A-20 (terminal 2) and ETACS-ECU connector C-226 (terminal 9).

NOTE: Also check junction block connector C-210 and intermediate connector C-111 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-210 or intermediate connector C-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 front turn-signal light (RH) connector A-20 (terminal 2) and ETACS-ECU connector C-226 (terminal 9) 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.

INTERIOR LIGHT**GENERAL DESCRIPTION CONCERNING THE INTERIOR LIGHT**

M1549021800021

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

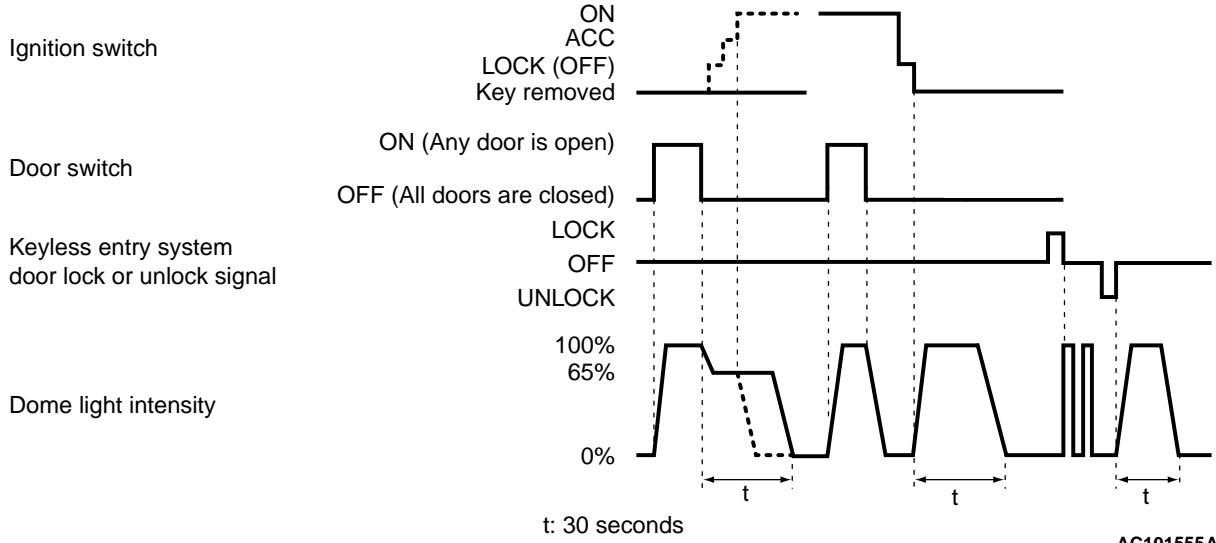
FUNCTIONS	CONTROL ECU
Dome light control function	ETACS-ECU
Interior light automatic-shutdown function	ETACS-ECU

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.

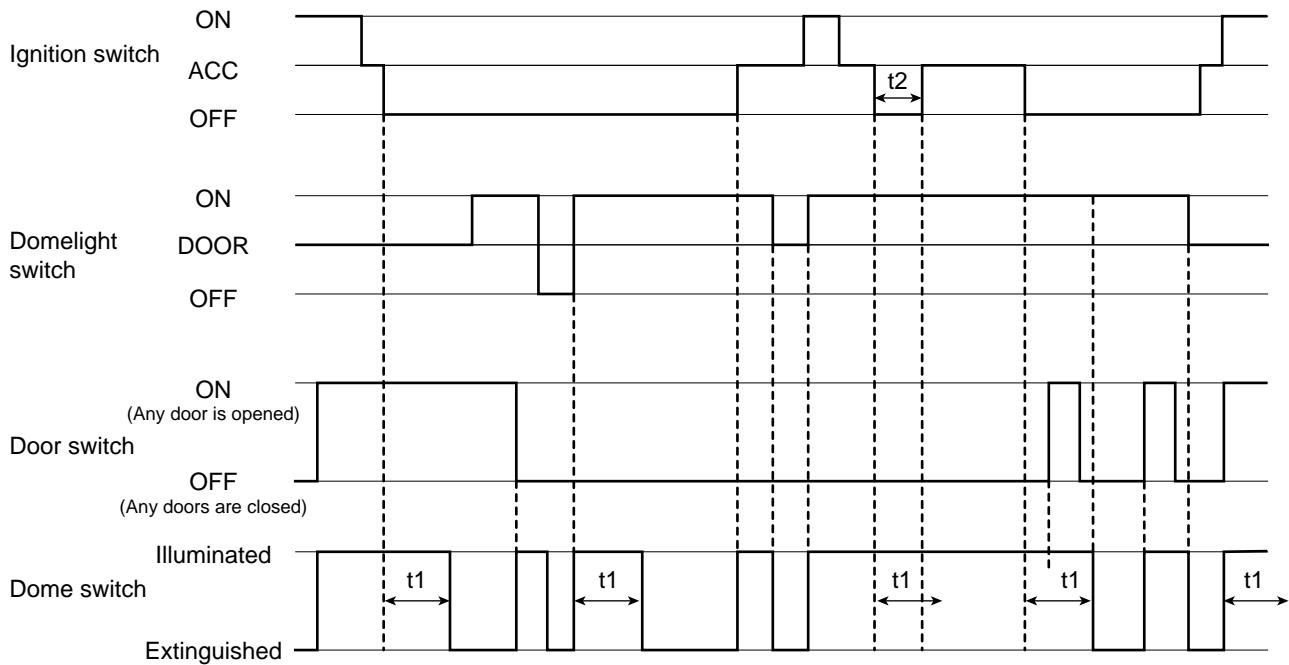


NOTE: The dotted lines indicate that lighting mode when the ignition switch is turned ON, all doors are locked during the timer illumination time.

Interior light automatic-shutdown function

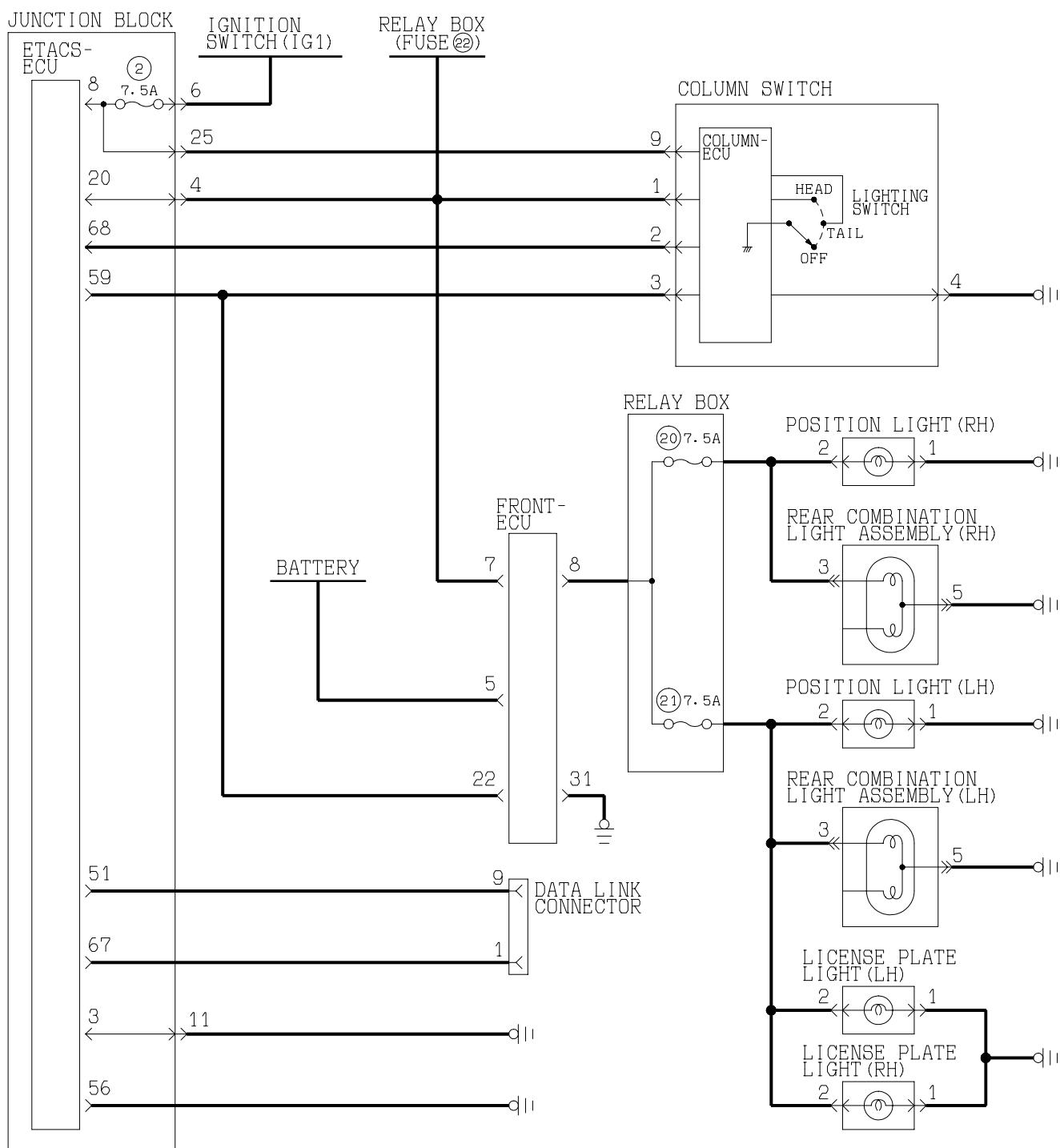
Illuminated interior lights such as the front dome light, etc. (all lights using the dome light fuse as the power supply) will automatically go off in the following conditions to prevent excess battery discharge as a result of forgetting to turn off the lights or incomplete closing of the door.

- When the ignition switch is turned off and more than 30 minutes pass by with the interior light illuminated, the interior lights will go off automatically.
- When the ignition switch is turned off and any door switch remains open for 30 minutes continuously, the interior lights will go off automatically.



AC106815AB

General circuit diagram for the interior light

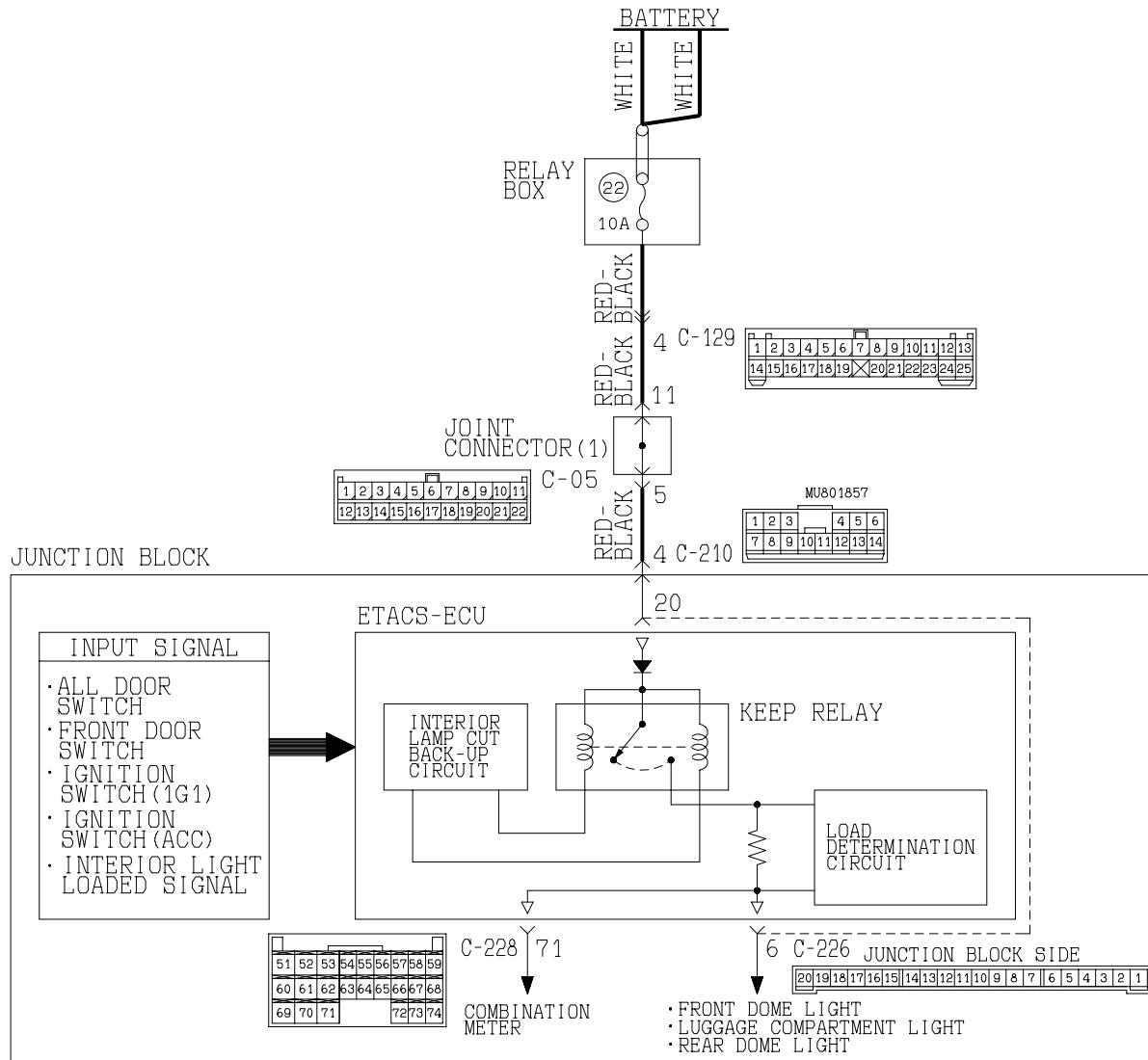


W3J10M03AA

INSPECTION PROCEDURE L-1: Interior Light: The front dome light, rear dome light <vehicles without sunroof> and luggage compartment light do not illuminate or go out normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Interior Light Automatic Shut-down Function Circuit



W3J01M22AB

CIRCUIT OPERATION

The ETACS-ECU illuminates the front dome light, the rear dome light and the luggage compartment light 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, the rear dome light and luggage compartment 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 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Verify the adjustment function.

Q: Is the dome 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 dome light delay-off time to "7.5 seconds", "10 seconds, "15 seconds" or "30 seconds by using the adjustment function." Verify that the dome light illuminates normally.

STEP 2. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the ETACS-ECU

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 according to the procedure below to display "ECU COMM CHK."

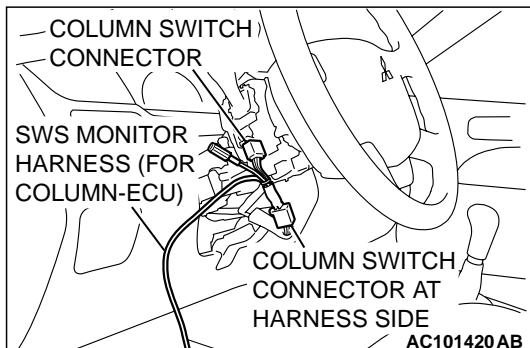
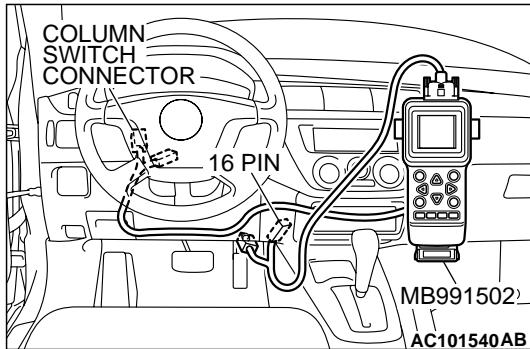
1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "ECU COMM CHK."

- (5) Scan tool MB991502 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.54Bb-22](#)."



STEP 3. Check the input signal by using "DATA LIST" menu of the SWS monitor.

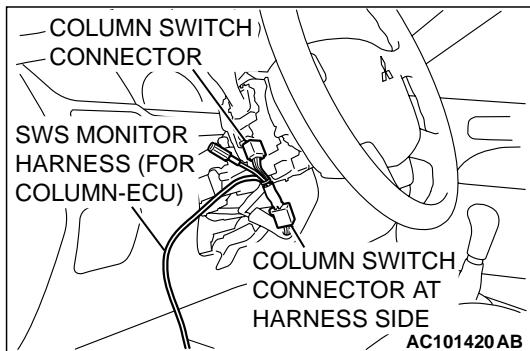
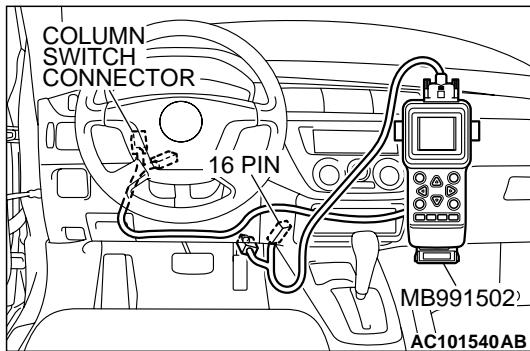
Check the input signals from the following switches:

- Ignition switch: ON or START
- Driver's door: open

Operate scan tool MB991502 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"?

YES : Go to Step 4.

- NO :**
- Normal condition is not displayed on the "IG SW (IG1)": Refer to Inspection Procedure M-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) [P.54Bc-6](#)."
 - Normal condition is not displayed on the "FRONT DOOR SW": Refer to Inspection Procedure M-4 "ETACS-ECU does not receive a signal from the driver's or the front passenger's door switch [P.54Bc-24](#)."

STEP 4. Check the input signal by using the pulse check mode of the monitor.

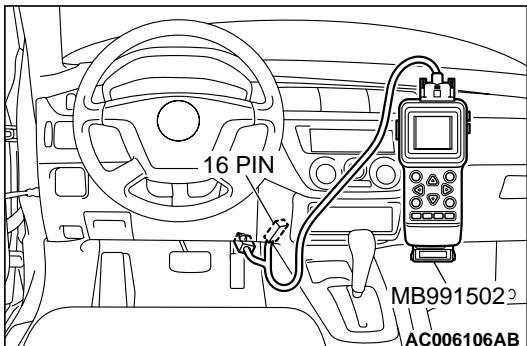
Check the following switches and input signals:

- Key reminder switch
- All door switches
- Interior light loaded signal

Operate scan tool MB991502 according to the procedure below to display "PULSE CHECK."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

Check if scan tool MB991502 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
Interior light loaded signal	Illuminate one of the interior lights

Q: When the key reminder switch, each door switch and the interior light are operated, does scan tool MB991502 sound in each case?

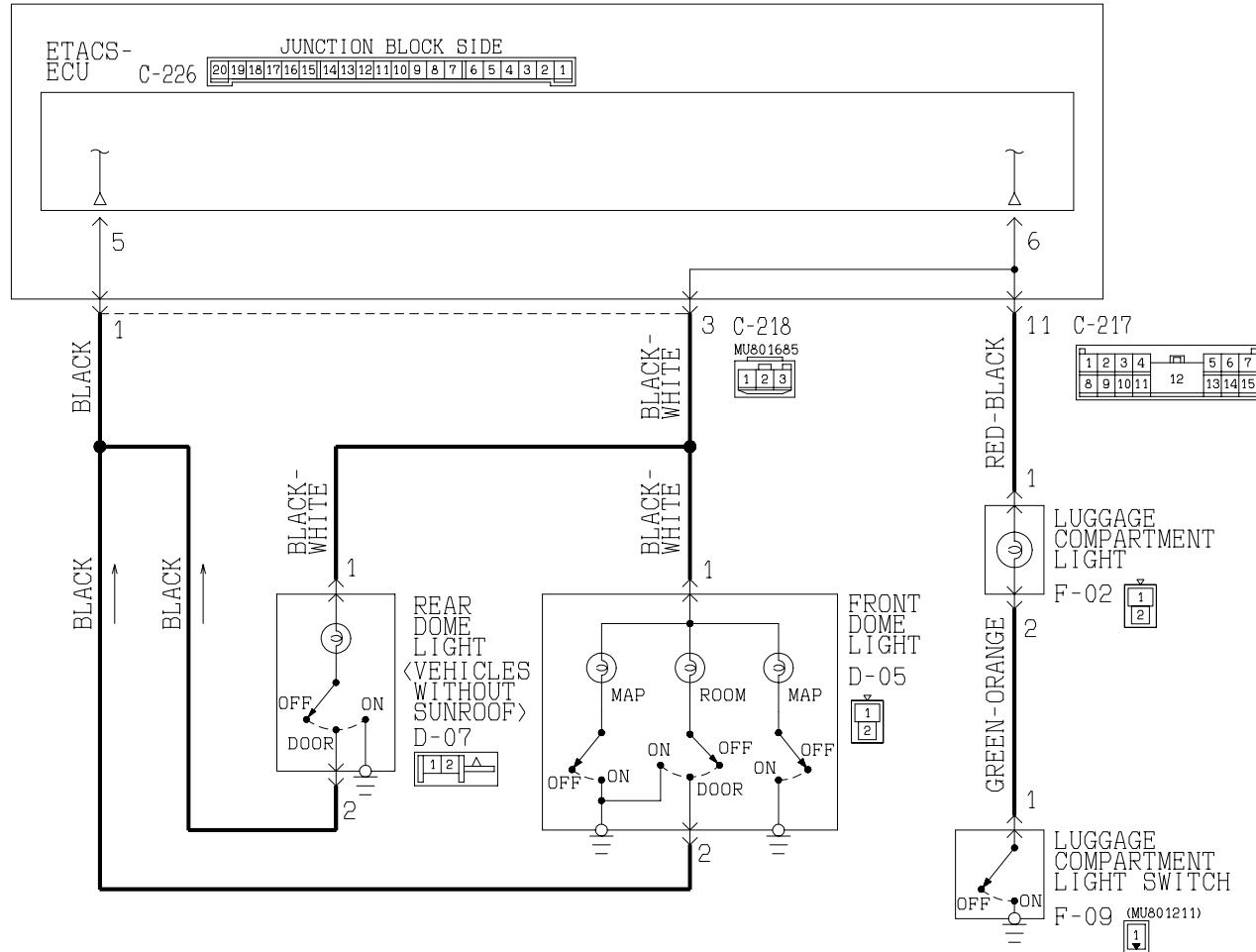
YES : Replace the ETACS-ECU. Verify that the dome light illuminates normally.

- NO :**
- Scan tool MB991502 does not sound when the ignition key is removed and reinserted: Refer to Inspection Procedure N-1 "ETACS-ECU does not receive a signal from the key reminder switch [P.54Bc-45](#)."
 - When one of the doors is opened and closed, scan tool MB991502 does not sound: Refer to Inspection Procedure N-4 "ETACS-ECU does not receive a signal from all the door switches [P.54Bc-60](#)."
 - When one of the interior lights is illuminated, scan tool MB991502 does not sound: Refer to Inspection Procedure N-10 "ETACS-ECU does not receive any interior light loaded signal [P.54Bc-101](#)."

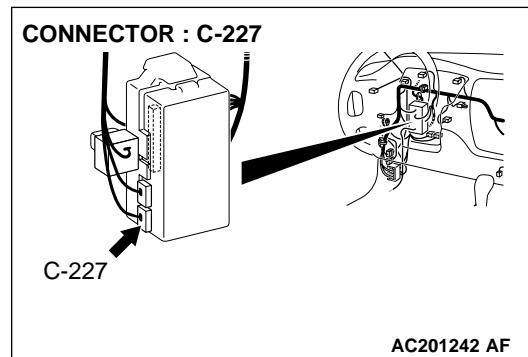
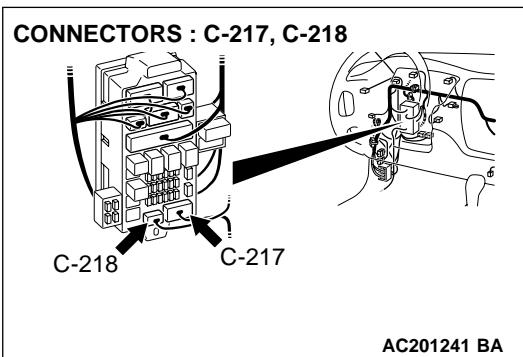
INSPECTION PROCEDURE L-2: Interior Light: The front dome light, rear dome light <vehicles without sunroof> or luggage compartment light does not illuminate or go out normally.

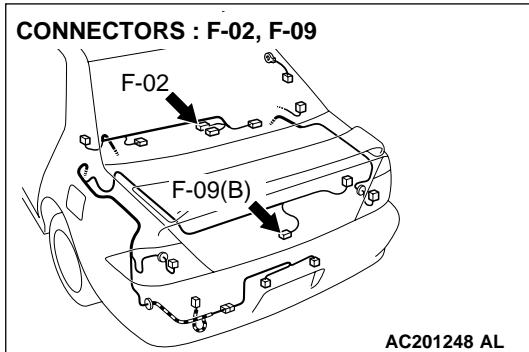
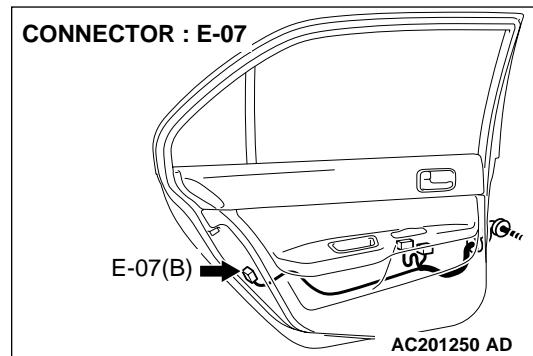
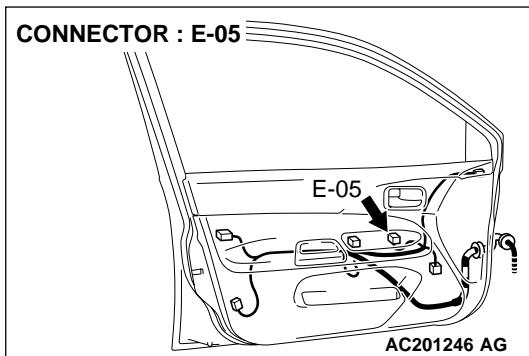
Interior Lights and Luggage Compartment Light Circuit

JUNCTION BLOCK



W3J01M23AA





CIRCUIT OPERATION

The ETACS-ECU operates the dome light according to the following signals:

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

TECHNICAL DESCRIPTION (COMMENT)

If the dome light does not flash normally, a burned-out dome light bulb, the input circuits from the switches described in "CIRCUIT OPERATION", the power supply line to the switches or the ETACS-ECU may be defective. 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 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
- MB991502: Scan Tool (MUT-II)

STEP 1. Verify which of the front dome light, the rear dome light <vehicles without sunroof> or the luggage compartment light does not illuminate normally.

Q: Which of the front dome light, the rear dome light <vehicles without sunroof> or the luggage compartment light fail to illuminate normally?

Front dome light does not illuminate normally : Go to Step 2.

rear dome Light <vehicles without sunroof> : Go to Step 8.

luggage compartment light : Go to Step 14.

STEP 2. Verify the front dome light bulb.

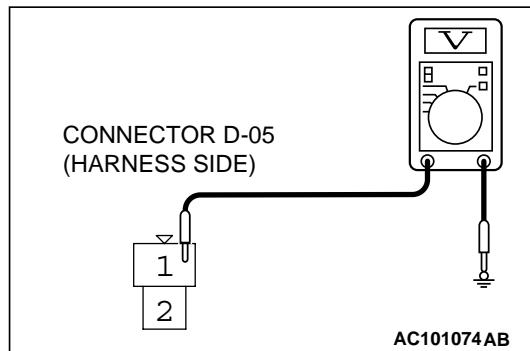
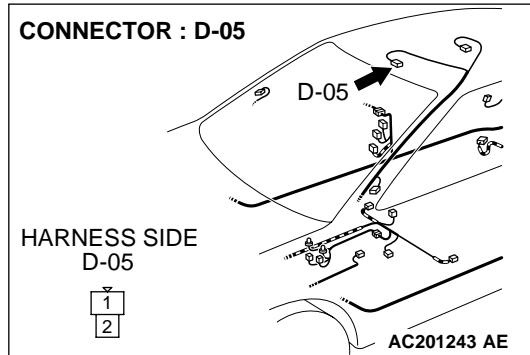
Q: Is the front dome light bulb in good condition?

YES : Go to Step 3.

NO : Replace the bulb. Verify that the front dome light illuminates normally.

STEP 3. Check the battery power supply circuit to the front dome light. Test at front dome light connector D-05.

(1) Disconnect front dome light connector D-05 and measure the voltage available at the harness side of the connector.



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

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

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

YES : Go to Step 6.

NO : Go to Step 4.

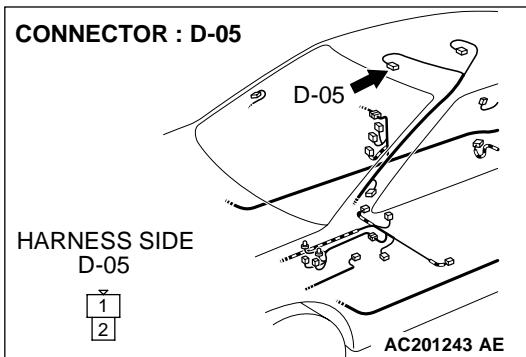
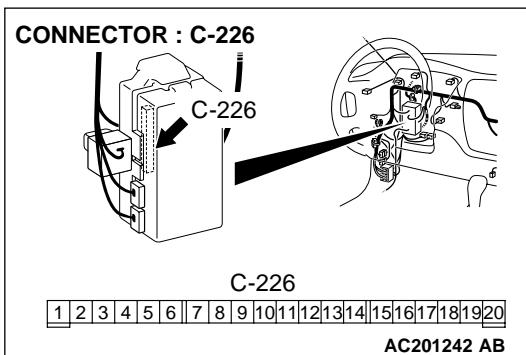
STEP 4. Check front dome light connectors D-05 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

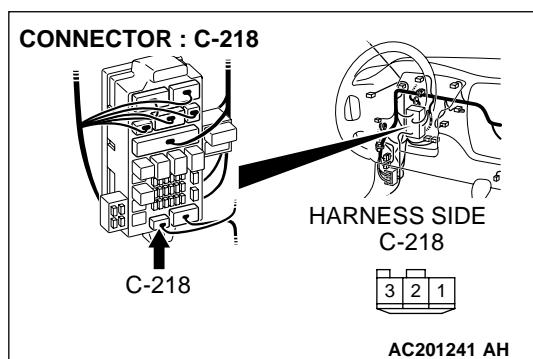
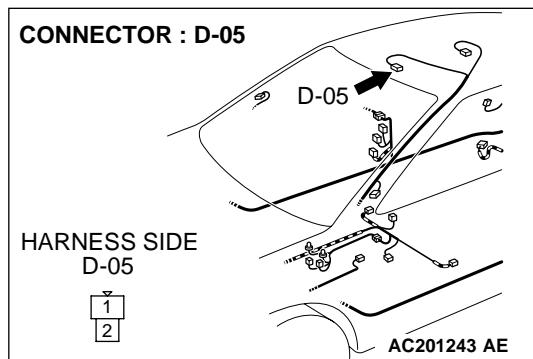
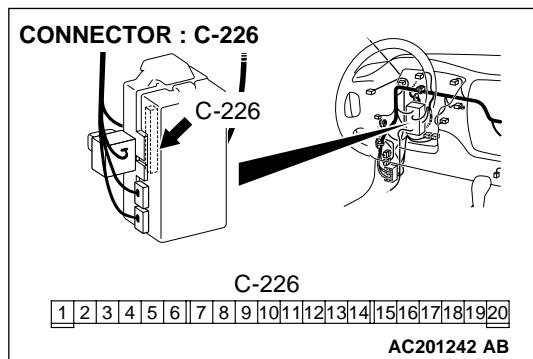
Q: Are front dome light connector D-05 and ETACS-ECU connector C-226 in good condition?

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 front dome light illuminates normally.





STEP 5. Check the wiring harness between front dome light connector D-05 (terminal 1) and ETACS-ECU connector C-226 (terminal 6).

NOTE: Also check junction block connector C-218 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-218 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 dome light connector D-05 (terminal 1) and ETACS-ECU connector C-226 (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 front dome light illuminates normally.

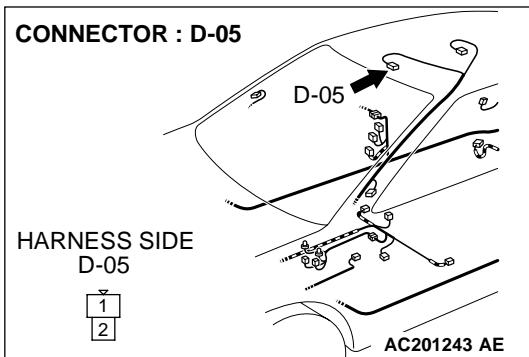
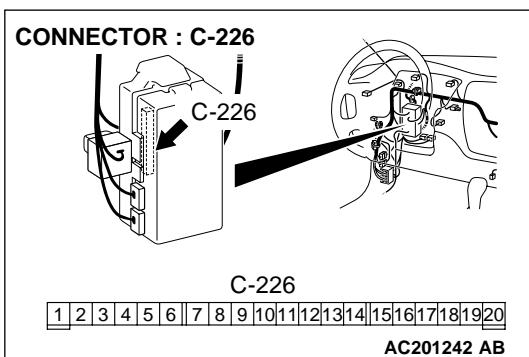
STEP 6. Check front dome light connectors D-05 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

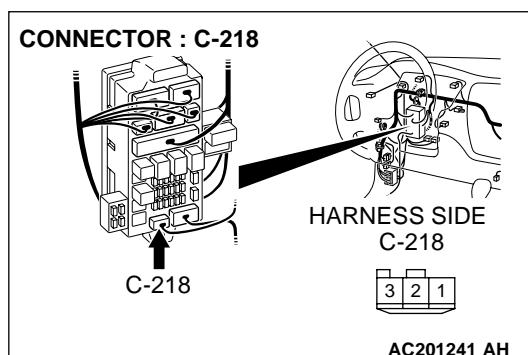
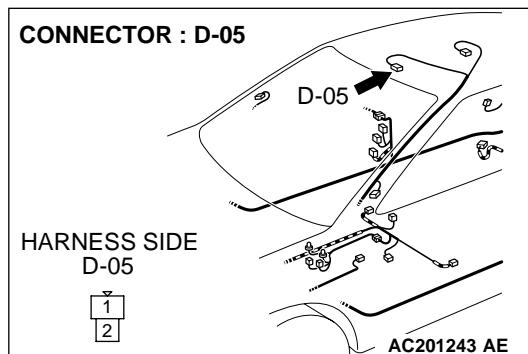
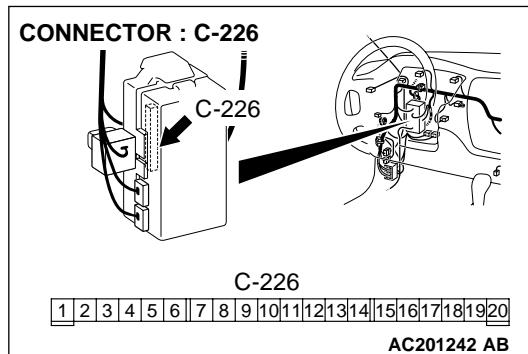
Q: Are front dome light connector D-05 and ETACS-ECU connector C-226 in good condition?

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 front dome light illuminates normally.





STEP 7. Check the wiring harness between front dome light connector D-05 (terminal 2) and ETACS-ECU connector C-226 (terminal 5).

NOTE: Also check junction block connector C-218 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-218 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 dome light connector D-05 (terminal 2) and ETACS-ECU connector C-226 (terminal 5) in good condition?

YES : Replace the ETACS-ECU. Verify that the front dome light illuminates normally.

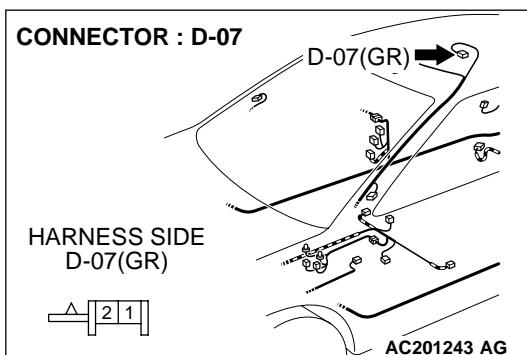
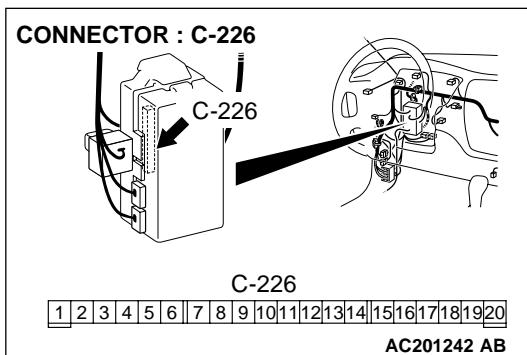
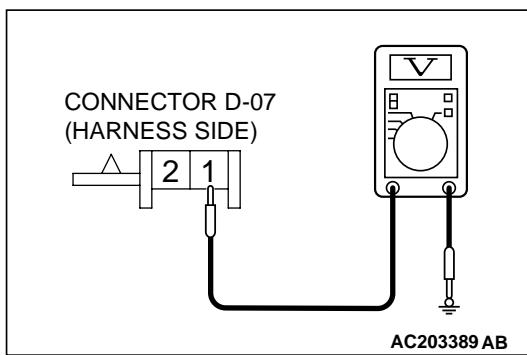
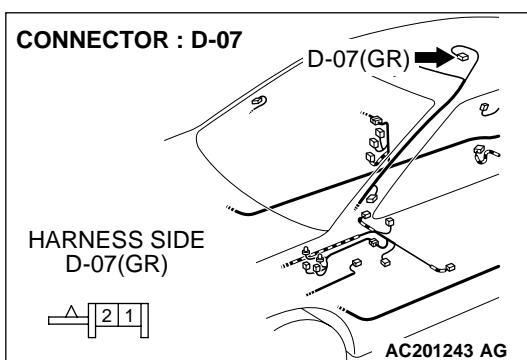
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the front dome light illuminates normally.

STEP 8. Verify the rear dome light bulb.

Q: Is the rear dome light bulb in good condition?

YES : Go to Step 9.

NO : Replace the bulb. Verify that the rear dome lights illuminate normally.



STEP 9. Check the battery power supply circuit to the rear dome light. Test at rear dome light connector D-07.

(1) Disconnect rear dome light connector D-07 and measure the voltage available at the harness side of the connector.

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

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

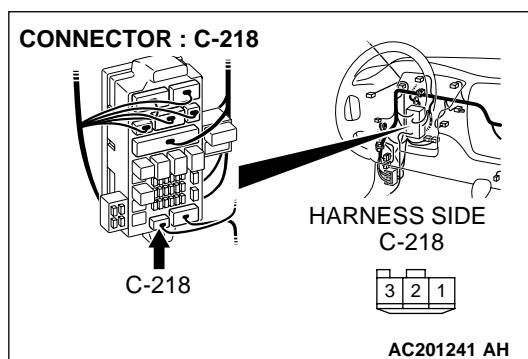
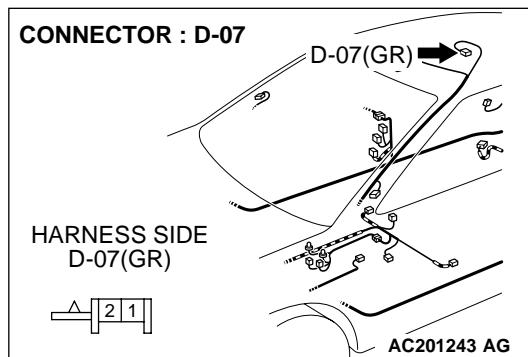
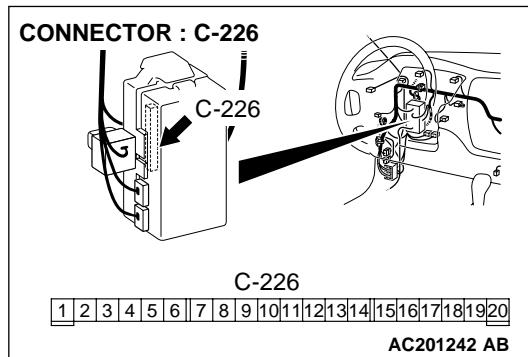
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 12.
NO : Go to Step 10.

STEP 10. Check rear dome light connectors D-07 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are rear dome light connector D-07 and ETACS-ECU connector C-226 in good condition?

YES : Go to Step 11.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection
[P.00E-2](#). Verify that the rear dome lights illuminate normally.



STEP 11. Check the wiring harness between rear dome light connector D-07 (terminal 1) and ETACS-ECU connector C-226 (terminal 6).

NOTE: Also check junction block connector C-218 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-218 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 dome light connector D-07 (terminal 1) and ETACS-ECU connector C-226 (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 rear dome lights illuminate normally.

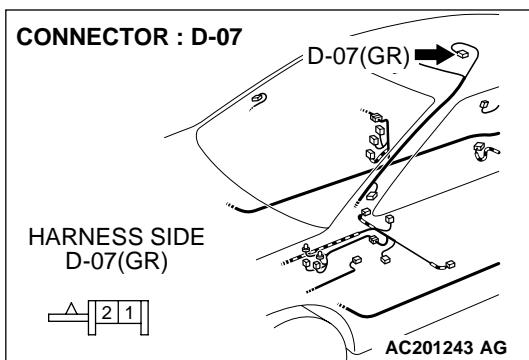
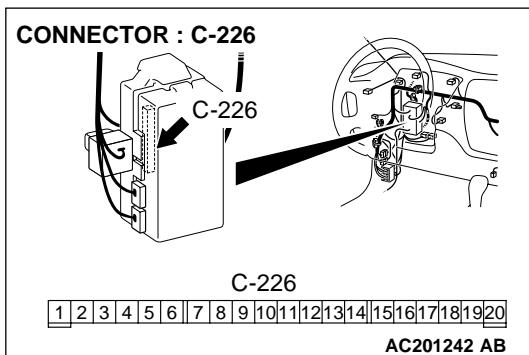
STEP 12. Check rear dome light connectors D-07 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

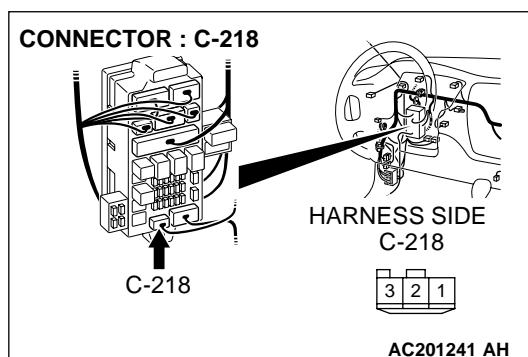
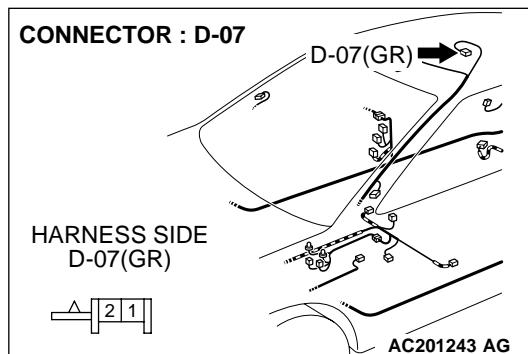
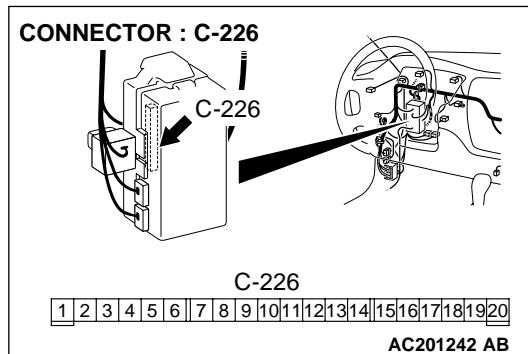
Q: Are rear dome light connector D-07 and ETACS-ECU connector C-226 in good condition?

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 rear dome lights illuminate normally.





STEP 13. Check the wiring harness between rear dome light connector D-07 (terminal 2) and ETACS-ECU connector C-226 (terminal 5).

NOTE: Also check junction block connector C-218 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-218 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 dome light connector D-07 (terminal 2) and ETACS-ECU connector C-226 (terminal 5) in good condition?

YES : No action is necessary and testing is complete.

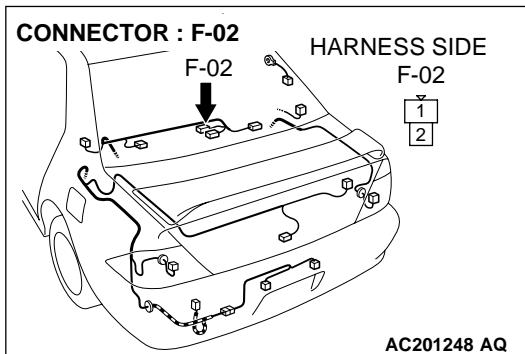
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the rear dome lights illuminate normally.

STEP 14. Verify the luggage compartment light bulb.

Q: Is the luggage compartment bulb in good condition?

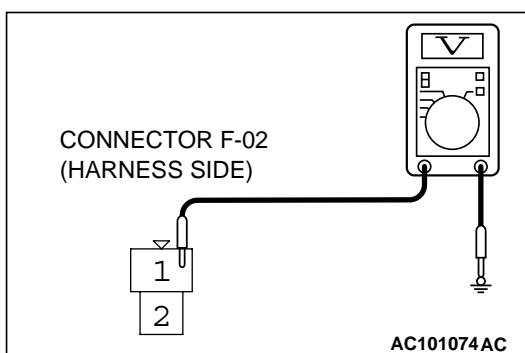
YES : Go to Step 15

NO : Replace the bulb. Verify that the luggage compartment lights illuminate normally.



STEP 15. Check the battery power supply circuit to the luggage compartment light. Test at luggage compartment light F-02.

- (1) Disconnect luggage compartment light F-02 and measure the voltage available at the harness side of the connector.



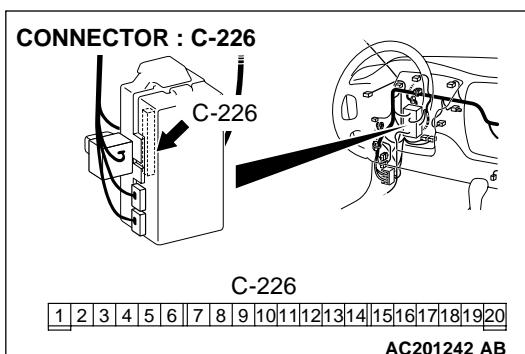
- (2) Measure the voltage between terminal 1 and ground.

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

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

YES : Go to Step 18.

NO : Go to Step 16.



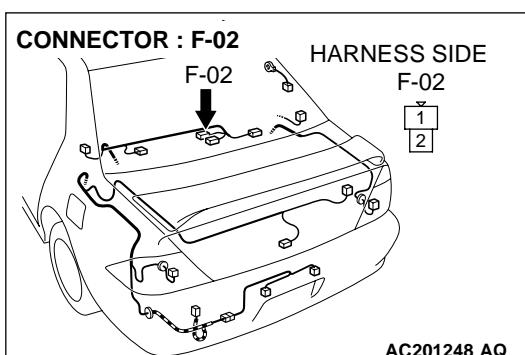
STEP 16. Check luggage compartment light connector F-02 and ETACS-ECU connector C-226 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

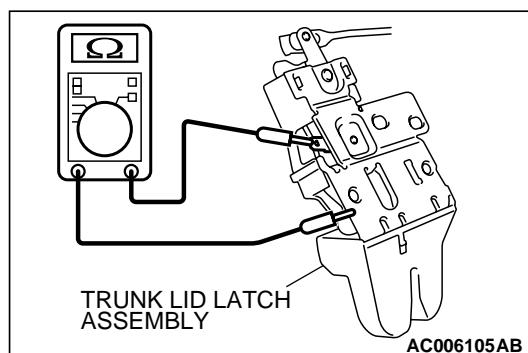
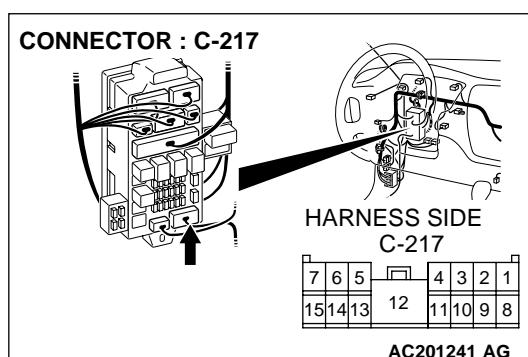
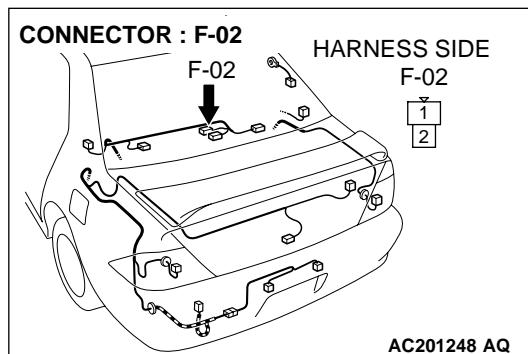
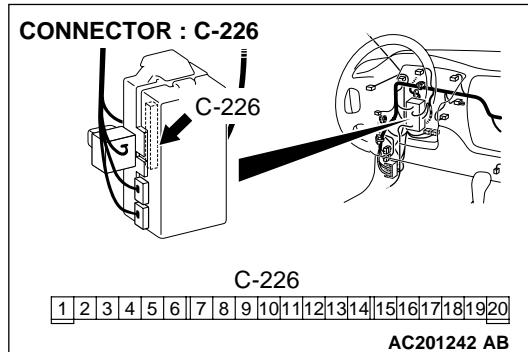
Q: Are luggage compartment light connector F-02 and ETACS-ECU connector C-226 in good condition?

YES : Go to Step 17.

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

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





STEP 17. Check the wiring harness between luggage compartment light connector F-02 (terminal 1) and ETACS-ECU connector C-226 (terminal 6).

NOTE: Also check junction block connector C-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-217 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 luggage compartment light connector F-02 (terminal 1) and ETACS-ECU connector C-226 (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 luggage compartment lights illuminate normally.

STEP 18. Check the luggage compartment light switch.

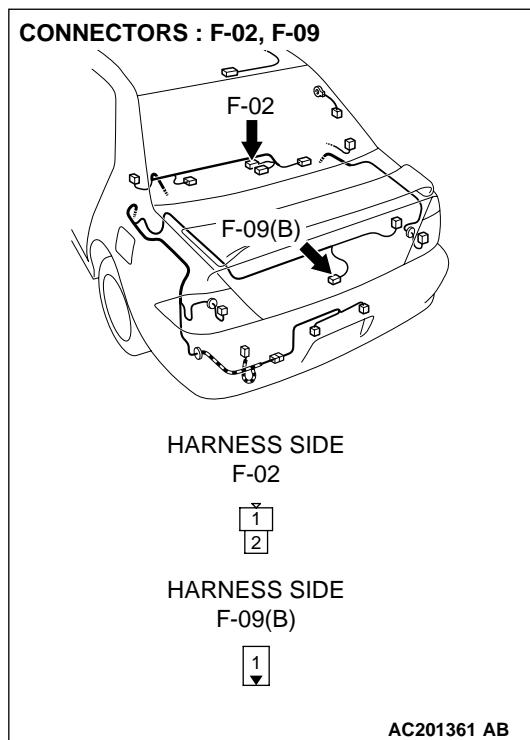
Disconnect luggage compartment light switch connector F-09. Then check the continuity between the switch and ground.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
ON (Latch open)	1 – Ground	Less than 2 ohms
OFF (Latch shut)	1 – Ground	Open circuit

Q: Is the luggage compartment light switch in good condition?

YES : Go to Step 19.

NO : Replace the luggage compartment light switch. Verify that the luggage compartment lights illuminate normally.

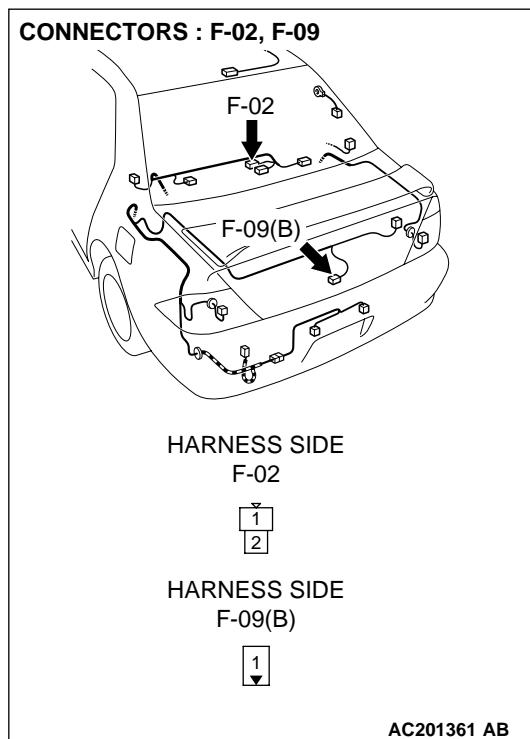


STEP 19. Check luggage compartment light connector F-02 and luggage compartment light switch connector F-09 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are luggage compartment light connector F-02 and luggage compartment light switch connector F-09 in good condition?

YES : Go to Step 20.

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



STEP 20. Check the wiring harness between luggage compartment light connector F-02 (terminal 2) and luggage compartment light switch connector F-09 (terminal 1).

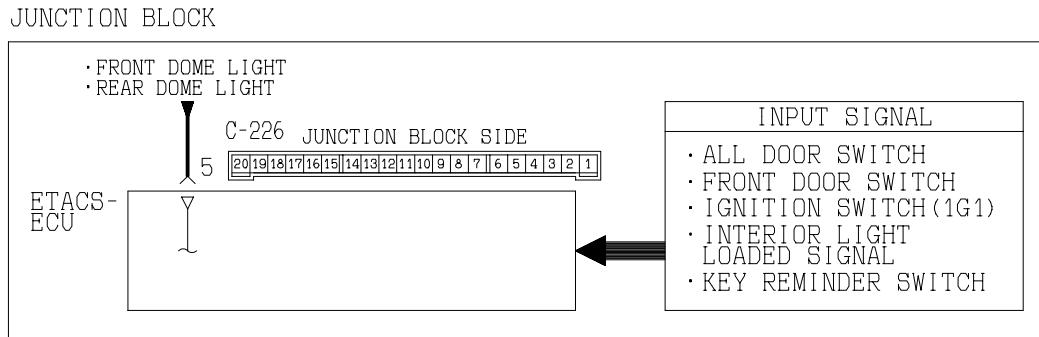
Q: Is the wiring harness between luggage compartment light connector F-02 (terminal 2) and luggage compartment light switch connector F-09 (terminal 1) in good condition?

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 luggage compartment lights illuminate normally.

INSPECTION PROCEDURE L-3: Interior Light: Front dome light and rear dome light <vehicles without sunroof> dimming function does not work normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Interior Light Automatic Shut-down Function Circuit

W3J01M24AA

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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Verify the front dome light and the rear dome light.

If the front dome light switch and the rear dome light switch <vehicles without sunroof> are moved to the "door interlock position", the front dome light and the rear dome light <vehicles without sunroof> should illuminate when either door is opened.

Q: Do the front dome light and the rear dome light <vehicles without sunroof> illuminate normally?

Both the front dome light and the rear dome light <vehicles without sunroof> illuminate normally. : Go to Step 2.

Neither the front dome light nor the rear dome light <vehicles without sunroof> illuminates normally. : Refer to Inspection Procedure L-1 "Front dome light, rear dome light and luggage compartment light do not illuminate or go out normally [P.54Bb-401](#)."

Either the front dome light or the rear dome light <vehicles without sunroof> illuminates normally. : Refer to Inspection Procedure L-2 "Front dome light, rear dome light or luggage compartment light do not illuminates or goes out normally [P.54Bb-406](#)."

STEP 2. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the ETACS-ECU.

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 according to the procedure below to display "ECU COMM CHK."

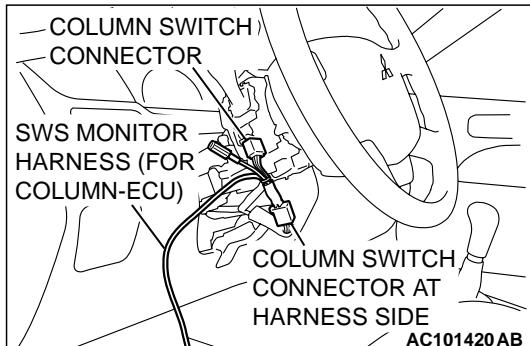
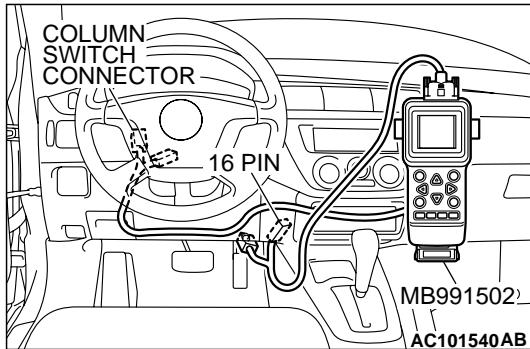
1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "ECU COMM CHK."

- (5) Scan tool MB991502 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.54Bb-22](#)."



STEP 3. Check the input signal by using "DATA LIST" menu of the SWS monitor.

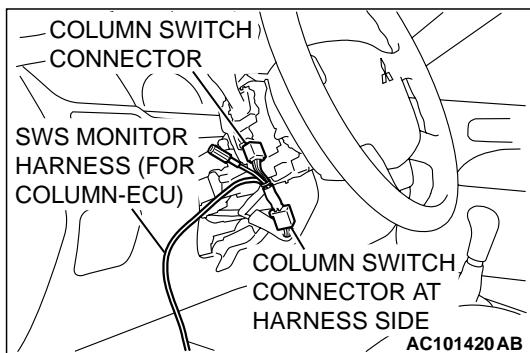
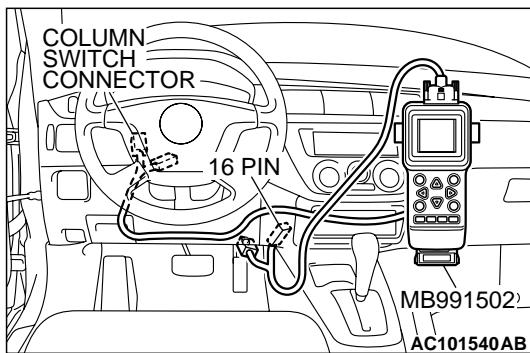
Check the input signals from the following switches:

- Ignition switch: ON or START
- Driver's door: open

Operate scan tool MB991502 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"?

YES : Go to Step 4.

- NO :**
- Normal condition is not displayed on the "IG SW (IG1)": Refer to Inspection Procedure M-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) [P.54Bc-6](#)."
 - Normal condition is not displayed on the "FRONT DOOR SW": Refer to Inspection Procedure M-4 "ETACS-ECU does not receive a signal from the driver's or the front passenger's door switch [P.54Bc-24](#)."

STEP 4. Check the input signal by using the pulse check mode of the monitor.

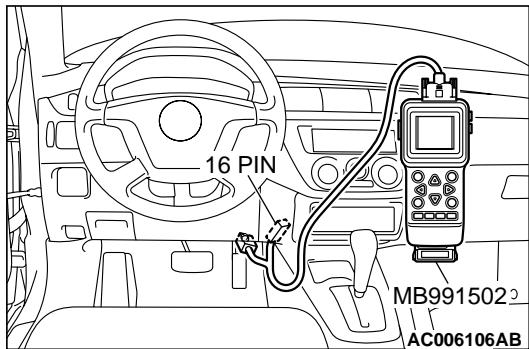
Check the following switches and input signals:

- Key reminder switch
- All door switches
- Interior light loaded signal

Operate scan tool MB991502 according to the procedure below to display "PULSE CHECK."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

Check if scan tool MB991502 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
Interior light loaded signal	Illuminate one of the interior lights

Q: When the key reminder switch, each door switch and the interior light are operated, does scan tool MB991502 sound in each case?

YES : Replace the ETACS-ECU. Verify that the dome light illuminates normally.

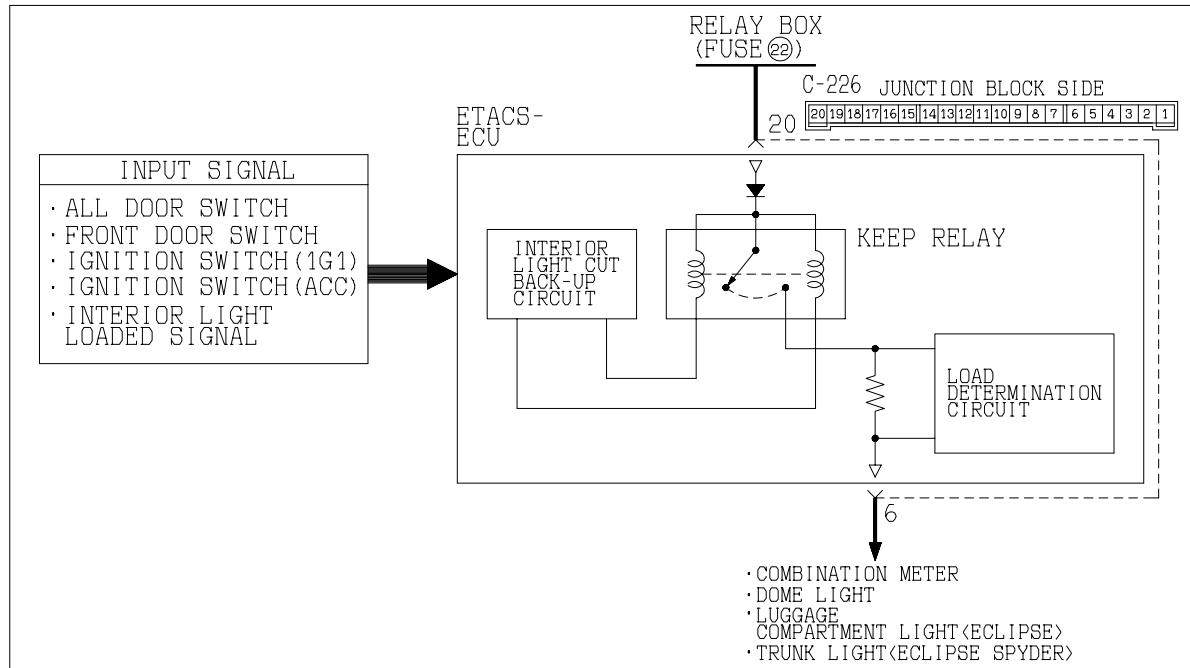
- NO :**
- Scan tool MB991502 does not sound when the ignition key is removed and reinserted.: Refer to Inspection Procedure N-1 "ETACS-ECU does not receive a signal from the key reminder switch [P.54Bc-45](#)."
 - When one of the doors is opened and closed, scan tool MB991502 does not sound: Refer to Inspection Procedure N-4 "ETACS-ECU does not receive a signal from all the door switches [P.54Bc-60](#)."
 - When one of the interior lights is illuminated, scan tool MB991502 does not sound: Refer to Inspection Procedure N-10 "ETACS-ECU does not receive a interior light loaded signal [P.54Bc-101](#)."

INSPECTION PROCEDURE L-4: Interior Light: The interior light automatic shut-down function does not work normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-7."

Interior Light Automatic Shut-down Function Circuit

JUNCTION BLOCK



W3J01M25AA

CIRCUIT OPERATION

The ETACS-ECU operates the interior light automatic shutdown function according to the following switch signals:

- Ignition switch (ACC)
- Ignition switch (IG1)
- Front door switch (LH)
- All door switches
- Interior light loaded signal

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- The door 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
 - MB991502: Scan Tool (MUT-II)
 - MB991862: SWS Monitor Kit
-

STEP 1. Verify the front dome light and the rear dome light <vehicles with sunroof>.

If the front dome light switch and the rear dome light switch <vehicles without sunroof> are moved to the "door interlock position", the front dome light and the rear dome light <vehicles without sunroof> should illuminate when either door is opened.

Q: Do the front dome light and the rear dome light <vehicles with sunroof> illuminate normally?

YES : Go to Step 2.

NO :

- Neither the front dome light nor the rear dome light <vehicles without sunroof> illuminates normally:
Refer to Inspection Procedure L-1 "The front dome light, rear dome light <vehicles without sunroof> and luggage compartment light do not illuminate or go out normally [P.54Bb-401](#)."
- Either the front dome light or the rear dome light <vehicles without sunroof> illuminates normally:
Refer to Inspection Procedure L-2 "The front dome light, rear dome light <vehicles without sunroof> or luggage compartment light does not illuminate or go out normally [P.54Bb-406](#)."

STEP 2. Use scan tool MB991502 to select "ECU COMM CHK" on the SWS monitor display.

Check the ETACS-ECU.

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991502 according to the procedure below to display "ECU COMM CHK."

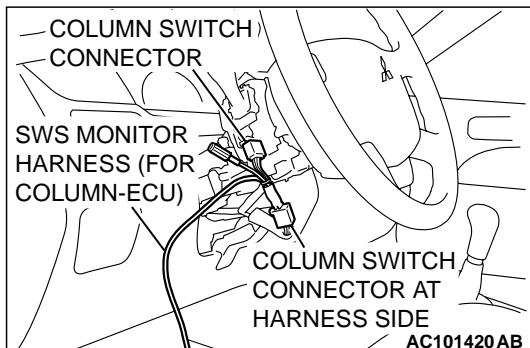
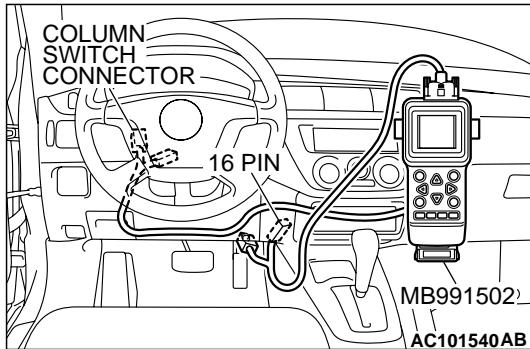
1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "ECU COMM CHK."

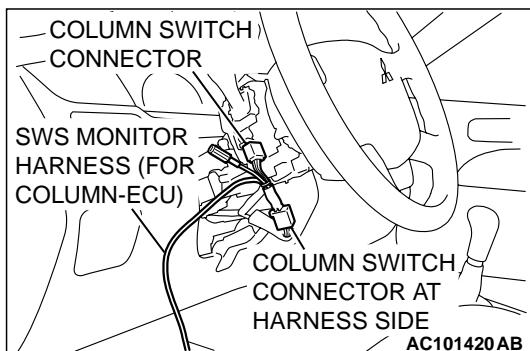
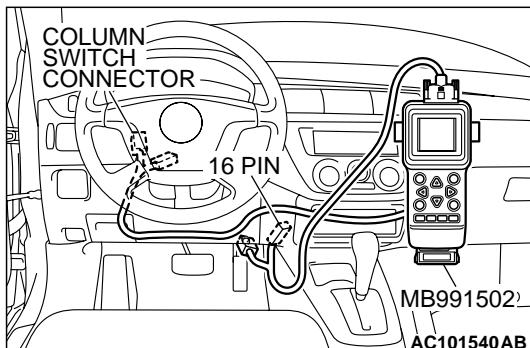
- (5) Scan tool MB991502 should show "OK" on the "ECU COMM CHK" menu for the "ETACS ECU" menu.

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.54Bb-22](#)."





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: OFF
- Driver's and front passenger's door: open

Operate scan tool MB991502 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.

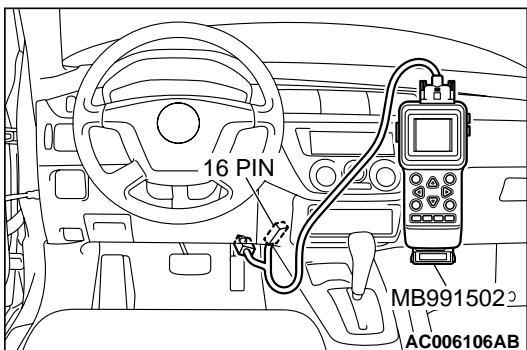
ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 30	IG SW (IG1)	OFF
ITEM 31	IG SW (ACC)	OFF
ITEM 32	FRONT DOOR SW	ON

Q: Does the scan tool display the items "IG SW (IG1)", "IG SW (ACC)" and "FRONT DOOR SW" as normal condition?

YES : Go to Step 4.

NO :

- Normal condition is not displayed for "IG SW (IG1)": Refer to Inspection Procedure M-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) [P.54Bc-6](#)."
- Normal condition is not displayed for "IG SW (ACC)": Refer to Inspection Procedure M-1 "ETACS-ECU does not receive a signal from the ignition switch (ACC) [P.54Bc-4](#)."
- Normal condition is not displayed for "FRONT DOOR SW": Refer to Inspection Procedure M-4 "ETACS-ECU does not receive a signal from the driver's or the front passenger's door switch [P.54Bc-24](#)."



STEP 4. Check the input signal by using the pulse check mode of the monitor.

Check the following switches and input signals:

- Interior light loaded signal

Operate scan tool MB991502 according to the procedure below to display "PULSE CHECK."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

Check if scan tool MB991502 sounds or not.

ITEM NAME	CONDITION
Interior light loaded signal	Illuminate one of the interior lights

Q: Does scan tool MB991502 sound when the interior light loaded signal is operated?

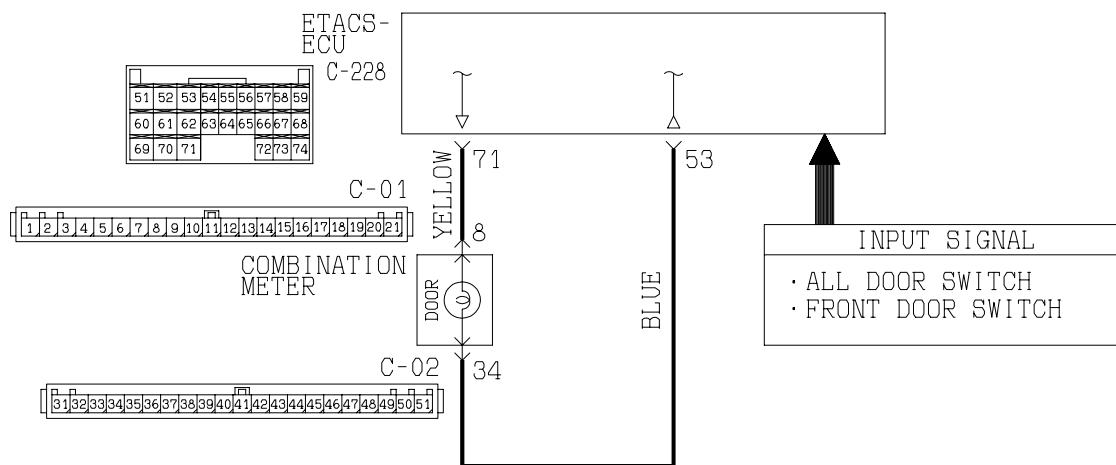
YES : Replace the ETACS-ECU. Verify that the dome light illuminates normally.

NO : Refer to Inspection Procedure N-10 "ETACS-ECU does not receive a interior light loaded signal [P.54Bc-101](#)."

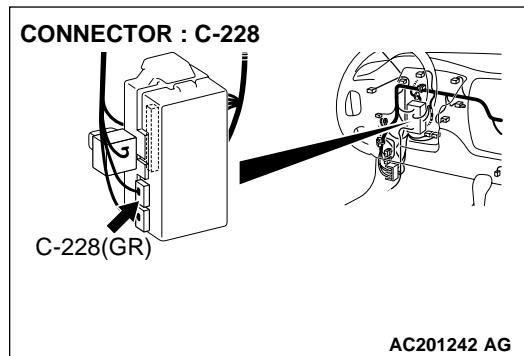
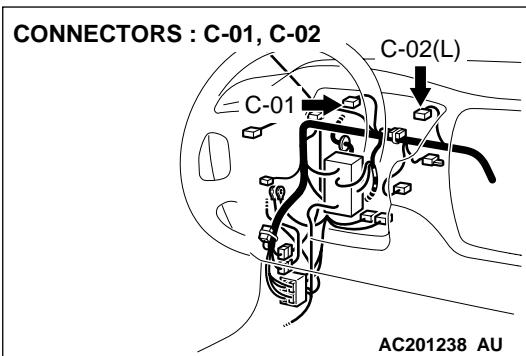
INSPECTION PROCEDURE L-5: Interior Light: The door ajar indicator lights do not illuminate or go out normally

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor [P.54Ba-7](#)."

Door Indicator Light Circuit



W2J08M48AA



CIRCUIT OPERATION

The ETACS-ECU operates the door ajar indicator light according to the following switch signals:

- Front door switch
- All door switches

TECHNICAL DESCRIPTION (COMMENT)

If the door ajar indicator light does not illuminate normally, the input circuit system from the switches or the ETACS-ECU may be defective (refer to "CIRCUIT OPERATION").

TROUBLESHOOTING HINTS

- The door 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
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

STEP 1. Verify the dome light and the rear dome light

<vehicles without sunroof>.

If the dome light switch and the rear dome light switch <vehicles without sunroof> are moved to the "door interlock position", the dome light and the rear dome light <vehicles without sunroof> should illuminate when either door is opened.

Q: Do the dome light and the rear dome light illuminate normally?

Both the dome light and the rear dome light illuminate normally. : Go to Step 2.

Neither the dome light nor the rear dome light illuminates normally. : Refer to Inspection Procedure L-1

"The front dome light, rear dome light <vehicles without sunroof> and luggage compartment light do not illuminate or go out normally [P.54Bb-401](#)."

Either the dome light or the rear dome light illuminates normally. : Refer to Inspection Procedure L-2 "The front dome light, rear dome light <vehicles without sunroof> or luggage compartment light does not illuminate or go out normally [P.54Bb-406](#)."

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

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Connect the DLC harness before connecting the column-ECU harness. Be sure to connect SWS monitor kit MB991862 after turning on scan tool MB991502.

Open the driver's door before checking the input signals from the front door switch (LH).

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate scan tool MB991502 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."
- (4) 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

Q: Is normal condition displayed on the "FRONT DOOR SW"?

YES : Go to Step 3.

NO : Refer to Inspection Procedure M-4 "ETACS-ECU does not receive a signal from the driver's or the front passenger's door switch [P.54Bc-24](#)."

STEP 3. Check the input signal by using the pulse check mode of the monitor.

Check the input signals from all the door switches:

Operate scan tool MB991502 according to the procedure below to display "PULSE CHECK."

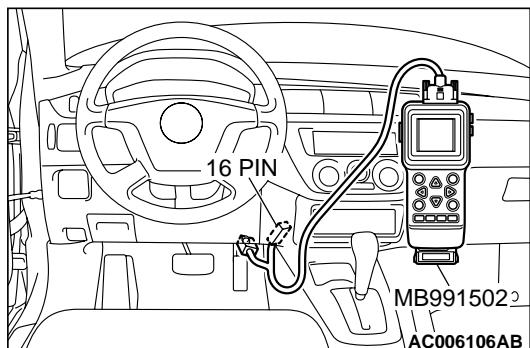
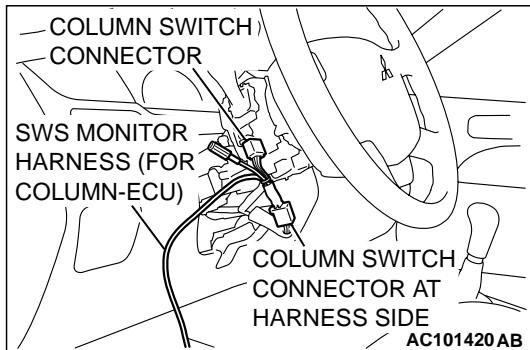
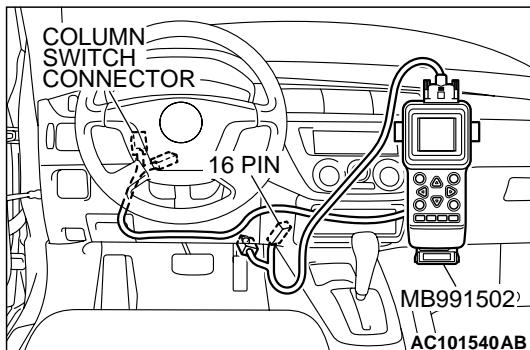
1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

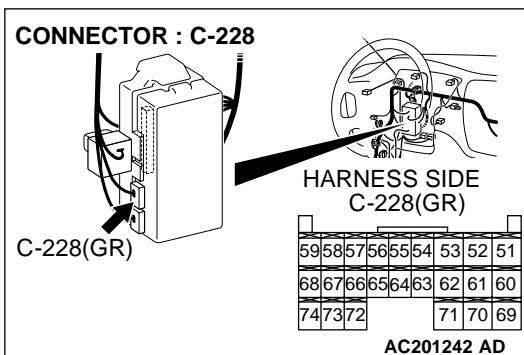
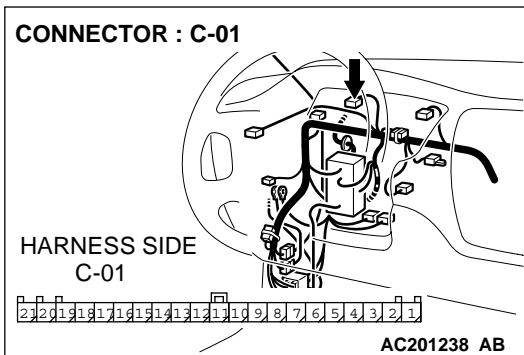
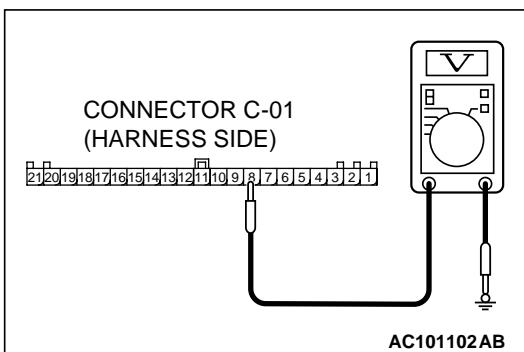
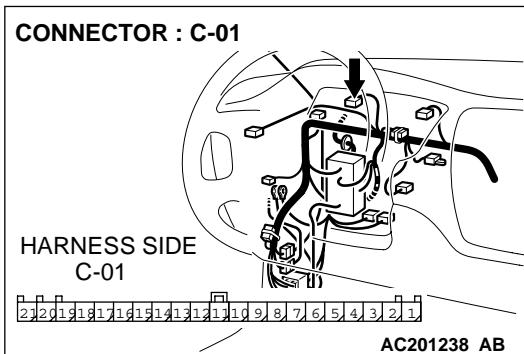
If a door (except front doors) is opened and closed, check if scan tool MB991502 sounds or not.

Q: If a door (except front doors) is opened and closed, does scan tool MB991502 sound?

YES : Go to Step 4.

NO : Refer to Inspection Procedure N-4 "ETACS-ECU does not receive a signal from all the door switches [P.54Bc-60](#)."





STEP 4. Check the battery power supply circuit to the combination meter. Test at combination meter connector C-01.

(1) Disconnect combination meter connector C-01 and measure the voltage available at the harness side of the connector.

(2) Measure the voltage between terminal 8 and ground.

- The voltage should equal 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 5.

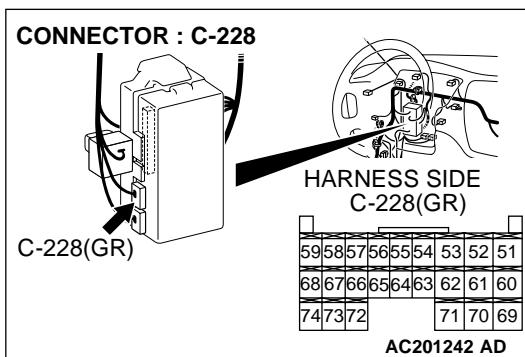
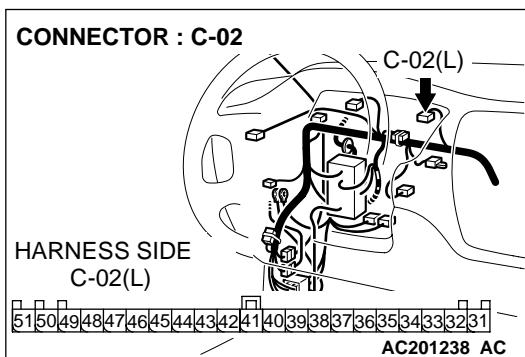
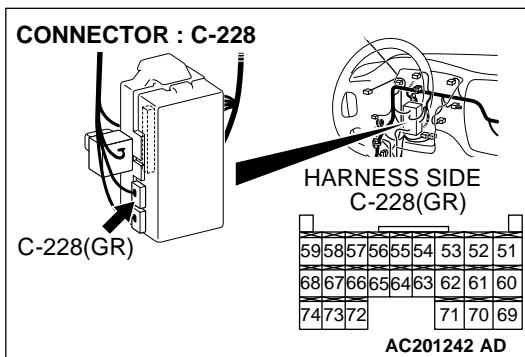
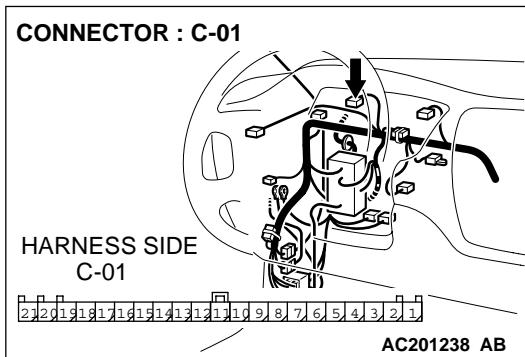
STEP 5. Check combination meter connector C-01 and ETACS-ECU connector C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are combination meter connector C-01 and ETACS-ECU connector C-228 in good condition?

YES : Go to Step 6.

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

P.00E-2. Verify that the door ajar indicator light illuminates normally.



STEP 6. Check the wiring harness between combination meter connector C-01 (terminal 8) and ETACS-ECU connector C-228 (terminal 71).

Q: Is the wiring harness between combination meter connector C-01 (terminal 8) and ETACS-ECU connector C-228 (terminal 71) in good condition?

YES : No action is necessary and testing is complete.

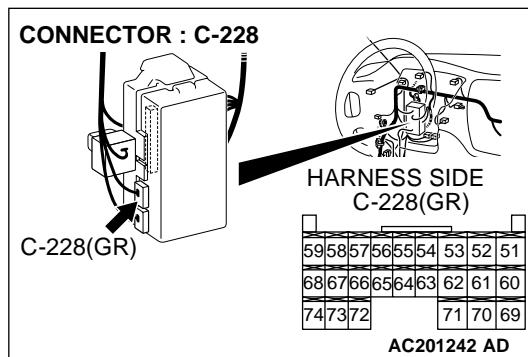
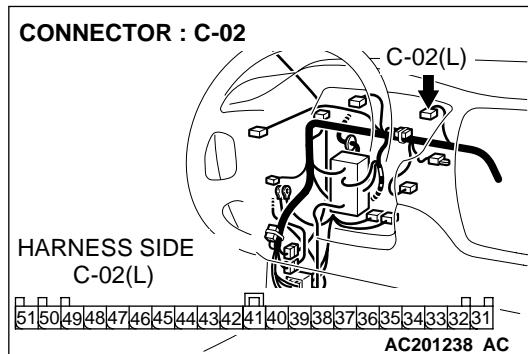
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the door ajar indicator light illuminates normally.

STEP 7. Check combination meter connector C-02 and ETACS-ECU connector C-228 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are combination meter connector C-02 and ETACS-ECU connector C-228 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 door ajar indicator light illuminates normally.



STEP 8. Check the wiring harness between combination meter connector C-02 (terminal 34) and ETACS-ECU connector C-228 (terminal 53).

Q: Is the wiring harness between combination meter connector C-02 (terminal 34) and ETACS-ECU connector C-228 (terminal 53) in good condition?

YES : Replace the ETACS-ECU. Verify that the door ajar 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 door ajar indicator light illuminates normally.